

# Available Patronage Data

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## Introduction

A collation and processing of available patronage data took place on 03<sup>rd</sup> March 2016. This covered the most up-to-date 2 years’ worth of data (October 2013 to September 2015).

The following document details the quantity and quality of available subsidised bus patronage data. It explains what is available, as well as the relevant caveats and assumptions that must be made when examining it.

## Data Available

### Data Available Summary

- The data is incomplete across the last 2 years (68% of patronage data points over the past 2 years do not exist).
- The amount of data available for each 6 month period varies considerably.
- The most complete time period is April 15 to September 15 (the most recent). The least complete is April 14 to September 14.
- There is no data yet for the latest 6 months (October 15 - March 16)
- There is data available for different operators for different time periods.

### Data Available by Route

The following table summarises what percentage of subsidised routes have patronage data available for them for each 6 month period. "Yes" indicates data is available, "No, means it is not.

Time Period	Yes (num of Routes)	No (num of Routes)	Yes (%)	No (%)	Comment
Apr 15 - Sep 15	74	44	62.7	37.3	Majority <b>do</b> have data
Oct 14 - Mar 15	27	91	22.9	77.1	Majority <b>don't</b> have data
Apr 14 - Sep 14	5	113	4.2	95.8	Vast majority <b>don't</b> have data
Oct 13 - Mar 14	45	73	38.1	61.9	Majority <b>don't</b> have data
<b>Total for Oct 13 - Sep 15</b>	<b>151</b>	<b>321</b>	<b>32</b>	<b>68</b>	

## Data Available by Operator

The following table summarises for which operators patronage data is available for each 6 month period. "Yes" indicates data is available, "No, means it is not.

Operator	Data for entire 2 year period?	Number of 6 month periods with data available (out of 4)	Data available for			
			Apr-Sep15	Oct14-Mar15	Apr-Sep14	Oct13-Mar14
Arriva the Shires	No	1	No	No	No	Yes
Carousel Buses	No	0	No	No	No	No
Faringdon Community Bus	No	1	No	No	No	Yes
Go Ride Community Interest Company	No	1	No	Yes	No	No
Heyfordian Travel	No	0	No	No	No	No
Johnson's Excelbus	No	1	No	No	No	Yes
Kier	No	0	No	No	No	No
Oxfordshire County Council	No	0	No	No	No	No
Pulhams Coaches	No	2	Yes	No	No	Some Routes
Red Rose Travel	No	3	Yes	Yes	No	Yes
Stagecoach in Northants	No	2	Yes	No	No	Yes
Stagecoach in Warwickshire	No	2	Some Routes	No	No	Yes
Stagecoach Oxfordshire	No	1	Yes	No	No	No
Stanford in the Vale Minibus	No	2	No	Yes	No	Yes
Thames Travel	No	2	Yes	No	No	Some Routes
Vale Travel	No	0	No	No	No	No
Villager Community Bus	No	3	Some Routes	Some Routes	No	Some Routes
Whites Coaches	Yes	4	Yes	Yes	Yes	Yes
<b>Total number of operators with data</b>	<b>1 of 18</b>		<b>8 of 18</b>	<b>5 of 18</b>	<b>1 of 18</b>	<b>11 of 18</b>

## Caveats of Available Data

- **Patronage is merged by service number or operator in some cases**
  - For example, 67/67A/67B/67C are all listed by the operator as a single row with one patronage number.
  - Services for which this applies tend to be similar in nature, but may differ in
    - a) route (variations of the same route visit different roads/villages/areas etc.)
    - b) time (a service can change its number at different times of day)
  - There was one occasion where an operator appeared to merge patronage of all their services, although it was not clear (Johnson's Excelbus, Sep14-Mar15).
  - There are occasions where one service has been discontinued or is commercial and the other subsidised (e.g. X10/33, and X1/X1A).

