

Appendix M Bus Viability Technical Note

Job Name: Fort Halstead

Job No: 41290

Date: 8

August 2019

Prepared by: Alastair Mackie

Subject: **Bus Service Support**

INTRODUCTION

1. This Note sets out the forecast financial support required for the proposed Fort Halstead community minibus operation. The calculations are based on costs of operation provided by a local bus operator, bus trip numbers extrapolated from demand data in the TA and local bus fares information.
2. Where local data is unavailable, assumptions have been made and these are set out in the narrative below. In general, assumptions are based on National Travel Survey data.

PROPOSED SERVICE

3. The proposed service consists of two minibuses operating on Monday to Friday, providing timetabled links to local railway stations for commuters and a demand responsive flexible service in the inter-peak period. On Saturdays, one minibus would provide a demand responsive service.
4. Pending delivery of a primary school on the site, the service would provide links to local primary schools. Once the school is open, these journeys would no longer be required and the hours of operation of the flexible demand responsive service could be extended.
5. Initially, during the early stages of build-out, when demand is low the service could be provided by a single minibus.
6. The proposed indicative timetables are reproduced in the appendices.

COSTS

7. The proposed timetable and service specification has been shared with a local bus operator who has given an indicative annual cost of operation of £252k. This is the gross cost before consideration of revenue from passenger fares.

DEMAND

8. Demand data has been based on forecasts for peak hour and all day (0700-1900) trips in the TA. These have then been factored up to give weekly and annual trip numbers. Separate calculations have been made for residential and commercial based trips. Taking residential demand first, the key factors are set out in Table 1.

Table 1: Residential Demand Factors

DESCRIPTION	FACTOR	SOURCE
Total Development (units)	750	TA
Build Out Rate (units)	100	TA
Daily Resi Trips (Mon-Fri)	6,100	TA
Sat Factor	90%	NTS
Mon-Fri Annualisation	253	
Sat Annualisation	52	
Peak Trips (All Modes)	1,464	TA
Off Peak Trips (All Modes)	4,636	
Peak Trips (Bus)	97	TA
Peak Bus Mode Share	7%	
Off Peak Trips (Bus)	324	NTS
Residential Bus Mode Share	7%	
Annual Resi Bus Trips	126,172	

9. Commercial demand factors are shown in Table 2.

Table 2: Commercial Demand Factors

DESCRIPTION	FACTOR	SOURCE
Total jobs	1,366	TA
Job increase per year	200	TA
Qinetiq jobs	250	TA
Average days worked per year	216	ONS
Commercial Bus Mode Share	3%	Assumed
Annual Commercial Bus Trips	17,703	

10. As shown in Tables 1 and 2 total bus demand on completion of build out is forecast to be 126k residential-based trips per year and 18k commercial-based.
11. The bus demand will be split between the community minibus service and the existing 431 bus service, running between Sevenoaks and Orpington. No data is available to determine how the demand will divide between the two services, so it has been assumed that residential trips are assigned to each service pro rata on the number of journeys and hours of operation. Table 3 shows the number of journeys and operating hours per week for each service; the analysis suggests circa 82 to 85% of residential demand will fall to the minibus service.

Table 3: Level of Operation on Proposed Services

	JOURNEYS		OP HRS	
Ser 431	35	18.4%	20	14.8%
Minibus	155	81.6%	115.25	85.2%
Total	190	100.0%	135.25	100.0%

12. Applying the lower 81.6% factor (to be conservative) to annual residential demand would give 108k trips.
13. It has been assumed that all commercial-based trips are made on the minibus service due to the restricted operating hours of service 431 which are not suitable for commuting purposes. This, then, gives a total of 125k trips per year forecast to be made on the service.

REVENUE

14. To convert demand to revenue, an average fare factor has been applied. This is based on current fares between Fort Halstead and Orpington/Sevenoaks. Table 4 shows current fares by ticket type and Table 5 uses NTS data to show the breakdown of sales based on national data.

