



LAND AT DEAL GROUND AND MAY GURNEY

Environmental Statement Addendum – Chapter 10: Transport

Serruys Property Company Limited

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Appendices

Appendix 10.1 – Transport Assessment, Contemporary Transport, December 2010

Appendix 10.2 – Transport Assessment Addendum, Odyssey, May 2023

Appendix 10.3 - Framework Residential Travel Plan, Contemporary Transport, January 2011

Appendix 10.4 - Environmental Impact Assessment Scoping Opinion - Norfolk County Council Highways Response (Ref. 22/01225/EIA2)

10 TRANSPORT

10.1 INTRODUCTION – TRANSPORT

This ESA Transport Chapter assesses the likely significant effects of the Development in terms of Highways and Transportation and is supported by the Transport Assessment (TA, 2010, appendix 10.1) and associated supporting documents for the outline planning application, and the Transport Assessment Addendum (TAA, 2023, appendix 10.2). A Framework Residential Travel Plan (FRTP, 2011, appendix 10.3) has also been prepared.

10.2 METHODOLOGY

10.2.1 Changes in Legislation, Guidance and Planning Policy

A full review of the policy and guidance for the Highways and Transportation elements of the Development relevant to the outline planning approval are included within the TA. There is no legislation applicable to the assessment of the transportation related effects of the Development.

The following guidance documents are of relevance to this assessment:

- Institute of Environmental Assessment (IEA) (now Institute of Environmental Management and Assessment, IEMA), Guidelines for the Environmental Assessment of Road Traffic¹; and
- Department for Transport (DfT), 'Transport analysis guidance' (WebTAG)².

10.2.2 Scoping Opinion

An EIA Scoping Opinion with respect to the proposal was sought from Norwich City Council (NCiC)(reference: 22/01225/EIA2) and South Norfolk Council (SNC) (reference: 2022/1847), and the responses included comments from Norfolk County Council (NCoC), in appendix 10.4, as the Local Highway Authority.

The NCoC response advised that a revised Transport Assessment is required, and that '...The revised assessment should take into account the wider East Norwich development (given that there is a submitted, albeit un-validated planning application). In addition, the assessment years will have changed and there will have been changes in traffic levels since the original traffic surveys were undertaken. Consideration will also need to be made regarding access to catchment schools and walking/cycling routes to local facilities and employment areas'. This request has been responded to in the preparation of the TAA (appendix 10.2).

Although there were no comments by NCoC Highways with reference to the requirement for an ESA in respect to Highways matters, NCiC advised *'The local planning authority therefore considers that the potential effects on the environment of transport and traffic associated with this proposed development could be significant, requiring further inclusion within the Environmental Statement'*.

¹ Institute of Environmental Assessment (IEA), 1993, Guidelines for the Environmental Assessment of Road Traffic

² Department for Transport (last updated November 2022) 'Transport analysis guidance' (WebTAG)

10.2.3 Additional Consultation

There has been no further consultation subject to the request for scoping opinions.

10.2.4 Assessment Scope

This assessment has been carried out in accordance with the Guidelines for the Environmental Assessment of Road Traffic produced by the IEA. The guidelines outline the methodology for the assessment of the environmental impact of road traffic associated with major new developments, which includes requirements with respect to assessing:

- Severance;
- Pedestrian delay;
- Pedestrian amenity;
- Driver delay;
- Accidents and safety; and
- Hazardous loads.

The significance of each effect has been considered against the criteria within the IEA guidelines, where possible.

The assessment is divided into two distinct phases of the Development in accordance with the IEA guidelines. The assessment separately considers a) construction traffic; and b) operational traffic. Construction effects have been considered for the Development on its own and cumulatively with other committed developments while the operational effects have only been assessed cumulatively due to the methodology used in the traffic modelling.

In practice there will be an overlap of the construction and operational phases of the Development as the Development will be phased over a number of years, between 2025 and 2038. Given the different characteristics of the traffic generated during each of these phases it is considered appropriate to separate them to enable the effects to be suitably assessed and quantified.

To determine the extent of the local and strategic highway networks to be assessed within this chapter, the following thresholds have been applied in accordance with the IEA guidelines:

- 'Include links where traffic flows are expected to increase by more than 30%, or where HGV flows are expected to increase by more than 30% as a result of the Development; and
- Include links in proximity to sensitive receptors as defined previously (see below), where traffic flows are expected to increase by more than 10% as a result of the Development.'

Paragraph 3.20 of the IEA guidelines sets out that 'sensitive' locations include:

'Accident blackspots, conservation areas, hospitals, links with high pedestrian flows, etc. Normally it would not be appropriate to consider links where traffic flows have changed by less than 10% unless there are significant changes in the composition of traffic, e.g. a large increase in the number of Heavy Goods Vehicles.'

In addition, the DfT provide 'Transport analysis guidance' (WebTAG) (last updated in November 2022) that can assist in the assessment of potential adverse impacts of road traffic wherever the IEA guidelines

relating to thresholds for magnitudes of impact are exceeded, providing a best practice guide that has been referred to in the preparation of this Transport Chapter.

The scope and structure of the TA (appendix 10.1) was informed by pre-application discussions and scoping with NCoC. The subsequent TAA (appendix 10.2) has been informed the NCoC Highways response to the EIA Scoping Opinion request.

10.2.5 Effects Not Requiring Further Assessment

This assessment has scoped out the hazardous loads, as the Development is a mixed-use residential led development with commercial uses, therefore no dangerous or hazardous loads are expected to be transported during the construction or operational phases of development.

Noise and air quality impacts are not assessed in this Chapter. Noise and Vibration impacts were scoped out through the Scoping Opinion and Chapter 11 assesses the Air Quality impact.

10.2.6 Assessment Methodology

This section considers the methodology undertaken to assess the Transport impacts and effects of the Development. The methodology to assess the Transport impacts and effects resulting from the Development's construction and operational phases are based upon the baseline conditions, predicted construction traffic flows and operational traffic modelling presented in the TA (refer to Appendix 10.1), with due reference made to the TAA (appendix 10.2) where applicable.

An assessment has been undertaken of the impacts and effects of the Development's construction phase on the local highway network and sensitive receptors.

An assessment has also been undertaken of the impacts and effects of the Development once operational in combination with the traffic flows from the below committed developments on the local and strategic highway networks. In respect of this Chapter, limited weight has been applied to the impacts of the below committed developments and potential developments noting that the Development scheme has planning approval, and has done since July 2013 (just under the last 10 years), therefore the below schemes should have already taken the permitted Development into account in their own respective planning applications.

The committed developments are:

- Phase 2, Land off White Horse Lane, Trowse (Ref. 2019/2318) - 83 dwellings - Approved
- Land north of Caistor Lane Caistor St Edmund (Ref. 2022/2148) – Country Park and 180 dwellings, and 420 primary school – Pending consideration

Three potential developments are:

- Anglia Square (Ref. 22/00434/F) – 1,100 dwellings and 8,000 sqm flexible retail – Yet to be determined
- Land North of Carrow Quay (Ref. 17/01647/VC) – 250 flats plus flexible employment – Phase 4 remains to be constructed
- Carrow Works, King Street (Ref. 22/00540/EIA2) – Mixed used redevelopment³ - EIA Scoping stage

³ The 'Environmental Impact Assessment Scoping Report' (2022) does not specify the development quantum

There are no committed highway infrastructure improvements in the immediate vicinity of the site to take account of.

The TA (appendix 10.1) sets out the derivation of traffic flows for the operational Development use in this assessment. The TA also sets out the methodology for distributing and assigning traffic onto the local and strategic highway networks.

10.3 CHANGES IN BASELINE CONDITIONS

10.3.1 ES Baseline

The ES baseline conditions are presented in the TA (appendix 10.1); specifically refer to Section 2 Site Context and Section 4 Baseline Transport Data.

10.3.2 ES Future Baseline

The ES future baseline conditions are described in the TA (appendix 10.1); specifically refer to Section 6 Development Proposals and Section 7 Transport Strategy.

10.3.3 Current Baseline

The current baseline conditions are summarised in the TAA (appendix 10.2); specifically refer to Section 2 Site Context and Section 4 Baseline Transport Data. This demonstrates that there has not been the growth in traffic on the local highway network predicted in the TA (appendix 10.1), and that there has in fact been a reduction in peak hour traffic flows between those surveyed in 2009 for and set out in the TA, and those surveyed in 2023 for and contained in the TAA. For the purpose of this assessment the TA (appendix 10.1) has been referred to such that a robust assessment, in terms of the operation of the local highway network, is undertaken.

10.3.4 Changes in Baseline

There have been no changes in the baseline conditions for the purpose of this ESA Transport Chapter, as discussed above.

10.4 ASSESSMENT OF EFFECTS

The potential results and significance of the environmental effects on transportation are characterised, in the absence of mitigation measures (but there being embedded measures), beyond those identified and described in previous Chapters as embedded into the Development, for the construction and operational phases of the Development.

10.4.1 Construction Phase Effects

The construction phasing of the Development would determine the requirement for construction vehicles to access the Site. Initial details of how construction vehicles would access the site is presented in Section 8 of the TA (appendix 10.1). The buildout of the Development would start with the primary means of access, comprising of the revised Site access with Bracondale and spine road through the Development.

Construction vehicles would access the Site from Bracondale. Routing of construction vehicles is expected to be via Bracondale, Martineau Lane and the A146 serving the A47 Norwich Southern Bypass. There is not expected to be the use of local residential roads for construction traffic.

To manage and minimise the impact of construction vehicles on the local highway (noting that the proposed routing would not pass any residential areas or sensitive receptors) a Construction Method Statement would be implemented, as secured in Condition 42 of the outline planning permission. The details of the Construction Method Statement would be confirmed prior to construction, as per the requirements of the planning condition.

The IEA Guidelines for the Environmental Assessment of Road Traffic sets out that '*...highway links should be assessed when traffic flows have increased by more than 30% or other sensitive areas are affected by traffic increases of at least 10%*'.

Owing to the A-road nature of Martineau Lane (A1054) and the A146, both of which are local distributor roads and therefore subject to a high volume of traffic, it is not considered that the construction traffic would result in a 30% increase in traffic volumes, such it is not considered that any further assessment is required; however, an assessment of effects is carried out to provide a robust assessment.

10.4.1.1 Severance

There would be a negligible to no change to severance experienced by pedestrians using and crossing Bracondale and Martineau Roundabout. As such there is likely to be a negligible magnitude of impact resulting in a temporary effect of slight adverse significance for Bracondale and temporary neutral effect for Martineau Roundabout and further afield.

10.4.1.2 Pedestrian Delay and Amenity

There would be a negligible change to the delay and amenity experienced by pedestrians using Bracondale; as such, there is likely to be a negligible magnitude of impact resulting in a temporary effect of slight adverse significance.

There would be a negligible to no change to the delay and amenity experienced by pedestrians using Martineau Roundabout and further afield; as such, there is likely to be a negligible magnitude of impact resulting in a temporary neutral effect.

10.4.1.3 Driver Delay

There would be the potential for a small change to the delay of traffic using Bracondale and Martineau Roundabout associated with the construction traffic. The construction traffic would be spread throughout the day, and would be organised, as much as possible, to occur outside of peak times to avoid potential delay on the local highway network. The impact of construction traffic on driver delay is therefore considered to be small in magnitude with a temporary slight adverse significance until the construction works are complete.

10.4.1.4 Fear and Intimidation

There would be a small change to the level of fear and intimidation experienced by pedestrians and cyclists using Bracondale during the construction phase due to the construction related traffic. As such, the magnitude of impact would be small resulting in a temporary effect of slight adverse significance.

There would be a slight change to the level of fear and intimidation experienced by pedestrians and cyclists using Martineau Roundabout owing to the slight increase and change in traffic composition associated with the construction traffic. It is considered that at Martineau Roundabout and Martineau Lane there would not be a noticeable change to the level or composition of traffic on the A1054 Martineau

Lane which already carries a high volume of traffic and HGVs. Therefore, there would be a temporary effect of slight adverse to neutral significance.

10.4.1.5 Accidents and Safety

There would be a potential negligible change to accidents and safety on Bracondale during the construction phase due to the construction related traffic. Bracondale has a suitable carriageway width and alignment to cater for such traffic, as it does for the Tarmac Trowse Asphalt Plant site circa 200 m northwest of the Development. However, it is not a road that would typically experience the volume of the composition of the construction traffic to the site access. As such, the magnitude of impact would be negligible resulting in a temporary effect of slight adverse significance.

It is further considered that there would be no change to accidents and safety on Martineau Roundabout and the A1054 Martineau Lane or A146, or further afield, as there would not be a noticeable change to the level or composition of traffic, with the aforementioned road which already carries a high volume of traffic and HGVs. Therefore, there would be a temporary effect of neutral significance.

10.4.2 Additional Operational Phase Effects

This section assesses the effects during operation of the Proposed Development in combination with the other nearby committed and potential developments listed previously to provide a worst case realistic assessment of the effects resulting from the combined traffic flows. There is no assessment of the Proposed Development's operational phase on its own.

The operational phase includes for the implementation of the Framework Residential Travel Plan (appendix 10.3) which would seek to reduce the number of vehicle trips generated by the Development.

10.4.2.1 Severance

The IEA guidance suggests that a 60% to 90% increase in traffic flows would have a 'moderate' to 'substantial' change in severance.

Based upon the IEA guidance the increase in traffic on Bracondale in the AM and PM peak would be 'substantial', however, this is not forecast to result in traffic conditions whereby pedestrians would not be able to safely cross Bracondale, owing to the low flow of traffic that Bracondale currently accommodates (and hence why there is forecast to be a large percentage increase of traffic with the Development). The traffic flows along Bracondale with development in the AM and PM hours are forecast to be between 550-600 two-way vehicle movements.

Although the DfT's (1999), Design Manual for Roads and Bridges 'Traffic Capacity of Urban Roads' (TA 79/99) document was withdrawn in 2020, the principles contained within it are considered reasonable to apply to such an analysis. Table 1 of Traffic Capacity of Urban Roads sets out different types of urban roads, with the UAP4 road type being closest to Bracondale. This is because Bracondale carries local traffic, has a 30mph speed limit and with at-grade pedestrian crossings.

Table 2 of Traffic Capacity of Urban Roads sets out the capacity of such a road, UAP4 with a 6.1m wide carriageway, at 750 vehicles per hour in the busiest direction, and with a 60/40 split this allows for 1,250 two-way vehicle movements per hour.

On the basis of the above analysis it is considered that there would be a small change to severance experienced by pedestrians using Bracondale, crossing the site access and also crossing Martineau

Roundabout associated with the traffic from the Development. As such, there is likely to be a small magnitude of impact resulting in a permanent cumulative effect of slight adverse significance for Bracondale, and a permanent neutral effect of neutral significance for Martineau Roundabout and further afield.

10.4.2.2 Pedestrian Delay

There would be a minor change to the delay experienced by pedestrians using Bracondale and Martineau Roundabout, due to the aforementioned change in traffic flows. As such, there is likely to be a small magnitude of impact resulting in a permanent cumulative effect of slight adverse significance.

10.4.2.3 Pedestrian Amenity

The IEA guidelines broadly define pedestrian delay and amenity as the relative pleasantness of a journey. It is affected by traffic flows, traffic composition, pavement (footway) width and separation from traffic. A tentative threshold for changes in pedestrian amenity is where traffic flows are halved or doubled.

It is considered that there would be a moderate change to amenity experienced by pedestrians using Bracondale due to the forecast change in traffic flows with the Development. As such, there is likely to be a medium magnitude of impact resulting in a permanent cumulative effect of moderate adverse significance.

There would be no change to the amenity experienced by pedestrians using Martineau Roundabout, due to the dissipation of the Development generated traffic, together with the high flow of traffic on the roads forming the arms of the roundabout, meaning there would be a negligible change to the quantum traffic flows. There would, therefore, be permanent cumulative effects of neutral significance to pedestrian amenity along these roads.

10.4.2.4 Driver Delay

It is considered that there would be a minor change to the delay for drivers using Bracondale. The impact of Driver Delay is assessed as detailed in Section 10 of the TA (appendix 10.1) and associated reports submitted with the outline planning approval. It is further noted, as detailed within Section 7 Transport Strategy and Section 9 Trip Generation, Distribution and Modal Split of the TA (appendix 10.1) that the site specific circumstances of the Development mean that vehicle trips from the Development would be minimised, and therefore the Developments impact on the operation of the local highway network would also be minimised. As such the magnitude of impact would be small resulting in a permanent cumulative effect of slight adverse significance.

10.4.2.5 Fear and Intimidation

The IEA guidelines suggested a threshold based on 18-hour daily flows, 18 hour HGV flows and vehicle speeds. Predicted 18-hour cumulative traffic flows on Bracondale are estimated to be 7,288 vehicle movements, averaging to 405 two-way vehicle movements an hour. HGV flows are estimated to be below 1,000 per day.

The average traffic flows and HGV flows would result in, at worst, a minor degree of fear and intimidation when considering the specific criteria, as there are suitable footways and drop kerb crossing points with suitable pedestrian visibility for such vehicle speeds along Bracondale.

On this basis it is considered that there would be a minor change to the level of fear and intimidation experienced by pedestrians using Bracondale during the operational phase due to the increase in traffic volumes. As such, the magnitude of impact would be small resulting in a permanent cumulative effect of slight adverse significance.

There would be no change to the level of fear and intimidation experienced by pedestrians at Martineau Roundabout or further afield, as there would not be a noticeable change to the level or composition of traffic. Therefore, there would be a permanent cumulative effect of neutral significance to the level of fear and intimidation along these roads.

10.4.2.6 Accident and Safety

A review of the existing patterns of accidents, as set out in detail in the TA (appendix 10.1), does not identify any particular safety concerns with the operation of the local highway network. In summary, the accidents in immediate proximity to the Development are a result of human error, and there is not an inherent safety concern on the local highway network that would need addressing.

It is considered that there would be a negligible change to accidents and safety on Bracondale during the operational phase due to traffic generated by the Development. As such, the magnitude of impact would be negligible resulting in a permanent cumulative effect of slight adverse significance.

There would be no change to accidents and safety on Martineau Roundabout or further afield, as there would not be a noticeable change to the level or composition of traffic, with Martineau Roundabout already carrying a high volume of traffic and HGVs. Therefore, there would be permanent cumulative effects of neutral significance to accidents along these roads.

10.4.3 Additional Cumulative Effects

It is not considered that there would be any cumulative effects owing to the distance of the committed and potential developments from the Development, meaning there would be negligible to no impact on Bracondale or Martineau Roundabout. It is further noted that the Development has planning approval and as such the committed and potential developments should account for the impacts and effects of the Development.

10.5 REQUIREMENT FOR ADDITIONAL MITIGATION

10.5.1 Alternate or Additional Mitigation

There is no requirement for additional mitigation, however the following embedded mitigation measures are required for the Development, as secured through planning conditions following the outline planning approval, and subsequent non-material amendment (planning Reference 20/00698/NMA):

- Condition 6 requires a public transport scheme to be agreed and implemented prior to occupation of the 100th dwelling, assumed to be for the purpose of minimising private vehicle trips on the local highway network.
- Conditions 25 and 26 require the implementation of an Interim and then Full Travel Plan, to encourage sustainable modes of transport and minimise the number of vehicle trips future residents and employees would generate on the local highway network.

- Condition 42 requires that a Construction Method Statement is approved prior to commencement on any phase, this is to minimise the impact of transport on sensitive receptors.
- Condition 43 requires that a Construction Environmental Management Plan is approved prior to commencement on any phase, this is to minimise the impact of transport on sensitive receptors.

10.6 RESIDUAL EFFECTS

10.6.1 Construction Phase

Table 10.1 provides a summary of the residual construction phase effects resulting from the Development after the effective implementation of the embedded mitigation measures, as conditioned with the outline planning approval.

Table 10.1: Residual Transport Effects of the Construction Phase

Receptor Affected	Residual Effects
Severance: For pedestrians using Bracondale	Temporary slight adverse effect
Severance: For pedestrians of Martineau Roundabout or further afield	Temporary neutral effect
Pedestrian Delay and Amenity: For pedestrians using Bracondale	Temporary slight adverse effect
Pedestrian Delay and Amenity: For pedestrians using Martineau Roundabout or further afield	Temporary neutral effect
Driver Delay: For drivers using Bracondale and Martineau Roundabout	Temporary slight adverse effect
Fear and Intimidation: For pedestrians and cyclists using Bracondale	Temporary slight adverse effect
Fear and Intimidation: For pedestrians and cyclists using Martineau Roundabout	Temporary neutral effect
Accidents and Safety: For users of Bracondale	Temporary slight adverse effect
Accidents and Safety: For users of Martineau Roundabout and further afield	Temporary neutral effect

10.6.2 Operational Phase

Table 10.2 provides a summary of the residual operational phase effects resulting from the development after the effective implementation of the embedded mitigation measures, as conditioned with the outline planning approval.

Table 10.2: Residual Transport Effects of the Operational Phase

Receptor Affected	Residual Effects
Severance: For pedestrians using Bracondale	Permanent slight adverse effect
Severance: For pedestrians of Martineau Roundabout or further afield	Permanent neutral effect

Receptor Affected	Residual Effects
Pedestrian Delay and Amenity: For pedestrians using Bracondale and Martineau Roundabout or further afield	Permanent slight adverse effect
Pedestrian Amenity: For pedestrians using Bracondale	Permanent moderate adverse effect
Pedestrian Amenity: For pedestrians using Martineau Roundabout or further afield	Permanent neutral effect
Driver Delay: For drivers using Bracondale	Permanent slight adverse effect
Fear and Intimidation: For pedestrians and cyclists using Bracondale	Permanent slight adverse effect
Fear and Intimidation: For pedestrians and cyclists using Martineau Roundabout or further afield	Permanent neutral effect
Accidents and Safety: For pedestrians walking along and crossing Bracondale	Permanent slight adverse effect
Accidents and Safety: For pedestrians walking along and using Bracondale, Martineau Roundabout or further afield	Permanent neutral effect

10.7 OTHER ENVIRONMENTAL ISSUES

This section seeks to detail any considerations and environmental effects that have been identified with regard to the range of topics which have been introduced into the EIA requirements through the EIA Regulations 2017. Where there are no such considerations or environmental effects relevant to Transport, this is also specified for clarity.

10.7.1 Other Environmental Issues of Relevance

10.7.1.1 Infrastructure

There are no considerations or environmental effects relevant to Transport.

10.7.1.2 Waste

There are no considerations or environmental effects relevant to Transport.

10.7.1.3 Population and Human Health

There are no considerations or environmental effects relevant to Transport.

10.7.1.4 Climate and Change

There are no considerations or environmental effects relevant to Transport.

10.7.1.5 Risk of Major Accidents and/or Disasters

This has been scoped out of the ESA.

10.7.2 Summary

There are no other Transport related environmental issues of relevance to consider.

10.8 SUMMARY OF EFFECTS

Table 10.3 provides a summary of the Transport effects, mitigation and residual effects.

