CHRISTCHURCH RELIEF ROAD

OPTIONS ASSESSMENT REPORT

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WSP | PARSONS BRINCKERHOFF

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OPTIONS ASSESSMENT REPORT

Dorset County Council

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BACKGROUND

Dorset County Council have commissioned WSP | Parsons Brinckerhoff to undertake an Options Assessment Report (OAR) which considers options for improvements to help relieve congestion, support economic growth and improve connectivity through and within Christchurch. Historically, four bypass/relief road options for the town have been considered to help relieve congestion and combat other associated issues on the A35 and B3073 through Christchurch.

In October 2011 Dorset County Council considered the current status of a proposed Relief Road. It was said to be undeliverable within their Local Transport Plan period 2011 to 2026, due to many reasons including cost and environmental impact. Nonetheless, the 2014 adopted Christchurch and East Dorset Local Plan Part 1 – Core Strategy states that "Christchurch Borough Council will continue to press for the development of options for long term solutions to the town's traffic problems beyond the plan period, including the possible future provision of a by-pass, subject to any options proposed at the time meeting the necessary local and national policy requirements."

This OAR therefore reconsiders the four historic bypass options alongside other potential improvement options within the current physical, strategic and economic context. A high level approach to assessment has been taken which broadly follows the process for option development as defined by WebTAG, and DfT guidance on The Transport Business Case.

SCHEME OBJECTIVES

The key objectives of future improvements have been defined as follows:

- To support the local economy and jobs through reducing congestion and improving journey times on the A35 between Somerford Road Roundabout and the Castle Lane/A338, and on the B3073 between Fountain Roundabout and A338, thereby enhancing the viability of the South East conurbation economy;
- To improve road safety locally within Christchurch, particularly along the A35 and B3073;
- To reduce the environmental impact (including impact on noise, air quality and townscape) of through traffic along the A35 and B3073 through Christchurch;
- To support a shift to alternative more sustainable forms of transport (other than the private car) such as bus and rail use.
- To support active lifestyles through increasing walking and cycling within Christchurch, including for access to schools.
- To support sustainable planned economic and housing growth in Christchurch and East Dorset, and make the area a more attractive place for businesses to invest in.

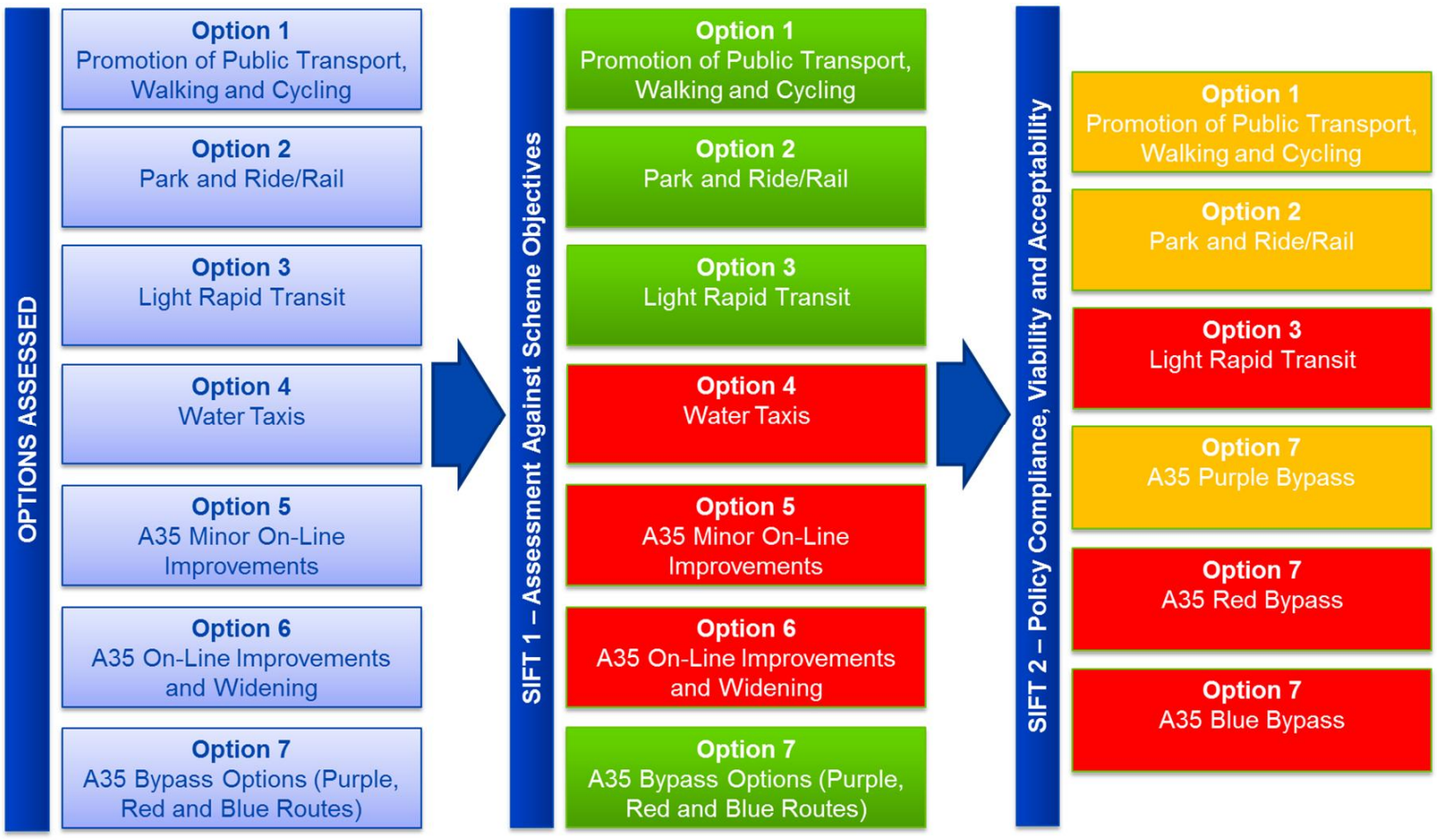
OPTIONS APPRAISAL

Seven options for intervention within the study area have been assessed. The options have been assessed using a two stage sifting process as follows:

- **Sift 1** assesses the options against the scheme objectives, ensuring all scheme objectives are met to some degree.
- **Sift 2** is more detailed and determines whether the options meet the scheme objectives to an acceptable level, comply with existing local/regional/national strategies or policies, and/or

pass key viability and acceptability criteria (e.g. in relation to deliverability, affordability or acceptability to stakeholders).

The diagram below summarises the seven options assessed, and the results of the sifting process whereby green indicates acceptability for the next sifting round, red indicates that the option has not passed the acceptability criteria, and amber indicates that the option has passed the acceptability criteria to a level that may warrant further study/investigation.



CONCLUSION AND NEXT STEPS

The OAR did not identify any options which clearly meet the scheme objectives to an acceptable level, comply with local/regional/national strategies or policies, and/or pass key viability and acceptability criteria.

Nonetheless, Options 1 and 2 (Promotion of Public Transport, Walking and Cycling, and consideration of a Park and Ride/Rail) are recommended to be progressed for further consideration/feasibility study, potentially as supplementary options to any preferred option which may arise.

With regard to the bypass schemes, all present significant environmental and flood risk issues, and the Blue Route no longer has readily available land for the route around Christchurch Station due to development in this location since 2003. The Purple route arguably presents fewer environmental constraints than the Red or Blue routes, and the flood impact may be less severe due to the relative distance from large urban areas. However, the initial BCR estimate for the Purple scheme does not indicate that it would present high Value for Money.

If the bypass schemes are to be progressed any further, it is recommended that study is focussed on the Purple Route over the Blue and Red, and that focus is placed on reducing scheme cost, obtaining more accurate demand/journey time forecasts, and on consulting with stakeholders to better understand the potential to overcome environmental and flooding constraints.

Whilst not fully meeting the scheme objectives set out within this report, further consideration of on-line improvements (potentially a combination of Options 5 and 6) may assist to reduce congestion on the A35, unlock potential growth, and improve journey times.

1 INTRODUCTION

1.1 BACKGROUND

Dorset County Council have commissioned WSP | Parsons Brinckerhoff to undertake an Options Assessment Report (OAR) which considers options for improvements to help relieve congestion, support economic growth and improve connectivity through and within Christchurch.

Christchurch (population 48,370[1]) lies to the southeast of Dorset – just east of Bournemouth and Poole. Traffic from conurbations and employment areas to the east of the town destined for (or originating from) Poole, Bournemouth and other areas within Dorset are currently routed via the A35 and the B3073 through the town.

Both roads route via residential areas, and at peak times, both routes experience relatively high volumes of vehicles and congestion. As well as contributing to relatively high and unreliable journey times, other issues arising from this include severance, whereby the A35 and B3073 form a physical barrier to east/west movement, and the impact of heavy traffic on residents and buildings.

Historically, four bypass options for the town have been considered to help relieve congestion and combat other associated issues. The bypass options are considered within this report, alongside other potential alternatives.

An OAR is now required to reconsider the four historic bypass options alongside other potential improvement options within the current physical, strategic and economic context.

1.2 LOCATION AND DESCRIPTION OF STUDY AREA

The scheme area is in Christchurch Borough of Dorset, and would affect the area through and surrounding the town. The main areas covered by the historically considered bypass schemes are between Christchurch Bypass in the south/east and the A338 to the north/west of the town, with the aim of addressing current issues on the A35 and B3073 (Fairmile Road) through Christchurch.

The study area is shown in Figure 1.

1.3 PURPOSE OF THIS REPORT

The purpose of the OAR is to identify the existing transport constraints, define the main objectives of the Scheme, and to present and provide high level appraisal of the options considered to address the issues and meet the objectives.

An OAR is the first key output of the Transport Appraisal Process, as defined by the Department for Transport's WebTAG Guidance[2]. This OAR considers the options in relation to five 'cases' as set out in DfT guidance on The Transport Business Case[3]; this method is in turn based on the Treasury's advice on evidence-based decision making, as set out in the Green Book.

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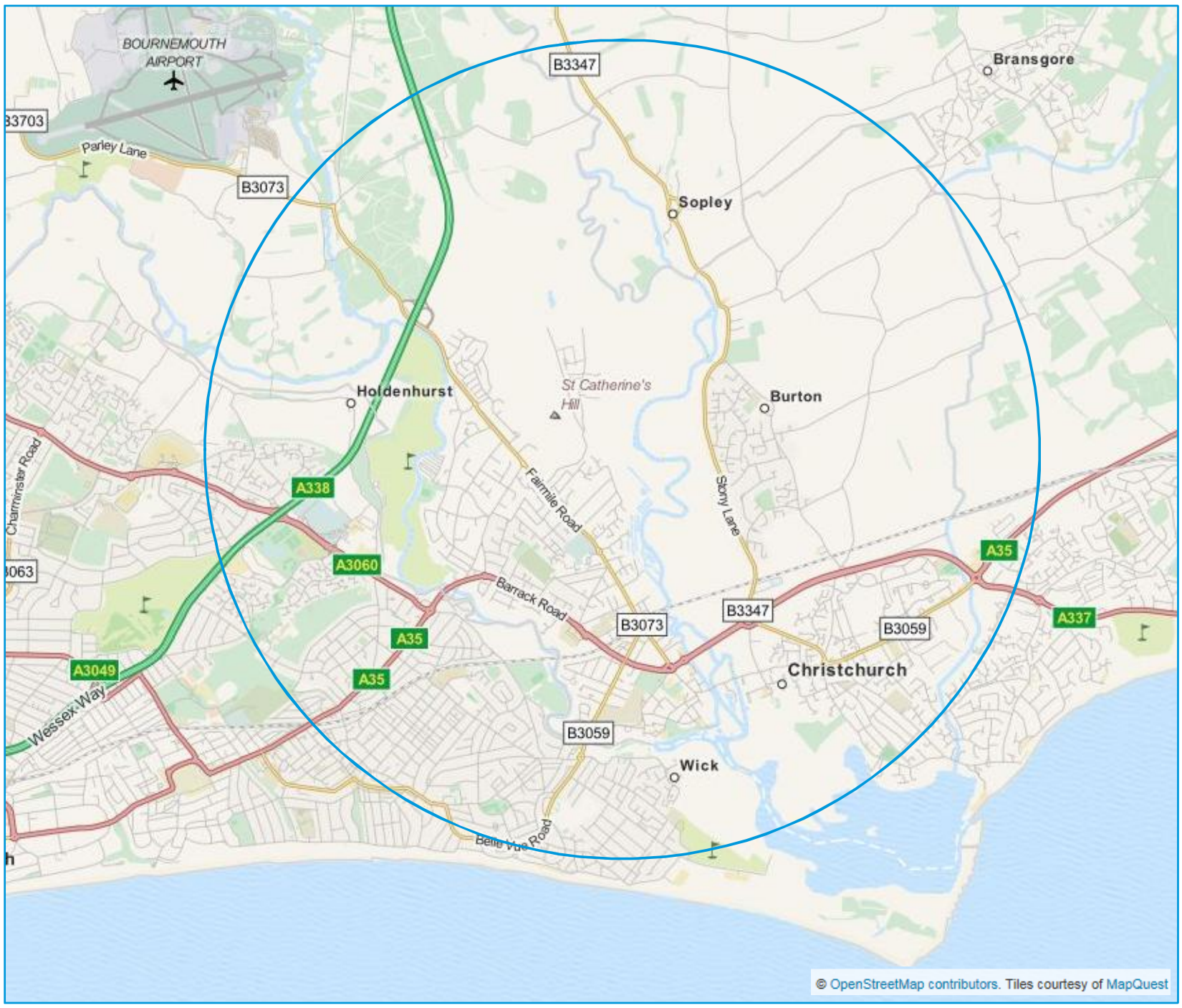
[1] ONS 2013 Mid Year Estimates
[2] https://www.gov.uk/guidance/transport-analysis-guidance-webtag
[3] https://www.gov.uk/government/publications/transport-business-case

Figure 1-1 Scheme study area



1.4 METHODOLOGY

The process for option development as defined by WebTAG is as follows:

1. Understand the current context of the study area
2. Understand the future context of the study area
3. Establish the need for intervention
4. Identify intervention-specific objectives within a defined geographic area
5. Generate options
6. Undertake an initial sift (Sift 1 in this OAR)
7. Develop and assess potential options (Sift 2 in this OAR)
8. Document the option development process within an OAR
9. Clarify the methodology for further appraisal within an Appraisal Specification Report

Building on the steps set out above, DfT guidance on The Transport Business Case sets out the method for considering the options in relation to five ‘cases’ as follows:

- The Strategic Case

- Demonstrates a clear rationales for the case for change
- Considers the identified problem(s), objectives and constraints in the local context

- The Economic Case
  - Appraisal of economic, environmental and social impacts
- The Financial Case
  - Including initial cost estimates and possible funding sources
- The Commercial Case
  - Brief discussion of commercial viability
- The Management Case
  - Brief discussion of project governance

This OAR follows the general steps set out in 1-8 above, and uses the five ‘cases’ as a framework by which to develop and consider options.

The Early Assessment and Sifting Tool (EAST) has been used as a tool to assist with steps 6 and 7 in relation to the five ‘cases’. The EAST is a decision support tool that has been developed by the DfT to quickly summarise and present evidence on options in a clear and consistent format. It provides decision makers with relevant, high level, information to help them form an early view of how options perform and compare. The tool itself does not make recommendations and is not intended to be used for making final funding decisions[4].

This OAR (including accompanying EAST form/s) has been developed as a high level first draft appraisal based the existing information available. It is envisaged that this first draft OAR would be updated at a future date if or when more detailed information becomes available.

1.5 OTHER REPORTS

The following documents have been considered whilst developing this Option Assessment Report:

- Christchurch and East Dorset Local Plan Part 1 – Core Strategy (including Evidence Base)
- Christchurch Local Plan, March 2001 (Saved Policies)
- Dorset Local Transport Plan 3
- South East Dorset Multi-Modal Transport Study, Atkins, April 2012.
- Dorset and East Devon Waterborne Passenger Transport – Draft Feasibility Study, 2011.
- Transforming Dorset Strategic Economic Plan
- A35 Christchurch Route Management Study (A35 RMS) Summary, June 2012
- “Request for Feasibility Study for a Relief Road” by Cllr Phipps, dated August 2015
- 1993 flyer “The alternative routes”
- “Christchurch & East Dorset: Socio-Economic Baseline” draft report by Hardisty Jones Associates, dated December 2013.

[4] Early Assessment and Sifting Tool Guidance, DfT.

2 POLICY CONTEXT

2.1 POLICY CONTEXT

DORSET LOCAL TRANSPORT PLAN 3

LTP3 sets out 6 main goals (with accompanying challenges) for transport as follows:

- Support economic growth
- Tackle Climate Change
- Achieve better safety, security and health
- Achieve equality of opportunity for all
- Achieve an improved quality of life; and
- Achieve value for money

The key challenges identified in LTP3 which are of particular relevance to this OAR are based around the following themes:

- To improve the reliability and predictability of journey times on key local routes.
- To improve connectivity, and support planned growth.
- To create a lasting shift to more sustainable travel behaviour (including walking and cycling) that reduces single occupancy car trips and overall traffic growth (with a particular opportunity in Christchurch), and reduce levels of greenhouse gas emissions from transport.
- To provide a resilient and adaptable transport network.
- To ensure access for all, and that needs of the ageing population are met (the highest proportion of over 65's in England is based in Christchurch).
- To reduce all traffic related casualties and improve safety.
- To reduce/minimise the number of areas declared as having poor air quality as a result of road transport emissions.
- To enhance public realm to contribute to thriving and attractive town and local centres.
- To minimise the impact of transport on Dorset's high quality built and natural environment, including noise, vibration and pollution.

