

# 84/85 Alternative Bus Route Proposal

Land North of Sodbury Road, Wickwar

Bloor Homes



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## QA RECORD:

DOCUMENT REF	7909TN03	Rev	0.1
DRAFTED BY	Morgan Carter	Date	31 May 2023
CHECKED BY	Chris Brooke	Date	31 May 2023
APPROVED BY	David Knight	Date	31 May 2023

# 1 INTRODUCTION

- 1.1.1 The following Technical Note (TN) has been produced by NRP on behalf of Bloor Homes to review the viability of bus services to support the new community at Wickwar, South Gloucestershire. The proposed development consists of 180 dwellings, a local shop and associated infrastructure.
- 1.1.2 This TN models the viability of an alternative route to the 84/85 bus service that serves the villages of Yate, Chipping Sodbury, Cromhall, Kingswood, Wotton-under-edge and Charfield.
- 1.1.3 Specialised modelling software by Podaris has been used to model the demand of the new services with a nested logit model assessing the change in mode choices between the existing route, several alternative route options and the inclusion of the proposed route. Modelling outputs have been used to predict weekly patronage for the proposed service that have in turn been used to model the financial viability of the scheme.

# 2 PROPOSAL

- 2.1.1 The proposed bus service is based on the existing 84/85 bus route between Yate and Wotton-under-Edge. The original timetable can be seen in Appendix A.

## Original 84/85 Bus Route

- 2.1.2 The existing 84/85 service is a circular route between Yate and Wotton-under-Edge, currently operating 8 services on a 2 hour frequency. The route follows the A432 east through Yate and Chipping Sodbury before heading north along the B4060 and into Wickwar. The service then heads north-west along Cowship Lane and the B4058, serving the residents of Cromhall and linking to Charfield via the B4059. The service turns south through Kingswood and then re-joins the B4058 and B4060 into Wotton-under-Edge. From Wotton-under-Edge, the 84 heads south through Wortley and Hawkesbury Upton, joining the A46 at Petty France and re-entering Chipping Sodbury via Horton Road. This service terminates at Stover Road in Yate.

## Alternative Route Options

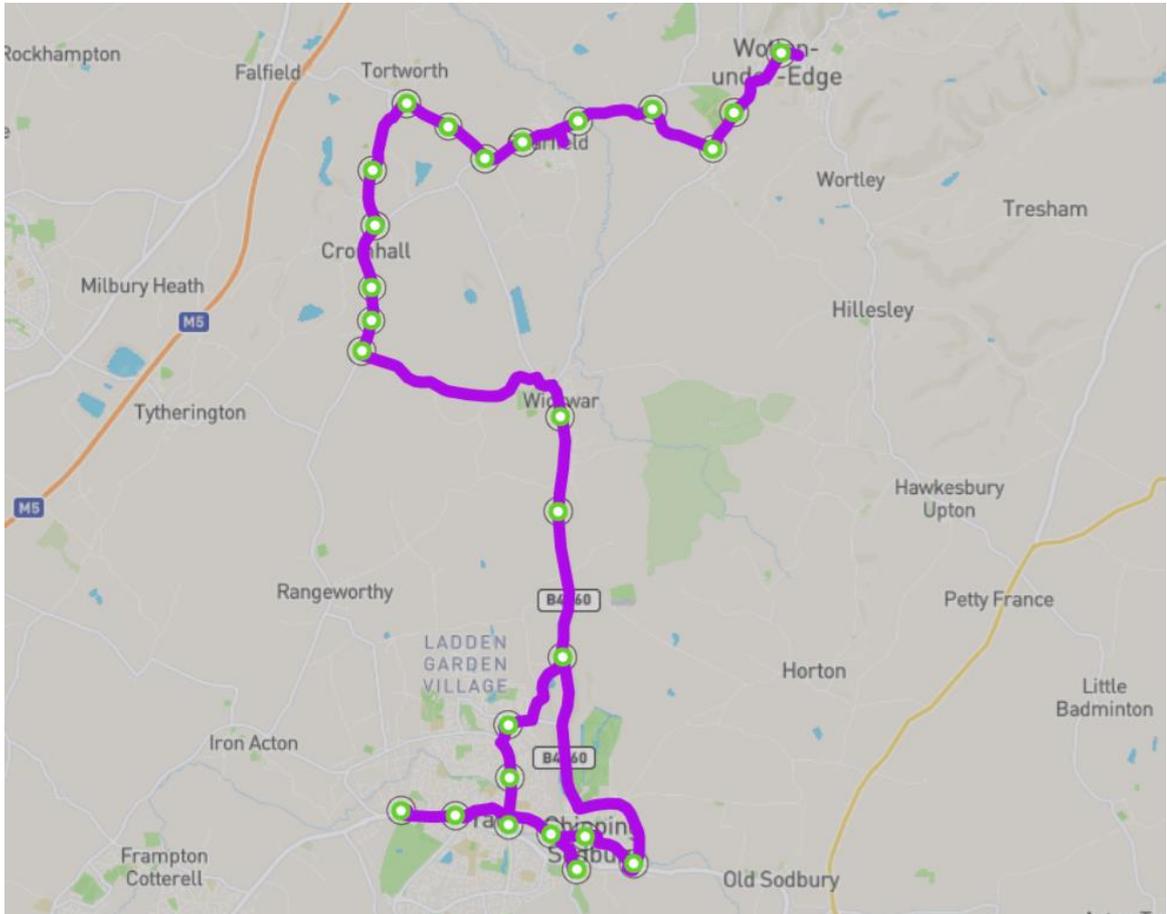
- 2.1.3 A total of 6 route options have been tested using the Podaris software. These options have been determined based on discussions that were held with Stagecoach. They have been compared against each alternative and against the original route to assess the financial viability, the population served and the overall diversity of the route.
- 2.1.4 These route options would also serve the railway station at Charfield, which was given planning permission in March 2023 and is currently in detailed design stage. The station will be accessed from the centre of the village along Wotton Road B4058, entering onto Station Road. A bus stop and turning circle is proposed at the site to provide access to the western platform.
- 2.1.5 The following routes have been considered:
- Alternative Route Option 1 – This service commences at Yate railway station, heading east along the A382 and into Chipping Sodbury. The service then joins the B4060 via St Johns Way and follows the existing route into Wickwar, Cromhall and Charfield, where it would stop at Charfield railway station. This route then operates in reverse back to Yate railway station.
  - Alternative Route Option 2 – This service commences at Yate railway station, heading east along the A382 and into Chipping Sodbury. The service then joins the B4060 via St Johns Way and follows the existing route into Wickwar before turning east up the B4060 Station Road. This route serves Kingswood, before turning west into Charfield and entering the railway station. This route then operates in reverse back to Yate railway station.