Receptor/ Affected Group	Significance (value) of Receptor	Effect	Embedded Mitigation Measures	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of Effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual Effect
Construction Effects								
Severance: For pedestrians using Bracondale	High	Change in severance experienced by pedestrians using Bracondale due to change in traffic flow associated with the introduction of construction traffic	Implementation of the Construction Method Statement (Condition 42)	Negligible	Slight Adverse	None	Negligible	Slight Adverse
				Local				
				Temporary				
				Near-Certain				
Severance: For pedestrians of Martineau Roundabout and further afield	High	No change in severance for users of Martineau Roundabout and further afield	Implementation of the Construction Method Statement (Condition 42)	No Change	Neutral	None	No Change	Neutral
				Local				
				Temporary				
				Near-Certain				
	High			Negligible	Slight Adverse	None	Negligible	

Receptor/ Affected Group	Significance (value) of Receptor	Effect	Embedded Mitigation Measures	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of Effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual Effect
Pedestrian Delay and Amenity: For pedestrians using Bracondale		Minimal change to the delay and amenity experienced by pedestrians due to change in traffic flow along Bracondale	Implementation of the Construction Method Statement (Condition 42)	Local				Slight Adverse
				Temporary				
				Near-Certain				
Pedestrian Delay and Amenity: For pedestrians of Martineau Roundabout and further afield	High	Minimal to no change to the delay and amenity experienced by pedestrian users of Martineau Roundabout and further afield	Implementation of the Construction Method Statement (Condition 42)	No Change to minimal	Neutral	None	No Change	Neutral
				Local				
				Temporary				
Driver Delay: For drivers using Bracondale and Martineau Roundabout	Medium	Minimal increase in traffic flows on Bracondale and at Martineau Roundabout	Implementation of the Construction Method Statement (Condition 42)	Small	Slight Adverse	None	Small	Slight Adverse
				Local				
				Temporary				
				Near-Certain				

Receptor/ Affected Group	Significance (value) of Receptor	Effect	Embedded Mitigation Measures	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of Effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual Effect
Fear and Intimidation: for pedestrians and cyclists using Bracondale	High	Minimal increase in traffic flows and negligible increase in HGVs along local road network experienced by pedestrians and cyclists using Bracondale	Implementation of the Construction Method Statement (Condition 42)	Small	Slight Adverse	None	Small	Slight Adverse
				Local				
				Temporary				
				Near-Certain				
Fear and Intimidation: For pedestrians and cyclists using of Martineau Roundabout and further afield	High	No noticeable change to the level or composition of traffic on the Martineua Lane or further afield	Implementation of the Construction Method Statement (Condition 42)	No Change	Neutral	None	No Change	Neutral
				Local				
				Temporary				
				Near-Certain				
Accidents and Safety: For pusers of Bracondale	High	Negligible change to accidents and safety due to construction related traffic	Implementation of the Construction Method Statement (Condition 42)	No Change	Slight Adverse	None	No Change	Slight Adverse
				Local				
				Temporary				
				Near-Certain				

Receptor/ Affected Group	Significance (value) of Receptor	Effect	Embedded Mitigation Measures	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of Effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual Effect
Accidents and Safety: For users of Martineau Roundabout and further afield	High	Negligible change to accidents and safety due to construction related traffic	Implementation of the Construction Method Statement (Condition 42)	No Change	Neutral	None	No Change	Neutral
				Local				
				Temporary				
				Near-Certain				
Operational Effects								
Severance: For pedestrians using Bracondale	High	Moderate increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	Small	Slight Adverse	None	Small	Slight Adverse
				Local				
				Permanent				
				Near-Certain				
Severance: For users of Martineau Roundabout and further afield	High	Minimal increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	No Change	Neutral	None	Small	Neutral
				Local				
				Permanent				
				Near-Certain				
Pedestrian Delay and Amenity: For pedestrians using Bracondale	High	Minimal increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	Small	Slight Adverse	None	Small	Slight Adverse
				Local				
				Permanent				
				Near-Certain				
Pedestrian Amenity: For pedestrians	High	Moderate increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	Medium	Moderate Adverse	None	Medium	Moderate Adverse
				Local				
				Permanent				

Receptor/ Affected Group	Significance (value) of Receptor	Effect	Embedded Mitigation Measures	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of Effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual Effect
using Bracondale				Near-Certain				
Pedestrian Amenity: For users of Martineau Roundabout and further afield	High	Minimal increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	small	Slight Adverse	None	Small	Slight Adverse
				Local				
				Permanent				
				Near-Certain				
Driver Delay: For drivers driving using Bracondale	Medium	Moderate increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	Small	Slight Adverse	None	Small	Slight Adverse
				Local				
				Permanent				
				Near-Certain				
Fear and Intimidation: For pedestrians and cyclists using Bracondale	High	Moderate increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	Small	Slight Adverse	None	Small	Slight Adverse
				Local				
				Permanent				
				Near-Certain				
Fear and Intimidation: For pedestrians and cyclists using Martineau Roundabout and further afield	High	Minimal increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	No Change	Neutral	None	No Change	Neutral
				Local				
				Permanent				
				Near-Certain				

Receptor/ Affected Group	Significance (value) of Receptor	Effect	Embedded Mitigation Measures	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of Effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual Effect
Accidents and Safety: For pedestrians walking along and crossing Bracondale	High	Moderate increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	Negligible	Slight Adverse	None	Negligible	Slight Adverse
				Local				
				Permanent				
				Near-Certain				
Accidents and Safety: For pedestrians walking along and using Bracondale, Martineau Roundabout or further afield	High	Minimal increase in traffic flows	Implementation of Travel Plan as per conditions 25 and 26	No Change	Neutral	None	No Change	Neutral

10.9 CONCLUSIONS

The Development is not expected to result in anything above a slight adverse effect from a Transport perspective, and therefore the Development is considered to be acceptable with respect to highways and transportation.

Environmental Statement Addendum – Chapter 10: Transport Appendix 10.1

Contemporary Transport™

Transport Assessment

**Proposed Development at
Deal Ground and May Gurney Site**

Job title:	Deal Ground and May Gurney Site	Job number:	10080023
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1 Introduction

1.1 Background

Contemporary Transport™ was appointed by Serruys Property Company Ltd to provide sustainable transport and movement advice to inform the site development proposals and to undertake a transport assessment (TA) for proposed development of the Deal Ground and May Gurney site in Trowse, Norwich.

It is vital to recognise the unique aspects of this development, particularly in terms of its relationship with the natural environment and the informed approach to design taken. This has ensured that the development proposals address specific constraints that have limited past ability to agree an appropriate development response.

1.2 Approach

The approach to the TA follows the clear procedures for good practice set out in the DfT Guidance on Transport Assessments. This is important, as the DfT guidance promotes strongly the development of a strategy working in collaboration with the local authorities to implement a sustainable approach to address travel requirements. The guidance does not seek to create a level of traffic that will then need to be subsequently reduced. Instead the strategy seeks to deliver an appropriate and acceptable level of traffic that will then be maintained through the implementation of the strategy.

There are no directly comparable developments with data available to provide readily available information on suitable trip generation, mode split and directional analysis. It has been possible, working in close collaboration with officers representing Norfolk County Council as highway authority and the local Councils as planning authorities to determine an appropriate proxy for the level of trips that a development of this type could be expected to generate. The specific requirements of the development heightened the need to work closely with both local authorities to establish a bespoke approach to trip generation for this site.

This TA provides an analysis of the travel and transport implications associated with proposed development and demonstrates that the impact can be managed appropriately. A travel plan is also provided which builds on and supports the TA. The TA and travel plan are interdependent. The travel plan has been devised to support in a fully integrated manner the site design and strategic approach to transport.

Working closely with Norfolk County Council and the local Councils it has been possible to ensure that an appropriate and robust approach is provided to manage and cater for travel

requirements in a practicable and sustainable manner. An appropriate approach to traffic modelling was agreed with NCC and key junctions were selected in line with NCC requirements. Appropriate mode shares have been agreed with NCC and Norwich City Council and the development traffic has been input into the traffic models.

1.3 Planning Situation

This TA has been prepared to follow procedures requested by Norfolk County Council, the highway authority for the area. The site is also covered by policies of the South Norfolk Local Plan and the Norwich City Local Plan.

Both the Deal Ground and May Gurney areas of the site are areas allocated for development. There is an extant permission on the May Gurney site for 6,576 m² of B1 development in addition to the existing May Gurney company offices. The planning decision letter of 21/8/07 noted reasons for approval. Of particular relevance are the following comments relating to the traffic and highways impact:

- *In terms of the site access itself at peak periods the traffic flows along The Street do not appear to be excessive and the site is fairly well served by bus services and cycle routes allowing for a choice of non-car travel-to-work modes in line with PPG13;*
- *The development would be likely to load to some additional congestion at the roundabout in the peak periods. But there is scant evidence to show that the margin of impact over the already permitted developments would be so great that it would warrant refusing renewal of an employment proposal which is in accordance with a recently adopted local plan.*
- *I conclude that the proposed development would not contravene the underlying aims of local plan policy IMP8 to secure the free and safe flow on the highway network.*

The analysis shows that the change between the without and with development scenarios is insignificant. Any change that does occur can be accommodated by peak spreading. This finding is in line with the Inspector's reasoning and conclusion. Accordingly there is no evidence to suggest that impact over the already permitted developments would be so great that it would warrant refusing renewal.

1.4 Transport Strategy

A detailed transport strategy has been developed. It includes an innovative approach to setting up and implementing a Transport Management Association (TMA) as a suitable organisational vehicle to oversee the effective delivery of the transport strategy both on-site and in an integrated manner within the wider community. This helps to deliver transport

benefits beyond the site boundary and recognises the importance of a collaborative approach. A robust approach to funding the strategy has been established and the principles of an appropriate parking management scheme have been devised to support the effective operation of the sustainable transport approach.

The design is been informed by the transport strategy to ensure that they are complementary. The inter-relationship with the design means that the transport strategy is integral to the success of the development. A *first principles* approach to trip generation has been used to best reflect the site-specific circumstances. There will be a high quality pedestrian and cycle link connecting the site with the city centre and railway station, implemented before first occupancy of the Deal Ground residential units. This route will be more direct and quicker by bicycle (at peak times) than travelling by car or public transport.

The strategy is based on analysis of what is practicable and deliverable. The trip generation rates are therefore unique to the location of this development. They reflect the potential of an integrated travel demand management (TDM) strategy, including the implementation of a comprehensive package of complementary Smarter Travel interventions and site specific Residential Travel Plan.

1.5 Report Structure

The TA is set out in accordance with the DfT Guidance on Transport Assessment. The background to the site including the local and historic context is provided in section 2 and a summary of the committed transport proposals is detailed subsequently.

Section 4 provides a detailed overview of the current transport infrastructure and an explanation of local routes. The following section describes the policy background and demonstrates how the approach to transport management complements the strategic policy objectives.

The development proposals are summarised in section 6. The strategic approach to manage demand for transport and ensure provision is optimised with regard to sustainability objectives is provided in detail in section 7.

The appropriateness of routes for construction traffic is considered in section 8.

A comprehensive explanation of the trip generation methodology is provided in section 9. This explains how the trip generation and modal splits agreed with the Councils has been derived and details how movement generated by the site is most likely to be distributed.

The penultimate section of the TA provides analysis of the traffic generated on the local highway network, with particular regard to critical junctions highlighted by the local highway authority Norfolk County Council. Reasoned consideration is then provided as to the likely impact of traffic generated on the operational effectiveness of the local highway network.

2 Site Context

2.1 Location

The Deal Ground and May Gurney site (the site) is located on the south-eastern boundary of the Norwich urban area, as shown in figure 2.1. The site is made up of two adjacent plots of land separated by the River Yare. To the north of the River Yare is the Deal Ground (DG) and to the south is the May Gurney (MG) site.

The DG site lies within the inner urban area as allocated in the Norwich Local Plan. The MG site is under the authority of South Norfolk District Council (SNDC). The site in its entirety is located within close proximity to the city centre, and is one of the last remaining brownfield sites of a significant size situated in central Norwich.

2.2 Existing Uses

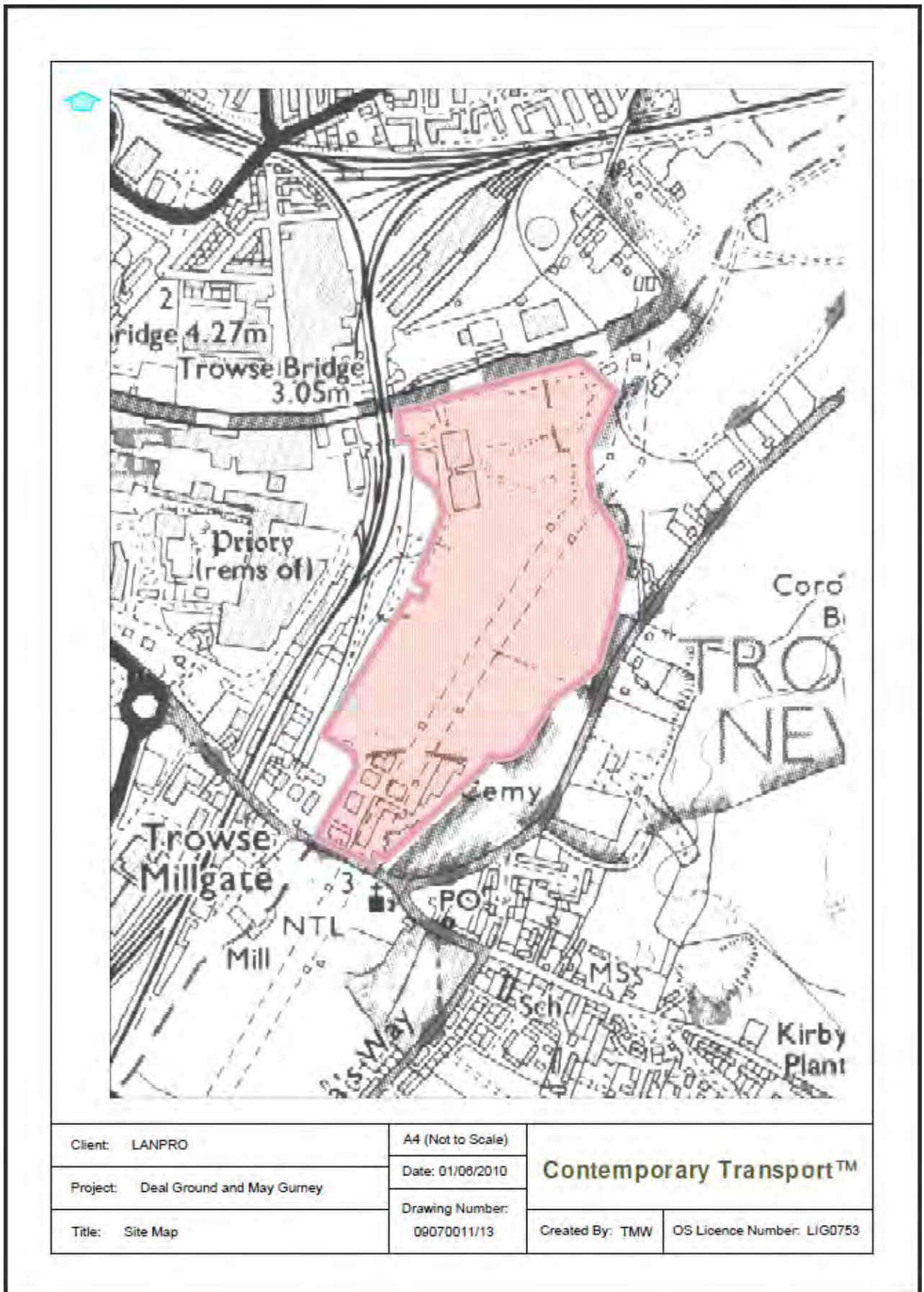
The DG site is currently vacant. The land was originally part of the Colman's Enterprise. After Colman's merger with Unilever in 1995 the site no longer had a use and it has remained vacant for the past 15 years.

On the site Colman's employees previously made barrels and crates from Deal (softwood) which was imported to Norwich from the Baltic and brought up the River Yare from Yarmouth by Wherry¹. The DG site was once connected to the main Colman's factory to the west via a tunnel underneath the railway line, which still exists but is now disused. The old Colman's factory area to the west of the railway line is owned by Unilever.

Part of the MG site is currently used for employment, the remainder is not in use. The headquarters of the May Gurney Group currently occupy part of the site.

¹ The Norfolk Wherry is a type of boat used on The Broads in Norfolk.

Figure 2.1: Location Map



2.3 Permitted Uses

The DG site is currently allocated for 8.2ha of development which includes 7.2ha of employment, and 1ha of housing at the northern end of the site (EMP9, Norwich Local Plan). The MG site is also allocated for employment and housing uses (EMP2, HOU4, South Norfolk Local Plan).

Extant planning permission exists for the construction of a new headquarters office building on the MG site for the relocation of the existing May Gurney Group headquarters. The new building is to be constructed in the north eastern corner of the MG site. The old site is then available for re-development. The MG masterplan included a safeguarded access route through the site to connect the DG site to The Street.

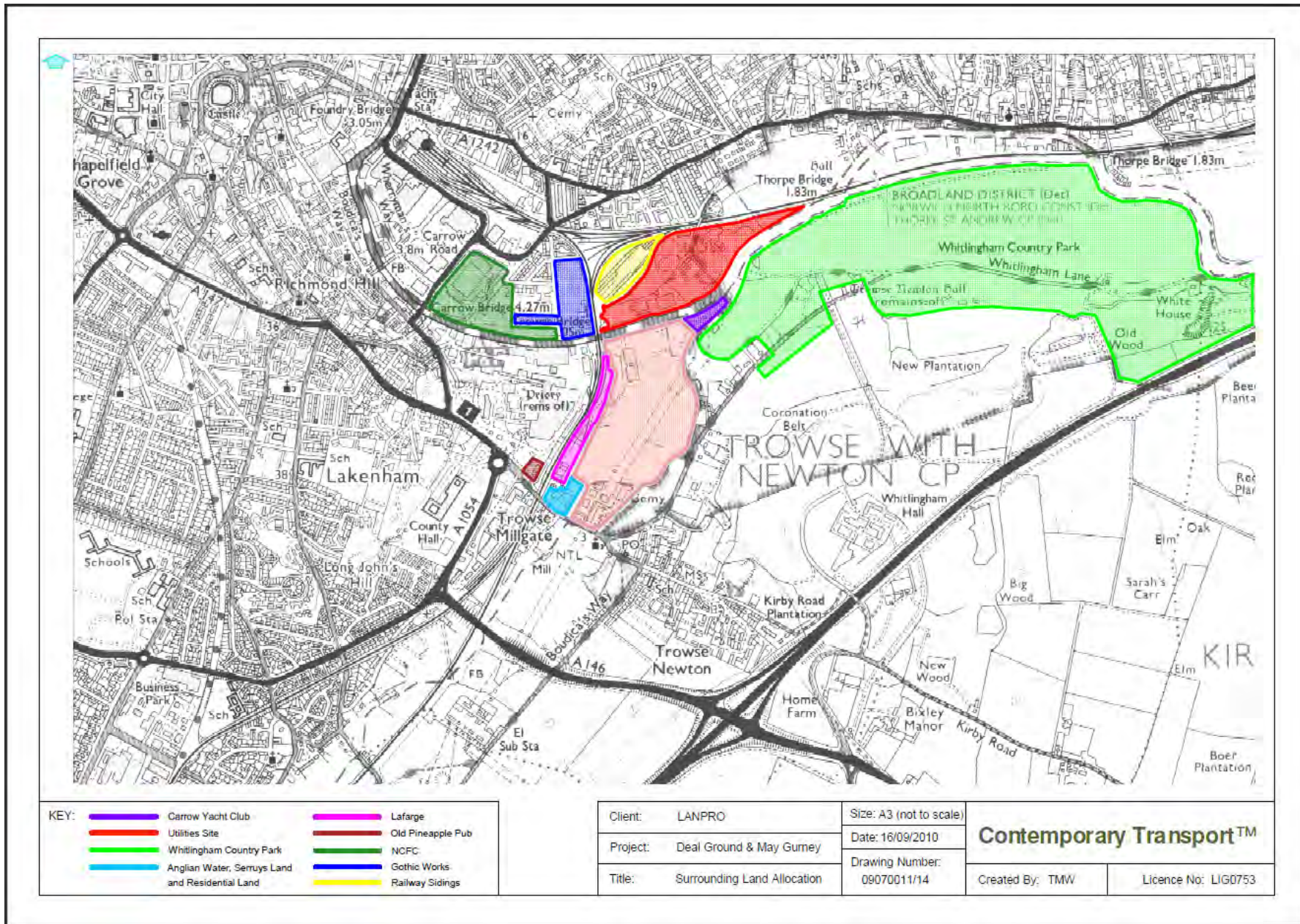
There is another extant planning permission for a B1 business park on the MG site. Permission has recently been renewed for six buildings amounting to 6,576 m² of B1 development and 214 parking spaces. This permission excludes the existing May Gurney Group headquarters.

The DG site is owned by a private landowner through a property development company called Serruys Property Company Plc (SPC). The MG site is owned by May Gurney Integrated Services PLC, and the development rights are owned by SPC. Separate parcels of land adjacent to the development site are also owned by SPC.

2.4 Land Uses in the Vicinity of the Site

Land uses of key sites surrounding the site are shown in figure 2.2.

Figure 2.2: Surrounding Land Allocation



Utilities Site

The Utilities site is situated to the north of the site across the River Wensum. This site is owned by the Powerhouse Consortium which comprises several utilities companies and Network Rail. Members of the 'Power House Consortium' include Davis Langdon, Skanska, University of East Anglia (UEA) and Building Partnerships. This group is understood to have formed as a legal entity to control the commercial development rights of the site.

Carrow Yacht Club

The Carrow Yacht Club is located on the north eastern tip of the site. Club members gain access to the members by driving through the site. The yacht club was originally created by employees at the Colman's site, and is the only part of the site which has remained in use over the past 15 years.

Whitlingham Country Park

To the east of the site across the River Yare is Whitlingham Broad situated in Whitlingham Country Park. The park is a popular recreational facility and attracts residents from Norwich and the wider region. Visitors can participate in water sports on one of the two fresh water lakes, and enjoy the natural surroundings. The Whitlingham Charitable Trust lease and manage the country park.

Anglian Water, Serruys Land and Residential Land

Adjacent to the southwest of site is a relatively small mixed use plot of land. A row of well established terraced housing, owned by local residents, sits alongside several derelict buildings. SPC own part of this land along with partial development rights. Anglian Water also own part of this plot, and currently use it as a water storage facility.

Aggregates Site

Running parallel to the western boundary of the site is a working industrial aggregates site operated by Lafarge. This site is understood to have a temporary planning permission which will be due for renewal shortly. Vehicles access the site via an access /egress onto the railway bridge connecting The Street and Bracondale roads. A single lane ramp leads north off the eastern side of the bridge, and is mainly used by heavy goods vehicles (HGV's) accessing the Lafarge site. It also provides access to the Carrow Yacht Club.

