



2012 Survey of Road Users from the BC Resource Road Radio Protocol Pilot Final Report

Prepared by

Craig Evans, R.F.T.

Allan Bradley, R.P.F., P.Eng.

FPIinnovations

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Introduction

The Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is piloting a Resource Road (RR) Radio Protocol in three areas of BC under the direction of the BC Radio Communications Working Group. In February 2012, road users in the Pilot areas (South Peace, mid-Vancouver Island, and the Sunshine Coast) were surveyed about their recent experiences with and opinions about the new radio protocol. Engineering Branch, Timber Operations and Pricing, FLNRO provided funding for this survey.

The survey will provide the BC Radio Communications Working Group with a current assessment of the Protocol's effectiveness at improving resource road safety and will support the development of recommendations for implementing the RR radio protocol province wide, with or without changes.

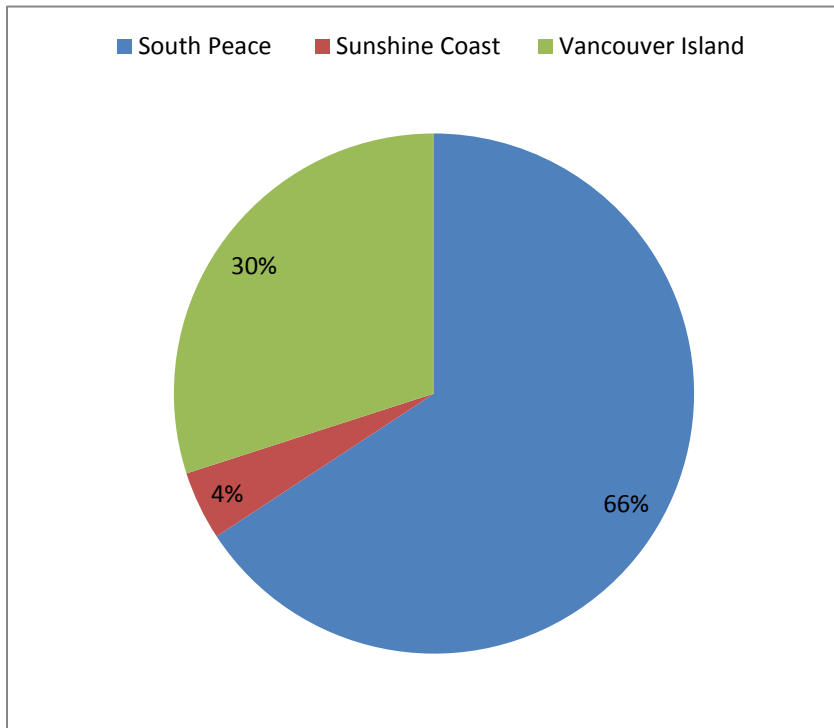
The survey questions were prepared with input from FLNRO engineering staff, and were formulated as a Google document internet-based survey. The survey was distributed to road users in the Pilot areas, on behalf of FPInnovations, by the BC Forest Safety Council and ENFORM. Chetwynd Forest Industries of West Fraser Timber Co. Ltd. also distributed paper copies of the survey to its log haul contractors; FLNRO Engineering Branch also distributed the survey to its staff in the Pilot areas. Feedback could have been solicited from road user group representatives or during field visits to the Pilot areas; however, an internet-based survey was believed to be the most efficient way to survey a large number of road users.

327 survey responses were received from road users. This report provides a statistical summary of their responses to 31 questions, as well as some interpretation of the responses. These interpretations were made in consideration of feedback from road users gathered prior to and after the survey was conducted. This report concludes with a summary of the data trends and interpretations.

Survey Results

Question 1. “You travel on resource roads in the following region:”

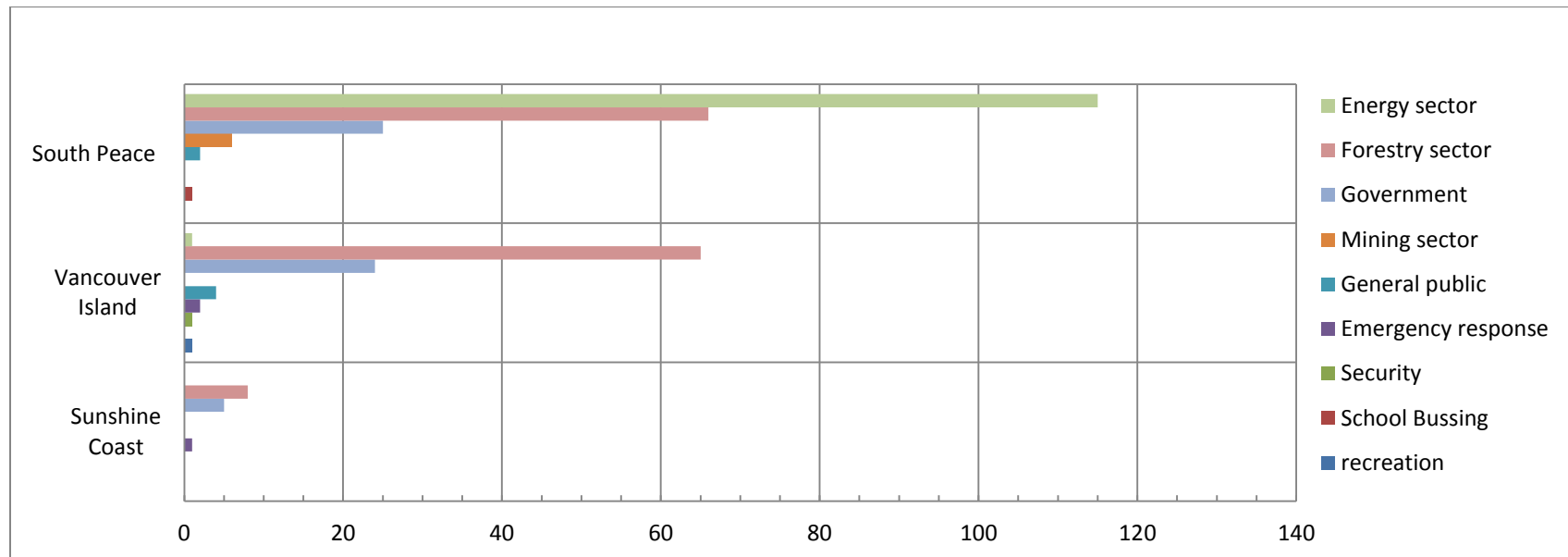
Results and interpretation: Road users in the three Pilot areas were notified about the survey via emails distributed by ENFORM (to energy sector workers in the South Peace) and by the BC Forest Safety Council (to the rest). A small number of respondents did not have access to email or the internet and were sent hard copies of the survey via fax (forestry workers in the South Peace). 327 responses in total were received with 215 (66%) from the South Peace Pilot area and 98 (30%) from the Vancouver Island Pilot area. An additional 14 were received from Sunshine coast respondents.



I travel on resource roads in the following region:	Total	%
South Peace	215	66
Sunshine Coast	14	4
Vancouver Island	98	30
Grand Total	327	100

Question 2. “Your affiliation is:”

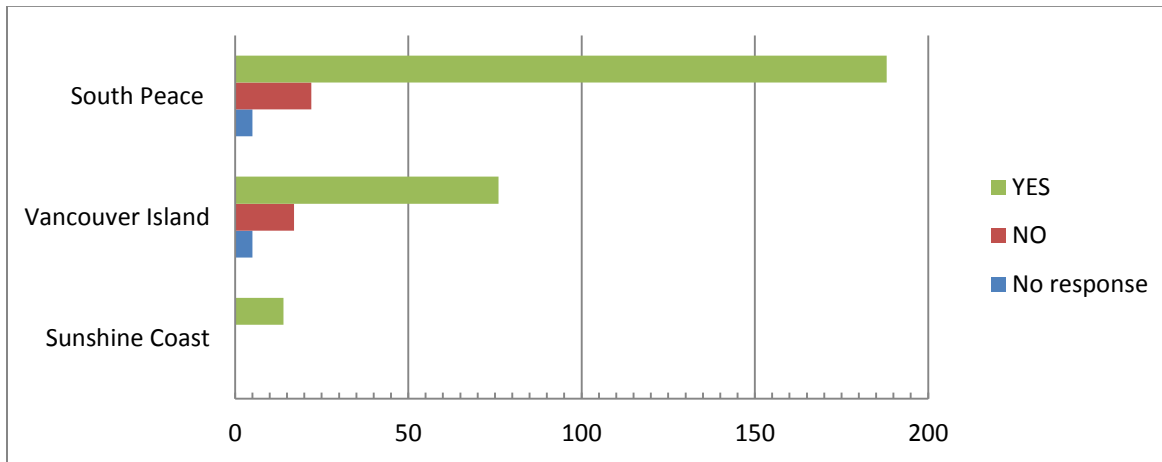
Results and interpretation: Of the 215 respondents from the South Peace Pilot area, 115 (53%) were affiliated with the energy sector, 66 (31%) were affiliated with the forestry sector, and 25 (12%) were from government. The other respondents were affiliated with the mining sector or from the general public; one was a school bus driver. Of the 98 respondents from the Vancouver Island Pilot area, 65 (66%) were affiliated with the forestry sector, 24 (24%) were from government, and only 1 (1%) was affiliated with the energy sector. A similar trend was observed in the Sunshine Coast results.



Your affiliation is:										
	Recreation	School Bussing	Security	Emergency response	General public	Mining sector	Government	Forestry sector	Energy sector	Total
Sunshine Coast				1			5	8		14
Vancouver Island	1		1	2	4		24	65	1	98
South Peace		1			2	6	25	66	115	215
Total	1	1	1	3	6	6	54	139	116	327

Question 3. “Has roadside signage changed in your area?”

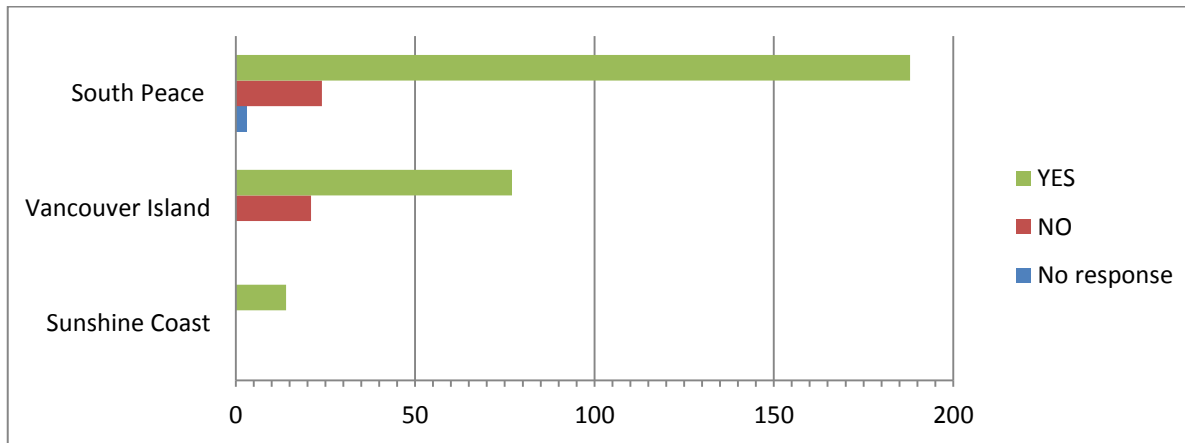
Results and interpretation: This question was intended to identify those survey responses that had been submitted by respondents who were not actively participating in the RR Radio Pilot. That is, the respondents who answered negatively to this query were expected to be either not from the Pilot areas or road users in the Pilot areas that were not aware of or did not use the Resource Road Radio Protocol. However, these assumptions were incorrect and there were some who responded in the negative to this question yet gave responses to other survey questions that indicated they were actively using the RR protocol. These respondents may have been new to the area and may not have known what the previous signage looked like.



