

Sustainable Transport Access to Station

A number of additional improvements to the existing transport infrastructure improvements are proposed to improve and promote sustainable access to the station, as summarised in GH proof NRE 2.2 para 8.1.9.

Pedestrian Comfort Level on pedestrian routes around Cambridge South Station

The potential impact on pedestrian paths around Cambridge South station has been assessed including sensitivity testing of impacts associated with up to 6 million passenger trips generated by the station.

The assessment has been based on the Pedestrian Comfort Level Guidance and tool commissioned by Transport for London. This guidance is intended to ensure that the design of pedestrian footways and crossings are appropriate to the volume and type of users of that environment. The guidance is applicable whether evaluating a new design or assessing an existing footway.

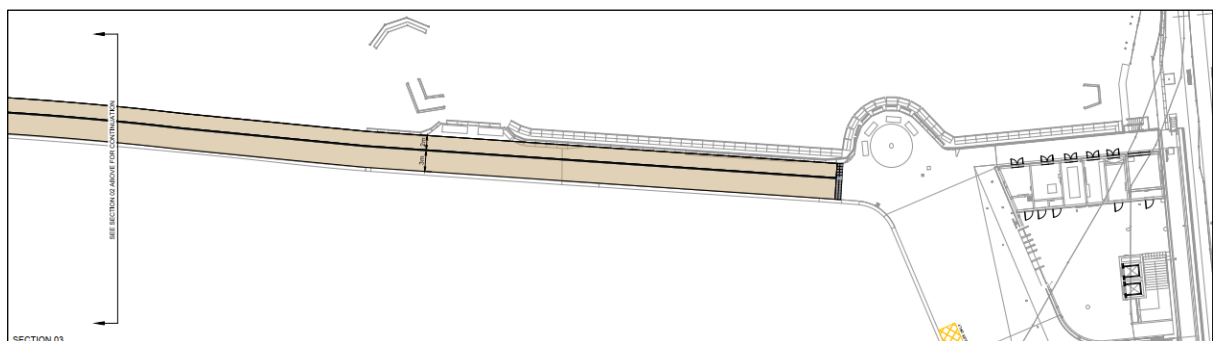
The assessed paths are as follows:

- Footpaths providing access to CBC east of station (Figure 1)
- Segregated Pedestrian access path through Hobson's Park (Figure 2)
- Eastern Station Forecourt

Figure 1 Footpaths east of Station



Figure 2 Pedestrian and cycle segregated path through Hobson's Park



The assessment results are summarised in Table 1.

Table 1. Pedestrian Comfort Level assessment results.

Location	2031 + Proposed Passenger Flows (based on 2.3m passengers)			2031 + Proposed Passenger Flows (based on 6m passengers)		
	Widths (m)	Peak Hour Flow	Peak Hour PCL	Widths (m)	Peak Hour Flow	Peak Hour PCL
Eastern Station Forecourt	4	420	A+	4	1230	A
Footpaths east of station	3	530	A+	3	1220	A-
Pedestrian access path through Hobson's Park	2	86	A+	2	261	A+

As can be seen from Table 1, the PCL will be between A+ and A- for all assessed paths and scenarios including the 6 million passenger demand forecast. As shown in Figure 3, based on the PCL Guidance, PCL A represents a comfortable level for all areas.

Figure 3 Pedestrian Comfort Level on Footways



Figure 8 Pedestrian Comfort Levels on Footways

Cycle routes around Cambridge South Station

The potential impact on cycle routes around Cambridge South station has been assessed including sensitivity testing of the impacts associated with up to 6 million passenger trips generated by the station. All cycle infrastructure has been designed in accordance with the DfT LTN 1/20 cycle design guidelines. Table 2 confirms cycle infrastructure will accommodate the 6 million passenger demand forecast.