The following are highlighted as LTP 3 priorities for Christchurch

- Junction improvements at A35 Fountains Roundabout, Stony Lane Roundabout, Barrack Rd/Jumpers Rd, and B3073 Bargates/Stour Rd.
- Quality Bus Corridor for the A35 - Poole - Bournemouth - Christchurch corridor.
- Extension to Christchurch and Bournemouth Airport.
- Park and Rail at Hinton Admiral, and Park and Ride to serve Bournemouth Airport.

DORSET LOCAL TRANSPORT PLAN 3 FIRST PROGRESS REPORT, NOVEMBER 2014

During the first three year period of the plan, improvements to the B3059 Stony Lane/Purewell junction in Christchurch were undertaken, with improved pedestrian provision and advance stop lines for cyclists and improved cycle provision from Purewell Cross Road roundabout to the A35 Sainsbury's roundabout.

As part of the Three Towns Travel programme package (and other sustainable transport programmes), a programme of work place travel planning was rolled out across the A35 corridor in Bournemouth, Poole and Christchurch. The package included enhanced local bus, rail, walking and cycling alternatives through a combination of targeted infrastructure, service and operational improvements. This was complemented by removing key barriers to the use of these modes and by engaging with local communities and businesses along the corridor to “nudge” travel behaviour towards non-car modes, with the aim to reduce reliance on the private car for commuting by encouraging residents to walk, cycle and take the bus.

The precise impact of the various travel planning initiatives is difficult to assess in the short term. Cycle usage increases are impressive, but it is not clear whether this is just due to the additional infrastructure or whether travel planning has had an impact.

In the longer term, there is a clear indication that in Bournemouth and Poole at least, there is a steady and ongoing increase in bus usage, reflecting the investments made by companies in new buses and better timetables, and the ongoing policies of the authorities in promoting public transport.

Traffic levels in the longer term continue to rise, but in the short term (2011-2014) they started to drop. It is likely that this drop in levels was a reflection of the economic recession rather than any policy change arising through the LTP. It is anticipated that as the economy picks up that traffic levels will start to rise, but that in the urban centres this will be at a slower rate than previously, as longer term policies around land use and promotion of non-car modes of transport take effect. An annual snapshot of traffic entering the main town centres demonstrated a more long term, ongoing, fall in peak hour traffic entering town centres - this may be a better indication that LTP policies are having a positive impact.

DORSET AND EAST DEVON WATERBORNE PASSENGER TRANSPORT – DRAFT FEASIBILITY STUDY

This study examined a number of waterborne pilot schemes and recommended that consideration could be given to extending the pilot to Christchurch to alleviated traffic flows in peak season by offering an alternative travel option which would be particularly attractive to visitors.

TRANSFORMING DORSET STRATEGIC ECONOMIC PLAN

The Transforming Dorset Strategic Economic Plan (SEP) depicts ambitions for growth linked to four major themes: Competitive, Talented, Connected and Responsive.

Picking up on the Connected theme, a key ambition of the SEP is to ‘strengthen economic growth by continually improving connectivity through investment in transport infrastructure and services and new generations of digital infrastructure, including mobile technologies.’

The SEP sets out three transport-related ways Dorset partners will more quickly and more comprehensively create conditions for resilient growth:

- **Transport Connectivity**: Improving connectivity to Somerset and Bristol and other routes into and out of the County, and addressing transport constraints within the county which are inhibiting growth in both commercial development and housing at major sites and locations.
- **Unlocking Potential:** Unlocking the potential of key employment and mixed use developments sites, including Bournemouth Airport, the Port of Poole and Portland Port, building on significant investment which has already taken place, and other significant opportunities at Gillingham, Holton Heath and Dorset Green.
- **Housing Dorset:** Increasing the scale of new house building and ensuring that new development includes affordable housing.

3 CURRENT AND FUTURE TRANSPORT ISSUES

3.1 DESCRIPTION OF THE TRANSPORT NETWORK

HIGHWAY NETWORK AND ISSUES

The South East conurbation (Bournemouth/Poole/Christchurch) is the economic powerhouse for Dorset but potential for growth across the whole of Dorset is limited by poor transport links to the north and west. There are numerous bottlenecks across the County that encounter heavy congestion during daily and seasonal peaks.

The conurbation also suffers internally due to an incomplete cross-conurbation network and daily overloading at key junctions hampering further opportunities for growth.

The car is the dominant mode of travel in Dorset - in the more rural areas of Dorset, car ownership is widespread, with 90% of East Dorset's households having access to a car, and 50% owning two or more vehicles (2011 Census). Around 60% of people originating/destined for Christchurch town centre (south of A35) travel by private vehicle. Across Dorset, around 53% of work trips are made by car/van drivers.

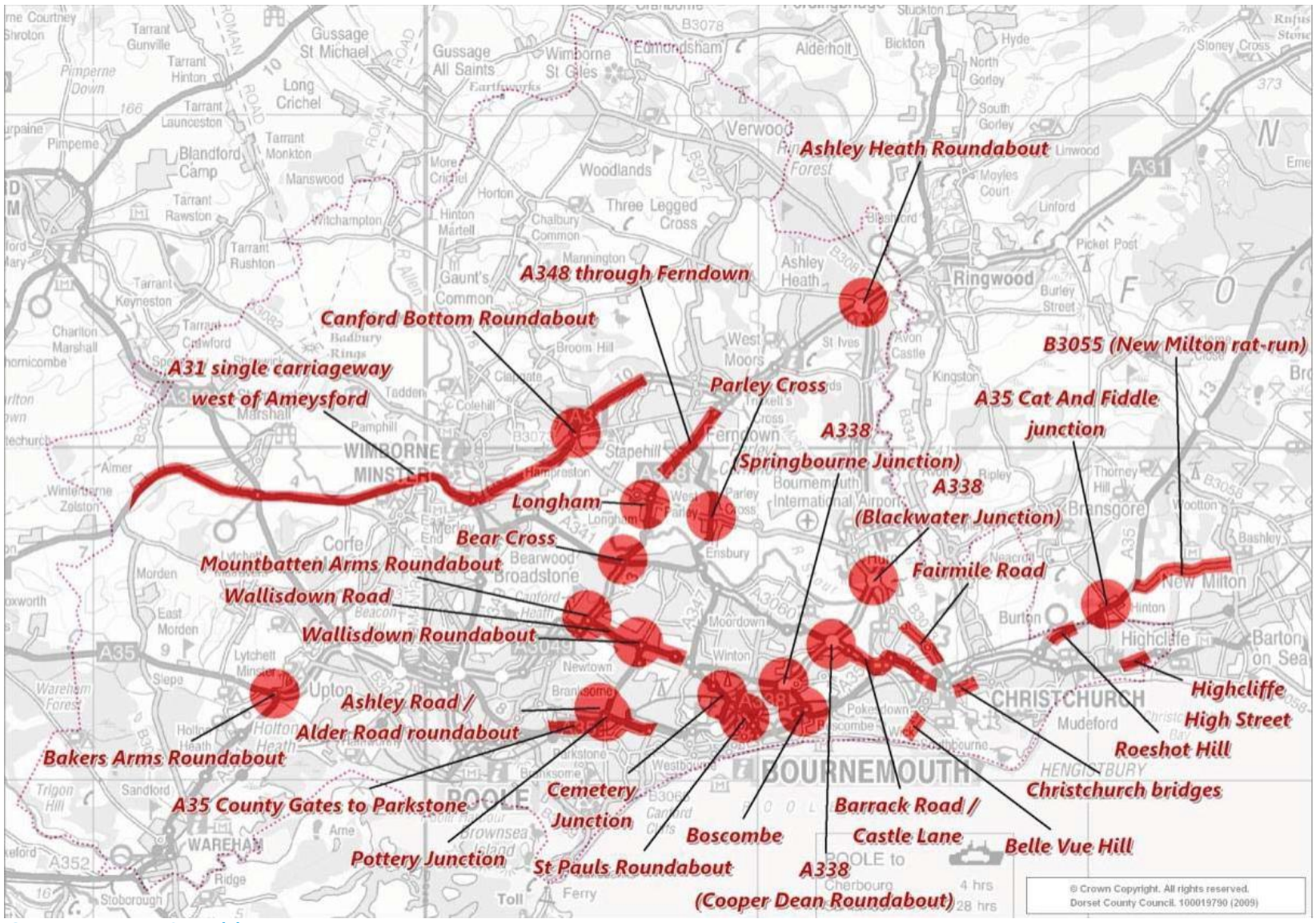
As a result, the strategic network is under considerable pressure and low traffic speeds occur on main approaches to the South East Dorset conurbation, particularly on the main radial corridors. A number of congestion hotspots and constraints (for both private and commercial vehicles) have been identified within the Dorset LTP3 Evidence Base. These are shown in Table 3-1.

Table 3-1 Christchurch Congestion Hotspots and Constraints

KEY JUNCTIONS AT CAPACITY	CONGESTION HOTSPOTS	FREIGHT HOTSPOTS
Fountain Roundabout	B3055 (New Milton rat-run)	Iford Bridge
Stony Lane Roundabout	A35 Cat and Fiddle Junction	A338 (including Blackwater)
Bargates/Stour Road	Roeshot Hill	
Barrack Road/Jumpers Road	Highcliffe High Street	
	Fairmile Road	
	Barrack Road/Castle Lane (A35)	
	A338 Blackwater Junction	
	A338 Coopers Dean Roundabout	

Source : LTP3 Evidence Base

Figure 3-1 East Dorset Congestion Hotspots



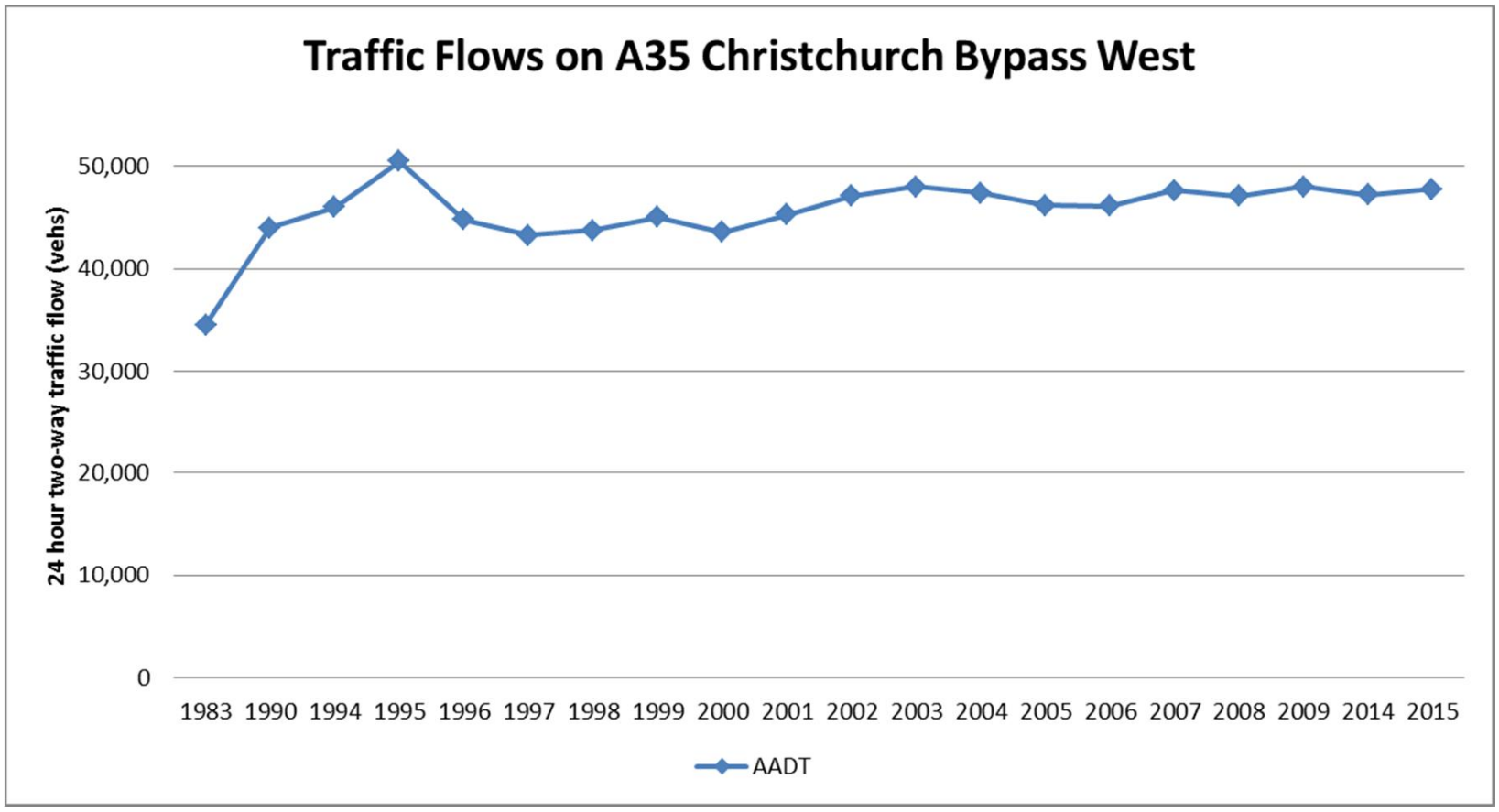
Source : LTP3 Evidence Base

The A35 and the B3073 (Fairmile Road) provide the main highway routes through Christchurch. The A35 is dual lane from the east as far as Baileys Roundabout, where traffic is forced into a single lane, and the B3073 is single lane for the entire length. Both routes are, for a large part, lined by commercial and residential frontages.

Both routes carry relatively high levels of traffic, with Average Annual Daily Traffic (AADT) in 2015 around 21,750 vehicles on the B3073 (Hurn Road, north of Sandy Lane) and around 28,500 vehicles on the A35 Barrack Road.[5] Figure 3-2 demonstrates that traffic flows on the A35 Christchurch by-pass (west) have remained relatively constant over the past ten years, with an average AADT of around 47,000 vehicles.

[5] Derived from ATC data recorded in 2015.

Figure 3-2 AADT Historical Traffic Data on A35 Christchurch Bypass West



Source : DCC Traffic Count Data – Note that data for 2010 to 2013 was unable to be sourced.

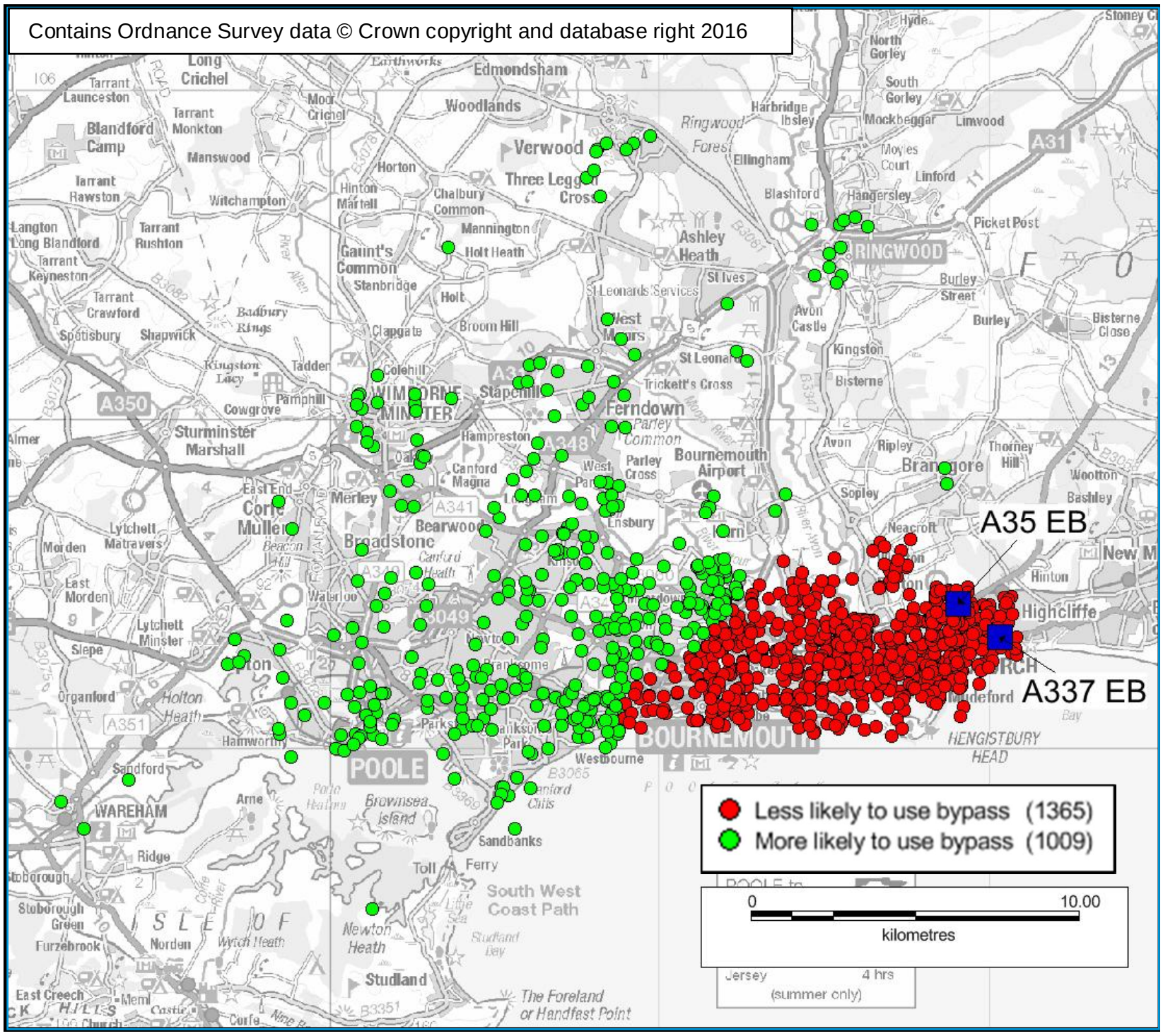
Journey times through Christchurch on both routes are relatively high and variable in the peak periods. LTP3 Evidence suggests relatively low speeds (at or below 20mph) on the A35 westbound in the morning peak. This is supported by Google Drivetime data which records peak hour westbound journey times from Somerford Roundabout to Iford Roundabout (a distance of around 3.4 miles) of up to 20 minutes – this suggests delays of up to 11 minutes on this relatively short section in the peak periods.

