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Runcorn

A Rapid Transit New Town?

LEWIS LESLEY

Runcorn, more than any of the other British new towns, set out to provide high-quality public transport as a central feature of its plan. Surveys show that this has resulted in a higher level of public transport usage than in other new towns, and greater mobility amongst residents of the town.

Runcorn is one of twenty-eight new towns in Britain which together had a total population of 2 million in 1979, or almost 4 per cent of the UK population. When the target figures for all the new towns are reached, about 5 per cent of the UK population will be resident in them. Runcorn had a population of 62,000 in 1979.

Runcorn was a substantial town (of nearly 27,000) before designation, based upon chemical manufacturing (Imperial Chemical Industries) and dock-related activities. The town is situated in north-west Cheshire on the south bank of the river Mersey at its first bridging point from the sea. At first only the railway had a bridge and road traffic used the transporter bridge to reach Widnes and so Liverpool. The limited capacity transporter was replaced by a fixed bridge in 1961 which was widened in 1979.

Runcorn was designated a new town in 1964 with a target population of some 90,000 and potential for a possible 100,000. One of the prime aims for Runcorn was to take 'overspill' population from the congested Merseyside conurbation some 20 km to the north-west. The designated area of the town is 2940 hectares (7250 acres), and the Master Plan was drawn up by Professor Arthur Ling and Associates.

Objectives for Runcorn

The Master Plan points out in its introduction that 'the new town provides an opportunity to advance the art and science of town planning'. In seeking to meet the needs of the residents, the plan aims to establish an integrated community.

The objectives for Runcorn can be summarized as follows:

1. to provide employment and new housing for people from north Merseyside;
2. to create a lively urban environment which raised the quality of housing whilst meeting economic necessities;
3. to achieve a unity and balance between all the elements of the town;
4. to make all parts of the town accessible from one another;
5. to bring together all those contributing to the design of the town so that a unity of form is created;
6. to achieve a unification of the old and new;
7. to take advantage of the unique physical and landscape features of the site;
8. to meet the challenge presented by the numerous obstacles;

9. to programme the construction so that at each stage of the town there is a satisfactory basis for a vigorous and contented community;

10. to provide flexibility to allow for the changing needs of population.

Of the ten objectives identified in the Master Plan only one is explicitly linked to transport (No.4), while the third includes a balance between public and private transport. The Master Plan saw these two objectives as being realized by the provision of a separate high-quality public transport system, which could double the service speed achieved by buses compared to operations on normal roads. The idea that Runcorn could be a 'pedestrian' and 'motorized' town was rejected because of the large size of the designated area and the problems which could be created for carless residents.

There is a complete chapter in the Master Plan devoted to Communications, covering in order: Air Services, Docks and Waterways, Railways, Existing Bus Services, Regional Roads, Traffic and Transport in the Town, Roads and Rapid Transit Route, the Expressway System, Distributor Roads, Rapid Transport System, Choice of Rapid Transit System, and Traffic Assignments. There was considerable variation in the attention given to each subject, with respectively 14 lines of text to Air Services, 27 to Docks, 45 to Railways, 11 to Existing Buses, 42 to Regional Roads, 146 to Traffic and Transport, 9 to Roads and Rapid Transit, 32 to Expressway, 17 to Distributor Roads, 151 to Rapid Transit, and 68 to Traffic Assignments. For internal travel in Runcorn, two modes were considered in detail – private car and rapid transit public transport. Walking is not discussed, although there is an appendix on the 'Determination of Walking Distance' which states that the maximum duration of walked journeys will be five minutes.

The Master Plan looks 'ahead to the time

when the national average saturation level of car ownership for the year 2010 is reached', but assumes that even then 15 per cent of trips will be made by public transport. So the basis for road planning was that a high level of car ownership would follow the national pattern, but observes 'the maximum use of private cars would require additional expenditure on road works and car parks. If an efficient public transport system could be provided . . . it would provide the new town with an economic means of moving people to and from their destinations'. The Master Plan points out that in a town of 100,000, conventional bus services on public roads would provide a poor quality service with high fares or would need subsidy.

