A386 Tavistock to Plymouth Corridor Study

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1. INTRODUCTION

1.1 Background

1.1.1 Tavistock is the largest settlement in West Devon; the town itself has a population of approximately 12,300, whilst the wider area has a population of approximately 30,000. The dominant commuting pattern is between Tavistock and Plymouth along the A386 which experiences increased traffic flows and congestion in the urban area of Plymouth, particularly in the peak hours.

1.1.2 A strategic development site is planned for the town in the period up to 2026 as set out in the West Devon Core Strategy. Two areas are allocated for 750 homes and 13 hectares of employment space.

1.1.3 A variety of transport intervention options have been considered to mitigate development impact and support economic growth in the town. One of the interventions being considered by Devon County Council is that of reinstating the railway between Tavistock and Bere Alston where the existing line then links to Plymouth. This report considers a range of measures that are feasible to improve transport in the A386 corridor including road schemes and opportunities to make improvements to walking, cycling and bus provision and to improve road safety and local amenity.

1.2 Issues & Objectives

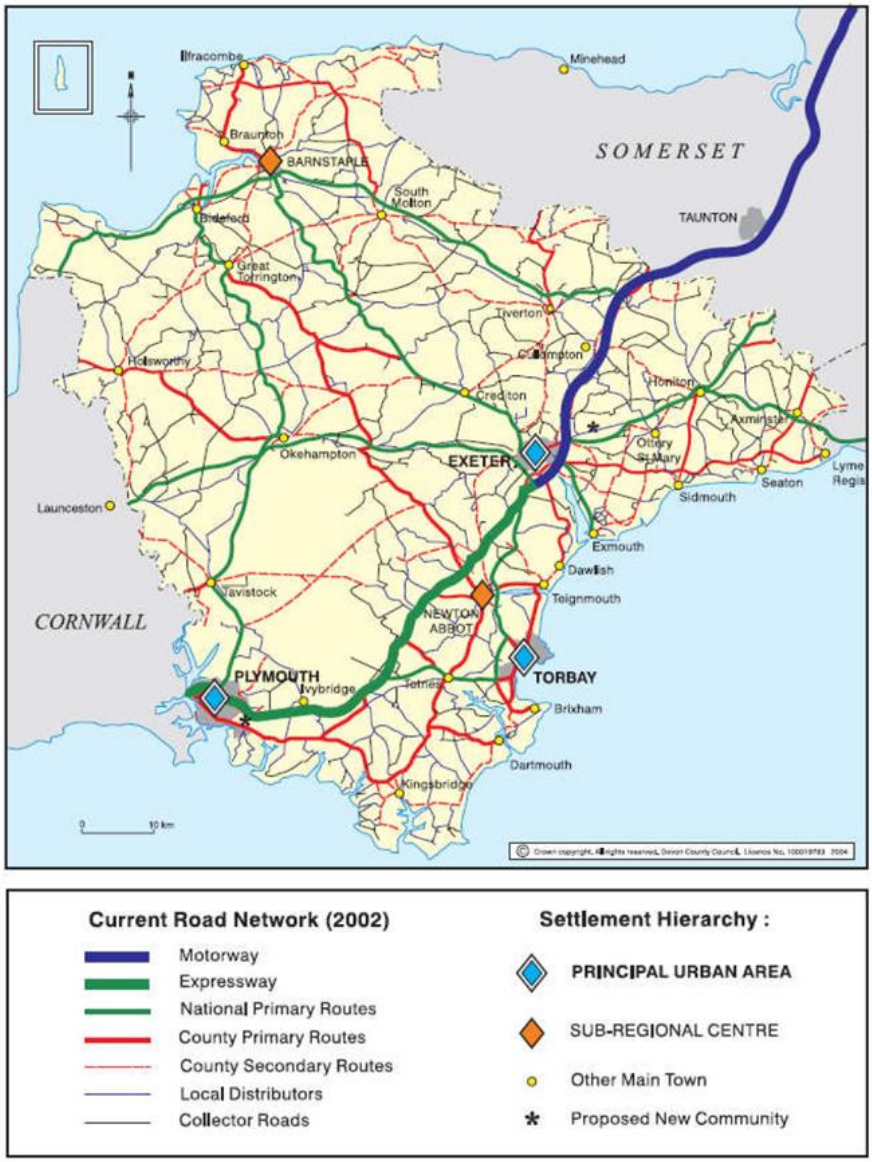
1.2.1 Tavistock is an attractive and successful market town situated on the river Tavy and on the edge of Dartmoor. Tavistock provides a range of employment, shopping, health and leisure facilities and benefits from being a 'gateway town' for international cultural and national recreational assets including Dartmoor and the Cornwall and the West Devon Mining Landscape World Heritage Site. The historic, character-rich nature of the town and its tranquil rural setting have made it an attractive town for both commuters working in Plymouth and a sizable retired population. Importantly to its economy, Tavistock is also a popular tourist destination for Dartmoor and West Devon.

1.2.2 Tavistock provides an opportunity for employment. It is a base for small to large employers, being half way between the A30 and the A38. Much of the employment in Tavistock is in mixed-use development. The Principal Urban Area of Plymouth is approximately 24 kilometres to the south via the A386 and provides a wider range of employment and specialist shopping, financial, healthcare and other services.

1.2.3 The A386 is a National Primary Route, connecting Plymouth and south Devon with west and north Devon, see Figure 1. It provides the only direct travel link between Tavistock and Plymouth. The section of A386 from Tavistock to Plymouth is thus critical not only to the economy and prosperity of Tavistock, but to all passenger and freight transport between Plymouth and the north and west of Devon.

1.2.4 The A386 (between Plymouth City boundary and Tavistock) is a single carriageway road of varying and sometimes narrow width, and in places hilly and windy. Traffic has grown at a slow but steady rate of 0.5% per annum. Expectations of major improvements to the road, and particularly capacity enhancing ones, are considered to be unrealistic, due not only to cost constraints but also to environmental and other factors relating to the rural country and settlements through which the road passes. As a result, the aim of this report is to consider the possibility of more proportionate road improvements plus a range of complementary and deliverable measures.

Figure 1: Road Links from Tavistock



Source: Devon Structure Plan 2001 to 2016, Explanatory Memorandum, adopted October 2004

2. EXISTING TRANSPORT

2.1 Travel Characteristics

2.1.1 The 2011 Census journey to work statistics have been analysed in order to understand the geographical distribution of work places and commute trips by residents of Tavistock. Commute trips are particularly critical as they tend to take place when the transport network is operating under maximum stress (although this does not detract from the need to provide acceptable travel conditions for business, shopping and other purpose trips which take place throughout the day).

2.1.2 The distribution of commute trips by all modes of transport by residents of Tavistock, Table 1, showed that out of the total 4,841 residents of Tavistock who stated that they normally commute, 40% worked in Tavistock, 20% gave Plymouth as the normal place of work. The remaining 40% of workplace destinations were distributed to the rest of West Devon (12%), Cornwall (7%) and South Hams (4%). 18% commuted to other locations including Exeter (2%) and other Devon and Torbay (3%).

2.1.3 There were different distributions of commute trips into Tavistock. Of the 4,528 people with jobs 43% came from Tavistock, 28% from West Devon, 13% from Cornwall and 9% from Plymouth. The remaining 7% came from all other locations.

2.1.4 The Census statistics revealed that 68% of commuting trips were by car drivers, 6% by car passengers, 19% on foot, 3% by bus and the remaining 4% by rail, taxi, motorcycle and cycle.

Table 1: Travel to Work To & From Tavistock (2011 Census)

Residence / Employment Location (MSOA)	From Tavistock		To Tavistock	
	Number of People	%age	Number of People	%age
Tavistock	1,929	40%	1,929	43%
Plymouth	996	21%	417	9%
West Devon	582	12%	1,277	28%
South Hams	170	4%	93	2%
Exeter	93	2%	27	1%
Other Devon & Torbay	122	3%	155	3%
Cornwall	340	7%	586	13%
Other Areas	609	13%	43	1%
Total	4,841	100%	4,527	100%

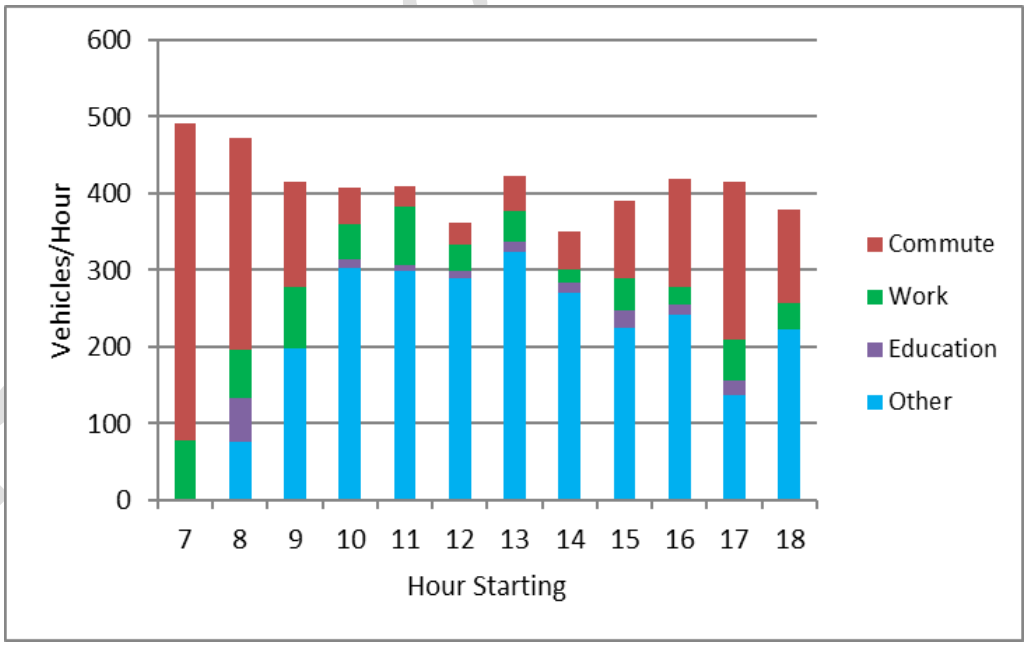
Note: Tavistock - 733 work mainly from home
4841 in employment
2196 not in employment
8770 residents aged 16 years and over

2.1.5 The above travel data shows that:

- Plymouth is an important destination for work trips, accounting for around 34% of commute trips from Tavistock to destinations outside of Tavistock (10% to Derriford, 6% to shopping centre, 6% to other areas in south Plymouth, 4% to other areas in north Plymouth);
- For motorised travel by Tavistock commuters, the car is very much the dominant mode with 94% of commute trips (87% car driver);
- By comparison bus is little used with 3.7% of motorised commute trips.