Analysis of RSI data collected in 2008 to the east of Christchurch bypass (A35) on Lymington Road and Roeshot Hill (in the eastbound direction) suggests that the majority of traffic on the A35/B3073 through Christchurch is likely to be through traffic. The RSI suggests that almost half of the traffic (around 42.5%) originating from the southeast of Christchurch is destined for areas which aren't local to Christchurch or to the southwest of Bournemouth[6]. A plot of the RSI origins is shown in Figure 3-3.

A relatively high number of vehicles on both the A35 and B3073 combined with slow moving traffic and congestion in peak periods can lead to poor air quality and noise pollution along the routes, with DEFRA noise important areas having been declared along parts of the A35 through Christchurch. Furthermore, the dominance of traffic through commercial and residential areas can cause severance and safety issues (with a relatively high number of collisions and casualties recorded on the A35 in particular), particularly for vulnerable road users such as pedestrians and cyclists.

[6] Non-local Origin/Destinations (ODs) are assumed to be any areas on or to the north of the A338, and/or to the west of Bournemouth, i.e. ODs with the potential to use historically considered by-basses of Christchurch.

Figure 3-3 RSI Data Plot

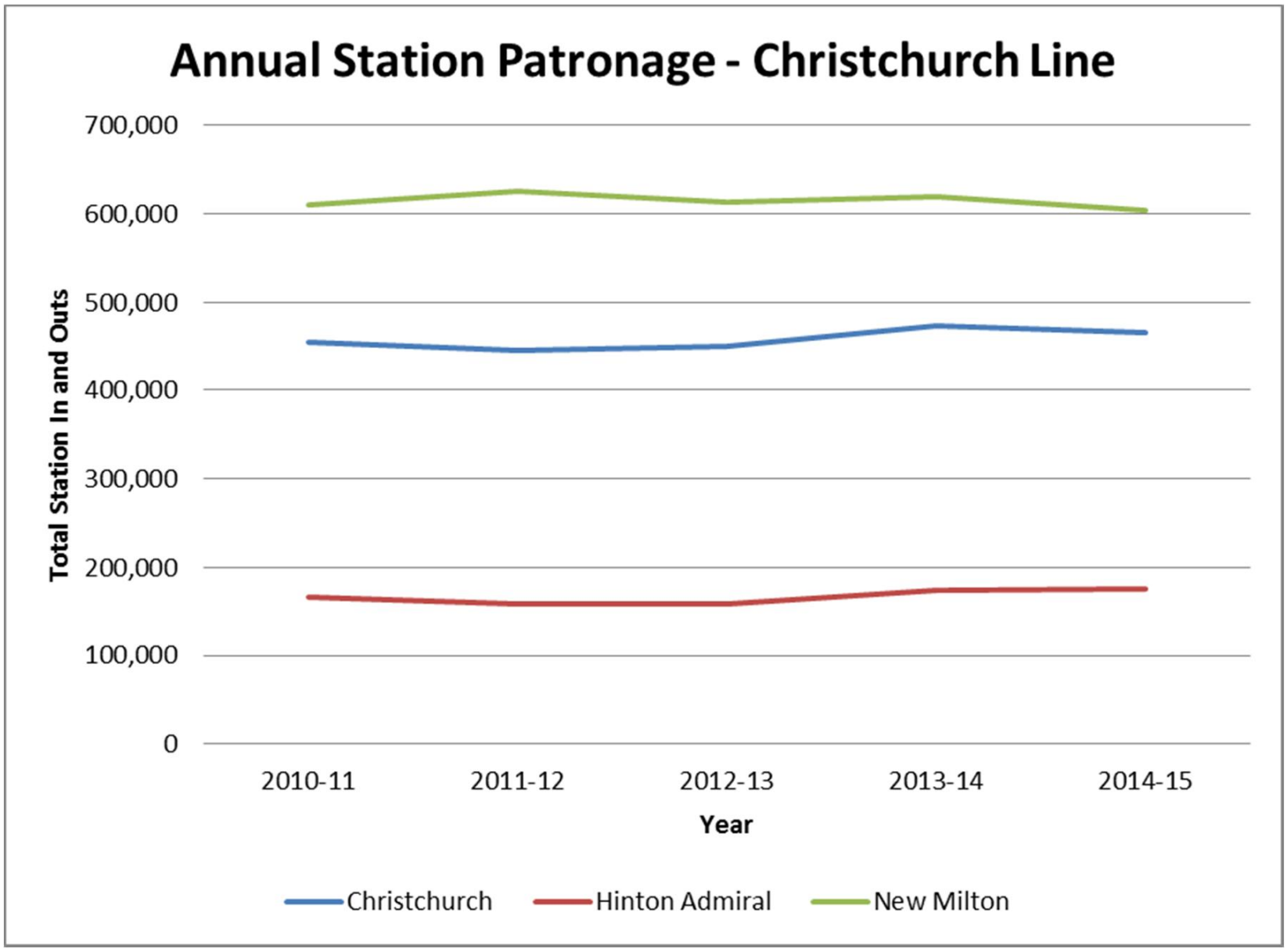


RAIL

Christchurch and settlements to the east of the town (namely Hinton Admiral, New Milton and further afield) are served by rail stations on the Southampton to Weymouth line. Southwest Trains currently operate the line with trains to and from Bournemouth (journey time from Christchurch of 8 minutes) and Poole (journey time from Christchurch of 20 minutes) running every half hour.

Patronage data from the Office of Rail Regulation (ORR) suggest relatively stable rail patronage from local stations over the past 5 years, with around 180,000 yearly passengers currently accessing the rail services from Hinton Admiral, around 470,000 from Christchurch, and around 600,000 from New Milton. Analysis of 2001 and 2011 census data reveals that rail mode share for travel to work from Christchurch almost doubled from 2001 to 2011.

Figure 3-4 Annual Station Patronage Data on the Christchurch Line



Rail is somewhat constrained by limited service frequencies (half hourly services) combined with a lack of infrastructure. The parallel rail route to A35 suffers capacity constraint due to a 5 mile section of single line between Dorchester and Moreton. Whilst the existing infrastructure is sufficient to meet the requirements of the timetable, it exacerbates delay during times of perturbations to the service and extends the time taken to restore normal operations

Furthermore, the stations serve a limited walk/cycle catchment, with many residential areas to the southeast of Christchurch outside the walk/cycle catchment for the stations, and limited parking provided.

The LTP lists a Park and Rail at Hinton Admiral as a priority – however, this has not yet been progressed.

BUS

There are six bus routes which currently pass through the study area. Christchurch is relatively well served by buses, with frequencies between Christchurch and Bournemouth/Poole every 5-15 minutes.

Table 3-2 Frequent bus services within the scheme study area

SERVICE	ROUTE	PEAK HOUR FREQUENCY
X1	Bournemouth to Lymington	Hourly
X2	Bournemouth to Pennington	Hourly
111	Strouden to Highcliffe	Every 2-3 hours
1a	Bournemouth to Somerford	Every 10 minutes
1b	Poole to Purewell	Every 15 minutes
1c	Poole to Somerford	Every 15 minutes

A Quality Bus Corridor for the A35 - Poole - Bournemouth - Christchurch has been prioritised within LTP 3. The LTP3 progress report stated strong bus passenger growth in urban areas, with Bournemouth/Poole area showing a sustained 81% increase between 2004 and 2013. However, analysis of 2001 and 2011 census data for Christchurch shows that bus use remained relatively constant between the two periods, with bus mode share for travel to work from/in Christchurch at around 3.9%.

The 2009 town cordon survey suggests a higher bus mode share for access to Christchurch town centre (compared to Travel to Work Census data), with around 23% of trips accessing the central area (around the High Street) on the bus.[7] This reflects that the bus may be more attractive for leisure trips (over travel to work trips) and /or dependent on the convenience of bus travel for particular trip destinations (i.e. Christchurch town centre is relatively well served by buses, hence the higher mode share, but other desired destinations may not be so well served).

WALKING AND CYCLING

Although walking and cycling facilities are provided along the A35 in Christchurch, traffic continues to dominate and cause severance for vulnerable road users. Designated pedestrian and cycle crossings are provided at some junctions and locations along both the A35 and B3073 – however, relatively few are controlled crossing points, and many on the A35 are staggered/underpasses due to the wide nature of the road, meaning relatively long crossing distances and/or wait times for pedestrians.

The cycle network is somewhat disjointed both along the routes, and within the town as a whole, with a mix of no facilities in parts, cycle lanes, cycleways on the pavement and shared footways. Many of the cycle lanes (particularly on the B3073) are poor quality and faded, with the southern built up section of the B3073 lacking any designated cycle facilities.

Analysis of 2001 and 2011 census data shows that travel to work by foot or bicycle increased by around 0.3% (to 14.3% in 2011) between the two periods. The 2009 Christchurch town centre cordon survey is relatively consistent with this, showing 16% of trips to the town centre to be made by walking or cycling[8]

Recent improvements to walking and cycling facilities within Christchurch have been undertaken as part of the Three Towns project, with minor improvements being made at Stony Lane/Purewell, Stour Road, Castle Street, Bridge Street, Iford Roundabout and cycle improvements on Somerford Road. A Town Strategy for Christchurch is also currently being progressed, which includes plans to improve pedestrian and cycle facilities on the High Street, and at Fountains Road junction.

[7] 2009 12 hour cordon survey taken from LTP3 Evidence Base Table B-2-4.
[8] 2009 12 hour cordon survey taken from LTP3 Evidence Base Table B-2-4.

Dorset Highways Capital Programme for 2016/17 also includes:

- Safety Schemes on A35 Barrack Road
- Somerford Roundabout - Lyndhurst Road
- Fairmile Road Christchurch – cycle markings
- Christchurch Bypass cycleway
- Castle Street / Bridge Street cycleway (design only)
- Purewell Cross Roundabout – cycle collisions (design only)
- Lyndhurst Road footway
- A35 Prime Transport Corridor – Total Route Management (measures to improve traffic flow
- and safety – design only)

SUMMARY OF EXISTING ISSUES

The following have been identified as existing issues on the transport network within the study area.

- Relatively high car use across Dorset.
- High and variable journey times on the A35 and B3073 through/within Christchurch.
- Capacity constraints with regard to rail frequency.
- Poor air quality, along with noise and severance issues on A35 and B3073 corridors.
- Relatively high number of road traffic accidents on A35 and B3073 corridors.
- Poor walk and cycle facilities within Christchurch, in particular on A35 and B3073 corridors.
- Poor connectivity between the south east of Christchurch, and the rest of the County/connections to the north/west.
- Forecast growth in housing and commercial development potentially constrained by highway capacity.

3.2 FUTURE DEVELOPMENT GROWTH

The Christchurch and East Dorset Local Plan identifies a range of sites across Christchurch and East Dorset that are available for housing development. The Local Plan provides for approximately 8,490 new homes in the area between 2013 and 2028. In Christchurch, there is capacity for around 2,250 homes, with particular development locations highlighted as follows:

- Christchurch urban extension – 850-950 dwellings and local centre
- Land south of Burton – 45 dwellings
- Land east of marsh lane – A new primary school

In addition, the following large retail/mixed use developments have gained planning permission:

- A new retail park (Meteor Retail Park) in Somerford - currently under construction,
- A food superstore at Bailey Drive (off the A35) along with 25 affordable dwellings and accompanying leisure uses - granted planning permission, but yet to get underway.
- A food superstore west of Stony Lane (north of Bridge Street), including proposed capacity improvements at Stony Lane Roundabout – granted planning permission on appeal, but yet to get underway.

Due to the existing highway capacity issues in Christchurch, it is expected that the planned development will be required to mitigate its impact on the transport network with the provision of improvements to the following junctions:

- A35 Lyndhurst Road
- A35 Staple Cross Junction

Contributions towards the following junctions are also expected to be required:

- A35 Somerford Roundabout
- A35 Stony Lane Roundabout
- A35 Fountains Roundabout

Mineral extraction is also planned at Roeshot (north of the A35, and the proposed Christchurch urban extension), with an anticipated 120-160 two-way HGV movements per day.

In addition, expansion is planned at Bournemouth Airport (to the north of Christchurch) with the potential to create up to 16,000 jobs (10,000 within the airport through unlocking employment land, and 6,000 indirect jobs, as quoted in the Dorset SEP) by 2030, and increasing passenger numbers.

At Bournemouth University and the neighbouring Arts University, planned development set out in the SEP could see the creation of up to 80 new/relocated businesses, and up to 200 new jobs.

At the Port of Poole, planned regeneration providing a mixture of office, retail and housing developments has the potential to create over 5,000 jobs and over 2,000 homes (as quoted in the SEP).

Such growth as set out above is likely to increase traffic demand on the A35 and B3073 through and within Christchurch. TEMPRO (Trip End Model Presentation Program) indicates that weekday traffic in Christchurch could grow by around 6% up to 2030. Such an increase could result in daily traffic flows up to around 23,000 vehicles on the B3073 and around 30,200 vehicles on the A35 at Stour Bridge by 2030. It should be noted that this does not account for the limitations of TEMPRO e.g. exclusion of growth brought about by changes to income and fuel prices, nor does it account for traffic increases on specific routes (as a blanket growth is applied).

3.3 FUTURE TRANSPORT NETWORK OPERATION WITHOUT INTERVENTION

Across Dorset, growth is already creating a number of transport issues which, unless mitigated, will hinder future economic potential. It is estimated that for the South East conurbation alone the annual cost of delay is £300m, which can be costly for local business.

Local and prospective businesses are particularly concerned about sub-standard transport connections towards Bristol and the Midlands/ North and towards London (Joint Bournemouth, Poole and Dorset LTP3). This continues to be a major barrier to attracting and retaining business in Dorset.

Proposed employment growth at Bournemouth Airport, and at the University, has the potential to change travel patterns and put more pressure on the B3073 through Christchurch, which already experiences congestion, and has relatively high levels of traffic. Furthermore, good connections Bournemouth Airport are important to the economic vitality of Christchurch.

A strategy without intervention will result in a continuing increase in the environmental and safety problems associated with the A35 and the A3073, and will constrain economic growth. The problems will worsen and, as traffic demand continues to increase, these problems will also worsen.

4 OBJECTIVES FOR FUTURE IMPROVEMENTS

The objectives for the Scheme area have been developed based on an understanding of the current situation, future situation and the need for intervention. Policy and background studies/strategies have also been taken into account.

The key objectives of future improvements are as follows:

- To support the local economy and jobs through reducing congestion and improving journey times on the A35 between Somerford Road Roundabout and the Castle Lane/A338, and on the B3073 between Fountain Roundabout and A338, thereby enhancing the viability of the South East conurbation economy;
- To improve road safety locally within Christchurch, particularly along the A35 and B3073;
- To reduce the environmental impact (including impact on noise, air quality and townscape) of through traffic along the A35 and B3073 through Christchurch;
- To support a shift to alternative more sustainable forms of transport (other than the private car) such as bus and rail use.
- To support active lifestyles through increasing walking and cycling within Christchurch, including for access to schools.
- To support sustainable planned economic and housing growth in Christchurch and East Dorset, and make the area a more attractive place for businesses to invest in.

5 FUNDING

Funding would be sought from a number of sources including the Dorset LEP (e.g. Local Growth Fund, Local Majors Fund), European funding and potentially from local development contributions – however, this will be dependent on the nature of the scheme.

To give an indication of recent past funding levels, the Dorset LEP was awarded £79m in 2014/2015 as part of the Growth Deal, £9.4m for the Growing Places Fund, and around £19m was secured by Dorset County Council and Bournemouth Borough Council from 2011 to 2015 as part of the Local Sustainable Transport Fund (LSTF).

6 POTENTIAL IMPROVEMENTS

6.1 METHOD FOR OPTION GENERATION

A number of options have been considered within this OAR, which draw on current policy, as well as previous strategies and studies.

Previous options considered to address the issues have been in the form of on-line junction improvements and bypasses. These options have been considered alongside other potential options and bypass routings to develop a comprehensive list of potential solutions.

The South East Dorset Multi-Modal Transport Study (SEDMMTS, April 2012) examined a range of options for improvements in the area around Bournemouth and Christchurch, and reference is made to a number of these options in this OAR.

6.2 SUMMARY OF OPTIONS CONSIDERED

Table 6-1 lists the potential options considered within this OAR to address the scheme objectives.

