INFORMATION NOTE

BLACKPOOL INTEGRATED TRAFFIC MANAGEMENT

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OUTLINE ECONOMIC APPRAISAL

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1. INTRODUCTION

1.1 Background

1.1.1 Blackpool Borough Council (BBC) previously submitted an unsuccessful Local Pinch Point Fund (LPPF) Bid for £1.68m from the Department for Transport (DfT) in Autumn 2013 for a £2.4m scheme entitled Blackpool Promenade and Town Centre Integrated Traffic Management.

1.1.2 The scheme was outlined as an intelligent transport system including video camera monitoring of key routes and variable message signing, as well as integration with the Urban Traffic Management Control (UTMC) system in order to provide real time responses to congestion and for the purposes of parking management.

1.1.3 The current proposed scheme has been developed from the LPPF scheme with a reviewed and revised specification including car park video camera monitoring, fully variable, partially variable, and static message signing, incident responses, and parking management tools.

1.2 Scheme Description

1.2.1 The details of the scheme are:

- Sixteen Variable Message Signs (VMS) implemented on a number of routes on approaches and in Blackpool including the M55, the A5230, Yeadon Way, Seasiders Way, Waterloo Road, and along the Promenade– high specification multi-message signs supported by existing fixed signage that has recently been overhauled.
- Parking Guidance Information (PGI) system including Inductive loop and CCTV car park monitoring, 19 parking signs with variable elements, and 24 static parking signs.

1.3 Structure of the Note

1.3.1 Following this introduction the note includes sections on:

- Potential benefits identified
- Modelling of benefits
- Appraisal of transport benefits
- Other economic benefits
- Costs and Processing of costs
- Outturn Economic Appraisal
- Summary and Conclusions

2. POTENTIAL BENEFITS IDENTIFIED

2.1 Introduction

2.1.1 The scheme as described in section 1.2.1 contains a number of elements that combine to

produce a variety of potential benefits, in the day-to-day running of the transport network in Blackpool, during high season days, and for special events (such as Illuminations times). Three main transport economic benefits have been identified and are outlined in this section.

2.1.2 The rest of this chapter outlines the way in which the scheme will deliver each of the benefits. Each benefit is treated in turn with a "problem" section that outlines the problem that the scheme addresses, followed by a "mitigation and benefits" section that outlines how the scheme mitigates the problem and how the benefits are realised.

2.2 Reduced Parking Search and Circulation Traffic Impacts

The Problem

2.2.1 The primary car park for Blackpool resort visitors is the Central car park. As this car park fills traffic tends to overflow into two other car parks in the same general area (Chapel Street and Bonny Street).

2.2.2 During very busy days, primarily at weekends and bank holidays in the summer and at events time, these three car parks reach their practical capacity and there is evidence that traffic overflows into more distant car parks at Foxhall Village, Bloomfield, and Lonsdale Road. These three car parks (and others) are located along Seasiders Way which (together with Yeadon Way) is the main route into the resort from the motorway, and so drivers heading towards Central area car parks will have passed these car parks before finding out that their initial choice of car park is full.

2.2.3 It is worth noting that there is a general level of "churn" (people leaving and arriving) at all the car parks throughout the day, so there is always a possibility of finding a space at Central car park, and this encourages people to head to the Central area as a first choice and then re-route to find spaces elsewhere if they cannot, most often back to car parks that were passed on the route into Central area car parks. This re-routing of traffic can add a significant amount of additional vehicle kms to the network on busy days.

Mitigation and Benefits

2.2.4 With the scheme in place, parking utilisation at Central, Chapel Street, and Bonny Street will be monitored. Benefits will be realised by providing early warning, via VMS, of the capacity situation at Central car parks advising drivers to park at car parks along Seasiders Way when the Central area car parks are approaching capacity.

2.2.5 This will remove significant amounts of parking search traffic from the network on busy days. The presence of regular buses linking Seasiders Way car parks to the resort area along Lytham Road provides the linkages necessary for the re-routing of traffic from Central area car parks to these car parks to be more attractive.

