



Bournemouth, Poole and Dorset Local Transport Plan

April 2011

Supporting Document – 8

Intelligent Transport Systems



Foreword

Local Transport Plans (or LTPs) are comprehensive plans which look at the transport needs of the area and set out a way forward to deliver those needs through short, medium and long term transport solutions. They set out how transport can improve our safety and health, support our local economy, protect our environment and reduce carbon emissions and pollution. They are also how funding for maintenance and improvements are secured from central government. LTPs can consider improvements to all major forms of transport whether under the control of local councils or not.

The main LTP documents comprise a strategy for transport for the whole of Bournemouth, Poole and Dorset for the next 15 years and a separate implementation plan which contains detailed proposals for the next 3 years. A separate summary document has also been prepared. These are all available to view or download at:- dorset4you.com/localtransportplan, along with a full set of supporting strategies and related documents.

This document is one of a number of individual strategies that have helped inform the development of the Local Transport Plan. Each has been led by one of the LTP authorities and has generally followed a common structure and format. In many cases these strategies are live documents and will be further developed during the next few months as the Government further develop its own transport policies or as further analytical work is undertaken.

This document will be kept live and updated on a regular basis. If you wish to make comments on the document then email us at ltp@dorsetcc.gov.uk or alternatively telephone 01202/01305 221000.

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Bournemouth, Poole and Dorset LTP3 2011 - 2026

Intelligent Transport Systems

Contents:

| | | |
|----------|---|-----------|
| 1 | Introduction / background | 2 |
| 2 | This is where we want to be | 5 |
| 3 | This is where we are now | 8 |
| 4 | These are the key challenges we face | 14 |
| 5 | This is how we will get there | 18 |

1. Introduction

Intelligent Transport Systems (ITS) are a combination of Information Technology and telecommunications applied to highways to improve efficiency and safety. Electronic systems monitor and control the road network and provide real-time information to travellers helping them achieve a reliable journey time.

Intelligent Transport Systems will have beneficial effects on the environment by reducing air and noise pollution.

There is little prospect of building new road capacity and hence we need to use technology to optimise the use of our highway network while maintaining road safety.

Bournemouth, Poole and Dorset as Highway Authorities have each made a significant investment in ITS. This has helped them to manage their road network and will continue to play a key role in the delivery of the Local Transport Plan. The Authorities now propose to adopt an integrated approach and link their systems to provide a sub-region wide view of the highway network. This will bring about the following benefits:

- Ensure that transport supports sustainable economic development and regeneration;
- Moderate the upward trend in car use and secure a shift to more sustainable forms of transport such as walking, cycling and public transport;
- Secure the most efficient and effective use of the existing transport network;
- Enhance the quality of life of those who live, work in, and visit Dorset.

In setting out these objectives, the Authorities have articulated support for the Vision for the Local Transport Plan 2011 - 2016 that is:

“To create a safe, reliable and resilient transport system for Bournemouth, Poole and Dorset that assists in the development of a strong economy, maximises the opportunities for sustainable transport and respects and protects the area’s unique environmental assets”.

ITS provide network management tools to ensure the effective monitoring, control and general operation of the highway network. More specifically the use of Urban Traffic Management and Control (UTMC) allows the integration of disparate ITS systems. This provides greater flexibility in their application to the management of both the highway network and transport infrastructure operations.

The Department for Transport's UTMC technical compliance initiatives set out to assist traffic managers to achieve more by encouraging suppliers to make use of open standards and protocols, such that ITS tools could be easily linked together.

Key considerations in developing a joint approach to deployment of ITS across Dorset include the rationale for coordination of the Network Management Duty through the appointment of Traffic Managers and the development of a joint network traffic control centre.

This strategy sets out the approach for deployment of ITS, its integration through application of UTMC principles, the successful execution of the Network Management Duty under the Traffic Management Act and the delivery of Local Transport Plan Objectives.

Policy Context

National policy links

The context is set by national policy guidance. The key government document setting out the national policy direction is 'Delivering a Sustainable Transport System' (DaSTS). DaSTS outlines five national goals to **Support** national **economic** competitiveness and **growth**, reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of **tackling climate change, contribute to better safety, security and health** by reducing the risk of death, injury or illness arising from transport and by promoting travel modes that are beneficial to health, **promote** greater **equality of opportunity** for all citizens, and **Improve quality of life** for transport users and non-transport users and to **promote a healthy natural environment**

Local policy

The LTP is a joint strategy between the three authorities of Bournemouth, Poole and Dorset. The LTP3 area is diverse, comprising large rural areas, small market towns with their village and hamlet hinterlands and the urban areas - Bournemouth, Poole, Christchurch, Weymouth and Dorchester. The Intelligent Transport Systems Strategy develops a range of measures that have potential for benefitting the whole range of transport functions.