Old Pineapple Pub

The Old Pineapple Pub is located to the west of the railway bridge and can be accessed from Bracondale. The pub is currently disused and it is understood that planning permission has recently been granted for its conversion into a fire station.

Norwich City Football Club

Norwich City Football Club (NCFC) owns a large plot of riverside land to the northwest of the site. Significant redevelopment has progressed over recent years on the site during phase one of the area-wide regeneration scheme. This phase included new stands for the stadium, a new hotel, two residential blocks and an outside area for sports. Permission was also granted for phase two of the project which is primarily residential development.

A Section 106 agreement is associated with the NCFC development, this includes several contributions connected with each phase to upgrade the transport infrastructure and improve local services.

The club are believed to have recently sold the riverside section of their land to property developers Taylor Wimpey. The current permission for this land is close to expiration, however it is understood that a revised planning application is expected. The club have retained ownership of the riverside tow path, and as part of their planning agreement are responsible for providing a walking and cycle route on this land. The towpath has been partially provided in front of the residential blocks that have already been completed. A planning condition linked to the NCFC development is understood to allow the club to use a section of undeveloped land for employee and coach parking, a new arrangement will be required once the current permission expires.

Gothic Works

The Gothic Works site is situated to the north of the site across the River Wensum to the west of the railway. The site is occupied by ATB Laurence Scott Ltd (ATBLS) which founded the business in 1896 and has been occupied the site since. The plot includes a section of river frontage adjacent to the west of the rail bridge. It is understood that ATBLS recently purchased the freehold of the Gothic Works site along with the 10 acres of surrounding land to secure its presence in the area.

Railway Sidings

The railway sidings and workshops are situated on the western side of the Utilities site. Access to this area is currently available from Hardy Road which is a private road that runs through the ATBLS site.

2.5 Existing Site Access and Constraints

The DG site is bordered to the north by the River Wensum, and to the east and south by the River Yare. The western border is comprised of the Lafarge aggregates site, and the railway line. Across the River Wensum to the north is the Utilities site. To the east across the River Yare is Whitlingham Country Park, and to the south is the MG site. Beyond the Lafarge site and the railway line to the west is the Unilever site.

The MG site is bordered by the River Yare which runs along the northern and western edges, and the tributary Tas runs along the eastern side. To the south the site is bordered by The Street. Across the river Yare to the north is the DG site. To the east across the tributary Tas is Whitlingham Country Park. To the south of the site across The Street is an open green space. Beyond the River Yare to the west of the site is the mixed use plot of land, which includes the Anglian water treatment works. The MG site is currently accessed directly from The Street at the southern end of the site.

2.6 Air Quality Considerations

There are no designated air quality management areas (AQMA) in close proximity of the site. The nearest AQMA is designated at Norwich Railway Station, and covers the area to the north ending at Chalk Hill Road. Given that this area is located some distance from the development it will have no effect.

The net increases in two-way traffic on the surrounding road network reflect the very small differences in the impact of the committed and proposed developments. The thresholds for adverse environmental effects from generated traffic as a result of substituting the Proposed Development for the Committed Development are most unlikely to be reached, and a formal assessment of impact of traffic on air quality is therefore not considered necessary.

2.7 Abnormalities

A high voltage electricity line currently runs across the site from northeast to southwest. Pylons are located at the northern end of the MG site. Another two pylons are located at the

southern end of the DG site, and a further two are on the sites eastern border. The lines then continue over the yacht club and across the River Wensum.

Trowse Rail Bridge is currently the most easterly crossing point of the River Wensum in the Norwich urban area. It has no capacity to accommodate access for other modes of travel. The structure is understood to be the only opening bridge with overhead electric cables carrying 25,000 volts in the world. When open the bridge swings towards the city from a pivot point on the southern bank of the Wensum. A hydraulic mechanism is used to open the bridge, however this recently failed and has resulted in no openings for a period of at least 18 months. The bridge is understood to be awaiting repair, although when the bridge will be operational again is currently unknown.

3 Committed Transport Proposals

3.1 Connect2

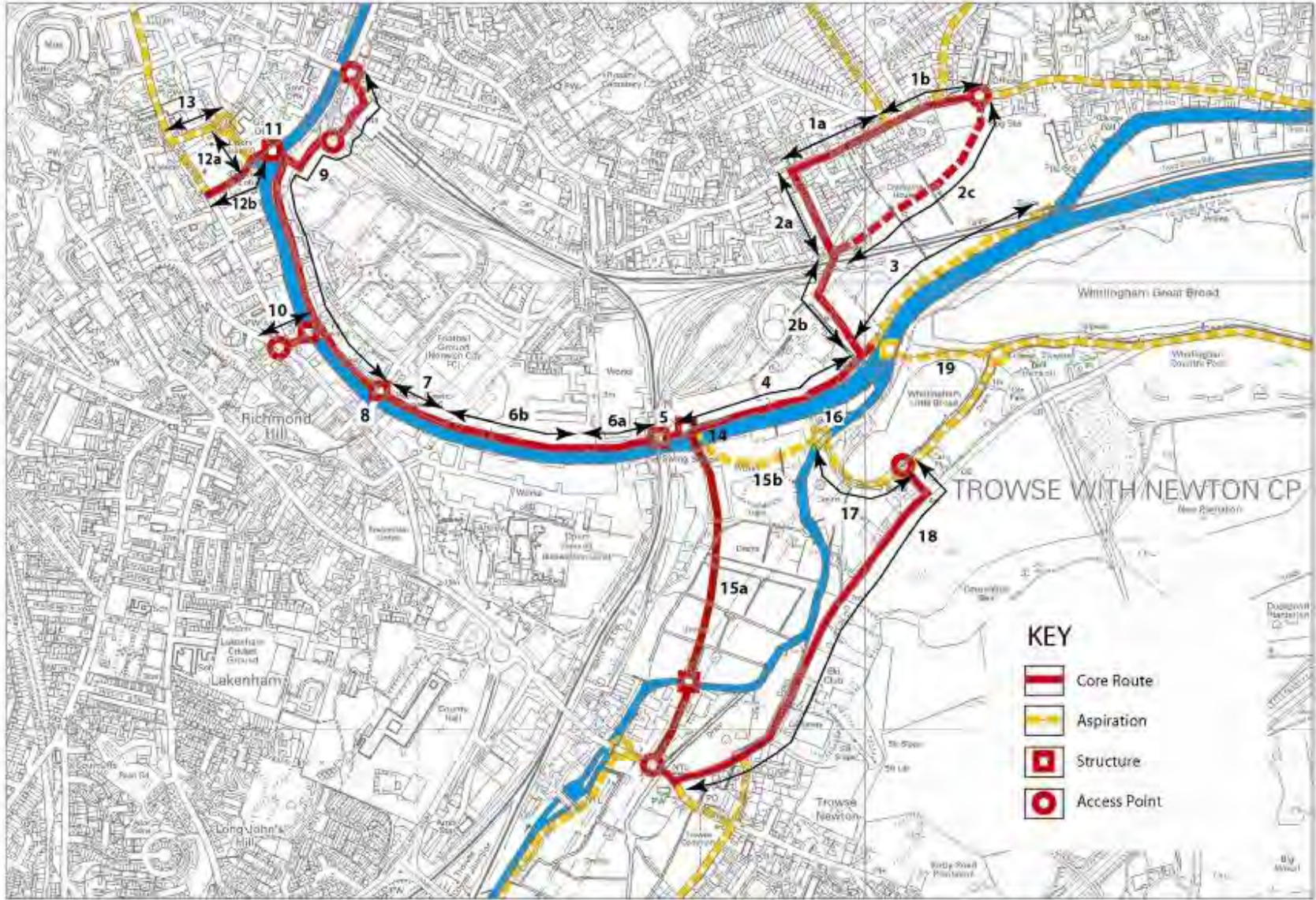
The site is located on the current National Cycle Route 1 (NR1) which approaches Norwich from the east, and passes the site entrance on The Street. The Connect2 Project aims to reroute the NR1 to pass through the site via a new pedestrian and cycle bridge which will span the River Wensum. Once across the River Wensum cyclists will join the riverside towpath, and attractive routes will be available in both directions along the northern bank of the river. The route options are shown figure 3.1.

The Connect2 project is promoted by Sustrans, a registered charity committed to improving sustainable transport networks. The project uses Big Lottery Fund money to improve transport links across the country, and in Norwich the aim is to improve the NR1 route. The Connect2 Project has already pledged £900k of Big Lottery Funding towards the new links, including the bridge over the River Wensum. The bridge will provide an important connection to the extended riverside towpath on the northern bank of the river Wensum. The completion of the Utilities development is expected to further enhance connectivity by providing a cycle friendly route to Thorpe Road via Cremorne Lane. This will link Trowse and Thorpe St Andrew, two areas previously separated by the railway line and the River Wensum.

3.2 Riverside Towpath

The riverside towpath currently runs from the city centre east to Carrow Bridge and is an attractive route used by pedestrians and cyclists. A riverside towpath extending from the city centre out past the Utilities site and further to the east is an objective of the Norwich City Council (NoCC). NoCC have safeguarded riverfront land within riverside redevelopment sites for this purpose (SR11, Norwich Local Plan). The extension of the riverside towpath from Carrow Bridge to the ATBLS site is understood to be the responsibility of NCFC. This is set out in a Section 106 agreement that relates to the planning permission issued for the NCFC development. The Powerhouse Consortium has confirmed their commitment to further extend the towpath through its site.

Figure 3.1: Whitlingham Bridges and Links



Source: Norwich City Council, Connect2 Routes – Delivery Schedule v9, 18 October 2010

3.3 NCFC Bus Stop and Carrow Road/Koblenz Avenue Crossing

The existing pedestrian crossing on Carrow Road just north of Carrow Bridge consists of a basic island facility which gives refuge to pedestrians. It is understood that the NCFC Section 106 agreement included the provision of a Toucan crossing on Carrow Road/Koblenz Avenue alongside a potential bus gate.

A new NCFC bus stop at the southern end of the stadium is also understood to be part of NCFC's Section 106 agreement, linked to a later stage of development. To facilitate the new bus stop the installation of a bus gate allowing buses to efficiently cross Carrow Road/Koblenz Avenue is also part of the Section 106 agreement. The bus gate would help to encourage local bus operators to re-route services via the new NCFC stop which will be accessible from the northern end of the site and will be attractive to new residents.

3.4 Improvements to Bracondale and King Street Junction

The junction of Bracondale and King Street is located to the west of the site and currently experiences congestion during peak hours. The NCFC Section 106 is understood to include a signal upgrade at the Bracondale and King Street junction. This mitigation measure is intended to improve traffic flow through the junction.

4 Baseline Transport Data

4.1 Current Trips Generated

Analysis of traffic data demonstrated that a total of 192 vehicles arrive at the existing May Gurney site during the morning peak period. Of these vehicles 92% enter the site from the west travelling through the Martineau Lane roundabout. 8% of traffic enters from the east travelling through Trowse.

Table 4.1: May Gurney HQ Inbound Traffic Flows by Period

AM Period	% of AM peak (07:30 -09:30) traffic entering
0730	7%
0745	11%
0800	14%
0815	15%
0830	15%
0845	18%
0900	11%
0915	8%

During the afternoon peak period a total of 160 vehicles were observed to leave the existing May Gurney site. Of these vehicles 89% exit the site to the west and travel towards Martineau Lane roundabout. 11% of traffic exits to the east travelling through Trowse.

Table 4.2: May Gurney HQ Outbound Traffic Flows by Period

PM Peak Period	% of PM peak (16:00 – 18:00) traffic exiting
1600	6%
1615	2%
1630	11%
1645	9%
1700	13%
1715	37%
1730	15%
1745	8%

The existing May Gurney site has approximately 147 designated parking bays in operation and other vehicles park on an un-surfaced area to the east of the access road.

The old May Gurney site will be demolished in order to construct the scheme. The extant permission for the Business Park on the May Gurney site expected to generate 193 morning peak time vehicle trips would be superseded by the new scheme for which permission is sought.

As highways authority, Norfolk County Council request that their methodology is used to calculate vehicle trips generated by B1 development proposals. Details of the methodology explained by NCC are provided in the text box below.

B1 Trip Rates.

NCC consider that in a number of instances, the use of TRICS-based B1 trip rates are inappropriate and therefore, a methodology to estimate the number of trips has been developed based on car parking standards and employee numbers.

For example, for a B1 development of 6,000sq.m, there could be anything from 400 to 600 employees (depending on employee/floorspace ratio), but there will only be 200 car parking spaces if PPG 13 and Norfolk Parking Standards are applied.

Assuming that 90% will be filled in the morning peak, this equates to 180 trips arriving at the development. Using TRICS trip rates, as an example, only 87 vehicles would arrive. This is a significant difference and if the parking were to be limited to 97 spaces for 6,000sq.m of B1 then this could be 'acceptable'. However, such restricted parking would mean significant reliance on non car modes.

The car parking space approach is the one we are advocating. For pm peak we suggest trip rate based on 60% of car park emptying in that hour.

Source: David Higgins, Norfolk County Council, emails sent 20/7/10 and 21/7/10

NCC verified² that this methodology should be applied to calculate the vehicle trip generation for the new May Gurney site. Estimated trip generation is shown in table 4.3.

Table 4.3: NCC Trip Generation Methodology

Period	Car parking spaces	Occupancy /emptying rate in peak	Vehicle trip generation in peak
AM Peak	151	90%	136
PM Peak	151	60%	91

Approximately 92% of car trips are anticipated to travel through the Martineau Lane Roundabout during the morning peak period and 89% are estimated to travel the route in reverse during the afternoon peak period.

² Communication and by email with Liz Poole, NCC, 8/11/10

Table 4.4: Total Martineau Lane Roundabout Peak-time Vehicle Trips

Assumption	No. Peak-period Vehicles
92% incoming to site from west	125
89% exiting from site to west	81

The new May Gurney site is therefore expected to generate 56 fewer trips than the existing site. In addition May Gurney is required to develop a travel plan as a condition of their planning agreement. It is observed that there is currently a high level of travel during the afternoon peak 17:15 to 17:30 which could be flattened by the introduction of staggered employee finish times and through other travel planning initiatives.

4.2 Existing Public Transport Facilities

Public transport services accessible from the site were reviewed to understand current levels of provision. Services available within walking distance to both the north and south of the site were assessed as both will be available upon completion of the development via bridges. Public transport routes to and from major employers in the local area were reviewed in detail as these are likely to be the main peak time trip generators of journeys from the site.

Railway Services

Norwich Railway Station is located within walking distance from both the northern and southern ends of the site. Available destinations include London Liverpool Street and cities in the surrounding region such as Cambridge, Ipswich and Great Yarmouth. The close proximity of the railway station enhances the connectivity of the site by allowing access via public transport to the wider eastern region and beyond to the rest of the country. A walking route assessment reviewed the route to the railway station and is provided in Annex A.

Location of Bus Stops

The walking route assessments (provided in Annex A) review routes to and from public transport facilities. The site is well connected to public transport facilities via existing and new walking routes to be provided to the north and south. To the north several bus stops are accessible on Thorpe Road. A new NCFC bus stop would also be accessible. This will be attractive to residents if as anticipated bus services are re-routed to service the new bus stop. The closest bus stops to the south are located on The Street. The bus stop for eastbound services is situated outside the row of existing buildings that front The Street. The westbound bus stop is situated in the village of Trowse a short distance away. Other bus stops are also available on Martineau Lane, Bracondale and close to County Hall.

The entire site is within a 10 minute walk (800m) distance of existing bus stops and a significant proportion of the site is within 5 minute walk (400m) of a bus stop. The two prominent bus operators in Norwich are First Group Eastern Counties and Anglian Bus. Both companies both offer services that are accessible from the site. NCC also offer a service that is accessible a short distance from the site.

Existing Bus Services

The locally accessible bus routes in the vicinity of the site are shown in the figure 4.1.

First Eastern Counties

With the exception of the X1 which does not stop on Bracondale or Martineau Lane the following bus routes offered by First are accessible from the site, and provide regular services to and from the city centre and surrounding areas.

- X1: Lowestoft - Peterborough
- X2: Norwich - Lowestoft
- 12/12A/12B: N&N Hospital – Dussindale/Stalham/Wroxham
- 17/17A: Lingwood/Blofield Heath - South Tuckswood
- 25/35: University - Riverside & Norwich Railway Station

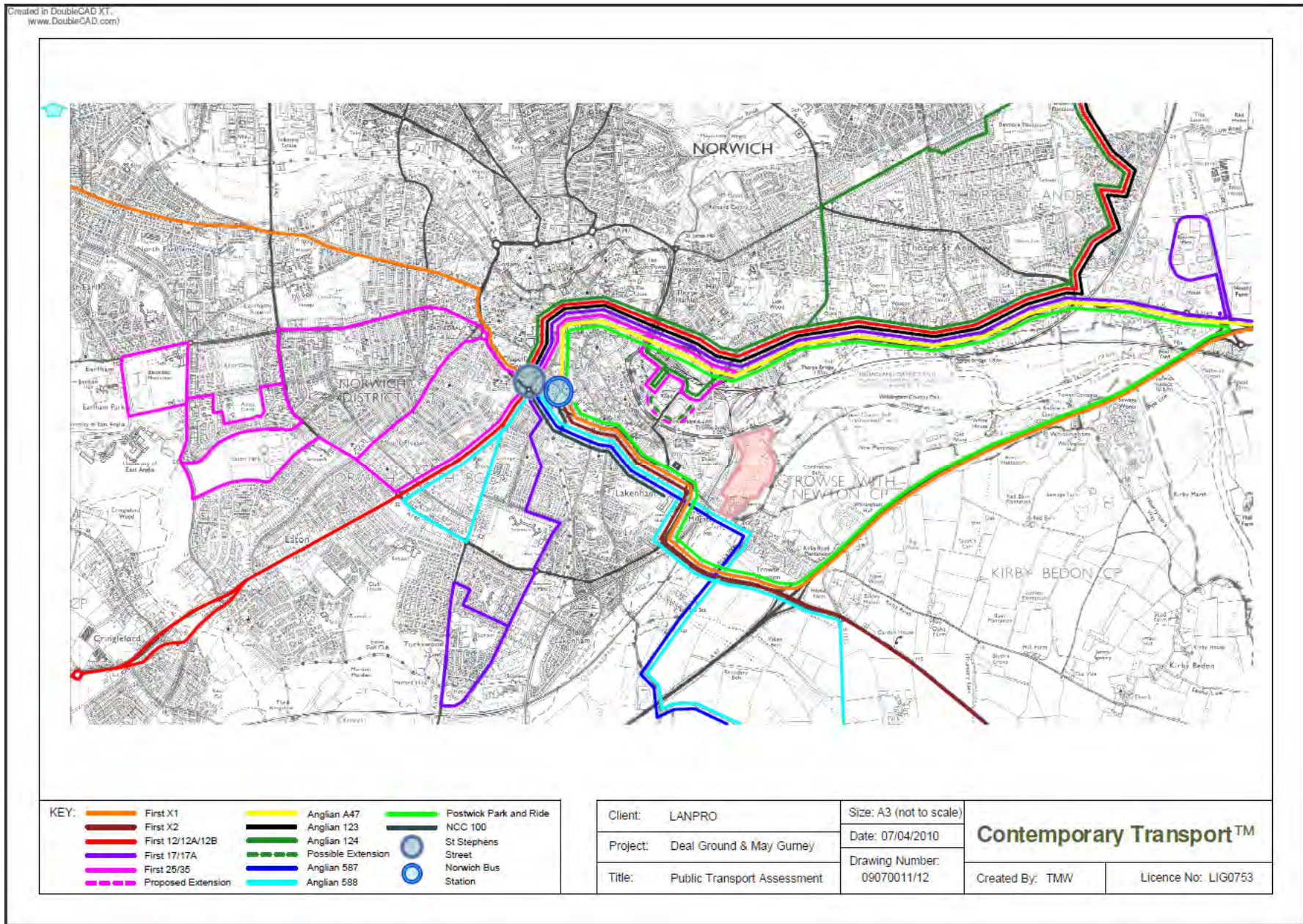
The frequency of services running towards the city centre in the AM peak, and returning to the site during the PM peak is shown in table 4.5.

Table 4.5: First Bus Service Frequencies

Service	Monday – Friday Peaks		Monday – Friday Off Peak	Saturdays	Sundays and Bank Holidays
	AM	PM			
X1	30	20	30	30	60
X2	30	30	30	30	60
12/12A/12B	20	15	15	15	-
17/17A	30	30	30	30	-
25/35	10	10	7.5	10	15

Source: First Group Eastern Counties

Figure 4.1: Accessible Bus Services



Anglian Coaches

The following services operated by Anglian are accessible from the site, and provide regular services to and from the city centre and surrounding areas, namely:

- A47: Gorleston & Yarmouth to Norwich
- 123: Wroxham to Norwich
- 124: Plumsteads to City
- 587: Poringland to Norwich
- 588: Bungay to Norwich

Anglian focus on routes to the southwest of the Norwich and currently provide the only services through Trowse. The frequency of services running towards the city centre in the AM peak, and returning to the site during the PM peak is shown in table 4.6.

Table 4.6: Anglian Bus Service Frequencies

Service	Monday – Friday Peaks		Monday – Friday Off Peak	Saturday	Sundays and Bank Holidays
	AM	PM			
A47	40	40	60	60	-
123	20	30	30	30	60
124	60	60	60	60	-
587	30	60	30	30	60
588	20	30	60	60	-

Source: Anglian Bus and Coach Norfolk

Norfolk County Council 100

NCC operates a shuttle service (NCC100) between County Hall and the city centre, this service is accessible from the site. The NCC100 is available to the general public, and can be accessed from County Hall and Bracondale bus stops. The route serves St Stephens Street and Norwich Bus Station in the city centre. The service is operated by NCC and consists of one bus with a capacity of 33 people. First bus tickets can be used on this service.

Postwick Park and Ride

The Postwick Park & Ride service currently serves the railway station, Norwich Bus Station, Castle Meadow and Martineau Lane. New residents or site visitors could utilise this service for access to the park and ride site, after stopping on Martineau Lane the route runs east to Postwick. The service runs on an anti-clockwise loop, and therefore would not be attractive for journeys from the site to the city centre due to lengthy a journey time.

Ticket Prices

The price of bus tickets for First, Anglian and NCC services are shown in table 4.7. Ticket prices are to the city centre from Harvey Lane to the north of the site and Trowse or Bracondale to the south, or from the site to Postwick Park & Ride.

Table 4.7: Ticket Costs

Service	Ticket price	
	Single	Return
First X1	-	-
First X2	£1	£2
Anglian 587	£1	£1.50
Angina 588	£1	£1.50
NCC 100	£1	£1.50
Postwick P&R	£18 - ten trips	

Source: First Group Eastern Counties, Anglian Bus and Coach, NCC (2010)

Access to Major Local Employers

Routes to major employers in the Norwich area have been assessed using the Transport Direct door-to-door journey planner. Routes from bus stops to the north and the south of the site have been assessed in order to show which side of the site would be preferable for access to major employment sites. Full route assessments are available in Annex B.