Has roadside signage changed in your area?						
	No response	NO	YES	Total	% NO	% YES
Sunshine Coast			14	14	0	100
Vancouver Island	5	17	76	98	18	82
South Peace	5	22	188	215	12	88
Total	10	39	278	327	12	88

Question 4. “Are you aware of the BC Resource Road Radio Pilot?”

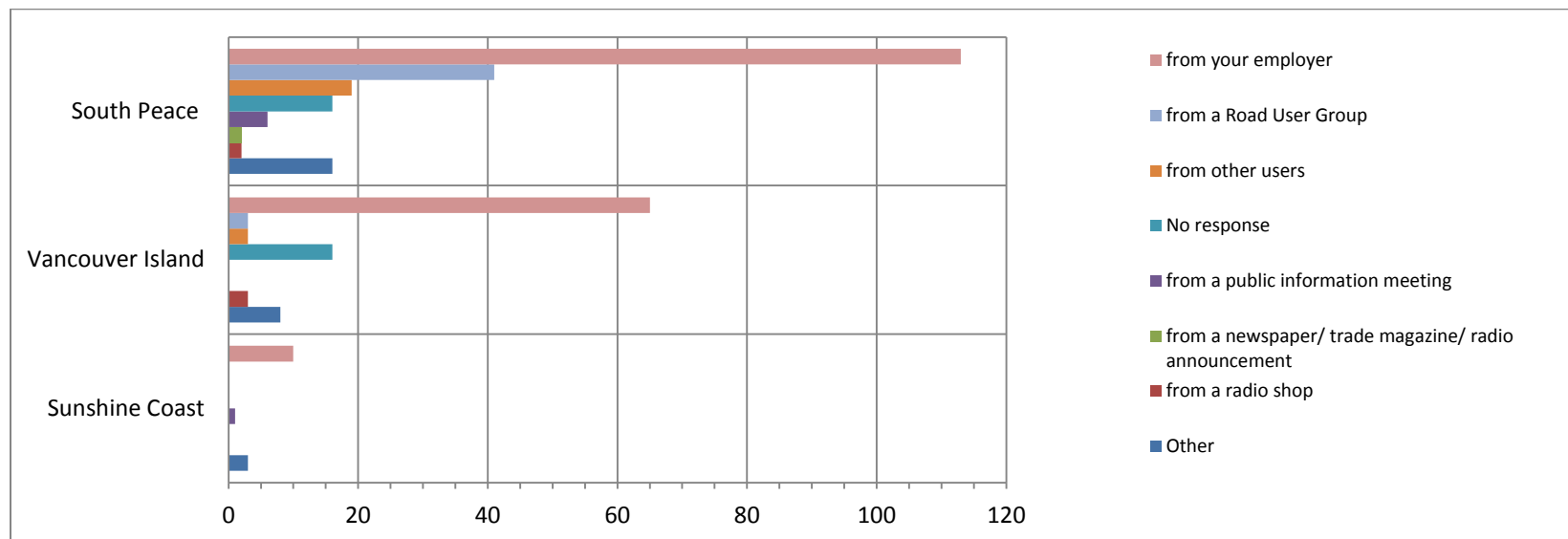
Results and interpretation: This question was also intended to identify those survey responses that had been submitted by respondents who were not actively participating in the RR Radio Pilot. That is, the respondents who answered positively to this query were expected to be both users of roads in the Pilot areas and actively using the Resource Road Radio Protocol. However, these assumptions were incorrect and there were some who responded in the negative to this question yet gave responses to other survey questions that indicated they were actively using the RR protocol. 75% of the South Peace respondents who answered NO to this question were affiliated with the Energy Sector. It is possible that many of these were new to the area and had not been informed that a radio Pilot was taking place. Similarly, 86% of the Vancouver Island NO respondents were affiliated with the forest sector and had probably not been informed that the radio Pilot was taking place.



Are you aware of the BC Resource Road Radio Pilot ?						
	No response	NO	YES	Total	% NO	% YES
Sunshine Coast			14	14	0	100
Vancouver Island		21	77	98	21	79
South Peace	3	24	188	215	11	89
Total	3	45	279	327	14	86

Question 5. “If you were aware of the Radio Pilot, how did you learn about the requirements for travel on the Radio Pilot resource roads (i.e., the RR channels, calling procedures, signage)?”

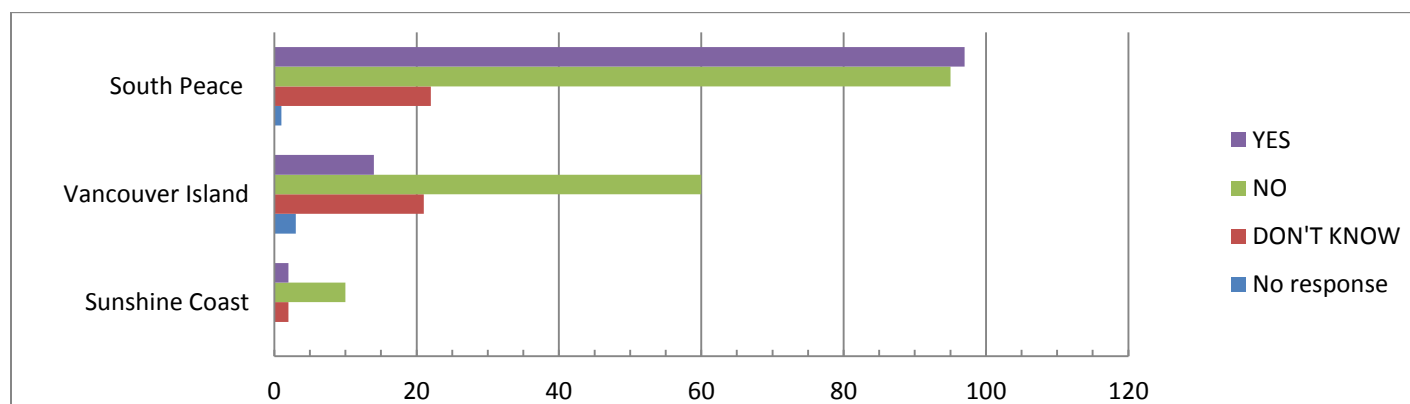
Results and interpretation: The survey identified that the most effective means of informing road users about the new protocol appear was through employers and road user groups. While widely circulated, announcements in local newspapers or trade magazines or broadcast by local radio stations, were not as effective a strategy but may have been if repeated.



If you are aware of the Radio Pilot, how did you learn about the requirements for travel on the Radio Pilot resource roads (i.e., the RR channels, calling procedures, signage)?									
	No response	From a radio shop	From a newspaper/ trade magazine/ radio announcement	From a public information meeting	From other road users	From a Road User Group	From your employer	Other	Total
Sunshine Coast				1			10	3	14
Vancouver Island	16	3			3	3	65	8	98
South Peace	16	2	2	6	19	41	113	16	215
Total	32	5	2	7	22	44	188	27	327

Question 6. “Was a new mobile 2-way radio required for your vehicle as a result of the technical requirements of the narrow band RR Channels?”

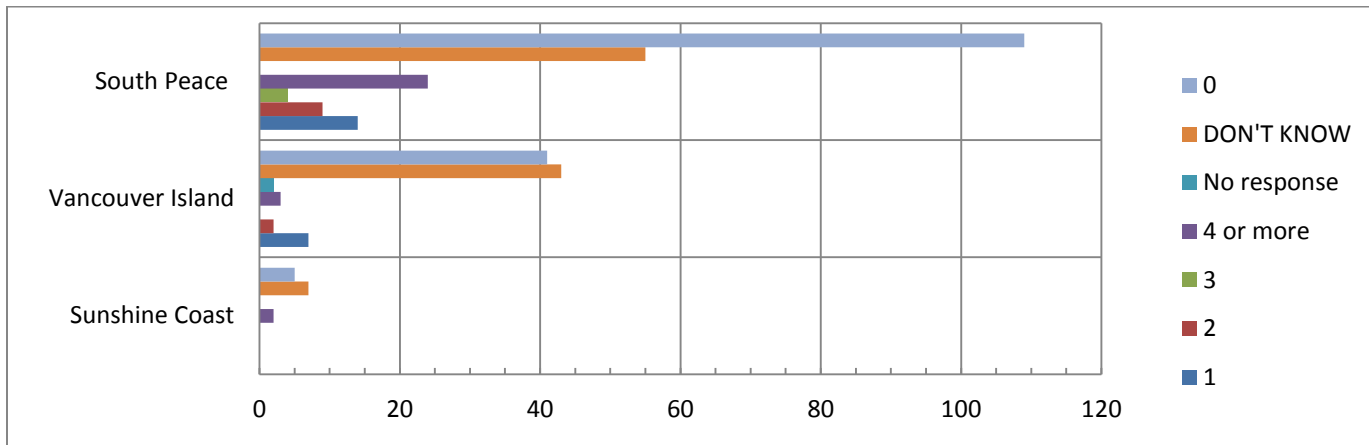
Results and interpretation: Approximately 35% of respondents reported that they purchased a new radio because of the technical requirements of the toned-squelched narrowband RR channels. The majority of these were from the South Peace area. Further analysis found 60 of these were affiliated with the energy sector and 29 were affiliated with the forest sector. Based on previous road user interviews, many radios used in the South Peace area were upgraded because extra capacity was required to store both the new RR channels bank and other frequencies already in use. 45 road users responded that they did not know if their vehicle radio had been changed because of the RR channel requirements – a likely reason for this is that these respondents were not the vehicle owners.



Was a new mobile 2-way radio required for your vehicle as a result of the technical requirements of the narrow band RR Channels?								
	No response	DON'T KNOW	NO	YES	Total	% DON'T KNOW	% NO	% YES
Sunshine Coast	3	2	10	2	14	14	72	14
Vancouver Island	3	21	60	14	98	22	63	15
South Peace	1	22	95	97	215	10	45	45
Total	4	45	165	113	327	14	51	35

Question 7. “How many mobile 2-way radios do you own that were built before 1997? (Only include those radios in your answer that are used on Pilot roads.)”

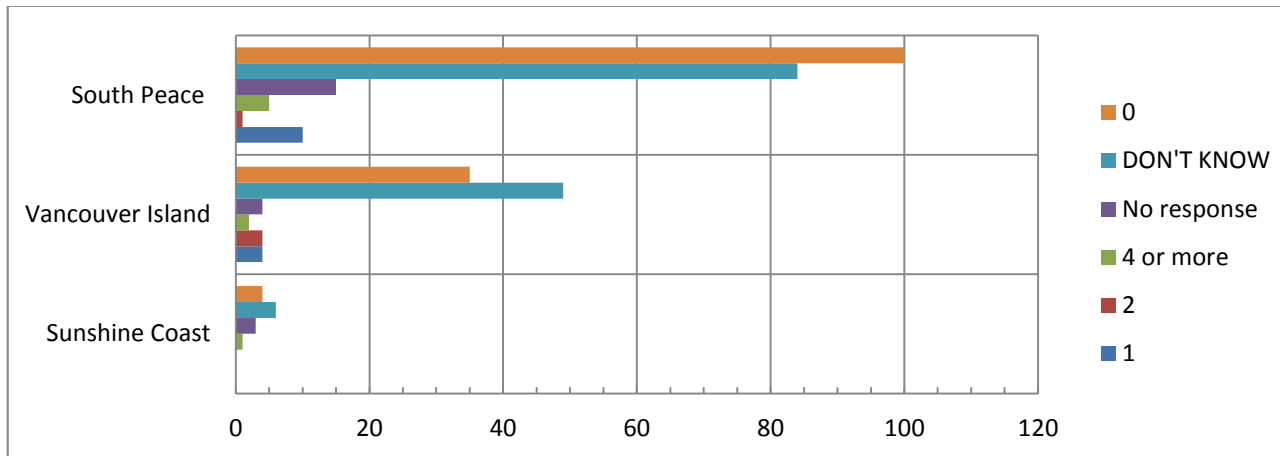
Results and interpretation: Many radios manufactured prior to 1997 are not capable of narrowband communication. There is concern that transmissions from this type of radio (wide band-only radios) may be cut off when received by narrowband programmed radios; however, an Industry Canada test could not confirm this. Radio manufacturing date is typically identified by model or serial number rather than on a chassis label. 105 respondents to Q.7 did not know or could not readily discern the age of their mobile radio. Of the 222 respondents who did know the age of their radio, 65 (29%) used pre-1997 mobile radios on Pilot roads. 51 of the 65 were from the South Peace area. Of the positive responses from the South Peace area 57% were affiliated with the energy sector, 35% were affiliated with forestry, and 8% were with government or another user group. Question 8 provides further detail about these older radios.



