

ANEXOS

ANEXO 1: eIRI VIA EXPRESA DE LIMA

Delimitación de la vía expresa de Lima para medición del eIRI promedio:

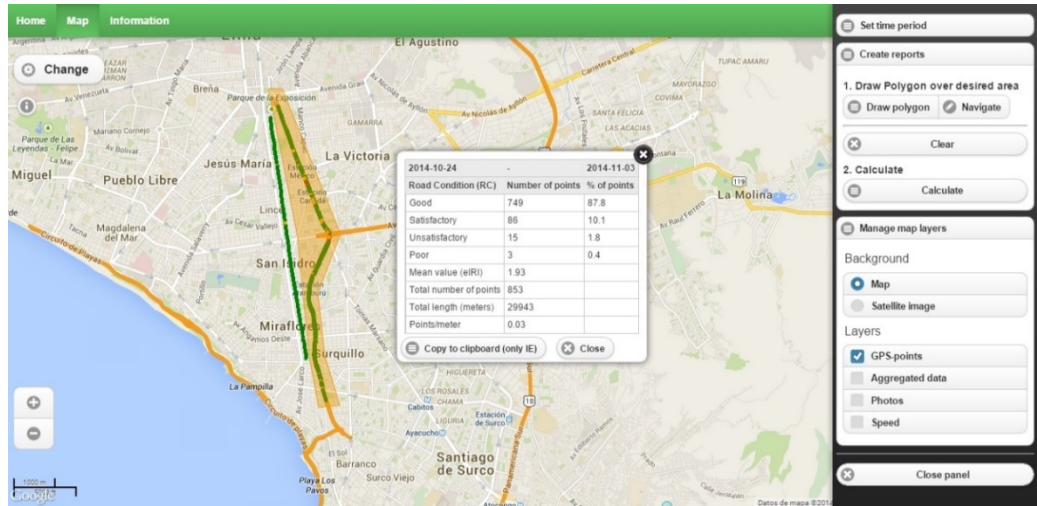


Figura 35. Análisis Vía Expresa de Lima

ANEXO 2: cIRI VIA EXPRESA DE LIMA

Tabla dinámica con muestras de ambos sentidos de la vía expresa ordenada de mayor a menor en cIRI (Promediados a segmentos de 100m):

Tabla a.1: Ensayo Vía Expresa de Lima

DateTime	Latitude	Longitude	Distance(m)	Speed (km/h)	Altitude (m)	eIRI	cIRI
01/11/2014 15:15	- 120,911,635,784,249	- 770,227,952,575,822	3400	58,44	146,95	2,74	3,13
01/11/2014 15:06	- 120,893,792,566,201	- 770,233,354,668,724	4200	53,43	159,46	2,14	3,00
01/11/2014 15:16	- 120,918,482,743,557	- 770,228,720,203,301	3500	59,87	149,26	3,06	2,95
01/11/2014 15:15	- 120,903,286,491,136	- 770,230,428,312,848	3300	58,18	151,73	3,36	2,94
01/11/2014 15:14	- 120,829,319,994,738	- 770,264,819,002,145	2400	53,72	155,23	2,5	2,64
01/11/2014 15:15	- 120,895,807,981,237	- 770,235,140,943,323	3200	59,17	154,07	2,9	2,57
01/11/2014 15:19	- 121,213,872,858,305	- 770,252,454,999,661	6900	71,69	116,72	1,81	2,57
01/11/2014 15:03	- 121,203,811,643,232	- 770,253,120,905,097	600	63,79	119,29	1,82	2,49
01/11/2014 15:16	- 120,935,455,540,258	-7,702,373,925,333	3700	55,82	145,18	1,86	2,46
01/11/2014 15:16	- 120,926,127,222,141	-77,023,187,000,394	3600	62,16	150,33	1,92	2,46
01/11/2014 15:19	-12,125,858,493,507	770,240,826,497,646	7400	67,38	118,93	1,7	2,46
01/11/2014 15:06	- 120,886,426,481,706	- 770,238,671,140,295	4300	56,91	163,94	1,99	2,44
01/11/2014 15:18	- 121,206,311,331,228	- 770,255,027,648,072	6800	68,16	114,53	2,08	2,42
01/11/2014 15:16	- 120,959,001,557,004	- 770,247,918,611,419	4000	68,46	147,2	1,79	2,35
01/11/2014 15:04	- 121,098,612,972,653	- 770,261,335,417,205	1800	57,85	138,36	1,98	2,34
01/11/2014 15:04	- 121,105,711,484,257	- 770,260,149,752,624	1700	64,57	136,24	1,73	2,33
01/11/2014 15:03	- 121,232,033,247,958	- 770,245,413,054,984	300	63,19	119,24	1,92	2,3
01/11/2014 15:17	- 121,028,292,790,395	- 770,274,238,648,311	4800	65,23	139,57	1,52	2,3
01/11/2014 15:05	- 120,992,769,346,589	- 770,260,615,946,827	3000	58,93	149,71	1,6	2,28
01/11/2014	-	-	4000	52,08	159,15	1,93	2,27

15:06	120,911,029,823,525	770,226,554,041,704					
01/11/2014	-	-					
15:03	121,222,045,350,158	770,248,050,522,505	400	60,85	121,00	1,8	2,26
01/11/2014	-	-					
15:15	120,887,928,070,593	-77,024,043,735,236	3100	61,24	157,25	2,48	2,26
01/11/2014	-	-					
15:09	120,685,984,243,671	770,320,102,806,112	6700	54,29	169,73	1,99	2,25
01/11/2014	-	-					
15:13	120,693,863,567,804	770,319,364,450,579	800	66,17	164,66	1,93	2,25
01/11/2014	-	-					
15:17	121,009,462,972,407	770,270,045,128,584	4600	68,68	145,29	1,83	2,25
01/11/2014	-	-					
15:07	120,878,768,202,274	770,242,819,291,258	4400	59,74	166,33	1,87	2,24
01/11/2014	-	-					
15:03	121,238,505,978,604	770,243,926,146,491	200	61,87	118,37	1,95	2,24
01/11/2014	-	-					
15:17	121,017,479,980,423	770,272,073,868,306	4700	67,51	142,02	1,69	2,23
01/11/2014	-	-					
15:19	121,247,323,866,695	770,244,082,409,329	7300	69,3	122,22	2,06	2,21
01/11/2014	-	-					
15:15	120,838,059,956,273	770,261,663,152,276	2500	55,41	154,89	2,03	2,2
01/11/2014	-	-					
15:19	121,223,048,072,917	-77,025,009,640,276	7000	77,09	119,98	1,86	2,19
01/11/2014	-	-					
15:07	120,811,590,503,159	770,269,550,416,183	5200	53,61	165,72	2,03	2,16
01/11/2014	-	-					
15:15	120,845,644,390,503	770,258,503,545,401	2600	56,57	155,47	1,96	2,16
01/11/2014	-	-					
15:09	120,676,975,397,626	770,323,659,462,452	6800	56,93	176,21	2,23	2,16
01/11/2014	-	-					
15:19	121,238,813,220,259	770,246,013,284,673	7200	75,35	124,38	1,97	2,16
01/11/2014	-	-					
15:04	121,114,169,757,906	770,259,241,163,608	1600	69,81	132,79	2,00	2,14
01/11/2014	-	-					
15:15	120,878,631,985,796	770,245,107,673,016	3000	59,06	158,6	2,38	2,13
01/11/2014	-	-					
15:04	121,087,544,003,005	770,262,768,639,579	1900	62,75	137,35	1,68	2,13
01/11/2014	-	-					
15:07	120,869,893,043,868	770,246,314,888,328	4500	57,63	168,2	1,81	2,12
01/11/2014	-	-					
15:14	120,820,345,001,735	-77,026,837,101,904	2300	60,31	155,7	2,08	2,12
01/11/2014	-	-					
15:03	121,186,704,552,539	770,258,964,397,118	800	65,92	122,84	1,61	2,12
01/11/2014	-	-					
15:16	120,953,461,652,651	770,245,883,433,063	3900	69,25	138,99	2,25	2,12
01/11/2014	-	-					
15:06	120,900,982,132,835	770,229,295,396,954	4100	55,43	157,54	2,91	2,11
01/11/2014	-	-					
15:19	121,234,778,036,981	770,247,019,652,933	7100	75,96	122,56	1,57	2,1