Bus stops used for the assessment are Cremorne Lane bus stop on Thorpe Road to the north of the site, and the May Gurney/Trowse bus stops to the south. Walking times from the site to origin bus stops, and from destination bus stops into employment sites are not included. Routes to the following employment areas have been assessed:

- Broadland Business Park;
- Norwich Airport Industrial Estate;
- Norwich and Norfolk University Hospital (NNUH);
- University of East Anglia (UEA); and
- Norwich Business Park.

It should be noted that several large employers are located within the city centre. These can be easily accessed using existing public transport routes to the north and south of the site with similar journey times.

The most efficient routes to major local employment sites using existing public transport services are summarised in the following table. Average times are used where routes from

the north and south of the development take a similar amount of time to complete. Journeys to Norwich Airport and UEA involved changing buses in the city centre, however all other destinations are accessible via a direct route.

Table 4.8: Summary of Available Routes

Destination	Preferred Route	Time (minutes)	
		Out	Return
Broadlands Business Park	SITE North	14	13
Norwich Airport Industrial Estate	SITE North, SITE South	41	43
Norwich and Norfolk University Hospital	SITE North	31	27
University of East Anglia	SITE North, SITE South	35	36
Norwich Business Park	SITE North	21	21

The five key Norwich employment sites are accessible via public transport services from the site. The average journey time to these employment sites is on average less than 30 minutes.

Comparison with Vehicular Journey Times

To compare public transport journey times with car use, a journey time survey was undertaken. Three key employment destinations were selected for comparison shown in table 4.9.

Table 4.9: Journey Time Route Comparisons

Destination	Drop-off Point	Route via
Norwich and Norfolk University Hospital	Bus drop off Point - Out Patients	Roundhouse Way; Newmarket Road/A11; Daniels Road/AA140; Lakenham Road/A146; Martineau Lane/A1054
University of East Anglia	Bus Drop off point on University Drive	Colman Road/A140; Lakenham Road/A146; Martineau Lane/A1054
Broadland Business Park	HSBC, Meridian Way, NR7 0TA	Yarmouth Road/A1042; A47; London Road/A146; Martineau Lane/A1054

The start and end points have been entered into Google Maps to provide an impartial view on planning quickest routes. For vehicle trips the origin/destination from the site is at the southern most point where it connects with The Street. It is important to note that the journey-time comparisons do not include allowance of time for parking and continuing trip to the premises. The distance was measured using the survey vehicle odometer. Where a difference existed between the car measurement and Google Maps, the survey vehicle measurement was used, although these differences did not exceed 0.1 miles for any journey.

The surveys were undertaken on Tuesday 20th June and Wednesday 21st June 2010. Outbound journeys from the site were scheduled to ensure they were conducted after 08:00

and arriving no later than 08:30. Return journeys were scheduled to leave after 17:00 and arriving no later than 17:30. The results of the survey are shown in table 4.10.

Table 4.10: Vehicle Trip Survey Results

Journey	Depart time	Arrival time	Distance (miles)	Journey time (mins)
A – outbound	08:11	08:28	4.1	17:08
A – return	17:10	17:30	4.1	17:30
B – outbound	08:11	08:27	5.9	15:43
B – return	17:10	17:27	5.9	16:31
C – outbound	08:05	08:14	4.8	08:45
C – return	05:15	05:25	4.8	09:40

The vehicle survey results were compared with the results of the public transport assessment for journeys to the same locations. Car and public transport journeys were initiated from outside of the site boundary, and did not include walking times to final destinations. These assessments are therefore considered appropriate for comparison, and results are shown in table 4.11.

Table 4.11: Car and Public Transport Comparison

Journey		Time (mins)	
		Car	Public Transport
Norwich and Norfolk University Hospital	Outbound	17	31
	Inbound	18	27
University of East Anglia	Outbound	16	35
	Inbound	17	36
Broadland Business Park	Outbound	9	14
	Inbound	10	13

The results of the comparison demonstrate that journeys from the site to key locations are not significantly longer when using public transport. The journey by bus is between 3 to 19 minutes slower for these journeys. Bus use for travel to work will be an attractive alternative given the cost-savings compared to vehicle ownership and use. The journey time to Broadland Business Park is especially competitive, and shows public transport as an attractive option. It should be noted that provision of an NCFC bus stop could potentially improve public transport journey times to UEA and NNUH as First services could be re-routed via this stop.

4.3 Existing Pedestrian Facilities

Walking routes in the local area have been assessed³ to gauge accessibility to surrounding facilities and amenities. The site has been assessed as a trip generator to the following destinations: public transport; local shops; local schools; leisure facilities; and industrial areas. The site has also been considered as a trip attractor from the local area and public transport interchanges. All routes within a 2km radius of the site were audited, detailed route assessments can be found in Annex A.

As part of the emerging masterplan a high quality pedestrian environment will be provided throughout the site. The new bridge for pedestrians and cyclists at the northern end of the site will allow access to the city centre via the riverside towpath, and to Thorpe St Andrews via the Utilities site.

Walking Routes to and from Public Transport Facilities

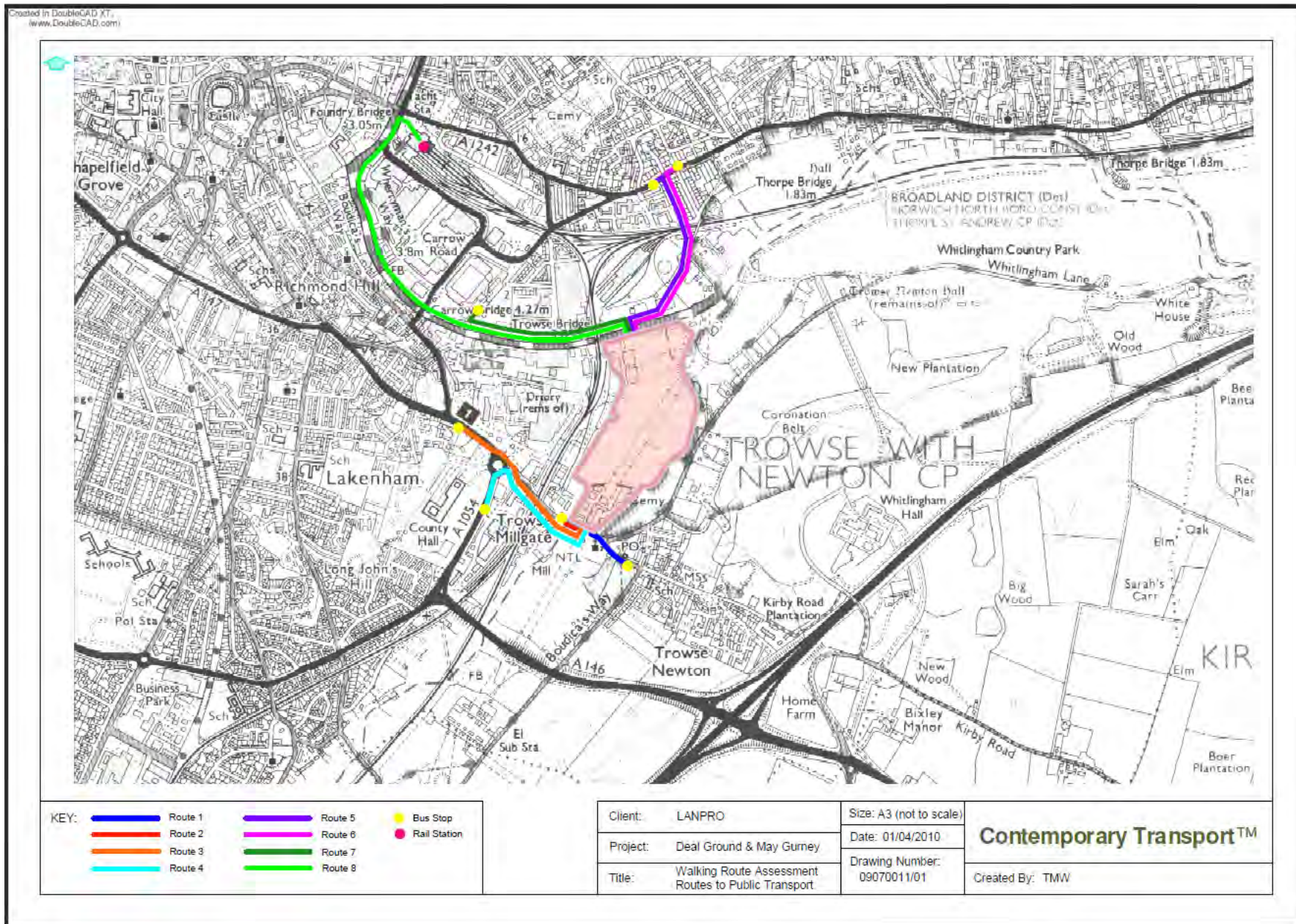
Public transport facilities are accessible to the north and south of the site. The majority of bus stops assessed are within a 10 minute walk. Bus stops to the north on Thorpe Road will be accessible via the Utilities site. The planned NCFC stop will be accessible via the riverside towpath, as will the railway station which will be a short walk from the northern end of the site. A pedestrian crossing of Carrow Road/Koblentz Avenue will connect the old and new riverside towpaths and is expected to be upgraded through the NCFC Section 106 agreement.

To the south services are available from The Street. Further services are available from Martineau Lane and Bracondale which are also within walking distance of the site via existing routes. A shared pedestrian and cycle path begins/ends on the western side of Europa Way at the junction with The Street. This facility could be improved by providing additional space for both users.

The routes to and from the railway station and local bus stops providing access to different bus services are illustrated in figure 4.2.

³ Consistent with *Draft Scoping Study for a Transport Assessment* issued by NCC, March 2010 Strategic Policy Ref: SP.8/4/09/5005

Figure 4.2: Walking Routes to and from Public Transport Facilities



Walking Routes to Local Shops and Schools

Walking routes from the site to local shops and schools followed similar routes to those cited above, due to the location in Trowse and Lakenham. The existing walking route to Trowse is attractive and the village is close by making the shops and Trowse Primary easily accessible. Lakenham schools and shops are located further from the site, however are accessible via existing routes. Pedestrian priority crossings are not provided at the heavily trafficked Martineau Lane Roundabout.

An assessment of walking routes to schools carried out by NCC found that routes to Trowse Primary and Lakenham Primary were less than 1 mile and were considered safe for pupils. Correspondence from NCC confirming these findings is provided in the text box below.

<p>From: Dye, John [mailto:john.dye@norfolk.gov.uk] Sent: 04 March 2010 09:23 To: tom@contemporarytransport.co.uk Subject: Development at the Deal Ground & May Gurney Site</p> <p>Dear Tom</p> <p>The May Gurney site (NR14 8SZ) would be in the immediate vicinity of Trowse Primary with an available walking route. Pupils of high school age would be eligible for free transport (as over 3 miles) to the catchment high school at Framingham Earl. For the Deal Ground, based on the NR1 2EG postcode and as located within the City boundary, the catchment primary school would be at Lakenham, although Trowse Primary is much nearer. It is not possible to give a definitive ruling on school transport as the lack of an internal road network does not allow precise measurement. However based on existing properties for this postcode, the calculated distance to Lakenham Primary was 0.997 miles. For properties constructed within the development and with the need to access controlled crossings in King Street and Bracondale the distance would reasonably be expected to be just over 1 mile by the nearest available walking route. This would make it very unlikely that any pupils would be eligible for travel assistance, the minimum distance for travel assistance being 2 miles for pupils up to age 8. There are no catchment high schools in Norwich. Eligibility for travel assistance is based solely on measurement to the nearest school. This will be to The Hewett High School, 1.569 miles away, therefore well under the minimum 3 mile distance to qualify for assistance. [Notre Dame is the nearest high school, 1.062 miles away, again well within the minimum distance, but is not considered as the local school as it is a denominational school with a separate admissions policy]</p> <p>Yours sincerely Mr J R Dye Eligibility and Pupil Behaviour Officer, Dept. of Planning & Transportation, Norfolk County Council</p>
<p>From: Dye, John [mailto:john.dye@norfolk.gov.uk] Sent: 16 March 2010 09:23 To: tom@contemporarytransport.co.uk Subject: Development at the Deal Ground & May Gurney Site</p> <p>Dear Tom</p> <p>It is ourselves at Norfolk County Council who undertake assessments rather than the City Council. For pupils of primary school age the assumption in completing any assessment is that they are accompanied, either by a parent or arrangements are made by parents for another responsible adult to do so. Assessments in urban areas are rare. In this instance the route is directly next to County Hall, so confirming that there were suitable controlled crossings, in King St and on Bracondale, was straightforward. Both require walking from the most direct route, but neither represent a significant diversion. Parents may decide to cross using the road islands available at other points, but</p>

this would be their decision as to what they feel to be prudent. For high school pupils the same assessment will apply, with the difference that it is assumed they will have road sense appropriate to their age and therefore not need to be accompanied. It is also not assumed that a journey will be by walking. Bus services currently pick-up near the May Gurney site, dropping at Corton Road on Bracondale. Such decisions would, of course, be at the discretion of the parent. No school transport is currently provided within Norwich, unless a pupil has assessed special needs, so the above confirmation is as expected.

Mr J R Dye

Eligibility and Pupil Behaviour Officer, Dept. of Planning & Transportation, Norfolk County Council

Source: John Dye, Norfolk County Council

Maps showing the walking routes to local shops and schools are shown in figures 4.3 and 4.4. Figure 4.3 shows routes to local shops (1-Trowse; 2-Lakenham; 3-Riverside Centre). Figure 4.4 shows routes to local schools (1-Trowse; 2-Lakenham).

Figure 4.3: Walking Routes to Local Shops

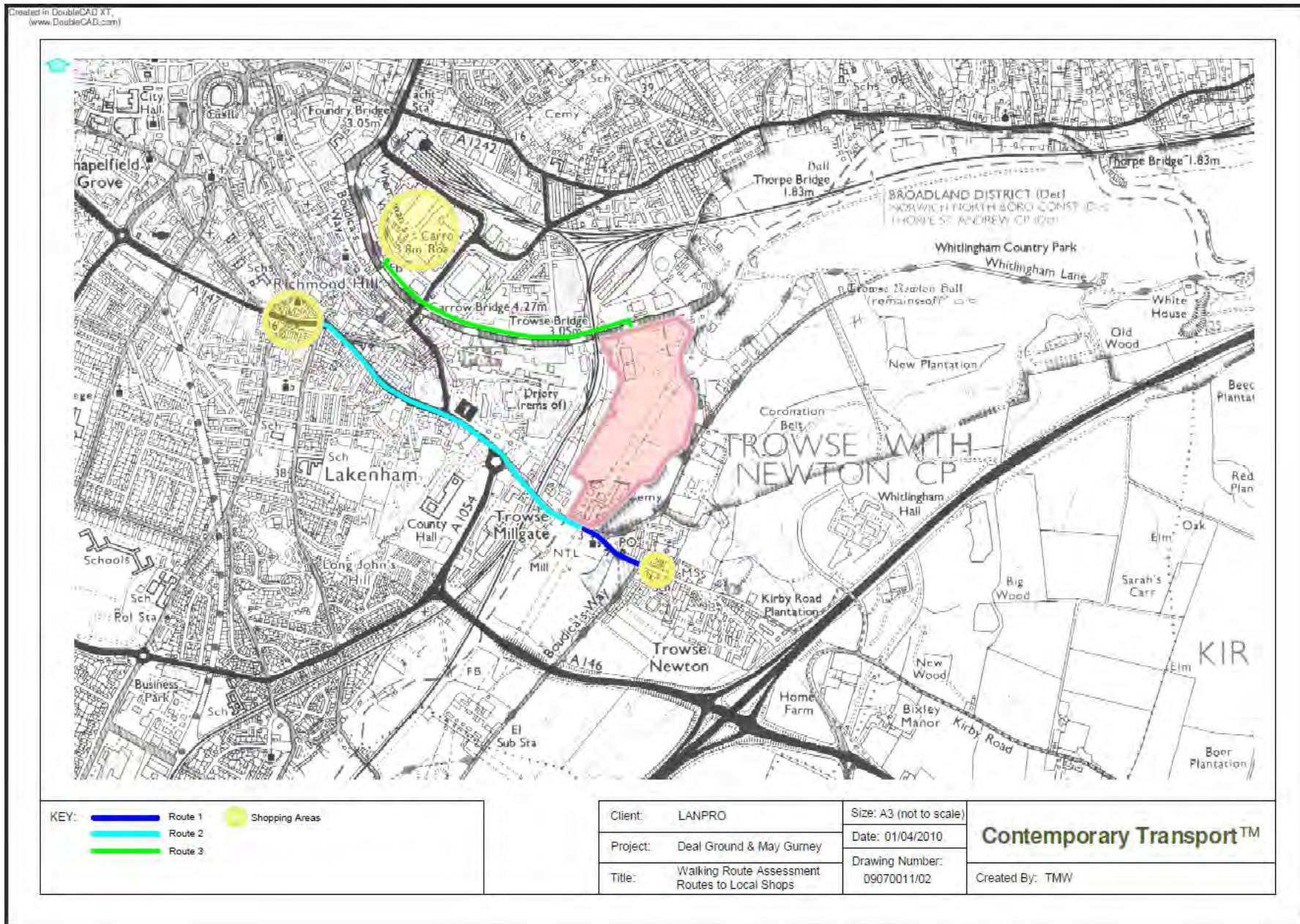
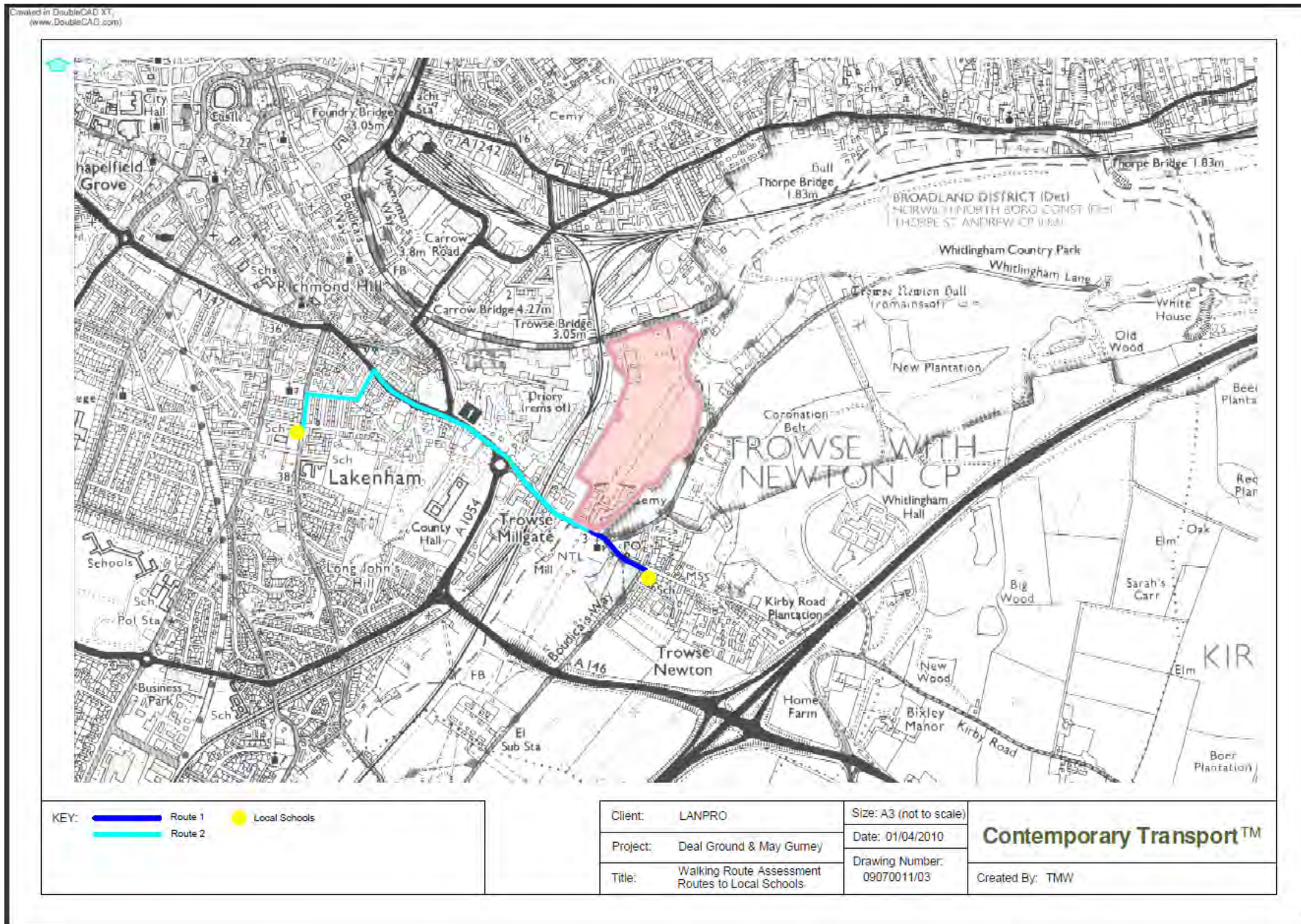


Figure 4.4: Walking Routes to Local Schools



Walking Routes to Leisure Facilities and Local Employment Areas

The walking routes to leisure facilities and employment areas again follow similar routes. Leisure facilities to the east such as the Ski Centre and Whitlingham Country Park are accessible via Whitlingham Lane using existing and attractive routes. Figure 4.5 shows walking routes to leisure facilities (1-Carrow Yacht Club; 2-Norfolk Ski Club; 3-Whitlingham Country Park; 4-Lakenham Sports and Leisure Centre; 5-Norwich City Football Club; 6-Riverside Swimming Centre and Gym; 7-All Weather Playing Field).

Employers to the west such as NCC and Unilever are accessible via existing routes on The Street and Bracondale. To the north the Riverside Park and industrial sites such as ATBLS will be accessible via the riverside towpath. Figure 4.6 shows walking routes to employment areas (1-Europa Way; 2-Norfolk County Hall; 3-Unilever; 4-Riverside Shopping Centre; 5-ATB Lawrence Scott and Rail Station Yard).