How many mobile 2-way radios do you own that were built before 1997? (Only include those radios in your answer that are used on Pilot roads.)								
	No response	0	1	2	3	4 or more	DON'T KNOW	Total
Sunshine Coast		5	7	2		2	7	14
Vancouver Island	2	41	7	2		3	43	98
South Peace		109	14	9	4	24	55	215
Total	2	155	21	11	4	29	105	327

Question 8. “How many of your pre-1997 mobile 2-way radios are capable of narrow bandwidth and tones?”

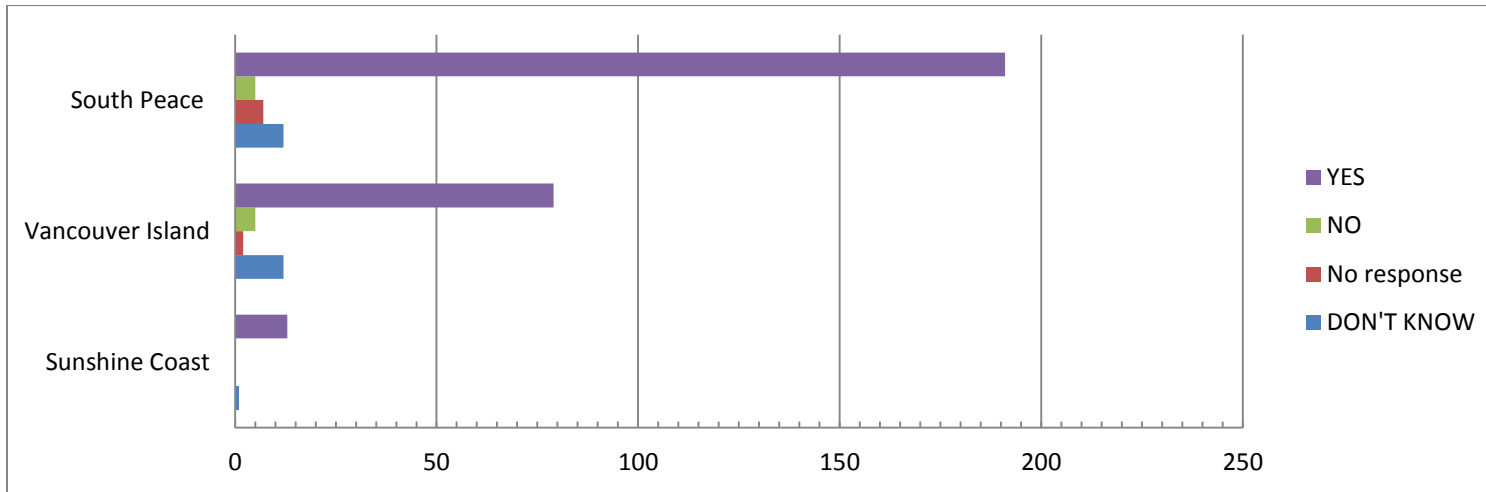
Results and interpretation: Most, but not all, pre-1997 mobile 2-way radios used on BC resource roads are not narrowband capable (wide band-only radios). This question attempts to discern the proportion of wide band-only and narrowband-capable older radios in use on Pilot roads. The responses to Question 7 identified at least 171 pre-1997 mobile radios were in use on Pilot roads. Of these, the survey responses indicated that 56 pre-1997 radios could communicate with narrow bandwidth and tones. This suggests that 115, pre-1997, wide band-only radios may be in use on Pilot roads. Because of the large number of respondents who did not know the age and capability of their radio the total number of wide band-only mobile 2-way radios in use on Pilot roads is likely higher than found by the survey.



How many of your pre-1997 mobile 2-way radios are capable of narrow bandwidth and tones ?							
	No response	0	1	2	4 or more	DON'T KNOW	Total
Sunshine Coast	3	4	4	4	1	6	14
Vancouver Island	4	35	4	4	2	49	98
South Peace	15	100	10	1	5	84	215
Total	22	139	14	5	8	139	327

Question 9. “Was your mobile 2-way radio(s) programmed with the new RR channels by a professional radio technician?”

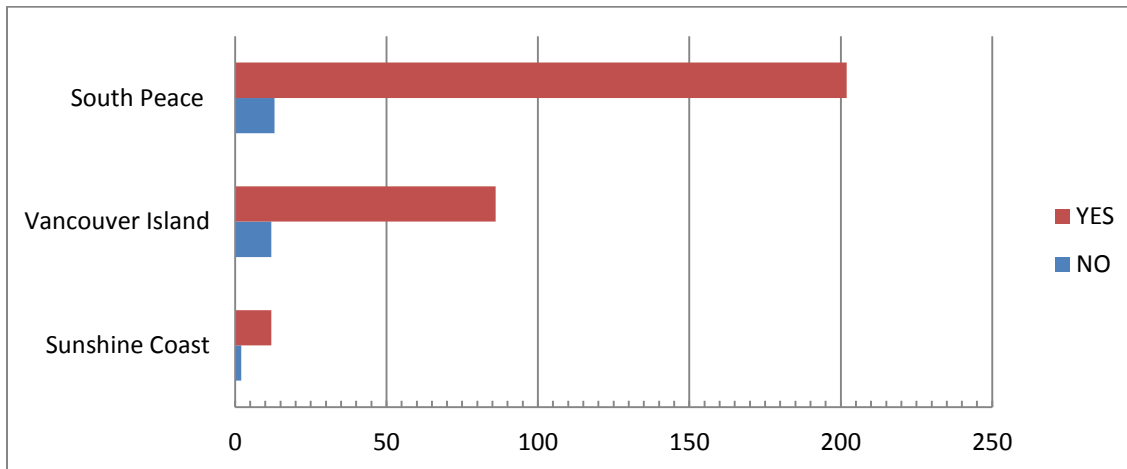
Results and interpretation: For a variety of reasons, radio owners may attempt to program their own radios rather than use the services of a certified radio technician. When this is done, there is an increased risk that the radio will be incorrectly programmed with the RR channels or that the radio settings are not adjusted to accommodate the RR channel specification. Of the 293 survey responses in which this question was answered with a ‘yes’ or a ‘no’, 283 responded that their radio had been professionally re-programmed. The 10 ‘no’ responses were equally distributed between the Vancouver Island and the South Peace Pilot areas.



Was your mobile 2-way radio(s) programmed with the new RR channels by a professional radio technician?								
	No response	NO	YES	DON'T KNOW	Total	% DON'T KNOW	% NO	% YES
Sunshine Coast		5	13	1	14	7	0	93
Vancouver Island	2	5	79	12	98	13	5	82
South Peace	7	5	191	12	215	6	2	92
Total	9	10	283	25	327	8	3	89

Question 10. “The Province has standardized calling the direction of travel as “Up” and “Down”. Do you use “Up” and “Down” to call your travel direction?”

Results and interpretation: Standardized call procedures are believed to promote road user safety by improving the accuracy and predictability of radio communications. 92% of respondents agreed with this statement. 27 (8%) respondents indicated that they do not use the standardized calling for direction of travel. These negative responses were almost equally split between the South Peace and the Vancouver Island Pilot areas. Resistance to calling up and down was predominantly from energy sector road users in the South Peace Pilot area and from forest sector road users in the Vancouver Island and Sunshine Coast Pilot areas. This trend was also observed in the survey comments received.

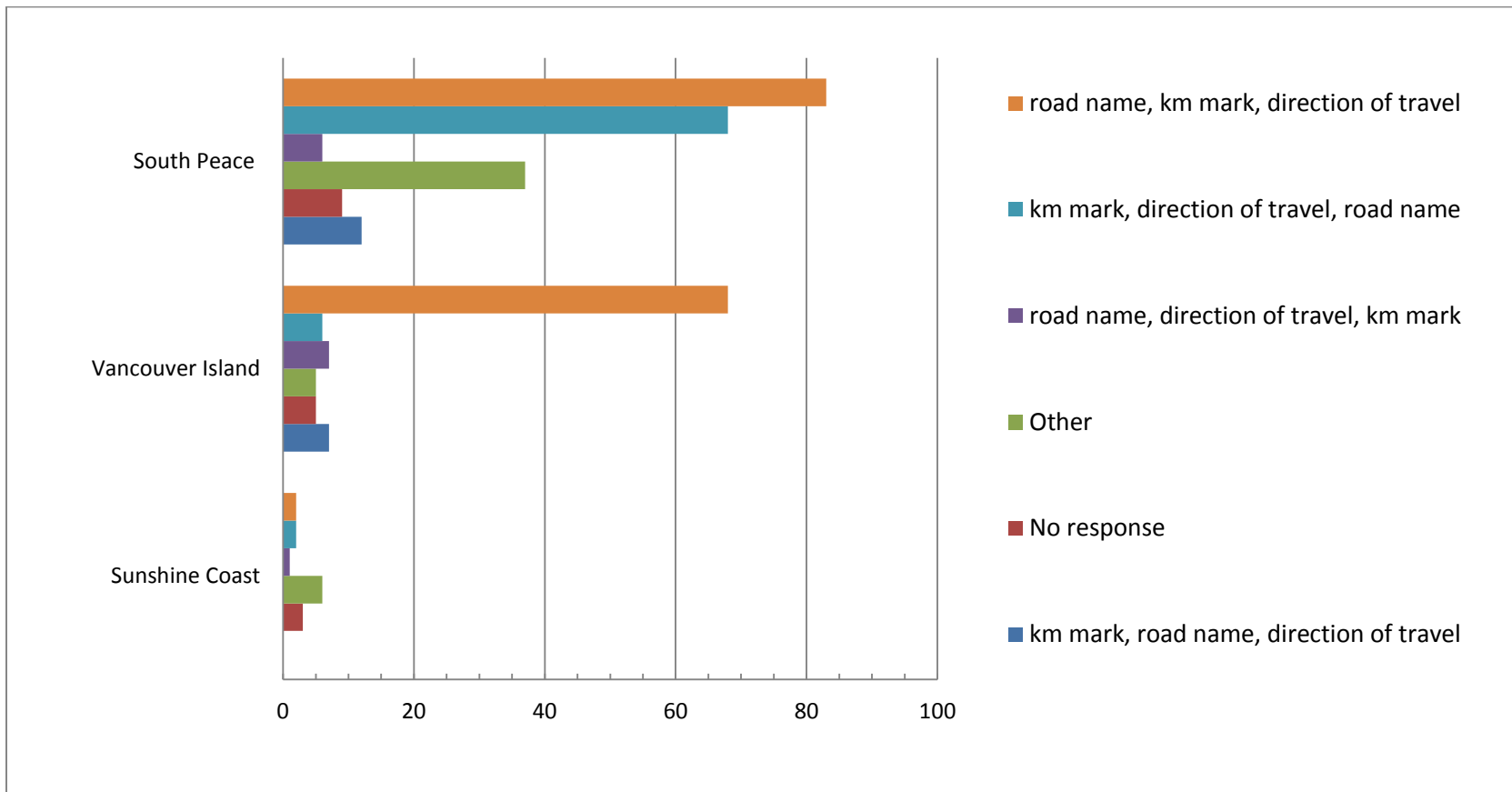


The Province has standardized calling the direction of travel as “Up” and “Down”. Do you use “Up” and “Down” to call your travel direction?

	NO	YES	Total	% NO	% YES
Sunshine Coast	2	12	14	14	86
Vancouver Island	12	86	98	12	88
South Peace	13	202	215	6	94
Total	27	300	327	8	92

Question 11. “The recommended call order is [road name, Km mark, direction of travel] so that if the front or back of the call is cut off, the users hear the most important information – Km location. What call order do you use?”

