

5 METHODOLOGY

Rural Transport Survey 2000

BACKGROUND INFORMATION

1 What is the postcode of this address? Please write in box
If unknown, please write street name or village

2 How many people normally live in your household?
Please write in the box provided

3 About your household Fill your own details
Tick the applicable

	Sex		Age	
	Male	Female	0-4	5-14
Person 1 (form filler)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Person 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Person 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Person 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Person 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Person 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Railway research

I AM carrying out research into rural travel patterns and the use of trains between Yeovil and Weymouth, both as part of my university course at Oxford Brookes University and for Dorset County Council's planning policy team. I would like to thank everyone who replied to the questionnaires I sent out to homes in Beer, Yetminster, Chetnole, Maiden Newton, Leigh and far been returned and your help is much appreciated. If you haven't had the chance to fill your questionnaire in, I would still be pleased to hear from you. I would also like to thank all those people who were interviewed on the train between Yeovil and Dorchester last month and the Wessex Trains staff. More than 200 interviews were done by myself and a colleague from County Hall. I hope to publish results early in the summer.

JAMES PURKISS
Herrington Road
Dorchester

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5 METHODOLOGY

5.1 Previous research techniques

5.1.1 Previous research of a rural transport theme has used a mixture of techniques in order to inform the work, as outlined below.

5.1.2 Questionnaires and short, structured interviews are useful to collect data on large numbers of people on specific issues and encourage participation if the respondent feels this will not take long [DTLR 2000]. These can take place on-street [DTLR 2000], on-vehicle [DTLR 2000, Salveson 1997] be questionnaires delivered to households [DTLR 2000], or given to 'interested parties' [TR&IN et al 2001]

5.1.3 Interviews have frequently been used as a way of obtaining detailed information from the people living in the research areas or who have experienced the problem being researched. It is a technique often practised by those undertaking social exclusion-based work. For example, Hillman & Whalley [1980] interviewed former rail users to understand their habits after rail closure. Difficulties particularly existed in finding rail users within the wider population, especially due to a time lapse of up to ten years. A great willingness to participate and interest in the subject was found whilst undertaking the interviews.

5.1.4 Interviews, with quotes within the reports, often allow some of the story to be told by those who experience it. This has been a feature of work such as *Living in the countryside* and *Not seen, not heard* for the CA [Hedges 1999, CA 2000] and *Social Exclusion and the availability of public transport* [DTLR 2000]. Interviews have been undertaken with particular groups, such as young people [Joseph Rowntree Foundation 2000]

5.1.5 Discussions with public and private organisations and knowledgeable individuals are a recurring theme, either in person or on the telephone [Hillman & Whalley 1980, TR&IN 2001, DTLR 2000]. The use of focus groups or informal discussion groups are often used if the researcher is trying to reach a specific group of people, such as people with accessibility problems in large villages [DTLR 2000]. These, of course, may give biased results because, by the nature, they tend to attract people wishing to divulge their opinions.

5.1.6 Sample areas vary between projects. These have been based on market town catchments [Hedges 1999], the hinterland of (urban) *New Deal*-initiative neighbourhoods [DTLR 2000], a number of settlements along a railway line [Hillman & Whalley 1980, Salveson 1997], or places involved in the CA's *Market Towns Initiative* [TR&IN et al 2001]. Research in the field has been undertaken by some researchers in order to gauge station facilities and conditions [TR&IN et al 2001].

5.2 Chosen research techniques

5.2.1 Primary data gathering for this project was composed of three major techniques:

- householder questionnaires
- rail passenger interviews
- station audits

Firstly, householder questionnaires aimed to find out the use, relevance and perception of the rural railway to those living in settlements proximate to rural stations. Secondly, the passenger interviews aimed to find out facts relating to the line's use and opinions from the passengers. Thirdly, station audits were carried out to examine the rural station environment for comparison with passenger and householder perceptions.

5.2.2 Both the questionnaire and interview were constructed with input from Dorset County Council’s Passenger Transport and Planning Policy Divisions, Wessex Trains and the chairman of the Bristol to Weymouth Rail Partnership. These were then pilot tested on 10 rail passengers and 10 County Council employees (for the householder questionnaire). Modifications were made to deal with the minor flaws this exposed.

5.3 Householder postal questionnaires

Rationale

5.3.1 Remote surveying, by postal self-administered questionnaires, rather than door-to-door, was preferred due to the deep rural and scattered nature of the case study area. In addition, other methods, such as face-to-face or telephone surveys would give the researcher difficulties in terms of increased time taken and reduced likelihood of achieving a representative sample [de Vaus 2002]. Issues of personal safety were also borne in mind in making this decision.