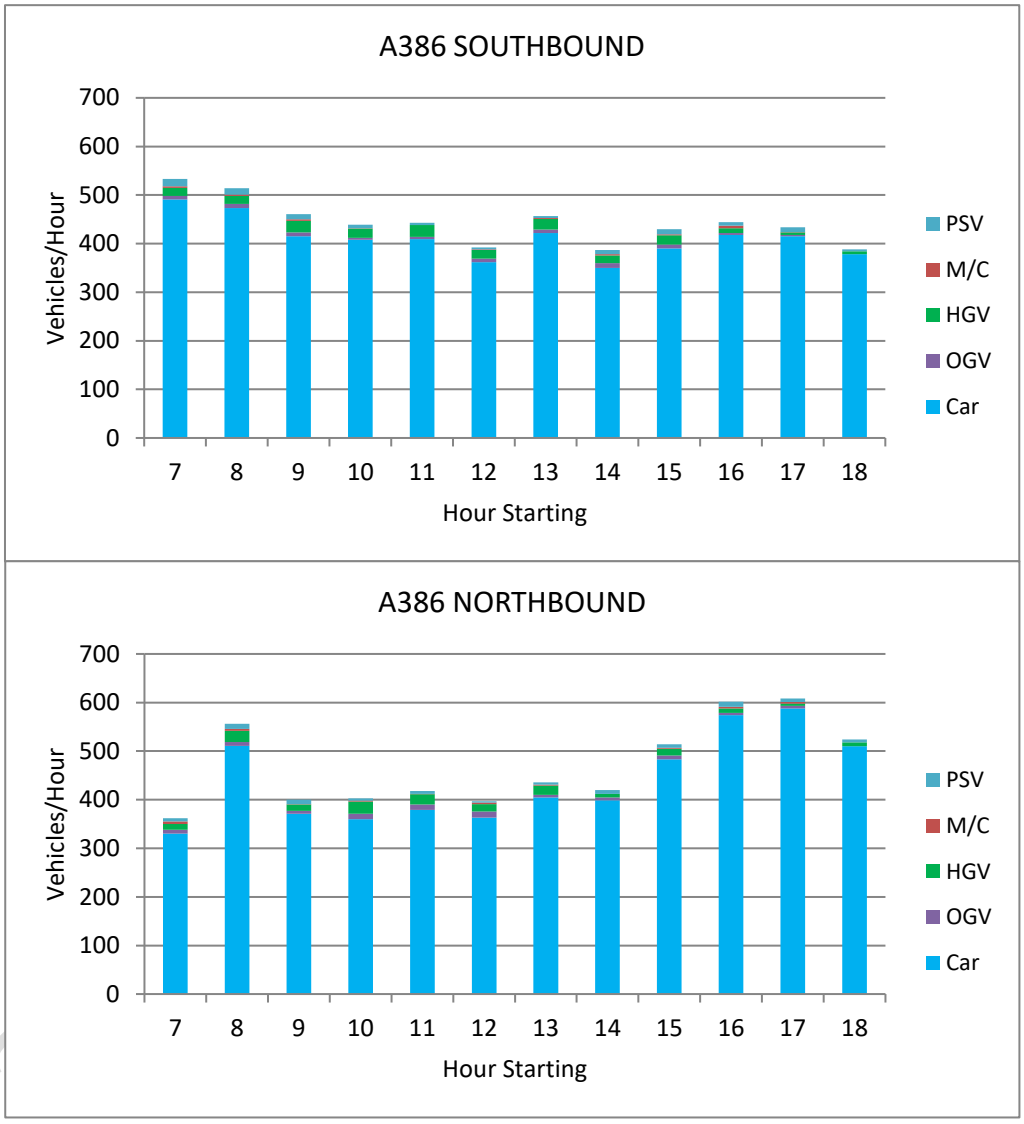
2.1.6 An analysis of trips of all purposes originating in Tavistock and travelling south on the A386 towards Plymouth is available from roadside interview data collected in 2012 on the A386 south of Tavistock. Hourly southbound flows by trip purpose are presented in Figure 2. Commute flows dominate from 07:00 to 09:00 while other purpose trips (including shopping, personal business and leisure) are important through the main part of the day. There were small numbers of work and education trips throughout the day. There were between 200 and 300 southbound car trips per hour originating in Tavistock in the 07:00 to 19:00 hrs survey period. This compares with between 400 and 500 southbound car trips per hour in total, the difference being traffic passing through Tavistock. Approximately 400 cars in the 07:00 to 19:00 hrs survey period had destinations in Plymouth within 1 km of a rail station.

Figure 2: A386 Car Trips from Tavistock at RSI



2.1.7 The overwhelming majority of A386 traffic are car trips, as shown by the 2012 manual classified traffic count at the RSI site, in Figure 3. Southbound cars account for 92% of the trips and northbound cars account for 93%.

Figure 3: 2012 Traffic Count A386 South of Tavistock at RSI



2.2 A386

2.2.1 In order to travel by car or bus between Tavistock and Plymouth it is necessary to use the A386, a distance of 24km. There is currently no appropriate alternative route for either car or bus. The A386 is a two-lane single carriageway between Tavistock and Roborough roundabout on the northern border of Plymouth, which in parts is sub-standard.

2.2.2 Within Plymouth, conditions change as the road becomes more urban. From Roborough roundabout to Woolwell roundabout it is dual carriageway, then a

mixture of dual and single carriageway to Derriford roundabout. From Derriford to the A38 Manadon interchange it is dual carriageway.

2.2.3 The A386 between Tavistock and Yelverton is moderately trafficked in the context of its poor standard, with two-way, average workday 12-hour flows increasing between Tavistock and Yelverton from 12,000 vehicles in both directions at Grenofen (2016) to 13,000 south of Horrabridge (2016) to around 14,000 north of Yelverton.

2.2.4 South of Yelverton, automatic traffic count data from 2017 identified average workday traffic volumes of between 16,000 and 18,000, Figure 4 and Figure 5. However, the standard of road improves to the south.

2.2.5 Traffic volumes on the A386 increase considerably towards and into Plymouth. Average workday 12-hour two-way volumes increase to 24,800 south of Roborough and to 28,200 between Woolwell and Derriford. A seasonality index of 1.03 was calculated for the A386 South of Yelverton, indicating little variation between summer and neutral months.