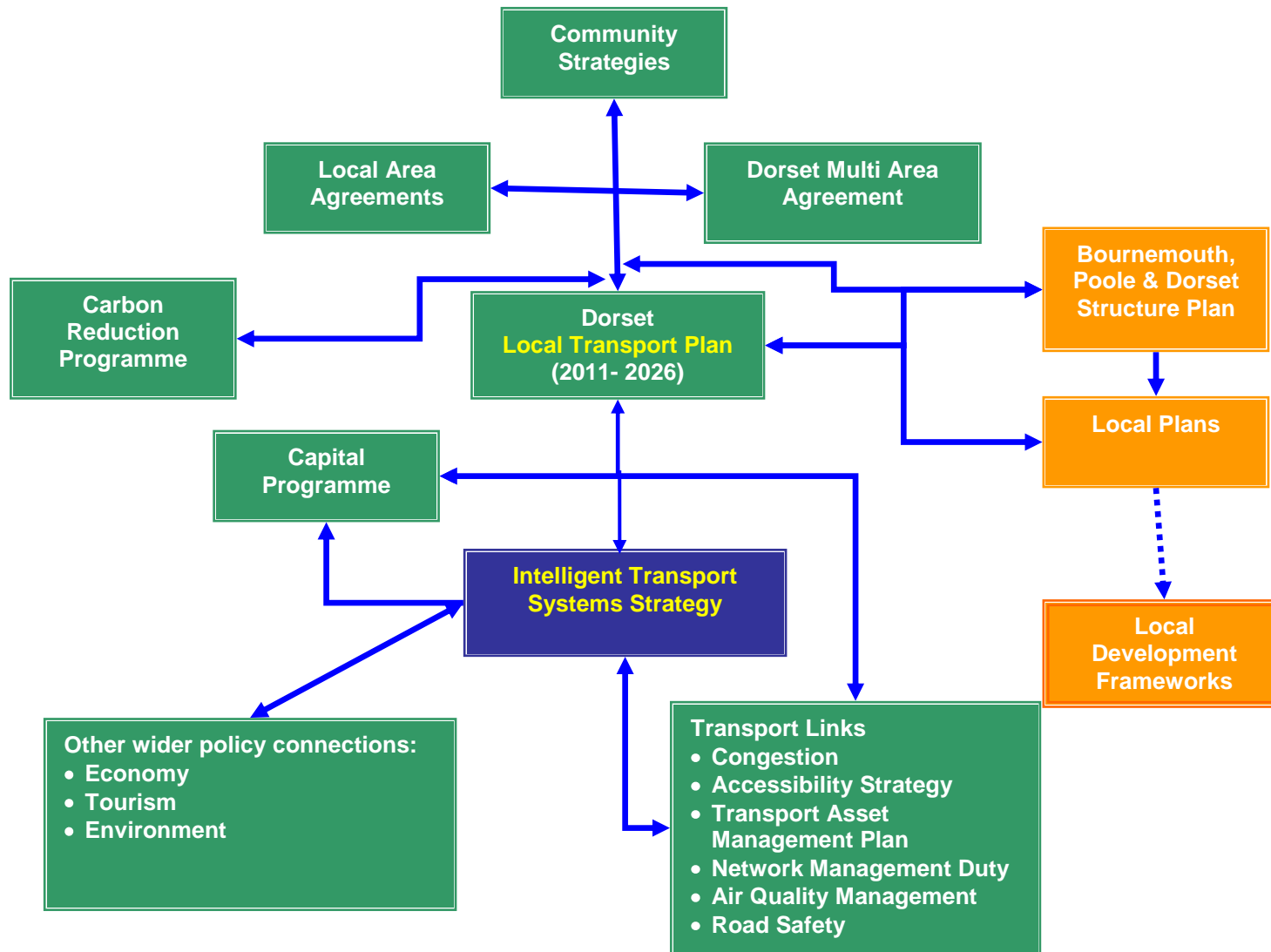
The Dorset Local Transport Plan 2011 - 2026 contains current transport policy and has a number of other supporting strategy documents, similar to the Intelligent Transport Systems Strategy. There are links between all of these documents and they all assist in contributing to the overall LTP vision and objectives.

There are strong links between our transport policy and the wider policy areas, and particularly land use planning. Our planning policies are contained in what is known as the Development Plan, which includes the Bournemouth, Poole and Dorset Structure Plan (2001- 2016) and the relevant Local Plans for Bournemouth and Poole. Consistency with planning policy is particularly important to ensure that when new development takes place it provides the necessary facilities and infrastructure to encourage motorcycling (as well as other sustainable modes). There are existing planning policies which seek to achieve this. The Local Development Frameworks (LDFs) are currently being developed for both Bournemouth and Poole and these will eventually replace the existing Development Plan as our planning policy, guided by the Core Strategies. We are ensuring that the development of the LDFs fully supports the Intelligent Transport Systems Strategy and helps contribute to meeting the LTP3 Vision and Objectives.

Figure ** below shows how our Intelligent Transport Systems Strategy links to the many wider policy areas beyond just transport. All of these policy areas contribute towards our Local Area Agreements, which are the means by which we deliver our Sustainable Community Strategies – the overall strategy and vision for our local community. The Intelligent Transport Systems Strategy is therefore a key part of making our community a better place for everyone.

As there are close links with many other policy areas, we work closely with many partners in delivering the Intelligent Transport Systems Strategy, and these are listed in **Appendix XX**

This strategy has been prepared through a joint working group across the three authorities with reference to the latest policy and guidance building on work started during LTP2 and developed by consultants Mouchel, the partnering consultants for Bournemouth and Poole. It should not be considered in isolation and has strong links with other areas of our LTP strategy.



2. This is where we want to be

2.1 ITS Vision Statement

The Authorities in Dorset will develop the use of Intelligent Transport Systems (ITS) to manage and maintain the highway network in an effective and efficient way whilst delivering improvements to facilitate an increase in the movement of people and goods across the area in a safe and environmentally sustainable way

2.2 Key Aims and Objectives

By 2026, Dorset will have further strengthened and developed its standing as one of the South Coast's major economic, educational and recreational centres and as a key driver in the South West region. It will have implemented an integrated transport policy that delivers sustainable mobility and transport of people and goods across the region.

ITS will play a key role in realising the key transport objectives of Dorset. In particular, through the application of ITS:

- Dorset will have a transport network that is managed efficiently and proactively under normal traffic conditions as well as during road incidents, roadworks and planned events. Additionally, users are informed about impacts on their journeys, route choices and parking facilities.
- People will have access to up to date, real-time public and personalised information to inform them of their travel choices by different modes of transport.
- The road network of Dorset will be safer and more comfortable to travel on when incidents and inclement weather conditions occur, through improved co-ordinated management and maintenance regimes.
- Dorset will have a highway network that is monitored, managed, operated and developed in a sustainable manner to cope with future growth in traffic and new developments. This will be done in close co-ordination with adjoining Local Authorities and the Highways Agency, to ensure smooth journeys across local urban – interurban boundaries and also for those travelling along through routes to more distant destinations..