Sample locations

5.3.2 All parishes within 1km and one parish situated 2km from the four intermediate stations between Yeovil and Dorchester were sampled. These areas were chosen in order to concentrate resources and aim for a significant sample size in each parish. The survey locations are outlined in Table 5.1 below. Appendix 6 contains more information about the population and facilities in each parish.

Table 5.1: Householder questionnaire locations	
Station	Surrounding parishes surveyed
Thornford	Thornford Beer Hackett
Yetminster	Yetminster
Chetnole	Chetnole Leigh Stockwood
Maiden Newton	Maiden Newton Frome Vauchurch

Sampling procedure

- 5.3.3 Sampling of households within these parishes was undertaken due to the researcher's time and financial constraints, the aim being to have responses from a representative sample of the population as a whole [de Vaus 2002].
- 5.3.4 The County Council's *MapInfo* GIS package was used to identify all address points for the parishes in question, which identified a total of 1,799 addresses. The address details contained within the MapInfo table were then exported as a database (.dbf) file into Microsoft Excel and manually tidied into a smaller number of columns for ease of manipulation. This then constituted the sampling frame from which the sample cases could be selected.
- 5.3.5 A limit of 500 questionnaires, assuming a return rate of roughly 40% (as encountered in previous rural Dorset research [Purkiss 2001]) was identified as a reasonable limit to which time and resources allowed. A formula was used to select a sample of the address points; in this case 1 in every 4 records was chosen. This equates to a systematic sample of every fourth house down each street. This task identified 450 records. The exercise was repeated selecting every 33rd record in order to identify a total of 500 cases without duplication. This figure reduced to 490 after business address points were identified and deleted. This gives a sampling error of 4.5% at the 95% confidence level. Such a relatively large sample size reduces the sample error and increases sample reliability [de Vaus 2002].
- 5.3.6 The Mail Merge facility on Microsoft Word was used to take the address data and create the 490 address labels. The questionnaires were posted out with a covering letter and a County Council postage-paid envelope to encourage a high return rate.

Questionnaire design

5.3.7 The questionnaire was made as comprehensive, clear and uniform as possible. Basic, simple questions were put at the front of the questionnaire, as a gentle introduction into the questionnaire, followed by more taxing, opinion-based questions, a technique emphasised by Narins [1995]. It was judged that the benefits of gathering even more comprehensive data were outweighed by the disbenefits of lengthening the form and losing clarity for the prospective form fillers. It was anticipated that both of these factors would discourage completion and reduce return rates.

5.3.8 Table 5.2 shows the information gathered in the householder questionnaires.

Information to be gathered	Questionnaire number	
		Questions asked
Demographic details	1	Postcode (as indicator of address/ village)
	2	Numbers resident in household
	3	Gender
	3	Age
	4	Main wage earner employment
Transport & travel data	5	Transport available
	6	Number of people who could drive
	7	Location and travel mode for work/ education
	8	Location and travel mode for day-to-day/ weekly/ high-order shopping
Rail use	9	Frequency of rail use for shopping, work, leisure, health, visiting friends and education
	10	Frequency of bus use for same purposes (comparison information)
	16	Use of rail to visit the seaside resort of Weymouth
(Questionnaire filler's) Opinions & knowledge	11	Whether members of household had been prevented from socialising/ gaining employment/ doing hobbies by lack of public transport
	12	Cost of tickets
	15	How they get rail information
	15	How they buy rail tickets
	13	What would encourage greater use of rail line
	14	Knowledge of train frequency
	14	Level of knowledge of timetable
	17	Whether increased timetable knowledge would encourage visits to a range of regional centres

5.3.9 Journeys to work, school and college were examined since they account for approximately half of all journeys made [South Somerset District Council 2000]. Shopping journeys were examined since 99% of people make shopping journeys [ibid.]. Questions 16 and 17 were included at the request of the Rail Partnership. A copy of the householder questionnaire is found in Appendix 7.

Response

5.3.10 216 out of 490 questionnaires were returned, equating to a 44% response rate. Of these, 121 questionnaires contained 293 additional comments. Non-response, where some respondents missed certain questions, meant some question analysis has been based on a slightly smaller number of cases.

5.3.11 Response was highest in Chetnole, with a 57% return rate, and lowest in Beer Hackett, with 22%. Table 5.3 shows that returned questionnaires account for 14% of all dwellings and 14% of all residents within the survey parishes.

Table 5.3. Level of questionnaire responses		
Parish	% parish dwellings surveyed	% parish population surveyed
Beer Hackett	6	6
Chetnole	18	16
Maiden Newton	12	12
Leigh	14	13
Stockwood	#	25
Thornford	13	14
Yetminster	15	14
Total	14 +	14
Data based on 1991 parish dwelling totals and 2000 parish population estimates [Simons & Owens 2002] # Dwelling numbers are amalgamated with nearby Ryme Intrinseca parish in census data + Excluding Stockwood		

5.3.12 Near equal numbers of males and females (199 and 204 persons respectively) were surveyed. Near equal numbers of males and females filled in the questionnaire (53% against 47%).