Figure 4: 2017 Two-Way Weekday Traffic - A386 South of Yelverton

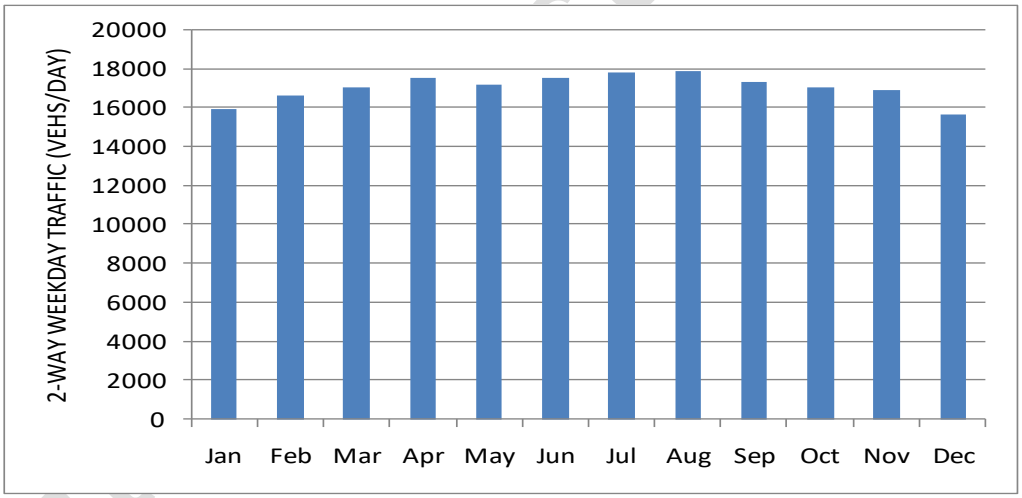
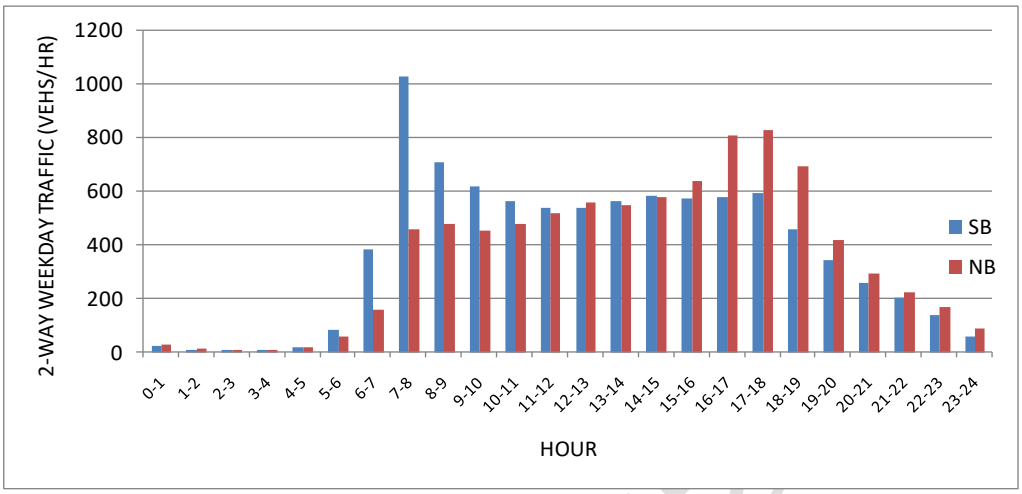
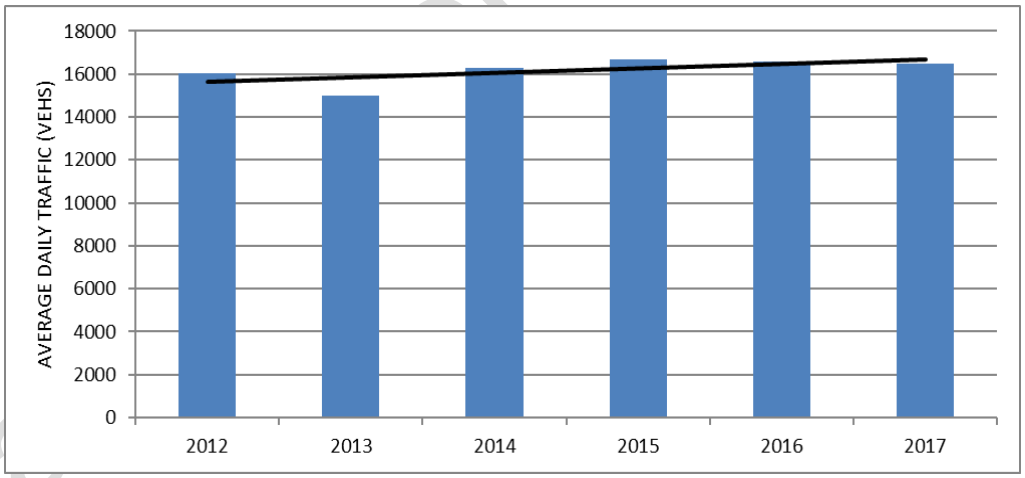


Figure 5: June 2017 Hourly Traffic - A386 South of Yelverton



2.2.6 Traffic levels on the A386 have remained fairly constant in recent years. Annual average daily traffic (AADT) at the ATC monitoring site south of Yelverton showed a small increase between 2012 and 2016, with a decrease in 2013 and a small decrease in the last two years, Figure 6.

Figure 6: A386 Traffic South of Yelverton



2.2.7 In addition to significant traffic flows, the capacity of the A386 is also constrained. The varying standard of the highway along the corridor means that the capacity varies. The capacity of road is lowest on the section between Tavistock and Yelverton, and more particularly between Grenofen and Horrabridge; this section of highway is approximately 3km in length.

2.2.8 This section of the route has a poor alignment, particularly around Horrabridge. The various steep gradients, vegetation, sharp bends and narrow widths of the road result in poor forward visibility and low capacity. Capacity is reduced further in sections where widths are limited to less than 6m which require HGVs and buses to travel slowly when passing each other. Traffic capacity can also be impeded by slow agricultural vehicles and breakdowns.

2.2.9 There are also capacity constraints on the northern section of the A386 within Plymouth, particularly south of Woolwell roundabout towards the George Park and Ride and beyond, Table 2. This part of the A386 acts as a significant pinch point on the corridor although Plymouth City Council are planning an improvement.

Table 2: A386 Capacity

Section	Link length (km)	Carriage-way	Width (m)	Capacity Q_C	Design Capacity 85% Q_C	Existing Peak Traffic Volume	Design Capacity Exceeded
Tavistock-Horrabridge	7.1	Single	6.0-7.3	1020	870	610	No
Horrabridge-Yelverton	2.2	Single	6.5-7.3	1180	1000	809	No
Yelverton-Roborough	5.9	Single	6.5-7.3	1180	1000	1028	Yes
Roborough-Woolwell	1.0	Dual	14.6	3260	2770	1610	No
Woolwell-Derriford	2.1	Single/ Dual	7.3-14.6	1630	1390	1890	Yes
Derriford-A38.Manadon	2.2	Dual	14.6	3260	2770	3650	Yes

Notes: 1. All capacities and traffic flows are vehicles per hour per direction
2. Capacities are based on minimum road width in each section and % heavy vehicles at peak times
3. Qc denotes maximum realistic traffic flow

2.2.10 Due to the constraints on the network and the significant flows, design capacities are already being exceeded resulting in variable journey times on the A386. 2012 journey time survey data showed AM peak journey times between Tavistock and Plymouth city centre varying between 29 minutes and 40 minutes and between 28 minutes and 47 minutes in the reverse direction in the PM peak.

2.2.11 Timetabled bus travel times between Tavistock and Plymouth are around 10 minutes longer in the AM peak on school days than in off peak times reflecting road capacity constraints in the traffic peak. Bus surveys have shown that good punctuality throughout the day and journey times in the peak hours to be consistently higher than at other times.

2.3 Road Safety

2.3.1 The section of A386 from Plymouth to Tavistock has been recognised as having accident problems, and a cluster of collisions led to the implementation of a casualty and severity reduction scheme between 2007 and 2008 along the stretch from Roborough to Yelverton. In the period 2005 to 2009 there were an average of 22.6 injury collisions per year between Plymouth and Tavistock, utilising 2009 AADTs generated a collision rate of 333 per billion vehicle km.

2.3.2 Accident data for the years 2012-2016 has been examined to consider the current safety record of the A386. This has shown that there has been an average of 7 collisions per year on the A386 between Tavistock and Yelverton and 8.6 collisions per year between Yelverton and Plymouth. Of the total 15.6 average collisions per year, 3.6 resulted in fatalities or serious injuries.

2.3.3 Comparative collision route analysis shows that the A386 between Tavistock and Yelverton was the 37th worst performing road and the A386 between Yelverton and Plymouth the 15th, out of the 137 A-road route sections in Devon (Figure 7). Yet, the Tavistock to Yelverton section has an overall collision rate of 194 collisions per bn veh km, and Yelverton to Plymouth has a rate of 220. These rates are both below the average rate calculated for Devon's rural A roads (223 collisions per billion vehicle km), for the 2012 to 2016 period.

2.3.4 The high severity ratio of the A386 between Yelverton and Plymouth, with 28% of injury collisions fatal or serious, compared to the Devon rural A road average of 22%, contributes to its ranking position in the worst performing quartile.