2.3 ITS Strategic Goals

Dorset strategic objectives for using ITS are linked to the national shared priorities, in particular:

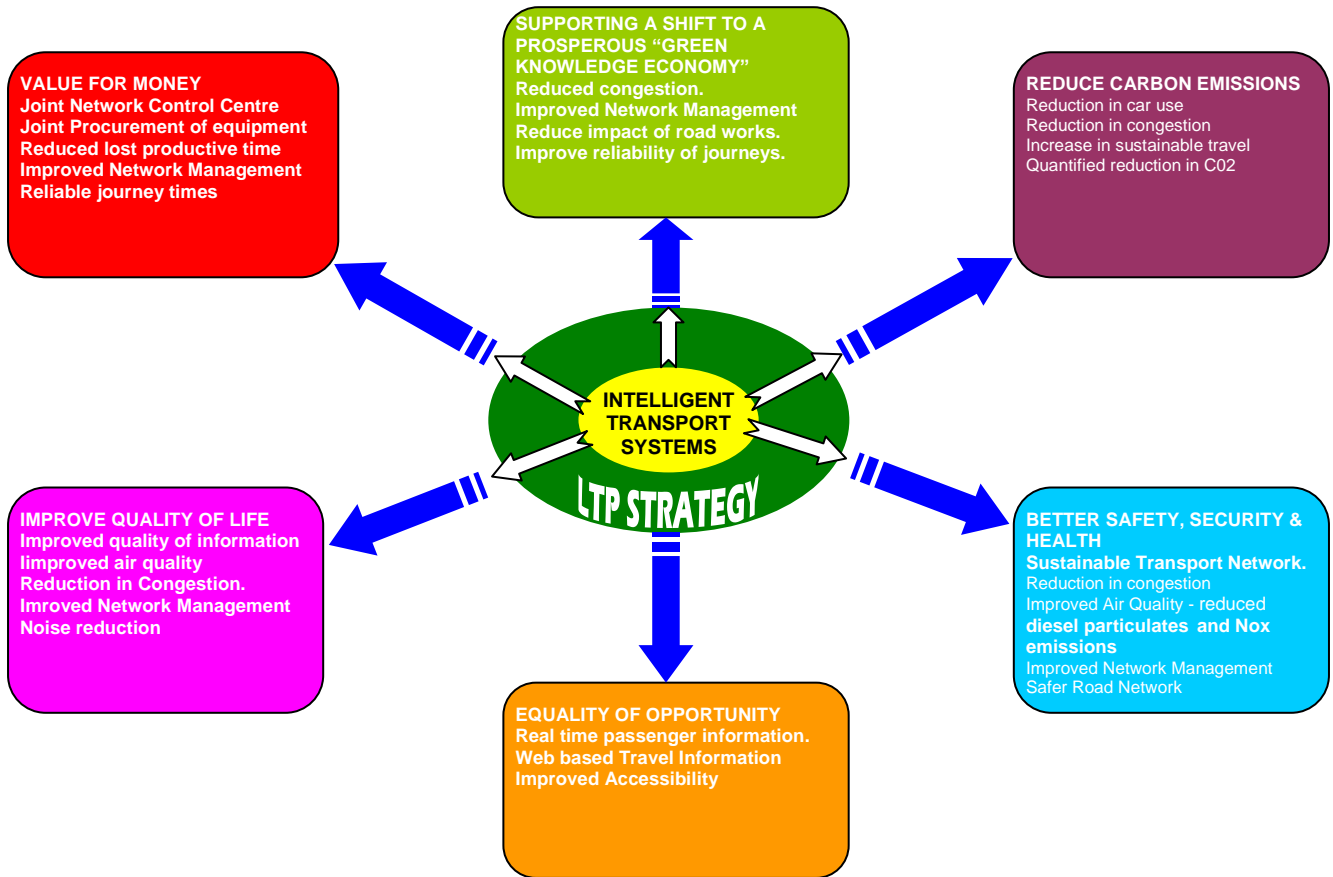
- To improve transport within town centres, to the national road network, key transport hubs of and industrial areas in order to reduce delays and tackle congestion, and increase the reliability of journey times;
- To promote the use of public transport as a real alternative travel option and improved accessibility, especially for those who do not have access to private transport;

- To make the roads safer and assist with reducing the number of road deaths and serious injuries.
- To mitigate the effect of the transport system on the built and natural environment and on personal health through a balanced use of public transport and the private car.

2.4 How ITS will contribute

ITS will provide the tools to:

- Provide effective monitoring and control of traffic on urban roads and inter-urban routes;
- Integrate different ITS tools such as traffic signals, Variable Message Signs and parking information systems to inform travellers of journey conditions and parking availability.
- Enable the collection and processing of information about travel conditions, planned works, events and incidents for dissemination across various media including web portals, radio, public kiosks and mobile devices.
- Expedite emergency services response to incidents.
- Protect vulnerable road users at crossings and accident hotspots.
- Improve road safety by displaying advisory and mandatory speed limits, monitoring vehicle speed and enforcing of speed and other traffic violations.
- Improve public transport services through priority at signalised junctions, automatic location of vehicles and more effective day to day management.
- Deliver real-time information to public transport users before and during their journeys.
- Interact with bus and train operators, neighbouring authorities and the Highways Agency in order to ensure smooth flow of traffic at multi-modal interchanges and across jurisdictional boundaries.
- Collect environmental data to provide the public with Air Quality information.



3. This is where we are now

3.1 Developments in ITS

Intelligent Transport Systems have been around for many years and as technology improves the applications available are also improving and/or increasing. ITS has been developed across Dorset predominantly within the urban areas for traffic management purposes but elsewhere the use of technology to provide information for journey planning and to address safety issues is increasing.

