

#1632
CAHA**Sundar, Danielle**

From: Fox, Lori
Sent: Tuesday, April 21, 2009 11:09 AM
To: Sundar, Danielle
Subject: FW: ORV passengers
Follow Up Flag: Follow up
Flag Status: Blue
Attachments: CAHA_Pretest_Report.doc

For CAHA admin, thanks!

Lori Fox

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From: Van Dyke, Nancy
Sent: Tuesday, April 21, 2009 11:05 AM
To: Fox, Lori; Wetmore, Doug
Subject: FW: ORV passengers

FYi and admin record

From: Mansfield, Carol A. [<mailto:carolm@rti.org>]
Sent: Tuesday, April 21, 2009 12:55 PM
To: Van Dyke, Nancy
Cc: Mansfield, Carol A.; Loomis, Ross; Evans, Brian
Subject: ORV passengers

Hi Nancy,

I got your phone call. I have to be on another call in a few minutes, then I am driving to Charlotte and will be out of the office the rest of today (but back tomorrow). I attached the pretest report from the counting we did back in October. Exhibits 2.1 and 2.2 summarize the number of vehicles counted and the number of passengers (as best they could tell). With these few observations, it looks like it is closer to 2 people per vehicle.

Brian -- do you have the data on vehicles and passengers from last weekend that you could send Nancy? Just the totals are fine -- we need average people per vehicle.

Thanks,
Carol

4/22/2009

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Cape Hatteras Pretest Report

SUBMITTED TO:

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November 20, 2008



1.0 Introduction

In October of 2008, RTI completed a pretest for the National Park Service (NPS). The pretest consisted of counting off-road vehicles (ORVs) and pedestrians at 6 of the more popular ramps used in the off-season. RTI also counted pedestrians on the beaches. The purpose of the pretest was to test counting, sampling, and interviewing procedures and determine how much counting needs to be done in the winter, spring and summer of 2009. The Data Collection Task Leader (DCTL) and a companion completed the pretest October 16-18, 2008. At the request of NPS, they visited ramps 4, 23, 44, 49, 55, and 72. This report describes the results of the pretest and recommendations for work in the winter, spring and summer of 2009.

The pretest began with an hour-long meeting between the RTI team and NPS. NPS provided RTI with details about each of the ramps and provided RTI with a research permit. NPS also provided guidance on what to say to visitors if they asked questions about the work RTI was conducting.

RTI spent between 2-4 hours at each ramp. RTI counted during the morning, afternoon and early evening at the ramps. Given the short time frame of the pretest and the travel between ramps, RTI was somewhat limited in the amount of counting that could be done. RTI attempted to count during different times of the day to identify potential problems that may be encountered.

At each ramp, one RTI staff member stationed themselves near the NPS counter and counted each vehicle that entered and exited the beach via the ramp. They also counted the number of passengers in each vehicle that entered and exited. Additional information was collected at some of the ramps, such as the type of vehicle that entered and state of the license plate. Given difficulties described later in this report, RTI was not able to collect type of vehicle and state for each vehicle at each ramp.

While one RTI staff member was at the ramp counting vehicles, the other walked the beach counting pedestrians. As they walked the beach, they tested sampling methods and identified potential issues for counting people along the beach. They also identified potential problems interviewers may encounter when conducting the intercept survey. Details of their findings are described below.

2.0 Ramp Counting

The tables below display the results of the vehicle and passenger counting at the ramps. *Exhibit 2.1* shows the number of vehicles counted. At all but 2 of the ramps, RTI was able to determine the counts recorded by the NPS counter added during the time RTI staff were counting. *Exhibit 2.1* also shows the difference between the RTI counts and the NPS counter counts. *Exhibit 2.2* displays the number of passengers in each vehicle.

At ramp 72, RTI staff both counted during the same time period. This was the first ramp we visited and given the length of the ramp, we tested counting at two different places, one at the beginning of the ramp where the NPS counter is located, and one at the end of the ramp at the beach access point. Hence, there are two entries in the table for ramp 72. There are also two entries for ramp 44. RTI counted at this ramp for 4 hours and split the time into 2 sessions.

Exhibit 2.1. Vehicle Counts

Date	Ramp	Start	End	Veh In	Veh Out	Tot Veh	Counter	Difference
10/17	4	7:35a	9:58a	44	31	75	97	22
10/17	23	12:36p	2:50p	14	23	37	46	9
10/18	44	10:30a	12:38p	81	32	113	290	177
10/18	44	8:38a	10:02a	78	14	92	114	22
10/18	49	6:00p	7:00p	3	9	12		
10/16	55	6:00p	7:10p	11	40	51	63	12
10/16	72	12:45p	2:55p	28	32	60		
10/16	72	12:50p	3:00p	28	31	59		

Exhibit 2.2. Passenger Counts

Date	Ramp	Start	End	Pass In	Pass Out	Total Pass
10/17	4	7:35a	9:58a	73	52	125
10/17	23	12:36p	2:50p	27	56	83
10/18	44	10:30a	12:38p	164	70	234
10/18	44	8:38a	10:02a	149	21	170
10/18	49	6:00p	7:00p	3	9	12
10/16	55	6:00p	7:10p	21	80	101
10/16	72	12:45p	2:55p	60	83	143
10/16	72	12:50p	3:00p	51	71	122