Figure 7: 2016 Road Safety Statistics

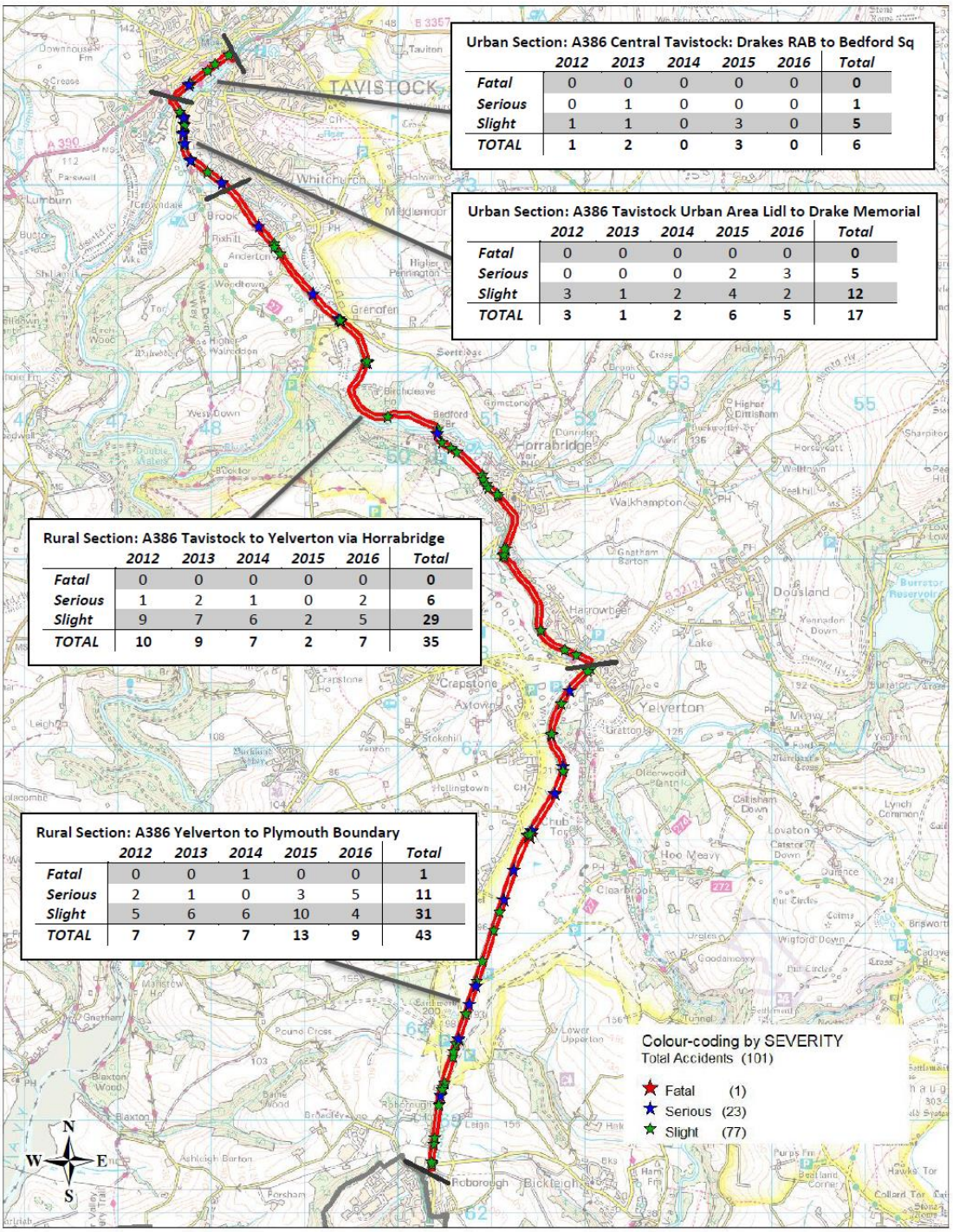
Rank out of 144	A Road Route Description	Urban /Rural /Declassified Trunk	AADT data (DfT, 2016)	Length (KM)	(1) Collisions 2012-2016	(2) Ave annual colls per km	(3) Colls per bn veh km	(4) KSI Collisions 2012-2016	(5) Ave annual KSI per km	(6) KSI per bn veh km
1	A377 Exeter A30 jct along Alphington Rd to Exe Bridges	U	23037	1.89	54	5.7	681	9	1.0	113
2	A386 Central Bideford: from Long Bridge to A39 RAB	U	14404	1.77	32	3.6	688	9	1.0	193
3	A381 Newton Abbot Asda to Penn Inn	U	18299	1.54	40	5.2	780	5	0.7	98
4	A375 Honiton High St and link to Tesco Sidmouth Rd	U	12048	2.31	29	2.5	572	7	0.6	138
5	A3125 Barnstaple: Sticklepath RAB to Long Bridge to TA Ctr	U	18814	0.95	24	5.1	737	5	1.1	153
6	A379 Teignmouth to Dawlish inc urban areas	U	12164	8.21	75	1.8	411	13	0.3	71
7	A361 Braunton Urban Area	U	18724	2.13	25	2.3	343	8	0.8	110
8	A3015 Countess Wear to Exeter Centre (Acorn Gyratory)	U	22706	3.20	59	3.7	445	7	0.4	53
8	A377 Exe Bridges to Cowley Bridge RAB	U	11806	3.25	35	2.2	500	6	0.4	86
10	A386 Tavistock Urban Area Lidl to Drake Memorial	U	12642	1.23	17	2.8	599	5	0.8	176
11	A376 Exmouth Urban Area (Courtlands Cross to M&S)	U	17833	2.66	33	2.5	382	6	0.5	69
12	A383 Newton Abbot Balls Corner RAB to Kingst'on to A380 jct	U	15308	2.51	29	2.3	413	5	0.4	71
13	A375 through Sidmouth from A3052 jct to High st	U	7418	2.59	19	1.5	543	5	0.4	143
13	A380 Marldon Way in between Torbay boundaries	R	22997	1.12	27	4.8	577	3	0.5	64
15	A386 Yelverton to Plymouth Boundary (Bickleigh)	R	18370	5.82	43	1.5	220	12	0.4	62
16	A379 Exeter to Kenton to Dawlish	R	8575	13.29	52	0.8	250	16	0.2	77
17	A399 Ilfracombe to Coombe Martin	R	2052	10.20	29	0.6	759	7	0.1	183
18	A358 Boshill Cross thro Musbury to Axminster 30 term	R	6716	5.90	25	0.8	346	7	0.2	97
19	A385 Totnes (Blackpost X) to True St to Torbay b'ry	R	13682	3.29	21	1.3	256	7	0.4	85
20	A379 Yealmpton to Modbury X	R	6600	4.95	19	0.8	319	7	0.3	117
21	A382 Newton Abbot Coombes Head RAB to A38 Drumbridges	R	16931	4.50	36	1.6	259	6	0.3	43
22	A386 Tavistock (Kelly college) to Sourton Down	R	5828	18.24	47	0.5	242	15	0.2	77
23	A3015 Middlemoor NE to Honiton Rd M5 jct 29	U	17189	1.44	19	2.6	419	3	0.4	66
24	A381 Ipplepen (Wrigwell X) to Totnes (Brutus Bridge)	R	7802	7.13	26	0.7	256	7	0.2	69
25	A39 Barnstaple: Pilton to Barnstaple Hospital	U	9515	1.34	14	2.1	601	2	0.3	86
26	A377 Crediton (Chapel Downs) to Copplestone	R	8896	5.42	23	0.8	261	6	0.2	68
26	A399 + A361 Ilfracombe Urban Area	U	6205	4.18	19	0.9	401	4	0.2	84
28	A3072 County boundary to Holsworthy jw North Road	R	5566	6.51	20	0.6	303	6	0.2	91
29	A381 Churchstow (Bantham X) to Langworthy Barn	R	4402	2.57	12	0.9	582	3	0.2	146
29	A361 Braunton to Barnstaple	R	18724	5.55	28	1.0	148	9	0.3	47
31	A361 Braunton to Mullacott Cross	R	7012	8.37	21	0.5	196	10	0.2	93
32	A388 Holsworthy urban area north to south	U	7179	1.48	11	1.5	569	2	0.3	103
33	A381 Teignmouth Bridge W to A380 jct Kingsteignton	R	13029	5.60	30	1.1	225	5	0.2	38
34	A358 Axminster urban area (from A35 jct up to Waycroft)	U	8306	3.00	18	1.2	396	3	0.2	66
35	A381 Totnes Western By Pass	U	11384	0.73	10	2.7	656	1	0.3	66
36	A386 Hatherleigh (A3072 RAB) to Gt Torr'ton (Rosemoor)	R	3074	19.71	26	0.3	235	10	0.1	90
37	A3079 full length (Dunsland X Hol'wthy) to Okehampton	R	3163	20.75	28	0.3	234	10	0.1	83
37	A386 Tavistock to Yelverton via Horrabridge	R	13715	7.20	35	1.0	194	6	0.2	33
37	A3015 Acorn Gyratory to Exe Bridges	U	22706	0.57	13	4.6	554	1	0.4	43
40	A379 Matford Park RAB to A38 Jct	R	16935	3.24	22	1.4	220	4	0.2	40
41	A383 Newton Abbot Churchills RAB to Balls Corner RAB	U	16931	0.94	9	1.9	310	2	0.4	69
42	A388 Holsworthy N to Stibb Cross	R	2844	14.43	25	0.3	334	6	0.1	80
43	A377 Cowley Bridge to Crediton Tesco 40 terminal	R	12461	8.18	32	0.8	172	7	0.2	38
44	A3052 Sidford (A375 jct) to Seaton Jct (B3172)	R	8223	10.83	32	0.6	197	7	0.1	43
44	A377 Lapford to Umberleigh	R	2906	25.57	41	0.3	302	8	0.1	59
44	A381 Halwell to Churchstow jct	R	6072	10.29	22	0.4	193	8	0.2	70
47	A39 Bideford (Abbotsham X) to Clovelly	R	7634	12.15	29	0.5	171	9	0.1	53
48	A383 Newton Abbot (Highweek) W via Ashburbton Rd to A38	R	8946	5.81	19	0.7	200	6	0.2	63
49	A380 dual carriageway Kenn to Newton Abbot Penn Inn	D	29353	16.60	81	1.0	91	14	0.2	16
50	A3052 Clyst St Mary to Newton Poppleford	R	13800	10.87	41	0.8	150	8	0.1	29
51	A388 Stibb Cross to Landcross (S Bideford)	R	3018	10.39	23	0.4	402	4	0.1	70
52	A376 Clyst St George RAB to Clyst St Mary RAB	R	23912	2.26	13	1.2	132	6	0.5	61
53	A3125 Bickington RAB to Sticklepath RAB	U	22090	1.33	24	3.6	447	1	0.2	19
54	A3015 Middlemoor S past Pynes Hill to A379 overpass	U	18889	1.35	10	1.5	215	3	0.4	65
55	A39 Barnstaple: TA centre to Pilton junction	U	10830	1.02	11	2.2	544	1	0.2	49
56	A390 whole length: Tavistock to Cornwall boundary	R	8254	6.19	18	0.6	193	6	0.2	64
57	A3121 full length A38 nr S Brent to A379 nr Modbury	R	2440	9.48	21	0.4	497	3	0.1	71
58	A39 Barnstaple: Hospital NE to Blackmoor Gate	R	1590	15.16	21	0.3	477	4	0.1	91
59	A396 Tiverton Gt Westn Way to A361 jct	U	19747	2.43	18	1.5	206	3	0.2	34
60	A386 Bideford Urban Area South of Bridge (New Road)	U	10187	0.66	4	1.2	327	1	0.3	82
61	A386 Central Tavistock: Drakes RAB to Bedford Sq	U	13235	0.73	6	1.7	343	1	0.3	57
62	A385 Totnes Ctr to Rail stn to Blackpost X Redlands	U	19135	1.78	23	2.6	371	1	0.1	16
63	A39 Barnstaple: Roundswell RAB to Bideford (A386 RAB)	R	17573	10.28	35	0.7	106	7	0.1	21
64	A3072 Lamerton X to North Tawton (De Bathe X)	R	2851	11.00	16	0.3	279	5	0.1	87
65	A373 full length (Cullompton to Honiton)	R	3407	16.59	33	0.4	320	4	0.0	39
65	A379 Plymouth B'dry to Yealmpton	R	8455	4.37	17	0.8	252	3	0.1	44
67	A3072 Dunsland X nr Brandis Corner to Hatherleigh	R	2210	14.21	17	0.2	297	5	0.1	87
68	A3123 full length N Devon (Mullacott Cross E to j/w A399)	R	2292	11.07	20	0.4	432	3	0.1	65
68	A386 Northam (A39 RAB) to Appledore	U	3297	3.47	16	0.9	767	1	0.1	48
70	A399 Easter Close X across Exmoor to Blackmoor Gate	R	4007	3.70	10	0.5	370	2	0.1	74
71	A3126 Bolham RAB to Great Western Way RAB	U	11799	1.86	16	1.7	399	1	0.1	25
72	A39 Barnstaple: Portmore RAB to TA centre RAB	U	18636	1.82	19	2.1	308	1	0.1	16