- The columns in the data called *Data For Services* indicate which services the data applies to, as stated by the operator when providing the data.
  - In these cases, the assumption taken is that the number of passengers can be divided equally across the number of services.
- **Data provided sometimes appears incomplete**
- Some subsidised services do not indicate any subsidised passengers
  - This raises questions about data consistency across operators (what the data contains and whether it is complete).
  - For example the stagecoach 8 and stagecoach 11 have many commercial passengers but the subsidised passengers were left blank for April - September 2015.
- **Inconsistent quality of provided data**
- Some data is not broken down by passenger type. Operators have given a total number of passengers, not a number of subsidised, commercial, concessionary etc.
  - Examples of services where data provided does not state passenger type include Red Rose 275, Thames Travel 143, Villager services.
  - There are other cases where concessionary passengers are not listed as either commercial or subsidised, and so it is unclear to which category they belong (they have been listed as *Concessionary Not Specified*)
  - Where it was not clearly stated, various assumptions were made about which passengers should be considered subsidised or commercial. These are detailed fully in Annex 1.
- **Services and subsidies have changed**
- Some historic data is no longer applicable, and some historic data does not include newer services.
  - The further back in time, the less comparable to current routes the data becomes
  - In some cases service frequencies have been changed, routes changed, service numbers added and removed, etc.
  - Recent examples include the 136C, 67C.
- **Non-specified measurement method**
- The data does not consistently indicate how passengers are measured.
  - Some indicate that "*One boarding passenger is counted as one even if the ticket is a return. (Return ticket should be counted as ONE passenger rather than two)*"
  - Others do not indicate this, implying that a return ticket is 2 passenger journeys (counted twice).
  - Cross-boundary services do not always state whether they include Oxfordshire passengers only.

## Comparing Available Data to Ranking Methodology

### Comparison Summary

- The available patronage data was compared to the initial (July 2015) consultation ranking methodology.
- Many assumptions are required to make this comparison. These assumptions require validation.
- The Number of Subsidised Passengers against Consultation Ranking suggested a weak correlation. The trend line demonstrates that (very roughly) the better the rank, the higher the number of passengers.
- Other results/comparisons consistently demonstrated no significant correlation.

- The comparisons carried out are not exhaustive.

## Comparison Assumptions

In order to make a valid comparison of routes by patronage a number of assumptions have had to be made. In addition to the *Caveats of Available Data* section (above), the following should be noted when considering any comparisons. For full details of how these assumptions were taken into account, please see the full processing method in Annex 1.

### Data Availability Assumptions

It has been assumed that the available data is a representative reflection of subsidised service patronage, and that the gaps in the data would follow similar patterns as the available data.

### Data Contents Assumptions

- It has been assumed that the data provided by the operators is complete and correct.
- It has been assumed that the data provided by the operators is comparable in how it is measured. In other words, the same ticket types are measured in the same way (single vs return tickets, paper vs electronic tickets, concessionary and commercial tickets, etc.)
- Where data provided does not clearly break down passenger types (commercial vs. subsidised), several assumptions must be made to interpret the data and extract subsidised passengers. These are detailed in Annex 1, point 6.
- It has been assumed that in cases where data provided contains more than one merged service, that the number of passengers can be divided equally across the number of services. This is required to consider services individually.
- It has been assumed that in cases where data states that subsidised passengers equal zero for subsidised services, that there is a problem with the data, and therefore it must be excluded.
- It has been assumed that where services have changed (routes, timetables etc.) over the 2 year period, that they are not so different that data cannot be compared across that time (except for in the cases where services have discontinued or new services have started). Similarly, it must be assumed that the extent of the subsidy (the proportion of the service subsidised – the times and places that are subsidised) has not changed considerably over the two year period.

### Subsidy Cost Assumptions

When calculating cost per passenger, the Service Subsidy Cost value for each service is an estimate. This is because subsidy contracts can cover multiple services. A service can also be covered by multiple contracts (for example on different days). In this column, subsidy value has been attributed to services within a contract perfectly equally.

For the purpose of this paper, the most recent subsidy contract value has been used to calculate current subsidy cost. It must be assumed that the service subsidy cost does not differ considerably with the current value over the previous two year period examined.

## Consultation Ranking Assumptions

The rankings taken for this comparison were the original rankings published at the start of the consultation. In other words, they are not the most-recent updated post-consultation rankings (which prioritise rural services, and exempt deprived services and school routes).