- Alternative Route Option 3 – This service commences at Yate railway station, heading east along the A382 and into Chipping Sodbury. The service then joins the B4060 via St Johns Way and follows the existing route into Wickwar, Cromhall and Charfield, where it would stop at the railway station. This route then continues east to serve Kingswood and heads southbound via the B4060 Station Road back to Yate.
- Alternative Route Option 4 – This route commences at Yate railway station and heads east along the A432 before turning north along the B4059 and joining the B4060 at Peg Hill. The service then follows the existing route into Wickwar, Cromhall and Charfield, where it would stop at Charfield railway station. This route then continues east to serve Kingswood and heads southbound via the B4060 Station Road, through Wickwar and Chipping Sodbury and back to Yate.
- Alternative Route Option 5 – This service commences at Yate railway station, heading east along the A382 and into Chipping Sodbury. The service then joins the B4060 via St Johns Way and follows the existing route into Wickwar before turning west up The Downs road and into Charfield. This route enters Charfield railway station before continuing east along the B4058 into Kingswood and continuing north east up into Wotton-under-Edge. This route then operates in reverse back to Yate railway station.
- Alternative Route Option 6 - This service will commence at Yate railway station and head east along the A332 before turning north along the B4059 and joining the B4060 at Peg Hill. The service will then follow the existing route through Wickwar and Cromhall before entering Charfield and turning into the railway station. The service will exit the station and follow the B4062 into Kingswood, before re-joining the B4060 into Wotton-under-Edge and terminating at the Wotton-under-Edge War Memorial. This route will then operate in reverse back to Yate railway station, through Chipping Sodbury and stop at Chipping Sodbury school and Yate Shopping Centre.