Results and Interpretation: Standardized call procedures are believed to promote road user safety by improving the accuracy and predictability of radio communications. Approximately 49% of those who answered this question reported that they use the recommended call order. Numerous variations of the standard calling order were reported. The most frequently used variation was Km mark, direction of travel, road name (68 instances in the South Peace). The second most frequent variation was reported as “Other” responses (summarized in table below). Of these, the most popular call orders started with direction of travel or included vehicle type.



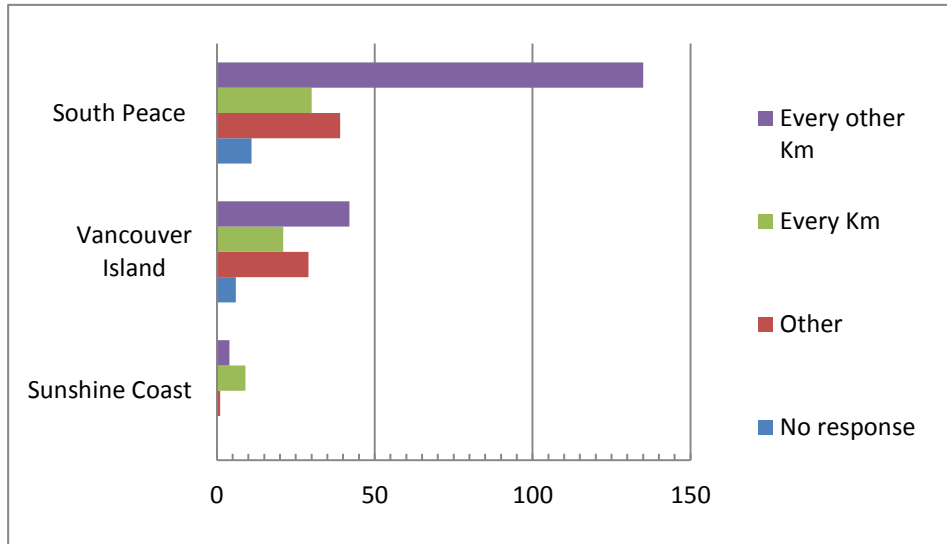
Summary of "Other" calling orders	Total
direction of travel, Km mark, road name	21
direction of travel, road name, Km mark	4
vehicle type, direction of travel, Km mark, road name	3
vehicle type, road name, Km mark, direction of travel	3
direction of travel, Km mark	2
Km mark, direction of travel	2
vehicle type, Km mark, direction of travel	2
Km mark, direction of travel, (no road name)	1
loaded/unloaded	1
road name, Km mark, direction of travel, vehicle type	1
vehicle type, Km mark, direction of travel	1
miscellaneous others	7
Totals	48

The recommended call order is [road name, Km mark, direction of travel] so that if the front or back of the call is cut off, the users hear the most important information – Km location. What call order do you use ?

	No response	Km mark, road name, direction of travel	road name, direction of travel, Km mark	Km mark, direction of travel, road name	road name, Km mark, direction of travel	Other	Total	% Km mark, road name, direction of travel	% road name, direction of travel, Km mark	% Km mark, direction of travel, road name	% road name, Km mark, direction of travel	% Other
Sunshine Coast	3		1	2	2	6	14	0	9	18	18	55
Vancouver Island	5	7	7	6	68	5	98	8	8	6	73	5
South Peace	9	12	6	68	83	37	215	6	3	33	40	18
Total	17	19	14	76	153	48	327	6	5	25	49	15

Question 12. “How often do you call your position as you move in the “up” (typically empty) direction?”

Results and interpretation: The default RR protocol for call frequency is *every other* Km as you travel in either direction. This call frequency is intended to reduce the volume of calls on busy roads and thereby reduce the problem of “walkover”. 66% of the 215 respondents from the South Peace Pilot area reported they call *every other* Km in the up direction, while another 15% call *every* Km in the up direction. 69 respondents, in total, reported they use a protocol other than the default or calling every Km. In general, these other call protocols involved some consideration of traffic volume and road condition (refer to table of “Other” Up calling protocols).

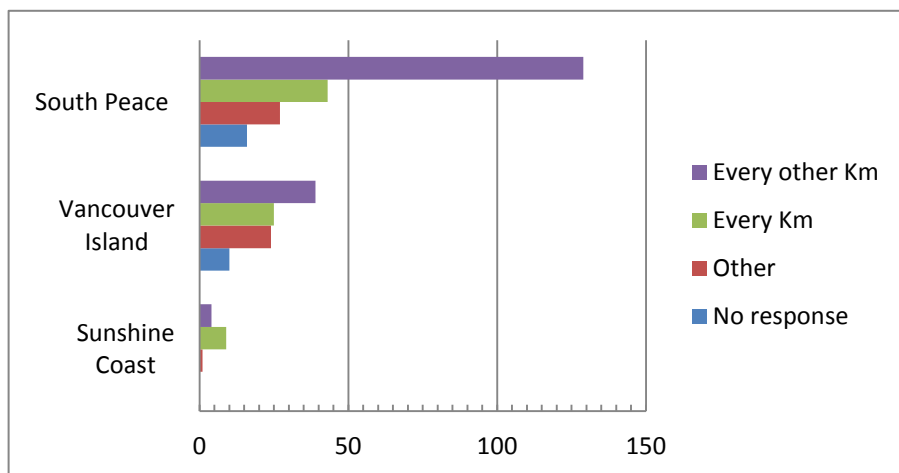


"Other" Up calling protocols	Total
as required by signage	4
as road rules dictate	4
depends on road	1
at entry point of road	4
even Kms "up", odd Km "down"	1
every 4 or 5 Km	2
every few Km	3
every few Km based on volume of traffic	22
every Km if road active	5
at must calls	3
ups keep quiet	7
miscellaneous others	13
Total other responses	69

How often do you call your position as you move in the "up" (typically empty) direction?								
	No response	Other	Every Km	Every other Km	Total	% Other	% Every Km	% Every other Km
Sunshine Coast	6	1	9	4	14	7	64	29
Vancouver Island	6	29	21	42	98	32	23	45
South Peace	11	39	30	135	215	19	15	66
Total	17	69	60	181	327	22	19	58

Question 13. “How often do you call your position as you move in the “down” (typically loaded) direction?”

Results and interpretation: The default RR protocol for call frequency is *every other* Km as you move in either direction. This call frequency is intended to reduce the volume of calls on busy roads and thereby reduce the problem of “walkover”. 65% of the 215 respondents from the South Peace Pilot area reported they call *every other* Km in the down direction, while another 22% call *every* Km in the down direction. 52 respondents, in total, reported they use a protocol other than the default or calling every Km. In general, the other calling protocols also considered traffic volume and road-specific rules (refer to table of “Other” Down calling protocols).



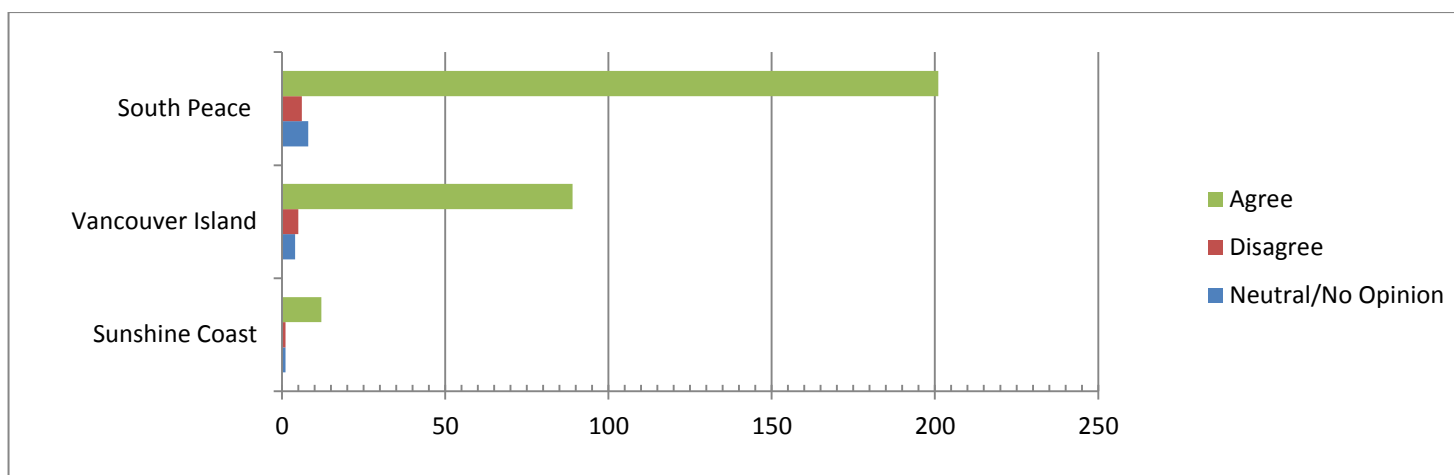
"Other" Down calling protocols	Total
as required by signage	3
as road rules dictate	5
at entry point of road	1
every few Km based on volume of traffic	12
at must calls	6
no calling	5
Only odd Km's in down direction	3
miscellaneous others	17
Total other responses	52

How often do you call your position as you move in the "down" (typically loaded) direction?								
	No response	Other	Every Km	Every other Km	Total	% Other	% Every Km	% Every other Km
Sunshine Coast	10	1	9	4	14	7	64	29
Vancouver Island	10	24	25	39	98	27	28	44
South Peace	16	27	43	129	215	14	22	65
Total	26	52	77	172	327	17	26	57

Question 14. “Comparing the system you use to the systems in use prior to the BC Radio Pilot, please indicate your agreement with the following 12 statements:”

a) *“Standardized Km signs make it easier to find Km markers.”*

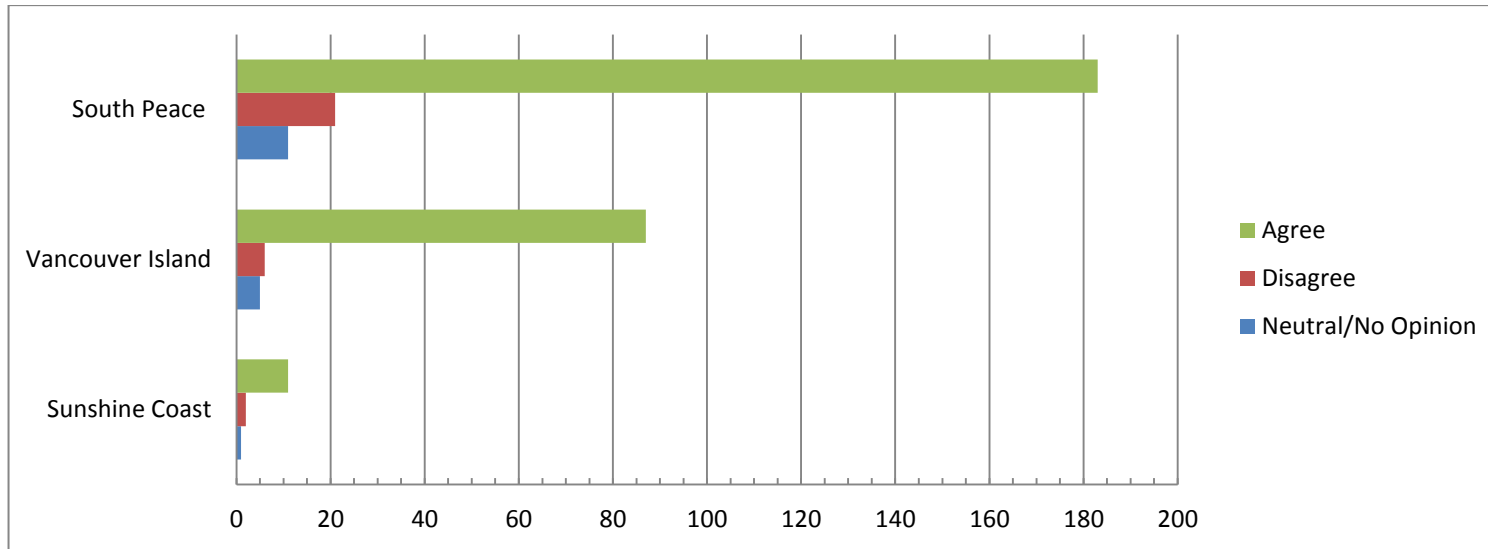
Results and interpretation: 92% of respondents agreed that standardized Km signs make it easier to find Km markers. Only 4% of respondents disagreed and 4% had a neutral opinion about this statement. Seven general comments provide additional insight to this disagreement. These comments said that insufficient sign maintenance, too small of signs, and confusion with energy sector road signs reduced the visibility of the Pilot area signs.