5.3.13 542 individuals are represented in the survey, composed of 434 adults and 108 children (those under 18). The questionnaire returns show, for population breakdown, a general similarity to the population of West Dorset (as of 1991). However, 18-44 year olds are under-represented and people aged between 45 and state pension age are over-represented, by 10 percentage points each, as shown in Table 5.4.

Table 5.4: Survey population breakdown					
Survey Area	% population				
	Under 5	5-17	18-44	45-State Pension	State Pensioner
West Dorset 1991	5.4	14.2	32.7	20.5	27.2
Survey responses 2003	3.7	16.2	22.3	31.2	26.6
Population breakdown data from 1991 census information [Morris & Bell 1996] Note: Information for 215 households					

5.3.14 Details about the questionnaire filler were of interest to ascertain whether certain types of form fillers (and their particular views) were over-represented. A breakdown of the age and gender of the form fillers is shown in Table 5.5. People aged over 45 and of state pension age tend to be over-represented, both in terms of proportion of people surveyed and in terms of the district population. This may result in some bias in the results.

Table 5.5: Profile of form fillers		
Age	Number of returned questionnaires	% of relevant questionnaires
Under 18	3	1.4
18-29	4	1.9
30-44	38	17.6
45-State Pension Age	91	42.1
State Pensioner	79	36.6
Not answered	1	Negligible
<i>Total</i>	216	100
Gender	Number of returned questionnaires	% of relevant questionnaires
Male	114	53
Female	101	47
Not answered	1	Negligible
<i>Total</i>	216	100

Analysis

5.3.15 Survey results were coded by referring, where possible, to a codebook created by the researcher and the data subsequently entered into the social statistics program *SPSS*. *SPSS* is regarded as the leading data analysis program for social scientists; can be used on any personal computer [Howitt & Cramer 2003] and its range of statistical procedures goes above and beyond the basics necessary for this project. Householders' additional comments were also coded and then grouped into roughly twenty categories for ease of analysis.

5.3.16 Some householder questionnaire analysis involved the division of data into two groups of case study villages due to their similar characteristics. Measuring distance (to, for instance, householders' shopping and employment locations) from the Wriggle Valley parishes took place from the central parish, Yetminster. Measuring distance from the Greater Maiden Newton parishes took place from the market cross at the centre of Maiden Newton village. Distances were calculated on the GIS program, *MapInfo*.

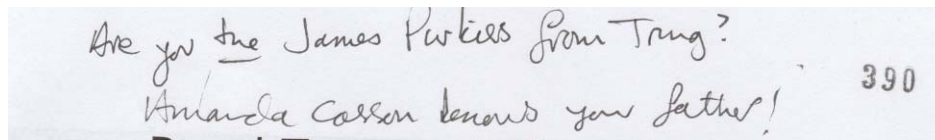
Improvements

5.3.17 Despite attempts to anticipate how people will answer questions, some design errors only appeared once questionnaires were returned. These included:

- Respondents writing 'school' and 'work' as destinations instead of specific locations as intended
- 72% of respondents gave no opinion on cheaper season tickets because a printing error meant no box was provided to tick (as opposed to 17% for the cheaper than car travel option, for example)
- The same question omitted 'greater reliability' as a factor in encouraging greater rail use (many people commented on this separately)

These problems could be rectified with simple changes to wording or questionnaire design. An element of surprise is likely never to be eliminated, and Figure 5.1 illustrates that questionnaires can return with the most unexpected of responses...

Figure 5.1: Unexpected questionnaire responses



5.4 Rail passenger interviews

Rationale

5.4.1 The rationale behind the rail passenger interviews was to provide an overall picture of rail use in the corridor and to ask rail travellers about their journeys and experiences. It was at first envisaged to conduct short interviews on station platforms where it was thought that Wessex Trains, the station owner, would most readily grant permission. However, discussions enabled on-train interviews to be undertaken. These face-to-face interviews allowed the interviewer to clarify misunderstandings, probe answers to open-ended questions [de Vaus 2002] hand out timetables and note down the number of passengers on each service.

Sample locations

5.4.2 Interviews were conducted on Wessex Trains services between Weymouth and Yeovil Pen Mill. The interviews occasionally extended to Castle Cary if this allowed a greater proportion of train coverage, made more efficient use of time and reduced the time waiting for return services.

5.4.3 By virtue of the timetable, it was not possible for a sole researcher to conduct interviews on every service within one day. The interviews took place on a series of days through the spring months of 2003. This avoids periods of particular low or particular high flows, which distort the picture of use on the line, and also problems of over-reliance on one particular day. This was a problem encountered on a previous line survey in 1992, which coincided with Weymouth carnival day [DCC 1992]. Table 5.6 below sets out the dates on which interviews took place and Table 5.7. sets out the trains surveyed.