#### Chosen Route Option – Option 6

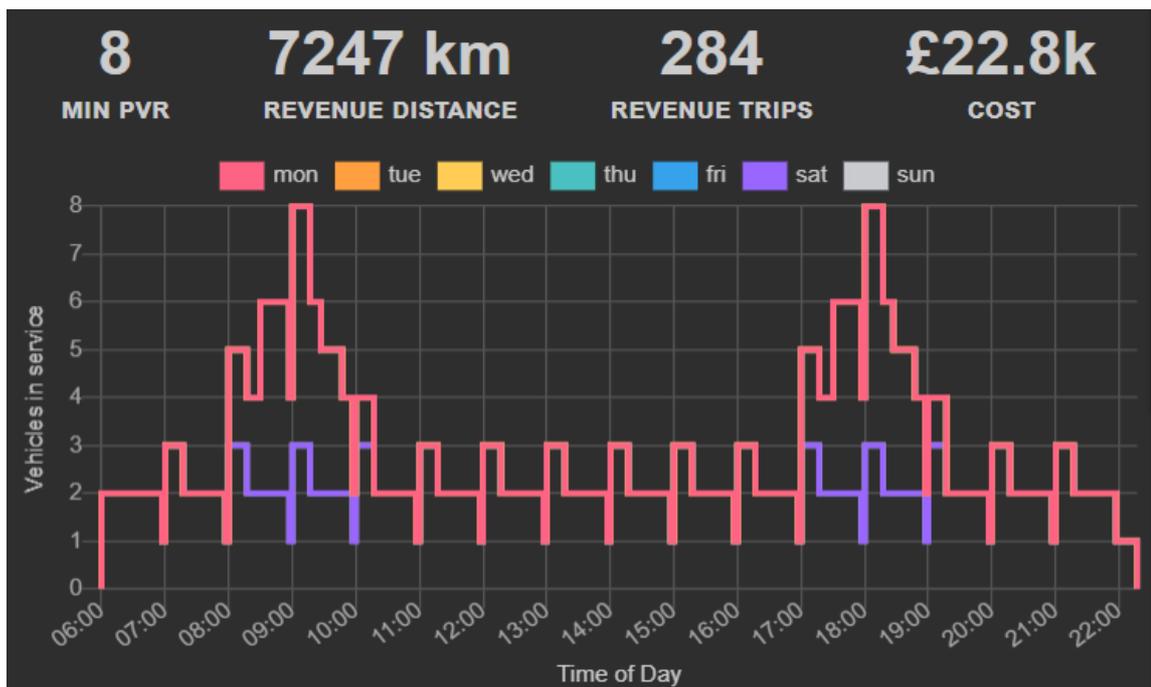
- 2.1.6 Option 6 is the preferred choice to provide an alternative route between Yate, Wickwar and Wotton-under-Edge compared to Routes 1 to 5. When comparing the peak hour demand and weekly patronage of each alternative route, Option 6 offers both a diverse number of destinations and has a high impact on users. This will be discussed in full in subsequent sections of this report.
- 2.1.7 The proposed alteration of the existing 84/85 service will connect the proposed development site to Yate, Chipping Sodbury, Cromhall, Charfield, Kingswood and Wotton-under-edge and provide additional access to Yate and Charfield railway station.
- 2.1.8 This route can be seen in Figure 2.1.

Figure 2.1: 84/85 Diversion Bus Route



2.1.9 The proposed route alternative will have a run time of 79 minutes. The operation profile of the route can be seen in Figure 2.2 below.

Figure 2.2: 84/85 Diversion Operation Profile



# 3 MODELLING

## 3.1 Logit Modelling

3.1.1 The bus modelling software Podaris has been used to model the proposed bus route. The software uses a Nested Logit Model that is a form of Discrete Choice Model that is based on Random Utility Theory where:

3.1.2 Random Utility Theory postulates that:

- (1) Individuals belong to a given homogenous population, act rationally and possess perfect information – they look to maximise their personal utility;
- (2) A given individual has a particular set of attributes and faces a choice set; and
- (3) Each option has a net utility represented by a measurable part and a random part. The random deals with what the modeller cannot know.

3.1.3 Discrete choice modelling theorises that:

*'The probability of individuals choosing a given option is a function of their socioeconomic characteristics and the relative attractiveness of the option.'*

3.1.4 The Podaris model ran simulations of demand for journey to work data taken from the 2011 census between output areas along the route.

3.1.5 The proposed development has been included with a pro-rata distribution. The demand from the proposed site has been calculated using the number of dwellings in the proposed development, the average occupation of dwellings in the local area and the commuting modal split of the local area taken from Census data.

3.1.6 The model was validated against Census data from the Nomis database for Method of Travel to Work and can be seen in Table 3.1 below.

Table 3.1: 84/85 Diversion Model Validation

Method of Travel to Work	2011 Census	Baseline Model
All categories: Method of travel to work	100%	100%
Underground, metro, light rail, tram	0%	0%
Train	2%	0%
Bus, minibus, or coach	3%	3.30%
Taxi	1%	0%
Motorcycle, scooter or moped	1%	0%
Driving a car or van	75%	85.42%
Passenger in a car or van	5%	0.0%
Bicycle	3%	1.2%
On foot	9%	9.2%
Other method of travel to work	1%	0%

3.1.7 While the route options in the model are not as diverse as the census, it can be concluded that the model is realistically modelling demand by comparing the available options.

## 3.2 Peak Hour Demand Comparisons

3.2.1 By comparing the mode share of the baseline existing scenario to the mode shares of the proposed routes, the increase in trips by bus can be calculated. These trips are considered new public transport revenue generating trips and while there may be some extraction from other routes, these cannot be attributed to the financial viability of the service.

3.2.2 Each route option has been modelled to identify the increase in commuting trips from the proposed service. This provides a modal choice comparison of the existing route and the proposed routes. Table 3.2 below shows the percentage increase in commuting trips for each diversion in the AM peak hour.