Standardized Km signs make it easier to find Km distance markers							
	Neutral / No Opinion	Disagree	Agree	Total	% Neutral / No Opinion	% Disagree	% Agree
Sunshine Coast	1	1	12	14	7	7	86
Vancouver Island	5	4	89	98	5	4	91
South Peace	6	8	201	215	3	4	93
Total	12	13	302	327	4	4	92

b) *“Standardized road orientation signs at the start of the resource road has improved user knowledge of the radio calling procedures.”*

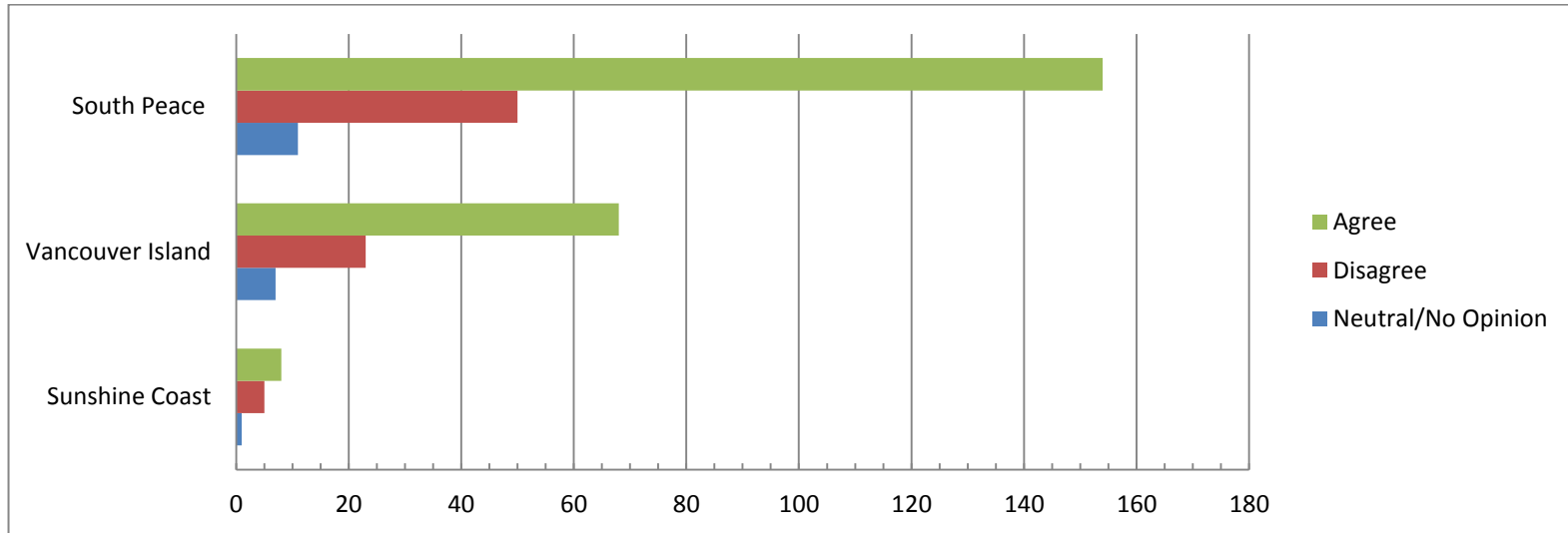
Results and interpretation: 86% of all respondents agreed that standardized road orientation signs at the start of the resource road have improved their knowledge of the radio calling procedures. 21 South Peace area respondents disagreed for an unknown reason but this may relate to survey comments expressing a need for “more education about radio use and the whole system” (see Q 18).



Standardized road orientation signs at the start of the resource road has improved user knowledge of the radio calling procedures							
	Neutral /No Opinion	Disagree	Agree	Total	% Neutral /No Opinion	% Disagree	% Agree
Sunshine Coast	1	2	11	14	7	14	79
Vancouver Island	5	6	87	98	5	6	89
South Peace	11	21	183	215	5	10	85
Total	17	29	281	327	5	9	86

c) *“Standardized road orientation signs at the start of the resource road has improved user consistency with the radio calling procedures.”*

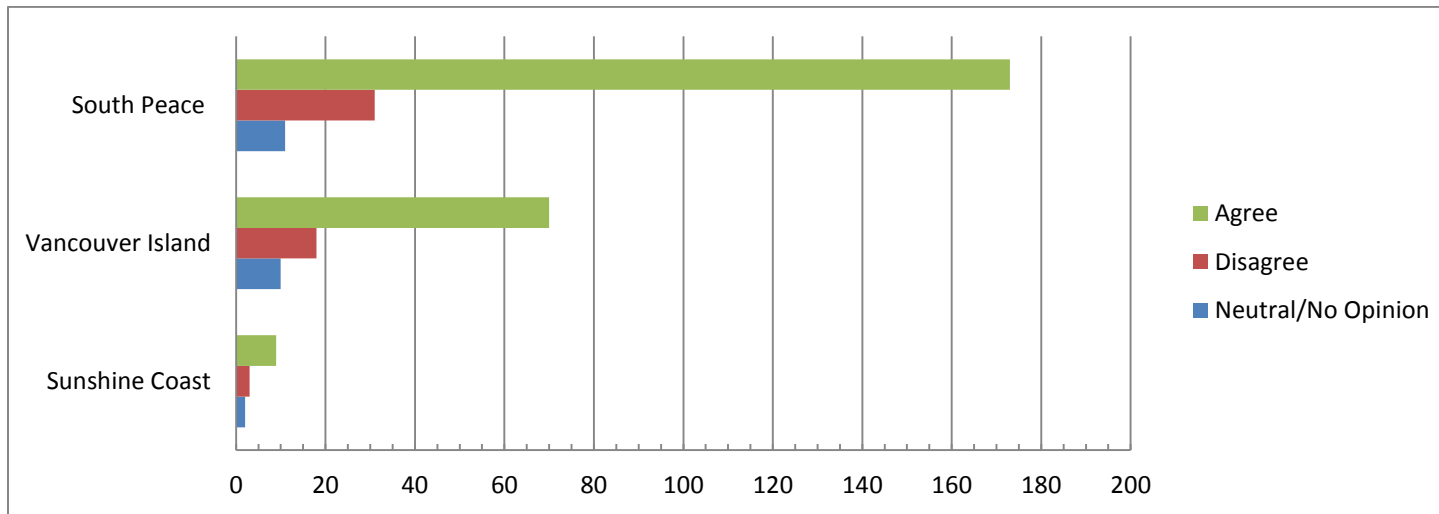
Results and interpretation: 70% of all respondents agreed that standardized road orientation signs at the start of the resource road have improved user consistency with the radio calling procedures. 24% of all respondents disagreed and 6% were neutral or had no opinion. The variety of calling procedures in use on the Pilot area roads (refer to Qs 10-13 and Qs 17-18) help explain some of the negative or neutral responses.



Standardized road orientation signs at the start of the resource road has improved user consistency with the radio calling procedures							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	1	5	8	14	7	36	57
Vancouver Island	7	23	68	98	7	23	69
South Peace	11	50	154	215	5	23	72
Total	19	78	230	327	6	24	70

d) *“Standardized must call and warning signs have assisted in identifying hazards along the road.”*

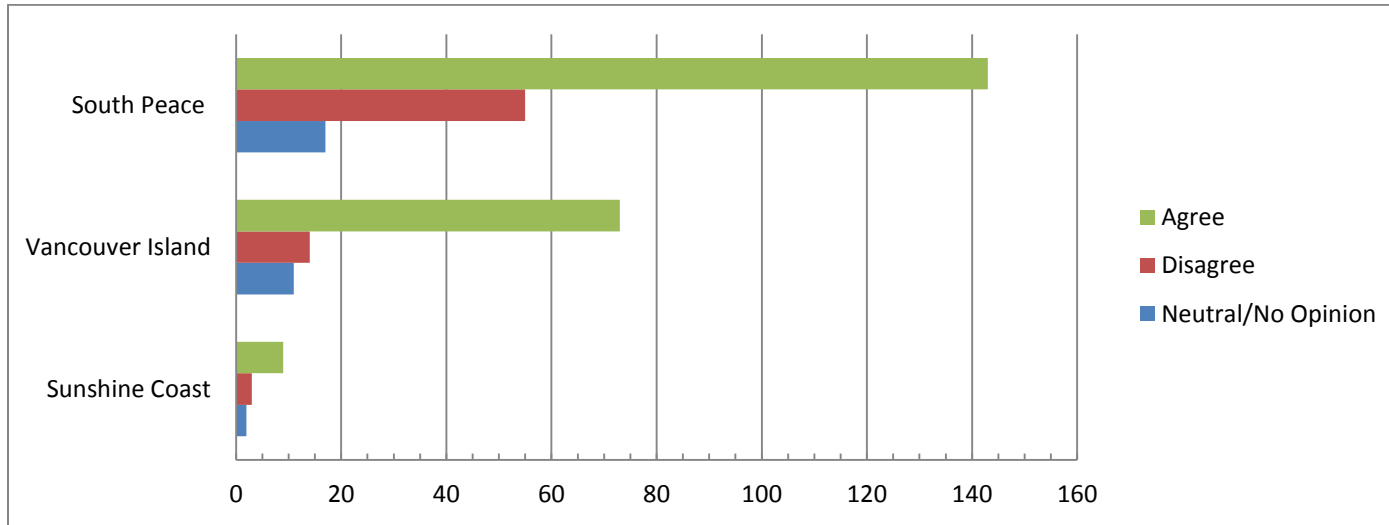
Results and interpretation: While must call signs are placed at road sections with poor reception, warning signs are used to identify general road hazards, including areas of poor reception. 77% of all respondents agreed that standardized must call and warning signs have assisted in identifying hazards along the road. 16% of all respondents disagreed and 7% were neutral or had no opinion. The responses to this question may highlight a need for improved signage around hazards, or more effort made to identify hazards.