Worst Performing Quartile (Rankings 1-36)

Lower Performing Quartile (Rankings 37-72)

2.3.5 Accidents in the 2012 to 2016 five year period are plotted in Figure 8 along with an analysis of the numbers of accidents by severity and by year for sections of the A386.

Figure 8: 2012 to 2016 Accident Plot

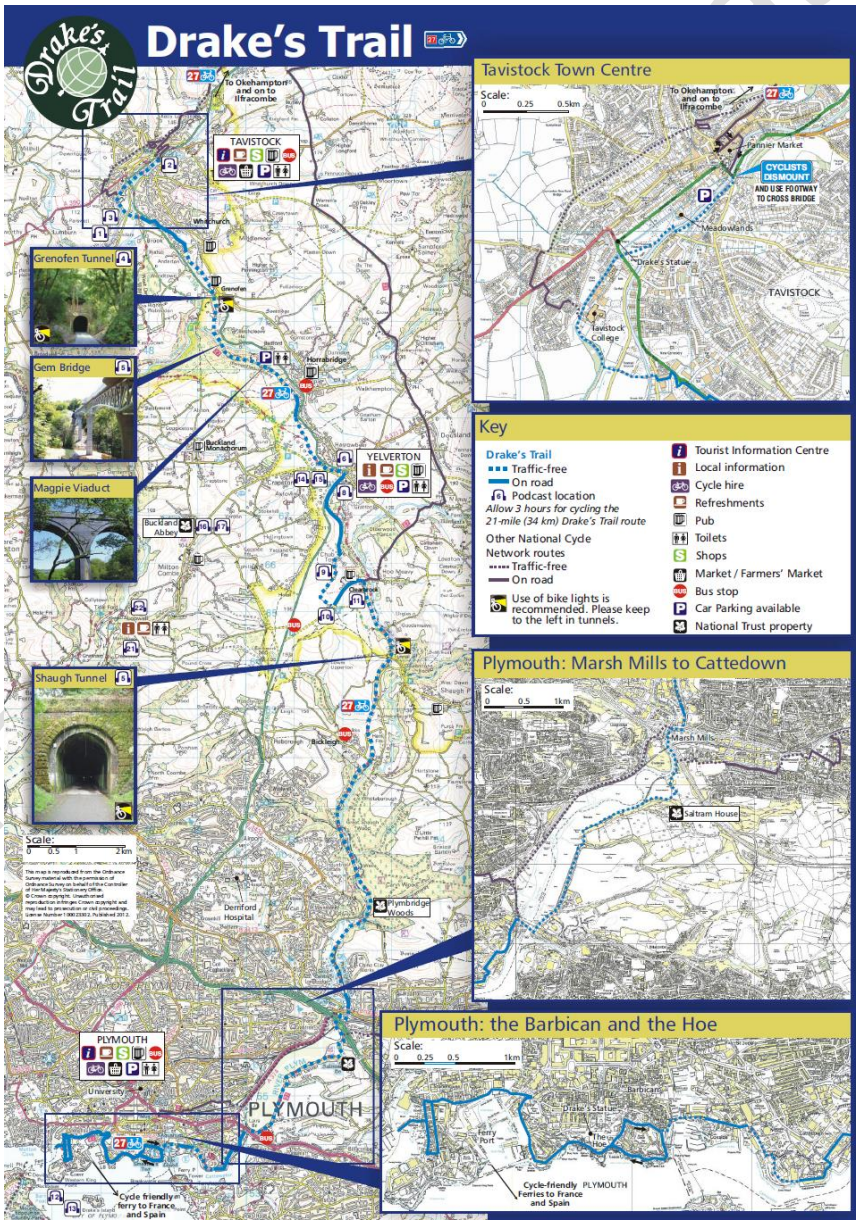


2.4 Walking & Cycling

2.4.1 Drakes Trail (Figure 9) directly links Tavistock to Plymouth and is part of National Cycle Route 27 and the Devon Coast to Coast route. However, due to the strategic nature of the A386 corridor and the distance involved, walking and cycling do not feature significantly in trips between Tavistock and Plymouth. It would take approximately 82 minutes to cycle the 20.5km between Tavistock and Manadon assuming an average cycling speed of 15 km/hour.

2.4.2 Despite the presence of the Drake's Trail, walking and cycling is currently not an attractive option for commuters along the A386 corridor. Not only is the topography challenging in places, the route also does not feed straight into the employment-rich city centre

Figure 9: Tavistock to Plymouth Cycle Route

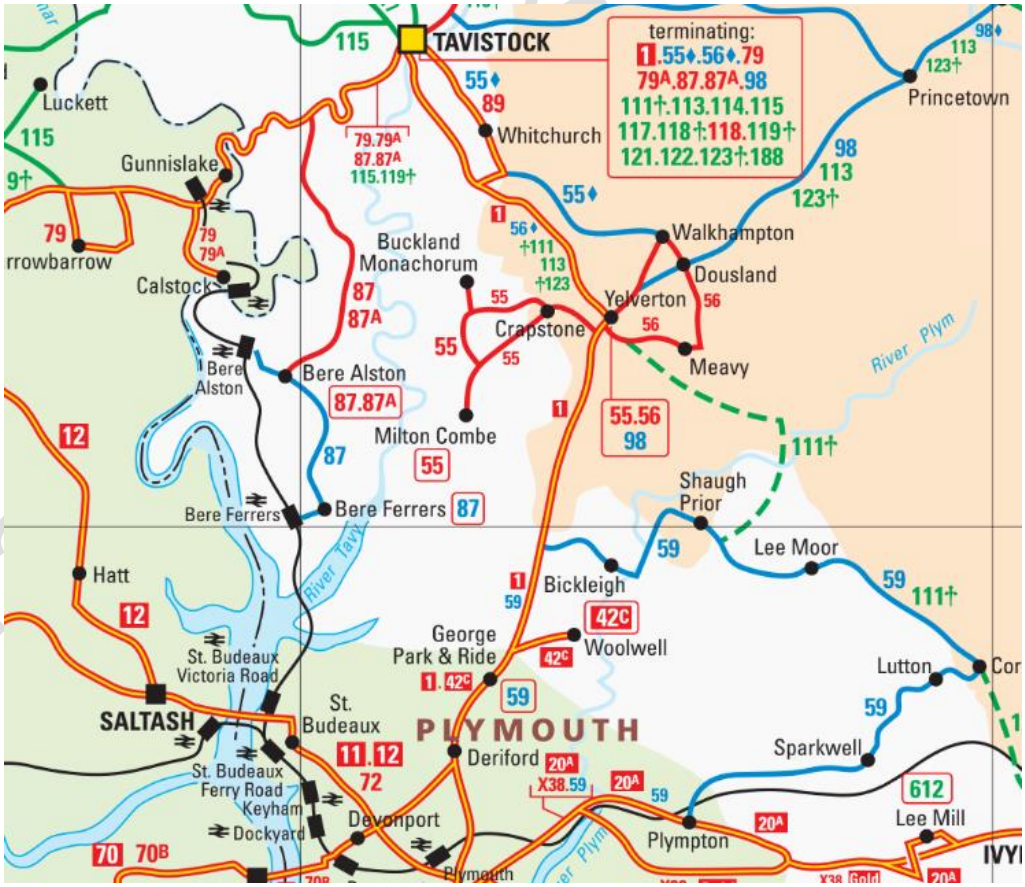


2.5 Bus Services

2.5.1 Tavistock is relatively well served by bus services. Services link Tavistock to the following main local cities, towns and villages including Plymouth, Bere Ferrers and Bere Alston, Callington and Launceston (Figure 10).

2.5.2 Bus services between Tavistock and Plymouth are frequent. Service 1 provides a 15 minute frequency on the A386 between Tavistock, Yelverton, Derriford Hospital and Plymouth. The 55/56 service provides an infrequent service between Tavistock and Yelverton. The Tavistock to Plymouth (Royal Parade) service has a timetabled journey time of approximately 70 minutes in the peak (average speed of 24 km/hour) and 60 minutes in the inter peak (average speed of 29 km/hour) although these times are variable as they are affected by congestion on the route. For example, at peak travel times on school days journeys are at least 10 minutes longer than in off peak times in the AM peak southbound. Timetable times for the Yelverton to Derriford section increase from 17 minutes in the inter peak to 26 minutes in the AM peak. There is no timetable time increase between inter peak and AM peak hour on the Tavistock to Yelverton section.