2.2.6 The removal of these car kms from the network will reduce congestion on the network in general, providing decongestion benefits to the remaining traffic and small local environmental benefits. There will also be benefits to the car occupants as they will be able to identify and access a car parking space with much reduced search and circulation time, thereby experiencing travel time savings which can be valued, as well as allowing more time for additional activities in Blackpool that will benefit both the occupants and the local

economy.

2.3 Reduced Car Journey Times along the Promenade during the Illuminations

The Problem

2.3.1 Evidence from journey time surveys and TrafficMaster data analysis suggests that journey times along the Promenade between Starr Gate and Bispham (the length of the illuminations) are very high during illuminations times. During the October half term week they rise to around 2 to 3 hours for a journey that would ordinarily take around 10 minutes, yielding an average speed of 2.7-4.1kph for an 8.2km journey. This is below walking pace. This high level of congestion has a significant negative impact on the ability of people visiting Blackpool for the illuminations to stop and spend additional time and money in Blackpool as they will spend a lot of time queuing to access and travel along the Promenade. The very high journey times may encourage some drivers and car occupants to park and visit local attractions but on balance the impact is expected to be a large negative one.

Mitigation and Benefits

2.3.2 VMS would be used to inform drivers on approaches to Blackpool when journey times are very high along the Promenade. Drivers will be made aware of differences in journey times northbound and southbound through the illuminations so that demand and supply can be better balanced to reduce overall delays. VMS would also be used to provide information on alternative options based around parking and continuing journeys by public transport – the tram is unaffected by congestion so the journey along the promenade can be made roughly 2 hours more quickly than by car during congested periods.

2.3.3 This would promote a shift from car to Public Transport that would reduce congestion on the Promenade and therefore reduce highway journey times. It would also increase Public Transport patronage and revenue.

2.4 Mitigation of Delay Impacts of Incidents and Accidents on the Road Network

The Problem

2.4.1 Currently if an incident or accident occurs on the highway network there is no easy means to provide information to drivers to mitigate the congestion that arises, and traffic and drivers are largely left to fend for themselves in dealing with delay and re-routing.

Mitigation and Benefits

2.4.2 When an incident is detected through general network monitoring processes either automatically or on the ground, VMS will be used to alert drivers of incidents and re-routing options. BBC would use UTMC to alter signal settings in real time to support the diversionary routes being promoted by the VMS.

2.4.3 The above process would help to ensure the most efficient response to the incident or accident and help to mitigate the impacts in terms of congestion and delay to vehicles on the network. Benefits would come from a reduction in journey time increase across the

network due to incidents and accidents.

3. MODELLING AND APPRAISAL OF BENEFITS

3.1 Introduction

3.1.1 An approach to quantifying the scale of benefit of each of the effects described in the previous section has been developed. This section outlines the approaches, data sources, and assumptions used for each one.

3.2 Appraisal Parameters

3.2.1 The appraisal has been carried out following standard DfT guidance in TAG using streams of costs and benefits converted to market prices where necessary and discounted to 2010 at 3.5% p.a. The opening year is assumed to be 2017, and the appraisal period is assumed to be 15 years (2017-2031). Annualisation of benefits varies by benefit and is included in each of the sections below.

3.3 Parking Search Reduction Benefits

3.3.1 The general approach used to quantifying the benefits discussed in section may be summarised as:

- Car park ticket sales data (available by day and hour) used to identify if and when cars "overflow" from the Central area car parks into car parks in other areas.
- Frequency and number of cars overflowing is estimated and location of secondary car parks identified.
- Distance of additional car km for each diversion is estimated and multiplied by diverting cars to give total additional car km.
- Marginal External Costs of car travel (TAG databook sheet A5.4.2) used to calculate benefits (including congestion, environmental, accidents, and indirect taxes).
- The car occupants will also benefit from saving time in locating a car parking space due to reduced searching and circulation time that may be estimated from network speeds and diversion route distances.
- All benefits streamed and discounted over 15 years from 2017-2031

3.3.2 The data used is:

- Central area car parks ticket sales by day and hour for Fridays, Saturdays, Sundays and bank holidays May to October 2014.
- West Street car park ticket sales by day and hour for the same period.
- Seasiders Way car parks ticket sales by day and hour for Fridays, Saturdays, Sundays, and bank holidays in August and October 2014.
- Measurements of additional car km saved resulting from car km overflow
- TAG data book (Autumn 2014) sheet A5.4.2 Marginal External Costs by Road Type and Congestion Band

3.3.3 Blackpool has neither directly observed data on the number of drivers that find their intended car park full nor information on actual utilisation of the car parks. The number of

cars has therefore been inferred from the numbers of tickets sold in each hour at the central car parks and at the alternative car parks.