3.2 Progress with ITS

Progress across the three individual highway authorities does vary and as this ITS Strategy is implemented it is expected that those differences will be addressed so that there will be uniformity and co-ordination across the authorities.

Progress with key ITS applications is summarised as follows:

3.3 Urban Traffic Control (UTC)

- Computerised Traffic Control System in Urban areas
- Traffic Signal Junctions.
- Pedestrian Crossing facilities at Signals..
- Toucan Crossings – cycle friendly.
- Puffin Crossings – pedestrian friendly for disabled or elderly.

3.4 UTMC Common Database (CDB)

- Each authority operates an Urban Traffic Management and Control (UTMC) Common Database protocol. These communicate with each other and also enable diverse ITS applications to communicate; this makes the exchange of traffic and planned roadworks data easy and instantaneous.

| Overview of the Common Database Applications within the Authorities | | |
|--|---|---|
| Bournemouth ARGONAUT CDB & Strategy Manager | Poole ARGONAUT CDB & Strategy Manager | Dorset ARGONAUT CDB & Strategy Manager |
| BBC tPEG (incident detection) Urban Traffic Control (traffic signals) Car Park Information Variable Messages Signs Real Time Bus Journey Times | Urban Traffic Control (traffic signals) Car Park Information Variable Messages Signs Real Time Bus Journey Times Carbon Calculator Fault Management System Remote Monitoring System | Urban Traffic Control (traffic signals) Fault management system Remote Monitoring System TIH Automatic Number Plate Recognition (ANPR) CCTV Real Time Passenger Information Journey Time calculator Carbon Calculator |

Table 3.1 Overview of the Common Database Applications within the Authorities

3.5 Remote Monitoring System (RMS)

- Remote monitoring system for individual traffic signals and signalized crossings etc. (not in UTC Regions) to enable checking of operation and reporting time to be reduced.

3.6 Fault Management System

- This gives the ability to automatically identify faults, to instruct the maintenance contractor and monitor progress and response times with the repairs.

3.7 Real Time Information

- An extensive network of Real Time information bus stops are predominantly in South East Dorset (also, a new system is being installed in Weymouth 2010/11).
- SMS Texting from mobile phones.
- Audio facilities activated by a key fob are available for sight impaired travellers.

3.8 Bus Priority Measures

- Traffic Signal junctions where approaching buses can be identified and given priority over other traffic where the bus is already delayed or to prevent delays.
- Some Traffic Signal junctions operate bus only access or turning movements.

3.9 Car Park VMS

- 40 signs provide up to date information on the availability over 7,000 spaces in the South East Dorset conurbation (also, a new system is being installed in Weymouth 2010/11).

3.10 Traffic Information VMS

- A number of strategic signs provide information on the status of Poole Lifting Bridge and can also display incident and road safety messages.
- Signs on the A338 provide information on traffic congestion, events and an ice warning linked to sensors on a susceptible bridge deck at the Cooper Dean

Flyover (also, a new system is being installed in Dorset 2010/11).

3.11 Automatic Number Plate Recognition (ANPR) Cameras

- Dorset has a well developed understanding and commitment to ANPR. Currently the authority has 23 ANPR cameras deployed and operational in Weymouth and on the A354 as well as Poole Port. A further 8 are currently being procured for the A350 and A357 corridors. The existing cameras are operated by Dorset Police and Dorset County Council in partnership, and are used for journey time monitoring by the county with data also provided to the Home Office national system for crime prevention and detection. The partnership between Dorset County Council and Dorset Police hopes to ensure all strategic routes in Dorset are covered with ANPR.

3.12 CCTV Cameras

- CCTV cameras are located throughout the county for the monitoring of traffic flow. The Councils work with partners to ensure that these cameras can also be used to prevent and detect crime.
- Within Bournemouth five dedicated traffic CCTV cameras have been installed and there are also a significant number of cameras used by the Police for crime detection. Where the Police cameras are located in positions where they can also be used for traffic control purposes the camera feeds are routed into the traffic control room.

3.13 Access Control (Rising Bollards / Automatic Barriers)

- A single road loop bus gate on the Fountain Roundabout to enter Christchurch High Street.

3.14 Ice Alert System

- Outstations monitoring ground temperature provide data to Ice Alert a system that determines gritting requirements in time of severe cold weather.

3.15 Travel Information Points

- Four interactive touch-screen information points have been installed in Bournemouth at the town centre library, travel interchange, Littledown Sports Centre and at the visitor information bureau. These information points connect to the conurbation Accessibility website (www.gettingabout.info) and allow the user to gain information on a range of travel and transport topics. Output from the Cloud Amber CDB is to be added to information already available, as a part of the current deployment programme.
- In Poole there is one Travel Information Point located at the main bus station.
- Within the rural county traffic information is available via the County council's website (www.dorsetvoyager.com)
- A new system is being installed in Dorset 2010/11.

3.16 Speed Indication Devices (SIDs)

- Fixed and Portable SID-type signs indicating the actual speed of a vehicle are used by the scheme safety teams at accident and/or sites of concern over speeding.

3.17 Vehicle Actuated Signs (VAS)

- A number of signs across Dorset that indicate the speed limit and optional text such as “Slow Down” are activated when a vehicle exceeds the speed limit or when they are approaching Schools or certain junctions.

Summary of the Authorities Investment in ITS

3.18 Traffic Signals

Between the three authorities there are approximately 400 traffic signal installations, including both junctions and pedestrian facilities, currently implemented in Dorset. All three councils have procured and make use of Urban Traffic Control (UTC) providing adaptive control of the traffic signals they are linked to. Remote Monitoring Systems are used to provide the status of those traffic signal installations that aren't connected to the UTC. Dorset County Council has had a policy, for the last five years, of using either UTC or Microprocessor Optimised Vehicle Activation (MOVA) for all new traffic signals installations.