Table 4: Local Fares from Fort Halstead to Sevenoaks and Orpington

	Fare	Price/trip	NTS Sales
Adult			
Single	£4.50	£4.50	18%
Return	£6.00	£3.00	13%
10 Journey	£21.00	£2.10	20%
Child			
Single	£2.25	£2.25	7%
Return	£3.00	£1.50	7%
Concession			
Operator reimbursement	£0.98	£0.98	35%

Table 5: Breakdown of Sales by Ticket Type (NTS Data)

Ticket Type	Sales %
Adult Single	18%
Adult Return/Day Ticket	13%
Adult Weekly	20%
Child	14%
Concession	35%

- Applying the local fares in Table 4 to the sales breakdown in Table 5 gives an average fare of £2.23. Applying this to the residential demand would give annual revenue on completion of build out of £239k.
- Commercial users are likely to be travelling regularly and can be expected to buy 10-journey tickets, which would give an average fare per trip of £2.10. Applying this to the commercial demand would give annual revenue on completion of build out of £37k.
- Total revenue for the service would therefore be £276k on completion of build out.

FINANCIAL SUPPORT

- Based on the foregoing calculations, Table 6 shows the financial support required for the service year by year during build out. This assumes the service is introduced at first household occupation with one bus and the second bus is added at the start of year 3.

Table 6: Annual Support

Year	1	2	3	4	5	6	7	8	9	10	Total
REVENUE (£'000)											
From Residential Development	16	48	80	112	144	175	207	231	239	239	1,491
From Commercial Development	10	15	20	26	31	37	37	37	37	37	288
TOTAL REVENUE	25	63	100	138	175	212	245	268	276	276	1,779
COSTS (£'000)											
TOTAL COSTS	176	176	252	252	252	252	252	252	252	252	2,369
SURPLUS (£'000)											
SURPLUS / LOSS	-151	-114	-152	-114	-77	-40	-7	16	24	24	
CUMULATIVE SURPLUS / LOSS	-151	-265	-416	-531	-608	-648	-655	-639	-614	-590	-655
FUNDING (£'000)											
MAXIMUM FUNDING REQUIREMENT							655				655

- Table 6 shows that **total support for the service is forecast to be £655k**, with the service making a modest surplus of £24k per year on completion of build out.

TECHNICAL NOTE



APPENDIX

Timetables

Fort Halstead Shuttle Bus: Initial Timetable					
Monday to Friday					
<i>Bus Number</i>	<i>1</i>	<i>1</i>	<i>1</i>		
FORT HALSTEAD	05:53	06:47	07:44		
KNOCKHOLT STATION arrive	06:02	06:56	07:53		
KNOCKHOLT STATION depart	06:10	07:04	07:45		
LONDON London Bridge	06:38	07:37	08:18		
LONDON Cannon Street	06:43	07:44	08:26		
<i>Bus Number</i>	<i>1</i>	<i>1</i>	<i>1</i>		
FORT HALSTEAD	05:16	06:16	07:04		
ORPINGTON STATION arrive	05:32	↘ 06:32	↘ 07:20		
ORPINGTON STATION depart	05:40	05:54 06:39	06:40 07:28		
LONDON London Bridge	-	06:09 06:54	- -		
LONDON Charing Cross	-	06:18 07:05	- -		
LONDON Victoria	06:18	- -	07:20 08:20		
LONDON Blackfriars	06:28	- -	- 08:08		
LONDON St Pancras	06:44	- -	- 08:19		
<i>Bus Number</i>	<i>1</i>				
FORT HALSTEAD	08:02				
HALSTEAD PRIMARY SCHOOL	08:10	for 0820 start			
<i>Bus Number</i>	<i>1</i>				
FORT HALSTEAD	08:37				
St KATHERINES PRIMARY SCHOOL	08:45	for 0855 start			
0900 - 1500: On demand					
<i>Bus Number</i>	<i>1</i>				
St KATHERINES PRIMARY SCHOOL	15:25	for 1520 finish			
FORT HALSTEAD	15:33				
<i>Bus Number</i>	<i>1</i>				
HALSTEAD PRIMARY SCHOOL	15:40	for 1535 finish			
FORT HALSTEAD	15:48				
<i>Bus Number</i>	<i>1</i>	<i>1</i>	<i>1</i>		
LONDON St Pancras	16:40	17:14	18:48		
LONDON Blackfriars	16:52	17:25	19:00		
LONDON Victoria	16:59	17:30	19:10		
LONDON Charing Cross		17:26	19:06		
LONDON London Bridge		17:35	19:14		
ORPINGTON STATION arrive	17:41	18:07 18:10	19:43 19:48		
ORPINGTON STATION depart	17:47	↘ 18:16	↘ 19:54		
FORT HALSTEAD	18:03	18:32	20:10		
<i>Bus Number</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
LONDON Cannon Street	-	-	18:02 18:23	-	
LONDON London Bridge	16:14	16:40	18:06 18:27	18:38	
KNOCKHOLT STATION arrive	16:48	17:13	18:40 19:04	19:18	
KNOCKHOLT STATION depart	16:54	17:19	18:46 19:10	19:28	
FORT HALSTEAD	17:03	17:28	18:55 19:19	19:37	