3.3.4 Car park demand shares for individual days and hours in August and October were calculated. Examination and presentation of this data in graphical form showed clear evidence of the Seasiders Ways car parks patronage picking up during the daytime as Central area car parks were busiest and with level or reducing ticket sales, and therefore evidence of overflowing cars. However, there was no clear evidence of a link between this happening and West Street car park patronage increasing, as West Street car park typically showed a different profile even on non-busy days.

3.3.5 A set of criteria was developed to identify when the central area car parks were overflowing. These were:

- Central area car parks demand share <90% - this is typically 95% on non-busy days and before 11am and after 3pm on busy days.
- Central area car parks cumulative sales up to that hour >600 tickets sold – to ensure that central area car parks are at least approaching capacity.
- Demand in the Seasiders Way car parks >25 tickets sold – to ensure that some level of displaced parking is occurring.

3.3.6 All three criteria must be met for the hour to be identified as an "overflow" hour. When an overflow hour is identified the parking shares for that hour are clearly influenced by capacity issues. The "desired" parking share is estimated by looking at the cumulative share for that day up to a point an hour before the first "overflow" hour. A comparison of this "desired" split and the observed split gives an estimated number of cars to have attempted to park in central area car parks only to fail and divert to the Seasiders Way car parks.

3.3.7 The outturn number of overflowing and diverting cars is shown in Table 1 below.

MONTH	DAY	NO OF DAYS IN MONTH	AVG O/FL HOURS PER DAY	AVG O/FL CARS PER HOUR	AVG O/FL CARS PER DAY	TOTAL O/FL CARS
August	Fridays	5	2.2	50	110	551
	Saturdays	5	4.8	46	222	1111
	Sundays	5	2.8	51	143	717
	Bank Holidays	1	3	75	224	224
October	Fridays	5	2.0	19	37	187
	Saturdays	5	5.2	37	191	957
	Sundays	5	2.6	28	73	367

MONTH	DAY	NO OF DAYS IN MONTH	AVG O/FL HOURS PER DAY	AVG O/FL CARS PER HOUR	AVG O/FL CARS PER DAY	TOTAL O/FL CARS
	Half Term Weekdays	4	6.3	47	291	1164

Table 1. Central Area Car Park to Seasiders Way Car Parks - Overflowing Cars

3.3.8 The analysis indicates that the effect is primarily on Saturdays and during October half term holidays. It is likely that bank holiday observations are greatly affected by the weather on the one day (which was rainy and 15C), but the number of diversions on this day were still relatively high at 224 per day. The October half term holidays show the largest diversions, which is thought to be an impact of the demand for the illuminations intensifying and extending the overflow period into the early evening.

3.3.9 To estimate the level of diversion during the remaining months of the tourist season, factors have been derived from traffic counts. Traffic counts available for Yeadon Way by day in the months May to October have been used to calculate factors to apply to the numbers in the above table by day. The factors and resulting estimates of overflowing car numbers are shown in Table 2 below. Yeadon Way was chosen as the source for the factors because it is the primary access route to Blackpool for resort traffic. May-August have been factored with reference to the August model as it is felt this best represents these months (primarily school holidays with no illuminations), and the October model has been used to factor September as this period does not contain significant school holidays but does include the effects of the illuminations on demand.

MONTH	MODEL MONTH USED	FRIDAY		SATURDAY		SUNDAY		BANK HOLIDAY	
		FACTOR	CARS O/FL PER DAY	FACTOR	CARS O/FL PER DAY	FACTOR	CARS O/FL PER DAY	FACTOR	CARS O/FL PER DAY
May	August	0.858	94	0.898	199	0.850	122	1.095	245
June	August	0.930	102	0.875	194	0.864	124	N/A	0
July	August	0.921	101	0.938	208	0.907	130	N/A	0
August	August	1.000	110	1.000	222	1.000	143	1.000	224
September	October	1.094	40	1.061	203	0.965	70	N/A	0
October	October	1.000	37	1.000	191	1.000	73	N/A	0

Table 2. Factoring of Cars Overflowing per day by Yeadon Way ATC data

3.3.10 The table shows that overflowing cars per day is highest on bank holidays and Saturdays and lower on Fridays and Sundays. The figures per day are factored by day types per month in Table 3 below.