01/11/2014 15:07	- 120,802,991,216,486	- 770,273,081,455,014	5300	57,35	170,26	1,76	2,09
01/11/2014 15:16	- 120,971,322,973,591	- 770,253,072,359,846	4100	67,17	151,21	1,94	2,09
01/11/2014 15:08	- 120,777,976,006,066	- 770,283,341,937,809	5600	61,11	170,16	2,45	2,08
01/11/2014 15:13	- 120,702,140,924,837	- 770,316,309,155,926	900	63,64	163,35	1,76	2,07
01/11/2014 15:08	- -12,075,157,721,262	- 770,295,319,898,752	5900	60,97	166,12	1,74	2,06
01/11/2014 15:13	- 120,686,280,832,366	- 770,322,128,981,829	700	67,7	164,96	1,96	2,05
01/11/2014 15:09	- 120,669,424,564,176	- 770,326,986,380,141	6900	55,24	180,92	2,41	2,04
01/11/2014 15:06	- 120,919,310,835,942	- -77,022,749,852,909	3900	58,14	159,24	2,65	2,04
01/11/2014 15:03	- 121,196,792,426,293	- 770,255,787,393,968	700	64,85	120,82	2,22	2,04
01/11/2014 15:15	- 120,854,641,136,204	- -7,702,548,178,003	2700	60,73	161,21	1,92	2,01
01/11/2014 15:06	- 120,927,769,097,147	- 770,230,568,891,199	3800	57,19	160,16	1,94	2,00
01/11/2014 15:05	- 121,000,888,952,635	- 770,264,731,793,867	2900	60,53	144,85	2,08	1,99
01/11/2014 15:08	- 120,769,813,790,118	- 770,287,097,056,546	5700	63,44	167,91	1,7	1,98
01/11/2014 15:13	- 120,736,395,133,834	- 770,303,718,670,939	1300	66,04	151,82	1,87	1,98
01/11/2014 15:16	- 121,002,933,348,307	- 770,267,910,688,655	4500	69,63	145,9	1,94	1,98
01/11/2014 15:14	- 120,785,485,276,605	- 770,282,250,299,493	1900	51,16	164,12	2,73	1,97
01/11/2014 15:14	- 120,769,767,154,349	- 770,289,456,460,202	1700	61,27	156,65	1,55	1,97
01/11/2014 15:09	- 120,659,331,966,897	- 770,331,044,668,405	7000	54,11	174,21	1,78	1,96
01/11/2014 15:16	- 120,945,659,905,878	- 770,241,994,377,482	3800	68,32	139,91	1,8	1,96
01/11/2014 15:06	- 120,951,807,050,682	- 770,241,575,359,073	3500	56,26	154,11	1,91	1,95
01/11/2014 15:05	- 120,984,571,784,833	- 770,257,041,774,619	3100	59,67	153,69	1,52	1,94
01/11/2014 15:07	- 120,819,387,207,749	- 770,266,449,823,376	5100	60,22	166,27	2,06	1,93
01/11/2014 15:06	- 120,944,707,514,765	- 770,238,236,637,496	3600	54,65	155,93	2,42	1,92
01/11/2014 15:08	- 120,742,787,552,943	- 770,299,234,328,903	6000	61,71	166,02	1,75	1,92
01/11/2014	-	-	900	65,59	122,93	1,75	1,92

15:03	121,179,029,536,222	770,260,096,169,977					
01/11/2014	-	-					
15:04	121,062,154,342,813	770,271,313,469,303	2200	66,39	141,62	1,71	1,92
01/11/2014	-	-					
15:18	121,131,359,615,573	770,260,352,426,946	6000	71,4	119,11	1,88	1,92
01/11/2014	-	-					
15:17	121,034,514,600,534	770,275,135,052,508	4900	64,95	141,2	1,55	1,91
01/11/2014	-	-					
15:04	-12,108,082,449	770,263,724,910,408	2000	60,27	137,44	1,86	1,9
01/11/2014	-	-					
15:05	121,037,803,015,062	770,273,258,370,465	2500	69,67	133,76	1,74	1,9
01/11/2014	-	-					
15:09	120,693,185,047,279	770,317,380,696,725	6600	54,52	168,41	2,18	1,87
01/11/2014	-	-					
15:13	120,756,609,802,709	770,295,607,317,383	1500	60,28	156,15	1,95	1,87
01/11/2014	-	-					
15:12	120,653,250,628,959	-77,033,413,927,159	300	64,13	159,23	1,74	1,87
01/11/2014	-	-					
15:04	121,122,915,260,918	-77,025,865,973,059	1500	69,59	130,42	1,82	1,87
01/11/2014	-	-					
15:07	120,861,638,429,363	770,249,480,450,846	4600	59,82	170,17	1,91	1,86
01/11/2014	-	-					
15:13	120,746,255,600,324	770,300,065,437,835	1400	62,82	153,97	1,67	1,86
01/11/2014	-	-					
15:14	120,795,613,060,721	770,278,341,196,992	2000	48,11	163,93	2,01	1,85
01/11/2014	-	-					
15:17	121,062,274,994,474	-77,027,363,567,644	5200	66,91	132,91	1,66	1,85
01/11/2014	-	-					
15:06	120,935,295,991,984	770,233,841,605,555	3700	57,48	156,63	1,92	1,84
01/11/2014	-	-					
15:16	120,978,061,539,123	-77,025,622,362,669	4200	64,53	149,13	1,66	1,83
01/11/2014	-	-					
15:14	120,804,700,220,558	770,274,828,886,158	2100	52,22	160,54	1,76	1,82
01/11/2014	-	-					
15:05	121,010,553,077,383	770,268,602,479,338	2800	62,69	141,32	1,65	1,82
01/11/2014	-	-					
15:05	121,026,013,312,019	770,272,330,089,161	2600	69,24	133,94	1,69	1,82
01/11/2014	-	-					
15:09	120,701,592,597,357	770,314,919,712,638	6500	56,45	168,05	1,94	1,81
01/11/2014	-	-					
15:08	120,736,887,780,683	-77,030,140,679,518	6100	61,19	165,47	1,63	1,81
01/11/2014	-	-					
15:03	121,168,016,310,225	770,260,240,988,499	1000	66,07	122,27	1,85	1,81
01/11/2014	-	-					
15:07	120,844,198,091,862	770,256,643,439,751	4800	63,7	168,06	1,76	1,8
01/11/2014	-	-					
15:13	120,712,724,561,219	770,312,438,479,594	1000	63,81	161,00	1,63	1,79
01/11/2014	-	-					
15:03	-12,116,032,260,012	770,259,900,684,852	1100	67,84	122,86	1,9	1,79

01/11/2014	-	-						
15:03	121,212,523,066,567	770,250,471,691,525	500	61,09	120,74	2,55	1,78	
01/11/2014	-	-						
15:07	120,853,050,180,336	770,252,872,952,822	4700	62,37	167,48	2,15	1,78	
01/11/2014	-	-						
15:09	-12,065,018,058,046	770,334,042,090,373	7100	53,00	171,06	2,1	1,76	
01/11/2014	-	-						
15:12	-12,064,314,029,113	770,337,924,604,756	200	65,12	160,93	1,74	1,76	
01/11/2014	-	-						
15:09	120,642,214,158,516	770,336,912,123,506	7200	53,81	170,99	1,81	1,75	
01/11/2014	-	-						
15:13	120,678,675,633,691	770,324,919,127,191	600	62,83	166,94	1,8	1,73	
01/11/2014	-	-						
15:08	120,785,834,908,188	770,280,195,587,655	5500	59,3	172,73	1,78	1,72	
01/11/2014	-	-						
15:14	120,761,400,210,736	770,293,317,146,912	1600	59,86	156,72	1,74	1,71	
01/11/2014	-	-						
15:17	121,052,845,821,993	770,274,894,289,046	5100	66,26	132,75	1,58	1,7	
01/11/2014	-	-						
15:09	-12,063,291,345,183	-77,034,035,550,982	7300	53,57	172,59	1,97	1,69	
01/11/2014	-	-						
15:09	120,709,914,519,586	770,312,026,137,121	6400	58,55	168,55	2,00	1,69	
01/11/2014	-	-						
15:15	120,861,740,184,254	770,252,072,834,623	2800	58,93	161,83	1,84	1,69	
01/11/2014	-	-						
15:05	120,960,196,798,901	770,245,605,931,346	3400	61,98	157,56	2,23	1,69	
01/11/2014	-	-						
15:16	120,993,652,132,945	770,264,008,971,354	4400	70,24	143,89	2,24	1,69	
01/11/2014	-	-						
15:08	120,794,414,964,487	770,276,737,741,925	5400	61,76	172,14	2,05	1,68	
01/11/2014	-	-						
15:13	120,668,426,132,887	770,328,023,054,711	500	62,92	170,44	1,76	1,68	
01/11/2014	-	-						
15:18	121,196,554,225,941	770,258,500,090,538	6700	66,23	115,11	1,75	1,68	
01/11/2014	-	-						
15:04	121,054,603,663,493	770,273,130,779,402	2300	68,16	139,53	1,82	1,68	
01/11/2014	-	-						
15:17	121,073,122,622,366	770,269,552,900,148	5300	66,47	133,62	1,7	1,67	
01/11/2014	-	-						
15:18	121,142,406,207,411	770,260,946,620,741	6100	67,2	121,98	1,61	1,67	
01/11/2014	-	-						
15:12	120,660,083,477,137	770,331,768,749,273	400	56,65	166,69	1,75	1,66	
01/11/2014	-	-						
15:08	120,760,562,695,976	770,291,230,298,813	5800	63,35	168,39	1,71	1,66	
01/11/2014	-	-						
15:16	120,987,827,020,722	770,261,094,036,231	4300	64,89	146,25	1,54	1,66	
01/11/2014	-	-						
15:18	121,122,267,876,063	770,260,490,483,436	5900	72,73	121,31	1,81	1,65	
01/11/2014	-	-						
			2100	64,38	139,88	1,73	1,64	