Table 6-1 Summary of options considered

OPTION NUMBER	OPTION NAME	SCHEME COMPONENTS
Option 1	Promotion of Public Transport, Walking and Cycling	Improvements to walk and cycle facilities along the A35 Corridor, The B3073 (towards Bournemouth Airport) and within Christchurch. Development of the A35 Quality Bus Corridor (improving bus facilities, journey times and reliability), and promoting rail usages/improving frequency.
Option 2	Park and Ride/Rail	A Park and Rail site at Hinton Admiral, or a new rail halt/Park and Rail/Ride site to link to Christchurch Urban Extension.
Option 3	Light Rapid Transit (DARTS)	A Light Rapid Transit system connecting Christchurch to Hamworthy.
Option 4	Water Taxis	Water taxis connecting South East origins and destinations (e.g. Christchucrch, Bournemouth and Poole)
Option 5	On-line Minor Highway Improvements	Minor on-line junction improvements on the A35 between Somerford (Sainsbury's) Roundabout and Iford Roundabout.
Option 6 (Green Route)	On-line Improvements and Widening	Widening to the existing A35 dual carriageway from Fountain Roundabout to Castle Lane East with major widening at junctions and at Stour Bridge.
Option 7 (Purple, Red, and Blue Routes)	Bypass of Christchurch	Three bypass options have been considered – historically known as the Purple route, the Red route and the Blue route.

6.3 HIGH LEVEL DISCUSSION OF OPTIONS

OPTION 1 - PROMOTION OF PUBLIC TRANSPORT, WALKING AND CYCLING

The encouragement of a mode shift to public transport was considered within the SEDMMTS. The study concluded that even with implementation of the full SEDMMTS Strategy, the dominance of

the car would continue, with around 85% peak hour journeys on the highway network being made by car. Notwithstanding this, the study forecast that 11% would be made by rail or bus, representing a 6% decrease in car mode share from existing levels[9].

Such a mode shift would be considered relatively high – however, although there is potential to increase rail and bus mode share, there are likely to be limitations as to the extent to which its usage can be increased. Whilst being a relatively positive achievement, the impact of a decrease of 6% in car driver trips on the operation of the A35 and B3073 corridors through Christchurch is likely to be limited, and would be unlikely to solve existing congestion issues and fully meet the scheme objectives.

Government policy and strategy over the past 10+ years has focussed on multi-modal sustainable transport improvements to include buses, cycling and walking – most recently with the implementation of the LSTF Three Towns Project. Although the LTP3 Progress Report states that strong bus passenger growth has been shown in urban areas between 2004 and 2013, census data for Christchurch for 2001 and 2011 suggests that bus use for travel to work has remained fairly constant. However, the number of travel to work trips made by rail, walking and cycling has been shown to increase.

Notwithstanding this, traffic and congestion issues on the A35 and B3073 remain, and effectiveness of a continuation of measures similar to those recently implemented with the Three Towns Project are likely to come under scrutiny from Council Members and the public.

OPTION 2 - PARK AND RIDE/RAIL

Whilst there are currently few fully operational examples in Dorset, bus or rail based Park and Ride can provide a high quality alternative to longer distance car based travel to town centres, predominantly by commuters. This presents opportunities for congestion reduction and valuable town centre land to be used for commercial, residential and public realm uses rather than for car parking.

The LTP3 has highlighted a potential Park and Rail site at Hinton Admiral which would serve commuters between Christchurch (and to the east) and Bournemouth/Poole, and Core Strategy supports this through encouraging better links to Christchurch and Hinton Admiral Stations, with the urban extension also linked to the transport network. The South East Dorset Multi-Modal Transport Study, (SEDMMTS, April 2012) estimated the cost of a Park and Rail site at Hinton Admiral at around £0.23m, with an expected BCR of around 1.6, representing medium Value for Money.

Alternative sites for Park and Ride/Rail could be considered as part of/alongside the planned Christchurch Urban Extension, where a new rail halt could have the potential to serve proposed new development as well as residential areas south of A35 within a walk/cycle catchment, and settlements further to afield via Park and Rail. Such a site could also link into proposals for a Quality Bus Corridor on the A35 through Christchurch to Bournemouth and Poole. The SEDMMTS (April 2012) considered a site close to Sainsbury's at Somerford Roundabout, but did not state costs or benefits.

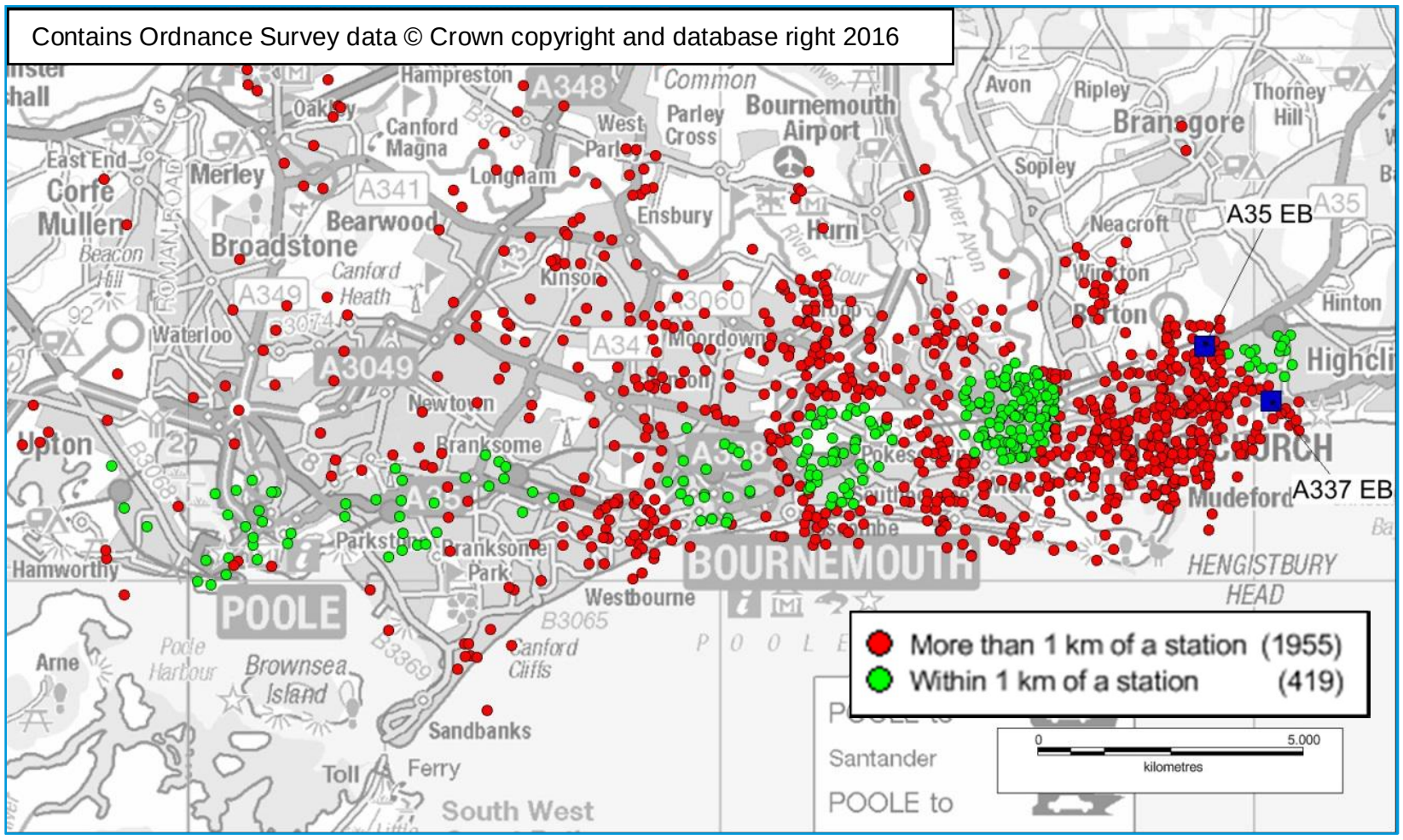
Analysis of RSI data suggests that around 17.6% of traffic on the A35 westbound (to the west of Somerford Roundabout) has origin points within station catchment areas (areas within 1km of stations) along the Christchurch railway line (see Figure 6-1). This equates to around 215

[9] SEDMMTS, Table 8.1

westbound peak hour vehicles, i.e. a potential demand of over 200 additional passengers/cars parked in the peak hours at Hinton Admiral Station (i.e. a potential Park and Rail), and a potential demand of around 1,250 passengers/cars per day[10].

It is noted that many of the trips recorded in station catchments have an origin/destination of Christchurch, and it is therefore questionable whether people would use a Park and Ride at Hinton Admiral (or similar) for such a short trip. Usage would also depend on factors such as rail frequency/capacity, journey times, cost of the service, and relative cost of parking at the destination. However, given the potential demand, it is recommended that further study is undertaken to determine whether a Park and Rail/Ride would be feasible.

Figure 6-1 RSI analysis of station catchment destinations



OPTION 3 - LIGHT RAPID TRANSIT

Light Rapid Transit (LRT) would represent the most significant step change in public transport provision in the LTP3 area, and is included as a longer term aspiration (due to anticipated funding levels). Initial feasibility and appraisal work undertaken as part of the South East Dorset Multi-Modal Transport Study (April 2012) has established that a Dorset Area Rapid Transit System (DARTS) operating from Christchurch to Hamworthy is broadly feasible, and would attract significant patronage.

The scheme would operate tram-trains on the heavy rail network, with on-street links in Bournemouth Town Centre providing a frequent, reliable service between the main urban centres of the conurbation. Integration of rapid transit with the Quality Bus Corridors and key walking / cycling routes would help to create the centrepiece of a modern, sustainable transport system and an attraction for visitors providing wider economic benefit.

[10] Assumes one person per car, with vehicles arriving at the Park and Ride/Rail from 7am-1pm.

Total scheme costs (estimated within the SEDMMTS) for DARTS was around £212m, with an expected BCR of around 1.86, representing medium Value for Money.

OPTION 4 - WATER TAXIS

The SEDMMTS, along with the Dorset and East Devon Waterborne Passenger Transport Study considered the option of water taxis within Christchurch Harbour and waterborne links between Bournemouth, Poole and the Jurassic Coast.

The SEDMMTS estimated a relatively low BCR for such a scheme due to the relatively high anticipated capital costs (around £50m, with and additional £10m per year to run the service), and the limited appeal to commuters.

OPTION 5 - A35 MINOR ON-LINE IMPROVEMENTS

A series of on-line improvements would be considered on the A35 between Stony Lane Roundabout and Iford Roundabout. The June 2012 A35 Route Management Study (RMS) tested a number of online options between Stony Lane Roundabout and Barack Road/Stour Road. Using this study and the emerging Christchurch Town Strategy as a basis, it is anticipated that minor on-line improvements would take the form of the following:

- Stony Lane roundabout – It is anticipated that a scheme at Stony Lane Roundabout would form a similar layout to that proposed within the approved planning consent for a food superstore on Stony Lane (ref:8/11/0535, approved through appeal).
- Fountains roundabout – signalisation of the roundabout to maintain capacity and provide at grade pedestrian/cycle crossing facilities.
- Minor changes were at Barrack Road/Stour Road signals, the Stour Road Tuckton roundabout and the Sainsbury's roundabout; and
- Improvements at Iford Roundabout (as proposed by the Three Towns Project)
- Implementation of UTC SCOOT or PC MOVA at signals along the corridor to optimise performance.

The RMS concluded that DCC were content that there is a package of measures, including significant junction improvements and sustainable transport improvements, which would be acceptable by way of mitigation against the expected impact of development at Roeshot Hill. Nonetheless, given the constraints of the existing network, and the forecast growth from developments such as Roeshot Hill, it is unlikely that online improvements would significantly improve capacity at the junctions along the A35 corridor over and above existing levels.

The urban built up nature of the route, environmental constraints (such as Stour Bridge and the Railway Crossing), along with the need to address severance issues and promote active modes through improved cycle and walking infrastructure means that online capacity improvement options are limited in their potential impact on existing issues.

OPTION 6 – A35 ON-LINE IMPROVEMENTS AND WIDENING (GREEN ROUTE)

Major on-line improvements (historically known as the 'Green bypass route') would be considered on the A35 between Fountain Roundabout and the Castle Lane East, including widening to the existing dual carriageway, with major widening at junctions.

In total, there are 4 major junctions to be widened (Fountain Roundabout, Barrack Road/The Grove, Iford Roundabout, and Castel Lane/Riverside), one major two-level junction at Barrack

Road/Stour Road. Bridge structures across the railway line and the River Stour are assumed to remain at existing width.

Widening of the existing A35 route at major junctions is likely to greatly exacerbate issues of severance along the route. There are over 600 buildings within 100m of the route, with much of it being lined on both sides by commercial or residential dwellings. At least two dwellings would need to be demolished to make way for the new widened route, and public open space is also likely to be affected.

Although vehicle capacity on the route would increase and assist to reduce congestion and improve journey times, it is unlikely that air quality or noise would reduce significantly along the route. Improved journey times have the potential to attract traffic currently using the B3073 (Fairmile Road) – whilst this would have a potential positive impact on communities/journey times along the B3073, it may result in further exacerbation of noise/air quality/severance issues on the A35. However, traffic modelling (not undertaken as part of this study) would be required to assist in determining whether this reassignment is likely to occur.

Wider crossings for pedestrians/cyclists would be required at junctions, which would potentially increase pedestrian delays through a requirements for longer signal cycle times, and the route would remain relatively unattractive for pedestrians and cyclists, thereby potentially discouraging active modes.

Reduced congestion on the route should lead to improved bus journey times, which may encourage more bus use. Bus priority measures (e.g. bus lanes) could be introduced along the new widened route, thereby contributing towards the planned Quality Bus Corridor.

OPTION 7 - A35 BYPASS OPTIONS

The need and vision for a Relief Road was recognised in 1993 when public consultation took place on four options – two inner, and two outer routes.

The Draft Christchurch Local Plan 1995 noted preferences for the “red” outer route and “blue” inner route. Draft Policy T6 was included to protect those route corridors with a proposal for preparation of an environmental statement.

In October 2011 Dorset County Council considered the current status of a proposed Relief Road. It was said to be undeliverable within their Local Transport Plan period 2011 to 2026, due to many reasons including cost and environmental impact.

The 2014 adopted Christchurch and East Dorset Local Plan Part 1 – Core Strategy states that “Christchurch Borough Council will continue to press for the development of options for long term solutions to the town’s traffic problems beyond the plan period, including the possible future provision of a by-pass, subject to any options proposed at the time meeting the necessary local and national policy requirements.”

Figure 6-2 shows the historical by-pass options including proposed online improvements (now Option 6 – the Green Route), alongside the three main historical by-pass route options considered; the Purple Route, the Red Route and the Blue Route.

Figure 6-2 Historically considered bypass schemes – derived from 1993 consultation leaflet

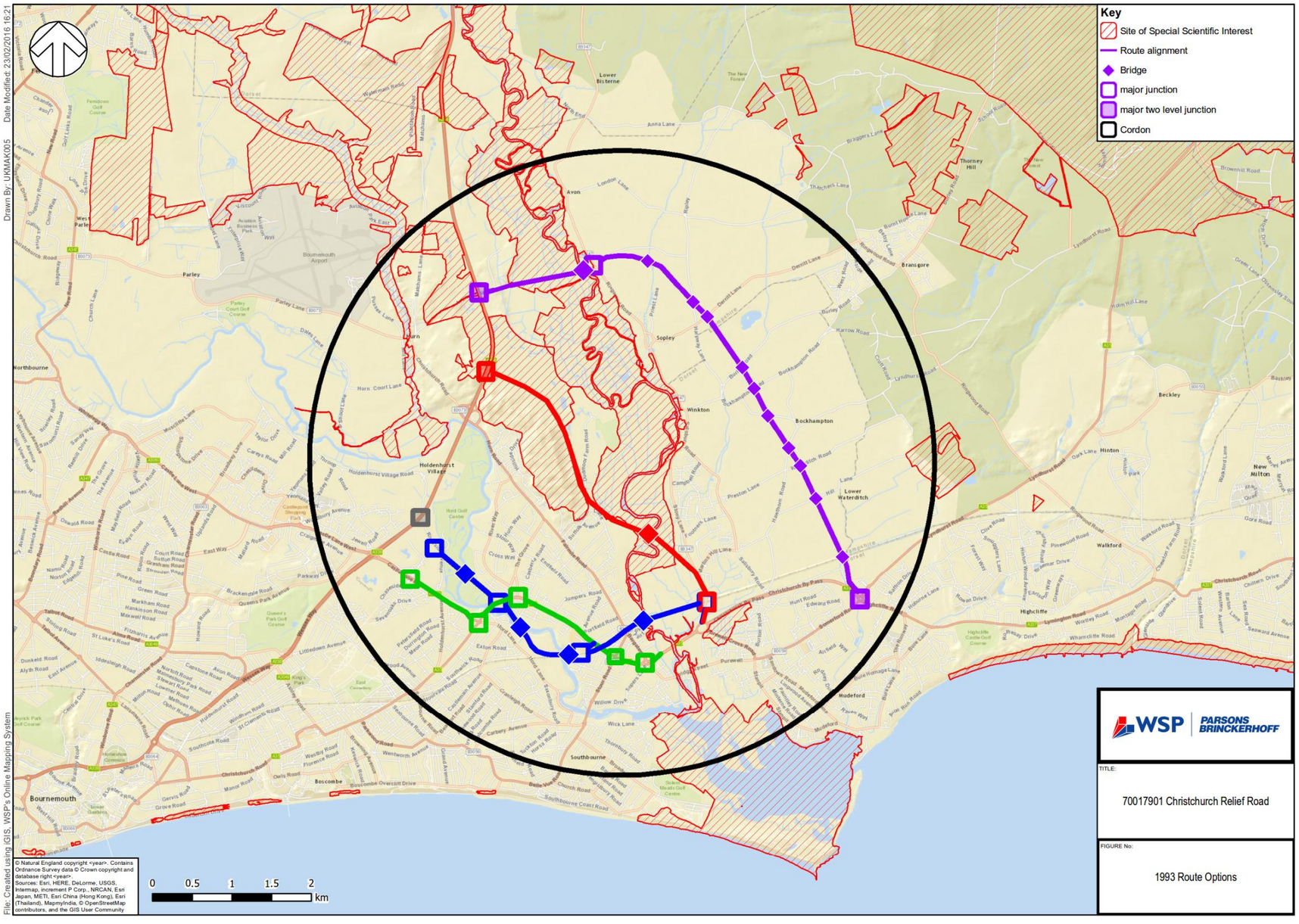


Table 6-2 summarises each of the by-pass options (excluding the Green on-line options which are discussed earlier in this report), along with estimated costs.