Community Transport services that were originally exempt from the ranking have been excluded from this comparison (they were not given a numerical rank as they were originally excluded).

## Comparing Original Consultation Rank to Patronage Numbers and Cost per Passenger Calculation

The following table shows the original consultation ranking, compared to how services are ranked based on both average subsidised passengers, and average cost per subsidised passenger.

57 services are not included in the following table because they:

- Either were exempt from the original consultation ranking (Community Transport services)
- Or were not included in the original consultation ranking (the service didn't exist then or could not be analysed originally)
- Or have no data available for average subsidised passengers
- Or data is available but zero subsidised passengers were indicated (assuming this must be an error)

Operator	Service Number	Original Consultation Ranking	Average Subsidised Patronage Ranking	Rank change from Original	Number of places change	Cost Per Subsidised Passenger Ranking	Rank change from Original	Number of places change
Stagecoach Oxfordshire	B7	1	3	Rank Worse	-2	7	Rank Worse	-6
Stagecoach Oxfordshire	B2	2	1	Rank Better	1	5	Rank Worse	-3
Thames Travel	38	3	15	Rank Worse	-12	36	Rank Worse	-33
Pulhams Coaches	X9	4	5	Rank Worse	-1	15	Rank Worse	-11
Johnson's Excelbus	269	5	47	Rank Worse	-42	28	Rank Worse	-23
Stagecoach Oxfordshire	19	6	4	Rank Better	2	21	Rank Worse	-15
Stagecoach Oxfordshire	18	7	8	Rank Worse	-1	30	Rank Worse	-23
Stagecoach Oxfordshire	17	8	6	Rank Better	2	18	Rank Worse	-10
Red Rose Travel	275	9	50	Rank Worse	-41	48	Rank Worse	-39
Go Ride Community Interest Company	134	10	13	Rank Worse	-3	20	Rank Worse	-10
Whites Coaches	154	11	31	Rank Worse	-20	25	Rank Worse	-14
Stagecoach Oxfordshire	B10	12	10	Rank Better	2	19	Rank Worse	-7
Thames Travel	41	13	27	Rank Worse	-14	10	Rank Better	3
Johnson's Excelbus	270	14	35	Rank Worse	-21	14	Rank the Same	0
Whites Coaches	145	15	16	Rank Worse	-1	11	Rank Better	4
Whites Coaches	151	16	28	Rank Worse	-12	22	Rank Worse	-6
Thames Travel	42	17	44	Rank Worse	-27	29	Rank Worse	-12