15:04	121,071,421,398,715	770,267,044,298,719					
01/11/2014	-						
15:13	120,728,107,833,299	-77,030,709,256,195	1200	65,17	152,11	2,45	1,62
01/11/2014	-						
15:05	121,017,617,368,229	-77,027,069,753,958	2700	68,7	136,94	1,49	1,62
01/11/2014	-						
15:05	-12,104,664,643,792	770,273,376,875,741	2400	70,83	136,32	1,77	1,62
01/11/2014	-						
15:15	120,870,252,935,898	-77,024,871,578,117	2900	56,16	161,53	2,27	1,6
01/11/2014	-						
15:17	121,048,687,003,732	-77,027,501,712,606	5000	66,04	136,17	1,48	1,6
01/11/2014	-						
15:13	120,719,934,185,437	770,309,754,840,084	1100	64,4	154,32	2,04	1,59
01/11/2014	-						
15:08	120,727,070,978,438	770,305,512,152,528	6200	61,01	165,3	1,77	1,58
01/11/2014	-						
15:07	120,828,667,042,856	770,262,671,667,788	5000	63,05	168,05	1,87	1,58
01/11/2014	-						
15:05	120,966,886,404,794	770,248,847,493,213	3300	63,14	159,72	1,86	1,58
01/11/2014	-						
15:04	-12,114,376,428,717	770,258,738,636,421	1300	70,46	128,51	1,87	1,58
01/11/2014	-						
15:14	120,776,708,993,242	770,286,302,959,826	1800	57,77	157,92	1,82	1,57
01/11/2014	-						
15:08	120,718,109,995,611	770,309,079,071,571	6300	58,92	166,77	1,7	1,56
01/11/2014	-						
15:04	121,134,288,842,629	770,258,443,795,357	1400	69,98	130,16	1,78	1,54
01/11/2014	-						
15:14	120,813,146,361,708	770,271,237,867,647	2200	54,22	157,49	2,54	1,53
01/11/2014	-						
15:07	120,834,761,711,543	770,260,317,937,935	4900	63,17	169,54	1,77	1,48
01/11/2014	-						
15:17	121,081,370,647,894	770,266,135,695,882	5400	65,43	130,76	1,51	1,46
01/11/2014	-						
15:03	-12,115,212,392,378	770,259,383,073,415	1200	69,56	125,28	1,88	1,46
01/11/2014	-						
15:18	121,153,716,569,505	770,261,754,804,574	6200	64,47	124,54	1,31	1,44
01/11/2014	-						
15:17	121,090,578,831,673	770,264,155,107,911	5500	68,52	128,87	1,63	1,41
01/11/2014	-						
15:17	121,105,011,500,561	770,262,770,009,081	5700	69,18	124,2	1,57	1,39
01/11/2014	-						
15:17	121,098,706,994,378	770,263,363,324,343	5600	69,26	127,86	1,73	1,37
01/11/2014	-						
15:18	121,113,176,881,784	770,261,818,812,394	5800	71,77	121,97	1,6	1,34
01/11/2014	-						
15:05	120,975,769,381,397	770,253,074,027,908	3200	62,54	158,87	1,77	1,33
01/11/2014	-						
15:18	121,159,198,818,586	770,262,245,293,737	6300	64,98	126,33	1,23	1,05

01/11/2014 15:18	- 121,188,710,963,709	-77,026,044,130,792	6600	64,79	115,49	2,32	1,00
01/11/2014 15:18	- 121,171,323,624,678	- 770,262,944,032,562	6400	65,02	123,49	1,2	0,94
01/11/2014 15:18	- 121,178,224,021,527	- 770,262,595,832,687	6500	65,85	116,98	1,77	0,76
01/11/2014 15:12	-12,063,498	-77,034,073	100	61,85	163,32	1,97	0,49
01/11/2014 15:02	-12,124,851	-7,702,419	100	58,83	118,74	1,73	0,32



ANEXO 3: COMPARACIÓN DISTRITAL

Visualización de las muestras en un usuario Roadroid, en este caso con las tres primeras muestras realizadas con el Roadroid en ambos sentidos de la avenida Arequipa y Petit Thouars.

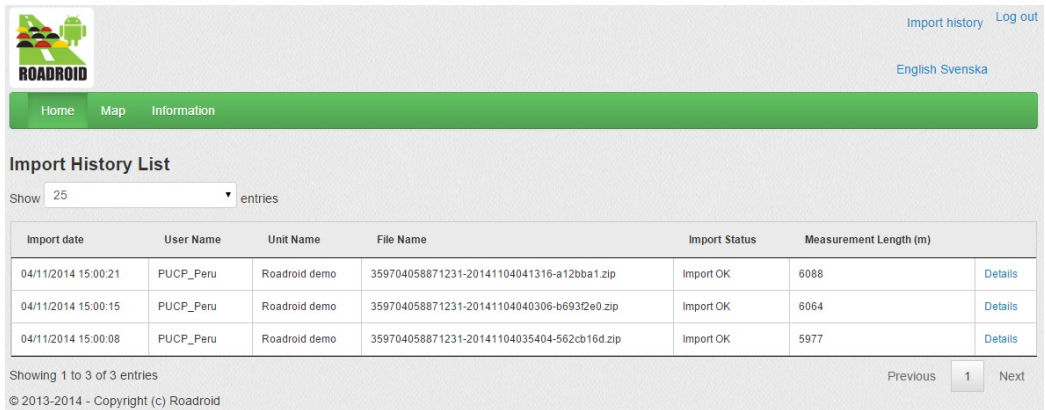


Figura 34. Listado de muestras importadas

Delimitación de áreas para medición del eIRI promedio en **Miraflores**:

- Avenida Arequipa

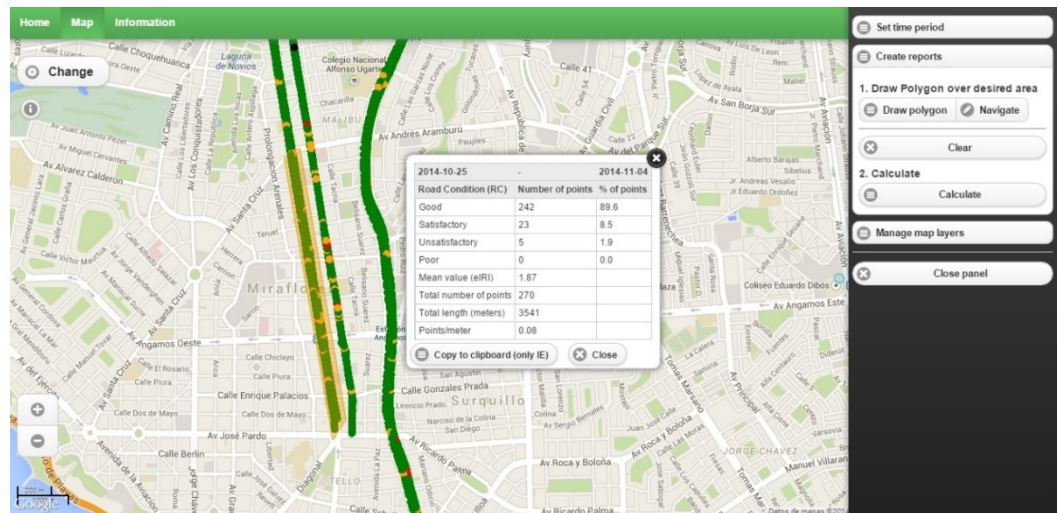


Figura 35. Análisis avenida Arequipa en el distrito de Miraflores

- Avenida Petit Thouars

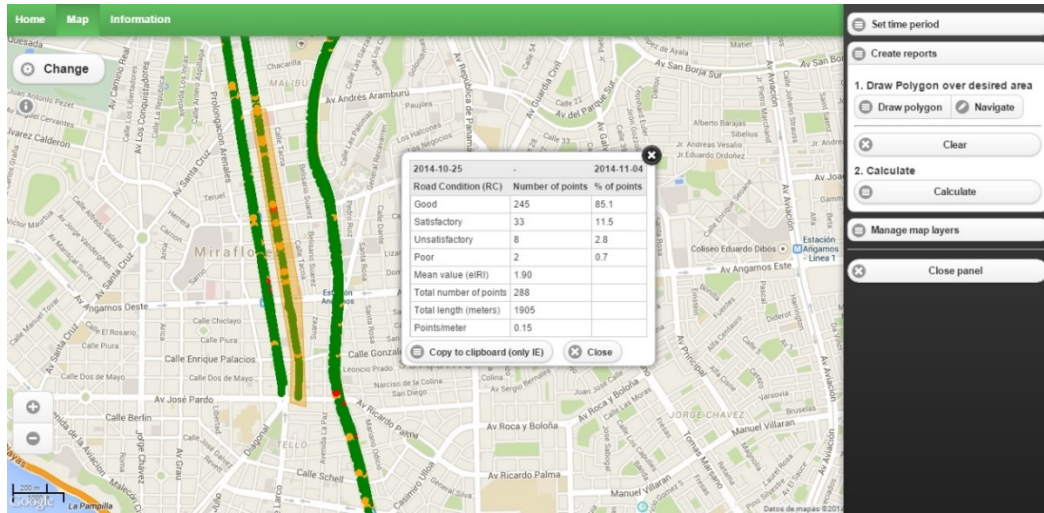


Figura 36. Análisis avenida Petit Thouars en el distrito de Miraflores

- Ambas Avenidas

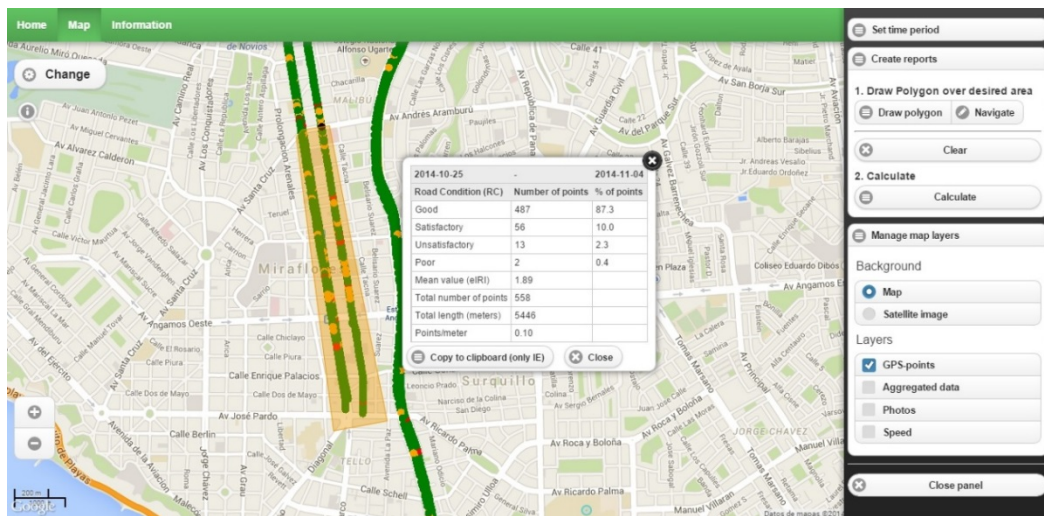


Figura 37. Análisis ambas avenidas en el distrito de Miraflores

Delimitación de áreas para medición del eIRI promedio en **San Isidro**:

- Avenida Arequipa

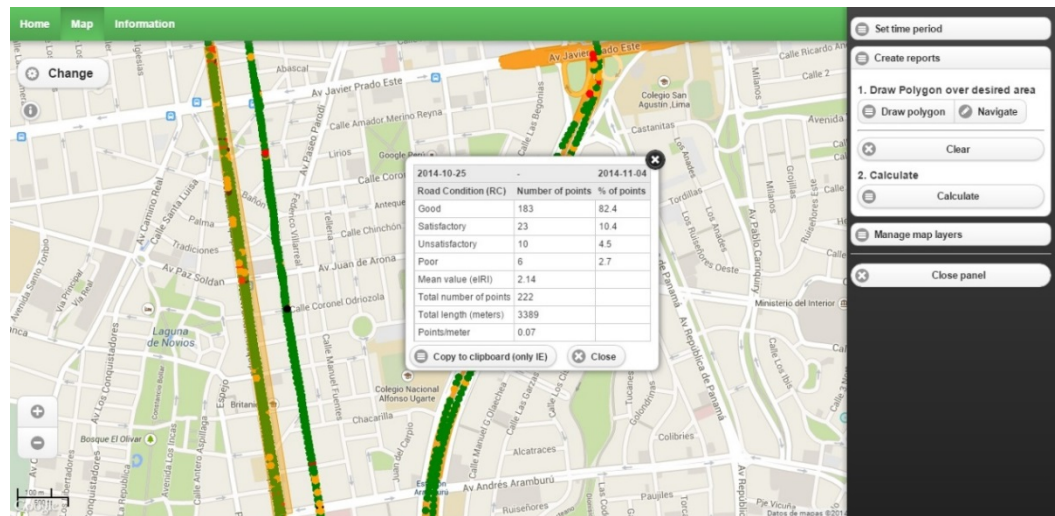


Figura 38. Análisis avenida Arequipa en el distrito de San Isidro

- Avenida Petit Thouars

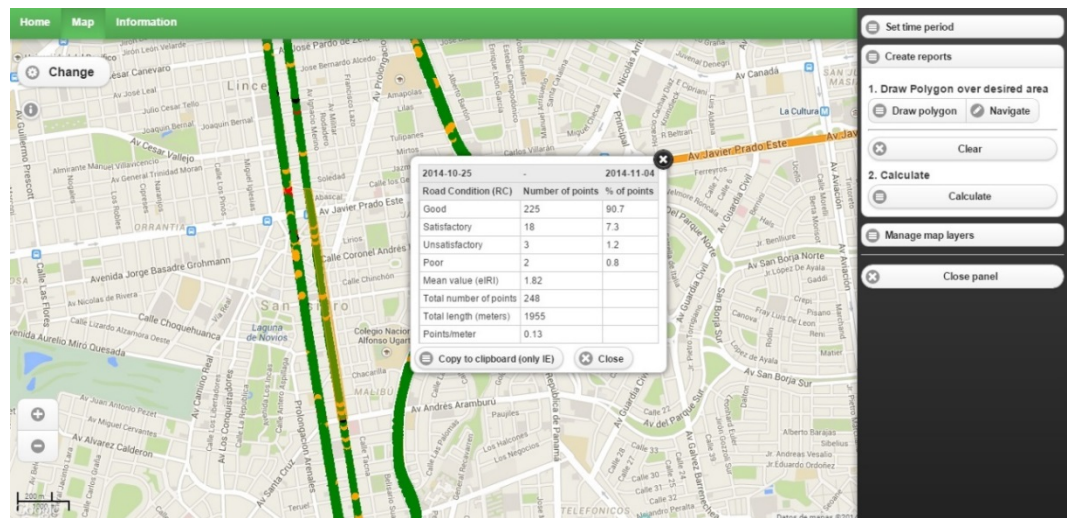


Figura 39. Análisis avenida Petit Thouars en el distrito de San Isidro

- Ambas Avenidas

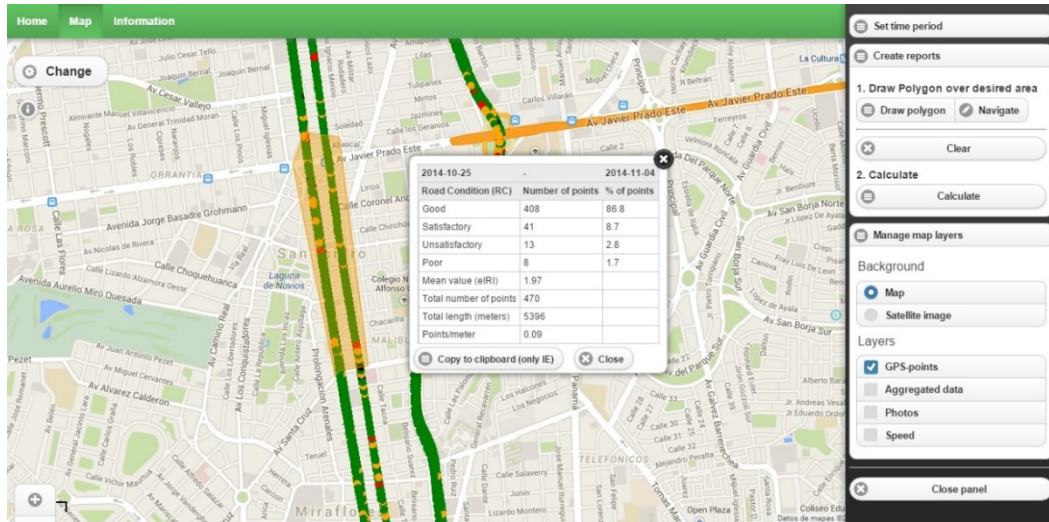


Figura 40. Análisis ambas avenidas en el distrito de San Isidro

Delimitación de áreas para medición del eIRI promedio en Lince:

- Avenida Arequipa

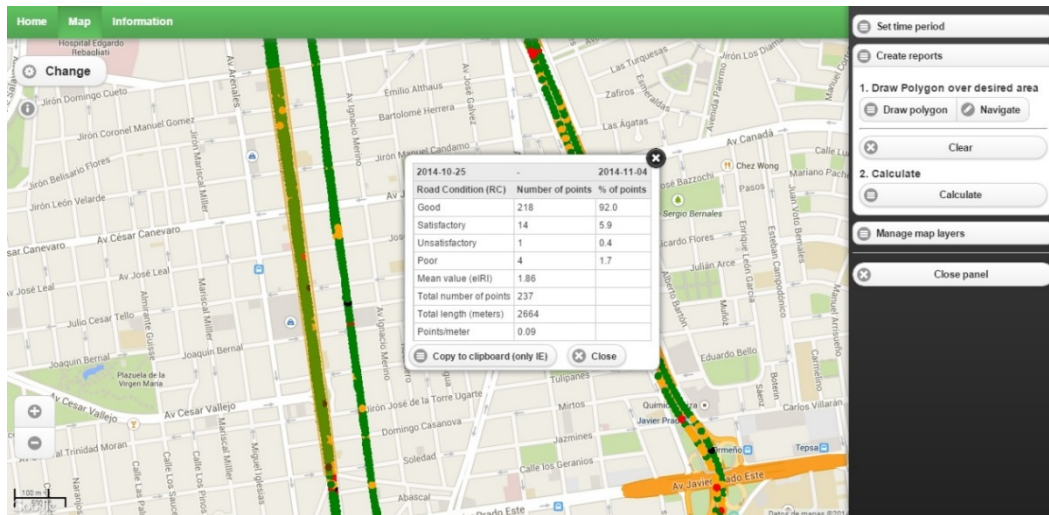


Figura 41. Análisis avenida Arequipa en el distrito de Lince

- Avenida Petit Thouars

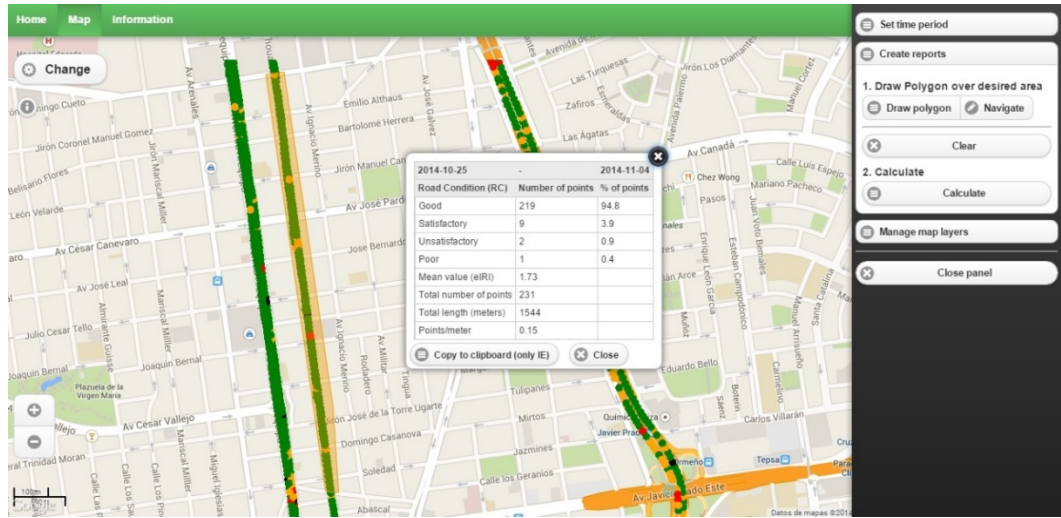


Figura 42. Análisis avenida Petit Thouars en el distrito de Lince

- Ambas Avenidas

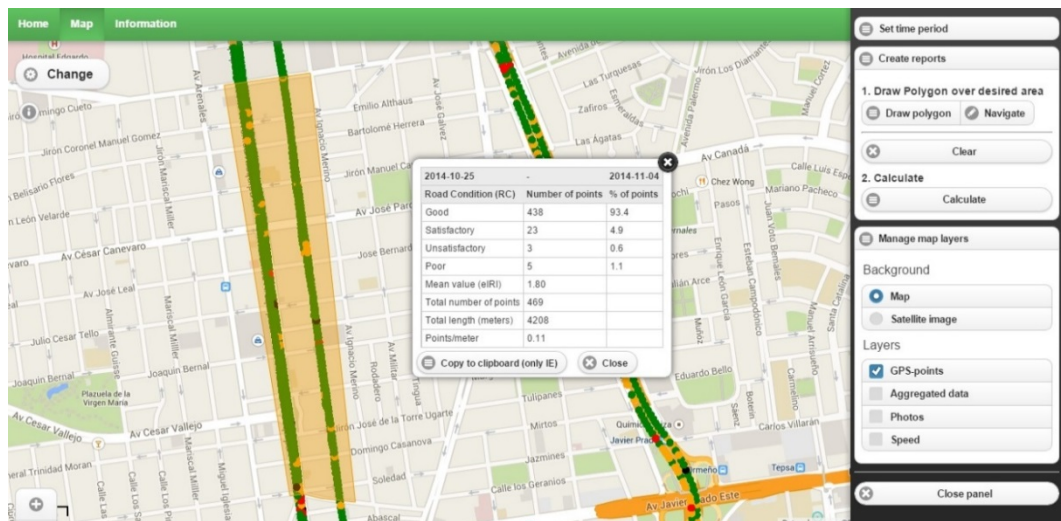


Figura 43. Análisis ambas avenidas en el distrito de Lince

Delimitación de áreas para medición del eIRI promedio en el Cercado de Lima:

- Avenida Arequipa

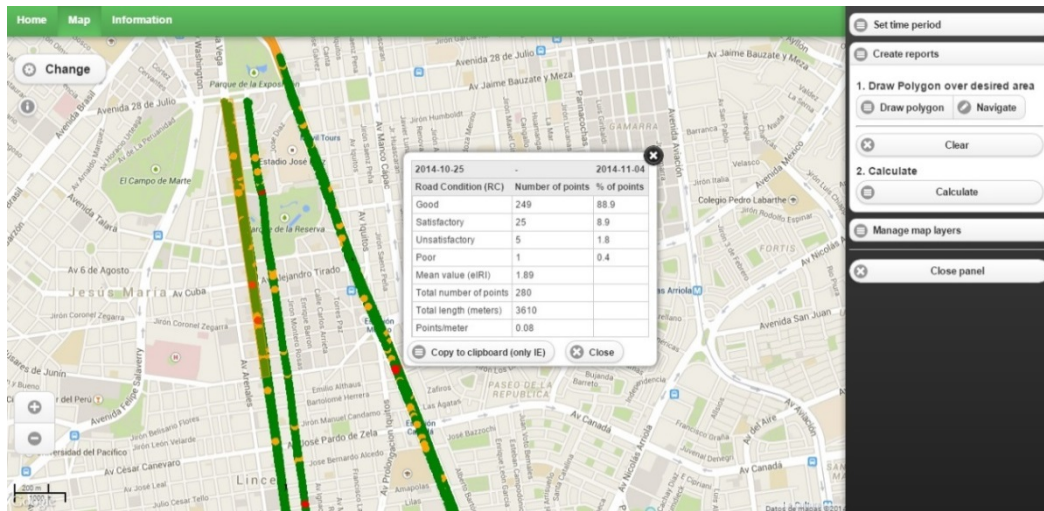


Figura 44. Análisis avenida Arequipa en el distrito de Lince

- Avenida Petit Thouars

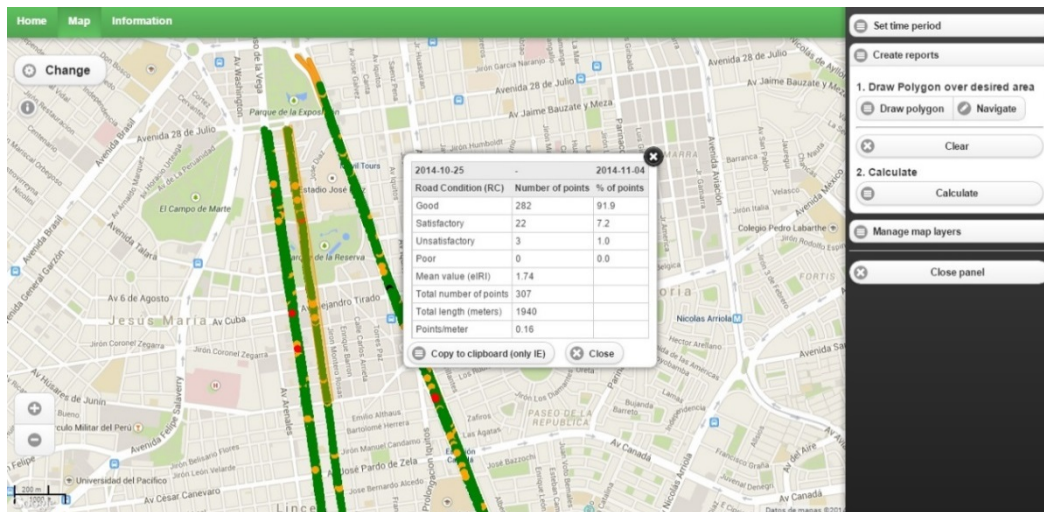


Figura 45. Análisis avenida Petit Thouars en el distrito de Cercado de Lima

- Ambas Avenidas

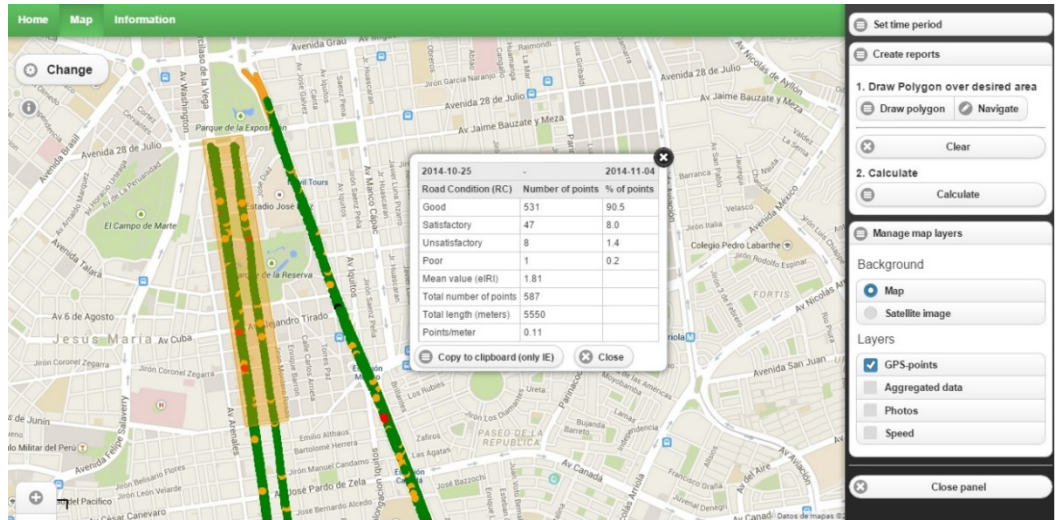


Figura 46. Análisis ambas avenidas en el distrito de Cercado de Lima

ANEXO 4: VELOCIDAD NO CONSTANTE

Medición en la Avenida Petit Thouars con cambios excesivos de velocidad:

Tabla a.2: Ensayo av. Petit Thouars a velocidad no constante

DateTime	Latitude	Longitude	Distance(m)	Speed (km/h)	Altitude (m)	eIRI	clRI
05/11/2014 17:49	-12,118,596	-77,028,158	100	30,88	126,84	1,75	0,92
05/11/2014 17:49	-121,176,962,698,858	-770,281,529,124,217	200	18,53	127,32	1,5	0,43
05/11/2014 17:50	-121,168,178,425,374	-770,281,894,588,955	300	40,18	123,15	2,24	1,39
05/11/2014 17:51	-121,158,914,492,156	-770,283,424,556,647	400	38,75	125,24	1,86	1,36
05/11/2014 17:51	-121,150,652,885,306	-770,284,644,940,722	500	19,9	125,14	1,48	1,02
05/11/2014 17:51	-121,141,481,694,208	-770,286,309,152,896	600	25,78	124,25	2,07	0,75
05/11/2014 17:52	-121,133,115,007,904	-770,287,740,407,195	700	35,19	122,04	1,79	1,45
05/11/2014 17:52	-121,122,990,209,078	-770,289,309,628,737	800	36,95	123,23	1,97	1,46
05/11/2014 17:52	-12,111,359,389,257	-770,290,712,189,845	900	40,29	122,68	1,87	1,19
05/11/2014 17:52	-121,106,527,953,337	-770,291,960,388,866	1000	42,07	123,56	1,81	1,54
05/11/2014 17:52	-121,096,564,984,959	-77,029,387,700,234	1100	32,11	125,06	1,63	1,17
05/11/2014 17:52	-12,108,819,814,493	-770,295,388,642,512	1200	19	126,54	1,44	0,62
05/11/2014 17:53	-121,079,287,412,043	-770,297,324,719,789	1300	29,89	128,42	1,73	0,84
05/11/2014 17:53	-121,069,889,102,804	-770,298,750,009,701	1400	23,38	130,15	1,48	0,86
05/11/2014 17:54	-121,061,681,588,508	-770,300,210,994,452	1500	28,16	129,95	1,4	0,96
05/11/2014 17:54	-121,052,420,342,432	-770,301,633,222,919	1600	15,92	133,22	1,31	0,38
05/11/2014 17:55	-121,043,320,462,168	-770,303,055,648,262	1700	21,08	141,97	1,74	0,42
05/11/2014 17:56	-121,034,527,744,665	-770,303,569,306,638	1800	23,54	137,84	1,68	1,14
05/11/2014 17:56	-121,025,489,682,513	-770,305,567,711,816	1900	34,96	135,21	1,52	1,16
05/11/2014 17:56	-121,016,974,351,798	-770,307,389,742,809	2000	46,04	136,03	1,55	1,43
05/11/2014 17:56	-121,007,551,776,531	-770,309,265,407,603	2100	26,14	137,64	1,56	1,2
05/11/2014 17:57	-120,999,589,776,334	-770,310,528,265,367	2200	26,73	135,84	1,79	0,86
05/11/2014 17:57	-120,989,759,470,217	-77,031,230,030,533	2300	43,81	136,16	1,69	1,68
05/11/2014 17:57	-120,980,782,071,006	-770,313,634,836,612	2400	26,43	136,4	1,96	1,25
05/11/2014 17:58	-120,971,647,609,481	-770,314,889,794,795	2500	26,77	134,68	1,73	0,82
05/11/2014 17:58	-120,963,178,873,271	-770,316,585,949,212	2600	34,32	135,9	1,67	1,28
05/11/2014 17:58	-120,954,502,384,411	-770,317,543,945,084	2700	27,5	137,63	1,65	1,07
05/11/2014 17:58	-120,945,954,741,209	-77,031,846,524,858	2800	34,76	136,48	1,73	1,12
05/11/2014 17:59	-120,935,547,732,637	-770,320,156,617,971	2900	33,54	138,47	1,96	1,33
05/11/2014 17:59	-120,927,724,094,631	-770,321,176,730,201	3000	23,96	141,2	2,08	0,95
05/11/2014 18:03	-120,918,080,110,121	-770,322,590,638,561	3100	46,19	139,56	1,8	1,62
05/11/2014 18:03	-12,091,064,541,304	-770,323,762,917,097	3200	45,89	141,61	1,93	1,66
05/11/2014 18:03	-120,901,613,998,828	-770,324,755,634,966	3300	49,69	143,63	1,72	1,76
05/11/2014 18:03	-120,892,594,903,493	-770,326,189,299,501	3400	56,19	143,94	1,66	1,82
05/11/2014 18:03	-120,882,519,878,206	-770,327,599,803,281	3500	29,43	144,86	1,59	1,02
05/11/2014 18:04	-1,208,739,280,767	-770,328,755,903,039	3600	34,08	140,7	1,57	0,98
05/11/2014 18:04	-120,864,302,357,278	-770,330,151,937,578	3700	43,4	138,92	1,77	1,43
05/11/2014 18:05	-120,855,516,188,478	-770,331,392,719,316	3800	54,35	141,87	1,59	1,65