Figure 4.5: Walking Routes to Leisure Facilities

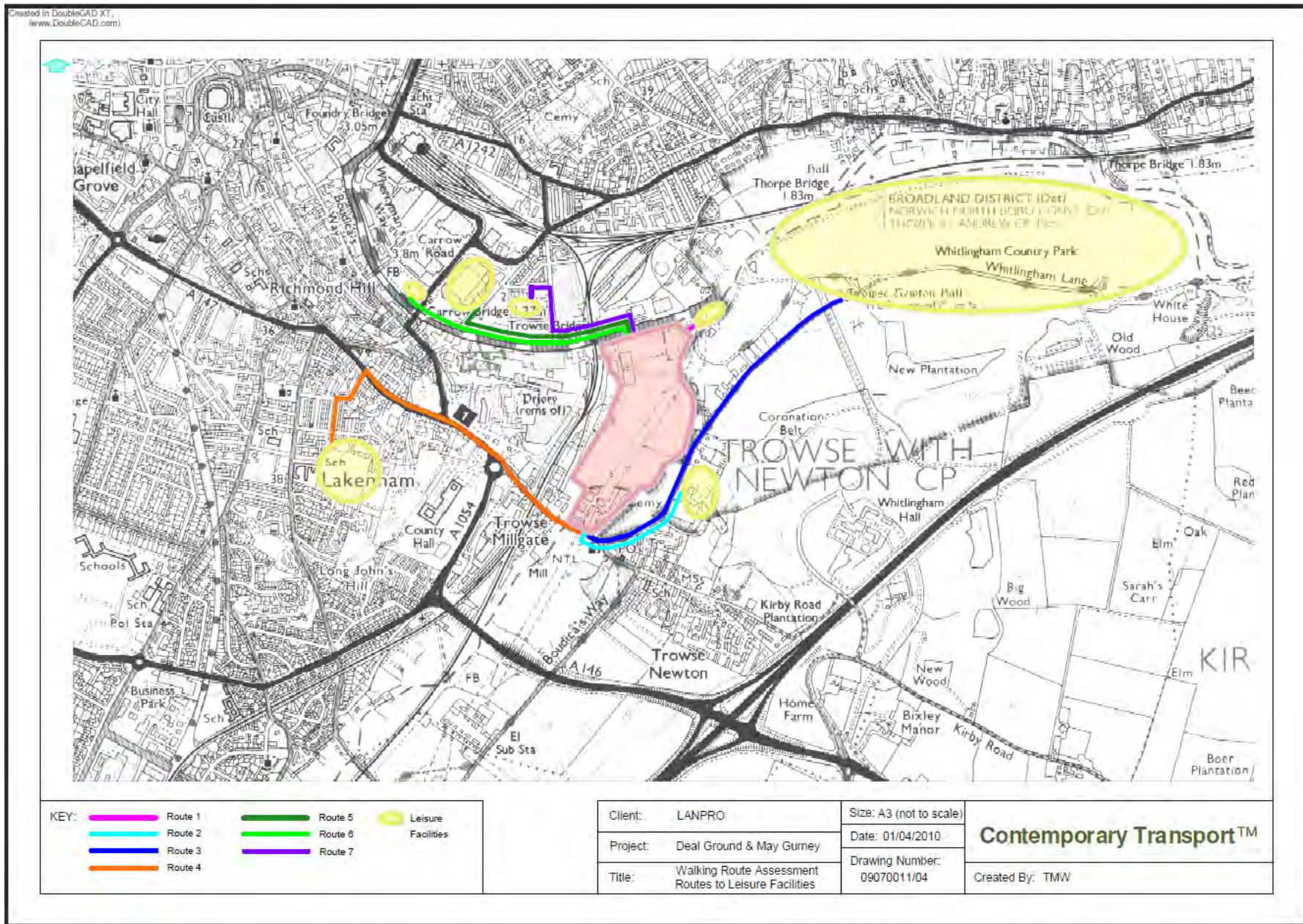
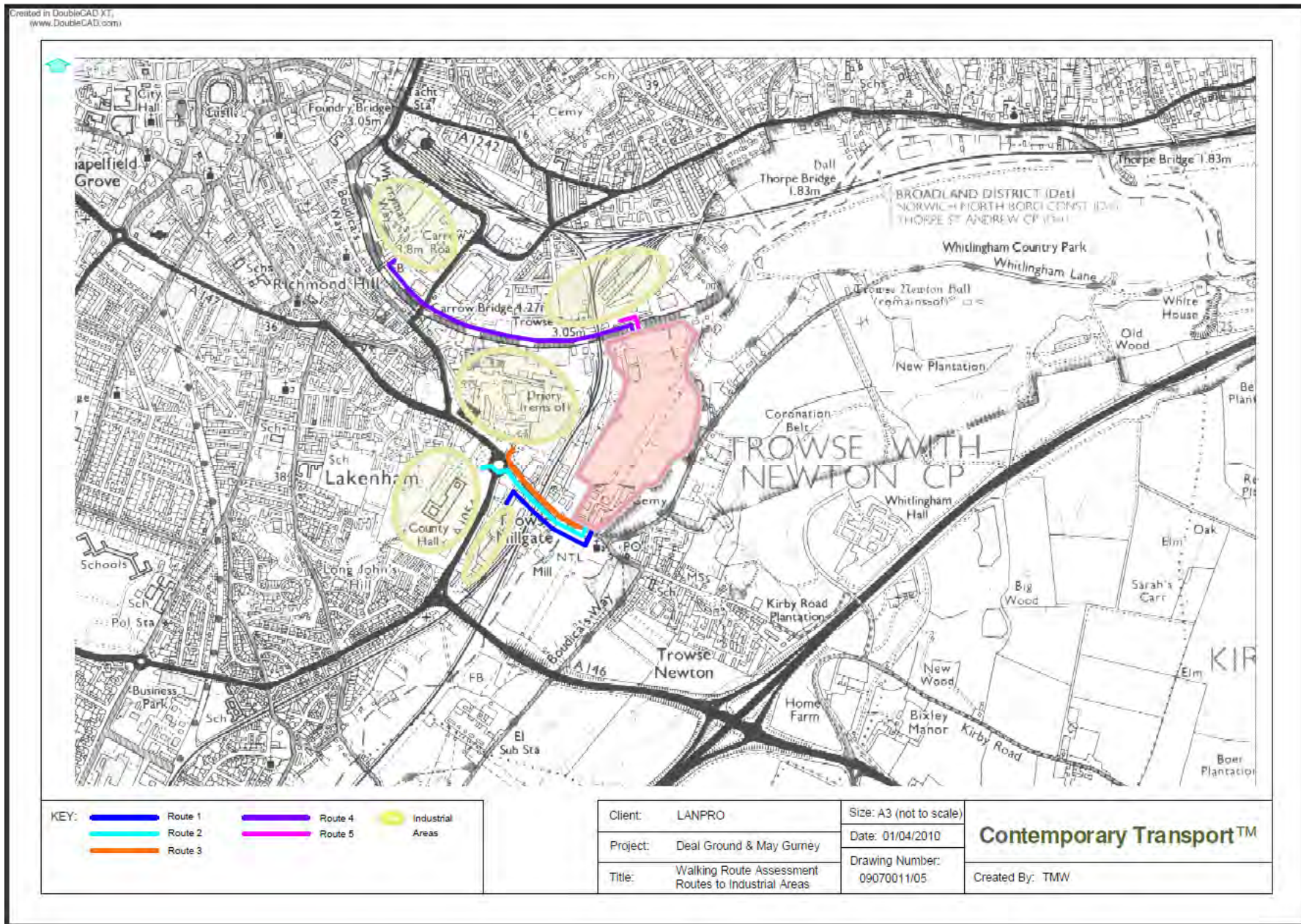


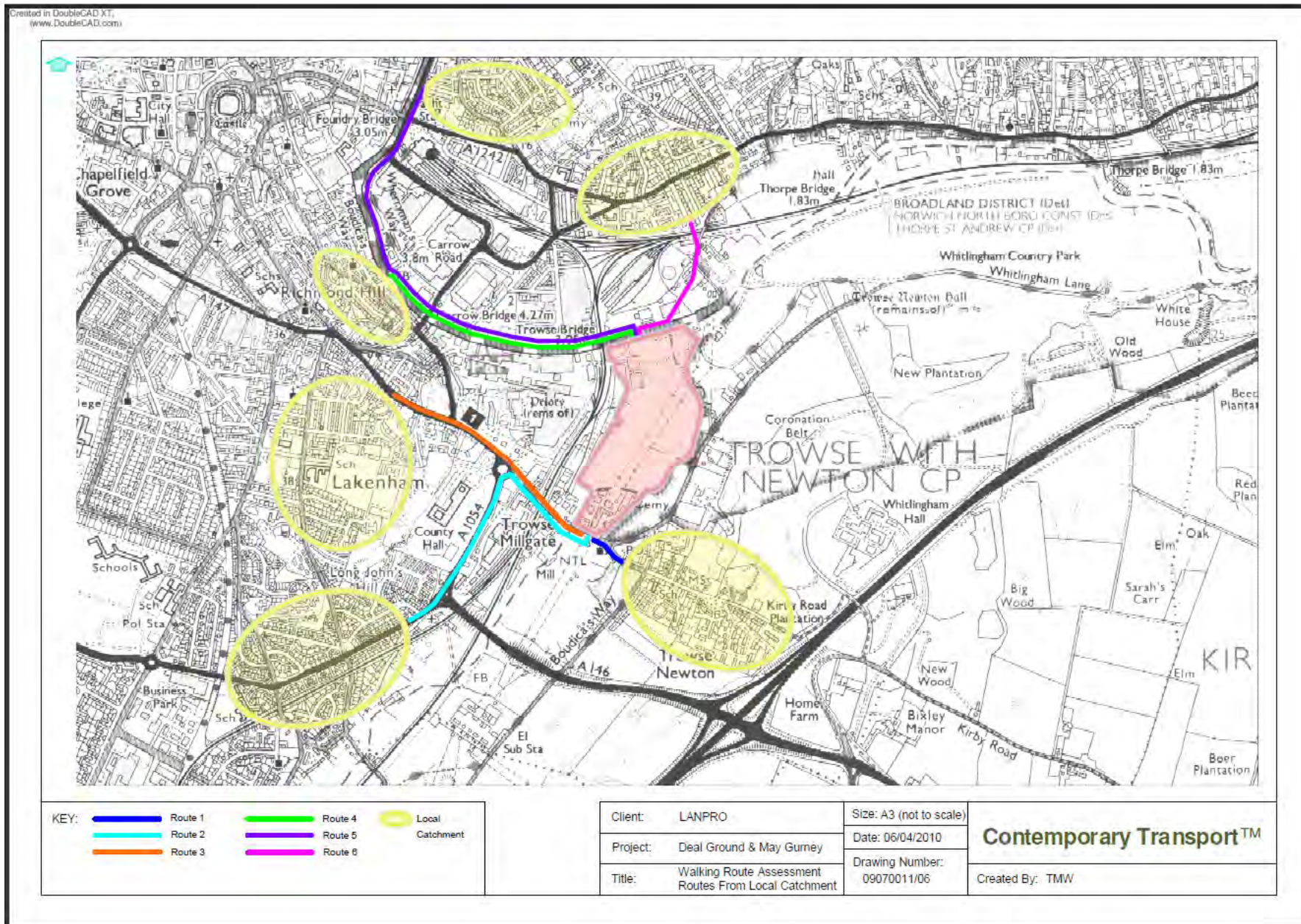
Figure 4.6: Walking Routes to Local Employment Areas



Walking Routes from Local Area

The site is accessible from residential areas to the south such as Trowse and Lakenham via existing pedestrian friendly routes on The Street and Bracondale. From residential areas in the north such as Thorpe St Andrew and around the railway station the site will be accessible via the riverside towpath and new access routes through the Utilities site. High quality pedestrian routes provided by the site and the Utilities development will create an attractive link between Trowse and Thorpe St Andrew. Figure 4.7 shows walking routes from the local catchment area (1–Trowse Village; 2–Old Lakenham; 3–Lakenham; 4–Carrow; 5–Area north of the Rail Station; 6–Thorpe St Andrew).

Figure 4.7: Walking Routes from Local Area



4.4 Existing Cycle Facilities

An assessment of local cycle routes was undertaken⁴ to gain an understanding of current facilities available to cyclists in the local area. The site is expected to generate additional cycle trips to surrounding residential, shopping, education and industrial areas. Trips are expected to be attracted from surrounding residential areas. Cycle routes to key destinations within 5km of the site were audited and detailed route assessments are available in Annex C.

National Route 1 (NR1) currently passes the site on The Street, this will be re-routed through the site as part of the Connect2 project. The new cycle friendly route will consist of a traffic free cycle lane through the site leading to a pedestrian and cycle bridge across the river Wensum, which will connect onwards to the riverside towpath. A new crossing facility on Carrow Road will link the existing towpath to the new towpath. The Utilities site is also expected to provide a high quality cycle route from the new bridge from the site to Thorpe Road via Cremorne Lane.

Cycle Routes to and from Local Catchment

The local catchment areas are accessible by bicycle. Trowse is easily accessible due to its close proximity with the site, The Street has restricted access which limits traffic and makes it more attractive for cycling.

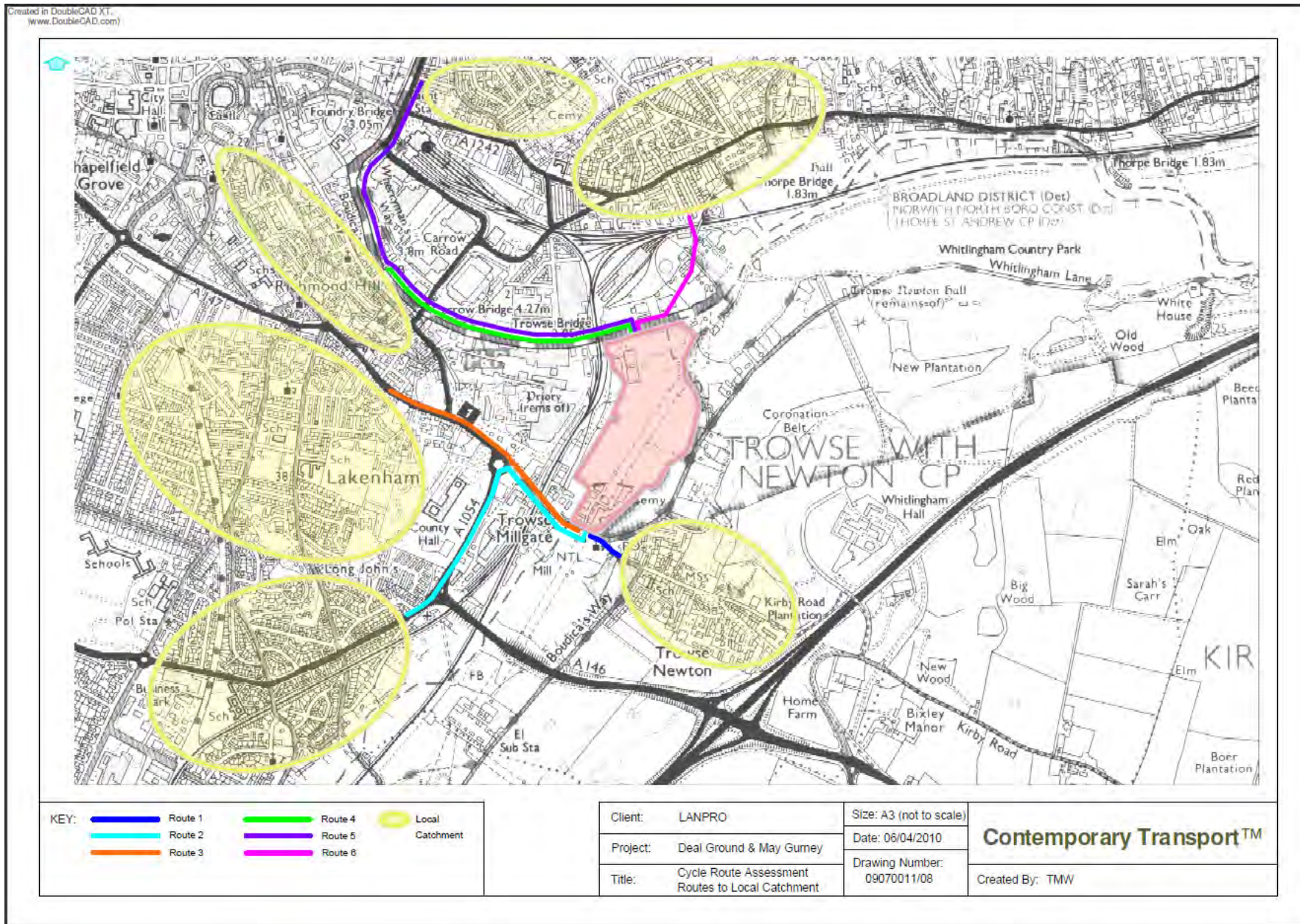
To access Lakenham cyclists would use the current cycle route (NR1) on The Street and Bracondale where facilities are provided. At the junction of Bracondale and King Street no provision is made for cyclists, and beyond this junction on Bracondale no facilities exist.

To access Old Lakenham cyclists would use off road facilities provided on Martineau Lane, these lead to the junction with the A146 where the cycle route ends. Beyond this junction no cycle facilities are provided, cyclists who want to access Old Lakenham via a cycle friendly route must cross Martineau Lane via an unmarked crossing to reach Arnold Miller Road. Local catchment areas to the north will be accessible by bicycle, the Connect2 cycle link will significantly enhance connectivity between Trowse and Thorpe St Andrews.

Figure 4.8 shows cycle routes to and from local catchment areas (1–Trowse; 2–Old Lakenham; 3–Lakenham; 4–Carrow; 5–Residential Area North of Rail Station; 6–Thorpe St Andrew).

⁴ Consistent with *Draft Scoping Study for a Transport Assessment* issued by NCC, March 2010 Strategic Policy Ref: SP.8/4/09/5005

Figure 4.8: Cycle Routes to and from Local Catchment



Cycle Routes to Shopping Areas and Local Schools

Cycle routes to local shops and schools were found to be similar as these are located in Trowse and Lakenham. To the north the Riverside Shopping Centre will be accessible via the riverside towpath. Figure 4.9 shows cycle routes to local shops (1–Shops in Trowse Village; 2–Shops in Lakenham; 3–Riverside Shopping Centre).

Schools to the north will be accessible using the Utilities site cycle link to Thorpe Road, Lionwood and Thorpe House Girls will both be accessible via cycle friendly routes. To the south Trowse Primary and local shops are easily accessible due to close proximity. Cycle routes to schools and shops in Lakenham are available via Bracondale and the existing national cycle route NR1. Figure 4.10 shows cycle routes to local schools (1–Trowse Primary; 2–Lakenham Primary; 3–Lionwood Infant and Nursery; 4–Thorpe House Girls).

Figure 4.9: Routes to Local Shops

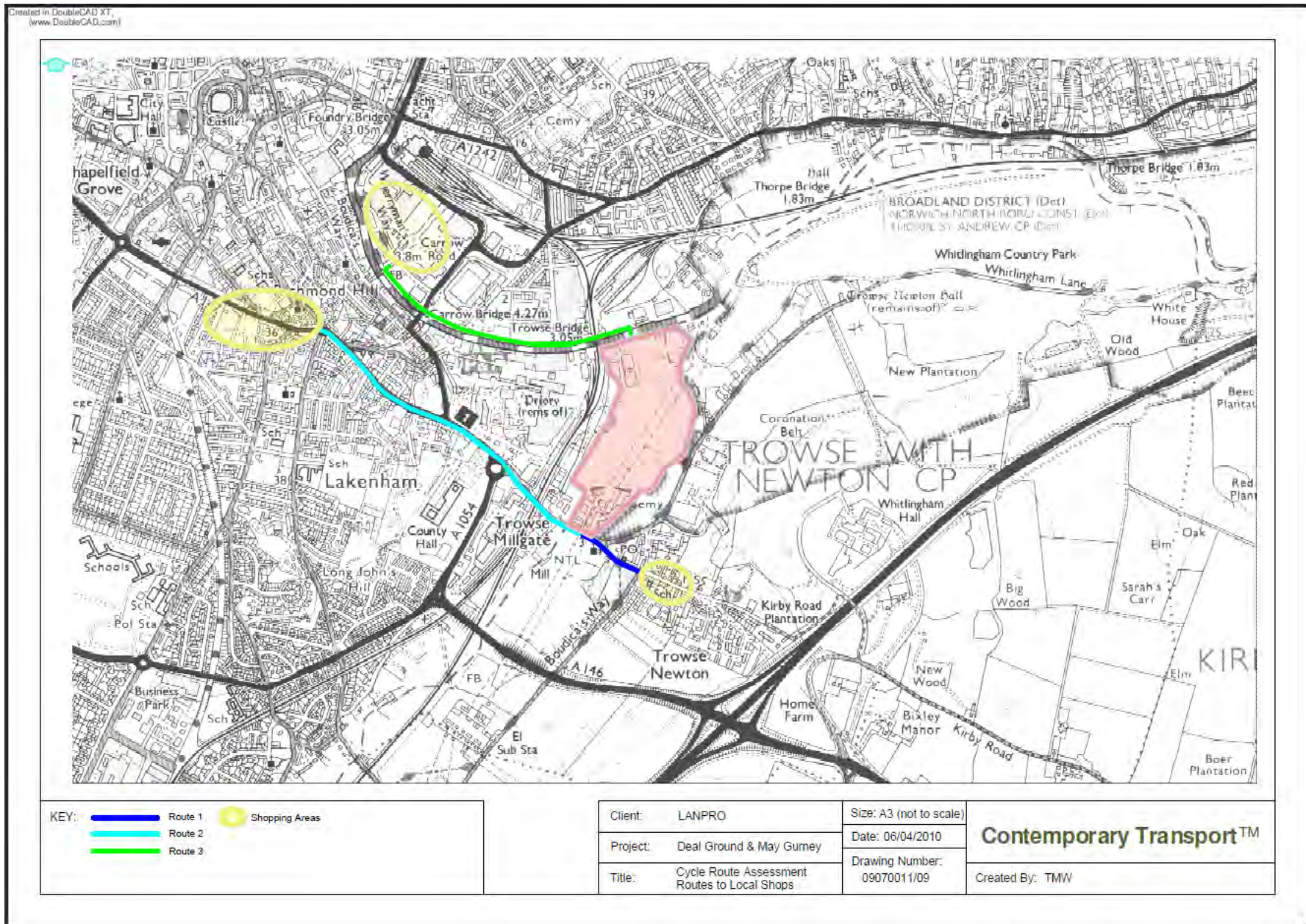
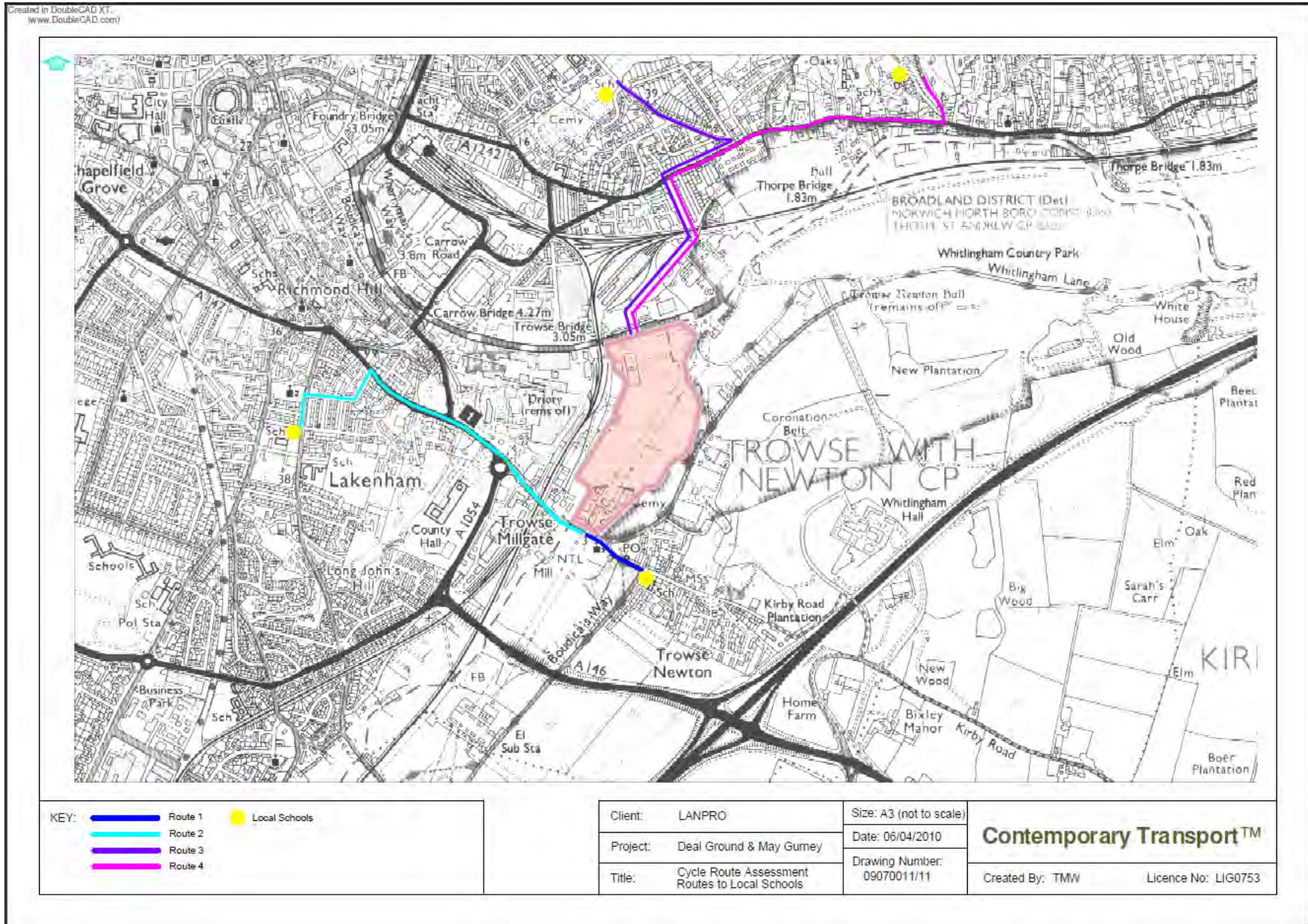