Standardized must call and warning signs have assisted in identifying hazards along the road							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	2	3	9	14	14	21	64
Vancouver Island	10	18	70	98	10	18	71
South Peace	11	31	173	215	5	14	80
Total	23	52	252	327	7	16	77

e) *“The new signage standards have improved road safety.”*

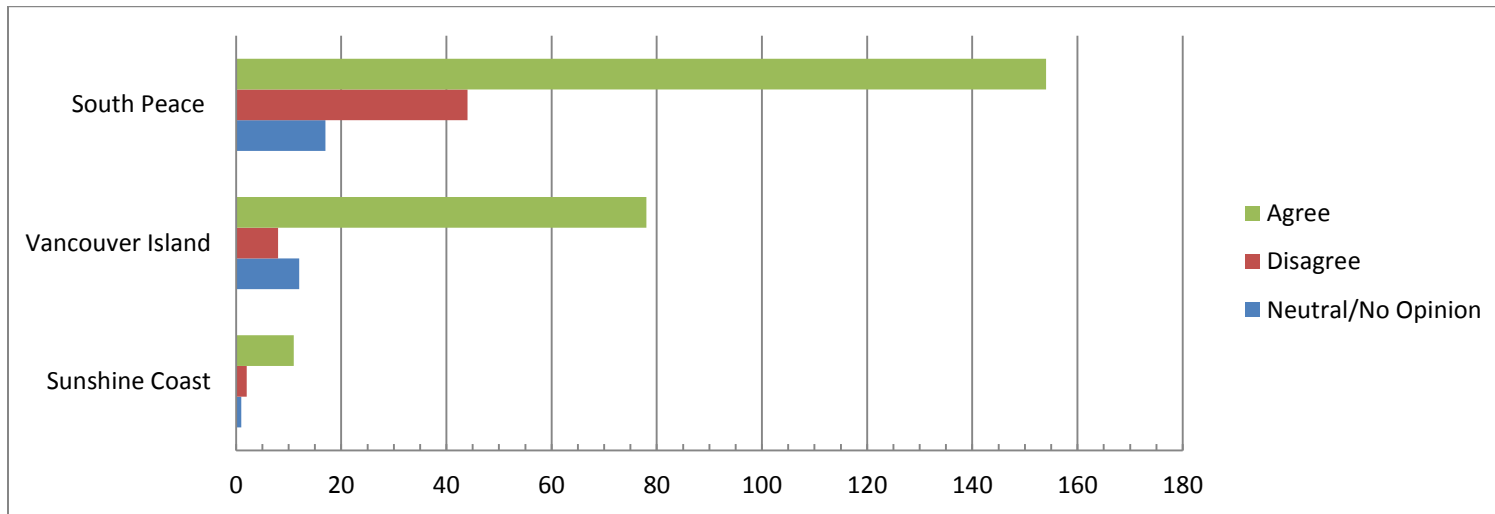
Results and interpretation: 69% of all respondents agreed that the new signage standards have improved road safety. 22% of all respondents disagreed and 9% were neutral. At the time of this survey, road users in the South Peace Pilot area (especially forest sector workers) had unresolved communication issues. This may have caused these road users to report that road safety was not improved despite the use of the new signage standards.



The new signage standards have improved road safety							
	Neutral / No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	2	3	9	14	14	21	64
Vancouver Island	11	14	73	98	11	14	74
South Peace		55	143	215	8	26	67
Total	30	72	225	327	9	22	69

f) *“In the Pilot areas, it is easier to know the correct radio channels for the roads you are using.”*

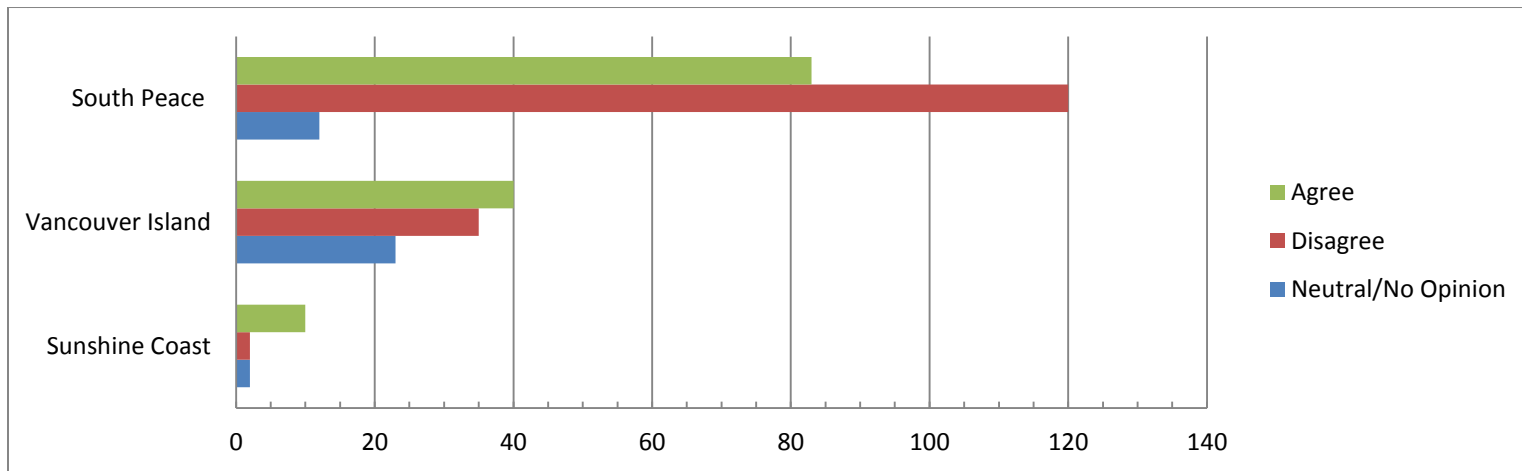
Results and interpretation: 74% of all respondents agreed that it is easier to know the correct radio channels for the road compared with the system in place pre-Pilot. 17% of all respondents disagreed and 9% were neutral or had no opinion. Road users in the Pilot areas are able to determine the correct radio channel for a road by reading the orientation signs and by doing a radio check. During a field visit to the South Peace Pilot area in March 2012, FPInnovations noted that road users often do radio checks by listening for calls from nearby users. However, many radios in the South Peace area were found to be set to monitor mode in which they were able to receive calls from all of the RR channels that share the same base frequency (i.e., 3 different RR channels). This may have caused road users to report that identifying the correct radio channel was not easier in this Pilot area.



In the Pilot areas it is easier to know the correct radio channels for the roads you are using							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	1	2	11	14	7	14	79
Vancouver Island	12	8	78	98	12	8	80
South Peace	17	44	154	215	8	20	72
Total	30	54	243	327	9	17	74

g) *“In the Pilot areas, the problem of excessive radio chatter or “walk over” has been reduced.”*

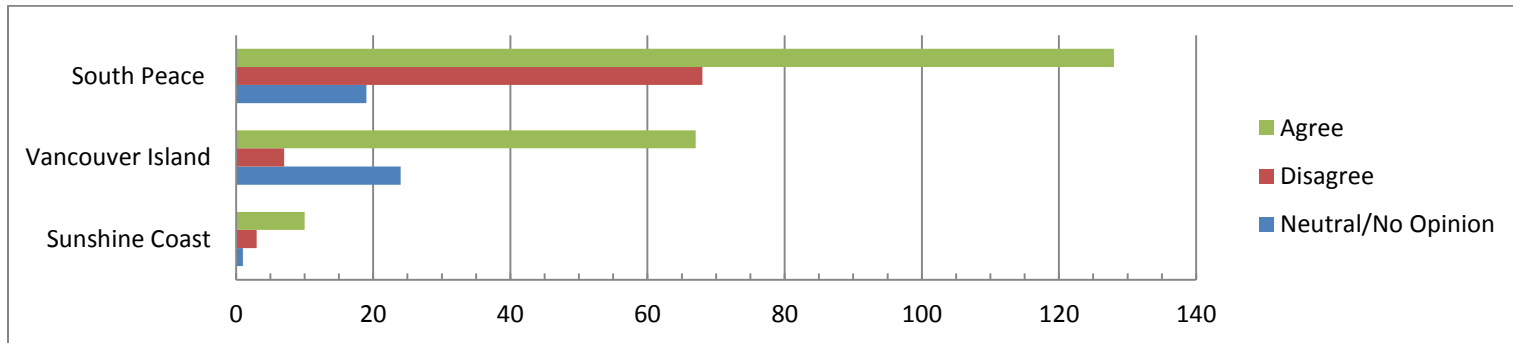
Results and interpretation: The majority (48%) of all respondents disagreed with this statement and believed that the problem of excessive radio chatter or “walk over” has not been reduced. This highlights that road users in both the South Peace and the Vancouver Island Pilot areas continue to have chatter or “walkover” problems. (It should be noted that any chatter may be excessive to some, while others may tolerate small amounts of chatter.) The RR Radio Protocol introduced measures to control excessive radio chatter and “walk over” (e.g., calling procedures which dictate call frequency, distinct RR channels for busy roads, 5 watt channels). However, excessive chatter was found to be a problem for busy roads located in close proximity and sharing the same base frequency – a problem that was exacerbated by the use of monitor mode by radios (receiving chatter from all 3 RR channels with the same base frequency) and by lack of enforcement of radio use protocol.



In the Pilot areas, the problem of excessive radio chatter or “walk-over” has been reduced							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	2	2	10	14	14	14	71
Vancouver Island	23	35	40	98	23	36	41
South Peace	12	120	83	215	6	56	39
Total	37	157	133	327	11	48	41

h) *“In the Pilot areas, radio reception is comparable to radio reception prior to the implementation of the new channels.”*

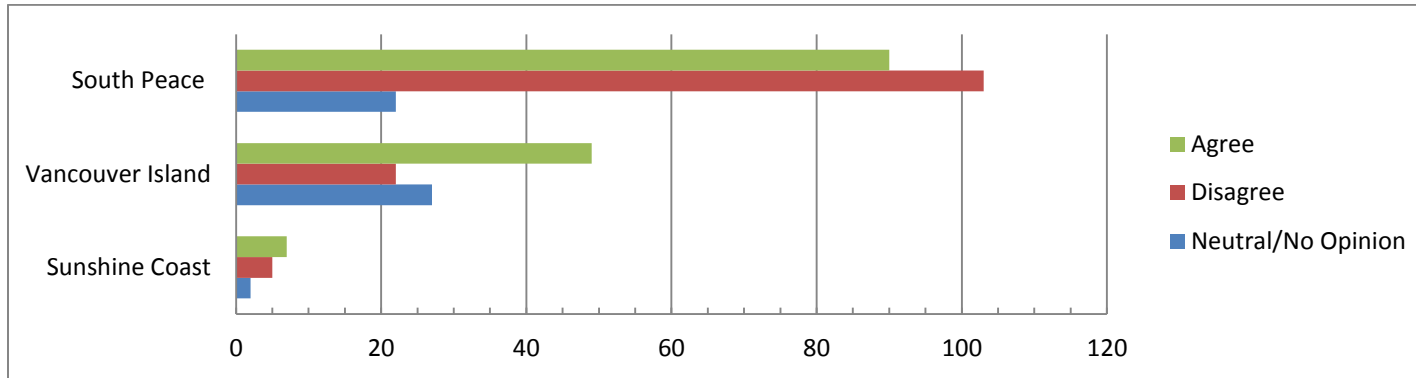
Results and interpretation: The Pilots introduced the use of narrowband tone-squelched channels in order to utilize a large number of channels without occupying excessive radio spectrum space. FLNRO and some industry users regularly utilize 2-way mobile narrowband radio channels without decreased reception. However, concerns persist that narrowband radio communication has reduced transmission range, especially in difficult terrain or during inclement weather. Furthermore, some RR channels are limited to 5-watt power in order to reduce their transmission range. This may explain why 24% disagreed with the statement and believe that the new radio protocol has degraded radio reception. The majority of the negative responses came from the South Peace Pilot area of which 43 came from the forest sector and 20 came from the energy sector. Given the general nature of the statement, respondents also may have considered call quality, walkover or cut-off calls when answering. At the time of this survey, road users in the South Peace Pilot area (especially forest sector workers) had unresolved communication issues.