RTI staff also attempted to categorize the vehicle type based on categories provided by the NPS Environmental Quality Division in Denver. *Exhibit 2.3* displays the information collected on these vehicles. *Appendix A* in this report defines the type of vehicle in each category. In most cases RTI staff were able to determine the type of vehicle that entered the ramps. However, it was more difficult to categorize vehicles that exited the ramps, especially at times when vehicles were entering and exiting at the same time. If this data is to be collected in 2009, RTI will adjust their forms to facilitate collection of this information.

RTI also attempted to collect the state on the license plate of the vehicle. This was the most difficult piece of information to collect due to the placement of the license plates and the placement of equipment. On many vehicles, the license plate was hidden or was not in the "normal" location on the car. Given the other data being collected and unless NPS deems this piece of data necessary, RTI suggests not collecting the state of origin of the vehicle.

Exhibit 2.3. Vehicle Type

Date	Ramp	Start	End	LDV	LDT1,2	LDT3,4	HDV2B
10/17	4	7:35a	9:58a	0	11	31	2
10/17	23	12:36p	2:50p	0	5	6	3
10/18	44	10:30a	12:38p	0	20	49	12
10/18	44	8:38a	10:02a	1	2	64	10
10/18	49	6:00p	7:00p	0	0	11	1
10/16	55	6:00p	7:10p	2	1	6	2
10/16	72	12:45p	2:55p	4	11	13	0
10/16	72	12:50p	3:00p	4	19	27	6

LDV – Light Duty Vehicles

LDT – Light Duty Trucks

HDV – Heavy Duty Vehicles

2.1 Vehicle Count Conclusions

Based on our experience, the NPS counters are accurate to a degree. However, there are many factors that affect the NPS counters that may cause inaccuracies. The main factors include the weather, unknown human awareness, and known human awareness of the counters.

The largest discrepancy between the RTI count and what the counter reported came on October 18 at Ramp 44. There was a fishing tournament that morning and it was drizzling throughout the time RTI staff were at the counters. We believe the rain caused the large difference in the counter and the RTI counts. Additionally, RTI noticed a number of tall plants that have grown near the counter (this is also true at Ramps 72 and 23). RTI staff noticed that when the wind blows, some of the plants were tall enough that they crossed the infrared beam and were added as a count by the NPS counter.

On October 17, there was a fishing tournament at Ramp 4. There is a wide access area at Ramp 4, and the registration table for the tournament was set up just beyond the NPS counter. RTI noticed a couple of vehicles that parked directly in the line of the counter, which caused the counter to miss a few vehicles while the tournament participants registered. Also, just as RTI was leaving Ramp 4, the tournament staff was setting up a barbeque for the tournament participants. This was set up very near the counter, and RTI assumes that many participants would have walked through the infrared line numerous times during the barbeque, which would have affected the counter.

RTI also visited Ramp 23 on October 17. RTI was sitting at the ramp counting when a kite boarder walked through the ramp to his car, which was parked just beyond the NPS counter. The kite boarder asked a few questions of RTI and it was clear he was knowledgeable about the ORV management issues. He proceeded to change clothes in his car. When he finished, he hung his swimming trunks on one of the posts of the NPS counter in a manner that when the wind blew, the swimming trunks would break the plane of the infrared beam to increase the counts. It was clear to RTI that he knew exactly

what he was doing. There were a number of other posts closer to his car on which he could have hung his trunks, but he went out of his way in attempts to increase the counts. At a number of ramps, RTI also noticed a couple of vehicles that drove through the counter, backed up through the counter and drove through it again.

Of the factors that affect counter accuracy, the most problematic factor is deliberate human interference. A number of people in vehicles stopped and asked RTI staff what they were doing. While they were not rude, it was very clear they have very strong opinions about what should be done with ORV's. At least two people on separate occasions stated they follow all the actions of the NPS and felt they had the right to know every detail about everything that was happening. RTI provided standard responses to these people, briefing describing the purpose of the work.

Given the number of factors that potentially affect the accuracy of the NPS counters, RTI recommends we continue with the initial plan of sending staff to the ramps to count rather than rely on data from the counters. RTI will develop a plan to ensure counting occurs at all ramps during different times of day and different days of the week to get as full a representation as possible.

2.2 Vehicle Passenger Conclusions

While at the ramps, RTI also counted passengers (including the driver) in vehicles that entered and exited the ramps. In most cases, this was fairly easy to do. However, RTI also realizes the counting was done during off-season. During the spring and summer, it could prove to be more difficult depending on how busy the ramps are.