Figure 4.10: Routes to Local Schools

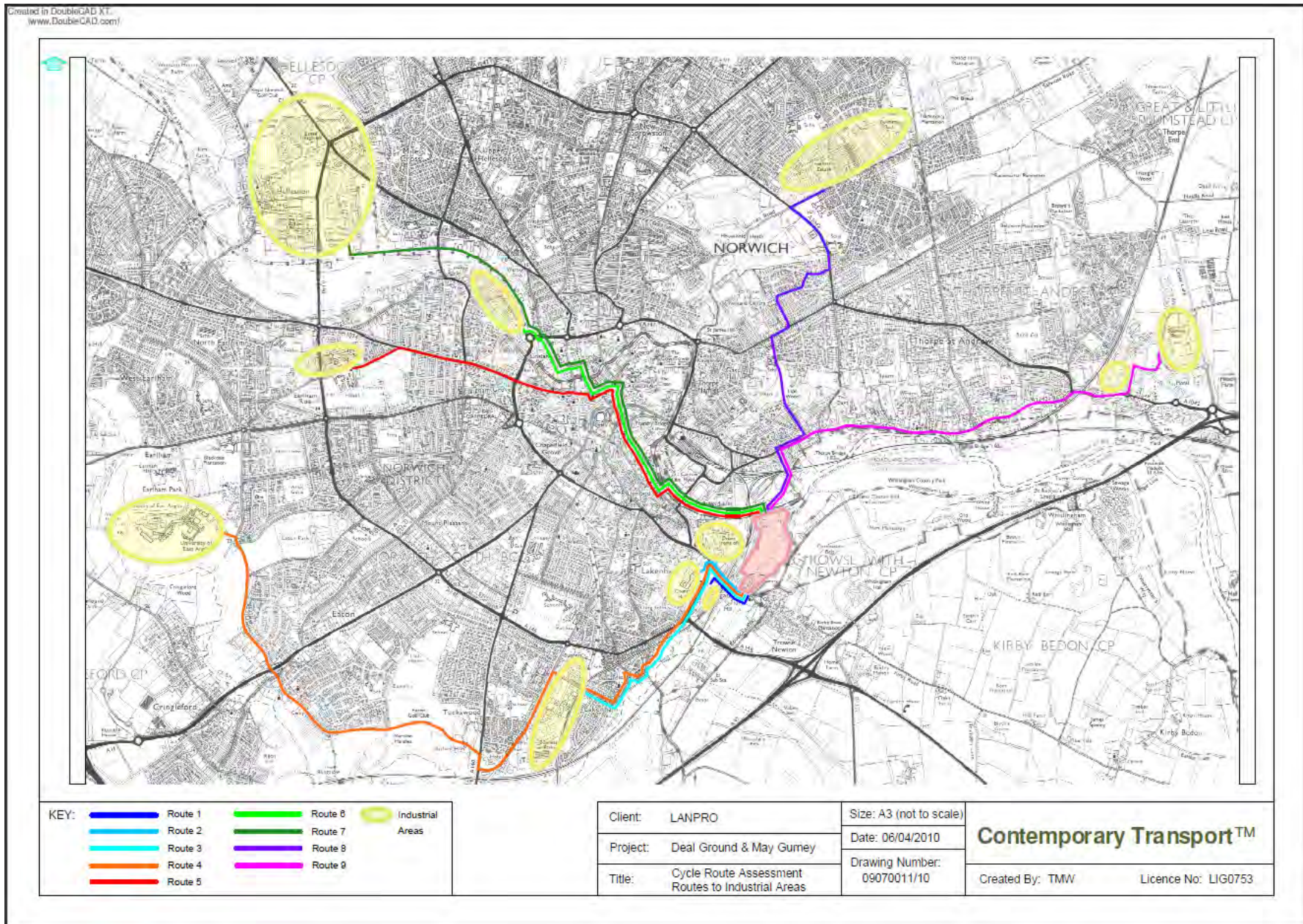


Cycle Routes to Local Employment Areas

Local industrial areas and areas of high employment, such as business and industrial parks, are accessible using existing cycle facilities. Cycle routes to nine major employers were assessed, and all destinations have been found to be accessible by bicycle. The city centre itself is a significant local employer, and is accessible via the existing NR1. Cycle access to the city centre will be significantly improved through the provision of the Connect2 route through the site.

Business parks in north Norwich can be accessed by following NR1 through the city centre and continuing to the northwest. Bowthorpe Industrial Estate is within easy distance of NR1 via a short on-road route. Business parks to the northeast are also accessible by bicycle, these can be reached via a mix of residential and on-road routes. To the southwest industrial areas are accessible by bicycle via predominantly traffic free routes. Figure 4.11 shows the cycle routes to local employment areas (1–Europa Way; 2–Norfolk County Hall; 3–Norwich Business Park; 4–University of East Anglia; 5–Bowthorpe Industrial Estate; 6–City Trading Estate; 7–Sweet Briar Industrial Estate; 8–Coston Industrial Estate; 9–Broadland Business Park).

Figure 4.11: Routes to Industrial Areas



Existing Cycle Movements

Table 4.12 shows the current number of cyclists who pass the site on The Street during the morning and afternoon commuting periods.

Table 4.12: Cycle Movements along The Street

Towards City Centre		Towards Trowse	
AM (07:00 – 09:00)	PM (16:00 – 18:00)	AM (07:00 – 09:00)	PM (16:00 – 18:00)
30	10	20	24

Source - Traffic Survey data, 2009

Cycle movements in the vicinity of the site suggest that the NR1 is already a popular route for Trowse residents commuting by bicycle. It may be possible to increase the number of bicycle commuters if a more attractive route is provided.

4.5 Surrounding Road Network

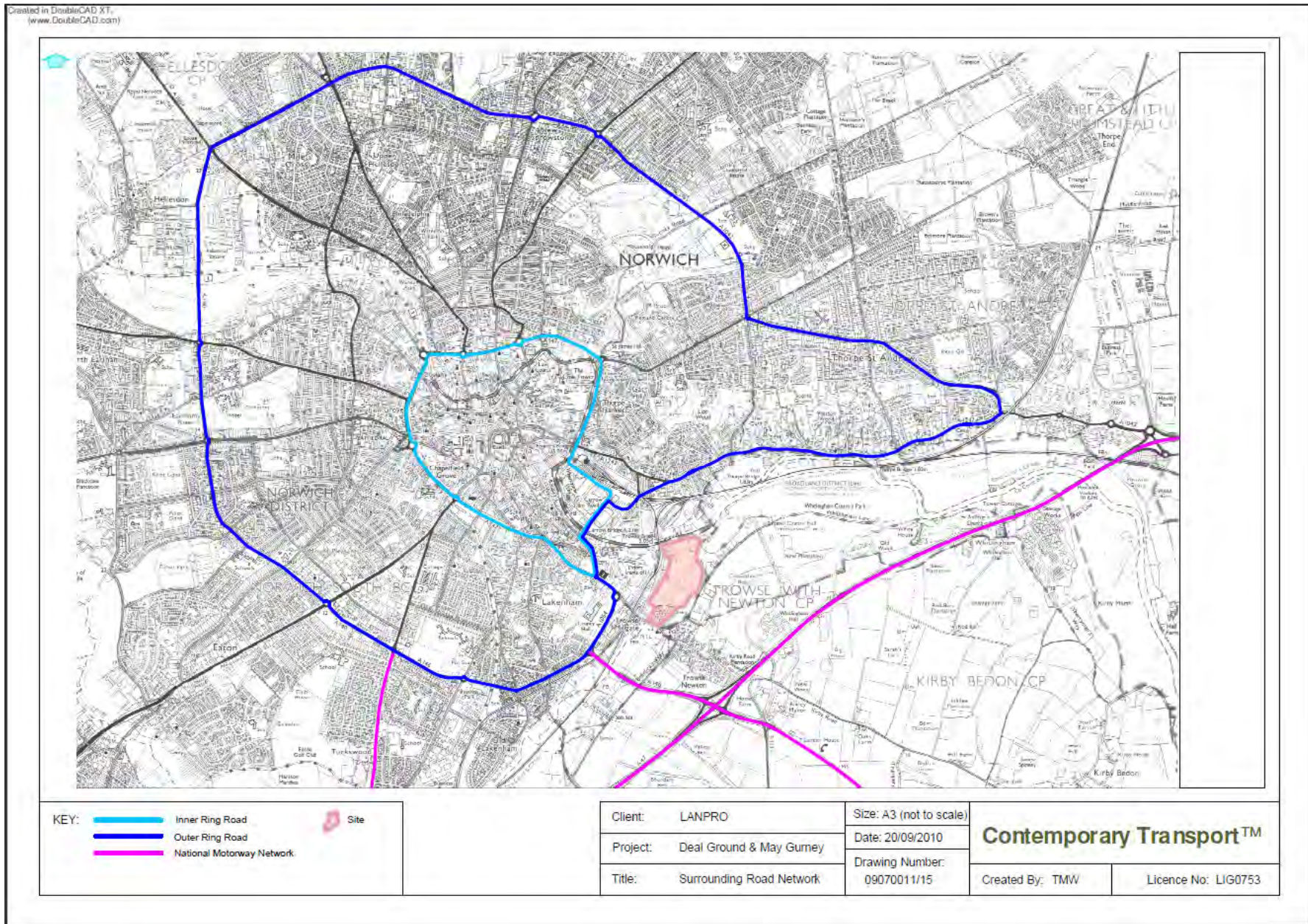
Vehicular access to the site is currently gained from Bracondale/The Street. This is a lightly trafficked road and there are peak time restrictions to prevent its use as a through road towards Norwich during the morning commute.

Access to Bracondale/The Street is gained from either the inner ring road, or from Martineau Lane. Both routes experience high volumes of traffic during peak times. A map of the surrounding road network is shown in the figure 4.12.

The inner ring road can be followed in either direction to access the city centre and surrounding city areas. Bracondale leads to the west and becomes Queens Road which merges into a single lane road through Lakenham and continues around the city. King Street leads to the north and also merges into a single lane. The inner and outer ring roads share this stretch of road along to Koblenz Avenue.

Martineau Lane forms part of the outer ring road and can be used to access the Highways Agency's strategic road and motorway network. The A140 and A146 can both be used to access the outer ring road by vehicles travelling to Norwich from the wider region. The A140 and A146 can be accessed from the A47 dual carriageway. Major routes that access Norwich from the surrounding region converge with the A47 which effectively acts as a southern distributor road running east to west.

Figure 4.12: Surrounding Road Network



4.6 Parking Facilities

A mixture of free and short stay parking is provided throughout Trowse Village, to cater for local requirements. Unrestricted parking is also provided along the majority of Whitlingham Lane and on Europa Way. A recent Traffic Regulation Order will result in the removal of on-street parking outside the site entrance on The Street.

4.7 Current Traffic Flows

From analysis of data collected on vehicular and other movements, some key observations can be made based on the outputs from the junction models developed.

Table 4.13: Martineau Lane/A146 Junction - Degrees of Saturation (%)

	2010	
	Base	
	AM	PM
Martineau Lane (N) Left	51.1	96.1
Martineau Lane (N) Ahead	80.4	61.2
A146 (E) Right Left	94.5	74.8
A146 (E) Right	90.4	61.5
Martineau Lane (S) Ahead	65.4	21.7
Martineau Lane (S) Right	95.2	96.7

Table 4.14: Bracondale/King Street Junction - Degrees of Saturation (%)

	2010	
	Base	
	AM	PM
Bracondale (W) Left	60.9	71.8
Bracondale (W) Ahead	102.4	81.5
King St Right Left	102.6	80.7
Bracondale (E) Ahead	57.1	32.5
Bracondale (E) Right	101.7	83.8

Table 4.15: Martineau Lane Roundabout - Degrees of Saturation (%)

	2010	
	Base	
	AM	PM
Bracondale North Ahead Left	90.5	102.2
Bracondale North Ahead	27.5	2.9
Northern Access Ahead Left	4.4	13.9
Bracondale SE Left	17.9	29.5
Bracondale SE Ahead	41.2	25.4
Martineau Ln Ahead Left	96.6	35.8
Martineau Ln Ahead	100.2	64.1
Eastern Access Left	10.9	35.2
Eastern Access Ahead	10.7	51.1

AM Peak

High traffic flows from the A47 towards the city centre overload the A146/Martineau Lane junction. Conflicts with right-turning demand from Martineau Lane towards A146/A47 limits the junction capacity. There is no obvious physical solution to increase the stop line capacity. MOVA may increase capacity at this junction as it would be quicker to adjust to the demand flows than the current SCOOT method of control, which was observed to be a little slow to respond.

High traffic flows along Martineau Lane towards the city centre mean both lanes of two lane entry are well-used and there is no opportunity to increase flaring. An increase in capacity is possible by reducing circulating traffic, i.e., by reducing number of vehicles entering County Hall from city/Trowse. Interventions nevertheless need to be considered in context of the issue of blocking back from the King Street junction which means even if capacity was increased, traffic may have nowhere to go.

There are also high flows along Bracondale towards King Street junction. Three conflicting movements cause overloading of junction. To improve capacity one conflicting movement needs to be removed. It should be noted that during site visits it sometimes appeared that the King Street junction was being affected by unknown events upstream, causing traffic to move slowly as it set off from the junction, both towards Bracondale and King Street.

PM Peak

There is some spare capacity at King St/Bracondale junction.

The high flows along Bracondale towards Martineau Lane roundabout overload the nearside lane of the two-lane approach because the outer lane is of no benefit in pm peak (dedicated for County Hall users). An increase in capacity is possible by reducing circulating traffic, i.e. by reducing number of vehicles leaving County Hall. Alternatively some widening on the exit (towards Martineau Lane) to allow a two lane exit with a merge would assist, enabling the County Hall lane to be both ahead and right.

High flows from city centre towards A47 overload the left turn because of conflict with right turn demand from Martineau Lane (south) towards A146/A47.

Existing Traffic Generation and Directional Flows

Analysis of traffic data demonstrates that a total of 205 vehicles arrive at the existing May Gurney site during the morning peak period. Of these vehicles 92% enter the site from the

west travelling through the Martineau Lane roundabout. 8% of traffic enters from the east travelling through Trowse.

Table 4.16: May Gurney Inbound Traffic Flows by Period

AM Period	% of AM peak (07:30 -09:30) traffic entering by 15min period
0730	7%
0745	11%
0800	14%
0815	15%
0830	15%
0845	18%
0900	11%
0915	8%

During the afternoon peak period a total of 179 vehicles were observed to leave the existing May Gurney site. Of these vehicles 89% exit the site to the west and travel towards Martineau Lane roundabout. 11% of traffic exits to the east travelling through Trowse.

Table 4.17: May Gurney Outbound Traffic Flows by Period

PM Peak Period	% of PM peak (16:00 – 18:00) traffic exiting by 15min period
1600	6%
1615	2%
1630	11%
1645	9%
1700	13%
1715	37%
1730	15%
1745	8%

It is noted that the predicted trip generation of the development proposals using the methodology as requested by NCC is lower than the current trip generation of the existing May Gurney site.

4.8 Identification of Critical Links

From the above it can be deduced that each of the signal-controlled junctions are seeking to achieve a balance between competing demands and accordingly all of the arms on these two junctions are critical links. At the Martineau Lane Roundabout there is a more directional split with flows on Martineau Lane being constrained in the AM Peak and on Bracondale (N) in the PM Peak. These are therefore the critical links at this junction. At this junction it may be noted that if outbound flows from the proposed development in the AM Peak are predominantly directed towards Martineau Lane and A146/A47 then the AM peak situation

would not be noticeably worsened. However returning PM peak flows from any direction (except the east) would lead either to additional circulating flows across entry from Bracondale (North), or additional demand on this overloaded arm, both of which would have adverse impact.

There are no critical links away from these three junctions, including the links to and from the proposed development.

4.9 Accident Analysis

Accident records for the past three years were analysed to identify any recurrent road safety issues on the highways surrounding the site. Data provided by NCC is shown in figure 4.13 and is summarised in table 4.18.

Table 4.18: Accident Statistics

Road / Junction	Number of Accidents (2007 - 2010)		
	Slight	Serious	Fatal
Carrow Road	2	0	0
Koblenz Avenue and King Street	4	1	0
King Street	1	0	0
King Street and Bracondale	1	0	0
Martineau Lane Roundabout	1	0	0
Bracondale	1	0	0
The Street and Whitlingham Lane	1	0	0
Whitlingham Lane	0	2	0
Martineau Lane	3	0	0

Source: Norfolk County Council

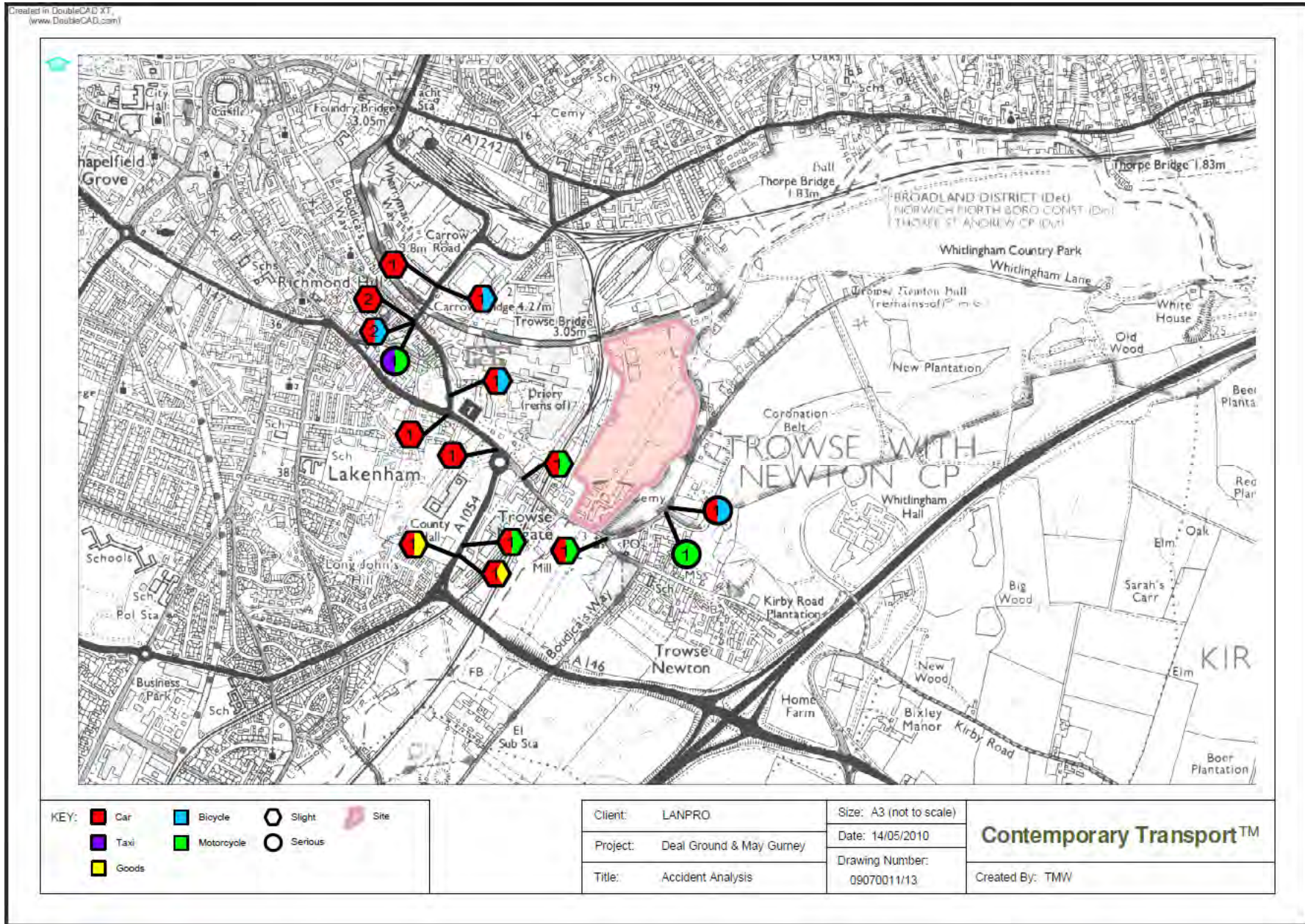
The accident statistics revealed that 17 accidents occurred over the past three years on the highways surrounding the site. Of these 17 incidents none were fatal, however three were serious. Of the three serious accidents one took place on the junction of Koblenz Avenue and King Street and two took place on Whitlingham Lane.

