

Crofton Transit

The City of Crofton, Ontario, has a population of about 400,000. Crofton Transit is the city's public transportation system. Figure 1 shows the number of riders by month from January 1986 to mid-2005.

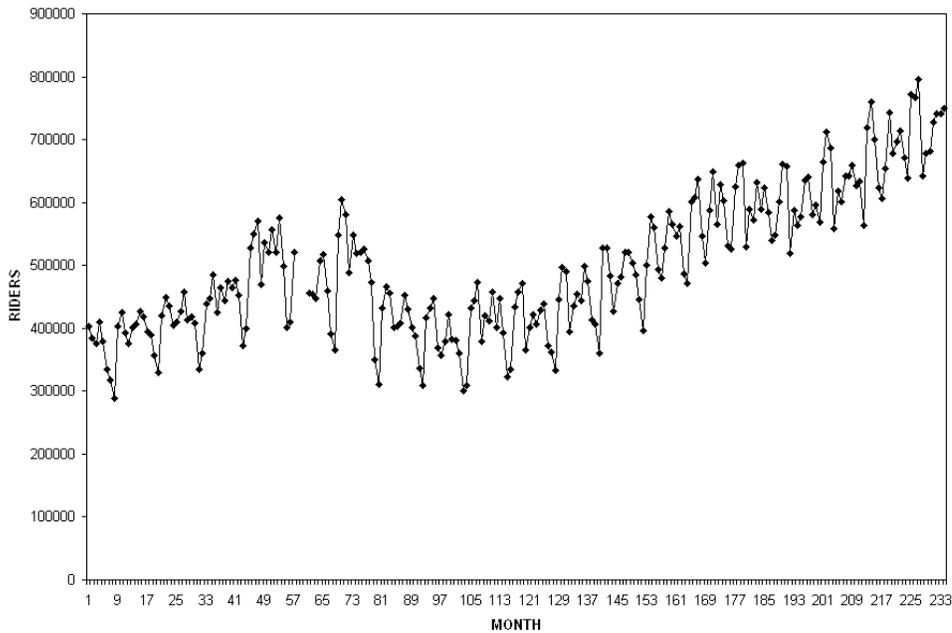


Figure 1
Crofton Transit, number of riders by month, 1986 to 2005

This case is based on a project by Mr. David Margiotta.

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2 Crofton Transit

The current practice for forecasting a future month's ridership is to take the ridership in the same month one year previously and divide it by the ridership in the same month two years previously. This yields a percentage change, which is then multiplied by the previous year's ridership to give the desired forecast.

Table 1 illustrates the application of this method for calculating 2005 forecasts based on actual figures for 2003 and 2004.

Table 1
Calculation of 2005 forecasts

Month	2003 Actual	2004 Actual	% Change	2005 Forecast
Jan	618832	606885	0.98	595168
Feb	600925	653736	1.09	711188
Mar	642589	742205	1.16	857263
Apr	642673	678724	1.06	716797
May	659954	696909	1.06	735933
Jun	627236	713744	1.14	812183
Jul	633905	671717	1.06	711784
Aug	562817	639476	1.14	726576
Sep	718827	771939	1.07	828975
Oct	760298	766891	1.01	773541
Nov	699537	796169	1.14	906149
Dec	622947	642940	1.03	663574

The data can be found in the file `CroftonTransit.dat`, a partial listing of which is shown in Table 2. Data are missing for October to December 1990.

Table 2
File `CroftonTransit.dat`, partial listing

YEAR	MONTH	RIDERS
1986	1	402657
1986	2	384742
1986	3	376404
1986	4	409926
1986	5	379763
1986	6	335417
...

QUESTIONS

In answering the following questions, assume you stand at the end of 2003 and do not know yet the figures for 2004 and 2005.

- (1) Making use of the data to the end of 2003, devise an alternative method for forecasting the monthly ridership of Crofton Transit. Apply this method to calculate forecasts for 2004 and 2005, and compare these to the actual figures.
- (2) Again making use of the data to the end of 2003, apply the current method to calculate forecasts for 2004 and 2005, and compare these to the actual figures.
- (3) In view of (a) and (b), how do you recommend that Crofton Transit forecast monthly ridership in the remainder of 2005 and beyond?
- (4) What additional information would you require to improve the quality of these forecasts?
- (5) Crofton Transit implemented major service changes in May 2004. Can the analysis above be used to determine the possible effects of these changes to the ridership?
- (6) Comment on any other aspects of the case that were not specifically addressed in the above questions.