In order, therefore, to make public transport economical and to achieve the projected savings from car parking provision, a modal split of 50 per cent work journeys by public transport was selected as an objective for the town. For this to occur the Master Plan proposes an entirely separate system of public transport linking residential areas to the town centre and industrial zones, with journey times by public transport competitive to the car. The Master Plan also proposes that parking charges be adjusted to ensure that travel costs by public transport are equivalent to those by car.

The Master Plan reviews potential rapid transit systems, monorails, trams and special buses and, after considering the advantages and disadvantages of each, concludes that special buses to be the best choice, operating at 40 mph (65 km/h) on separated rights of way. 'The bus has flexibility of movement . . . and can readily be used on multi-purpose roads . . . during the early stage when . . . the reserved track will not be complete'. Proposals for the design of buses to be operated on the system are developed. Single deck rather than double were selected because the reduced headroom would make bridge con-

struction cheaper. The design envisaged a high performance bus capable of accelerating at 3 ft per s² (0.9 m/s²) and averaging nearly 22 mph (35 km/h) in service. There would be room for some 90 passengers per bus, most of whom would stand.

In order to test these proposals, traffic assignments were developed both for a 50:50 modal split between public and private transport and also 15:85. In the latter case, the road system was examined to determine potential overloading and congestion. The degree of congestion resulting could be reduced if school journeys were not made at the same time as journeys to work.

Therefore the Master Plan selected as its main transport objective a separate public transport system which in the design year would attract 50 per cent of journeys made to work. This would mean that considerable capital savings could be made in the reduced capacity of the road system and the smaller parking provision. Without this high-quality, public transport system, only 15 per cent of work journeys would be made by public transport in the design year.

Comments on Objectives

Runcorn was the first new town in the world to opt for a separate high-quality public transport system. A second has been built at Evry, France. All the British new towns have assumed that in the design year, all those with cars would use them, so plans have provided adequate capacity in the road systems and parking places. However, that policy has two major drawbacks. Firstly, during the transition phase while the town is being built and until saturation car ownership is reached, the majority of residents would have difficulties in travelling and public transport operators would find it virtually impossible to provide a satisfactory service on a car-based road system for what would only be a limited period. Secondly, when the town was com-

plete a considerable proportion (expected to be about 15 per cent) of households would not have a car and travel in the town would be extremely difficult.

Runcorn's Master Plan seeks to avoid both problems by making public transport a central, permanent part of the town's transport system.

However in considering transport provision only in terms of car or public transport, the Master Plan has virtually ignored walking as a method of transport. Further, by assuming that no walking journey would be over five minutes long (about ¼ mile or 400 m), no comprehensive footpath system has been provided. In fact, for all journeys made in Britain (from the National Travel Survey 1975/76) 30 per cent were a mile long and 86 per cent of those were walked (a mile is about a 20-minute walk). Twenty per cent of all journeys were between 1 and 2 miles (1.6 and 3.2 km) and 38 per cent of those were walked, and 11 per cent of all journeys were between 2 and 3 miles (3.2 and 4.8 km), with 12 per cent walked. Since nowhere would be more than 2 miles from the town centre, and the maximum journey, from one end of the town to the other, would only be 4 miles (6.5 km), this could be a serious shortcoming.

Progress with Implementation

The reserved track public transport system based on buses (The Busway) was begun in 1971, and formally completed in 1978 (figure 1), although minor improvements were made in the old town subsequent to that. The use of specially designed buses with a unique Busway livery has not been achieved. Normal service buses from Crosville Motor Services Ltd. are used interchangeably with other services. Initially though, these buses had a Busway symbol (a figure of eight sideways) on the front, but even this has now been dropped. Additionally, after reorganization of local government in 1974, when Widnes and