Table 6-2 Option 7 Bypass options description

	OPTION 7 – PURPLE ROUTE	OPTION 7 – RED ROUTE	OPTION 7 – BLUE ROUTE
Route Description	The Purple bypass route runs north from Somerford (Sainsbury's) Roundabout (to the east of Christchurch) to pass under the railway line, continuing north and connecting in with the existing Avon Causeway to the A338 east of Hurn. The route is assumed to be new dual carriageway (50mph) with one major junction, two major two-level junctions and ten bridge structures.	The Red bypass route runs north from Stony Lane roundabout crossing the Avon river, and joining the A338 southeast of Hurn at the location of the existing Avon Causeway junction. The route is assumed to be new dual carriageway (50mph) with one major junction, one major two-level junction and one bridge structure.	The Blue bypass route runs north from Stony Lane Roundabout, before heading west parallel to the A35 alongside the route of the existing railway line crossing the A35 and the River Stour. The route then heads north alongside (and within the existing valley of) the River Stour. The route crosses the Stour three times, and the A35 at Stour Bridge before joining the A338 via the existing Riverside Avenue. The route is assumed to be new dual carriageway (50mph) with four major junctions, and one bridge structure.
Scheme Length	Around 7.6km	Around 4.6km	Around 4.6km
Estimated Scheme Cost[11]	£78.6m	£37.8m	£43.1m

6.4 SIFT 1 - ASSESSMENT OF OPTIONS AGAINST SCHEME OBJECTIVES

Table 6-3 shows a high level assessment of each of the options against the scheme objectives. This exercise is intended to feed into a first sift of the options to assist in determining which (if any) may be suitable for progressing to further study/development.

The initial high level appraisal of the schemes against the objectives indicates that Options 4 (Water Taxi), 5 (Minor On-Line Improvements) and 6 (On-Line Improvements and Widening) would be unlikely to meet all of the objectives of this particular scheme for the following reasons:

- Option 4 (Water Taxis) – Such a service would have limited appeal to commuters, and a limited catchment. It is unlikely that a waterborne scheme would support sustainable economic housing growth in the locations earmarked in the Local Plan, or significantly improve issues identified on the A35 and B3073 through Christchurch.
- Option 5 (Minor On-Line Improvements) – Given the constraints of the existing network, and the forecast growth from developments such as Roeshot Hill, it is unlikely that online improvements would significantly improve capacity at the junctions along the A35 corridor over and above existing levels.

[11] 2016 prices, not including Optimism Bias.

- Option 6 (On-Line Improvements and Widening) - Although vehicle capacity on the route would increase and assist to reduce congestion and improve journey times, it is unlikely that air quality, noise or accidents would reduce significantly along the route. Potential attraction of further vehicles as a result of improvements could result in a worsening of these issues. In addition, the route would remain relatively unattractive for pedestrians and cyclists, thereby potentially discouraging active modes.

The above three options have therefore not been considered further within the Study.

Table 6-3 Potential delivery of objective by options identified

	SCHEME OBJECTIVE					
OPTION	Reduce congestion and improve journey times	Improve road safety	Improve air quality / noise on B3073 and A35 corridors	Support a shift to public transport	Increase walking and cycling	support sustainable economic and housing growth
1 – Public Transport	✔	✔	✔	✔✔✔	✔	✔
2 – Park and Ride/Rail	✔	✔	✔	✔✔✔	✔	✔✔
3 – Light Rapid Transit	✔✔	✔	✔	✔✔✔	✔	✔✔
4 – Water Taxi	✔	✔	✔	✔	✔	X
5 – Minor On-Line Improvements	X	✔	X	✔	✔	✔
6 – On-Line Improvements and Widening (Green Route)	✔✔	X	X X	✔	X X	✔✔
7 – Bypass Purple Route	✔✔✔	✔	✔✔	✔✔	✔✔	✔✔✔
7 – Bypass Red Route	✔✔✔	✔	✔✔	✔✔	✔✔	✔✔✔
7 – Bypass Blue Route	✔✔✔	✔	✔	✔✔	✔✔	✔✔✔

✔✔✔: Objective highly achievable
✔✔: Objective partially achievable
✔: Objective slightly achievable
X : Objective slightly unachievable
X X: Objective partially unachievable
X X X: Objective highly unachievable

6.5 SIFT 2 – ASSESSMENT OF OPTIONS USING EARLY ASSESSMENT SIFTING TOOL (EAST)

The following options have been progressed to this second sifting stage, having either partially or fully met each of the scheme objectives:

- Option 1 - Promotion of Public Transport, Walking and Cycling
- Option 2 - Park and Ride/Rail
- Option 3 - Light Rapid Transit; and
- Option 7 - A35 Bypass Options

This sifting stage is intended to examine the above options further through the five ‘cases’ set out in DfT guidance on The Transport Business Case.

- The Strategic Case
  - Demonstrates a clear rationales for the case for change
  - Considers the identified problem(s), objectives and constraints in the local context
- The Economic Case
  - Appraisal of economic, environmental and social impacts
- The Financial Case
  - Including initial cost estimates and possible funding sources
- The Commercial Case
  - Brief discussion of commercial viability
- The Management Case
  - Brief discussion of project governance

Early Assessment and Sifting Tool (EAST) forms have been used as a tool to assess each of the remaining options agains the five 'cases'. The EAST is a decision support tool that has been developed by the DfT to quickly summarise and present evidence on options in a clear and consistent format. It provides decision makers with relevant, high level, information to help them form an early view of how options perform and compare.

The completed EAST forms can be found in Appendix A of this report.

At this sifting stage, the EAST has been used to identify any remaining option which:

- Does not meet the scheme objectives to an acceptable level, or comply with existing local/regional/national strategies or policies; and/or
- Is unlikely to pass key viability and acceptability criteria (e.g. in relation to deliverability, affordability or acceptability to stakeholders).

SIFT 2 – OPTIONS 1 AND 2 (PROMOTION OF PUBLIC TRANSPORT, WALKING AND CYCLING, AND A PARK AND RIDE/RAIL)

Options 1 and 2 sit relatively well with current strategy and policy in terms of creating a lasting shift to more sustainable travel behaviour, and encouraging sustainable economic growth. However, they only go part way to achieving other strategy/policy aims and scheme objectives. Even with a significant increase in sustainable transport mode share, it is expected that at least 85% of existing vehicles would remain on the A35 and B3073 through Christchurch. Therefore, many of the scheme/policy objectives (e.g. to improve connectivity, relieve congestion, reduce greenhouse gas emissions/air and noise pollution, and improve safety) would remain mostly unmet.

Given that recent similar schemes (such as the Three Towns Project) have yet to significantly impact on traffic and congestion issues on the A35 and B3073, the effectiveness of a continuation of measures in addressing the scheme objectives are likely come under scrutiny from Council Members and the public.

Options 1 and 2 are therefore unlikely to meet the scheme objectives to an acceptable level, even if both of these options were implemented. However, they remain viable options to support the scheme objectives, and it is recommended that the options are progressed for further consideration as supplementary options to any preferred option which may arise. In particular, further feasibility analysis of Option 2 (Park and Ride/Rail) is recommended.

SIFT 2 – OPTION 3 (LIGHT RAPID TRANSIT)

Option 3 has the potential to meet the scheme and policy objectives relatively well through creating a lasting shift to more sustainable travel behaviour, and to encourage sustainable economic growth. It is likely to have a more wide ranging and lasting impact than Options 1 and 2.

However, the LRT scheme is unlikely to be commercially viable due to the high cost (estimated at £212m) and anticipated difficulty in obtaining funding. It is also unlikely to be deliverable given that the route is proposed to use the existing national rail network between Christchurch and Hamworthy. Given that this railway line remains in current use with considerable patronage, it is highly unlikely that the proposals would be accepted by Network Rail or other key stakeholders. It is therefore recommended that Option 3 is dismissed at this stage on the grounds that it is unlikely to pass key viability and acceptability criteria.

SIFT 2 – OPTION 7 (BY-PASSES)

Option 7 meets scheme and policy objectives relatively well – a reduction of traffic on the A35 and B3073 through Christchurch (up to around 40%) would contribute to relieving congestion, reducing greenhouse gas emissions/air and noise pollution, improving safety and encouraging walking and cycling, thereby benefiting communities in and around these existing routes. A by-pass would also assist to reduce journey times through the study area as a whole, and improve road connectivity (particularly to Bournemouth Airport where major employment is planned), thereby enabling sustainable economic growth within the area.

Estimated high level Benefit Cost Ratios (BCRs) have been calculated for each of the three bypass routes to assist with consideration of the by-pass schemes within this sifting round.

Forecast benefits have been calculated using the Highways England PAR tool (see Appendix B for details) for journey time associated benefits. The following assumptions have been made with regard to the calculation of the BCR:

- Current journey times through the existing road network have been derived from Google Drive Time data for different time periods (AM, interpeak, PM, night time, Saturday and Sunday), and by direction. Google reports minimum and maximum journey times within these periods, and for the purpose of this assessment, and average of the two has been used for the existing journey time. Further details on journey time assumptions can be seen in Appendix C of this report.
- By-pass lengths have been assumed as per Table 6-2. The by-pass journey times have been based on the length from the southern limit of the bypass (i.e. the A35) to the Blackwater junction on the A338 for the Red and Purple Routes, and to Cooper Dean Roundabout for the Blue Route.
- The average speed on the by-pass (and A338 where applicable) is assumed as 50mph for the Purple and Red routes, and 40mph for the Blue Route due to its proximity to urban areas.
- Junction delay for the by-pass options has been assumed as 20 seconds per junction.
- It is assumed that there would be no accident saving related benefits as a result of the scheme, given that the construction of a by-pass would be likely to induce road traffic accidents, but that the reduction in traffic on existing routes as a result of the by-pass could be expected to reduce the number of road traffic accidents on the existing network.
- A 6% growth in traffic to 2030 (as derived from Tempro) has been assumed, with no further traffic growth beyond this within the 60 year appraisal period.

- In accordance with RSI data (see Chapter 3 for further detail) and journey time calculations, 42% of forecast traffic on the A35 by-pass east is assumed to use each of the proposed by-passes.
- Any potential journey time savings experienced by traffic remaining on the A35 through Christchurch has not been taken into account. This is expected to be balanced out by the assumption that all traffic which could use the by-pass (i.e. 42%) would use it, despite any potential journey time savings on the existing network.
- Costs assumptions are included in Appendix D of this report.

Estimated high level journey time benefits, costs, Benefit Cost Ratios (BCRs) and Value for Money categories have been calculated for each of the three by-pass options, as shown in Table 6-4. The Red and Blue routes result in 'Very High Value for Money', whilst the Purple route represents 'Medium Value for Money' due to its relatively longer length and lower journey time saving.

Table 6-4 Bypass Scheme BCRs

	OPTION 7 – PURPLE ROUTE	OPTION 7 – RED ROUTE	OPTION 7 – BLUE ROUTE
Total Benefits (Generated by Journey Time Savings, discounted to 2010 prices)	£168,317,072	£239,217,258	£245,109,666
Estimated Present Day Scheme Cost (including 44% Optimism Bias)	£113.2m	£54.4m	£62.6m
Estimated Scheme Cost discounted to 2010 prices (including 44% Optimism Bias)	£84.5m	£40.7m	£46.7m
BCR	1.99	5.9	5.2
Value for Money	Medium	Very High	Very High

To inform this sifting process alongside the BCRs, the three by-pass route options have been examined at a high level with regard to viability and acceptability. An assessment of the environmental impact of each of the routes has also been undertaken, and is provided in Appendix E, along with an Environmental Constraints Map.

Part of the Blue by-pass route is proposed alongside the existing national rail network through Christchurch (and the town station). The area around the station in particular has seen development take place since the previous consideration of the route in 1993, and there is no longer land available for construction of a road in this location.

The Blue route passes through the Iford Meadows Local Nature Reserve before following the River Stour along the flood plain for around 1 mile close to the urban area of Christchurch. The River Stour has been known to flood the area on numerous occasions over the past decades, with parts of the town centre including Stour Road, Wick Lane and Bridge Street affected by high flood risk – indeed there remains a residual flood risk to property and considerable transport disruption in Iford despite relatively recent flood protection works. Construction of a road within the already constrained flood plain close to existing communities is likely to have significant impact on communities susceptible to flooding on the Stour, and would be contrary to policy – specifically to reduce the risk of flooding (Christchurch and East Dorset Local Plan Core Strategy Vision), and to provide a resilient and adaptable transport network (LTP3).

On these grounds, the Blue by-pass route is considered unviable and is therefore dismissed within this sifting stage, despite showing a relatively high BCR.

Similarly, the Red by-pass route follows the River Avon floodplain for a similar length (around a mile) passing close to the eastern extents of the town, and through Dorset Heathlands, and River Avon Valley (Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas and Ramsars). The flood plain area at the southern end of the proposed by-pass route is classed as Level 3a (High Probability of flooding – 1 in 100 year or greater).

For similar reasons to the Blue Route, the Red Route is therefore dismissed within this sifting stage due to flood risk and environmental constraints, despite showing a relatively high BCR.

The Purple Route also passes through the River Avon (and its tributaries) flood plains. However, the proximity of the route to built up areas is less of an issue than with the Red and Blue routes. Nonetheless, the route follows the existing Avon Causeway, and would therefore require significant highway construction works within a Site of Special Scientific Interest in order to meet the LTP3 objectives to provide a resilient and adaptable transport network (LTP3), and to reduce the risk of flooding. This, along with other bridge requirements, and the length of the route contributes to a relatively high scheme cost of around £113m (at present day prices, including Optimism Bias). This relatively high cost is unlikely to gain funding given the negative environmental impacts of the scheme, and the relatively low forecast BCR of 1.99.

Assessing the environmental constraints map, consideration of alternative by-pass routes (other than those considered within this report) are likely to face similar environmental constraints to those discussed above.

7 SUMMARY AND CONCLUSION

7.1 SUMMARY

This Options Assessment Report has considered four historic bypass options for Christchurch alongside other potential improvement options within the current physical, strategic and economic context.

A high level approach to assessment has been taken which broadly follows the process for option development as defined by WebTAG, and DfT guidance on The Transport Business Case.

Objectives for the Scheme area have been developed based on an understanding of the current situation, future situation and the need for intervention. Policy and background studies/strategies have also been taken into account. The key objectives of future improvements have been defined as follows:

- To support the local economy and jobs through reducing congestion and improving journey times on the A35 between Somerford Road Roundabout and the Castle Lane/A338, and on the B3073 between Fountain Roundabout and A338, thereby enhancing the viability of the South East conurbation economy;
- To improve road safety locally within Christchurch, particularly along the A35 and B3073;
- To reduce the environmental impact (including impact on noise, air quality and townscape) of through traffic along the A35 and B3073 through Christchurch;
- To support a shift to alternative more sustainable forms of transport (other than the private car) such as bus and rail use.
- To support active lifestyles through increasing walking and cycling within Christchurch, including for access to schools.
- To support sustainable planned economic and housing growth in Christchurch and East Dorset, and make the area a more attractive place for businesses to invest in.