In the Pilot areas, radio reception is comparable to radio reception prior to the implementation of the new channels							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	1	3	10	14	7	21	71
Vancouver Island	24	7	67	98	24	7	68
South Peace	19	68	128	215	9	32	60
Total	44	78	205	327	13	24	63

i) *“In the Pilot areas, there are fewer cut off calls compared to prior to the implementation of the new channels.”*

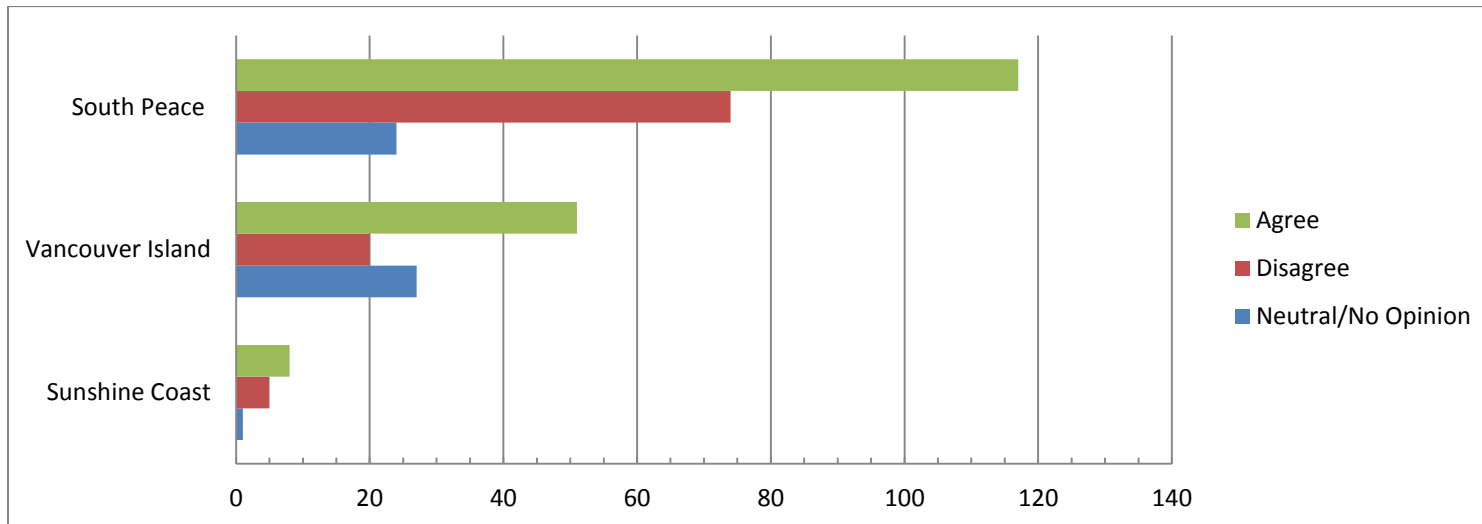
Results and interpretation: 40% of respondents disagreed with this statement and believe that the problem of cut off calls has not been reduced. A listener may experience a cut off call if the caller begins speaking prior to keying the microphone or releases the microphone too soon, or if the call is “walked over” by another more powerful radio transmission. Cut off calls are likely to occur in heavily travelled areas or where a road has dead spots. Road users in the South Peace Pilot area noted incidences of improper microphone keying, heavy radio use (heavy traffic) and dead spots. Vancouver Island Pilot roads were not subject to the same traffic levels as the South Peace but did have difficult terrain and dead spots. 48% of road users in the South Peace Pilot area disagreed that there were fewer cut off calls prior to the implementation of the new channels and 22% of Vancouver Island users felt the same way.



In the Pilot areas, there are fewer cut off calls compared to prior to the implementation of the new channels							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	2	5	7	14	14	36	50
Vancouver Island	27	22	49	98	28	22	50
South Peace	22	103	90	215	10	48	42
Total	51	130	146	327	16	40	45

j) *“Having 9 standardized LD radio channels for on-site use (non-road use) has taken some of the chatter off the road channels and assisted industry with communication needs”*

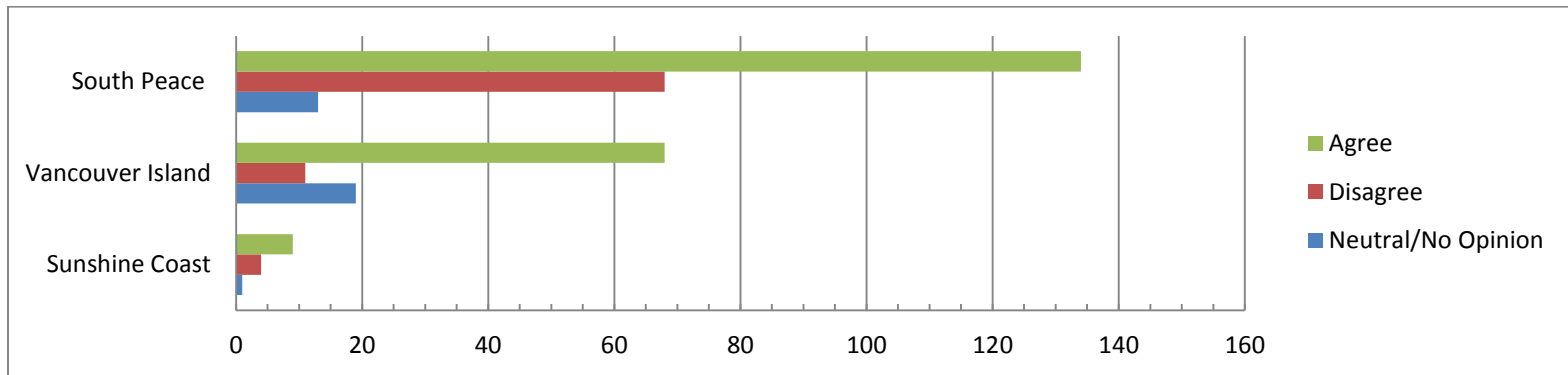
Results and interpretation: Results to this statement were mixed. 54% of survey responses agreed with the statement but 30% disagreed and 16% were neutral or had no opinion. The high number of responses that were neutral or had no opinion may indicate a lack of awareness of these channels. The results to this question may highlight an opportunity to utilize loading (LD) channels more effectively.



Having 9 standardized LD radio channels for on-site use (non-road use) has taken some of the chatter off the road channels and assisted industry with communication needs							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	1	5	8	14	7	36	57
Vancouver Island	27	20	51	98	28	20	52
South Peace	24	74	117	215	11	34	54
Total	52	99	176	327	16	30	54

k) *“In the Pilot areas, the radio call procedures are clearer and easier to understand when compared to prior to the Pilots”*

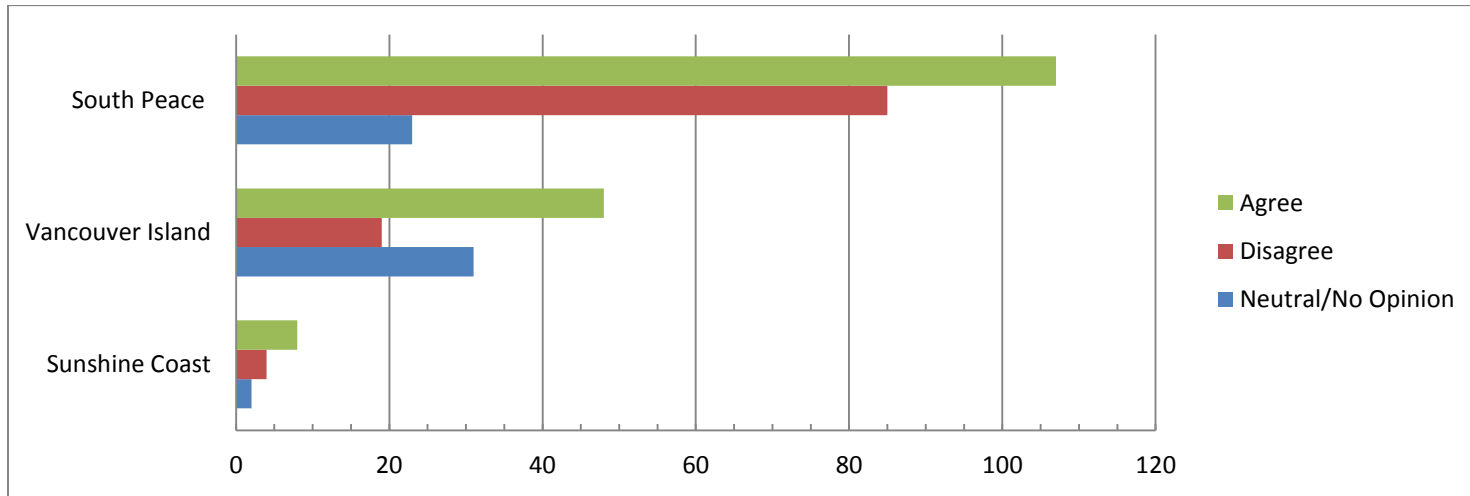
Results and interpretation: The RR radio protocol specifies a number of new call procedures including calling order, rules for frequency of calls and rules for convoy calling that are intended to make calls clearer, easier to understand, and consistent. Correct use of the new radio protocol requires awareness, adequate training, endorsement by employers, and general acceptance by road users. 68 respondents in South Peace Pilot disagreed with the statement (30 respondents from the energy sector and 29 from the forest sector). This disagreement may stem from lack of awareness, training, employer endorsement, or resistance to change. In Q5, most energy sector respondents said that they learned about the Radio Pilot (RR channels, calling procedures, signs) from their employers, members of a road user group or other road users whereas most forest sector respondents said they learned about the Pilot from their employer. The number and diversity of companies involved in energy development is expected to make implementation of radio call procedures more challenging than with the forest sector where a single forest road licensee handles most training and enforcement.



In the Pilot areas, the radio call procedures are clearer and easier to understand when compared to prior to the Pilots							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	1	4	9	14	7	29	64
Vancouver Island	19	11	68	98	19	11	69
South Peace	13	68	134	215	6	32	62
Total	33	83	211	327	10	25	65

l) *“With the introduction of the new procedures in the Pilot areas, calling for convoys is clearer when compared with prior to the Pilots”*

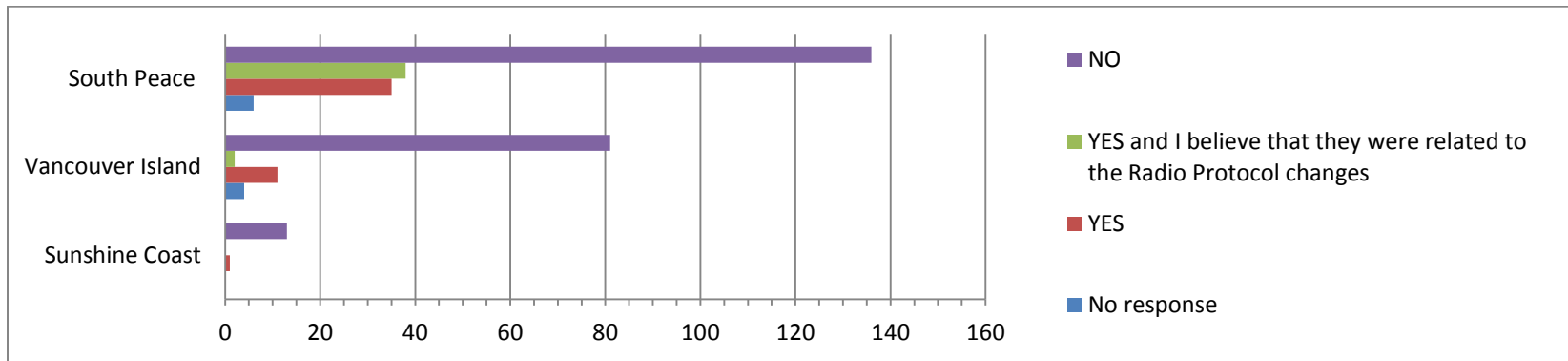
Results and interpretation: The rules for convoy calling specify convoy size, the maximum spacing of vehicles, and call format. 50% of respondents thought that convoy calling was less clear or not clearer than before the Pilot (adding together the negative and neutral or no opinion responses). This lack of agreement with the statement highlights a need for more awareness of, and training in, convoy calling.



With the introduction of the new procedures in the Pilot areas, calling for convoys is clearer when compared to prior to the Pilots							
	Neutral/ No Opinion	Disagree	Agree	Total	% Neutral/ No Opinion	% Disagree	% Agree
Sunshine Coast	2	4	8	14	14	29	57
Vancouver Island	31	19	48	98	32	19	49
South Peace	23	85	107	215	11	40	50
Total	56	108	163	327	17	33	50

Question 15. “Have you been involved in any near misses or crashes that occurred in the BC Radio Pilot areas within the last 6 months?”