MONTH	FRIDAY		SATURDAY		SUNDAY		BANK HOLIDAY		HALF TERM		TOTAL
	DAYS	TOTAL CARS O/FLOW	DAYS	TOTAL CARS O/FLOW	DAYS	TOTAL CARS O/FLOW	DAYS	TOTAL CARS O/FLOW	DAYS	TOTAL CARS O/FLOW	TOTAL CARS O/FLOW
May	5	472	5	996	4	486	2	490	0	0	2,445
June	4	409	4	777	5	618	0	0	0	0	1,804
July	4	405	4	833	4	519	0	0	0	0	1,757
August	5	550	5	1,110	5	715	1	224	0	0	2,599
September	4	162	4	811	4	282	0	0	0	0	1,255
October	5	185	4	764	4	292	0	0	4	1,164	2,405
Total	27	2,183	26	5,292	26	2,912	3	714	0	1,164	12,265

Table 3. Factoring of Cars Overflowing per day to Monthly and Period Totals

3.3.11 Table 3 shows that the estimate of total cars overflowing from the central car parks to the Seasiders Way car parks in each May-October period is 12,265. It would be expected that diversions outside this time period would be negligible.

3.3.12 It has been estimated that the additional car km per diverted car park trip is around 2.7km (based on a circuit of Seasiders Way – New Bonny St – Promenade – Lytham Road – Bloomfield Road).

3.3.13 Assuming that the car park CCTV cameras and VMS allow all 12,265 cars to identify a space in a car park and so are prevented from making this circuit, this results in around 33,116 car km removed from the network. Assuming a speed of 20kph this equates to 8.1 minutes of travel time per car.

3.3.14 The benefit from the reduction in car kms has been monetised by applying the standard TAG Marginal External Costs for the North West (TAG data book sheet A5.4.2), and assuming congestion band 4. The time savings benefits have assumed a car occupancy of 1.85 (TAG all week "other" purpose average") and a Value of Time based on other purpose. The output benefits streamed over the 15 year appraisal period are summarised in Table 4.

	IMPACT (£000S)
Decongestion Benefit to General Traffic	220
Time Savings to Car Park Users	216
Environmental Impacts	15
Indirect Taxes	-13
TOTAL	**438**

Table 4. Car Park Access Benefits Summary (£000s in 2010 prices discounted to 2010)

3.3.15 Total benefits for parking search reduction over the 15 year appraisal period are therefore £0.438m in 2010 prices discounted to 2010.

3.4 Reduced journey times along the Promenade during the Illuminations

3.4.1 Benefits can be realised during the Illuminations period, by using the VMS to inform drivers of journey time information along the Promenade and promote the use of other modes (primarily tram) along the Promenade. Current journey times along the length of the illuminations from Starr Gate to Bispham have been estimated using a single observed journey time run carried out by BBC, and TrafficMaster journey time data provided by BBC through Lancashire County Council.

3.4.2 The TrafficMaster data has been analysed for the period September 2013 to November 2013 including periods with and without the effects of the illuminations. The availability of data is sparse on some stretches of the Promenade due to the low flows and mix of vehicle types. Analysis has therefore been carried out at a fairly aggregate level. Table 5 below shows total average journey times (in minutes) for the links that make up the Promenade route between Starr Gate and Red Bank Road, Bispham, in either direction for the period 1800-2200 by month, day type, and whether the illuminations were on display (all periods except November without Illuminations). This is a distance of around 8.2km. A journey time of 10-15 minutes implies an average speed of 33-50kph while journey times of 100 minutes imply a speed of just 5kph, a relatively moderate walking pace.