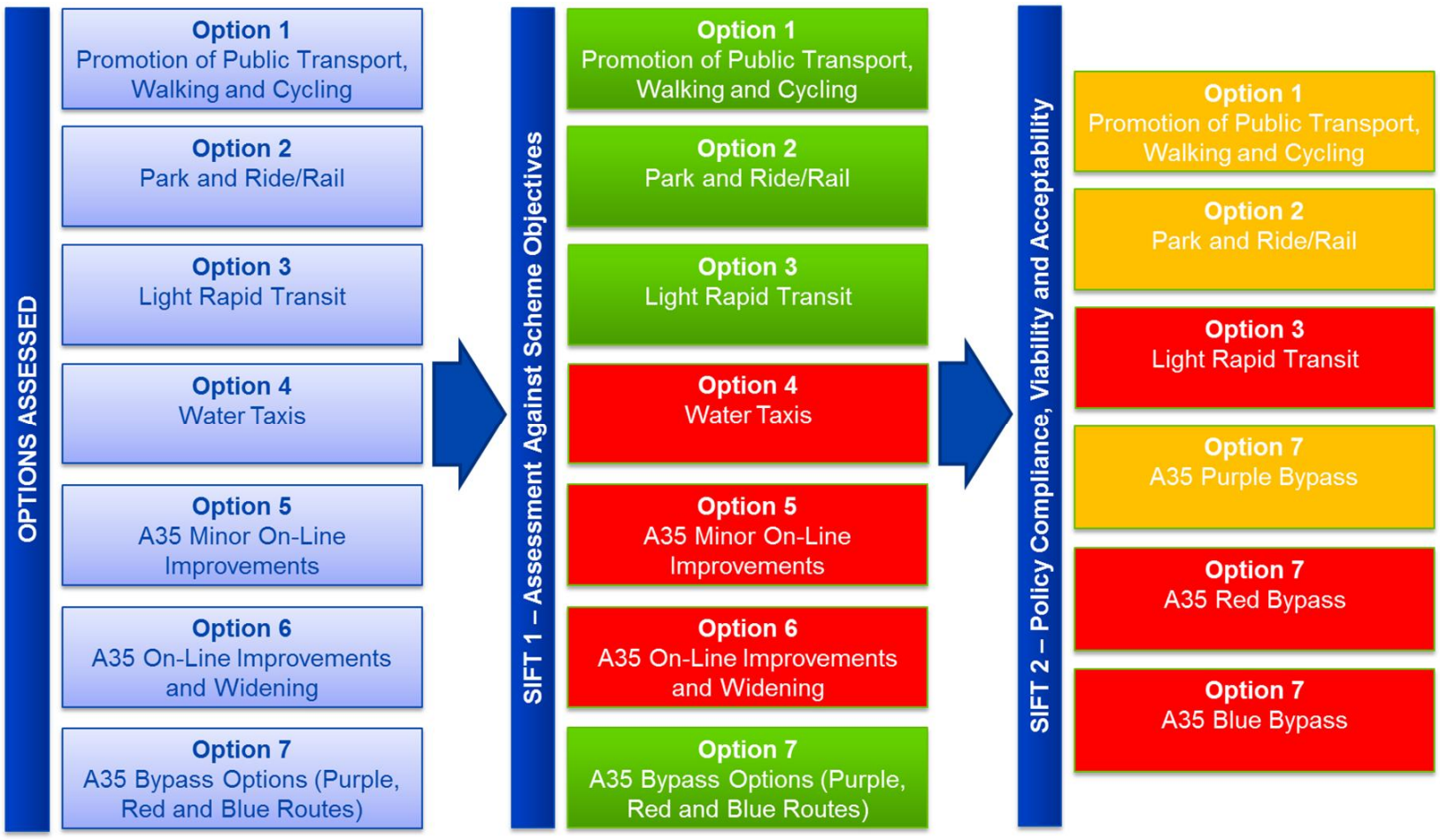
OPTIONS APPRAISAL

Seven options for intervention within the study area have been assessed. The options have been assessed using a two stage sifting process as follows:

- **Sift 1** assesses the options against the scheme objectives, ensuring all scheme objectives are met to some degree.
- **Sift 2** is more detailed and determines whether the options meet the scheme objectives to an acceptable level, comply with existing local/regional/national strategies or policies, and/or pass key viability and acceptability criteria (e.g. in relation to deliverability, affordability or acceptability to stakeholders).

The diagram overleaf summarises the seven options assessed, and the results of the sifting process whereby green indicates acceptability for the next sifting round, red indicates that the option has not passed the acceptability criteria, and amber indicates that the option has passed the acceptability criteria to a level that may warrant further study/investigation.

Figure 7-1 Options Assessment Summary



7.2 CONCLUSION

The OAR did not identify any options which clearly meet the scheme objectives to an acceptable level, comply with local/regional/national strategies or policies, and/or pass key viability and acceptability criteria.

Nonetheless, Options 1 and 2 (Promotion of Public Transport, Walking and Cycling, and consideration of a Park and Ride/Rail) are recommended to be progressed for further consideration/feasibility study, potentially as supplementary options to any preferred option which may arise.

With regard to the bypass schemes, all present significant environmental and flood risk issues, and the Blue Route no longer has readily available land for the route around Christchurch Station due to development in this location since 2003. The Purple route arguably presents fewer environmental constraints than the Red or Blue routes, and the flood impact may be less severe due to the relative distance from large urban areas. However, the initial BCR estimate for the Purple scheme does not indicate that it would present high Value for Money.

7.3 NEXT STEPS

Options 1 and 2 (Promotion of Public Transport, Walking and Cycling, and consideration of a Park and Ride/Rail) are recommended to be progressed for further consideration/feasibility study.

If the bypass schemes are to be progressed any further, it is recommended that study is focussed on the Purple Route over the Blue and Red. The following elements could be explored in further detail:

- Scheme cost, and whether reduction in scheme cost could be achieved through downgrading the proposed bypass route to a single carriageway road with all minor junctions at grade. However, this would be likely to have safety and journey time implications, which may negate any cost reductions.

- Obtaining more accurate demand forecasts and journey time savings on the proposed route and the existing route. This could be examined in further detail using more recent survey data and traffic modelling software; and
- Consultation with stakeholders to better understand the potential to overcome forecast environmental constraints.

Whilst not fully meeting the scheme objectives set out within this report, further consideration of on-line improvements (potentially a combination of Options 5 and 6) may assist to reduce congestion on the A35, unlock potential growth, and improve journey times.

Appendix A

EAST FORMS

Early Assessment and Sifting Tool (EAST) - *Expanded Print View*

Option Name/No.	**Option 3 - Light Rapid Transit**
Date	14/04/2016
Description	A Light Rapid Transit system connecting Christchurch to Hamworthy. The DARTS is proposed as a new Rapid Transit (RT) system running across the conurbation, potentially between terminals at Christchurch and Hamworthy although with operations between intermediate points. DARTS tram-train vehicles would have the capability of running of the existing heavy rail network, but with some on-street running through Bournemouth Town Centre to provide increased penetration of the main retail and business area.

Strategic

Identified problems and objectives	See accompanying OAR.	
Scale of impact	4	This option has the potential to support all scheme objectives to a relatively high level.
Fit with wider transport and government objectives	4	The option supports use of sustainable modes, and has potential to contribute to economic objectives through creating capacity on the transport network (both road and LRT) for growth.
Fit with other objectives	4	As above.
Key uncertainties		
Degree of consensus over outcomes	3	

Economic

Economic growth	**5. Green**	The option would have potential to unlock growth in housing and employment within the route catchment, as well as contributing to improved road capacity as a result of mode shift to LRT.
Carbon emissions	**5. Green**	There is likely to be a reduction in carbon emissions as a result of a mode shift from private car to public transport.
Socio-distributional impacts and the regions	**5. Green**	As above.
Local environment	**4. Amber/green**	As Above.
Well being	**4. Amber/green**	The scheme is unlikely to impact significantly on Well being.
Expected VfM category	3. Medium 1.5-2	SEDMMTS estimated BCR around 1.86.

Managerial

Implementation timetable	6. 5-10 years	Assumes that the scheme would be constructed in stages with the first stage completed within this timeframe.
Public acceptability	Don't know	High costs likley to be a controversial issue.
Practical feasibility	1. Low	Will require significant resources from many different sectors, disciplines, with complex management requirements.
What is the quality of the supporting evidence?	1. Low	There have been limited studies undertaken to support this Option.
Key risks	Highly complex large scale scheme with many risks throughout the project lifecycle. Requires use of Network Rail existing line which is currently in use. Prctical feasibility is currently unclear.	

Financial

Affordability	1. Not affordable	Estimated cost of full scheme is £212m (as stated in SEDMMTS). There may be scope to lower the cost by only completing certain sections e.g. Christchurch to Bournemouth.
Capital Cost (£m)	07. 100-250	Estimated

Revenue Costs (£m)	06. 50-100	Estimated
Cost profile	Relatively evenly spread spend profile.	
Overall cost risk	1.High risk	
Other costs	Potential land costs. Stakeholder costs. CPO costs.	

Commercial

Flexibility of option	3	Possibility to construct in stages.
Where is funding coming from?	Unlikely that the scheme would achieve Government funding for the full amount given the relatively high requirement. Possibility to apply for European funding. Funding would be difficult to achieve.	
Any income generated? (£m)	Yes	Scheme would need to be commercially viable.

Early Assessment and Sifting Tool (EAST) - *Expanded Print View*

Option Name/No.	**Option 7 - Bypass Blue Route**
Date	15/04/2016
Description	The Blue bypass route runs north from Stony Lane Roundabout, before heading west parallel to the A35 along the route of the existing railway line crossing the A35 and the River Stour. The route then heads north alongside (and within the existing valley of) the River Stour. The route crosses the Stour three times, and the A35 at Stour Bridge before joining the A338 via the existing Riverside Avenue. The route is assumed to be new dual carriageway (50mph) with four major junctions, and one bridge structure.

Strategic

Identified problems and objectives	See accompanyin OAR	
Scale of impact	3	This option has the potential to support the majority of scheme objectives to a relatively high level.
Fit with wider transport and government objectives	3	The option has he potential to support bus use through reducing the level of traffic through Christchurch (thereby improving bus journey times), and has potential to contribute to economic objectives through creating capacity on the transport network for growth. However, the route would be partially constructed on the existing railway line, severing existing rail connections and therefore potentially inducing additional car trips on the network as a whole.
Fit with other objectives	3	Although the scheme would have environmental and safety benefits on the A35, and B3073, these would be offset somewhat by a new major road through environmentally sensitive area close to residential communities.
Key uncertainties		
Degree of consensus over outcomes	2	

Economic

Economic growth	**4. Amber/green**	The option would have potential to unlock growth in housing and employment within the route catchment, as well as contributing to increased road capacity on the A35 and B3073 through Christchurch. It would also contribute to improving the attractiveness of Christchurch as a place to live and do business, thereby helping to promote economic growth.
Carbon emissions	**3. Amber**	Traffic would not be removed from the network, only reassigned. Given that this route runs through the centre of Christchurch, the reduction in carbon emissions within the town would be limited, albeit with the potential relief of congestion contributing to lowering carbon emissions.
Socio-distributional impacts and the regions	**5. Green**	A reduction in traffic within Christchurch would have a positive impact. Significant because Christchurch is within the top 20% most deprived areas nationally according to the Index for Multiple Deprivation (IMD).
Local environment	**1. Red**	Although the local environment (air quality, noise issues, severance etc.) would be likely to improve within Christchurch along the A35 and B3073 corridors, the impact of the proposed bypass route on the local environment would be likely to have a significant negative impact due to the environmentally sensitive areas through which the route passes. The route would also have considerable impact on flood risk being built within the river flood plain.

Well being	**4. Amber/green**	The scheme would improve wellbeing for both people living on the A35/B3073, and those who use the existing and proposed road network.
Expected VfM category	1. Very High >4	BCR estimated around 5.2

Managerial

Implementation timetable	6. 5-10 years	Estimated
Public acceptability	2	Likely to be controversial due to environmental impact, and impact on railway line.
Practical feasibility	2	Environmental constraints (including flood risk) will likely impact on feasibility. Use of network rail operating railway line would be unlikely to be achievable.
What is the quality of the supporting evidence?	2	There have been limited recent studies undertaken to support bypass options. Further study would be required (including traffic modelling) to understand the potential demand and impacts.
Key risks	Risks due to the environmental sensitivity, stakeholder and public objection, and land availability.	

Financial

Affordability	3	Cost estimated around £43m
Capital Cost (£m)	05. 25-50	Estimated
Revenue Costs (£m)	03. 5-10	Estimated
Cost profile	Relatively evenly spread cost profile across the construction period.	
Overall cost risk	1.High risk	
Other costs	Potential land costs. Stakeholder costs. CPO costs.	

Commercial

Flexibility of option	1. Static	
Where is funding coming from?	Potential to apply for Growth Deal or Majors funding. However, it is unlikely that the scheme would achieve Government funding for the full amount given the relatively high requirement. Possible to obtain some developer contributions.	
Any income generated? (£m)	No	

Early Assessment and Sifting Tool (EAST) - *Expanded Print View*

Option Name/No.	**Option 7 - Bypass Purple Route**
Date	14/04/2016
Description	The Purple bypass route runs north from Somerford (Sainsbury's) Roundabout (to the east of Christchurch) to pass under the railway line, continuing north and connecting in with the existing Avon Causeway to the A338 east of Hurn. The route is assumed to be new dual carriageway (50mph) with one major junction, two major two-level junctions and ten bridge structures.

Strategic

Identified problems and objectives	See accompanying OAR.	
Scale of impact	4	This option has the potential to support all scheme objectives to a relatively high level.
Fit with wider transport and government objectives	4	The option supports use of sustainable modes through reducing the level of traffic through Christchurch, and has potential to contribute to economic objectives through creating capacity on the transport network for growth.
Fit with other objectives	4	Although the scheme would have environmental and safety benefits on the A35, and B3073, these would be offset somewhat by a new major road through enviornmentally sensitive area.
Key uncertainties		
Degree of consensus over outcomes	3	

Economic

Economic growth	**5. Green**	The option would have potential to unlock growth in housing and employment within the route catchment, as well as contributing to increased road capacity on the A35 and B3073 through Christchurch. It would also contribute to imporving the attractiveness of Christchurch as a place to live and do business, thereby helping to promote economic growth.
Carbon emissions	**4. Amber/green**	Traffic would not be removed from the network, only reassigned. However, there would be a reduction in carbon emmissions on the A35 and B3073 corridors, and the relief of congestion would also contribute to lowering carbon emmissions.
Socio-distributional impacts and the regions	**5. Green**	A reduction in traffic within Christchurch would have a positive impact. Significant because Christchurch is within the top 20% most deprived areas nationally according to the Index for Multiple Deprivation (IMD).
Local environment	**1. Red**	Although the local environment (air quality, noise issues, severance etc.) would be likely to improve within Christchurch along the A35 and B3073 corridors, the impact of the proposed bypass route on the local environment would be likely to have a significant negative impact due to the environmentally sensitive areas through which the route passes.
Well being	**4. Amber/green**	The scheme would improve wellbeing for both people living on the A35/B3073, and those who use the existing and proposed road network.
Expected VfM category	2. High 2-4	BCR estimated around 1.99

Managerial

Implementation timetable	6. 5-10 years	Estimated
Public acceptability	Don't know	Likely to be controversial due to environmental impact.

Practical feasibility	2	Environmental constraints will likely impact on feasibility.
What is the quality of the supporting evidence?	2	There have been limited recent studies undertaken to support bypass options. Further study would be required (including traffic modelling) to understand the potential demand and impacts.
Key risks	Risks due to the environmental sensitivity, stakeholder and public objection, and land availability.	

Financial

Affordability	2	Relatively high cost.
Capital Cost (£m)	06. 50-100	Estimated
Revenue Costs (£m)	04. 10-25	Estimated
Cost profile	Relatively evenly spread cost profile across the construction period.	
Overall cost risk	1.High risk	
Other costs	Potential land costs. Stakeholder costs. CPO costs.	

Commercial

Flexibility of option	1. Static	
Where is funding coming from?	Potential to apply for Growth Deal or Majors funding. However, it is unlikely that the scheme would achieve Government funding for the full amount given the relatively high requirement. Possible to obtain some developer contributions. Funding would be difficult to achieve.	
Any income generated? (£m)	No	

Early Assessment and Sifting Tool (EAST) - *Expanded Print View*

Option Name/No.	**Option 7 - Bypass Red Route**
Date	14/04/2016
Description	The Red bypass route runs north from Stony Lane roundabout crossing the Avon river, and joining the A338 southeast of Hurn at the location of the existing Avon Causeway junction. The route is assumed to be new dual carriageway (50mph) with one major junction, one major two-level junction and one bridge structure.

Strategic

Identified problems and objectives	See Accompanying OAR.	
Scale of impact	4	This option has the potential to support all scheme objectives to a relatively high level.
Fit with wider transport and government objectives	4	The option supports use of sustainable modes through reducing the level of traffic through Christchurch, and has potential to contribute to economic objectives through creating capacity on the transport network for growth.
Fit with other objectives	4	Although the scheme would have environmental and safety benefits on the A35, and B3073, these would be offset somewhat by a new major road through enviornmentally sensitive area.
Key uncertainties		
Degree of consensus over outcomes	3	

Economic

Economic growth	**5. Green**	The option would have potential to unlock growth in housing and employment within the route catchment, as well as contributing to increased road capacity on the A35 and B3073 through Christchurch. It would also contribute to improving the attractiveness of Christchurch as a place to live and do business, thereby helping to promote economic growth.
Carbon emissions	**4. Amber/green**	Traffic would not be removed from the network, only reassigned. However, there may be a reduction in carbon emissions on the A35 and B3073 corridors, and the relief of congestion may also contribute to lowering carbon emissions. However, this may be offset by increased distance on the by-pass.
Socio-distributional impacts and the regions	**5. Green**	A reduction in traffic within Christchurch would have a positive impact. Significant because Christchurch is within the top 20% most deprived areas nationally according to the Index for Multiple Deprivation (IMD).
Local environment	**1. Red**	Although the local environment (air quality, noise issues, severance etc.) would be likely to improve within Christchurch along the A35 and B3073 corridors, the impact of the proposed bypass route on the local environment would be likely to have a significant negative impact due to the environmentally sensitive areas through which the route passes.
Well being	**4. Amber/green**	The scheme would improve wellbeing for both people living on the A35/B3073, and those who use the existing and proposed road network.
Expected VfM category	1. Very High >4	BCR estimated around 5.9

Managerial

Implementation timetable	6. 5-10 years	Estimated
Public acceptability	Don't know	Likely to be controversial due to environmental impact.
Practical feasibility	2	Environmental constraints will likely impact on feasibility.

What is the quality of the supporting evidence?	2	There have been limited recent studies undertaken to support bypass options. Further study would be required (including traffic modelling) to understand the potential demand and impacts.
Key risks	Risks due to the environmental sensitivity, stakeholder and public objection, and land availability.	

Financial

Affordability	3	Cost estimated around £38m
Capital Cost (£m)	05. 25-50	Estimated
Revenue Costs (£m)	03. 5-10	Estimated
Cost profile	Relatively evenly spread cost profile across the construction period.	
Overall cost risk	1.High risk	
Other costs	Potential land costs. Stakeholder costs. CPO costs.	

Commercial

Flexibility of option	1. Static	
Where is funding coming from?	Potential to apply for Growth Deal or Majors funding. However, it is unlikely that the scheme would achieve Government funding for the full amount given the relatively high requirement. Possible to obtain some developer contributions.	
Any income generated? (£m)	No	

Early Assessment and Sifting Tool (EAST) - *Expanded Print View*

Option Name/No.	**Option 1 - PT, Walk and Cycle**
Date	14/04/2016
Description	Improvements to walk and cycle facilities along the A35 Corridor, The B3073 (towards Bournemouth Airport) and within Christchurch. Development of the A35 Quality Bus Corridor (improving bus facilities, journey times and reliability), and promoting rail usages/improving frequency.