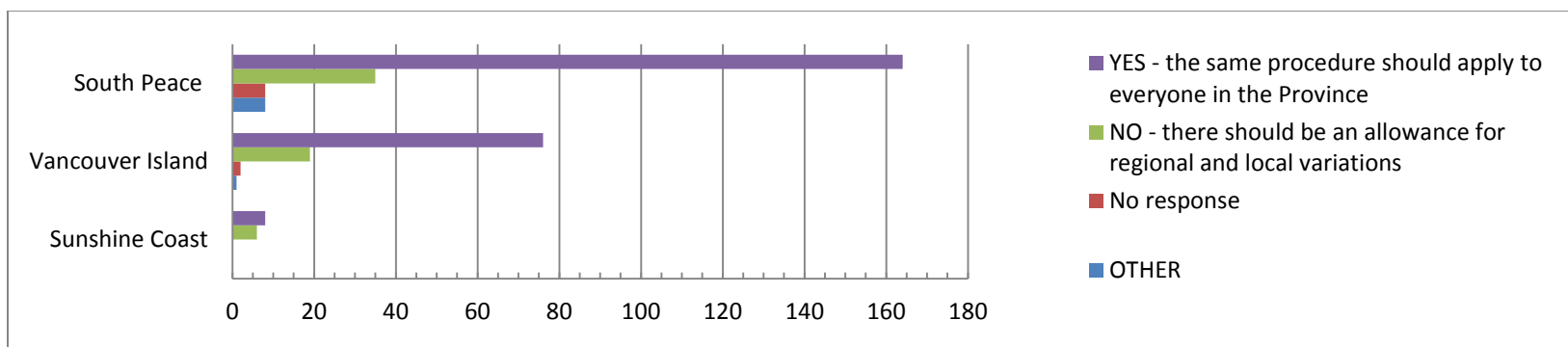
Results and interpretation: 73% of all respondents indicated they had not been involved in any near misses or crashes in the last 6 months. In the South Peace Pilot area 18% (38 responses) had near misses and believed these were related to radio protocol changes. Of these 38 responses, 21 were from the forest sector, 12 were from the energy sector, and 3 were from government. As previously noted, there were unresolved communication issues that are likely to have contributed to the near misses. Resolution of these communication issues is not expected to eliminate the incidence of near misses on these resource roads: travel on radio assisted resource roads has inherent risks.



Have you been involved in any near misses or crashes that occurred in the BC Radio Pilot areas within the last 6 months?								
	No response	YES	YES and I believe that they were related to the Radio Protocol changes	NO	Total	% YES	% YES and I believe that they were related to the Radio Protocol changes	% NO
Sunshine Coast	6	1	0	13	14	7	0	93
Vancouver Island	4	11	2	81	98	12	2	86
South Peace	6	35	38	136	215	17	18	65
Total	10	47	40	230	327	15	13	73

Question 16. “Is it a good idea to apply one standardized radio calling procedure across the Province?”

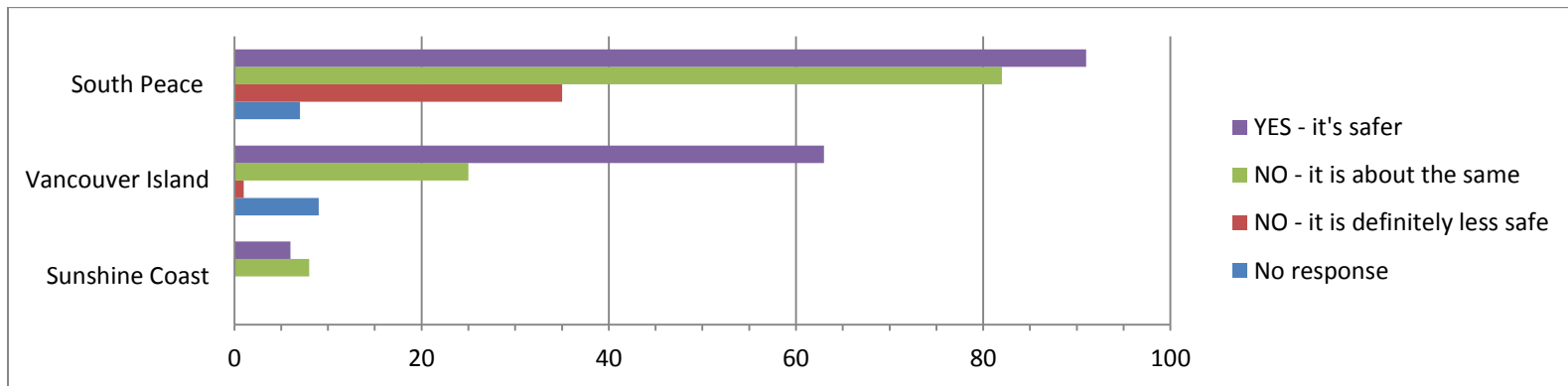
Results and interpretation: The existing (default) standard procedure is to call your position every other Km, when traveling in either direction, using “Up”/ “Down”. 78% of all responses indicated having one standardized radio calling procedure across the Province is a good idea. 22% disagreed (including 3% ‘other’ responses) that there should be only one standard. Implementation of the RR radio protocol in the Pilot areas has an allowance for variations in calling procedure, as specified by the local road user group, but also specifies a default procedure that can be used when in doubt. These responses indicate widespread support for the current flexible method of implementing the RR radio calling procedures in combination with a default procedure.



Is it a good idea to apply one standardized radio calling procedure across the Province?								
	No response	NO - there should be an allowance for regional and local variations	YES - the same procedure should apply to everyone in the Province	Other	Total	% NO - there should be an allowance for regional and local variations	% YES - the same procedure should apply to everyone in the Province	% Other
Sunshine Coast		6	8		14	43	57	0
Vancouver Island	2	19	76	1	98	20	79	1
South Peace	8	35	164	8	215	17	79	4
Total	10	60	248	9	327	19	78	3

Question 17. “Do you believe that your resource road travel is safer as a result of the BC Radio Pilot changes?”

Results and interpretation: 51% of respondents answered that resource road travel is safer as a result of the BC Radio Pilot changes. 49% disagreed with this statement. 117 “NO” responses were from the South Peace Pilot area where at the time of this survey, there were unresolved communication issues which are likely to have contributed to those respondents answering the way they did. In the Vancouver Island Pilot area, the 26 “NO” respondents also expressed concerns about ineffective or inconsistent signage. This may be because BCTS operating areas are the only ones currently participating in the Vancouver Island and Sunshine Coast Pilots, and some local road users must pass through areas where RR Pilot changes are not in effect and different signage and call procedures apply.



Do you believe that your resource road travel is safer as a result of the BC Radio Pilot changes?								
	No response	NO it is definitely less safe	NO it is about the same	YES it's safer	Total	% NO it is definitely less safe	% NO it is about the same	% YES it's safer
Sunshine Coast	9	1	8	6	14	0	57	43
Vancouver Island	9	1	25	63	98	1	28	71
South Peace	7	35	82	91	215	17	39	44
Total	16	36	115	160	327	12	37	51

18. General Comments

Results and Interpretation: The comments received were summarized in the following table according to popularity. 121 main comments representing 12 themes were summarized (other miscellaneous comments were not included). The most popular comments were encouragement for a provincial implementation, concern about degraded reception (South Peace area only), lack of awareness about the Pilot (not having RR channels in their radios) and resistance to the new RR calling protocol.

	Likes whole system implement everywhere (not being implemented fast enough)	Poor Radio Reception where there wasn't before	Not everybody has the right channels, mostly oil & gas	More education needed about radio use and the whole system	Up and Down bad, want old way back	Too much chatter, cant get my call in	Poor signage (too small), too many private O&G signs	Need to get licensees on board on coast too many channels for one road	Hates whole system	Channel switch placements dangerous on OJAY	Poor sign maintenance
South Peace Total	14	22	18	13	11	4	5		2	1	
Energy sector	9	5	8	6	8	2	1		1	1	
Forestry sector	2	16	5	3	2	1	2				
General public	1										
Government	1	1	5	4	1	1	1		1		
Mining sector	1						1				
School Bussing											
Vancouver Island Total	10		3	5	3	2		4		1	2
Emergency response	1		1								
Energy sector				1							
Forestry sector	6		1	3	2	1				1	1
General public											
Government recreation	3			1	1			4			1
Security			1			1					
Sunshine Coast Total						1					
Emergency response											
Forestry sector						1					
Government											
Total	24	22	21	18	14	7	5	4	2	2	2

Results Summary and Discussion

The BC Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is piloting a Resource Road (RR) Radio Protocol in three areas of BC under the direction of the BC Radio Communications Working Group. In February 2012, road users in the Pilot areas (South Peace, mid-Vancouver Island, and the Sunshine Coast) were surveyed about their experiences with and opinions about the new radio protocol. The survey responses will provide the BC Radio Communications Working Group with a current assessment of the Protocol's effectiveness at improving resource road safety and will support the development of recommendations for implementing the RR radio protocol province wide, with or without changes.

327 completed surveys were received—215 from the South Peace Pilot area, 98 from the Vancouver Island Pilot area, and 14 from the Sunshine Coast Pilot area. 94% of responses were from road users affiliated with the energy sector, forestry or government.

The most effective means of informing road users about the new resource road radio protocol was reported to be through employers and road user groups rather than with media announcements.

Approximately 35% of respondents reported that they purchased a new radio because of the technical requirements of the tone-squelched narrowband RR channels. Some of these chose to retain their original wide band channels and, thus, needed new radios with extra capacity for channels. Fewer might decide to replace their radio if wide band channels for mobile 2-way communication are replaced throughout BC with the new RR channels. Almost all radios used by survey respondents were professionally re-programmed.

65 respondents (29%) reported that they used older (pre-1997) mobile radios on Pilot area roads. 51 of these were from road users in the South Peace Pilot area who were affiliated with the energy sector or forestry. Their responses indicated that at least 115 older radios that were incapable of narrow bandwidth and tones (i.e., wide band-only) may be in use on Pilot roads. It is unclear whether this situation represents a danger to road users and, given the importance of the question, definitive field tests should be conducted.

Responses indicated widespread resistance to the use of a single calling protocol. This highlights the need for improved awareness, training, endorsement by employers, and uptake by road users. The latter two may be increased with more regional flexibility in setting calling protocol. Curiously, 78% of respondents indicated widespread support for the adopting a standardized radio calling procedure across the Province. This result may indicate that many road users are not aware of the current process of road user groups collaboratively developing regional and local variations to the communications protocols.

Responses indicated widespread support for a default, standardized calling procedure that can be used anywhere in the Province. Over 20% supported the use of various frequencies of calling and call contents, as dictated by traffic levels and road conditions. The current system of implementation – a default procedure plus local road rules designed to address local condition – meets both preferences.

In general, respondents agreed that the new signage was both informative and effective (when maintained), but that this did not guarantee that road users would utilize the recommended calling protocols. Excessive chatter and walkover continue to be concerns in busy areas but some of this may be addressed with improved enforcement, changes in radio programming, and more utilization of the LD channels. Cut-off calls also continue to be a concern in Pilot areas; this may be related to heavy radio use and dead spots not defined with must call signs.

Implementation of the new radio protocol is intended to improve resource road safety. However, in the South Peace Pilot area 18% (38 responses) had near misses and believed these were related to radio protocol changes. Of these 38 responses, 21 were affiliated with the forest sector, 12 with the energy sector and 3 with government. It should be noted that at the time of the survey, there were unresolved communication issues that are likely to have contributed to the near misses. Resolution of these communication issues is not expected to eliminate all near misses on these resource roads—travel on radio-assisted resource roads has inherent risks.

About half of respondents stated that they believed that their resource roads were safer as a result of the BC Radio Pilot changes. The percentage in agreement is expected to grow with the resolution of radio communication issues caused by installation or maintenance problems, incorrect programming and conflicts caused by operating radios in monitor mode. It is possible that some negative responses are arising because of pre-existing conditions/ practices that are coming to light only because of Pilot implementation. Widespread adoption of the new protocol (with accompanying awareness training) is expected to address some respondents' resistance to change and concerns about inconsistent signage/ channels/ calling protocols on routes passing in and out of Pilot areas.