MONTH	MON-THU	FRI	SAT	SUN	HALF TERM WEEKDAYS
Northbound					
September	18	71	83	42	
October	30	41	114	77	77
November	16	20	106	50	
November without Illuminations	10	10	13	11	
Southbound					
September	18	28	91	29	
October	22	40	123	56	77
November	15	20	133	53	
November without Illuminations	10	11	14	N/D	

Table 5. TrafficMaster End to End Journey Times 2013 (minutes)

3.4.3 The table shows that Illuminations traffic has a very large impact on journey times, adding around 5-10 minutes on the quieter weekdays and anywhere from 30-100 minutes or more on busier days. These represent increases of 50-100% on weekdays and 300-1000% on some weekend evenings. It should also be noted that these are averages for the period 1800-2200, and the peak of this period is likely to have even longer journey times and slower speeds.

3.4.4 This evidence supports the two observed journey time survey outputs of 179 minutes northbound and 210 minutes southbound carried out on a weekday half term evening in 2011 and a Saturday evening in October 2012.

3.4.5 It has been assumed that the scheme will allow a reduction in journey time to be experienced through a combination of factors using VMS to:

- advertise journey times and promote mode shift to Public Transport
- Re-balance Northbound and Southbound flows to reduce overall average journey times.

3.4.6 It has been assumed that a reduction in journey time of 10 minutes in each direction could be achieved between 1800 and 2200 for all weekend (Friday-Sunday) and half term days on which the Illuminations are operational.

3.4.7 Vehicle flows have been taken from ATCs on the North and South Promenade, which show hourly flows in the period 1800-2200 of around 280-350 vehicles in each direction depending on day type, month, and direction.

3.4.8 A vehicle occupancy of 3 persons on "other" purpose has been assumed and this is then factored up to account for all illuminations days. The total time savings over the period of the illuminations is 43,660 person hours.

3.4.9 These time savings benefits are monetised using TAG values of time, and streamed and discounted over the 15 year appraisal period to give total benefits of £3.08m.

3.5 Accidents and Incidents

3.5.1 A third strand of benefits is the response to accidents and incidents using the VMS system to direct drivers to alternate routes, and further to use UTMC to modify signal timings in real time in support of the VMS re-routing, in order to mitigate the impact of the accidents and incidents. The VMS sign on the M55 allows for widespread re-routing of all traffic entering Blackpool from the M55.

3.5.2 Little incident-specific data is available on the frequency, duration, or impact of accidents on the highway network in Blackpool, although BBC have monitored the number of incidents and recorded accidents and consider that the following assumptions are robust. A number of assumptions have been made:

- There are a total of 0.5 detected incidents per day in the two peak periods (0700-1000 and 1600-1900) on the three main routes covered by the scheme.
- There are 0.5 detected incidents per IP period (1000-1600) on the same three main routes.
- The effect of incidents lasts for 0.5hrs per incident
- The effect of an incident is a 15 minute delay to all vehicles on that link
- The scheme can mitigate 75% of this impact through the measures outlined above.

3.5.3 Table 6 shows the progression of the calculations for the three main routes from the above assumptions and observed flows through to total annual time savings. Incidents are distributed between the roads based on their flow levels, and delay time saved is based on savings in one direction only. Annualisation is based on 6 peak period hours * 253 weekdays, while the Interpeak includes an allowance for weekends.

	YEADON WAY	PRESTON NEW ROAD	PROGRESS WAY
PEAK Periods			
Flows (total of both dirs.)	860	2,170	1,140
Incident delay	15	15	15
Incidents per peak hour	0.02	0.04	0.02
Duration	0.5	0.5	0.5
Mitigation	75%	75%	75%
Delay time saved	0.7	4.4	1.2
Annualisation	1,518	1,518	1,518
Annual vehicle hours saved	1,052	6,696	1,848
INTERPEAK Period			
Flows (total of both dirs.)	870	1,950	1,200
Incident delay	15	15	15
Incidents per peak hour	0.02	0.04	0.02
Duration	0.5	0.5	0.5
Mitigation	75%	75%	75%
Time saved	0.7	3.7	1.4
Annualisation	1,986	1,986	1,986
Annual vehicle hours saved	1,461	7,338	2,779