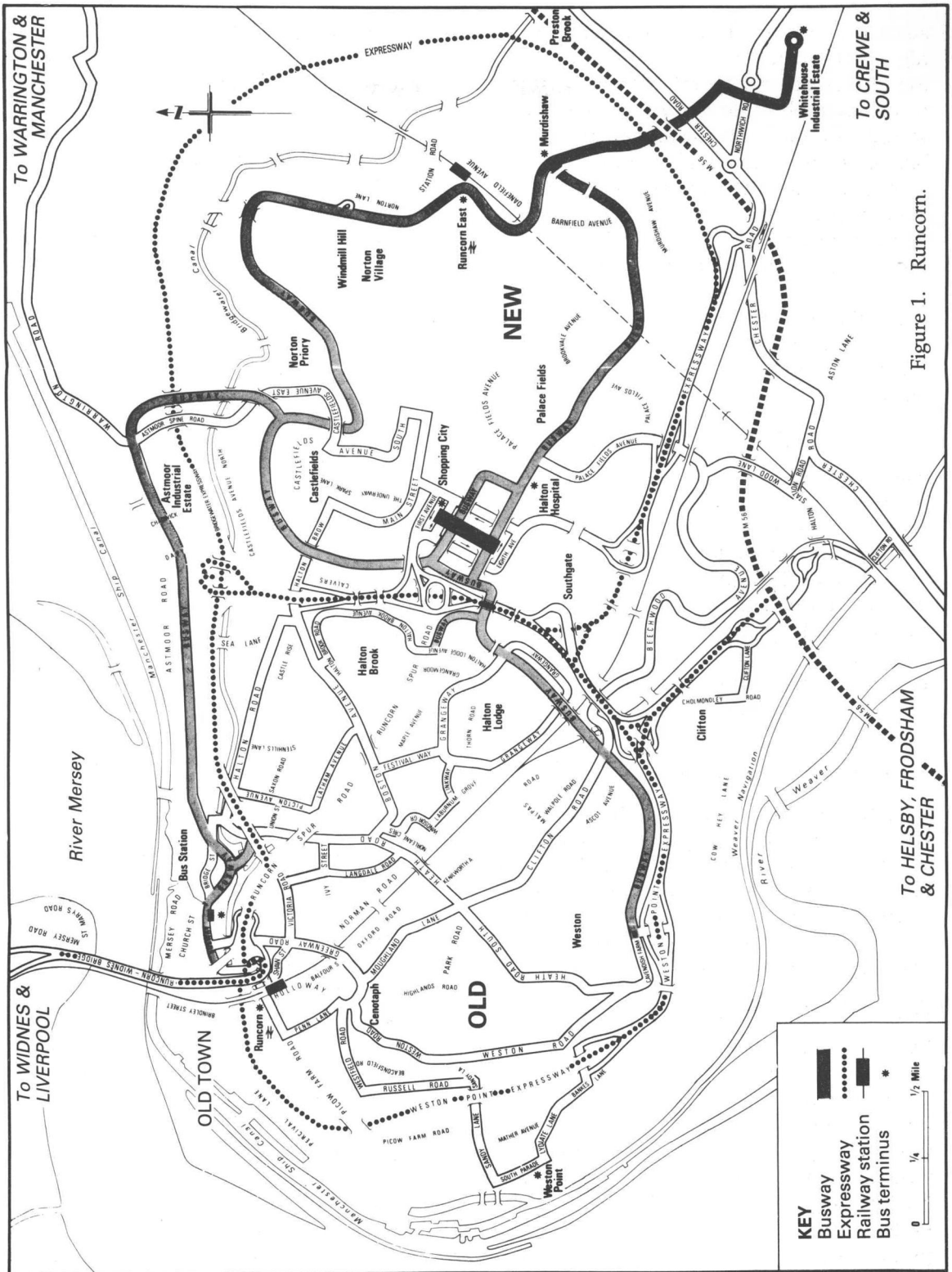


Figure 1. Runcorn.

Runcorn were merged into one administrative district, the old Widnes Transport (now Halton Transport) extended a service from Widnes across the Mersey Bridge to the new Runcorn Town Centre and Runcorn Hospital at Palacefields.

A new bus depot has been built adjacent to the Busway at Beechwood, to replace the original and cramped depot in old Runcorn. This has enabled the full Busway service to be run from Runcorn, and provided improved working conditions for bus staff. Experiments have taken place with alternative bus types. For a couple of years an electric bus, powered by a trailer of batteries was operated. This was a conversion of a Leyland National Bus, where the diesel engine was replaced by an electric motor. The electric bus proved popular both with drivers and passengers, due to its smoother ride and quieter operation. However, the batteries only had a limited charge giving about four hours of service before recharging. The second experiment was with an

articulated single deck bus, which was 18 metres long, and joined flexibly in the middle to form one bus with the same manoeuvrability as a standard bus. The main advantage of this bus is that a larger number of passengers can be carried with only one driver, an important consideration at peak periods, and a practical way to improve staff productivity. No decision has yet been taken on what, if any, changes will be made to bus type.