Figure 10: Tavistock to Plymouth Bus Routes



2.6 Journey Times

2.6.1 Automatic number plate recognition camera (ANPR) journey time survey data was collected for the A386 route from Tavistock to Plymouth rail station, Figure 11. The data was collected on Thursday 5th July 2012 when traffic levels and congestion in the peaks would have been less than in neutral months for 2012. The data, Table 3, showed little variation throughout the day between Tavistock and Plymouth city centre, with journeys taking 31 minutes by road in the AM peak hour, 29 minutes in the 11:00 to 12:00 hrs inter peak hour and 32 minutes in the PM peak hour.

2.6.2 In the reverse direction from Plymouth to Tavistock average journey times were 30 minutes in the AM peak hour and the inter peak hour and 36 minutes in the reverse direction in the PM peak hour. Average speeds for the 23.1km between Tavistock and Plymouth station were 42 km/hr inbound in the AM, 39 km/hr outbound in the PM peak and 46 to 48 km/hour in the inter peak.

Figure 11: A386 Journey Time Route

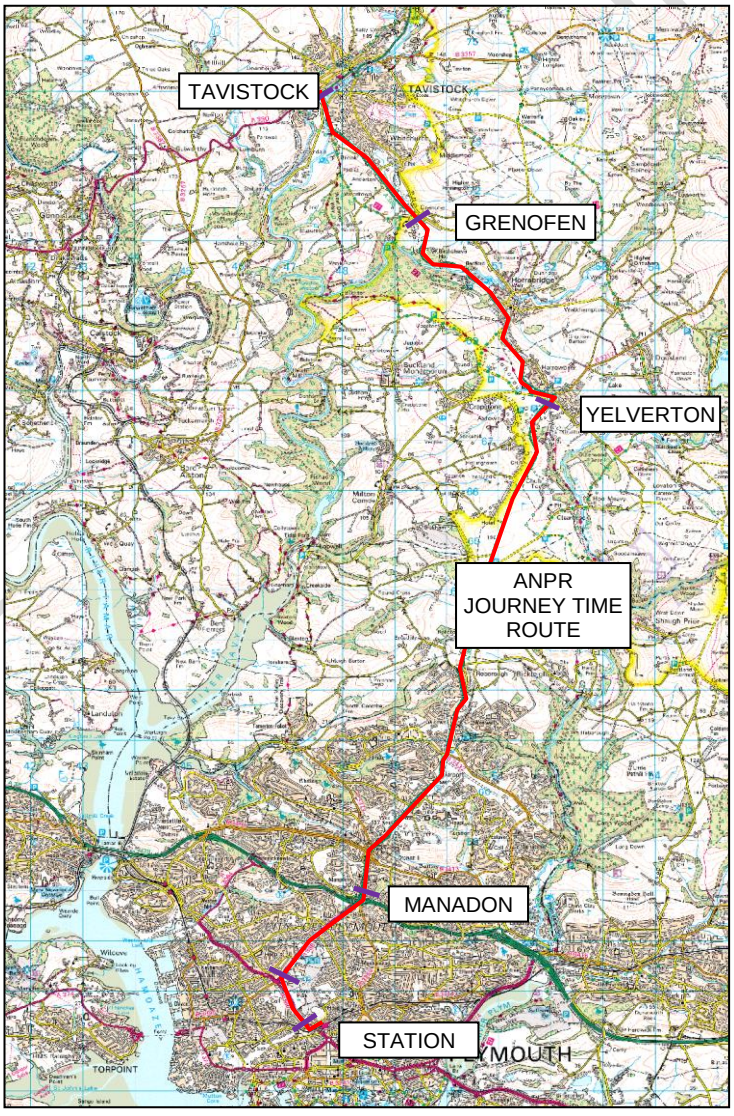


Table 3: ANPR Journey Times (2012)

Route	Direction	Distance (km)	AM Peak		Inter Peak		PM Peak	
			Average Speed (kph)	Journey time (mins)	Average Speed (kph)	Journey time (mins)	Average Speed (kph)	Journey time (mins)
Tavistock to Grenofen	SB	3.22	40.3	4.8	47.3	4.1	48.9	4.0
	NB		51.1	3.8	47.3	4.1	44.8	4.3
Grenofen to Yelverton	SB	5.21	46.7	6.7	51.4	6.1	52.4	6.0
	NB		54.7	5.7	54.2	5.8	55.2	5.7
Yelverton to Manadon	SB	11.00	44.6	14.8	51.8	12.8	49.7	13.3
	NB		48.8	13.5	51.4	12.8	47.2	14.0
Manadon to Station	SB	3.68	31.7	7.0	35.0	6.3	26.7	8.3
	NB		25.2	8.8	29.2	7.6	18.8	11.7
Tavistock to Station	SB	23.10	41.7	33.3	47.5	29.2	44.1	31.5
	NB		43.6	31.8	45.8	30.3	38.9	35.7

3. POTENTIAL TRANSPORT IMPROVEMENTS

3.1 A386 Highway Improvements

3.1.1 The County Council has carried out a pre-feasibility study to consider the potential for highway improvements to the A386 corridor to mitigate development impact on the highway and improve journey times between Tavistock and Plymouth. The aim was to determine the feasible range of improvements that can be made to the road.

3.1.2 Any scheme would complement the highway schemes that Plymouth City Council have submitted to the Heart of the South West Local Transport Board. These are, firstly improvements to the A386 in the north of Plymouth between Woolwell Roundabout and The George Junction to two lanes in each direction. The second scheme is widening between Derriford Roundabout and William Prance Road where Derriford Roundabout would be converted to signals.

3.1.3 It has been assumed that a large scale scheme (such as a new route, long sections of widening or significant bypasses) would not be deliverable along the corridor as a result of the significant environmental constraints in the area.

3.1.4 Various smaller scale improvement options to improve alignment and to increase capacity and speeds have been identified, as shown in Figure 12, the most effective of these would be a bypass of Yelverton and a bypass of the bends at Grenofen. These two schemes have an indicative base cost of £10 - £15 million each and would save about 2.5 minutes at peak times when speeds are lowest, representing a 17% decrease in journey time between Tavistock and Plymouth. There would be significant environmental, planning and land acquisition issues with both these schemes.

3.1.5 The provision of additional northbound and southbound lanes at the Yelverton roundabout instead of a bypass of the roundabout would be less costly but less effective in reducing delays. Base costs would be around £5 million.

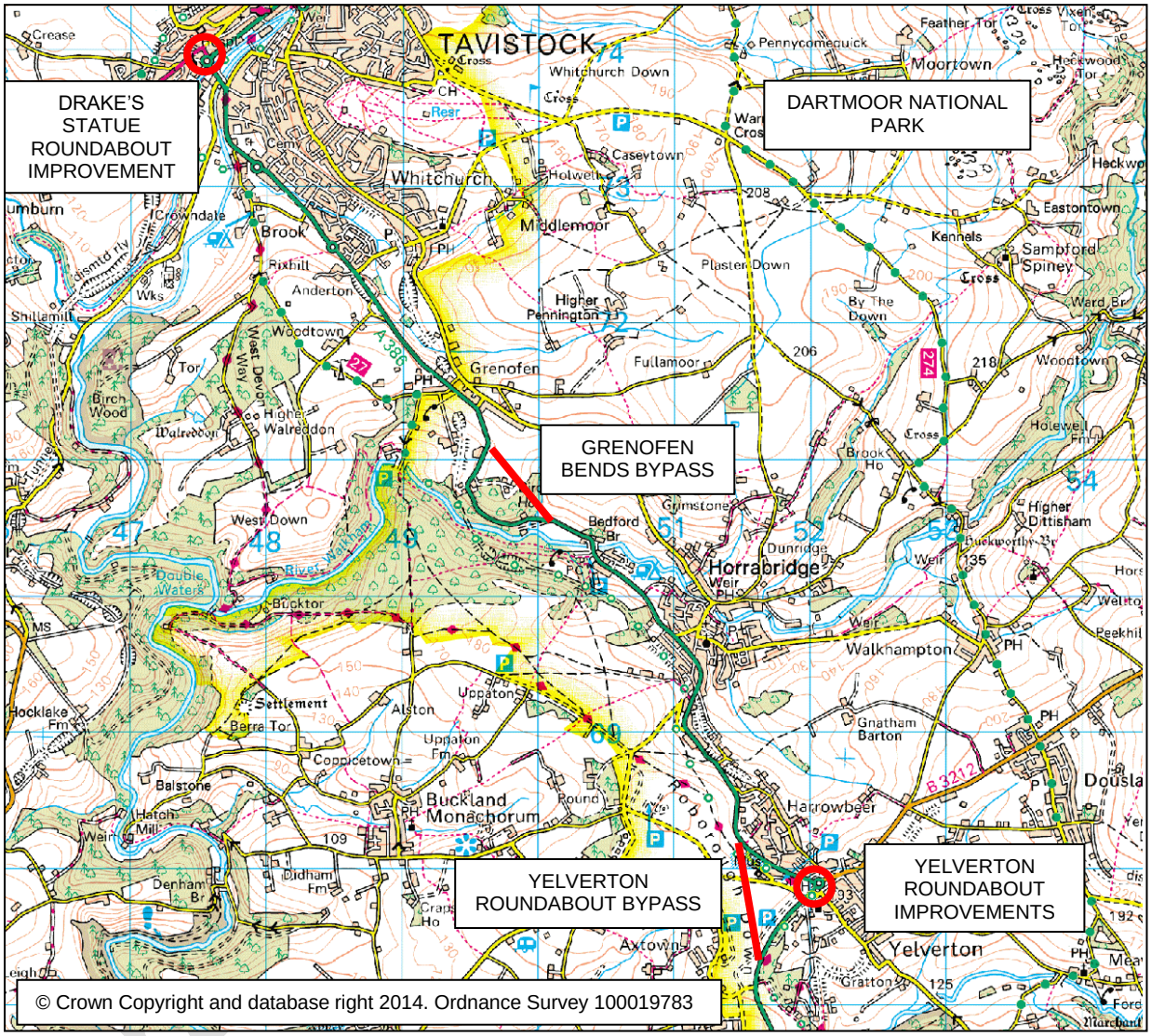
3.1.6 The bypass of the bends at Grenofen would provide most of the reduced journey time but a bypass, or even an online improvement delivering comparable capacity, would seriously damage hedgerows, deciduous woodland and wildlife habitat. Such improvements are not likely to prove feasible given that much of this section lies within Dartmoor National Park and is therefore subject to a very high level of environmental protection.