Fort Halstead Shuttle Bus: Prior to Primary School Opening on Site									
Monday to Friday									
<i>Bus Number</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>	<i>1</i>				
FORT HALSTEAD	05:53	06:27	06:47	07:08	07:44				
KNOCKHOLT STATION arrive	06:02	06:36	06:56	07:17	07:53				
KNOCKHOLT STATION depart	06:10	06:44	07:04	07:25	07:45				
LONDON London Bridge	06:38	07:18	07:37	07:59	08:18				
LONDON Cannon Street	06:43	07:26	07:44	08:06	08:26				
<i>Bus Number</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>1</i>	<i>2</i>				
FORT HALSTEAD	05:16		05:46		06:16		07:04	07:25	
ORPINGTON STATION arrive	05:32	↘	06:02	↘	06:32	↘	07:20	07:41	↘
ORPINGTON STATION depart	05:40	05:54	06:09	06:10	06:39	06:40	07:28	07:47	07:57
LONDON London Bridge	-	06:09	06:24	-	06:54	-	-	-	-
LONDON Charing Cross	-	06:18	06:33	-	07:05	-	-	-	08:30
LONDON Victoria	06:18	-	-	06:47	-	07:20	08:20	-	-
LONDON Blackfriars	06:28	-	-	-	-	-	08:08	08:29	-
LONDON St Pancras	06:44	-	-	-	-	-	08:19	08:39	-
<i>Bus Number</i>	<i>2</i>	<i>1</i>							
FORT HALSTEAD	08:00	08:02							
HALSTEAD PRIMARY SCHOOL	08:08	08:10	for 0820 start						
<i>Bus Number</i>	<i>1</i>								
FORT HALSTEAD	08:37								
St KATHERINES PRIMARY SCHOOL	08:45	for 0855 start							
0900 - 1500: On demand									
<i>Bus Number</i>	<i>1</i>								
St KATHERINES PRIMARY SCHOOL	15:25	for 1520 finish							
FORT HALSTEAD	15:33								
<i>Bus Number</i>	<i>1</i>	<i>2</i>							
HALSTEAD PRIMARY SCHOOL	15:40	15:42	for 1535 finish						
FORT HALSTEAD	15:48	15:50							
<i>Bus Number</i>		<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>
LONDON St Pancras	16:04		16:40		17:14	17:44		18:04	18:48
LONDON Blackfriars	16:16		16:52		17:25	17:56		18:16	19:00
LONDON Victoria	16:25		16:59		17:30	18:00		18:30	19:10
LONDON Charing Cross		16:32		17:26			18:41		19:06
LONDON London Bridge		16:40		17:35			18:50		19:14
ORPINGTON STATION arrive	17:05	17:06	17:41	18:07	18:10	18:41	19:06	19:12	19:43
ORPINGTON STATION depart	↘	17:11	17:47	↘	18:16	18:47	↘	19:18	↘
FORT HALSTEAD		17:27	18:03		18:32	19:03		19:34	20:10
<i>Bus Number</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
LONDON Cannon Street	-	-	16:56	17:19	17:41	18:02	18:23	-	-
LONDON London Bridge	16:14	16:40	17:00	17:23	17:45	18:06	18:27	18:38	19:14
KNOCKHOLT STATION arrive	16:48	17:13	17:34	17:56	18:18	18:40	19:04	19:18	19:50
KNOCKHOLT STATION depart	16:54	17:19	17:40	18:02	18:24	18:46	19:10	19:28	19:56
FORT HALSTEAD	17:03	17:28	17:49	18:11	18:33	18:55	19:19	19:37	20:05