When the Busway was completed, the Busway services were reorganized and a major publicity effort was made to promote the new services, which aimed to provide a more comprehensive system. Subsequent to that, in 1980, as the result of the application of the National Bus Company's 'Market Analysis Project', the Busway services were again reorganized to bring them more closely into line with passengers' needs. At the same time a publicity campaign was undertaken and buses in Runcorn received a wide orange band around the middle, to



Figure 2. Busway at Castlefields, showing grade separation from estate distributor road and pedestrian underpass.



Figure 3. A bus approaching the town centre on the elevated track. (Photo: Brian Williams).

give them a more local identity and to contrast them to the standard National Bus green livery.

After the 1973 OPEC oil price increases, there was a substantial and sustained national increase in cycling. This also occurred in Runcorn, and because there was no network of cycle paths, cyclists rode along the Expressway system (urban motorways with traffic at 50 mph (80 km/h)). After a number of tragic cycling fatalities, out of all proportion to the number of cyclists, pressure on the police, district and county councils, and development corporation, led the last to investigate, plan and recently implement the retro-fitting of a cycleway system in order to provide for the demand of cycling, away from the dangerous Expressway system. The new cycleway network will also be used by walkers and so will provide for those walking journeys of more than five minutes, which were originally the longest for which provision was made.

A proposal in the Master Plan to relocate Runcorn Railway Station at a site in Beechwood has not materialized and the site has,

in fact, been used for the new bus depot. Runcorn still has no rail links to Chester, Warrington, or Manchester, since the stations on that line have been closed. However, proposals for a new station in Norton adjacent to the Busway for easy interchange, which would make those destinations accessible, are being realized. Runcorn East, opened at the end of 1983, was jointly funded by Cheshire County Council and British Rail.

The Busway, in spite of the problems outlined above, has provided a very high quality service, with scheduled speeds of over 20 mph (30 km/h) and on most of the system a frequency of a bus every ten minutes or less.

Travel in Runcorn

Jointly with Cheshire County Council and Crosville Motor Services, Liverpool Polytechnic conducted a 1 in 30 household interview and travel diary survey in 1979. The results of this survey showed that residents were not working as had been assumed in

NEW TOWNS REVISITED

the Master Plan, and that travel patterns were very different from those envisaged for the design year.

Area Characteristics

The population of old Runcorn is older, has marginally more cars per household and less children than new Runcorn. In 1979 nearly half (48 per cent) of residents were in accommodation rented from Runcorn Development Corporation, nearly a third (31 per cent) were owner occupiers, nearly a fifth (17 per cent) rented from the district council and a mere 3 per cent were renting privately. Over three-quarters (78 per cent)

of those in old Runcorn had lived there over ten years, while for the new town nearly half (48 per cent) had been there less than five years. In the old part of the town 16 per cent of households had only one person compared to 10 per cent in the new part; while 3 per cent of old town households had six or more members, 8 per cent did so in the new part of the town.

The social class of households (based on employment of head of household) was virtually identical in both old and new parts of Runcorn, being overall AB 3 per cent, C1 20 per cent, C2 29 per cent, D 36 per cent and E 13 per cent.

Table 1. Characteristics by area of Runcorn.

<i>'Old' Runcorn</i>	<i>Total</i>	<i>Old Town Area</i>	<i>Weston Point</i>	<i>Higher Runcorn</i>	<i>Spar Road</i>
Population	25940	3790	1470	8480	11810
No. of households	9000	1290	460	2810	4320
Cars per household	0.66	0.68	0.50	0.86	0.54
Population under school age (%)	7	11	8	6	7
Population 5-14 (%)	15	13	19	17	14
Population over retiring age (%)	14	11	20	12	16
Households without a car (%)	43	46	50	32	49
Households without telephone (%)	30	46	25	18	33

<i>'New' Runcorn</i>	<i>Total</i>	<i>Halton Brook</i>	<i>Halton Lodge/ Beechwood</i>	<i>Busway North</i>	<i>Busway South</i>
Population	35160	3490	5790	10700	15030
No. of households	10990	960	2060	3600	4380
Cars per household	0.64	0.72	0.83	0.59	0.60
Population under school age (%)	11	8	11	7	15
Population 5-14 (%)	20	28	16	18	20
Population over retiring age (%)	8	7	7	12	6
Households without a car (%)	42	31	30	49	43
Households without telephone (%)	32	28	23	31	37

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Table 2. Place of work of residents.