The junction of Koblenz Avenue and King Street has been identified as the only location where a cluster of accidents occurred. This is a 90 degree corner which can also be accessed from King Street to the northwest via a give way junction. One serious accident occurred when a motorcycle approaching the corner from the southeast collided with a taxi joining the corner from the King Street give way junction. This is similar to the other 4 accidents that also occurred on this corner as a result of vehicles exiting from the King Street give way junction.

The location of the other two serious accidents was Whitlingham Lane, both occurred on the same corner which is around 200m from The Street. In the first instance a motorcycle travelling northeast to southwest lost control. The 20mph speed limit introduced on this stretch of road should prevent such future accidents. The second incident occurred when a cyclist travelling southwest to northeast was hit by car which was leaving a parking space. No other accidents have occurred on Whitlingham Lane over the past 3 years.

The junction of Koblenz Avenue and King Street will not be significantly affected by trips generated by the site. This is partly due to the distance of the junction from the site, and also the high capacity of traffic currently using the junction. The insignificant increase of traffic resulting from the development will therefore not increase the risk of accident occurrence at this junction.

Figure 4.13: Accident Assessment



Whitlingham Lane will not be significantly affected by trips generated from the site. The lane is mostly used for parking by visitors to Whitlingham Country Park, and vehicular use as a through road is not permitted. The close proximity of Whitlingham Country Park to the site suggests that no additional vehicular use of the lane is expected. Therefore no increase in risk of accident occurrence can be expected on Whitlingham Lane as a result of trips generated by the site.

It should be noted that plans to re-direct the National Route 1 (NR1) through the site will remove many bicycle users from the surrounding highway network. The new NR1 route will pass through the site, across a shared pedestrian and cycle bridge and continue along the riverside towpath towards the city centre. The risk of vehicular and bicycle accidents on the surrounding highway network will therefore be reduced as a direct result of the new development.

5 Policy Review

5.1 Introduction

This section considers transport planning policies relevant to the development of residential and a small amount commercial on the site. The Deal Ground is allocated for employment and residential use in the Norwich Local Plan. The May Gurney site is situated in South Norfolk Council and is also allocated for employment and housing uses in the South Norfolk Local Plan.

This section considers the transport aspects of relevant national policy guidance, as well as local policy which has a more specific focus on the site. The section will review the aims and objectives of national and local policy within which the development proposals have been designed to embrace and complement strategically.

5.2 National Context

Until recently demand for travel has been increasing steadily over a sustained period of time. Travel behaviour has been influenced by a number of general societal trends including the de-centralisation of key services; a greater awareness of what is available outside the immediate area; and the acceptance of increasing commuter distances. It is recognised by Government that there is now an increasing need to manage the demand for private vehicle use and ensure that the future society in which people live is inclusive and promotes the positive benefits of sustainable methods of travel, both at a global (carbon emissions), local (air pollution, accessibility and traffic congestion), and personal level (health and obesity).

Responsibility for delivering a more sustainable approach must be shared by a number of related stakeholders, particularly the communities, businesses, developers, and government. A shift in travel patterns to more sustainable modes of travel such as walking, cycling and public transport will help ensure that towns and cities remain vibrant liveable places with a viable and supportive local economy.

The approach to tackling these issues was initially set out in the Government's 1998 White Paper *"New Deal for Transport - Better for Everyone"*. Its key objective was *"to increase personal choice by improving the alternatives and secure mobility that is sustainable in the long term"*. The paper outlined key objectives of the integrated transport policy which are identified below:

- integration within and between different types of transport – so that each contributes its full potential and people can move easily between them;

- integration with the environment – so that the transport choices support a better environment;
- integration with land use planning – at national, regional and local level, so that transport and planning work together to support more sustainable travel choices and reduce the need to travel; and
- Integration with policies for education and wealth creation – so that transport helps to make a fairer, more inclusive society.

The 2004 White Paper (The Future of Transport - a network for 2030) further strengthened the need for a sustainable approach to planning for transport needs. It acknowledges that *“we cannot simply build our way out of the problems we face. It would be environmentally irresponsible – and would not work. So we must make our existing transport networks work more efficiently and in a more environmentally friendly way”*.

In 2008 the DfT’s published its report ‘Delivering a Sustainable Transport System’ (DaSTS) which reiterates their commitment to a reduction of at least 80 per cent in greenhouse gas emissions by 2050 compared to 1990 levels. It stated that: *“The Government remains committed to investment and to tackling the problems of congestion and crowding. The Eddington study warned that congested cities... are not just a nuisance to individual travellers, they are also a tax on the productivity of our businesses and a deterrent to inward investment. If we don’t tackle them, they will become a brake on economic growth and on employment.”* The report acknowledges the difficult financial climate faced and emphasises the findings of the Stern Report which is decisive on the massive economic price we would pay if we failed to address climate change, but stresses the crucial importance of *“tackling climate change in the most economically efficient manner”*. The use of travel planning and other smarter travel techniques has proven to be a cost effective method of managing the need / demand for travel. The 2008 report builds on the Eddington Report to set out 5 clear goals for transport that take full account of transport’s wider impact on climate change, health, quality of life and the natural environment:

- Support national economic competitiveness and growth, by delivering reliable and efficient transport networks;
- 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 and longer life expectancy 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, with the desired outcome of achieving a fairer society; and

- Improve quality of life for transport users and non-transport users, and to promote a healthy natural environment.

The DaSTS report also acknowledges that it is possible to decouple transport growth from economic growth, emphasising that *“measures that encourage modal shift to public transport, cycling and walking are likely to make a positive contribution to economic growth (by tackling congestion), reducing greenhouse gas emissions and enhancing the local environment, as well as improving public and personal health”*.

The Planning and Compulsory Purchase Act of 2004 marked a change in planning and transport policy, strengthening the role and importance of regional planning by introducing Regional Spatial Strategies (RSS) and making them the top tier of the statutory Development Plan in all regions of England outside London.

The principles of sustainable development are underlined in the national planning policy documents ‘Planning Policy Guidance Notes’ (PPGs) and the more recently published ‘Planning Policy Statements’ (PPSs). This guidance continues to emphasise the need for an integrated approach to the development of land and transport infrastructure, viewing it as a single entity rather than two parallel activities.

Underneath these national guidelines there are adopted Regional Planning Policy Guidance (RPG) notes and the East of England Plan is provided in RPG6. Principles for the future development of the East of England region are identified in the Regional Spatial Strategy (RSS). The new Coalition Government recently announced that the RSS process had been abolished. However the High Court subsequently ruled that the Communities Secretary Eric Pickles acted unlawfully holding that the Secretary of State did not have the power to *“...denude primary legislation, without having to seek the approval of Parliament for such a course...”* It is understood that the new Localism Bill which will deal with the abolition of Regional Strategies. In the interim, the RSS is currently a material consideration in planning decisions, even though their influence is limited as they are clearly destined to never come into force.

The type and location of this development requires its transport assessment to have full regard to the current planning policy framework. Accordingly, the following national, regional and local planning policy guidance key documents on the transportation and accessibility implications of the development that are considered below:

- PPG13: Transport (March 2001);
- Regional Spatial Strategy 14: The East of England Plan (May 2008);
- Regional Transport Strategy;

- Norfolk Local Transport Plan (2006 - 2011);
- City of Norwich Replacement Local Plan (2004 - 2011);
- South Norfolk Local Plan (adopted 2003); and
- Broads Local Plan (adopted 1997).

Planning Policy Guidance Note 13 - Transport

Planning Policy Guidance Note 13 (PPG13) provides advice on transport for new developments that echoes the main sustainable development themes that have emerged in recent years. It advises that a Transport Assessment should be carried out on all major developments, including details of walking, cycling and public transport access.

The key aim of PPG13 is to ensure that local authorities carry out their land use policies and transport programmes in ways that help to:

- Promote more sustainable transport choices for both people and moving freight;
- Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
- Reduce the need to travel, especially by car.

PPG13 highlights walking as the most important mode of travel at the local level. It offers the greatest potential to replace short car trips, particularly those under two kilometres, as well as having benefits on health and social cohesion. To give greater priority to walking, the guidance advises local authorities to promote measures such as:

- Provision of wider pavements, including the reallocation of road space for pedestrians;
- Introduction of pedestrian friendly road crossings;
- Identification of key links where pedestrians will be given priority;
- Creation of more direct, safe and secure walking routes to reduce the actual walking distances between land uses, and to public transport;
- Implementation of traffic calming to reduce speeds; and
- Encouragement of more use of public rights of way, including the promotion of missing links in rights of way networks.

PPG13 also notes the key role that cycling can have in a fully integrated sustainable transport network both as a potential substitute for short car trips, typically under five kilometres, and as one part of a longer journey using public transport. The guidance advises local authorities to promote cycling through measures including:

- Influence on the design of development to promote cycling;

- Provision of good cycle facilities in new developments;
- Introduction of traffic calming measures to reduce speeds;
- Reallocation of carriageways to provide more space for cyclists; and
- Encouragement of more use of rights of way, including the promotion of missing links in rights of way networks.

The use of parking policy to control traffic flow and driver habits can be key to ensuring a smooth flow of vehicles through a town and PPG13 understands this, going on to suggest that parking levels can have a greater influence on travel mode than public transport availability, recommending that:

- Parking provision should be considered as part of a package of transport and planning measures to promote sustainable travel choices;
- Developers should not be required to provide more spaces than they themselves wish to provide;
- Shared use of parking for different land uses should be considered;
- Parking provision in town centre and peripheral locations should maintain the vitality and viability of town centres;
- Designated spaces for disabled people should be provided; and
- On-street parking controls should be introduced in areas adjacent to major travel generating development.

The advice of PPG13 on housing development states that the focus for residential development should be in existing towns and cities, as this will promote more sustainable patterns of development and make better use of previously developed land.

Overall, therefore, PPG13 sets out guidelines to make it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking and cycling. It should help reduce the need for people to travel and reduce the length of journeys they take. It establishes the necessary framework to enable people to make more sustainable transport choices.

The proposed development accords with the aims and objectives of PPG13 since:

- The site is within walking distance of the city centre, and is well connected to the city centre via sustainable modes of transport;
- Local pedestrian routes have been assessed and improvements will be made, a high quality walking route through the site will also be provided to improve connectivity in the local area;

- An assessment of local cycle routes has also been carried out, and again significant improvements will be made including upgrading the NR1 through the site providing an attractive new off-road cycle route;
- Key employment, educational, shopping and leisure facilities will be accessible from the site via walk and cycle routes;
- Local transport facilities will be improved using developer contributions, and existing services will be enhanced to meet demand rather than introducing new services; and
- Parking provided will be actively managed by the TMA to ensure that use of sustainable travel choices is prioritised.

Regional Spatial Strategy 14: The East of England Plan (May 2008)

The East of England Plan identifies a number of drivers that influence regional policy, including:

- The need to foster and develop European and inter-regional relationships;
- Recognising London's role, directly or indirectly employing a significant proportion of the region's population and contributing to regional prosperity;
- Putting in place a framework that promotes sustainable development;
- Reconciling growth with protection of the environment and avoiding adverse effect on sites of European or international importance for nature conservation; and
- Concentrating growth at the key centres for development and change, which include all the region's main urban areas.

The RSS sets out a number of objectives, including the need to reduce the region's impact on, and exposure to, the effects of climate change by:

- Locating development so as to reduce the need to travel;
- Effecting a major shift in travel away from car use towards public transport, walking and cycling; and
- Maximising the energy efficiency of development and promoting the use of renewable and low carbon energy sources.

The Plan also looks to improve the quality of life for the people of the region by:

- Ensuring new development fulfils the principles of sustainable communities, providing a well designed living environment adequately supported by social and green infrastructure;
- Promoting social cohesion by improving access to work, services and other facilities, especially for those who are disadvantaged;

- Maintaining cultural diversity while addressing the distinctive needs of each part of the region;
- Promoting regeneration and renewal of disadvantaged areas; and
- Increasing community involvement in the implementation of the strategy at the local level.

The proposed development assists the realisation of the aims and objectives of RSS14 through:

- Assisting the delivery of the Norwich River Gateway Project to help to make Norwich a more sustainable city;
- It's location close to the city centre which will help to reduce carbon emissions by reducing the need to travel;
- The development of an environmentally sensitive approach that respects established settlement patterns and landscape character;
- Linking to existing neighbourhoods and employment areas, whilst creating its own distinct character; and
- Ensuring the development causes minimal environmental and social impact.

Regional Transport Strategy

Chapter 7 of the East of England Plan sets out the Regional Transport Strategy (RTS), which provides the regional priorities to support the aims of the spatial strategy. Crucially, the RTS recognises that *“transport solutions which manage use of the car, while improving the scope for alternatives, may be the best way to meet demand, particularly in urban areas”*. The RTS has the following objectives, set out in Policy T1, which give clear priority to more sustainable forms of transport:

- To manage travel behaviour and the demand for transport to reduce the rate of road traffic growth;
- To encourage efficient use of existing transport infrastructure;
- To enable the provision of the infrastructure and transport services necessary to support existing communities and development proposed in the spatial strategy; and
- To improve access to jobs, services and leisure facilities.

The successful achievement of these objectives will lead to improved journey reliability as a result of tackling congestion, an increased proportion of the region's movements by public transport, walking and cycling and safe, efficient and sustainable movement between homes and key destinations.

Policies T2 and T3 consider the Smarter Travel element of the Transport Strategy, with T2 focussing on Changing Travel Behaviour and T3 Managing Traffic Demand. Specifically T2 advocates the use of policies that:

- Raise awareness of the real costs of unsustainable travel and the benefits and availability of sustainable alternatives;
- Encourage the wider implementation of workplace, school and personal travel plans;
- Introduce educational programmes for sustainable travel;
- Invest in business initiatives, including but not limited to tele-working, and other means of decoupling economic activity from the need for travel;
- Investigate ways of providing incentives for more sustainable transport use; and
- Raise awareness of the health benefits of travel by non-motorised modes.

Policies T5 – T8 look at specific elements of the transport network and urban / rural setting, with T9 focussing on the provision of walking, cycling and other non-motorised transport that it states should be improved and developed as part of an integrated strategy for achieving the RTS objectives. Pedestrian, cycle and other non-motorised transport networks should be managed and improved to enhance access to work, schools and town centres, and provide access to the countryside, urban green space, and recreational opportunities. Support should be given to completing the National Cycle Network in the region by 2010, and to linking it to local cycle networks.

Policy T14 states that parking controls, such as the level of supply or the charges, should be used as part of packages for managing transport demand and influencing travel change, alongside measures to improve public transport accessibility, walking and cycling, and with regard to the need for coordinated approaches in centres which are in competition with each other. Demand-constraining maximum parking standards should be applied to new commercial development. The standards in PPG13 should be treated as maximums, but local authorities may adopt more rigorous standards to reinforce the effects of other measures particularly in regional transport nodes and key centres for development and change.

5.3 Local Context

The national policy outlined above sets out the Government's broad objectives for the development of land and infrastructure in respect of spatial development. Regional planning policy then refines these objectives and puts them into a regional context, providing local authorities with an overarching framework for spatial development. Further to this, local planning authorities set out local development policies which match the objectives set out in national and regional strategies with the demands of local stakeholders.

Key local strategies on a County level include the Norfolk Local Transport Plan, 'Norfolk Ambition: the community strategy for Norfolk 2003/23' and the County Council Plan. These are outlined further below.

Norfolk Local Transport Plan 2

The Norfolk Local Transport Plan 2 (NLTP2) describes Norfolk County Council's transport strategy for the period 2006 to 2021, including an implementation programme for the period 2006 to 2011. The Council is currently in the process of developing the detailed implementation programme for the next 5 year period and this will be available early next year.

The overarching vision of the Plan is to ensure that *"Norfolk is a well-connected place in which to live and do business and to visit, and is known as a national leader in making the transport system safer and reducing the impact transport has on climate change and the wider environment"*. The strategic approach of the Plan asserts that Norfolk County Council will *"reduce the need to travel and help people and businesses get where they need to get to, enabling them to do this in a more sustainable way, while reducing congestion, protecting and enhancing the environment, and improving road safety"*.

The first of the NLTP2's thematic objectives is 'Delivering sustainable growth - Integrating spatial, economic and transport planning', through a commitment to:

- Make the housing that is accommodated more sustainable by ensuring it is located so as to minimise the need to travel, especially by car, and that this is supported by appropriate transport improvements; and by ensuring that
- Decisions across the County Council take into account their transport consequences and the need to reduce travel demand.

Chapter 4 of LTP2 covers 'The Strategic Framework', which sets the vision, objectives and overall strategic approach of the plan. It effectively steers the thematic strategies, which include the delivery of sustainable growth and reduced congestion. The strategic framework includes the following aims:

- People will have better travel and transport choices around Norfolk, but they will be able to get where they need to in a more sustainable way through a wider choice of travel options;
- People will be provided with the information they need to raise their awareness of the choices available, enabling them to make informed decisions about how and when to travel;

- Norfolk will grow in a way that is more sustainable and that reduces the need to travel, particularly through the integration of spatial, economic and transport policy.

There is a commitment that *“businesses, visitor destinations and other major organisations will be encouraged to develop travel plans. Travel plans will be required for larger new developments, or extensions to existing developments”*.

The relevant policies are included below:

- *Policy 1 – Strategic Approach:* We will reduce the need to travel, especially through travel planning. We will also help people and businesses to do this in a more sustainable way, whilst reducing the environmental impact, and improving road safety;
- *Policy 2 – Integrating spatial, economic and transport investment:* Priority will be given to transport investments that facilitate opportunities for housing and economic growth;
- *Policy 4 – Location of New Developments:* New development should be located so as to minimise the need to travel and reduce reliance on the private car. The Council will work with and provide advice to Local Planning Authorities on accessibility, congestion, air quality and road safety;
- *Policy 5 – Developer-led Transport Improvements:* New development will be expected to mitigate its impacts on the transport network. Developer-led transport improvements, including public transport, must be in accordance with the County Council's transport strategies. Where development has a wider impact on the county transport network, contributions toward the relevant strategy area and countywide policies will be sought;
- *Policy 6 – County Council Decision Making:* The County Council will ensure that all strategic decisions consider and promote opportunities for reducing the need to travel;
- *Policy 8 – Walking and Cycling Networks:* We will encourage people to walk or cycle by implementing safe and convenient walking and cycling route networks within the main urban areas and market towns, and through reducing traffic in town/city centres to create more 'people friendly' public spaces;
- *Policy 16 – Smarter Choices:* Measures to encourage a modal shift to public transport, walking and cycling, particularly in urban centres and market towns, will be investigated in the first instance before road capacity improvements are considered.

City of Norwich Replacement Local Plan

The adopted version of the Replacement Local Plan for the City of Norwich provides a full range of planning guidance for the local area. Relevant policies that should be taken into account during the preparation of the masterplan for the site are listed in the text box below.

EMP 9 - Deal Ground: allocated primarily for employment development, with a small element of housing. Includes provision for new access from south and reservation of land for bridge to north of River Wensum.

EMP 14 - Utilities site: allocation for mix of uses including power generation and employment. Includes provision of land for bridge connection to south of River Wensum.

SR11 – Where redevelopment or other changes are proposed along the river frontage, the completion of the Wensum Riverside and Yare Valley Walks will be sought by safeguarding land for the riverside walks and (as appropriate) cycle paths as defined on the Proposals Map.

SR12 - The City Council will seek to use development opportunities to ensure that open spaces, including river valleys, woodland and wooded slopes, are, as far as possible, connected through a network of green links.

TRA3 - A modal shift from car to walking, cycling and public transport will be sought as part of development proposals.

TRA6 - Developers will provide no more car parking spaces than the maximum allowed for in the parking standards.

TRA7 - Developers will provide cycle parking to at least the levels contained within the standards in Appendix 4. In developments where car parking provision is below the maximum standards permitted, additional cycle parking will be required on a pro-rata basis.

TRA10 - Developers will be expected to pay the cost for all improvements that are primarily required directly as a consequence of their proposals. These direct improvements will include all works (including the implementation or variation of Traffic Regulation Orders) that are needed to provide adequate pedestrian, cycle and vehicular access to the site and access to local public transport.

TRA11 - All significant new developments within the City will provide support for the City-wide transport infrastructure improvement programme to mitigate the wider impact of the development through a contribution, subject to the guidelines in (and specifically the threshold levels for size of development in the final column of) the schedule of Standards for Transportation Requirements in Appendix 4.

TRA12 - Travel Plans will be required as an integral part of new development proposals over the threshold levels detailed in the schedule of Standards in Appendix 4, in order to cater for the transport demand of the development in the least environmentally damaging way and to provide information and advice and, if appropriate, to identify off-site works to improve accessibility.

TRA13 - Developments will take account of the need to improve access to and integration between different modes of transport. Major transport interchanges will be developed in the City Centre at Norwich Railway Station and Norwich Bus Station and along the 'green transport spine' and also at Norwich Airport and the University of East Anglia.

TRA14 - The quality of the existing pedestrian environment will be enhanced by:

- designing solutions to transport and parking problems which keep pavements and other pedestrian routes free from obstructions and inappropriate use by other road users;
- installing dropped kerbs, to make the pedestrian environment as accessible as possible to all;
- the development of a network of safe (and signed) pedestrian routes, which link residential areas with work, school, shopping and leisure destinations, as well as recreational walks to create a pedestrian environment that is, and is perceived to be, safe and accessible to all.

TRA15 - The quality of the cycling environment will be enhanced by the completion of the strategic cycle network throughout the urban area through area wide strategies, other transport programmes, and development proposals.

TRA16 - The efficiency and attractiveness of public transport services will be improved by:

- bus priority measures on defined bus corridors, and local improvements on bus routes within the urban area;
- provision of a bus station for long distance and other services and the upgrading of transport interchanges at Castle Meadow, St Stephens Street, and Thorpe Railway Station with appropriate public facilities;
- facilitating the development of the waterbus from the City Centre to Postwick.

Developers will be required to take account of, and where appropriate enhance these facilities.

The development proposals fully support the aims and objectives of the City of Norwich Replacement Local Plan. The site will be connected to the riverside towpath via a new pedestrian and cycle bridge over the river Wensum, the route will continue through the site providing a link to Whitlingham Country Park. It will encourage a modal shift in the local area to sustainable modes such as walking, cycling and public transport and provide less parking than the maximum levels as specified by parking standards. Parking will be managed through the TMA to ensure efficiency. Plentiful cycle parking will be provided for new residents in prominent locations to give the bicycle priority over the car in terms of ease of access and convenience. The site will benefit from workplace and residential travel plans which will include initiatives to improve travel behaviour and action plans to guide implementation. The surrounding pedestrian and cycle environment will be improved and high quality pedestrian and cycle routes will be provided within the site. Local public transport services have also been assessed and improvements to routes have been identified so that potential demand can be met.