Fort Halstead Shuttle Bus: Final										
Monday to Friday										
<i>Bus Number</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>	<i>1</i>					
FORT HALSTEAD	05:53	06:27	06:47	07:08	07:28					
KNOCKHOLT STATION arrive	06:02	06:36	06:56	07:17	07:37					
KNOCKHOLT STATION depart	06:10	06:44	07:04	07:25	07:45					
LONDON London Bridge	06:38	07:18	07:37	07:59	08:18					
LONDON Cannon Street	06:43	07:26	07:44	08:06	08:26					
<i>Bus Number</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>1</i>	<i>2</i>					
FORT HALSTEAD	05:16	05:46	06:16	07:04	07:25					
ORPINGTON STATION arrive	05:32	↘	06:02	↘	06:32	↘	07:20	07:41	↘	
ORPINGTON STATION depart	05:40	05:54	06:09	06:10	06:39	06:40	07:28	07:47	07:57	
LONDON London Bridge	-	06:09	06:24	-	06:54	-	-	-	-	
LONDON Charing Cross	-	06:18	06:33	-	07:05	-	-	-	08:30	
LONDON Victoria	06:18	-	-	06:47	-	07:20	08:20	-	-	
LONDON Blackfriars	06:28	-	-	-	-	-	08:08	08:29	-	
LONDON St Pancras	06:44	-	-	-	-	-	08:19	08:39	-	
0800 - 1600: On demand										
<i>Bus Number</i>		<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	
LONDON St Pancras	16:04	16:40	17:14	17:44	18:04	18:48				
LONDON Blackfriars	16:16	16:52	17:25	17:56	18:16	19:00				
LONDON Victoria	16:25	16:59	17:30	18:00	18:30	19:10				
LONDON Charing Cross	16:32	17:26	18:41	19:06						
LONDON London Bridge	16:40	17:35	18:50	19:14						
ORPINGTON STATION arrive	17:05	17:06	17:41	18:07	18:10	18:41	19:06	19:12	19:43	19:48
ORPINGTON STATION depart	↘	17:11	17:47	↘	18:16	18:47	↘	19:18	↘	19:54
FORT HALSTEAD	17:27	18:03	18:32	19:03	19:34	20:10				
<i>Bus Number</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	
LONDON Cannon Street	-	-	16:56	17:19	17:41	18:02	18:23	-	-	
LONDON London Bridge	16:14	16:40	17:00	17:23	17:45	18:06	18:27	18:38	19:14	
KNOCKHOLT STATION arrive	16:48	17:13	17:34	17:56	18:18	18:40	19:04	19:18	19:50	
KNOCKHOLT STATION depart	16:54	17:19	17:40	18:02	18:24	18:46	19:10	19:28	19:56	
FORT HALSTEAD	17:03	17:28	17:49	18:11	18:33	18:55	19:19	19:37	20:05	