Place of residence	Total	Place of Work (%)						Outside Runcorn
		Old Town Weston Point	Old Town Centre	Total	Shopping City	New Town Astmoor	Whitehouse	
Old Town								
Total	50	25	12	20	8	5	3	30
Full-time	55	28	8	20	8	5	3	25
Part-time	70	14	27	16	5	5	2	14
New Town								
Total	12	6	4	38	14	9	5	50
Full-time	13	7	4	36	13	10	6	51
Part-time	5	—	5	68	19	7	2	27
Total	29	15	7	31	11	8	4	40
Full-time	27	16	6	30	11	8	5	43
Part-time	41	8	17	38	11	6	2	21

Employment

Old town residents are much more likely to work in Runcorn than those in the new part, and this is further accentuated by those in part-time (less than 30 hours per week) employment who are very likely to work in their immediate locality.

Over half those in full-time employment in the new part of Runcorn work outside the designated area, compared to only 30 per cent of those in the old part. For part-time employment 27 per cent of those in the new part work outside, compared to 14 per cent from the old part. Seventy per cent of those from the old part in part-time work, work locally compared to 68 per cent in the new.

Method of Travel

The location of the work place will clearly affect the method of travel to work and will also be important when considering the Master Plan objectives.

For the work journey the car is the dominant mode of travel (59 per cent, driver and passenger). Bus carries 16 per cent, almost the figure (15 per cent) assumed for the design year with full motorization. However, that figure needs to be qualified by the large, and not anticipated, proportion which works outside Runcorn.

For all other, except escort journeys, walking is the main method of travel ranging up to virtually half of all journeys

Table 3. Mode of travel by purpose of journey.

Purpose of journey	Mode of Travel							Total
	Walk	Cycle	Bus	Car driver	Car passenger	Taxi	Other	
Work (%)	16	4	16	45	14	1	3	100 (4186)
Education (%)	49	—	44	1	5	—	1	100 (789)
Shopping (%)	39	1	25	20	13	—	2	100 (4271)
Social (%)	34	2	10	27	12	1	2	100 (2625)
Medical (%)	40	—	22	21	11	—	7	100 (283)
Escort (%)	32	—	3	41	10	1	—	100 (2096)
Personal bus (%)	35	1	18	30	14	—	1	100 (1132)
Recreation (%)	48	3	6	20	19	2	2	100 (3275)
Total	6360	399	2862	5384	2865	132	359	18657
Total (%)	34	2	15	29	15	1	2	

(Excluding journeys: returning home and unstated)

Table 4. Peak period travel 08.45–08.59 weekdays.

Purpose of journey	Mode of Travel				Total
	Walk	Bus	Car driver	Car passenger	
Work	123	96	57	24	299
Education	174	136	81	34	425
Shopping	12	9	6	2	29
Medical and personal business	8	6	4	2	19
Escort	71	56	33	14	174
Recreation	8	6	4	2	20
Total	396	309	184	77	966

made. Bus is only significant for education journeys (44 per cent) and shopping (25 per cent).

Peak Period Travel

The busiest weekday travel periods in Runcorn, in terms of journeys per unit time are 08.45–08.59 and 17.00–17.14, with respectively 4 per cent and 3 per cent of the total daily traffic. An analysis of the morning peak period shows that work journeys by bus are in fact more numerous than might be imagined (table 4).

Thus, in the peak period buses actually carry more work journeys than cars (drivers and passengers combined) and so the Master Plan objective of 50:50 modal split can be said to have been achieved, except of course that only 8 per cent of work journeys take place during that period.