Table 6. Incident Impact Benefits

3.5.4 The total vehicle hours saved is therefore 21,173 per year. This is split between vehicle types using national fleet split figures and car vehicle type is further split between purposes using TAG all week average figures. The benefits are monetised using TAG values of time by vehicle type and streamed and discounted over the 15 year appraisal period. The value of the time savings are around £3.317m

3.6 Benefits Summary

3.6.1 The output benefits are summarised in the table below.

SOURCE	DESCRIPTION	BENEFITS (£000S IN 2010 PRICES DISCIOUNTED TO 2010)
Car Parking Benefits	Decongestion	220
	Time Savings	216
	Other Environmental	15
	Indirect Tax	-13
Illuminations Benefits	Time Savings	3,076
Incident Monitoring and Re-routing	Time Savings	3,317
TOTAL		6,831

Table 7. Benefits Summary

4. OTHER BENEFITS

4.1 Introduction

4.1.1 Additional work was carried out by Amion Consulting in 2013 to identify the potential economic benefit (Gross Value Added – GVA) of the Local Pinch Point Fund Bid schemes. This work identified additional development (housing and commercial), additional visitor numbers (day and overnight) and additional spending per visitor that would help to be delivered by the package of LPPF schemes, including Yeadon Way improvements, Lytham Road scheme, and Promenade Traffic Management. This work has been adapted to inform an estimation of GVA for the revised scheme.

4.2 Gross Value Added

4.2.1 The Amion work for the Promenade Traffic Management scheme only assumed:

- Day visitor uplift of 2% (from 7.8m p.a.)
- Day visitor spend uplift of 5% (from £34 per visitor)
- Visitor spend to support full time equivalent (FTE) job £55,374
- GVA per FTE employee £27,772
- A ramp in benefits in the first 3 years

4.2.2 The appraisal of benefit has been modified to include discounting and streaming over the 15 year appraisal period. Using the assumptions above this gives GVA uplift of £82.4m (2010

prices discounted to 2010), supporting around 340 FTE jobs.

4.2.3 It is considered that this level of benefit is unlikely given the small scale of the scheme, and its revised nature since the LPPF. If the scheme is considered to have just one tenth of its previously assumed impact it would increase visitor numbers by 0.2% and spending per visitor by 0.5%. The impact on GVA uplift over the 15 year appraisal period would be £8.13m (2010 prices discounted to 2010) supporting around 34 FTE jobs. Increasing visitor numbers and increasing their spending even by relatively small amounts can have large impacts on GVA uplift that may be larger than the direct traffic impacts described in the previous section.

5. COSTS

5.1 Introduction

5.1.1 Costs have been provided by BBC from updated cost estimates prepared by AECOM in 2015. These costs include the changes made in consultation between BBC/AECOM and JACOBS, acting for Transport for Lancashire, in August 2015.

5.2 Capital Costs

5.2.1 Capital costs have been estimated at £2.163m in 2015 prices assumed to be spent over two financial years from 2015-2017 with 87.5% in year 2015-16. This includes a 20% allowance for risk on top of the base costs. The following steps are then applied to produce the economic appraisal costs:

- Inflation assumed to be in line with the GDP deflator: 2.163m
- Costs split between IT and "Other" in the ratio 71% to 29%
- Optimism bias of 200% applied to IT costs and 66% to "other" costs (standard TAG value for IT and other projects at programme entry): £5.654m
- Converted to 2010 prices using GDP deflator: £5.169m
- Discounted to 2010 at 3.5% p.a.: £4.297m
- Converted to market prices: £5.114m

5.2.2 Total capital costs have been calculated at £5.114m in 2010 prices discounted to 2010.

5.3 Operating and Maintenance Costs

5.3.1 Operating and maintenance costs have been estimated by AECOM at £1.59m over 15 years including a 20% risk allowance uplift, in 2015 prices. This includes ongoing maintenance for the infrastructure of the scheme, and staff costs in order to operate the scheme and realise the benefits outlined above.

5.3.2 This equates to an annual cost of £115k in 2010 prices in market prices. Allowing for a further 1% p.a. increase in real terms per year this equates to £1.89m over the 15 year appraisal period or £1.18m in 2010 prices discounted to 2010.