Table 3.2: Modal shift of diverted services

Alternative Route Options	Baseline model (%)	Diverted model (%)	Increase in commuter trips (%)
Option 1	3.30	7.21%	3.91%
Option 2	3.30	6.00%	2.70%
Option 3	3.30	7.21%	3.91%
Option 4	3.30	9.50%	6.20%
Option 5	3.30	6.00%	2.70%
Option 6	3.30	8.73%	5.43%

## 3.3 Weekly Patronage Comparisons

3.3.1 While the AM peak hour commuting percentage is 46% of all trips, commuting only accounts for 17% of the total trip purposes throughout the day. An increase in commuter trips can be seen in Table 3.2 above for each route option. These weekly increases in commuter trip rates can be factored to an all-purpose trip rate, shown in Table 3.3 below.

3.3.2 Podaris has been used to create isochrones to identify the population of all ages and aged between 5-59 within 400m of the bus stops on the alternative 84/85 routes. The population within 400m of each route are shown in Table 3.3.

Table 3.3: Population along diverted routes

Diversion Options	All population	Population aged 5-59	All-purpose trip rates
Original	5900	4100	1.9
Option 1	4900	3400	2.3
Option 2	4800	3300	1.6
Option 3	5500	3800	2.3
Option 4	6300	4400	3.6
Option 5	5000	3500	1.6
Option 6	6000	4200	3.2

- 3.3.3 In summary, it can be seen that Option 4 offers the greatest percentage increase in commuter trips and provides access to the greatest percentage of the population along the route. Despite this, when considering the route options in comparison to the original, Option 4 offers no access to Wotton-under-Edge. Wotton-under-Edge is not widely served by other bus services so this should be a consideration within the route options.
- 3.3.4 Therefore, the route which offers access to Wotton-under-edge and serves the highest proportion of people and offers the highest increase in weekly commuter trips compared to the Original Route and Option 4 is Option 6. This route is the most appropriate diversion route to consider.

## 4 PROPOSED DIVERSION

### 4.1 Peak Hour Demand

- 4.1.1 There is expected to be an increase of 5.43% of new commuting trips in the AM peak hour. The comparison can be seen in the below pie chart figure with the baseline existing modal share percentage of 3.3% shown on the inner ring and the proposed bus route modal share percentage of 8.73% shown on the outer ring.

Figure 4.1: 84/85 Diversion Modal Shift – Original and Diverted Service



- 4.1.2 It has been decided to provide a 30 minute frequency during the peaks, with a 1 hour frequency during the interpeaks. This provides a more viable route option, by lowering the overall cost of the service and still providing the required demand. Increasing the frequency to 30 minutes throughout the day would increase demand for the service, but is a less viable option.
- 4.1.3 The new trips are for the purposes of commuting, these only account for the portion of the total trips taken by all other purposes. The 2021 National Travel Survey, the latest available, includes Table NTS0502 'trip start time by purpose (Monday to Friday), England, 2021' that shows that between 0700-0759 commuting accounts for 46% of all trips. This is considered a realistic proportion of trips expected on the route and has been applied to the modelling outputs to identify the peak hour demand for bus services. This has resulted in 67 trips during the AM peak hour of Option 6.