05/11/2014 18:05	-120,848,022,011,039	-770,332,568,463,312	3900	50,17	144,71	2,23	2,47
05/11/2014 18:05	-120,837,381,704,853	-770,333,829,033,384	4000	30,7	144,05	1,64	1,11
05/11/2014 18:06	-120,829,348,795,005	-770,334,903,239,134	4100	38,11	144,58	2,08	1,47
05/11/2014 18:06	-120,819,568,398,545	-770,336,753,604,827	4200	40,32	147,2	2,02	1,55
05/11/2014 18:06	-120,810,210,833,861	-770,338,117,701,305	4300	40,91	147,33	2,91	2,03
05/11/2014 18:06	-120,801,141,867,172	-770,339,491,430,641	4400	40,29	147,44	1,81	1,68
05/11/2014 18:06	-120,794,255,572,831	-770,340,533,954,875	4500	29,59	149,41	2,16	1,51
05/11/2014 18:07	-120,784,411,946,019	-770,341,933,796,256	4600	17,67	151,4	1,79	0,45
05/11/2014 18:07	-120,774,798,903,023	-770,343,256,131,637	4700	35,6	152,65	1,77	1,51
05/11/2014 18:07	-120,766,283,910,263	-770,344,531,327,364	4800	16,74	153,17	1,42	0,45
05/11/2014 18:08	-120,757,183,097,279	-770,345,586,961,665	4900	21,9	155,77	1,59	0,51
05/11/2014 18:09	-120,749,052,429,167	-770,347,037,168,416	5000	26,9	154,92	1,77	0,99
05/11/2014 18:09	-120,738,853,316,221	-770,348,677,085,472	5100	35,74	157,15	2,08	1,69
05/11/2014 18:09	-120,729,998,903,788	-77,034,996,060,834	5200	42,76	157,51	1,65	1,45
05/11/2014 18:09	-12,072,201,980,425	-770,351,582,422,294	5300	42,71	156,12	1,82	1,37
05/11/2014 18:09	-120,713,922,732,166	-770,352,291,965,249	5400	45,49	156,06	1,85	1,55
05/11/2014 18:10	-120,704,445,783,178	-770,353,101,188,003	5500	41,69	157,83	1,64	1,49
05/11/2014 18:10	-120,695,279,962,492	-770,354,369,600,257	5600	25,7	155,74	1,59	0,91
05/11/2014 18:10	-120,685,681,714,694	-770,356,536,303,882	5700	26,62	156,36	1,87	0,85
05/11/2014 18:10	-120,677,424,167,008	-77,035,808,623,904	5800	24,97	161,96	1,81	1,12
05/11/2014 18:11	-120,667,852,240,778	-770,358,965,929,373	5900	28,98	167,25	2,2	1,14
05/11/2014 18:12	-120,659,091,704,355	-770,360,942,730,433	6000	18,67	167,97	1,59	0,6

ANEXO 5: VELOCIDAD CONSTANTE

Medición en la Avenida Petit Thouars a velocidad constante:

Tabla a.3: Ensayo av. Petit Thouars a velocidad constante

DateTime	Latitude	Longitude	Distance(m)	Speed (km/h)	Altitude (m)	eIRI	cIRI
04/11/2014 04:13	-12,118,992	-77,028,174	100	32,79	115,99	1,91	1,2
04/11/2014 04:13	-121,181,105,825,791	-770,281,496,191,675	200	32,79	116,33	1,77	1,28
04/11/2014 04:13	-121,172,033,602,827	-770,281,513,735,097	300	34,3	116,27	1,85	1,32
04/11/2014 04:13	-121,163,527,989,531	-77,028,257,094,178	400	41,75	115,23	1,63	1,22
04/11/2014 04:13	-121,153,526,798,133	-770,284,288,233,282	500	40,42	116,69	1,66	1,17
04/11/2014 04:14	-121,144,763,515,049	-770,285,766,640,707	600	39,84	117,2	2,01	1,49
04/11/2014 04:14	-121,135,814,230,994	-77,028,743,295,397	700	41,86	118,73	1,87	1,5
04/11/2014 04:14	-121,128,118,217,679	-770,288,602,084,575	800	45,24	117,3	2,64	1,7
04/11/2014 04:14	-121,119,051,741,972	-77,028,997,381,968	900	46,18	118,17	2,3	1,6
04/11/2014 04:14	-121,109,382,991,913	-770,291,635,394,752	1000	44,99	119,54	2,05	1,52
04/11/2014 04:14	-1,211,006,827,906	-770,293,146,220,948	1100	43,86	120,14	2,15	1,53
04/11/2014 04:14	-121,092,248,000,873	-770,294,639,642,701	1200	45,84	119,94	2,72	1,74
04/11/2014 04:15	-121,082,719,476,752	-770,296,406,368,741	1300	43,83	121,36	1,95	1,79
04/11/2014 04:15	-121,074,673,557,404	-770,297,855,635,453	1400	36,00	123,83	1,87	1,71
04/11/2014 04:15	-121,064,064,833,325	-770,299,656,201,962	1500	41,00	125,2	1,79	1,2
04/11/2014 04:15	-121,056,190,700,787	-770,300,880,271,579	1600	45,7	126,72	2,24	1,64
04/11/2014 04:15	-121,046,803,155,321	-77,030,254,128,806	1700	43,35	127,21	2,07	1,51
04/11/2014 04:15	-121,039,065,779,157	-770,303,730,040,897	1800	40,77	126,35	2,82	1,91
04/11/2014 04:15	-121,029,899,847,437	-770,305,227,196,494	1900	44,93	126,99	2,65	1,69
04/11/2014 04:16	-121,020,847,671,108	-770,306,767,868,741	2000	47,82	127,29	2,07	1,99
04/11/2014 04:16	-121,010,615,619,666	-770,308,602,138,748	2100	46,31	128,19	1,74	1,29
04/11/2014 04:16	-121,001,318,333,668	-770,310,086,622,745	2200	45,81	128,23	1,86	1,57
04/11/2014 04:16	-120,994,426,626,334	-770,311,297,901,105	2300	35,38	128,11	1,65	1,22
04/11/2014 04:16	-120,984,194,759,917	-770,313,061,232,187	2400	40,22	129,56	2,15	1,64
04/11/2014 04:16	-120,974,857,773,903	-770,314,516,447,182	2500	29,54	132,85	1,63	1,00
04/11/2014 04:16	-120,966,975,024,154	-770,315,883,842,438	2600	34,16	133,28	1,73	1,37
04/11/2014 04:17	-120,957,243,682,544	-770,317,228,631,746	2700	40,78	133,89	1,62	1,18
04/11/2014 04:17	-120,949,706,170,038	-770,318,062,392,637	2800	40,59	134,03	1,67	1,64
04/11/2014 04:17	-120,940,722,035,807	-770,319,369,809,265	2900	36,67	132,96	2,17	1,33
04/11/2014 04:17	-120,931,518,945,525	-770,320,727,894,942	3000	23,43	134,66	1,86	0,97
04/11/2014 04:17	-120,922,342,402,426	-770,322,175,810,015	3100	30,04	136,91	1,72	0,75
04/11/2014 04:18	-120,914,057,249,747	-770,323,525,723,345	3200	42,66	137,5	1,92	1,77
04/11/2014 04:18	-120,903,820,776,524	-770,324,913,737,432	3300	43,75	137,68	1,98	1,47
04/11/2014 04:18	-120,895,183,342,889	-770,325,988,416,945	3400	43,52	138,4	1,87	1,69
04/11/2014 04:18	-120,886,594,917,735	-770,327,128,708,528	3500	41,04	138,76	1,53	1,1
04/11/2014 04:18	-120,877,306,190,595	-770,328,459,852,038	3600	42,34	139,2	1,71	1,22
04/11/2014 04:18	-120,867,475,336,097	-77,032,981,503,527	3700	45,29	141,06	2,53	1,25
04/11/2014 04:18	-120,860,360,145,379	-770,330,794,108,434	3800	44,17	141,59	2,2	1,45
04/11/2014 04:19	-120,849,715,971,559	-770,332,268,676,342	3900	43,19	141,97	1,88	1,29