5.4 Costs Summary

5.4.1 The Costs are summarised in Table 8 below.

COST TYPE	£000S IN 2010 PRICES DISCOUNTED TO 2010
Capital Costs	5,114
Operating Costs	1,175
TOTAL Costs	6,289

Table 8. Costs Summary

5.4.2 Total costs over the 15 year appraisal period are £6.17m in 2010 prices discounted to 2010.

6. OUTTURN ECONOMIC APPRAISAL

6.1 Introduction

6.1.1 The previous chapter set out the modelling approach used to reach the benefits estimates reported. A number of assumptions have been used, which has been necessary due to the limited evidence available at a local level. The figures reported in this section should be considered bearing in mind the assumptions necessary to inform the benefits calculations.

6.1.2 There is scope for identification of more specific risks to costs in order to increase certainty of costs and reduce the level of optimism bias applied. Section 6.4 contains more detail on improving the performance of the scheme.

6.2 Net Present Value, Benefit to Cost Ratio

6.2.1 A summary of the benefits and costs from the previous section is shown in Table 9.

	£000S (2010 PRICES DISCOUNTED TO 2010)
Car Park Access Benefits	438
Illuminations Benefits	3,076
Incidents and Accidents Benefits	3,317
Total Benefits	**6,831**
Capital Costs	5,114
Operating Costs	1,175

	£000S (2010 PRICES DISCOUNTED TO 2010)
Total Costs	**6,289**
Net Present Value	**541**
Benefit to Cost Ratio	**1.09**

Table 9. Transport Economic Appraisal Summary

6.2.2 The table shows that the total benefits exceed total costs. The NPV is £0.5m, and the BCR is 1.09.

6.3 Value for Money Statement

6.3.1 Taking into account the conventional transport economic benefits the scheme BCR of 1.09 indicates that the scheme currently represents low value for money.

6.3.2 However the potential for large GVA uplift benefits has been identified in section 4. Allowing for the economic impacts of a 0.2% uplift in visitor numbers and 0.5% in visitor spending would give a GVA uplift over the 15 year appraisal period of £8.13m. This would increase the PVB to £15.0m and the NPV to £8.7m. The resulting adjusted BCR is 2.38 indicating that the scheme is high value for money.

6.4 Improving Scheme Performance and Sensitivity Testing

6.4.1 The scheme appraisal suffers from relatively low transport benefits and relatively high costs. Low benefits are a product of the assumed benefits and the assumptions employed in the modelling of these impacts. High costs result primarily from the original scheme cost and the optimism bias level of 200% defined by TAG for IT-based schemes at this stage in their development which is applied to approximately 70% of costs.

6.4.2 Further transport benefits of the scheme could be explored, including any potential income from VMS (from other commercial advertising for example). The assumptions used for the modelled impacts could be examined to identify any areas where they may be considered pessimistic for the scheme. The illuminations and car parking impacts are somewhat time limited in only being truly effective for a limited period of the year. However, the main areas of benefit are the illuminations time savings and the incidents and accidents benefits, and it is likely that additional benefits would come in these areas if they are available.

6.4.3 As discussed in the costs section, the costs suffer from a 200% optimism bias imposed on all IT-based projects at this stage in development. The scheme scope and complexity, and hence risk, has already been reduced since the LPPF scheme and this has not been reflected in any reduction in optimism bias. At any further stage, further information on costs would create a clear case to reduce the levels of optimism bias applied to costs.

6.4.4 A set of sensitivity tests has been carried out to identify how much each assumption would

need to change to reach certain BCR thresholds. These tests have been carried out on the core transport economics BCR (not the adjusted BCR), and are reported in Table 10 below. The table shows the base assumptions or inputs in the "base" column and then shows what that particular input would need to change to (with all other inputs remaining constant) in order to reach the BCR threshold in the relevant column heading. For example the core incident delay per vehicle input is 15 minutes resulting in a BCR of 1.09. If only the incident per vehicle is modified to 26.8 minutes this would result in a BCR of 1.5.