Strategic

Identified problems and objectives	See accompanying OAR.	
Scale of impact	2	Although this option would support objectives to promote public transport, walking and cycling, the dominance of the car would continue, with around 85% of peak hour journeys on the highway network being made by car. This would be unlikely to have a significant impact on other economic objectives of the scheme.
Fit with wider transport and government objectives	3	Although this option would support objectives to promote public transport, walking and cycling, other economic objectives of the scheme are unlikely to be met.
Fit with other objectives	3	As above.
Key uncertainties	It is not clear how much of a shift to public transport would occur as a result of the measure proposed within this option. The recent Three Towns project (similar to the measures proposed in this option) has received considerable investment over the last five years, yet the congestion/capacity issues along the A35 and B3073 remain. There is therefore a risk that this scheme would not significantly impact on the scheme or strategic objectives.	
Degree of consensus over outcomes	2	See key uncertainties above.

Economic

Economic growth	**3. Amber**	Whilst public transport forms an important solution in unlocking economic growth potential, the scheme is unlikely to impact significantly on vehicle journey times or congestion along the route. Economic growth would therefore remain constrained by these issues. In particular, businesses which depend on the road network and good connectivity would be unlikely to benefit from this scheme.
Carbon emissions	**4. Amber/green**	There may be a slight reduction in carbon emissions as a result of a mode shift from private car to public transport.
Socio-distributional impacts and the regions	**4. Amber/green**	As above.
Local environment	**4. Amber/green**	As Above.
Well being	**3. Amber**	The scheme is unlikely to impact significantly on Well being.
Expected VfM category	Unknown	Dependent on the particular scheme. Benefits are likely.

Managerial

Implementation timetable	4. 1-2 years	
Public acceptability	2	Given that similar recent schemes have been implemented, but that issues on the A35 and B3073 remain, it is unlikely that the public will view this option as meeting the scheme objectives.
Practical feasibility	4	Relatively simple schemes to design and implement, and very scalable, providing sufficient funding is available.
What is the quality of the supporting evidence?	3	There is evidence of the effectiveness of this type of measure from previous similar schemes such as the Three Towns Scheme monitoring reports.

Key risks	Similar past schemes have proved controversial amongs key stakeholders and the general public as to their effectiveness.	

Financial

Affordability	4	Scalable, and most measures would be relatively low cost.
Capital Cost (£m)	02. 0-5	Estimated
Revenue Costs (£m)	02. 0-5	Estimated
Cost profile	Flexible spend profile, potentially with even spend throughout the project.	
Overall cost risk	4	
Other costs	Potential land costs depending on the scheme.	

Commercial

Flexibility of option	5. Dynamic	
Where is funding coming from?	Potential to source from Government sustainable transport funds (if available) and developer contributions. However, the Three Towns Project has been unsuccessful in recent bids for funding.	
Any income generated? (£m)	Yes	Public Transport Operators would generate increased income.

Early Assessment and Sifting Tool (EAST) - *Expanded Print View*

Option Name/No.	**Option 2 - Park and Ride Rail**
Date	14/04/2016
Description	A Park and Rail site at Hinton Admiral, or a new rail halt/Park and Rail/Ride site to link to Christchurch Urban Extension.

Strategic

Identified problems and objectives	See accompanying OAR.	
Scale of impact	2	Although this option would support objectives to promote public transport, walking and cycling, it would only be expected to reduce traffic on the A35 by up to around 10% (subject to further recommended feasibility study). This would therefore be unlikely to impact significantly on most of the scheme objectives.
Fit with wider transport and government objectives	3	This option would support objectives to promote public transport, walking and cycling. However, many of the other acheme objectives of the scheme are unlikely to be impacted significantly by this option.
Fit with other objectives	3	As above.
Key uncertainties	It is not clear how much of a shift to public transport would occur as a result of the measure proposed within this option. Further study is recommended.	
Degree of consensus over outcomes	2	See key uncertainties above.

Economic

Economic growth	**3. Amber**	Whilst public transport forms an important solution in unlocking economic growth potential, and the potential to link a Park and Rail site to the proposed Christchurch Urban Extension is a good opportunity to promote growth in this location, the scheme is unlikely to impact significantly on vehicle journey times or congestion along the route. Economic growth on the whole would therefore remain constrained by these issues. In particular, businesses which depend on the road network and good connectivity would be unlikely to benefit significantly from this scheme.
Carbon emissions	**4. Amber/green**	There may be a slight reduction in carbon emissions as a result of a mode shift from private car to public transport.
Socio-distributional impacts and the regions	**4. Amber/green**	As above.
Local environment	**4. Amber/green**	As Above.
Well being	**3. Amber**	The scheme is unlikely to impact significantly on Well being.
Expected VfM category	3. Medium 1.5-2	Dependent on the particular scheme. Further feasibility study is recommended.

Managerial

Implementation timetable	5. 2-5 years	
Public acceptability	2	Given that similar promotion of public transport has yet to relieve existing congestion and capacity constraints on the A35 and B3073, it is unlikely that the public will view this option as meeting the scheme objectives.
Practical feasibility	3	Relatively simple scheme to design and implement.
What is the quality of the supporting evidence?	3	There are other successful examples of Park and Ride (or Park and Rail) within Dorset and within neighbouring counties which have proved successful in helping to relieve congestion on key commuter routes.

Key risks	The demand for a Park and Rail scheme would depend on many factors such as user cost, rail frequency, availability and cost of parking at the destination point. Some Park and Ride schemes have struggled to operate feasibly without subsidy from local Government. It is recommended that a detailed feasibility study is undertaken before the implementation of such a scheme.

Financial

Affordability	3	Relatively low capital cost assuming no subsidies were required.
Capital Cost (£m)	02. 0-5	Estimated for an existing Park and Ride at Hinton Admiral, although a new station is likely to cost more (closer to £10m).
Revenue Costs (£m)	02. 0-5	Estimated
Cost profile	Relatively front loaded.	
Overall cost risk	4	
Other costs	Potential land costs depending on the scheme.	

Commercial

Flexibility of option	2	
Where is funding coming from?	Potential to source from Government sustainable transport funds (if available), Government Growth Funds (such as the Growth Deal) and developer contributions.	
Any income generated? (£m)	Yes	The scheme would need to be commercially viable for the operators.

Appendix B

BYPASS JOURNEY TIME BENEFITS (PAR FORMS)

ECONOMICS WORKSHEET (Foundation PAR)

Project Title: Christchurch Bypass Purple Route

Project Stage: Conception Date: 29/03/2016

PART A: JOURNEY-TIME VARIABILITY (RELIABILITY) (ALL TRIP PURPOSES COMBINED)

○ Monetised
◉ Unmonetised

Congestion Relief (PCUs / wk): inc **More Information**

"DDV Assessed Impact: Neutral

"IRV Assessed Impact: Neutral

PART B: JOURNEY TIMES (ALL TRIP PURPOSES COMBINED)

(N.B. Enter data for all periods where the project will significantly affect journey times.)

	AM Peak Weekday	PM Peak Weekday	Inter-Peak Weekday	Nights 19:00 - 07:00	Sat 07:00 - 19:00	Sun 07:00 - 19:00
Average hourly flow in period:	1189 vehs	1151 vehs	1056 vehs	194 vehs	902	661
Time saved / veh in period:	8 mins	5.5 mins	3.5 mins	1.5 mins	4	3
Hrs / day when savings occur:	3 hrs	3 hrs	6 hrs	12 hrs	12	12

Assessed days per year: (c) 364 days

Average flow per day which receives a journey-time benefit: (d) 14,547 vehs

Average journey-time benefit per vehicle per day: (e) 4.32 mins

Total time saved in opening year: (c) × (d) × (e) ÷ 60 = (f) 381,380 hrs

Unit time value in opening year (in 2010 prices): (g) 1,625 p/veh per hour Opening Year: 2022

Total value of journey-time benefits in opening year: (f) × (g) = (h) 6,197,420 £/year, or (h) N/A £ per year

Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Capitalisation Factor from Table C.8: (i)		
Rural Dual AP	60	4%		41.039	
Journey-Time benefits over Assessment Period discounted to Opening Year: (h) x (i) = (j)				**254,338,651**	**£ in 2010 prices**
Opening Year:	2022	Discount factor from Opening Year to 2010 from Table C.3a: (k)		0.662	
Journey-Time benefits over Assessment Period discounted to 2010: (j) x (k) = (l)				**168,317,072**	**£ in 2010 market prices discounted to 2010**

PART C: ACCIDENTS

Predicted number of Personal Injury Accidents saved in Opening Year: 0
(If the scheme results in a predicted increase in accident rates, enter as a NEGATIVE value).

Time of day of accident savings: All Day
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of accidents saved in Opening Year: (m)				0	accidents
Opening Year	Road Type	Time of Day	Average cost of accident in Opening Year: (n)	115,134	£ / year
2022	Rural Dual AP	All Day			
Annual accident benefit in Opening Year: (m) × (n) = (o)				**0**	**£ / year**
Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Accident benefits Capitalisation Factor from Table C.5: (p)	38.430	
Rural Dual AP	60	4%			
Accident benefits over Assessment Period discounted to Opening Year: (o) × (p) = (q)				**0**	**£ in 2010 prices**
Opening Year:	2022	Discount factor from Opening Year to 2010 from Table C.3a: (r)		0.662	
Accident benefits over Assessment Period discounted to 2010: (q) × (r) = (s)				**0**	**£ in 2010 market prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Accident numbers Capitalisation Factor from Table C.5: (t)	55.370	
Rural Dual AP	60	4%			
Number of accidents saved over Assessment Period: (m) × (t) = (u)				**0**	**accidents**

ECONOMICS WORKSHEET (Foundation PAR)

Project Title: Christchurch Bypass Red Route

Project Stage: Conception Date: 29/03/2016

PART A: JOURNEY-TIME VARIABILITY (RELIABILITY) (ALL TRIP PURPOSES COMBINED)

○ Monetised
◉ Unmonetised

Congestion Relief (PCUs / wk): inc More Information

"DDV Assessed Impact: Neutral

"IRV Assessed Impact: Neutral

PART B: JOURNEY TIMES (ALL TRIP PURPOSES COMBINED)

(N.B. Enter data for all periods where the project will significantly affect journey times.)

	AM Peak Weekday	PM Peak Weekday	Inter-Peak Weekday	Nights 19:00 - 07:00	Sat 07:00 - 19:00	Sun 07:00 - 19:00
Average hourly flow in period:	1189 vehs	1151 vehs	1056 vehs	194 vehs	902	661
Time saved / veh in period:	9.3 mins	7.3 mins	4.8 mins	4.8 mins	5.8	5.1
Hrs / day when savings occur:	3 hrs	3 hrs	6 hrs	12 hrs	12	12

Assessed days per year: (c) 364 days

Average flow per day which receives a journey-time benefit: (d) 14,547 vehs

Average journey-time benefit per vehicle per day: (e) 6.14 mins

Total time saved in opening year: (c) × (d) × (e) ÷ 60 = (f) 542,028 hrs

Unit time value in opening year (in 2010 prices): (g) 1,625 p/veh per hour Opening Year: 2022

Total value of journey-time benefits in opening year: (f) × (g) = (h) 8,807,959 £/year, or (h) N/A £ per year

Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Capitalisation Factor from Table C.8: (i)		
Rural Dual AP	60	4%		41.039	
Journey-Time benefits over Assessment Period discounted to Opening Year: (h) x (i) = (j)				**361,473,701**	**£ in 2010 prices**
Opening Year:	2022	Discount factor from Opening Year to 2010 from Table C.3a: (k)		0.662	
Journey-Time benefits over Assessment Period discounted to 2010: (j) x (k) = (l)				**239,217,258**	**£ in 2010 market prices discounted to 2010**

PART C: ACCIDENTS

Predicted number of Personal Injury Accidents saved in Opening Year: 0
(If the scheme results in a predicted increase in accident rates, enter as a NEGATIVE value).

Time of day of accident savings: All Day
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of accidents saved in Opening Year: (m)				0	accidents
Opening Year	Road Type	Time of Day	Average cost of accident in Opening Year: (n)	115,134	£ / year
2022	Rural Dual AP	All Day			
Annual accident benefit in Opening Year: (m) × (n) = (o)				**0**	**£ / year**
Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Accident benefits Capitalisation Factor from Table C.5: (p)	38.430	
Rural Dual AP	60	4%			
Accident benefits over Assessment Period discounted to Opening Year: (o) × (p) = (q)				**0**	**£ in 2010 prices**
Opening Year:	2022	Discount factor from Opening Year to 2010 from Table C.3a: (r)		0.662	
Accident benefits over Assessment Period discounted to 2010: (q) × (r) = (s)				**0**	**£ in 2010 market prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Accident numbers Capitalisation Factor from Table C.5: (t)	55.370	
Rural Dual AP	60	4%			
Number of accidents saved over Assessment Period: (m) × (t) = (u)				**0**	**accidents**

ECONOMICS WORKSHEET (Foundation PAR)

Project Title: Christchurch Bypass Blue Route

Project Stage: Conception Date: 29/03/2016

PART A: JOURNEY-TIME VARIABILITY (RELIABILITY) (ALL TRIP PURPOSES COMBINED)

○ Monetised
◉ Unmonetised

Congestion Relief (PCUs / wk): inc More Information

"DDV Assessed Impact: Neutral

"IRV Assessed Impact: Neutral

PART B: JOURNEY TIMES (ALL TRIP PURPOSES COMBINED)

(N.B. Enter data for all periods where the project will significantly affect journey times.)

	AM Peak Weekday	PM Peak Weekday	Inter-Peak Weekday	Nights 19:00 - 07:00	Sat 07:00 - 19:00	Sun 07:00 - 19:00
Average hourly flow in period:	1189 vehs	1151 vehs	1056 vehs	194 vehs	902	661
Time saved / veh in period:	9.5 mins	6 mins	6 mins	4 mins	6	6
Hrs / day when savings occur:	3 hrs	3 hrs	6 hrs	12 hrs	12	12

Assessed days per year: (c) 364 days

Average flow per day which receives a journey-time benefit: (d) 14,547 vehs

Average journey-time benefit per vehicle per day: (e) 6.29 mins

Total time saved in opening year: (c) × (d) × (e) ÷ 60 = (f) 555,380 hrs

Unit time value in opening year (in 2010 prices): (g) 1,625 p/veh per hour Opening Year: 2022

Total value of journey-time benefits in opening year: (f) × (g) = (h) 9,024,917 £/year, or (h) N/A £ per year

Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Capitalisation Factor from Table C.8: (i)		
Rural Dual AP	60	4%		41.039	
Journey-Time benefits over Assessment Period discounted to Opening Year: (h) x (i) = (j)				**370,377,535**	**£ in 2010 prices**
Opening Year:	2022	Discount factor from Opening Year to 2010 from Table C.3a: (k)		0.662	
Journey-Time benefits over Assessment Period discounted to 2010: (j) x (k) = (l)				**245,109,666**	**£ in 2010 market prices discounted to 2010**

PART C: ACCIDENTS

Predicted number of Personal Injury Accidents saved in Opening Year: 0
(If the scheme results in a predicted increase in accident rates, enter as a NEGATIVE value).