## 4.2 Weekly Patronage

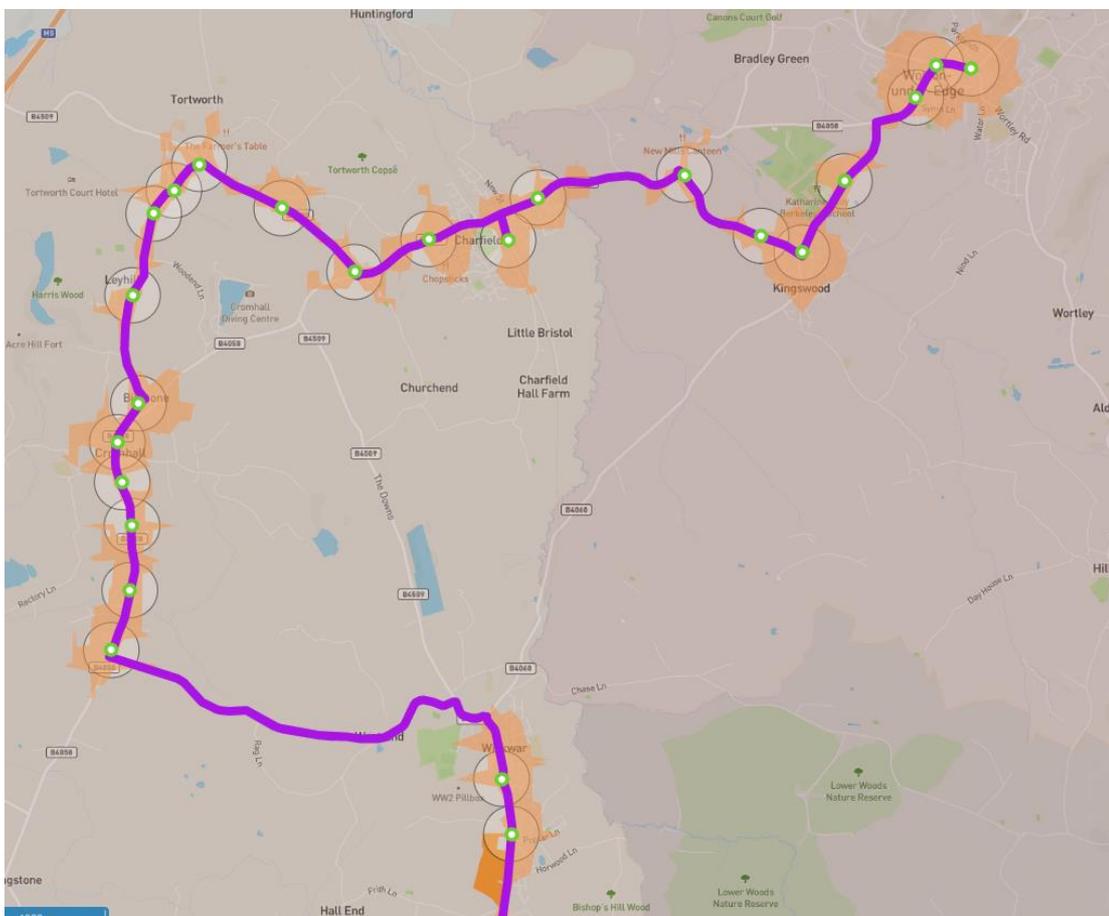
4.2.1 While the AM peak hour commuting percentage is 46% of all trips, commuting only accounts for 17% of the total trip purposes throughout the day. The increase in commuter trips of 5.43% would result in a weekly increase in commuter trip rates of 0.543 per resident. This can be factored to an all-purpose trip rate of 3.2 trips per resident weekly.

4.2.2 Podaris has been used to create isochrones to identify the population of all ages and aged between 5-59 within 400m of the bus stops on the diverted 84/85 route Option 6. The population along this route are as follows:

- All population – 6000
- Population aged 5-59 – 4200

4.2.3 An excerpt of the 400m walking isochrones from bus stops through the proposed development and Charfield railway station can be seen in Figure 4.2 below.

Figure 4.2: Isochrone Excerpt



4.2.4 By applying the new weekly bus trip rate to the populations, we can see that the bus route will generate an increase in bus trips of:

- All population bus trips– 19,159
- Population aged 5-59 bus trips– 13,411

4.2.5 The total number of services run throughout the day will be 284 trips, which would result in an average of 67 new trips per bus. Further details can be seen in Appendix B.

## 5 FINANCIAL VIABILITY

### 5.1 Revenue

5.1.1 As it has been assumed that each seat will only carry one trip per run, it will be assumed that the highest ticket will be purchased for that one trip. Stagecoach, who currently operate in the area, have varying ticket prices from town to town. These ticket prices have been weighted to reflect the distribution of residents between areas. This works out to £2.32 per trip and has been applied to the 13,411 total revenue paying trips that results in weekly income of £31,106 or an annual income of £1,617,534.

### 5.2 Costs

5.2.1 The total costs of operating the bus service comprises of three factors:

- Bus drivers – wages of the drivers – derived from ONS 2020 SOC10 Table 3.5a Hourly Pay – Gross 2020
- Bus purchases - £200,000 paid over 15 years, information provided by Stagecoach
- Operating costs – £2.64 per Kilometre - ONS 2021 Table BUS0408a [per kilometre]

5.2.2 The weekly cost of buying the buses and paying the drivers has been calculated at £9,193 over a total weekly distance of 7,247 kilometres, resulting in a cost of £1.27 per kilometres. This consists of £0.91 for the driver wages and £0.36 for purchasing the bus. This combined with the operating cost of £2.64 provides a total cost of £3.91 per kilometre for the service.

5.2.3 A breakdown of the costs can be seen in Appendix C.

### 5.3 Profit

5.3.1 The cost of the service is calculated over kilometres. The proposed route has a weekly distance of 7,247 kilometres, or an annual distance of 376,844 kilometres. This results in an operating cost of £1,472,921 per annum.

5.3.2 The annual revenue of the service is £1,617,534. After deducting the costs of £1,472,921 the remaining profit of the service is £144,612.