Operator	Service Number	Original Consultation Ranking	Average Subsidised Patronage Ranking	Rank change from Original	Number of places change	Cost Per Subsidised Passenger Ranking	Rank change from Original	Number of places change
Thames Travel	67	18	54	Rank Worse	-36	51	Rank Worse	-33
Stagecoach Oxfordshire	X15	19	9	Rank Better	10	27	Rank Worse	-8
Thames Travel	67B	20	59	Rank Worse	-39	59	Rank Worse	-39
Pulhams Coaches	64	21	34	Rank Worse	-13	39	Rank Worse	-18
Thames Travel	63	22	42	Rank Worse	-20	52	Rank Worse	-30
Thames Travel	94	23	22	Rank Better	1	31	Rank Worse	-8
Thames Travel	67A	24	51	Rank Worse	-27	49	Rank Worse	-25
Thames Travel	22	25	18	Rank Better	7	35	Rank Worse	-10
Go Ride Community Interest Company	W10	26	41	Rank Worse	-15	34	Rank Worse	-8
Thames Travel	139	27	11	Rank Better	16	26	Rank Better	1
Stagecoach Oxfordshire	B1	28	2	Rank Better	26	6	Rank Better	22
Thames Travel	25	29	26	Rank Better	3	42	Rank Worse	-13
Thames Travel	95	30	33	Rank Worse	-3	40	Rank Worse	-10
Thames Travel	23	31	20	Rank Better	11	37	Rank Worse	-6
Thames Travel	44	32	57	Rank Worse	-25	55	Rank Worse	-23
Thames Travel	T94	33	43	Rank Worse	-10	57	Rank Worse	-24
Whites Coaches	153	34	30	Rank Better	4	24	Rank Better	10
Whites Coaches	152	35	29	Rank Better	6	23	Rank Better	12
Go Ride Community Interest Company	W12	36	49	Rank Worse	-13	44	Rank Worse	-8
Stagecoach Oxfordshire	89	37	53	Rank Worse	-16	50	Rank Worse	-13
Go Ride Community Interest Company	K2	38	25	Rank Better	13	17	Rank Better	21
Go Ride Community Interest Company	K1	39	17	Rank Better	22	12	Rank Better	27
Stagecoach Oxfordshire	S4C	40	38	Rank Better	2	54	Rank Worse	-14
Thames Travel	43	41	48	Rank Worse	-7	32	Rank Better	9
Thames Travel	143	42	56	Rank Worse	-14	60	Rank Worse	-18
Thames Travel	218	43	58	Rank Worse	-15	58	Rank Worse	-15
Stagecoach Oxfordshire	86	44	37	Rank Better	7	33	Rank Better	11
Stagecoach Oxfordshire	85	45	45	Rank the Same	0	43	Rank Better	2
Go Ride Community Interest Company	W11	46	52	Rank Worse	-6	47	Rank Worse	-1
Thames Travel	T2	47	19	Rank Better	28	8	Rank Better	39
Thames Travel	97	48	40	Rank Better	8	45	Rank Better	3
Stagecoach Oxfordshire	20	49	7	Rank Better	42	2	Rank Better	47
Pulhams Coaches	X8	50	14	Rank Better	36	38	Rank Better	12
Thames Travel	X1	51	21	Rank Better	30	1	Rank Better	50
Thames Travel	136C	52	32	Rank Better	20	3	Rank Better	49

Operator	Service Number	Original Consultation Ranking	Average Subsidised Patronage Ranking	Rank change from Original	Number of places change	Cost Per Subsidised Passenger Ranking	Rank change from Original	Number of places change
Arriva the Shires	280	53	24	Rank Better	29	4	Rank Better	49
Arriva the Shires	800	54	39	Rank Better	15	9	Rank Better	45
Thames Travel	X2	55	12	Rank Better	43	13	Rank Better	42
Thames Travel	T1	56	23	Rank Better	33	16	Rank Better	40
Thames Travel	114	57	36	Rank Better	21	41	Rank Better	16
Stagecoach in Warwickshire	50	58	55	Rank Better	3	46	Rank Better	12
Go Ride Community Interest Company	C1	59	46	Rank Better	13	53	Rank Better	6
Pulhams Coaches	811	60	60	Rank the Same	0	56	Rank Better	4
Go Ride Community Interest Company	K3	61	61	Rank the Same	0	61	Rank the Same	0

The table indicates that for the services listed, the ranking based on patronage is considerably different from the original consultation ranking.

Some examples of big differences:

#### Example 1: X2 - Thames Travel - Ranked significantly better based on patronage

Of the services listed above, the X2 ranked quite low in the original consultation ranking (55 out of 61). The reason for the low rank is that the subsidy is partial, covering:

*“Some early morning and late evening journeys between Didcot and Wallingford (The majority of journeys on this service operate on a commercial basis and are therefore unaffected.)”*

This means that whilst these journeys appear to be well-used, they have commercial alternatives within the time band (in other words, the bus user could wait for a commercial service at the same stop at a different time. In this case, they could catch a commercial-running X2 service later in the morning or earlier in the evening)

#### Example 2: 20 - Stagecoach - Ranked significantly better based on patronage

Of the services listed above, service 20 ranked quite low in the original consultation ranking (49 out of 61). The reason for this low rank is that all but 7 stops that the service visits have commercial services that also visit the stop (they have a commercial alternative at that location).

Based on patronage, the service is well-used and therefore ranks highly.

#### Example 3: 269 - Johnson's Excelbus - Ranked significantly worse based on patronage

Of the services listed above, service 269 ranked quite high in the original consultation ranking (5 out of 61).