As well as making use of the traffic signals as a standalone tool, trials have been undertaken to link a selection of signalised junctions to the Real Time Passenger Information system to provide a bus priority facility.

3.19 Real Time Passenger Information

The three Authorities have been working in partnership with the bus operators to provide real time information across the region. This has involved equipping buses with on board Global Positioning System (GPS) units to track their location and report it back to a central server, as well as equipping bus shelters and stations with passenger information displays. In total there are over 230 information displays deployed and bus information is also available via a text messaging system for use at stops where displays aren't currently installed.

3.20 Variable Message Signs

An investment in car park guidance signs has been made within the Bournemouth and Poole conurbation, to provide information to road users regarding the current availability of spaces at car parks. Currently there are 34 signs deployed, with plans to provide status information for more car parks in the future. As well as the car park guidance signs, there are also eight traffic information signs used to provide the status of the Poole Lifting Bridge and warnings of icy conditions on the Cooper Dean flyover. All three authorities have an aspiration to expand their deployment of VMS particularly around the Twin Sails project area.

3.21 UTMC Common Database(Cloud Amber)

The UTMC Common database will allow the authorities to link their traffic management tools, provide a single user interface, facilitate conditional strategy selection, publish roadworks, journey times, traffic and travel information via a variety of media and enable shared control of tools between the authorities.

3.22 Joint Network Control Centre

In addition all three authorities are actively engaged in discussion relating to the development of a joint network traffic control centre for the entire geographic county of Dorset. Outline business case has been developed for such a centre the findings of which have been presented as a paper to Dorset's Transportation Cabinet. The paper outlines costs and joint funding options for the development and operation of such a facility. It is understood that the paper was approved for submission to Dorset's

executive board, further demonstrating commitment to wider funding of ITS and network management facilities. The anticipated capital cost of such a project is anticipated to be in excess of £3m, with further revenue impact also to be addressed.

Table 1 – SWOT Analysis

| <u>STRENGTHS</u> | <u>WEAKNESSES</u> |
|--|---|
| <p>Partnership working between authorities.</p> <p>Investment in new technologies.</p> <p>Existing ITS infrastructure e.g. Common Database, RTI, VMS, UTMC.</p> <p>Dedicated and skilled staff resources.</p> <p>Partnership working with Bus and Rail operators.</p> <p>Statutory obligations measured by National Indicators.</p> | <p>Recruitment and retention of skill base.</p> <p>Withdrawal of Bus services.</p> <p>Four Highway Authorities managing the Network.</p> |
| <u>OPPORTUNITIES</u> | <u>THREATS</u> |
| <p>Influencing travel behaviour.</p> <p>Contribution to Climate Change and LTP Goals.</p> <p>Support to Emergency Planning.</p> <p>Joint Network Control Centre.</p> <p>Partnerships with Highways Agency and neighbouring Authorities.</p> <p>Rapid development in technology, particularly Internet Protocol (IP) based systems.</p> | <p>Financial Pressures: Capital and Revenue.</p> <p>Escalating Maintenance costs.</p> <p>Competing Government Agendas.</p> <p>TMA powers of takeover.</p> |

4. These are the Key Challenges we face.

4.1 Finance

- Providing the Capital Budget needed to implement the strategy in the face of the impending recession and government cutbacks is going to be a significant challenge. Being able to sustain a long term investment in ITS infrastructure in order that the network would be adequately covered may prove unrealistic for the entire programme to be implemented within the LTP3 period.
- A Capital Replacement budget will also need to be set up to maintain the equipment some of which inevitably will have a limited effective and efficient life span of maybe only 5 years.(see 4.3 below for advance in Technology)
- Investment in ITS will in many instances require staff resources and whilst savings will be made in respect of a Joint Network Control Centre and the opportunity to share staff and financial resources there will probably be an impact on the Revenue Budget at a time when savings are being sought. This also could impact on the length of time taken to deliver the ITS Strategy.
- It is essential that, outside of the constraints of a formally structured strategic plan, technology and techniques emerging as best practice are enabled with the operational practices of the organisation. It is essential that a background provision for the funding of innovation is recognised as an enabler in this regard, and that this is appropriately budgeted for at a high level. This will ensure that trials and development of new ways of working, and the application of small scale technology improvement can be achieved rapidly and the benefits associated realised without delay.
- Joint procurement will inevitably offer up further savings and other economies of scale.

4.2 Partnerships

- All three authorities, Bournemouth Borough Council, the Borough of Poole and Dorset County Council are committed and signed up through strategies such as the LTP and MAA to joint working in the area of Transportation and in particular for a Dorset wide ITS Network.
- However other Agencies will need to be invited to join the partnership and contribute in one form or another to the provision of an effective ITS. Although details have yet to be worked through and approved it is likely that the following partners could be involved:
 - **Highways Agency**: with the Trunk Road Network passing through Dorset ITS applications such as VMS will need to be positioned on Trunk Roads to inform travellers of hazards, incidents or other problems on selected routes so that diversions can be advised.
 - **Police**: event and incident management will inevitably involve the Police. The exchange of information and cooperation will be essential to properly manage any situation that arises on the network. Shared use of CCTV images for the control of public safety/security and traffic will assist both parties in their particular purpose. This partnership already exists within the Bournemouth area.
 - **Neighbouring Highway Authorities**: in the final design of ITS applications it is likely that some will be positioned on or over the

border of neighbouring authorities and these could include: Hampshire County Council; Wiltshire County Council; Somerset County Council or Devon County Council. Integration with ITS Systems used by neighbouring authorities would assist in the management of the network across boundaries.