## APPENDIX A: 84/85 TIMETABLE

# 84 & 85 Yate & Wotton-under-Edge Circular



from 30 November 2020

## Mondays to Fridays

	84	85 ▲	85 ▲	84 ▲	84 ▲	85	84	85	84	85	84 ▲	84 ▲	84 ▲	84 ▲	85	84	85	84
<b>Yate</b> Stover Road	0610			0800	0805	0905	1005	1105	1205	1305	1405	1405	1505	1505	1605	1705	1805	1905
<b>Yate</b> Shopping Centre [B]	0615			0805	0810	0910	1010	1110	1210	1310	1410	1410	1510	1510	1610	1710	1810	1910
<b>Yate</b> Shopping Centre [B]	0620			0810	0820	0920	1020	1120	1220	1320	1420	1420	1520	1515	1620	1720	1820	1920
<b>Chipping Sodbury</b> School	-			0820	-	-	-	-	-	-	-	-	-	1520	-	-	-	-
<b>Chipping Sodbury</b> The Clock	0625			0825	0825	0925	1025	1125	1225	1325	1425	1425	1525	1525	1625	1725	1825	1925
<b>Chipping Sodbury</b> The Boot	-	0711	0726	-	-	0926	-	1126	-	1326	-	-	-	-	1626	-	1826	-
<b>Horton</b> School	-	○	0734	-	-	0934	-	1134	-	1334	-	-	-	-	1634	-	1834	-
<b>Hawkesbury Upton</b> Fox Inn	-	0727	0742	-	-	0942	-	1142	-	1342	-	-	-	-	1642	-	1842	-
<b>Hillesley</b> St Giles Church	-	0732	0747	-	-	0947	-	1147	-	1347	-	-	-	-	1647	-	1847	-
<b>Alderley</b> The Old Rectory	-	0736	0751	-	-	0951	-	1151	-	1351	-	-	-	-	1651	-	1851	-
<b>Wickwar</b> High Street	0635	-	-	0835	0835	-	1035	-	1235	-	1435	1435	1535	1535	-	1735	-	1935
<b>Cromhall</b> Church Lane	0642	-	-	0842	0842	-	1042	-	1242	-	1442	1442	1542	1542	-	1742	-	1942
<b>Leyhill</b> Prison	0645	-	-	0845	0845	-	1045	-	1245	-	1445	1445	1545	1545	-	1745	-	1945
<b>Charfield</b> Berkeley Close	0650	-	-	0850	0850	-	1050	-	1250	-	1450	1450	1550	1550	-	1750	-	1950
<b>Charfield</b> Railway Tavern	0653	-	-	0853	0853	-	1053	-	1253	-	1453	1453	1553	1553	-	1753	-	1953
<b>Kingswood</b> War Memorial	0656	-	-	0856	0856	-	1056	-	1256	-	1456	1456	1556	1556	-	1756	-	1956
<b>Kingswood</b> KLB School	-	-	-	-	-	-	-	-	-	-	-	1500	-	-	-	-	-	-
<b>Wotton-under-Edge</b> Memorial	0705	0750	0805	0905	0905	1005	1105	1205	1305	1405	1505	1505	1605	1605	1705	1805	1905	2005
	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
<b>Wotton-under-Edge</b> Memorial	0710	0755	0810	0910	0910	1010	1110	1210	1310	1410	1510	1510	1610	1610	1710	1810	1910	
<b>Kingswood</b> KLB School	-	0800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Kingswood</b> War Memorial	-	0804	0814	-	-	1014	-	1214	-	1414	-	-	-	-	1714	-	1914	
<b>Charfield</b> Railway Tavern	-	0809	0819	-	-	1019	-	1219	-	1419	-	-	-	-	1719	-	1919	
<b>Charfield</b> Berkeley Close	-	0811	0821	-	-	1021	-	1221	-	1421	-	-	-	-	1721	-	1921	
<b>Leyhill</b> Prison	-	0817	0827	-	-	1027	-	1227	-	1427	-	-	-	-	1727	-	1927	
<b>Cromhall</b> Church Lane	-	0820	0830	-	-	1030	-	1230	-	1430	-	-	-	-	1730	-	1930	
<b>Wickwar</b> High Street	-	0828	0838	-	-	1038	-	1238	-	1438	-	-	-	-	1738	-	1938	
<b>Alderley</b> The Old Rectory	0718	-	-	0918	0918	-	1118	-	1318	-	1518	1518	1618	1618	-	1818	-	
<b>Hillesley</b> St Giles Church	0721	-	-	0921	0921	-	1121	-	1321	-	1521	1521	1621	1621	-	1821	-	
<b>Hawkesbury Upton</b> Fox Inn	0727	-	-	0927	0927	-	1127	-	1327	-	1527	1527	1627	1627	-	1827	-	
<b>Horton</b> School	0735	-	-	0935	0935	-	1135	-	1335	-	1535	○	1635	1635	-	1835	-	
<b>Chipping Sodbury</b> The Boot	0742	-	-	0942	0942	-	1142		1342	-	1542	1542	1642	1642	-	1842	-	
<b>Chipping Sodbury</b> The Clock	0745	0835	0845	0945	0945	1045	1145	1245	1345	1445	1545	1545	1645	1645	1745	1845	1945	
<b>Chipping Sodbury</b> School	-	0841	-	-	-	-	-	-	-	-	-	1550	-	-	-	-	-	
<b>Yate</b> Shopping Centre [B]	0750	0850	0850	0950	0950	1050	1150	1250	1350	1450	1550	1555	1650	1650	1750	1850	1950	
<b>Yate</b> Shopping Centre [B]	<i>0755</i>	<i>0855</i>	<i>0855</i>	<i>0955</i>	<i>0955</i>	<i>1055</i>	<i>1155</i>	<i>1255</i>	<i>1355</i>	<i>1455</i>	<i>1555</i>	<i>1555</i>	<i>1655</i>	<i>1655</i>	<i>1755</i>	1855	1955	
<b>Yate</b> Stover Road	<i>0800</i>	<i>0900</i>	<i>0900</i>	<i>1000</i>	<i>1000</i>	<i>1100</i>	<i>1200</i>	<i>1300</i>	<i>1400</i>	<i>1500</i>	<i>1600</i>	<i>1600</i>	<i>1700</i>	<i>1700</i>	<i>1800</i>	1900	2000	