There were a handful of factors that affected the counting of passengers. During the evening counts, it began to get dark around 6:30pm. The darkness made it very difficult to see into each vehicle and obtain an accurate count of passengers. Additionally, a number of vehicles had tinted windows, which also made it difficult to count the number of passengers. Another factor was the speed of the vehicle. In a couple of instances, the vehicles passed the counter fairly quickly which made it difficult to count passengers. Children, especially babies, were difficult to count in vehicles, especially in SUVs. Lastly, if one vehicle was entering and another was exiting (or if a series of vehicles were entering and/or exiting) it became difficult to track the number of passengers in each vehicle. RTI staff noticed at least 3 vehicles that entered the ramp with 2 passengers but exited the ramp a few minutes later with 3 passengers. RTI assumes in these instances that the staff did not accurately count passengers when the vehicle entered.

While there were a number of factors that made it difficult to count the number of passengers, RTI believes accuracy of the passenger counts is very good. RTI staff adapted their counting procedures throughout the pretest. We can use these procedures to train future staff for the spring and summer counting.

3.0 Beach Counting

While one RTI staff member was counting vehicles, the other staff member walked the beach and counted pedestrians on the beach. The main purpose of this exercise was to test different methods of how to accurately sample beach areas for counting and intercept interviewing and how to most effectively count beach visitors.

As a standard procedure for the pretest, the RTI staff member would start at a section of the beach and pick two landmarks as boundaries. The staff member would then walk the distance between the landmarks counting people.

RTI tested and developed a number of rules and procedures. For example, we found it was best to have the staff member walk the beach as close to the dunes as possible, giving themselves a full view of everyone between them and the ocean. As they walked the area, they created an invisible plane between them and the ocean. Anyone who crossed that plane was counted. On the ORV beaches, there were a number of fisherman standing knee deep in the water. RTI included them in the counts. Also on the ORV beaches, as the staff member walked, vehicles would move across the plane. The staff member counted all passengers in the vehicle. Within their counts, RTI distinguished between people sitting in their vehicles versus those out on the beach.

3.1 Results of Beach Counting

RTI staff determined that we could not use landmarks to determine the sampled areas for beach counting and intercept interviewing. There are too many factors that affect the area, and there is a great risk of human error in deciding the sampled area. One idea RTI will explore utilizes Global Positioning System (GPS) devices to assist the counters and interviewers in determining the sampled area. Essentially, the RTI statistician will pre-select areas of the beach to be sampled for counting and interviewing using geocoordinates. The counters and interviewers will be equipped with GPS devices that they can use to ensure they walk the sampled area. There is much less risk for human error in this design. RTI will explore this design further and the costs involved.

RTI realized that there are a number of decisions that need to be made in regards to counting visitors at the beach. RTI staff will brainstorm and suggest solutions to the following questions:

- 1) How large of an area should be sampled for beach counting and interviewing?
- 2) How many segments need to be selected to have an accurate representation of ORV and non-ORV beaches?
- 3) What should be the protocol if a section of beach that is selected for counting and/or interviewing is closed?
- 4) As the counter walks the beach, should those moving in ORVs be counted?
- 5) On ORV beaches, should those who are in the water be selected to complete interviews?
- 6) On non-ORV beaches, should those who are in the water be interviewed?

There are a number of other questions that need to be addressed, and RTI will develop recommendations for each of those items and submit to NPS for approval.

4.0 Conclusion

Overall the pretest was a success for RTI. We learned a number of things about how we can complete data collection in the field. RTI will work closely with NPS to develop procedures and ensure the data collected is accurate and representative.

Appendix A – Vehicle Types

Type	Description	Examples
LDV	Autos, regular passenger cars (sedans, coupes, compacts, convertibles, etc., small & large). Also includes minivans	<p><u>Passenger:</u> Honda Accord; Toyota Corolla, Matrix, Camry; Ford Focus, Taurus; Chevy Malibu; Saturn Aura; Subara Legacy, Outback, Impreza; Audi A4/A6; VW Passat</p> <p><u>Minis:</u> Honda Odyssey; Toyota Sienna; Nissan Queso; Dodge Caravan; Chevy Venture, Uplander, Astro; Ford Windstar, Freestar</p>
LDT1, LDT2	small & medium SUVs, pickup trucks, & also passenger & commercial vans	<p><u>SUVs:</u> Chevy Trailblazer; Ford Explorer, Escape; Jeep Liberty, Grand Cherokee, Wrangler; Toyota 4runner, Highlander, RAV4; Nissan Pathfinder, Xterra; Mercedes-Benz ML & GL classes BMW X3</p> <p><u>Pickup Trucks:</u> Chevy Colorado; Toyota Tacoma; Nissan Frontier; Ford Ranger</p>
LDT3, LDT4	Large SUVs & pickups	<p><u>SUVs:</u> Ford Expedition; Chevy Tahoe, Suburban; GMC Yukon, Denali; Nissan Armada; Toyota Sequoia, Landeruiser; Land Rover Discovery, LR3, Range Rover</p> <p><u>Pickups:</u> Chevy Silverado; GMC Sierra; Ford F-150; Dodge Ram; Nissan Titan; Toyota Tundra</p>
HDV2B	Large pickups (likely diesels)	Ford F-250, 350 pickups; Dodge Rams medium and heavy-duty