However, the major part of this peak is caused by education journeys and it is worth pointing out that the Master Plan observed that peak congestion could be reduced if school journeys were not made at the same time as work journeys. In Runcorn this could be achieved by shifting school journeys to the period 09.15–09.29, which would make bus service provision more economical and improve conditions for all travellers. This points out a general principle that transport problems (for example, peak period congestion) can often be solved through non-transport means, for instance through land-use development or institutional changes.

Trip Rates

Residents make more journeys per capita on Tuesday (3.72), Thursday (3.85) and Saturday (3.73) compared to a daily average of 3.38. Fewest journeys are made on Sunday (2.45) and indeed on Sunday only 3 per cent of journeys are made by bus, compared to a weekly average of 15 per cent. On Sundays 32 per cent of all journeys are made between 09.30 and 13.59, of which 2 per cent are by bus, 31 per cent between 14.00 and 17.59 of which 6 per cent are by bus, 30 per cent after 18.00 of which 2 per cent are by bus.

On Saturdays between 09.30 and 13.59 virtually 20 per cent of all journeys made in Runcorn are by bus. Between 08.30 and 17.14 on weekdays 21 per cent of all journeys made are by bus with a peak of 32 per cent between 08.45 and 08.59.

Origins and Destinations of Journeys

Over 70 per cent of all journeys made by Runcorn residents are wholly within the designated area, 25 per cent are made to or from areas outside Runcorn and 3 per cent are made wholly outside Runcorn.

Table 5. Origins and destinations of journeys.

Origin	Destination		
	Old Runcorn	New Runcorn	External
Old Runcorn	9997	2500	1818
New Runcorn	2477	9845	1581
External	1885	1391	905

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The main destinations for external journeys are: Liverpool (2.4 per cent), Helsby and Frodsham (1.9 per cent), Widnes and Ditton (2.8 per cent), Speke and Halewood (1.7 per cent) and Penketh and Warrington (1.4 per cent).

Of the internal journeys 42 per cent are made wholly within the local area of the resident, with 58 per cent to other parts of Runcorn. Residents in the old part of the town make most of their journeys wholly within the old town and new town residents stay mostly within the new town area.

Use of Bus Services

Bus services in Runcorn are used predominantly by women for all journey purposes; they are both the most frequent users and are the group with the smallest proportion who never use buses.

Thus, for each of the journey purposes: visit friends/relations, shop and night out, twice as many women as men use buses once a week or more often. On the other hand, around half the men in the survey never use buses, compared to about a fifth of women.

Table 6. Frequency of bus use.

<i>Journey purpose</i>		<i>Use Bus</i>		
		<i>Once a week or more %</i>	<i>2-3 times a month %</i>	<i>Never %</i>
Visit friends/relations	M	10	7	50
	F	19	10	33
Shopping	M	19	5	43
	F	37	10	19
Night out	M	4	3	52
	F	7	5	44

Table 7. Frequency of use by satisfaction with bus services.

<i>Area of Residence</i>	<i>Frequency of Use of Buses for Shopping</i>		<i>Satisfaction with Bus Service</i>	
	<i>Once a week or more %</i>	<i>Never %</i>	<i>Satisfied %</i>	<i>Not satisfied %</i>
Old Town	11	50	22	42
Weston Point	41	27	14	45
Higher Runcorn	25	37	26	40
Spur Road	25	25	30	28
OLD RUNCORN	25	33	26	35
Halton Brook	30	20	27	33
Halton Lodge/Beechwood	12	42	33	24
Busway North	29	34	46	20
Busway South	38	23	41	24
NEW RUNCORN	32	29	40	24
Total	28	31	34	29

Bus services are used slightly more frequently in the new part of the town than the old, but slightly under a third of new town residents never use buses for shopping. Overall, old town residents are more dissatisfied with bus services than satisfied, which is the opposite to the views of residents in the new part of the town, where in three out of four areas, more are satisfied than dissatisfied.

The residents in the new part of the town are directly served by the Busway services, which focus on Shopping City. On the other hand, residents in the old part do not enjoy services running on the Busway and they face the need to travel to Shopping City for much of their shopping, since many shops have transferred there from the old town centre. This latter point was a major cause of discontent amongst residents in subsequent group discussions. Since old town residents have in the main lived there prior to the new town being set up, they perceive the new town worsening their local facilities. Some old town residents claimed to

shop in Widnes rather than Shopping City as a result of this.