- **Emergency Planning Authorities:** close liaison with Emergency Planning Teams at times of emergency would help to manage incidents effectively and ITS data and applications would be used in managing traffic at such a time.
- It is clear that ITS is an important tool in the management of a number of applications and that close liaison across a number of partnerships will assist in a number of council and other public responsibilities. However the setting up of and management of partnerships can be a challenging task and potentially as difficult as implementing the strategy itself. Therefore it is essential that at the earliest opportunity that agreement with partners is sought so that the strategy can be implemented smoothly as programmed.
- All three authorities are currently proceeding with the common procurement of a single traffic signal and control maintenance installation contract covering the sub-region which will run for 10 years from April 2011.

4.3 Technology

- Whilst ITS can be designed to use the latest technology on the market, inevitably technological advancement will render any existing application outdated within a period of time. This potentially could be as little as a few years. The successful signal maintenance contractor will be expected to implement a technology refresh programme over the life of the new contract.
- It is difficult for Local Authorities to “take a chance” on emerging technology that has not been tried and tested in the open market. Especially when considering an area wide application such as ITS which involves considerable sums of money and long term investment. Public accountability means that taking risks on new ideas is seldom acted on and more often that not council standing orders mean that contractors need to have a proven track record with references of financial and professional reliability.
- Computer applications are not supported indefinitely and there will come a time when whatever ITS System is purchased that is will become obsolete and not maintained.
- There will be a responsibility on officers to keep abreast of the latest technology and guard against system becoming obsolete and not maintainable, which will inevitably lead to replacement of an ITS Application. This could require considerable budgets and has been referred to in 4.1 above.
- The move to Internet Protocol based technologies will have a profound affect on communication methods and operational procedures.
- It is standard practice that the maintenance contractor is only obliged to carry spares for individual items of equipment where more than ten of these exist across an authority area. Repair times can be increased where spares have to be bought from an external supplier when there are fewer than ten items insitu.

4.4 Tourism and Events

- Strategies dealing with commuter traffic and predicted/regular traffic patterns is something that can be programmed into an ITS System so that it can be dealt

with effectively. Dealing with the unpredictable and significant traffic problems created by tourists and events such as the Bournemouth Air Show and the 2012 Sailing Events are more challenging and developing strategies to cover with these can be time consuming..

- Despite rising fuel prices and local improvements in sustainable transport and smarter choices, the lack of an effective countrywide sustainable transport network that feeds the tourist hub of South East Dorset and the Jurassic Coast means that inevitably many tourist/visitors will travel by car.
- The seasonal and weather dependant nature of these traffic “spikes” means that a long term investment in Park and Ride and other measures to deal with this issue alone is not viable.
- Therefore the challenge for ITS is to provide the flexibility to deal with incidents and situations that can occur as fast as the temperature rises to attract visitors or that a thunderstorm can occur to empty the beaches into the town centres in particular to cover weekends and bank holidays out of normal office hours.

4.5 Staff Development and Training

- Intelligent Transport Systems (ITS) by themselves are not a panacea for traffic problems; an adequate number of traffic engineers is required to administer these systems on a daily basis and to implement operational strategies to address incidents as these occur.
- The development and deployment of ITS as a network management tool will only deliver benefits if the staff resource operating it remain aware of best practice and techniques and are supported in their training and ongoing personal development. Even in the event where technology and systems are not progressing with significant pace, training will be required to ensure that staff remain fresh in their approach to network and transport management. Additionally there will be a requirement to train staff who are newly appointed, or who are developing within their role in some way.
- It should be noted that the training requirements associated with specific deployment programmes should be addressed as a part of the deployment and this additional background development and training budget should not be considered as fulfilling this requirement.

Table E.3 below outlines the level of investment considered appropriate for these areas on an annual basis once the ITS Strategy has been fully completed

| | Budget (£) per annum |
|------------------------------------|----------------------|
| Emerging Technology and Techniques | 250,000 |
| Capital Renewal | 400,000 |
| Staff Development and Training | 50,000 |
| Total | 700,000 |

Table 4.1 – Revenue expenditure

4.6 Organisational and Stakeholder Partnerships

- It is important that the strategic partnerships to deliver ITS are strong leading to a highly developed strategic direction and objectives, communicated through a jointly developed Local Transport Plan, and Multi-Area Agreement.
- It has been identified throughout the stakeholder consultation process, that more focus should be placed upon operational relationships, both within and between the three authorities.
- The consideration of arrangements for the appointment of a joint Traffic Manager and the management of the Network Traffic Control Centre may be challenging for the authorities who could consider they will each lose some elements of direct control.

5. This is how we will get there

5.1 Methodology

Delivery of Intelligent Transport Systems is to be managed by the intervention of a number of applications to implement the desired strategy.

The delivery of these applications is outlined below and itemised and separately. They will subsequently be delivered through a managed programme and joined up utilising the Common Database to provide the Traffic Manager with a range of tools to monitor and control the highway network in real time.

Available funding will affect the rate of delivery of the applications and possibly the order in which they are programmed.

5.2 Strategy Delivery

A number of strategic interventions have been identified in order to implement the ITS Strategy. These are summarised below:

Traffic Signal Control

This focuses on the expansion and improvements to traffic signal control and encompasses all aspects of the traffic signal control system from the office computers to on-street equipment, as well as links to external systems, such as bus priority mechanisms. Recommendations include:

- To facilitate monitoring of all Traffic Signals via either Urban Traffic Control (UTC) or Remote Monitoring Systems (RMS)
- Any future upgrades of the existing UTC systems.
- An investigation into the use of IP-based communications for both UTC and RMS to reduce revenue costs and increase resilience. Dorset has already migrated many of its systems to IP based comms and Bournemouth is currently undertaking a costing exercise with the intention of rolling out IP comms for its UTC systems in 2010/11.
- The roll out of bus priority making use of the link between the UTC and Real Time Passenger Information (RTPI) systems.