Table 5.6: Rail passenger interview dates		
Day of week	Dates	Period of day
Wednesday	5 th February 2003	Morning/ Afternoon
Wednesday	12 th February 2003	Morning/ Afternoon
Monday	17 th February 2003	Morning/ Afternoon
Wednesday	19 th February 2003	Morning/ Afternoon
Monday	28 th April 2003	Evening
Tuesday	29 th April 2003	Morning/ Evening

Table 5.7: Trains surveyed								
Trains from Bristol Temple Meads								
Service	0555	0828	0928	1200	1428	1626	1728	2033
No. times surveyed	2	1	-	3	3	1	1	-
Trains from Weymouth								
Service	0540	0653	0838	1102	1300	1457	1720	1959
No. times surveyed	1	1	1	3	1	3	1	1
Total trains surveyed: 24								

5.4.4 The surveys were weighted as if the researcher had travelled on each weekday train once. Since the 0928 and 2033 Bristol Temple Meads departures were unable to be surveyed, survey information from the 1200 and 1728 Bristol Temple Meads departures were given double weighting. Services surveyed more than once were given half or third weightings to reduce the importance of the extra data collected. Results and analysis are based on these weighted figures.

Sample procedure

5.4.5 Where possible, every traveller was approached with the intention of interviewing them. Complete coverage was not possible for two reasons. Firstly 7% passengers declined to take part in the interview, and secondly, not all passengers could be interviewed in the time available before either the passenger, or the researcher, alighted the train. The numbers of refusals were noted and the researcher worked steadily through one carriage of the two-carriage train before moving on to the second, if time allowed. It was assumed that prospective passengers were equally likely to choose either carriage when boarding the service and thus had an equal chance of interview.

Interview design

5.4.6 Interviews opened with a short explanation of what the researcher was doing and that the interviews had the support of Wessex Trains and the County Council. Interview questions began by ascertaining basic details about the passenger's journey (origin, destination, method of reaching the origin station, final destination) and home postcode. This approach helped ease the passenger into the interview. The postcode information was useful to examine passenger's journey origins, especially since some people equated the start of their journey with the start of their rail journey

5.4.7 Questions followed on the purpose of their journey, an indication of when the passenger had last travelled on the railway line in question and how their journey would have been accomplished if the train was not available.

5.4.8 Questions which asked passenger's opinions and involved more thought came towards the end of the interview, once the passenger's interest had been secured. These included:

- opinion on cost of tickets
- whether the train operator's website has been visited and whether tickets had been bought from it
- whether the rail Partnership website had been visited
- whether the traveller had a copy of the timetable
- whether the traveller would use a Sunday morning service if one were available
- any comments on the railway line and its services
- ascertaining when travellers had last visited one of four regional centres for shopping purposes (added at the request of the Rail Partnership⁵)

Appendix 8 shows a copy of the rail passenger interview pro forma.

Response

5.4.9 In total, 323 interviews were conducted and this equated to the opinions of more than 410 passengers, boosted due to passengers travelling in groups. Where a passenger was encountered for the second time, their journey details, but not their opinions, were recorded. 237 interviewees gave additional comments, with a total of 500 comments being made.

Analysis

5.4.10 In similarity to the questionnaire methodology, the interviews and rail passenger comments were coded and entered into *SPSS*.

Improvements

5.4.11 No improvements were identified as a result of the use of the forms.

5.5 Station Audits

5.5.1 The high proportion of householder and rail passenger comments relating to the station facilities prompted the researcher to investigate rural stations within the case study area. Station audits were undertaken in order to compare the rural stations with each other and to examine the deficiencies

identified in comments. Photographs from the previous County Council survey in 1992 were used to ascertain what changes had taken place over the last 10 years.

5.5.2 Moreton station, a rural, unmanned halt on the SWT Weymouth- Waterloo line, was used as a 'benchmark' station for comparison with the deep rural unmanned stations (Maiden Newton, Chetnole, Yetminster and Thornford) on the Bristol-Weymouth line. It has 19 services in each direction on a weekday [SWT 2002].

5.5.3 Information was recorded for four main areas, as indicated in Table 5.8 below:

Area	Information recorded
Passenger safety	The level of maintenance Perception of personal safety
Access	Provision to reach the station by foot, bike, bus and car The ease or difficulty in reaching all platforms
Information provision	Information about the next train to arrive Information about trains in general Other information (nearby facilities, interchange etc)
Station environment	Waiting facilities General station appearance

5.5.4 General views of each of the rural stations are illustrated overleaf in Figures 5.2 to 5.5.

⁵ This question has not been analysed for this project