Old town residents identified service unreliability as a major cause of dissatisfaction, whereas in the new town service timings were the main reason – principally poor services in the evenings and finishing too early. Fares were hardly mentioned at all as a cause of dissatisfaction.

In discussion groups, old town residents complained that many of their bus services were now long distance from outside the town and that local services had been curtailed as a result of the new town being built. These two points reinforced to make their bus service seem unreliable.

There appears to be a different pattern between the residents of the old and new parts of Runcorn, with the former either not needing information about bus services (35 per cent), using the telephone (23 per cent) or a timetable (23 per cent) (including 4 per cent who specified information at stops). The latter are more likely to 'phone for information (41 per cent) (28 per cent

Table 8. Reasons for dissatisfaction with bus services.

<i>Reasons</i>	<i>Old Town % of comments</i>	<i>New Town % of comments</i>	<i>Overall</i>
Unreliability	50	26	39
Service timings/frequency	22	36	29
Routes/interchange	8	11	9
Fares too high	7	11	9
Other reasons	12	17	14

Table 9. Finding out about bus services.

<i>Method</i>	<i>Old Town %</i>	<i>New Town %</i>	<i>Total %</i>
By telephone	23	41	32
Use timetable	23	15	19
Ask bus staff	7	10	9
Ask other residents	8	5	6
Go to stop & wait	6	5	5
Other	4	3	4
not stated/don't use buses/ don't need information	35	24	29

(Note: multiple answers give totals over 100%).

'phone the bus depot), about a quarter said they did not need the information and only 15 per cent use a timetable (11 per cent mentioned timetables at bus stops).

Although overall some 15 per cent of all journeys made in Runcorn are by bus, almost half the population never use buses. Over a third of old town residents were dissatisfied with their bus services – the principal reason being unreliability – compared to less than a quarter who were dissatisfied in the new part of the town, where the lack of late evening services was noted.

Conclusion

The Runcorn Master Plan can, in part, be said to have reached its objectives in terms of a 50:50 modal split in the peak period for journeys to work. However, only 16 per cent overall of work journeys are by bus, similar to the 15 per cent considered to be the worst case with full motorization in the design year. The town is not self-contained with half of the new town residents in full-time work employed outside Runcorn, most of whom drive to work by car. The old and new parts of the town do not yet appear to be integrated, with Shopping City not yet accepted by old town residents and most of the journeys made by residents confined to their own part of the town.

Over a third of all journeys made by residents are walked (44 per cent of all those internal to the town), yet the Master Plan envisaged five minutes as the maximum walking time (about 0.25 miles (400 m)). Clearly there is a need to provide for this long-distance walking and perhaps the construction of dual cycle/footpaths will help to fulfil this need.

Overall, only in the peak period do the bus services carry a significant (nearly a third) proportion of the journeys made in the town, and overall 15 per cent of all journeys are made by bus. However, nearly half the residents of Runcorn never use

buses while buses are used regularly by just over a quarter of all residents (nearly a third of those in the new part of the town).

The Master Plan pointed out that peak congestion could be reduced by children travelling to school outside the peak. In the morning this would be achieved by school starting at 9.30 am instead of 9.00 am and indicates that some transport problems may be eased or solved by non-transport means.

Overall, more residents are satisfied than dissatisfied with the bus services, though the two parts of the town hold contrary views, with the old town being dissatisfied and the new, where the majority of the busway track is located, satisfied (40 per cent) and only a quarter (24 per cent) dissatisfied.

Given the timescale and complexity of building a new town, Runcorn has sought to avoid the problems of the transition phase (until completion and full motorization) by making high-quality public transport a central and permanent feature of the town. Compared to other new towns of a similar age the result has been a higher level of usage of public transport (15 per cent Runcorn, 10 per cent Skelmersdale, 11 per cent Telford) and a more mobile population (journeys per week: Runcorn 23.7, Skelmersdale 21.1 and Telford 21.1 per capita). Therefore the Busway concept can be said to have produced in Runcorn a higher modal split to public transport than would otherwise be the case and a higher level of mobility amongst residents. The old and new parts of the town though, have yet to 'achieve a unity and balance'.

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