Interurban Monitoring

This proposes technologies to facilitate the gathering of traffic information on the key links that form the interurban network. The purpose is to allow traffic engineers to monitor network conditions and identify congestion and incidents allowing them to implement management strategies. The recommendations include:

- The deployment of traffic counters to monitor traffic flows, speed and type of vehicle.
- Use of Automatic Number Plate Recognition (ANPR) for journey time monitoring
- Deployment of CCTV at key nodes to monitor for congestion and incidents.

Urban Monitoring

As with Interurban Monitoring the urban network also requires monitoring to allow traffic management strategies to be implemented in response to congestion, incidents and Air Quality. Deployment in the urban area is generally more intensive due to the compact and sensitive nature of these networks. The recommendations include:

- Use of Automatic Number Plate Recognition (ANPR) for journey time monitoring
- Further deployment of CCTV at key nodes to monitor for congestion and incidents.
- Real Time Air Quality monitoring for CO₂, NO₂ and Particulates in high risk areas.

Interurban Traffic and Travel Information

Package 4 is aimed at delivering information to the travelling public during their journey across the region, specifically on the interurban network. This is achieved through the deployment of Variable Message Signs (VMS) at key nodes, which can be used to display a range of information including:

- Incident/event management
- Driver information
- Strategic diversions
- Roadworks
- Safety Campaign Information

Urban Traffic and Travel Information

This focussed on the dissemination of traffic and travel information to the travelling public in the urban area. As with the previous section, the provision of information via traffic and travel websites, media broadcasts, etc. are to be considered as part of the implementation of a common database and Network Control Centre.

Recommendations include:

- The deployment of VMS
- Additional CPMG signs.
- Voyager websites.

Joint Network Traffic Control Centre

The Joint Network Traffic Control Centre is the flagship of the ITS Strategy and allows shared information and effective traffic management across the Dorset Sub-Region, thus helping to satisfy the duties placed on the Authorities' Traffic Managers by the Traffic Management Act 2004. Difficulty in funding such an enterprise (see 5.3 below) will not diminish the effectiveness of the ITS Strategy significantly as each authority has

its own Cloud Amber Common Database therefore intercommunication is till achievable. Recommendations for this include:

- Capturing the requirements of a control centre through stakeholder consultation
- Defining how a control centre will operate both from an operational and technical perspective.
- The creation of an independent organisation to operate the control centre and the appointment of a single Traffic Manager to oversee the operation.

Communications Rationalisation

ITS is increasing use of IP communications within UTMC based ITS deployments and CCTV. This takes ITS into the realm of standard IT network based communications. This coupled with the high cost of leased telecommunications circuits and the withdrawal of support for analogue based circuits that many UTC installations rely on mean that a migration is inevitable. Proposals include:

- Stakeholder consultation within the council to ascertain the availability of council owned communications networks
- Shared use of council owned networks including RTI radio networks.
- Rationalisation of communications bearers
- Greater use of wireless communications such as wi-fi and GPRS Package

5.3 Cost Profile

Table 5.1 provides an overview of the cost profile that would be expected for the deployment of the identified applications if programmed at the current rate of LTP Budgeting for the three years 2011 – 2014.

Table 5.2 sets out the expenditure for the three years 2014 – 2017 assuming that budgets will be available to deliver the remainder of the ITS Strategy. However it is difficult to predict levels of expenditure accurately that far in advance for ITS as technological advances will tend to reduce the cost of current applications or introduce more effective applications that may well cost more.

The effect of possible funding reductions is set out in the Implementation Programme Chapter.

Table 5.3 sets out a possible funding profile for delivery of the Joint Network Traffic Control Centre (NCC). This will be subject to separate funding stream to LTP therefore does not feature in the three year cost plan. The timing and timescale of such a development is highly variable due to the nature and level of investment, and varying levels of readiness across the three authorities therefore has been removed from the delivery programme. It is unlikely that delivery of the NCC will be affordable through routine LTP funding and that some other mechanism for funding it will be necessary. This is discussed further in the Implementation Programme Chapter.

Table 5.4 sets out the expenditure in an Action Plan indicating the Challenges, Goals and organisations involved in delivery.

| LTP Programme for ITS Delivery | | | | | |
|---|----------------|----------------|----------------|------------------|-------------------|
| Cost Profile | 2011/12 | 2012/13 | 2013/14 | 2014/2026 | Total (£) |
| Traffic Signal Control | | | | | 470,000 |
| Interurban Monitoring | | | | | 340,000. |
| Urban Monitoring | | | | | 250,000 |
| Interurban Traffic and Travel Information | | | | | 1,100,000 |
| Urban Traffic and Travel Information | | | | | 740,000 |
| Communications Rationalisation | | | | | 20,000 |
| Total (£) | | | | | £2,920,000 |

Table 5.1 – Spend Profile 2011-2014

| | Spend Profile (%) | Cost (£) |
|--------|--------------------------|-----------------|
| Year 1 | 20 | 748,000 |
| Year 2 | 40 | 1,496,000 |
| Year 3 | 40 | 1,496,000 |
| Total | | 3,740,000 |