3.1.7 A small park and change site at Yelverton would provide a more beneficial and sustainable investment. Motorists would be able to park and then car share, cycle or bus into Plymouth. It would also provide a tourist facility for access to the Moor linking to the trails that converge at Yelverton. To make the facility attractive to cyclists there would be benefit in providing a cycle route parallel to the A386 to connect to the cycle facilities in Plymouth.

3.1.8 In addition, developments planned in Tavistock will likely result in an increase in vehicular demand on the A386 through the town. Potential improvements to

the highway network between Drake's Stores and Drake's Statue roundabouts will be further investigated as part of the developments transport contributions.

Figure 12: Possible A386 Highway Improvements



3.2 Tavistock to Bere Alston Rail

3.2.1 The current Plymouth to Bere Alston rail service is approximately a 2 hour frequency. The Tavistock Rail scheme will reinstate the disused rail line between Tavistock and Bere Alston and is intended ultimately to deliver an hourly service requiring two additional train units operating between Tavistock and Plymouth. Initially a 75 minute frequency could be achieved with one additional unit. The 75 minute service would provide a higher frequency for Gunnislake (13 trains per day compared to 9 at present). No works to the existing track, such as additional passing places, would be required for either the 60 minute or 75 minute frequency options.

3.2.2 The rail scheme will reduce private vehicle trips on the A386 between Tavistock and Plymouth although the impact will be moderate to small impact due to the volume of trips on the corridor and range of origins. However, as congestion increases in the future it will provide an alternative non-car mode for some trips, particularly those well connected to stations. On a wider scale it could be an incentive to unlock growth in Tavistock and will ensure that Tavistock remains well connected to Plymouth City centre and further afield.

3.2.3 Traffic modelling for Tavistock Rail estimated that there will be a decrease of 250 vehicles per day in each direction on the A386 to Plymouth on scheme opening building up to 450 vehicles per day and then increasing to 650 vehicles per day after 20 years. A decrease of 63 southbound vehicles in the AM peak hour on the A386 was estimated when passenger demand had built up after the opening of the rail scheme. This represents a 10% reduction in traffic between Tavistock and Horrabridge and 8% between Horrabridge and Yelverton in the AM peak hour but only a small percentage reduction on the congested section of the A386 into Plymouth.

3.2.4 The rail journey time (Table 4) from Tavistock to Plymouth is expected to be 33 minutes for stops at all stations reducing to 28 minutes if there were stops at St Budeaux and Plymouth only. This compares with journey time data of 33 minutes by road in the AM peak hour (08:00 to 09:00 hrs) and 29 minutes in the 11:00 to 12:00 hrs inter peak hour. The updated Plymouth 2009 highway model shows 34 minutes in the AM peak hour and 30 minutes in the IP hour. In the PM peak the 2009 modelled northbound journey time is 36 minutes, the same as the journey time data.

Table 4: Journey Time Forecasts

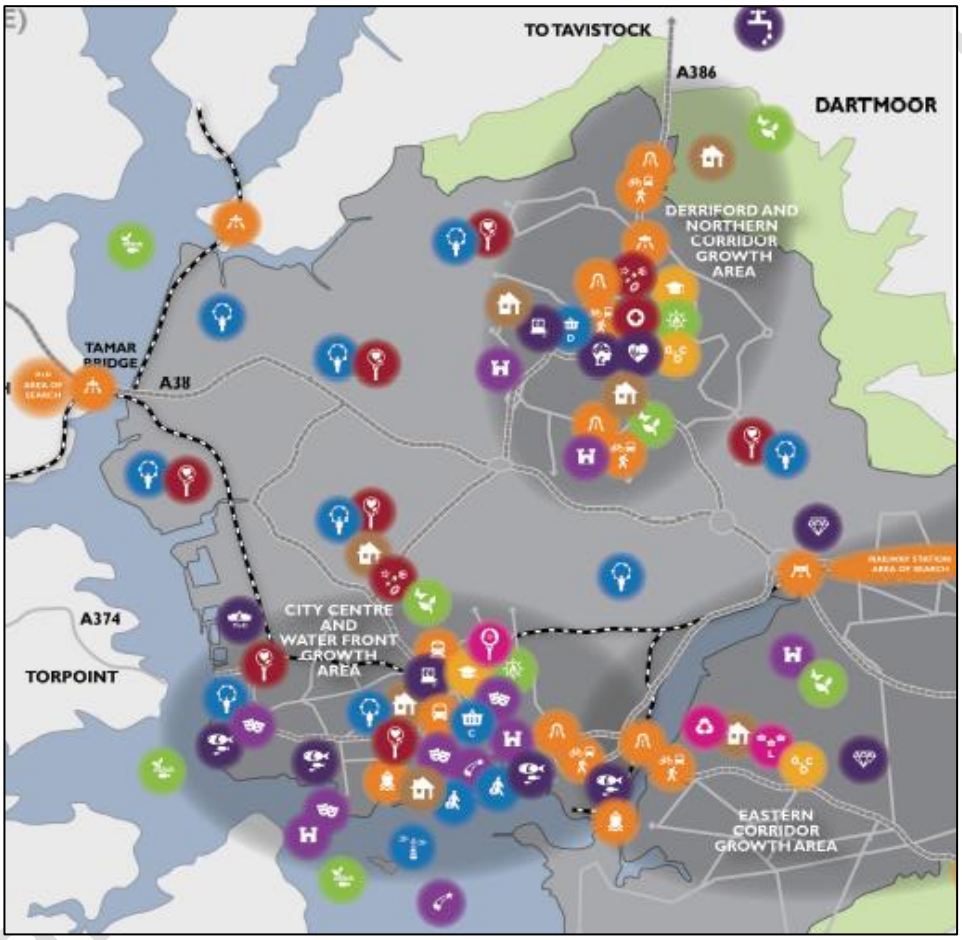
Time Period	Southbound				Northbound			
	2009 Model	2012 ANPR	2026 Low Model	2026 High Model	2009 Model	2012 ANPR	2026 Low Model	2026 High Model
AM	34.3	33.3	44.3	53.9	33.3	31.8	35.4	42.9
IP	29.9	29.2	36.1	40.3	29.9	30.3	35.3	33.0
PM	33.6	31.5	41.4	45.9	35.5	35.7	43.1	50.0

Note: Total journey time in minutes by road between Tavistock and Plymouth station

3.2.5 The Plymouth 2026 highway models (with low and high growth), including transport improvements that reduce highway journey time, forecast considerably higher journey times for the year 2026. So the small time advantage in travelling by rail now would increase considerably with increasing traffic and congestion. It also needs to be recognised that the congestion will also impact on bus journey times. The rail scheme will also open other opportunities for investment in Tavistock attracting visitors and business to the town due to the relief of congestion on the A386 as well as the advantages of providing access to the rail system. In addition, the project will connect a large part of rural West Devon with the national rail network, providing accessibility benefits to the wider area beyond Tavistock.

3.2.6 There are difficulties with the rail line. The route through Plymouth links to the Dockyard and the Plymouth City Centre. However, many of the new strategic growth areas are not well rail connected, particularly Woolwell and the Northern Corridor Growth Area, Figure 13. The current rail line connects directly to Gunnislake and there are likely to be complications on how the line will operate with the split at Bere Alston.

Figure 13: Plymouth Local Plan Growth Proposals



3.2.7 The current cost of the new rail line reinstatement is in the order of £70m which is significantly higher than initially anticipated and outside the scope of current funding. The "South West Peninsula Strategic Rail Blueprint", November 2016, identified the need for £1.5m of further development funding. There is no current indication that this money will be available from the Government. The most recent publication from Government "Connecting People – A Strategic Vision for Rail", November 2017, identifies that there is a need for a new pipeline approach to managing railway upgrades and sees the Government as funder working jointly with partners. The process of developing the pipeline is evolving, so long term the rail reinstatement will remain a strategic aim. However, the numerous unknowns and complexities of design and delivery mean the project is on hold for the medium term. Therefore, there is a need to

consider short term alternatives in order to assist in the delivery of the Local Plan and develop alternatives for travel along the A386 corridor.

3.2.8 For instance, a phased approach could be utilised along the Tavistock-Bere Alston corridor. An initial phase 1 could be a low-cost surface, suitable for cyclists and walkers, to encourage active trips. This has the potential to be followed by a Phase 2 tarmac surfacing with innovative vehicles, such as autonomous or electric buses, sharing the corridor with active travellers. This would provide a suitable shuttle service connecting to the existing rail service at Bere Alston train station. This would not preclude a long-term Phase 3 heavy rail option.