Time of day of accident savings: All Day
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of accidents saved in Opening Year: (m)				0	accidents
Opening Year	Road Type	Time of Day	Average cost of accident in Opening Year: (n)	115,134	£ / year
2022	Rural Dual AP	All Day			
Annual accident benefit in Opening Year: (m) × (n) = (o)				**0**	**£ / year**
Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Accident benefits Capitalisation Factor from Table C.5: (p)	38.430	
Rural Dual AP	60	4%			
Accident benefits over Assessment Period discounted to Opening Year: (o) × (p) = (q)				**0**	**£ in 2010 prices**
Opening Year:	2022	Discount factor from Opening Year to 2010 from Table C.3a: (r)		0.662	
Accident benefits over Assessment Period discounted to 2010: (q) × (r) = (s)				**0**	**£ in 2010 market prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic growth over Assessment Period	Accident numbers Capitalisation Factor from Table C.5: (t)	55.370	
Rural Dual AP	60	4%			
Number of accidents saved over Assessment Period: (m) × (t) = (u)				**0**	**accidents**

Appendix C

BY-PASS SCHEME JOURNEY TIME ASSUMPTIONS

ESTIMATED JOURNEY TIMES
(Results shown in minutes)

Purple Bypass

	Length (m)	Speed Limi	Speed Limi	Speed Limit (m/s)
** Existing route via Fairmile Road **	10000	50	80	22

Westbound:

	Existing (Google)	Existing (mins)	Bypass	Saving
AM	14-24 mins	20	7.5	12.5
IP	10-14 mins	12	7.5	4.5
PM	12-20 mins	16	7.5	8.5
Night	10 mins	10	7.5	2.5
Sat Midday	10-16 mins	13	7.5	5.5
Sun Midday	10-12 mins	11	7.5	3.5

Eastbound:

	Existing (Google)	Existing	Bypass	Saving
AM	10-16 mins	13	7.5	5.5
IP	12 mins	12	7.5	4.5
PM	12 mins	12	7.5	4.5
Night	10 mins	10	7.5	2.5
Sat Midday	10-14 mins	12	7.5	4.5
Sun Midday	10-14 mins	12	7.5	4.5

Average Journey Time Saving (excluding junction delay)	Total Bypass Junction Delay	Average Journey Time Saving (including junction delay)
9.0	1	8.0
4.5	1	3.5
6.5	1	5.5
2.5	1	1.5
5.0	1	4.0
4.0	1	3.0

Red Bypass

	Length (m)	Speed Limi	Speed Limi	Speed Limit (m/s)
** Existing route via Fairmile Road **	5400	50	80	22

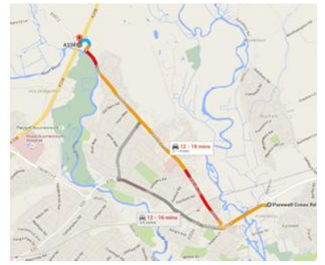
Westbound:

	Existing (Google)	Existing	Bypass	Saving
AM	12-18 mins	15	4.0	11.0
IP	8-10 mins	9	4.0	5.0
PM	12 mins	12	4.0	8.0
Night	9 mins	9	4.0	5.0
Sat Midday	9-12 mins	10.5	4.0	6.5
Sun Midday	8-10 mins	9	4.0	5.0

Eastbound:

	Existing (Google)	Existing	Bypass	Saving
AM	10-16 mins	13	4.0	9.0
IP	10 mins	10	4.0	6.0
PM	12 mins	12	4.0	8.0
Night	10 mins	10	4.0	6.0
Sat Midday	9-12 mins	10.5	4.0	6.5
Sun Midday	9-12 mins	10.5	4.0	6.5

Average Journey Time Saving (excluding junction delay)	Total Bypass Junction Delay	Average Journey Time Saving (including junction delay)
10.0	0.67	9.3
5.5	0.67	4.8
8.0	0.67	7.3
5.5	0.67	4.8
6.5	0.67	5.8
5.7	0.67	5.1



Blue Bypass

	Length (m)	Speed Limi	Speed Limi	Speed Limit (m/s)
** Existing route via Castle Lane East **	4600	40	64	18

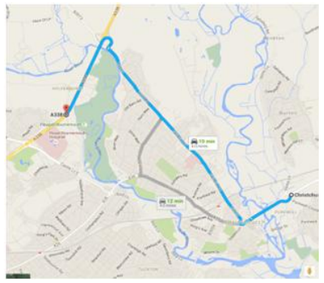
Westbound:

	Existing (Google)	Existing	Bypass	Saving
AM	12-20 mins	16	4.3	11.7
IP	12 mins	12	4.3	7.7
PM	10-14 mins	12	4.3	7.7
Night	10 mins	10	4.3	5.7
Sat Midday	10-14 mins	12	4.3	7.7
Sun Midday	12 mins	12	4.3	7.7

Eastbound:

	Existing (Google)	Existing	Bypass	Saving
AM	12-18 mins	15	4.3	10.7
IP	12 mins	12	4.3	7.7
PM	10-14 mins	12	4.3	7.7
Night	10 mins	10	4.3	5.7
Sat Midday	10-14 mins	12	4.3	7.7
Sun Midday	10-14 mins	12	4.3	7.7

Average Journey Time Saving (excluding junction delay)	Total Bypass Junction Delay	Average Journey Time Saving (including junction delay)
11.2	1.67	9.5
7.7	1.67	6.0
7.7	1.67	6.0
5.7	1.67	4.0
7.7	1.67	6.0
7.7	1.67	6.0



Appendix D

BY-PASS SCHEME COST ASSUMPTIONS

Cost Element	Scheme Cost (£m)			
	Green	Blue	Red	Purple
Construction	£ 22.0	£ 30.0	£ 25.5	£ 56.5
Land/Part 1 Claims/Property	£ 1.8	£ 2.3	£ 2.3	£ 3.5
Preparation	£ 2.8	£ 3.8	£ 3.2	£ 7.1
Supervision	£ 1.1	£ 1.5	£ 1.3	£ 2.8
TOTALS	£ 27.6	£ 37.5	£ 32.2	£ 69.9

Maintenance (capital cost of maintenance)	£ 4.4	£ 5.6	£ 5.6	£ 8.8

TOTAL BASE COST	£ 32.0	£ 43.1	£ 37.8	£ 78.6

The estimates have been based on the following general assumptions.

Quantities are based on the information provided in '1993 consultation alternative routes ApII Copy.pdf'

Costs have been estimated in present day prices (as at January 2016).

Green route: widening to existing dual carriageway with major widening at junctions. Approx 3.5 km with 4 major junctions, 1 major 2 level junction and 1 bridge structure
Blue route: new dual carriageway. Approx 4.5 km with 4 major junctions, 0 major 2 level junction and 1 bridge structure
Red route: new dual carriageway. Approx 4.5 km with 1 major junction, 1 major 2 level junction and 1 bridge structure
Purple route: new dual carriageway. Approx 7.0 km with 1 major junction, 2 major 2 level junction2 and 10 bridge structures

Land cost assumed at £250 k per ha
Allowance for Preparation @ 12.5%
Allowance for Supervision @ 5%
Allowance for capital cost of maintenance @ £31 k per lane km

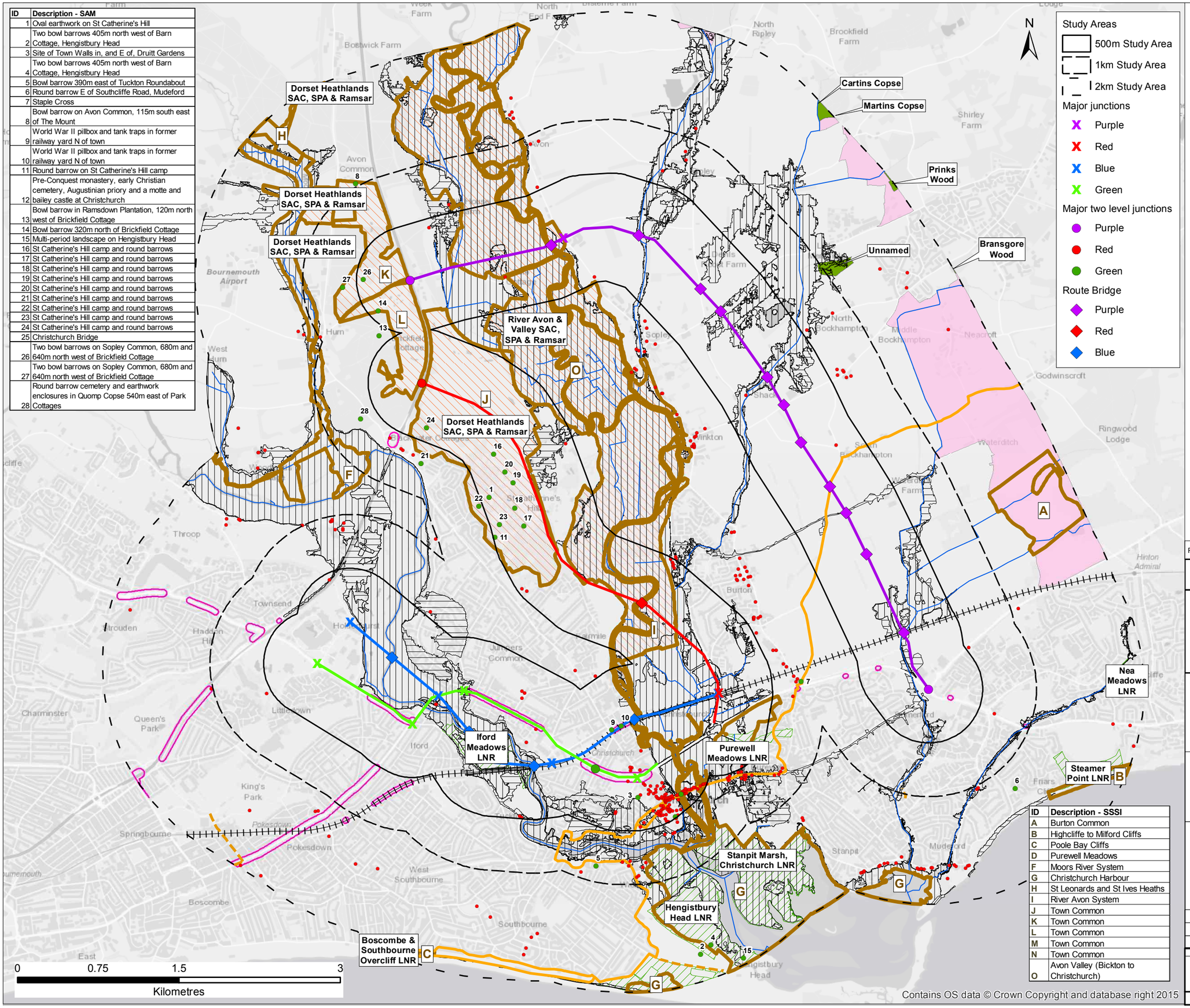
Costs above do not include Optimism Bias.

Appendix E

BY-PASS SCHEME ENVIRONMENTAL CONSTRAINTS AND MAP

Purple Route Environmental Impact	Red Route Environmental Impact	Blue Route Environmental Impact
There are no listed buildings located along the proposed Purple route, however there are 5 within 500m of the route, and approximately 51 listed buildings located within 1km of the route. There are two Scheduled Ancient Monuments within 500m of the proposed Purple route, and a further three more located within 1km of the route. Four of these are in close proximity to the proposed major junction with the A338. There is one designated Ancient Woodland (Unnamed) located 1km east of the proposed bridge crossing Derritt Lane. The length of the route falls within the Bournemouth Greenbelt. There are no Local Nature Reserves within 1km of the route. The New Forest National Park is located just over 1km to the East of the proposed route. There are 4 Sites of Special Scientific Interest (SSSI) within 500m of the proposed route; Avon Valley (Bickton to Christchurch), River Avon System, and Town Common (2 sites). The Avon Valley and River Avon System SSSI's cross the northern section of the proposed route. Both the River Avon & Valley and Dorset Heathlands Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar Sites are within 500m of the proposed Purple route. Approximately 1km of the proposed route falls within the River Avon & Valley SAC, SPA & Ramsar, and both a bridge and major junction (with Ringwood Rd) falls within this designated area. The major level junction where the proposed route joins the A338 would likely impact the Dorset Heathlands SAC, SPA & Ramsar site which sites adjacent to the A338. The Avon Valley is a designated Environmentally Sensitive Area (Natural England) and is also a designated Wetland of International Importance, along with four other sites within the Dorset Heathlands. The proposed route falls within two designated Natural Areas, and Landscape Character Areas, the New Forest and Dorset Heaths. There are five points along the proposed route that fall within a Floodzone 3, and two points that fall within a Floodzone 2. *What is the overall impact on the natural and urban environment?* <u>Negative</u> *If negative then… What is the value of the environment affected?* <u>High</u> Proposed route runs directly through a SSSI, SAC, SPA and Ramsar site and would involve the construction of a bridge and major junction within this designated area.	There are no listed buildings located along the proposed Red route; however there are 4 within 500m of the route, and 147 listed buildings with 1km of the route. There are 10 Scheduled Ancient Monuments within 500m of the proposed Red route, and a further 8 more located within 1km of the route. The full length of the route falls within the Bournemouth Greenbelt. There is one Local Nature Reserve within 500m of the proposed route (Purewell Meadows), with a further one located within 1km of the route (Stanpit March, Christchurch). Both are located to the South of the proposed major junction with the B3347. Purewell Meadows is located in close proximity to the Christchurch By Pass roundabout, while the Stanpit Marsh is further south. The proposed route runs through three SSSI's (Town Common, River Avon System, and the Avon Valley (Bickton to Christchurch)), with a fourth adjacent to the proposed major junction at the A338. Approximately 2km of the route falls within the Town Common SSSI, and 1km falls within the Avon Valley SSSI. A bridge along the route is proposed to cross the River Avon. The route runs through both the River Avon & Valley and Dorset Heathlands Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar Site. Of the approximate 4.5km length of the proposed route, only approximately 1km does not fall within one of these designated areas. The Avon Valley is a designated Environmentally Sensitive Area and approximately 2km of the length of the route falls within this area, including the major junction with the B3347. The Avon Valley and Dorset Heathlands are also listed Wetlands of International Importance. The proposed route falls within two designated Natural Areas, and Landscape Character Areas; the New Forest and Dorset Heaths. Approximately 2km of the southern end of the proposed route falls within a Floodzone 3, including the major junction with the B3347. *What is the overall impact on the natural and urban environment?* <u>Negative</u> *If negative then… What is the value of the environment affected?* <u>High</u> Majority of route falls within a designated SAC, SPA, Ramsar site, with a number of Scheduled Ancient Monuments in close proximity, and approximately half of the route falls within a Floodzone 3.	There are 164 listed buildings within 1km of the proposed route. Two fall along the proposed route, in close proximity to the proposed major junction with the A35 (Iford Bridge and Ilford Bridge and Causeway, both Grade II). There are five Scheduled Ancient Monuments located within 500m of the route, two of which are located on the proposed route (World War II pillbox and tank traps in former railway yard). There are a further 2 SAM located within 1km of the proposed route. The majority of the route falls within the Bournemouth Greenbelt including three of the four major junctions and all bridges. There are two Local Nature Reserves located within 500m of the proposed route; Iford Meadows and Purewell Meadows. Approximately 700m of the proposed route runs through the Iford Meadows LNR. There are a further two LNR located within 1km of the route; Stanpit Marsh and Hengistbury Head. There are two SSSI that cross the route (River Avon System and Avon Valley) and an additional one located within 1km of the route (Christchurch Harbour). The River Avon & Valley SAC, SPA and Ramsar site crossed the proposed route, and is the only SAC, SPA and Ramsar designated site within 1km of the route. Approximately 900m of the route, including a bridge and the major junction with the A3347, falls within the Avon Valley Environmentally Sensitive Site. The Avon Valley is a listed wetland of international importance and crosses the proposed route (under a bridge). The proposed route falls within two designated Natural Areas, and Landscape Character Areas; the New Forest and Dorset Heaths. Of the approximate 4km length of the proposed route, only approximately 1km does not fall within a Floodzone 3. *What is the overall impact on the natural and urban environment?* <u>Negative</u> *If negative then… What is the value of the environment affected?* <u>High</u> A portion of the route falls within a Local Nature Reserve and the majority of the route is sited within a Floodzone 3.

ID	Description - SAM
1	Oval earthwork on St Catherine's Hill
2	Two bowl barrows 405m north west of Barn Cottage, Hengistbury Head
3	Site of Town Walls in, and E of, Druitt Gardens
4	Two bowl barrows 405m north west of Barn Cottage, Hengistbury Head
5	Bowl barrow 390m east of Tuckton Roundabout
6	Round barrow E of Southcliffe Road, Mudeford
7	Staple Cross
8	Bowl barrow on Avon Common, 115m south east of The Mount
9	World War II pillbox and tank traps in former railway yard N of town
10	World War II pillbox and tank traps in former railway yard N of town
11	Round barrow on St Catherine's Hill camp
12	Pre-Conquest monastery, early Christian cemetery, Augustinian priory and a motte and bailey castle at Christchurch
13	Bowl barrow in Ramsdown Plantation, 120m north west of Brickfield Cottage
14	Bowl barrow 320m north of Brickfield Cottage
15	Multi-period landscape on Hengistbury Head
16	St Catherine's Hill camp and round barrows
17	St Catherine's Hill camp and round barrows
18	St Catherine's Hill camp and round barrows
19	St Catherine's Hill camp and round barrows
20	St Catherine's Hill camp and round barrows
21	St Catherine's Hill camp and round barrows
22	St Catherine's Hill camp and round barrows
23	St Catherine's Hill camp and round barrows
24	St Catherine's Hill camp and round barrows
25	Christchurch Bridge
26	Two bowl barrows on Sopley Common, 680m and 640m north west of Brickfield Cottage
27	Two bowl barrows on Sopley Common, 680m and 640m north west of Brickfield Cottage
28	Round barrow cemetery and earthwork enclosures in Quomp Copse 540m east of Park Cottages



Study Areas
- 500m Study Area
- 1km Study Area
- 2km Study Area

Major junctions
- Purple
- Red
- Blue
- Green

Major two level junctions
- Purple
- Red
- Green

Route Bridge
- Purple
- Red
- Blue

Proposed route
- Purple Route
- Red Route
- Blue Route
- Green Route
- National Cycle Route
- NCN Link
- Rail
- Noise Important Areas
- Ancient Woodland
- Scheduled Ancient Monument - SAM
- Listed Buildings
- Special Protection Area (SPA) Special Area of Conservation (SAC) Ramsar
- Site of Special Scientific Interest
- New Forest National Park
- Local Nature Reserve
- Watercourses
- Floodzone 3
- Floodzone 2

ID	Description - SSSI
A	Burton Common
B	Highcliffe to Milford Cliffs
C	Poole Bay Cliffs
D	Purewell Meadows
F	Moors River System
G	Christchurch Harbour
H	St Leonards and St Ives Heaths
I	River Avon System
J	Town Common
K	Town Common
L	Town Common
M	Town Common
N	Town Common
O	Avon Valley (Bickton to Christchurch)

Rev	Date	Description	By	Chk	App

WSP | PARSONS BRINCKERHOFF
Kings Orchard,
1 Queen Street, Bristol
BS2 0HQ
Tel: 44-(0)117-930-6200

Client: Dorset County Council

Site/Project: CHRISTCHURCH RELIEF ROAD

Title: ENVIRONMENTAL CONSTRAINTS MAP

Drawn: JSdS		Checked: AA	
Designed: CB		Approved: AA	
Date: 01/04/2016	Scale: 1:33,000	A3	Sheet:

Project Number:	Drawing Number:	Revision:
70017901	FIGURE 1	

Login: DeSouzaJ
Plot Date: 01/04/2016