INPUT / ASSUMPTION	BASE (BCR=1.09)	BCR=1.5	BCR=2.0
Cars diverting parking p.a.	12,265	85,213 (+595%)	173,325 (+1313%)
Illuminations time saving (minutes)	10	18.5 (+85%)	28.7 (+187%)
Incident delay per vehicle (minutes)	15	26.8 (+78%)	41.0 (+173%)
IT Costs Optimism Bias Level	200%	75% (-62%)	14% (-93%)*

* BCR is 2 with both IT and non-IT cost optimism bias at 14%

Table 10. Sensitivity Testing – Changes required to reach BCR thresholds

6.4.5 The sensitivity testing suggests that to reach the threshold of BCR=2.0, the number of cars diverting would need to be more than 14 times as large as we have estimated on the basis of the analysis of car park ticket sales.

6.4.6 The testing suggests that journey time savings along the promenade would need to be around 29 minutes per trip to reach the BCR threshold of 2.

6.4.7 It suggests that journey time savings would need to be around 41 minutes per car for incident detection in order to reach the BCR threshold.

6.4.8 The sensitivity testing also shows that the assumed level of optimism bias (200% for Information Technology projects) has a strong impact on the BCR. Reducing the optimism bias level for just IT costs to 75% results in a BCR of 1.5 while reducing both optimism bias levels (IT and non-IT) to 14% results in a BCR of 2.

6.4.9 The table shows that the smallest changes required are in the incidents and accidents impacts, the illuminations time savings, and optimism bias levels.

7. SUMMARY AND CONCLUSIONS

7.1 Introduction

7.1.1 This document has presented the outline rationale for, and assumptions underlying, the outline appraisal as well as presenting the outcome value for money statement. This section summarises the main findings on the performance of the scheme.

7.2 Performance of the Scheme

7.2.1 The scheme as judged to offer three main sources of transport economic benefit:

- Benefits arising from using VMS to direct cars directly to appropriate non-central area car parks when the Central area car parks are full or nearly full – both to the car occupants themselves and other drivers on the network;
- Benefits arising from using VMS and UTMC to reduce the very high journey times experienced on the Promenade during Illuminations times, particularly at weekends and school half term; and
- Benefits arising from using VMS and UTMC to mitigate the impact of traffic incidents on the network.

7.2.2 These benefits have been estimated using a combination of observed data and assumptions discussed in previous sections of this note, and streamed and monetised over a 15 year appraisal period. Costs, including capital and operating costs, have been calculated as described in section 5 of this note. Costs include optimism bias adjustment of 200% on IT-related elements of the scheme as prescribed by TAG. Summary outputs (in 2010 prices discounted to 2010) are:

- Total benefits: £6.8m
- Total costs : £6.3m
- Net Present Value: £0.5m
- Benefit to Cost Ratio: 1.09

7.2.3 In addition there are estimated GVA uplift benefits of £8.1m resulting from an assumed 0.2% uplift in visitor numbers and a 0.5% uplift in visitor spending. Including these in the Benefits/NPV/BCR calculations gives adjusted figures of:

- Adjusted Total benefits: £15.0m
- Total costs : £6.3m
- Net Present Value: £8.7m
- Adjusted Benefit to Cost Ratio: 2.38

7.2.4 The outcome of the appraisal is that the scheme, as appraised including the adjustment for GVA, is judged as high value for money.

APPROVAL

Version	Name		Position	Date	Modifications
1	Author	Nick Smith		07/04/2015	
	Checked by	John Allan		07/04/2015	
	Approved by			DD/MM/YY	
2	Author	Nick Smith		11/04/2015	
	Checked by	John Allan		11/04/2015	
	Approved by	John Allan		11/04/2015	
3	Author	Nick Smith		22/04/2015	Response to comments from BBC and added Summary and Conclusions
	Checked by	John Allan		22/04/2015	
	Approved by			DD/MM/YY	
4	Author	Nick Smith		29/04/2015	Response to review and further comments from BBC
	Checked by	John Allan		29/04/2015	
	Approved by			DD/MM/YY	
5	Author	Nick Smith		21/07/2015	Updated to reflect revised scheme definition, revised costs, and include GVA section
	Checked by			21/07/2015	
	Approved by			DD/MM/YY	
6	Author	Nick Smith		24/08/2015	Updated to reflect further modifications to costs provided by BBC/AECOM
	Checked by			DD/MM/YY	
	Approved by			DD/MM/YY	