04/11/2014 04:19	-120,841,689,018,051	-770,333,335,691,937	4000	42,64	140,96	2,18	1,76
04/11/2014 04:19	-120,831,750,138,321	-77,033,480,998,271	4100	39,5	140,36	1,86	1,42
04/11/2014 04:19	-120,822,973,923,251	-770,336,055,258,923	4200	39,16	141,06	1,76	1,32
04/11/2014 04:19	-120,814,323,829,521	-770,337,207,750,418	4300	21,84	142,81	1,56	0,67
04/11/2014 04:19	-12,080,515,124,206	-770,338,548,126,323	4400	27,29	142,72	1,61	0,92
04/11/2014 04:20	-120,796,344,446,663	-770,339,857,328,228	4500	29,4	144,49	1,66	0,97
04/11/2014 04:20	-120,787,228,027,551	-770,341,389,295,867	4600	30,24	144,96	1,66	1,25
04/11/2014 04:20	-120,778,398,219,319	-770,342,838,345,612	4700	29,83	144,9	1,7	1,07
04/11/2014 04:20	-120,769,464,865,905	-77,034,390,451,341	4800	29,26	147,65	1,68	1,07
04/11/2014 04:20	-12,076,099,684,791	-770,345,254,736,013	4900	30,87	145,21	1,83	1,13
04/11/2014 04:21	-120,751,422,752,104	-77,034,658,568,072	5000	33,45	144,79	1,9	1,27
04/11/2014 04:21	-120,743,836,227,778	-770,347,720,552,032	5100	32,39	147,18	2,12	1,72
04/11/2014 04:21	-120,733,455,902,179	-770,349,145,614,673	5200	32,75	148,14	2,02	1,39
04/11/2014 04:21	-120,725,741,497,695	-770,350,788,890,853	5300	31,01	148,38	1,75	1,21
04/11/2014 04:21	-120,716,298,120,109	-7,703,520,124,764	5400	35,23	149,69	1,64	1,19
04/11/2014 04:22	-120,707,967,089,551	-770,352,684,620,149	5500	37,16	147,7	1,73	1,24
04/11/2014 04:22	-120,698,540,869,833	-770,353,741,178,086	5600	36,03	149,14	2,18	1,33
04/11/2014 04:22	-120,689,319,255,794	-770,355,791,533,284	5700	36,48	150,22	1,79	1,35
04/11/2014 04:22	-120,680,022,670,965	-770,357,422,474,609	5800	40,06	152,74	1,87	1,58
04/11/2014 04:22	-120,671,093,812,383	-770,358,761,368,625	5900	37,33	153,00	1,83	1,42
04/11/2014 04:22	-120,663,487,322,375	-770,359,857,342,387	6000	37,98	154,09	1,83	1,18

ANEXO 6: COMPARACIÓN eIRI y cIRI CON Y SIN INFLUENCIA DEL TRÁFICO EN LAS MEDICIONES

Tabla a.4: Tabla comparativa mediciones con y sin velocidad constante

distancia	sin tráfico		Tráfico	
	eIRI (m/km)	cIRI (m/km)	eIRI (m/km)	cIRI (m/km)
100	1.91	1.20	1.75	0.92
200	1.77	1.28	1.50	0.43
300	1.85	1.32	2.24	1.39
400	1.63	1.22	1.86	1.36
500	1.66	1.17	1.48	1.02
600	2.01	1.49	2.07	0.75
700	1.87	1.50	1.79	1.45
800	2.64	1.70	1.97	1.46
900	2.30	1.60	1.87	1.19
1000	2.05	1.52	1.81	1.54
1100	2.15	1.53	1.63	1.17
1200	2.72	1.74	1.44	0.62
1300	1.95	1.79	1.73	0.84
1400	1.87	1.71	1.48	0.86
1500	1.79	1.20	1.40	0.96
1600	2.24	1.64	1.31	0.38
1700	2.07	1.51	1.74	0.42
1800	2.82	1.91	1.68	1.14
1900	2.65	1.69	1.52	1.16
2000	2.07	1.99	1.55	1.43
2100	1.74	1.29	1.56	1.20
2200	1.86	1.57	1.79	0.86
2300	1.65	1.22	1.69	1.68
2400	2.15	1.64	1.96	1.25
2500	1.63	1.00	1.73	0.82
2600	1.73	1.37	1.67	1.28
2700	1.62	1.18	1.65	1.07
2800	1.67	1.64	1.73	1.12
2900	2.17	1.33	1.96	1.33
3000	1.86	0.97	2.08	0.95
3100	1.72	0.75	1.80	1.62
3200	1.92	1.77	1.93	1.66
3300	1.98	1.47	1.72	1.76
3400	1.87	1.69	1.66	1.82
3500	1.53	1.10	1.59	1.02
3600	1.71	1.22	1.57	0.98
3700	2.53	1.25	1.77	1.43
3800	2.20	1.45	1.59	1.65

3900	1.88	1.29	2.23	2.47
4000	2.18	1.76	1.64	1.11
4100	1.86	1.42	2.08	1.47
4200	1.76	1.32	2.02	1.55
4300	1.56	0.67	2.91	2.03
4400	1.61	0.92	1.81	1.68
4500	1.66	0.97	2.16	1.51
4600	1.66	1.25	1.79	0.45
4700	1.70	1.07	1.77	1.51
4800	1.68	1.07	1.42	0.45
4900	1.83	1.13	1.59	0.51
5000	1.90	1.27	1.77	0.99
5100	2.12	1.72	2.08	1.69
5200	2.02	1.39	1.65	1.45
5300	1.75	1.21	1.82	1.37
5400	1.64	1.19	1.85	1.55
5500	1.73	1.24	1.64	1.49
5600	2.18	1.33	1.59	0.91
5700	1.79	1.35	1.87	0.85
5800	1.87	1.58	1.81	1.12
5900	1.83	1.42	2.20	1.14
6000	1.83	1.18	1.59	0.60

ANEXO 7: FOTOS

Superficies de Rodadura en Colorado, Estados Unidos (Nevadas)



Figura 47. Captura pavimento en Colorado - EEUU

Superficies de Rodadura en Florida, Estados Unidos (Lluvias)



Figura 48. Capturas pavimentos en Florida - EEUU

Apoyo para la aplicación del programa (Equipo de muestreo)



Figura 49. Equipo para el muestreo de la presente tesis

Muestreo en la vía expresa de Lima



Figura 50. Capturas muestreo con Roadroid en la Vía Expresa de Lima

Muestro en la madrugada (bajo volumen de tráfico) y en la avenida Petit Thouars en hora punta (alto volumen de tráfico)



Figura 51. Capturas muestreo con Roadroid en avenida Petit Thouars