Table 2. Cycle infrastructure

Cycle Route	Direction	Scenario	2031+Dev Peak hour cycle flow	Desirable minimum width based on LTN 1/20 (m)	Existing/ Proposed Width (m)
Segregated cycle path eastern forecourt	2 way	2m pax in 2031	91	3.0	3.0
		6m pax in 2031	275	3.0	3.0
Cycle Path east of the Francis Crick Avenue junction on bus only link	2 way	2m pax in 2031	674	3.0	7.3
		6m pax in 2031	831	3.0	7.3
Segregated Cycle Access Path through Hobson's Park	2 way	2m pax in 2031	83	3.0	3.0
		6m pax in 2031	250	3.0	3.0

Taxi Sensitivity Testing

The Taxi Wait Time Surveys Report 2016 for TfL provides information on average dwell time for taxis dropping off and picking up passengers at taxi ranks, including stations, together with the mean passenger group size.

In the typical scenario a taxi will drop off a passenger at a rank then wait for a maximum of 10 minutes to pick up before moving elsewhere. However, the average dwell time for taxi pick up is 6 minutes.

On average each taxi would normally cater for 2 passenger trips every 6 minutes (drop off then pick up)

Therefore, each taxi bay would cater for 20 trips per hour. 3 taxi bays are being provided which will accommodate 60 taxi trips per hour based on a group size of 1 for each trip. However, the mean passenger group size is 1.36 so 3 taxi bays can accommodate 82 taxi trips per hour.

The 2m passenger demand forecast will generate 19 taxi trips per hour during the peak hour, so the current 3 bay taxi provision has capacity for up to 8.5m passengers per year based on the mean passenger group size of 1.36 for each trip.

Pick up/Drop-off Sensitivity Testing

Average drop-off time is 2 minutes whilst average dwell time for pick up could be increased up to 8 minutes. Drop off and pick up trips are normally a single trip.

Therefore, each pick up/drop off bay will cater for 12 trips per hour. 3 pick up/drop off bays are being provided which will accommodate 36 pick up and drop off trips per hour based on group size of 1 for each trip. However, assumption is that the mean passenger group size is similar to taxi trips at 1.36, so 3 pick up/drop off bays can accommodate 49 pick up and drop off trips per hour.

The 2m passenger demand forecast will generate 17 pick up and drop off trips per hour during the peak hour so the current 3 bay pick up and drop off provision has capacity for up to 5.8m passengers per year based on the mean passenger group size of 1.36 for each trip. Capacity of the pick up and drop off bays can be considerably increased by limiting the dwell time to 5 minutes, enforceable by ANPR cameras.

Junction Capacity Sensitivity Testing

The potential impact on the station highway access and the traffic signal controlled junction of Francis Crick Avenue/Guided Busway has been assessed using LinSig to include sensitivity testing of impacts associated with up to 6 million passenger trips generated by the station. The 6m passenger demand forecast would further reduce background traffic in CBC demand due to the increased mode shift from road to rail. Table 3 provides a summary of the LinSig traffic modelling results for both the AM peak hour and PM peak hour.

Table 3. 2031 Proposed LinSig Model Results - 6m passenger demand forecast

Lane	Description	AM Peak Hour		PM Peak Hour	
		DoS (%)	MMQ (pcu)	DoS (%)	MMQ (pcu)
1/1	Francis Crick Ave southbound	25.0	3.4	38.3	6.0
2/1	Busway (east arm)	28.0	1.3	28.0	1.3
3/1	Francis Crick Ave northbound	34.7	5.4	14.1	1.9
4/1	Busway (west arm)	46.7	2.4	46.7	2.4
5/1	Station access	16.8	0.1	15.5	0.1

The degree of saturation (DoS) is defined as the ratio of Flow to Capacity for the traffic lane, with 90% generally taken as the maximum acceptable DoS for the junction to operate within capacity. The mean maximum queue (MMQ) represents the maximum queue at the end of each traffic signal cycle just before the lane receives a green signal.

The results of the LinSig traffic modelling confirm that the station highway access and the junction of Francis Crick Avenue/Guided Busway operate well within capacity with minimal queues and delay to vehicles during both the AM and PM peak hours.