Table 5.2 – Spend Profile for Network Control Centre

Table 5.4 – Action Plan

| Timescale | Challenge | LTP3 Goal(s) | Action required | Organisation / persons responsible (including partnerships) | Funding |
|---|--|---|---|---|-------------------|
| <p>Short <3yrs</p> | <p>Traffic Signal Control</p> | <p>Support Economic Growth. Reduce Carbon Emissions Promote Equality of Opportunity</p> | <p>Facilitate remote monitoring Upgrade existing UTC Systems Roll out Bus Priority Improve UTC/RMS communications</p> | <p>Dorset/Bournemouth/Poole Term Signal Contractor.</p> | <p>£???? LTP3</p> |
| | <p>Interurban Monitoring</p> | <p>Support Economic Growth. Reduce Carbon Emissions Promote Equality of Opportunity</p> | <p>Deploy Traffic Counters Deploy ANPR Cameras Deploy CCTV Cameras</p> | <p>Dorset/Bournemouth/Poole</p> | <p>£???? LTP3</p> |
| | <p>Interurban Traffic and Travel Information</p> | <p>Support Economic Growth. Reduce Carbon Emissions Promote Equality of Opportunity</p> | <p>Deploy VMS</p> | <p>Dorset/Bournemouth/Poole</p> | <p>£???? LTP3</p> |

| | | | | | |
|--------------------------|--------------------------------------|--|--|--------------------------|---|
| Medium 3-6yrs | Urban Monitoring | Support Economic Growth. Reduce Carbon Emissions Promote Equality of Opportunity | Deploy ANPR Cameras Deploy CCTV Cameras | Dorset/Bournemouth/Poole | £???? LTP3 |
| | Urban Traffic and Travel Information | Support Economic Growth. Reduce Carbon Emissions Promote Equality of Opportunity | Deploy VMS Additional Car Park Monitoring and Guidance | Dorset/Bournemouth/Poole | £???? LTP3 |
| Long >6yrs | Network Control Centre | Support Economic Growth. Reduce Carbon Emissions Promote Equality of Opportunity | Find and Secure a suitable location. Secure Funding from all Partners | Dorset/Bournemouth/Poole | £3,740,000 potentially from South West Region, or Developer Contributions or some other bidding mechanism.. |

5.4 Objectives Matrix

The purpose of this section is to demonstrate the process of forming links from Dorset’s transport objectives to appropriate mechanisms that facilitate their delivery. The high and detail level objectives stem from the ITS Vision. With detail level objectives identified ITS Mechanisms can be applied. These take into account the current technology infrastructure that exists in Dorset.

With the mechanisms defined a process of consolidation can be undertaken, bringing together the common elements to form packages.

Table 5.5 shows the mapping of objectives to Mechanisms.

| Objectives | Sub-Objective | Mechanisms |
|---------------------|---|--|
| Informed Travellers | The provision of pre-trip information to all travellers. | Traffic and travel website Media information distribution (Radio / TV) UTMC Common Database Car park monitoring and guidance Linkages to Exor or similar street works databases Linkages to Poole Bridge operation Real-time Passenger Information |
| | The ability to provide information to private vehicle users during their journey. | Variable Message Signs Car Park Guidance System Media information distribution (Radio / TV) |
| | The ability to deliver information to users of public transport during their journey. | Real-time Passenger Information |

| | | |
|------------------------------|--|---|
| Proactive Network Management | Ability to monitor network conditions on all key corridors and major junctions. | Automatic Traffic Counter Classifiers CCTV Automatic Number Plate Recognition Urban Traffic Control / Remote Monitoring System |
| | Ability to inform the travelling public before and during their journeys. | Traffic and travel website Variable Message Signs Real-time Passenger Information UTMC Common Database |
| | Ability to control traffic during congestion, incidents, events and inclement weather. | Urban Traffic Control Remote Monitoring System MOVA Car Park Monitoring and Guidance System Variable Message Signs |
| Influence Modal Choice | Provide pre-trip information for all available transport modes. | Traffic and travel website Multi-modal journey planner Media information distribution (Radio / TV) UTMC Common Database |
| | Provide public transport priority at junctions | Urban Traffic Control MOVA Selective Vehicle Detection Real-time Passenger Information |

| | | |
|---|---|--|
| | | UTMC Common Database |
| | Provide public transport information at stops, stations and interchanges. | Real-time Passenger Information |
| Interface with Neighbouring Authorities and Stakeholders | Coordinate network operations and response to emergencies and incidents | Traffic Control Room Network Control Centre |
| | Exchange data with neighbouring authorities | UTMC Common Database Network Control Centre |
| | Inform emergency services of incidents | UTMC Common Database Network Control Centre |
| | Exchange data and coordinate operations with the Highways Agency | UTMC Common Database Network Control Centre |
| Provide a Comfortable Travelling Environment (including security) | Provide in-trip travel information | Traffic and travel website Variable Message Signs Real-time Passenger Information Media information distribution (Radio / TV) |
| | Provide visible network and security related monitoring | CCTV ANPR |
| Maintain the Transport Network | Incorporate road works information into operational plans and strategies. | UTMC Common Database Network Control Centre |

| | | |
|-----------------------------|---|--|
| | Inform stakeholders and the travelling public of road works | UTMC Common Database Traffic and travel website Media information distribution (Radio / TV) Single Maintenance Contract fro the network area covering the period 2011 t0 2020 |
| Increase Network Resilience | | IP-Based communication plus provide Business Continuity of Systems and Staffing in the event of major incidents or power loss at control centre. |

Table 5.5: Objectives to Mechanisms Matrix

5.5 Consolidation of Mechanisms

Table 5.6 consolidates the mechanisms identified to deliver South East Dorset's objectives and rationalises them into appropriate applications.

| Mechanisms | Applications |
|---|--|
| Urban Traffic Control Remote Monitoring System MOVA Selective Vehicle Detection | Traffic Signal Control and single Maintenance Contract |
| Car Park Monitoring and Guidance Inductive loops CCTV Automatic Number Plate Recognition | Monitoring |
| Variable Message Signs Car Park Monitoring and Guidance Real-time Passenger Information | Traffic and Travel Information |

| | |
|---|--------------------------------|
| Network Control Centre Linkages to Poole Bridge operation | Network Control Centre |
| Urban Traffic Control Remote Monitoring Network Control Centre UTMC Common Database | Communications Rationalisation |
| UTMC Common Database Traffic and Travel Website Media Information Distribution (Radio / TV) Network Control Centre | UTMC Common Database |

Table 5.6: Consolidating Mechanisms to Applications

