

Monitoring Traffic

The Town of Quispamsis noticed they are receiving an increased number of complaints about the traffic on Hampton Road. As a solution, the Town wants to use some narrower side roads to alleviate the traffic congestion. They mount some cameras on tall poles to monitor traffic on the candidate roads so they can observe such things as how fast the traffic is moving, how far apart the cars travel, and what part of the road the traffic uses. Then after a month lane lines are painted on the road. They have some questions about the results and turn to you for help.

1. Why was it important to observe the traffic for a month before painting the lane lines on the road?

In order to make the best decision, the Town suggests collecting some other information in addition to the video.

2. Which of these things would help him to be more certain of his advice concerning the effect of painting lines on narrow roads? Provide reasoning for your responses.

a) Doing the same on other narrow roads.

b) Doing the same on wide roads.

c) Checking the accident rates before and after painting the lines.

d) Checking the number of cars using the road before and after painting the lines.

On one stretch of narrow road the Town notices that after the lane lines are painted the traffic changes as in Table 1.

Table 1 Changes in traffic after lane lines are painted

Variable measured	Change observed
Speed	Traffic moves more quickly
Position	Traffic keeps nearer edges of road
Distance apart	No change

3. On the basis of the results in Table 1 the Town decided that lane lines should be painted on all narrow roads. Do you think this was the best decision? Provide reasoning for your response.

Drivers are advised to leave more space between their vehicles and the one in front when they are travelling more quickly than when they are travelling more slowly because faster cars take longer to stop.

4. Explain why a faster car takes longer to stop than a slower one.

5. In a particular segment of video, the consultant sees one car (A) travelling at 45 km/h being overtaken by another car (B) travelling at 60 km/h. How fast would car B appear to be travelling to someone in car A?