▼ These buses are guaranteed to connect, with through fares available

○ - This bus runs via Old Sodbury Dog Inn 5 mins before/after Chipping Sodbury

*Times in italics* - bus starts from or continues to these points as **86**. Customers may remain on board to make a through journey

This service is supported by



Key
▲ School holidays only
▲ School days only
- Stop not served

# 84 & 85 Yate & Wotton-under-Edge Circular



from 30 November 2020

	Saturdays														
	84	85	84	85	84	85	84	85	84	84	85	84	85	84	84
Yate Stover Road	0610		0805	0905	1005	1105	1205	1305	1405	1505	1605	1705	1805	1905	
Yate Shopping Centre [B]	0615		0810	0910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	
Yate Shopping Centre [B]	0620		0820	0920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	
Chipping Sodbury School	-		-	-	-	-	-	-	-	-	-	-	-	-	
Chipping Sodbury The Clock	0625		0825	0925	1025	1125	1225	1325	1425	1525	1625	1725	1825	1925	
Chipping Sodbury The Boot	-	0726	-	0926	-	1126	-	1326	-	-	1626	-	1826	-	
Horton School	-	0734	-	0934	-	1134	-	1334	-	-	1634	-	1834	-	
Hawkesbury Upton Fox Inn	-	0742	-	0942	-	1142	-	1342	-	-	1642	-	1842	-	
Hillesley St Giles Church	-	0747	-	0947	-	1147	-	1347	-	-	1647	-	1847	-	
Alderley The Old Rectory	-	0751	-	0951	-	1151	-	1351	-	-	1651	-	1851	-	
Wickwar High Street	0635	-	0835	-	1035	-	1235	-	1435	1535	-	1735	-	1935	
Cromhall Church Lane	0642	-	0842	-	1042	-	1242	-	1442	1542	-	1742	-	1942	
Leyhill Prison	0645	-	0845	-	1045	-	1245	-	1445	1545	-	1745	-	1945	
Charfield Berkeley Close	0650	-	0850	-	1050	-	1250	-	1450	1550	-	1750	-	1950	
Charfield Railway Tavern	0653	-	0853	-	1053	-	1253	-	1453	1553	-	1753	-	1953	
Kingswood War Memorial	0656	-	0856	-	1056	-	1256	-	1456	1556	-	1756	-	1956	
Kingswood KLB School	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wotton-under-Edge Memorial	0705	0805	0905	1005	1105	1205	1305	1405	1505	1605	1705	1805	1905	2005	
	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	
Wotton-under-Edge Memorial	0710	0810	0910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910		
Kingswood KLB School	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Kingswood War Memorial	-	0814	-	1014	-	1214	-	1414	-	-	1714	-	1914	-	
Charfield Railway Tavern	-	0819	-	1019	-	1219	-	1419	-	-	1719	-	1919	-	
Charfield Berkeley Close	-	0821	-	1021	-	1221	-	1421	-	-	1721	-	1921	-	
Leyhill Prison	-	0827	-	1027	-	1227	-	1427	-	-	1727	-	1927	-	
Cromhall Church Lane	-	0830	-	1030	-	1230	-	1430	-	-	1730	-	1930	-	
Wickwar High Street	-	0838	-	1038	-	1238	-	1438	-	-	1738	-	1938	-	
Alderley The Old Rectory	0718	-	0918	-	1118	-	1318	-	1518	1618	-	1818	-		
Hillesley St Giles Church	0721	-	0921	-	1121	-	1321	-	1521	1621	-	1821	-		
Hawkesbury Upton Fox Inn	0727	-	0927	-	1127	-	1327	-	1527	1627	-	1827	-		
Horton School	0735	-	0935	-	1135	-	1335	-	1535	1635	-	1835	-		
Chipping Sodbury The Boot	0742	-	0942	-	1142	-	1342	-	1542	1642	-	1842	-		
Chipping Sodbury The Clock	0745	0845	0945	1045	1145	1245	1345	1445	1545	1645	1745	1845	1945		
Chipping Sodbury School	-	-	-	-	-	-	-	-	-	-	-	-	-		
Yate Shopping Centre [B]	0750	0850	0950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950		
Yate Shopping Centre [B]	<i>0755</i>	<i>0855</i>	<i>0955</i>	<i>1055</i>	<i>1155</i>	<i>1255</i>	<i>1355</i>	<i>1455</i>	<i>1555</i>	<i>1655</i>	<i>1755</i>	1855	1955		
Yate Stover Road	<i>0800</i>	<i>0900</i>	<i>1000</i>	<i>1100</i>	<i>1200</i>	<i>1300</i>	<i>1400</i>	<i>1500</i>	<i>1600</i>	<i>1700</i>	<i>1800</i>	1900	2000		