This is likely to be because the annual subsidy for this service is fairly low, and a number of the stops it visits cover areas that have a lot of addresses (within 400m of the stop) but no commercial service. For example, Hornbeam Close and Broughton Road in South West Banbury.

Patronage data suggests that subsidised passengers are fairly low, meaning this service would rank lower based on patronage.



## Appendix 1: Data Processing Method

The data was processed in the following way:

All of the working is based on information in a spreadsheet file which will be available by a link below on Wednesday 9 March 2016.

- 1) Copied the files locally for processing
- 2) Sorted the files out of the annual folders they were stored into their respective 6 month periods. Then did the below for each of the 6 month periods from the last two years (of most recently available date as of 04/03/16).
- 3) Went through each of the files in turn sorting them into the following:
  - a. Files containing patronage data for subsidised services
  - b. Files with no subsidised services
  - c. Files that are incomplete (e.g. do not cover the entire 6 month period)
  - d. Duplicate files (usually with same data but slightly different format or name)
  - e. Files for services that are no longer subsidised
  - f. Unreadable or corrupt files (one of these)
- 4) For each of the files containing relevant patronage data (from 4a) above), went through them extracting the patronage data copying it verbatim in to the following categories:
  - a. Subsidised Passengers
  - b. Commercial Passengers
  - c. Concessionary Subsidised passengers
  - d. Concessionary Commercial passengers
  - e. Concessionary passengers (not specified whether subsidised or commercial)
  - f. Total passengers
- 5) Match these columns up to the list of subsidised services in one large table
- 6) For each 6 month period, calculate the total subsidised passengers, as follows:
  - a. If there is no data available for the period, then state no data available, Else
  - b. If Subsidised passengers is blank and subsidised concessionary is blank, then
    - i. If all commercial passengers, concessionary commercial, and concessionary not specified are also blank, then
      1. Return the total passengers column (Assume the total passengers is subsidised as it is the only value)
    - ii. Else if concessionary not specified is the same as total passengers then
      1. Return the total passengers column (assume all passengers are concessionary and all are subsidised)
    - iii. Else if only commercial values have been provided, then set the value to 0 subsidised passengers
  - c. Else total the subsidised and concessionary subsidised columns

The below formula achieves the above.

Columns populated directly from provider data:

J = Subsidised passengers

K = commercial passengers

L = Concessionary Subsidised

M = Concessionary Commercial

N = Concessionary not specified (not specified whether subsidised or commercial)

O = Total Passengers

=IF(O3="No Data Available at present","No Data Available at present",IF(AND(L3="",J3=""),IF(AND(M3="",K3="",N3=""),O3,IF(AND(O3<>","",O3=N3),

O3,IF(AND(O3="",N3="",M3<> "",L3="",K3<> "",J3=""),0,"Uncalculatable")),IF(OR(L3="",J3=""),L3&J3,L3+J3)))

- 7) For those services where patronage data provided covers multiple services, then divide the total patronage by the total number of services. This includes the following services:
  - 136A/136C
  - 151, 152, 153, 154
  - 25/25A
  - 44/44A
  - 67/67A/67B/67C
  - X1/X1A
  - X10/33
- 8) Filter out subsidised services for which data was provided that state zero subsidised passengers (assume these are errors or data is incomplete)
- 9) Create an average number of subsidised passengers per 6 month period for the past 2 years. This is done by totalling the number of subsidised passengers from each period, and dividing by how many periods are available (maximum of 4 six month periods = 2 years).
- 10) Calculate an average cost per subsidised passenger per average 6 month period by dividing the 16-17 subsidy value by 2 (to give a 6 month period) and then dividing this by the average subsidised passengers per 6 month period.
- 11) Sort the values in order and give them a ranking (the higher the patronage, the better the ranking, or the lower the average subsidised passenger cost, the better the ranking).
- 12) Compare these values to the consultation rankings and indexes (original and most recent versions).
- 13) Compile comparison table against original consultation ranking.
- 14) Completed processing data has been copied *here* \*.

\* Link to be included on Wednesday 9 March 2016.