3.3 Bus Services

3.3.1 Existing bus services between Tavistock and Plymouth are shown in Figure 6. Bus services between Tavistock and Plymouth have limited potential for improvement. Service 1 does not stop at Plymouth rail station and service X1 does not stop at Derriford Hospital and this saves 9 minutes in the morning peak and 4 minutes in the inter peak timetabled times. Whilst journey times could be further shortened by introducing direct express, limited-stop services may not be popular with those needing to be picked up en-route. The current routes serving Derriford Hospital and Plymouth station, each with a 30 minute frequency, would need to be retained in order to serve those destinations conveniently.

3.3.2 The increased use of bus lanes in Plymouth could help improve reliability and minimise journey times. On the A386 north of Plymouth bus travel will always be subject to road traffic conditions and limited speeds due to the rural nature of the road and potential disruption from breakdowns or slow moving agricultural vehicles. Buses will therefore struggle to be able to match rail or car journey times into central Plymouth. However, buses do have the advantage of picking up passengers along the route, connections to Derriford (and other destinations) and much higher frequency.

3.3.3 The County Council has carried out an interview survey of bus passengers on Tavistock services. This identified that 9% of daily trips had both origin and destination in locations which could be reached from existing rail stations and 6% where there would be a potential for the journey or part of the journey to be made by rail. If this patronage was lost to rail it could affect the viability of the existing service which could reduce the frequency, so it would be beneficial to encourage greater use of the bus services in order to protect its longevity.

3.3.4 Currently a 7 day rail season ticket between Gunnislake and Plymouth costs £25.80 and a monthly season ticket costs £99.10, whilst a 7 day season ticket from Tavistock by bus costs £20 and a monthly season ticket costs £77. As such, bus travel is likely to be cheaper than likely rail fares and bus frequencies are high at around 4 per hour. Against this, rail travel would be considerably quicker with a Tavistock to Plymouth journey time of 28 to 33 minutes compared with 49 minutes for the quickest timetabled bus journey and up to 71 minutes in the AM peak on school days.

3.3.5 The attractiveness of the shorter rail journey time will be largely offset by the lower bus fares and using total generalised costs of travel between Tavistock and Plymouth it was estimated that total daily transfers from bus to the Tavistock rail option could amount to between 4%, and 6%, or an average of 30 passengers in each direction per working day.

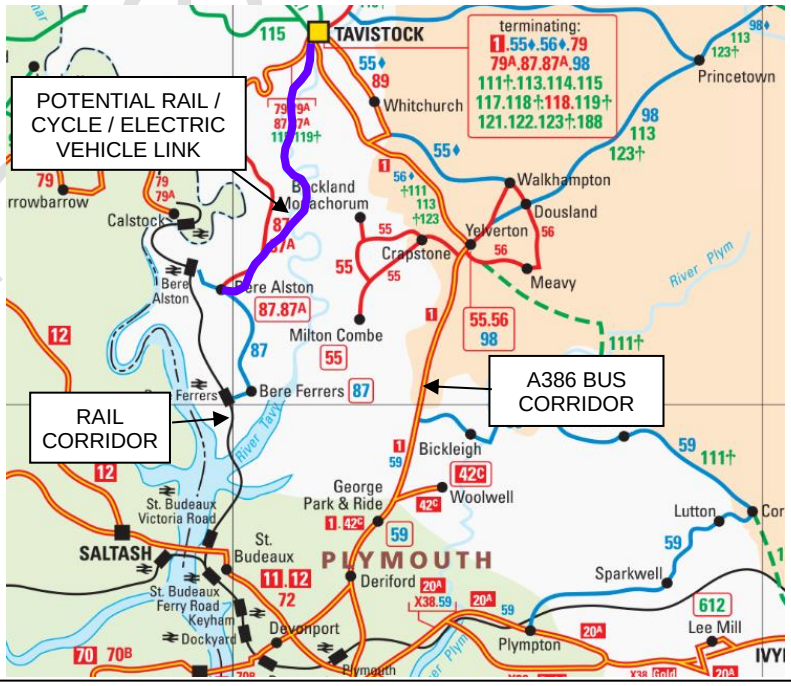
3.3.6 The bus survey showed that there would only be a small transfer to rail from existing bus services if the railway were to be reinstated. Buses and rail would offer largely complementary services, buses serving north Plymouth and Mutley Plain, and rail serving the city centre and west Plymouth including St Budeaux and the naval dockyards, Figure 14. The improvement of bus services therefore should not be seen as an alternative to the rail option. Because buses and rail serve different locations, there is in fact little competition and both rail and bus options would fit well with the government and local objectives of sustainable transport in reducing car travel and increasing public transport.

3.3.7 There are a few measures that could be put in place to make the bus service more attractive, this could include:

- Improved bus stops for both passengers and buses;
- New modern eco-friendly buses;
- Wi-Fi on buses;
- Cash free payment to reduce bus dwell time;
- Parking facilities so passengers can use the existing bus as a Park & Ride.

3.3.8 The most appropriate location for parking could be on the outskirts of Yelverton, where buses would also be able to access the site. A possible location could initially provide approximately 1000 spaces.

Figure 14: Bus & Rail Services Between Tavistock & Plymouth



3.4 Cycling

3.4.1 The Drakes Trail cycle route provides a segregated route between Tavistock and Yelverton but continues towards Plympton on a long, indirect route to Plymouth. The A386 between Yelverton and Plymouth is narrow and busy but there is an opportunity to create a segregated cycle route adjacent to the A386 across the old airfield at Yelverton and across the moorland towards Roborough following existing paths. This would link with existing cycle routes in Plymouth to provide cycle access to the George park and ride site, Derriford and the city centre.

3.4.2 A park and change site could be provided at Yelverton enabling motorists to park and then cycle into Plymouth using the new cycle route. Secure cycle lockers have been provided at existing park and change sites to enable regular commuters to leave their bicycles at the site, removing the necessity to transfer it in and out of their vehicle on a daily basis.

3.4.3 Parking and storage facilities provided in a convenient location on an existing commuting corridor that is a suitable distance to key areas of employment with good quality cycling infrastructure into the city would help promote a sustainable and active travel alternative.

3.4.4 The parking would be provided at the same location as the possible Park and Ride site, providing commuters with multi-modal alternatives to driving into Plymouth at a convenient location. This would also provide commuters with a suitable location to car share, further reducing the vehicles travelling along the A386 into Plymouth.

4. A386 CORRIDOR STRATEGY

4.1 Introduction

4.1.1 The transport strategy for the A386 corridor comprises schemes that will improve provision for a number of transport modes as described below. The aim is to implement integrated measures that will improve conditions for existing travel and support development in Tavistock.

4.2 Tavistock to Bere Alston Rail

4.2.1 The Tavistock to Bere Alston rail scheme will reduce private vehicle trips on the A386 between Tavistock and Plymouth although the impact will be slight due to the volume of trips on the corridor and range of origins. However, as congestion increases in the future it will unlock growth in Tavistock and will ensure that Tavistock remains well connected to Plymouth City centre and further afield.

4.2.2 However, this is a longer-term aspiration and there are numerous issues to overcome. Devon County Council have been progressing the purchase of the disused rail corridor from the numerous land owners. This is coming to a point where soon the vast majority of the land will be under the ownership of the County Council. There has been a long-term aspiration for a cycle route along the rail line. But the nature of the route through woods in a remote location makes it potentially unattractive to use as a utility route. However, this could be provided as an initial Phase 1. A further phase 2 option would to build a single-track route capable of accommodating both a cycle and a vehicle link from Tavistock to the rail station at Bere Alston. A potential option is some form of innovative shuttle bus or electric vehicle running within the cycle route. This could be provided by the train operator to ensure connectivity to the rail network together with a new cycle route. A long-term solution of heavy rail would not be precluded by the introduction of the phased approach.

4.3 A386 Highway Improvements

4.3.1 It has been concluded that even limited highway improvements such as a bypass of the Yelverton roundabout or a bypass of the bends at Grenofen would not be deliverable on environmental or cost grounds.

4.3.2 The bypass of the bends at Grenofen would provide most of the reduced journey time but a bypass, or even an online improvement delivering comparable capacity, would seriously damage hedgerows, deciduous woodland and wildlife habitat. Such improvements are not likely to prove feasible given that much of this section lies within Dartmoor National Park and is therefore subject to a very high level of environmental protection.

4.4 Bus Services and Park and Change

4.4.1 Existing bus services between Tavistock and Plymouth have a good 15 minute frequency on weekdays and there is limited potential for improvement. Services are affected by peak hour congestion on the A386 in Plymouth and buses will

always struggle to be able to match rail or car journey times into central Plymouth.

4.4.2 Bus services would however benefit from the proposed Park and Change site at Yelverton at which existing bus services could pick up motorists and cyclists who could then travel by bus into Plymouth. In addition, further measures to modernise and improve the service would benefit customers and enhance patronage.

4.5 Cycling and Park and Change

4.5.1 The Drakes Trail cycle route provides a segregated route between Tavistock and Yelverton and there is an opportunity to create a segregated cycle route towards Plymouth adjacent to the busy A386. This would link with existing cycle routes in Plymouth to provide cycle access to the George park and ride site, Derriford and the city centre.

4.5.2 A park and change site could be provided at Yelverton enabling motorists to park and then cycle into Plymouth along the new cycle route.

4.6 Summary

4.6.1 The A386 corridor transport strategy enhances multi-modal options for travel between Tavistock and Plymouth providing alternatives to car for the future as Tavistock develops and expands and the A386 becomes busier, Figure 15. It builds on existing bus and cycle provision along the A386 corridor and includes a possible multi-modal link between Tavistock and the rail line at Bere Alston which will relieve pressure on the A386.

Figure 15: A386 Corridor Transport Strategy