*Times in italics* - bus starts from or continues to these points as Service 86. Customers may remain on board to make a through journey

▼ These buses are guaranteed to connect, with through fares available

## Our buses over the festive season on 84 & 85:

Sunday 20th December	No Service
Monday 21st December	Monday to Friday School Holidays Service
Tuesday 22nd December	Monday to Friday School Holidays Service
Wednesday 23rd December	Monday to Friday School Holidays Service
Christmas Eve	Monday to Friday School Holidays Service
Christmas Day	No Service
Boxing Day	No Service
Sunday 27th December	No Service
Monday 28th December	No Service
Tuesday 29th December	Monday to Friday School Holidays Service
Wednesday 30th December	Monday to Friday School Holidays Service
New Year's Eve	Monday to Friday School Holidays Service
New Year's Day	No Service
Saturday 2nd January	Saturday service
Sunday 3rd January	No Service

## APPENDIX B: PATRONAGE

Diversion 6  
Transit Improvements

	Commuters	Total	%
	Baseline	58	3.30%
	Proposed service	160	8.73%
	Service improvement	102	5.43%
	weekly commute trips	0.543	
	weekly commute trip purpose (%)	17%	
	weekly bus trips new service	3.2	
	All Population 400m	6000	
	5-59 Population 400m	4200	
	All Population Trips	19159	
	5-59 Population Trips	13411	
284	Trips per bus	67	
	Average ticket price £	2.32	
	Weekly income £	31,106.42	
52	Annual Income £	1,617,534.01	
	Annual Costs £	1,472,921.18	
	Annual Profit £	144,612.83	

## APPENDIX C: OPERATING COSTS

Weekdays Peaks						
		Inflation	Daily	Operating days per week	Total buses	
5475	Hourly					
	Bus driver	£ 11.87	£ 11.87	£ 47.48	£ 237.40	£ 1,899.20
	Bus	£ 36.53		£	£ 182.65	£ 1,461.19
	<b>Total</b>				£	£ 3,360.39
Weekdays (Interpeaks)						
		Inflation	Daily	Operating days per week	Total buses	
5475	Hourly					
	Bus driver	£ 11.87	£ 11.87	£ 142.44	£ 712.20	£ 3,561.00
	Bus	£ 36.53		£	£ 182.65	£ 913.24
	<b>Total</b>				£	£ 4,474.24
Weekends						
		Inflation	Daily	Operating days per week	Total buses	
5475	Hourly					
	Bus driver	£ 11.87	£ 11.87	£ 189.92	£ 379.84	£ 1,139.52
	Bus	£ 36.53		£	£ 73.06	£ 219.18
	<b>Total</b>				£	£ 1,358.70
<b>Whole Week</b>					£	9,193.33
weekly km		7247		Weekly cost per km	£	1.27
				Operating cost per km	£	2.64
				Total cost per km	£	3.91
<b>Whole Year</b>					£	478,053.02
52	Yearly km	376844			£	1,472,921.18
					Weekly cost per km (driver)	£ 0.91
					Weekly cost per km (bus)	£ 0.36

Source  
 ONS 2020 SOC10 Table 3.5a Hourly Pay - Gross 2020  
 Stagecoach bus cost over 15 years £ 200,000.00

Source  
 ONS 2020 SOC10 Table 3.5a Hourly Pay - Gross 2020  
 Stagecoach bus cost over 15 years £ 200,000.00

Source  
 ONS 2020 SOC10 Table 3.5a Hourly Pay - Gross 2020  
 Stagecoach bus cost over 15 years £ 200,000.00

Podaris  
 ONS 2021 Table BUS0408a [per kilometre]