South Norfolk Local Plan Adopted 2003

The South Norfolk Local Plan was adopted in 2003 and contains a list of policies which guide development in the district. The plan ran until 2006 and was then replaced by the Local Development Framework.

The Local Development Framework (LDF) comprises of a range of documents put together to guide future development, this will form part of the overall development plan for Norwich. Documents which make up the LDF are currently being introduced, timescales for the production of these documents are set out in the Local Development Scheme (LDS) which covers the period from 2009 to 2012.

The Broadland, Norfolk and South Norfolk councils have prepared a single plan for the entire area called the Joint Core Strategy (JCS), this covers the period up to 2026. The Greater Norwich Development Partnership (GNDP) was set up in October 2006 to coordinate work on the new growth point for Norwich. It is the GNDP's responsibility to coordinate the preparation of the JCS between the three districts. The purpose of the JCS is:

"To provide the strategic vision, objectives and strategy for future development of the Norwich area, to accommodate growth in accordance with the Regional spatial strategy and to coordinate policies between the three district authorities"

(Source: Norwich City Council)

The JCS conforms to National Policies and Regional Spatial Strategies, and was submitted to the Secretary of State in March 2010. This JCS is currently being reviewed and an inspectors report is expected in November 2010, followed by adoption in March 2011. The JCS will be reviewed in the form of annual monitoring reports produced by all 4 councils.

It is understood that the JCS includes policies from the City of Norwich Replacement Local Plan and the South Norfolk Local Plan Adopted 2003. These documents will effectively be replaced by the LDF which covers the entire area.

Policies contained in the South Norfolk Local Plan that have relevance to the development are detailed in the text box below.

IMP7 - Provision of Infrastructure. Permission will not be granted for development unless provision is made for the infrastructure, community facilities and services demonstrably necessary to support it, or, where the proposed development would otherwise be acceptable, planning conditions can be imposed or planning obligations sought, in accordance with Circulars 11/95 and 1/97, to secure the necessary infrastructure facilities and service provision.

IMP8 - Safe and free flow of traffic. Planning permission will not be granted for development that would endanger highway safety or prejudice the free flow of traffic on the highway network.

TRA1 - Provision of Pedestrian Links. The siting, layout and design of development will be required to make provision for safe and convenient pedestrian access and circulation, and to maximise practicable opportunities for users of the development to walk to and from town and village centres, public transport, and other community facilities.

TRA2 - Safeguarding of the Cycle Network. Development will not be permitted on land required to implement the County Council's proposed cycleway network, as shown on the Proposals Map.

TRA3 - Provision of Cycling Facilities. The siting, layout and design of development which is likely to generate an increase in cycle use will be required to make provision for safe and convenient cycle access and circulation, and to maximise practicable opportunities for users of the development to cycle to town and village centres, public transport interchanges and other community facilities.

TRA4 - Provision for Public Transport. Planning permission will only be granted for development if the siting, design and layout includes, wherever practicable, measures to maximise public transport usage. Planning obligations may be sought to secure the necessary facilities and service provision in accordance with Circular 1/97.

TRA17 - Off Site Road Improvements. Developers will be expected to meet the cost of necessary off- site road improvements specifically required to facilitate their proposals, in order that traffic generated by the development will not: Endanger highway safety; Prejudice the free flow of traffic on the highway network. Planning conditions may be imposed or planning obligations sought accordingly, in compliance with the provisions of Annex "C" to PPG 13 and Circular 1/97 respectively.

TRA19 - Parking Standards. Planning permission will not be granted for development unless provision is made for parking, loading and turning areas in accordance with the County Council's adopted car parking standards 1998 (see Appendix 3) and its revisions. In applying these standards, the Council will also have regard to: The availability of transport by means other than the private car; and ii) The provisions of the Council's guidelines for parking for people with disabilities (Appendix 3).

The development proposals are consistent with the aims and objectives of the South Norfolk Local Plan.

Broads Local Plan Adopted Version 1997

The Broads Local Plan was adopted in 1997 and expired in 2007. The Broads authority then saved certain policies as these had not yet been replaced by a full LDF, saved policies had to meet criteria set by national planning policy such as PPS12. The policies noted below are included within the list of saved policies from the local plan and therefore are relevant, these will be replaced by the Broads LDF.

The saved policies attempt to strike a balance between protecting the broads as an area of national importance and providing for the needs of the local economy which supports the area. Therefore the saved policies seek to protect what is special and to allow carefully controlled development which meets the needs of the local people. Promoting public enjoyment of the Broads and protecting the interests of navigation are also major factors that have contributed to the policy content.

<p>TR1 Temporary moorings for visitors. The development of temporary moorings for visitors will be permitted within riverside settlements provided that their scale and design are appropriate to their location.</p> <p>TR2 Development impinging on the waterways. Development which would adversely affect navigation by impinging on or otherwise obstructing the Broads waterways will not be permitted.</p> <p>TR3 Development leading to hazardous boat movements. Development which would lead to boat movements resulting in a hazard to navigation will not be permitted.</p> <p>TR4 New bridges. The Authority will object to the construction of any new or replacement bridges over the Broads waterways where it would result in a significant adverse effect on the Broads navigation, enjoyment of the waterways, wildlife or wildlife habitats or the character of the Broads landscape. In considering proposed new or replacement bridges, the Authority will have regard to the benefits of the proposal and to the effects of the scheme on those who live or work in the area.</p> <p>TR5 Design of new bridges. Where a new or replacement bridge is to be constructed, the Authority will seek to ensure that all the following criteria are met:</p> <ul style="list-style-type: none">a) temporary moorings would be provided on both sides of the bridge and on both banks, to allow sailing craft to lower and raise their masts and sails; andb) sufficient width and clearance under the bridge would be provided to meet the reasonable requirements of navigation by Broads craft as determined by the Broads Authority; andc) the bridge should have a quality of design and materials which would, as far as possible, enhance the appearance of the riverside, and would not have a significant adverse effect on the landscape; andd) there would be no other significant adverse environmental effects. <p>TR8 Extending the Waterspace. Proposals to extend navigable waterspace, to create new water areas, and provide bypass channels will be permitted provided that they do not have a significant adverse effect on the Broads landscape, wildlife and wildlife habitats.</p> <p>TR27 Public rights of way and public access. When determining development proposals, the Authority will seek to safeguard public rights of way and to pursue opportunities for increased public access where appropriate.</p>
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The development proposals accord with the objectives of the saved policies. The new pedestrian and cycle-bridge connecting the site to the riverside towpath on the northern side of the river Wensum will not adversely affect on Broads navigation, wildlife or enjoyment but instead will enhance these aspects of the area. Moorings will be provided on either side of the

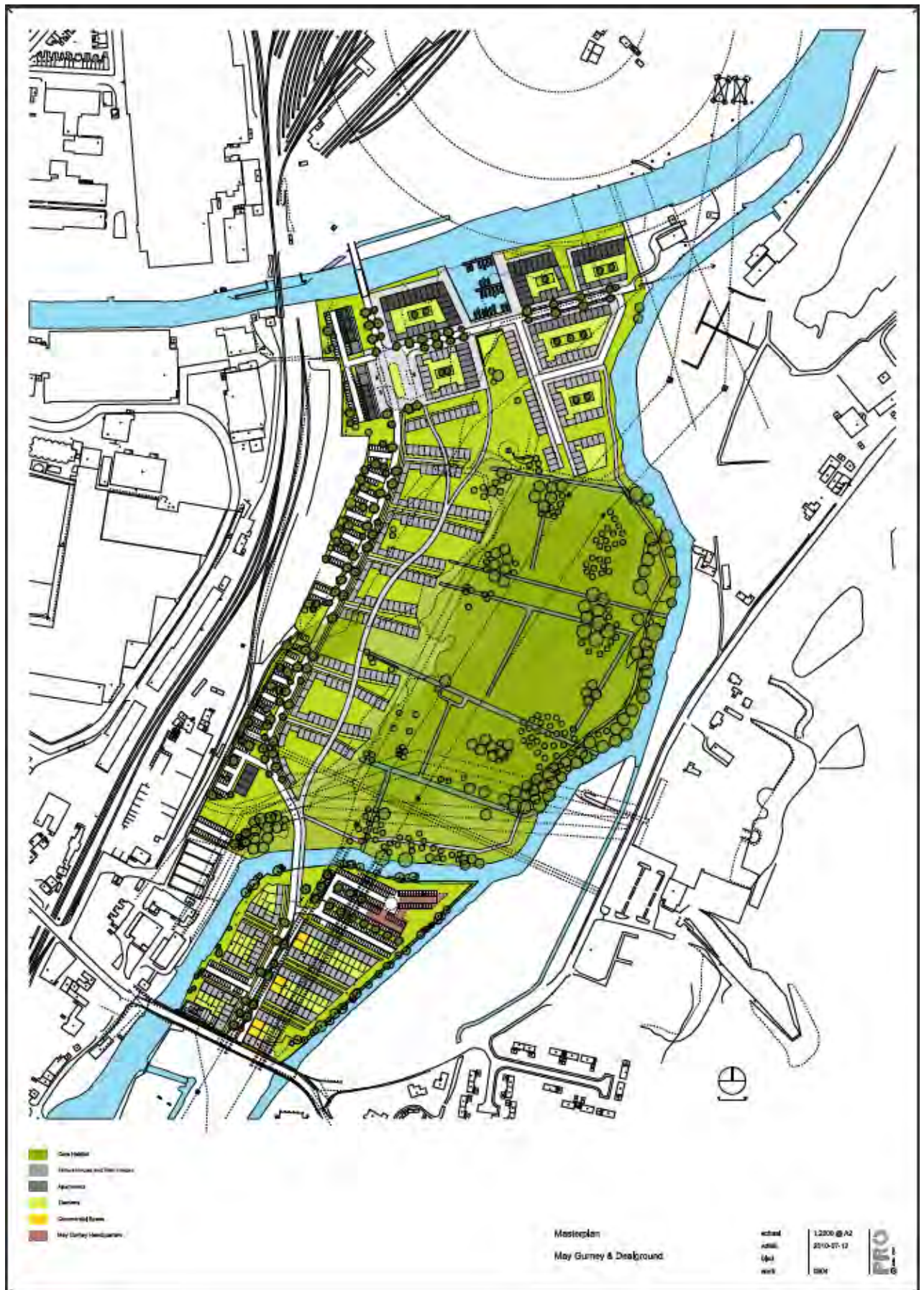
bridge to allow passing boats to stop, sufficient clearance beneath the bridge has been agreed.

6 Development Proposals

6.1 Site Layout

The proposed site layout for the site is shown in figure 6.1. Over a period of time the design has been informed by and has responded to a wide range of opportunities and constraints.

Figure 6.1: Proposed Masterplan



6.2 Land Use

The Deal Ground (DG) site is currently allocated for employment and residential use. The site is not currently in use. It is proposed that the development will comprise predominantly of residential properties with a small amount of employment.

The May Gurney (MG) site is currently used for employment and has an extant planning permission for B1 employment land uses across the site, excluding the new May Gurney headquarter offices. The proposal for the MG site is to develop residential properties on the remaining land.

6.3 Scale of Development

Overall the development consists of 682 residential units comprising terraces, town houses, duplex units, and apartments, as shown in table 6.1.

Table 6.1: Composition of Residential Unit Type

		May Gurney	Marsh Reach	Wensum Riverside
Type	Beds	Units	Units	Units
Terrace	3	76	84	53
Townhouse	4	--	47	21
Townhouse	6	--	26	40
Apartment	2	12	20	118
Apartment	1	--	--	52
Duplex	3	--	--	63

A relatively small amount of commercial units (2,440m²) will be provided at the northern and southern ends of the site.

Table 6.2: Amount of Commercial (A1-5) Landuse Type

May Gurney	Wensum Riverside
1265m ²	1210m ²

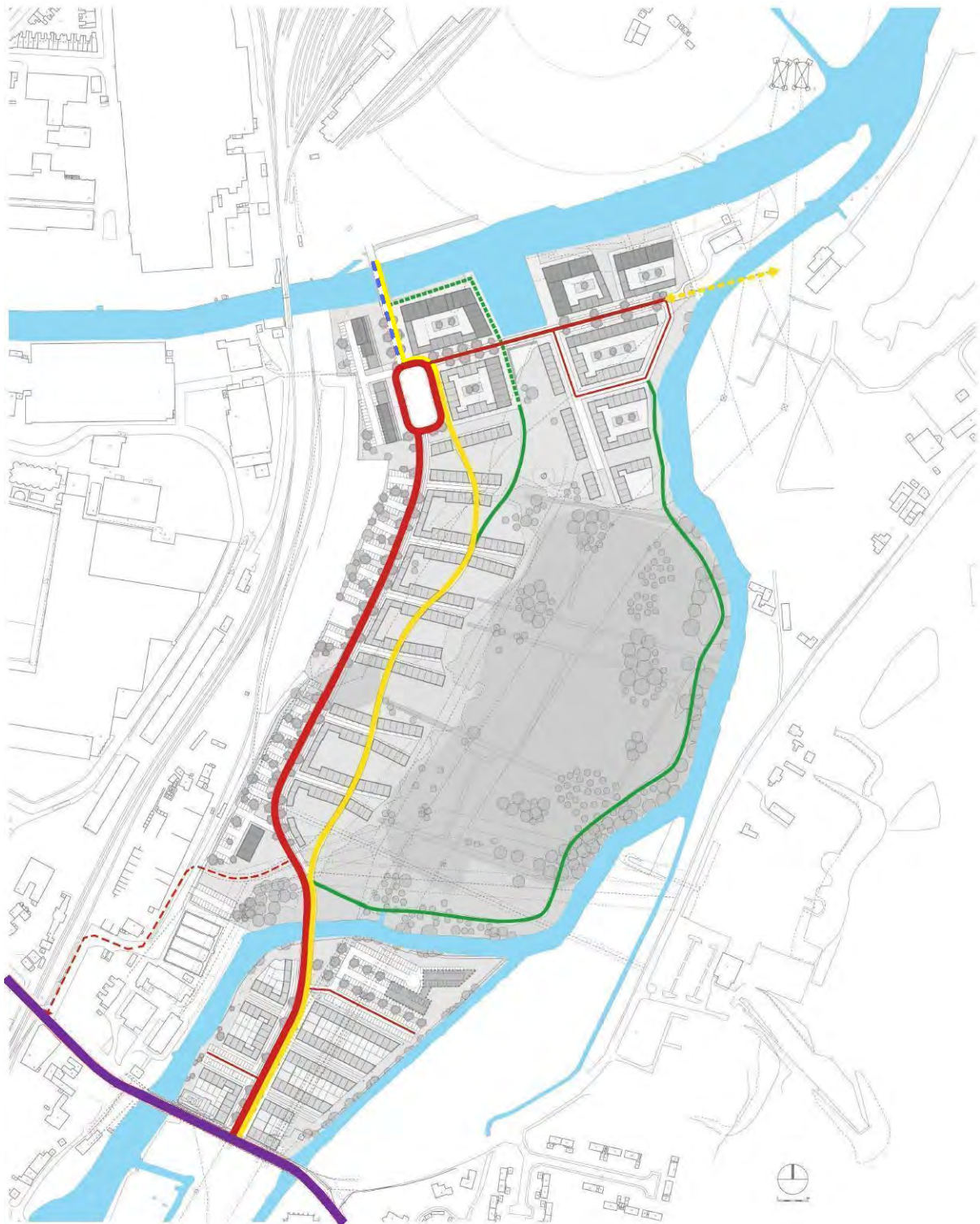
6.4 Proposed Access

The main vehicular access will be gained from The Street. The junction of the site entrance and The Street is to be upgraded to a signalised junction. This will improve conditions for pedestrians and cyclists on The Street by slowing traffic.

A pedestrian crossing facility could be incorporated into the western arm of the junction to provide access to the north westbound May Gurney bus stop.

Emergency vehicular access will be gained via the Lafarge site entrance onto The Street. This route will not generally be available to regular traffic. The emergency access route is shown in figure 6.2.

Figure 6.2: Access Routes



Key:

- | | |
|----------------------|------------------|
| Public Highway | Pedestrian Route |
| Multi Modal Route | Emergency Route |
| Walk and Cycle Route | Service Access |

schaal 1:2000 @ A2
edrfia 2010-07-12
blad 0904
werk PRO

To provide access to the DG site a fixed vehicular bridge will be constructed over the River Yare. A shared pedestrian and cycle path will be provided on the bridge, this will form part of a high quality pedestrian and cycle route which will run through the site.

Beyond the fixed bridge the vehicular route will continue along the western side of the site. The pedestrian and cycle route will follow a more direct, dedicated traffic free path through the site. It is intended that provision of a high quality sustainable transport corridor through the site will encourage residents and visitors to walk and cycle more frequently.

Close to the waterfront a main square will be provided, this will act primarily as public realm for pedestrians and can be adapted for events that may be held on site. The square will also provide bus pick up and drop off points, to serve the Utilities site to the north of the Wensum.

The proposed alignment and cross-sections for the access road as well as the adjacent footways and cycleways between The Street and the Riverside Square are shown in the set of Plans drawn at 1:500 scale attached at Annex D.

A second bridge will be installed to the north of the square. This structure will connect the pedestrian and cycle route across the River Wensum to the extended riverside towpath and Utilities site. This bridge will be capable of opening so as not to restrict the passage of vessels on the river Wensum.

At the request of the Utilities site planners, the bridge will be capable of carrying vehicular traffic. This is to provide access for emergency vehicles and occasional service vehicles to access the Utilities site, due to the constraints of the site to the north of the Wensum.

6.5 Servicing and Construction Arrangements

Vehicles servicing the site will use the vehicular route provided. The position of this route on the western side of the site will result in minimal disturbance to residents. The refuge storage areas will be positioned close to car parking areas to facilitate ease of collection by service teams.

Vehicles servicing the commercial units located will also use the vehicular routes provided. The waterfront square will be used as a loading zone and other loading areas made accessible throughout the area.

Equipment being transported to the site for decommissioning and construction purposes will use the route specified in the construction route assessment.

6.6 Parking

Resident parking will be provided throughout the site at convenient locations close to residential premises. Visitor parking and parking for the small number of commercial units will also be provided at appropriate locations. The parking strategy is detailed in the transport strategy section including explanation of how parking will be managed by the Transport Management Association (TMA). The scheme design balances convenient access to vehicles with the creation of attractive urban space throughout the development.

Cycle parking will be provided in highly accessible areas close to residential units, this will mean that residents will walk past their bicycle on the way to their cars. By providing cycle parking in preferential locations residents will be encouraged to cycle more often as they will be easier to access.

Disabled parking will be provided throughout the site in easily accessible areas according to local planning guidance. Motorcycle parking will also be provided throughout the site again according to local planning guidance. Taxi's will be able to drop residents close to their homes. It is anticipated that the square at the northern end of the site will act as a taxi pick up and drop off point.

6.7 Development Phasing

The TA is based on a practical build out time horizon based on permission being granted in 2010. The development is likely to be implemented in phased manner starting with the May Gurney site, followed by the central area (Marsh Reach), then the western half of the Wensum riverside area and finishing with the eastern half of the Wensum Riverside area.

6.8 Current Travel Characteristics

At present the DG site is unused, and offers no through routes to pedestrians and cyclists in the local area. The Carrow Yacht Club located at the northeastern tip of the site at the 'Trowse Eye' is in use and is accessed via the DG site. To ensure that access is only available to members, the DG site gates are padlocked to prevent unauthorised access.

The MG site is accessed regularly by employees, which generates traffic along Bracondale and The Street. The Street is also used by Lafarge which requires heavy goods vehicle (HGV) access to its aggregates site. Pedestrians and cyclists also use Bracondale and The Street which are part of National Route 1 (NR1). Vehicular access from the south is restricted during peak times to prevent commuters from travelling through the village of Trowse.

Whittingham Country Park is adjacent to the east of the site, and attracts visitors from Norwich and the surrounding area. Pedestrians and cyclists generally access the park using Bracondale and The Street. Vehicular access would be gained using the same route or via Trowse. Both routes are also used by Trowse residents although this is a small village and does not generate particularly high levels of traffic.

6.9 Accessibility Improvements

The re-routing of the NR1 will improve pedestrian and cycle access to the site by providing an attractive environmentally friendly route from the site to the city centre. Improvements to local footpaths and cycle routes have also been identified to improve and enhance connectivity in the local area.

Public transport improvements will be provided through an upgrade of the existing May Gurney stop located at the site entrance, and by the provision of a new westbound May Gurney bus stop.

7 Transport Strategy

7.1 Introduction

Sustainability is an integral part of the development approach. To be successful, the design team recognise the need to think holistically and strategically about sustainability. Transport is one such area that will benefit from the adoption of a coordinated and holistic approach. The design team fully appreciate its responsibility to develop designs underpinned by effective strategies which seek to deliver a lasting and realistic legacy of development, with the flexibility to evolve in conjunction with relevant authorities, operators and neighbours.

The development draws from a number of contemporary transportation approaches, in particular that of Smart Growth and New Urbanism. Smart growth is an urban planning and transportation theory that concentrates growth; and advocates compact, transit-oriented, walkable, bicycle-friendly land use, including local schools, quality street layouts, and mixed-use development with a range of housing choices. Smart growth values long-range, regional considerations of sustainability over a short-term focus. Its goals are to achieve a unique sense of community and place; expand the range of transportation, employment, and housing choices; equitably distribute the costs and benefits of development; preserve and enhance natural and cultural resources; and promote public health. Likewise, New Urbanism is an urban design movement, which promotes walkable neighbourhoods that contain a range of housing and job types. New Urbanism can include (neo)traditional neighbourhood design, transit-oriented development. New Urbanism is the re-invention of the old urbanism, commonly seen before the advent of motor vehicles. It advocates the restructuring of public policy and development practices to support the following principles:

- Neighbourhoods should be diverse in use and population;
- Communities should be designed for the pedestrian and mass transit as well as the car;
- Cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions;
- Urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice.

New Urbanist's support planning for open space, context-appropriate architecture and planning, the balanced development of jobs and housing, reduction of traffic congestion, and an increased supply of affordable housing.

The site location already benefits from a strong relationship with the Norwich urban area, from where a majority of all employment related journeys from the site will be destined. The ethos

of the development masterplan is that it places development, where there are realistic travel choices, which in particular, encourage walking and cycling as the primary means of travel. Ensuring that residents have good access to local jobs and services, preferably by either walking or cycling will reduce the need to travel and promote more healthy lifestyles.

The focus is on public transport ahead of car based improvements, although the transport strategy recognises that for many rural areas the private car will remain an important means of travel. The local road network will be improved to reflect changes in prioritisation of travel modes. Provision of high quality links to information technology links and promotion of home working will continue to promote changes in working practices.

A pragmatic approach has been employed to the development of the transport strategy, recognising that for some journeys there will remain a reliance on the private car, but equally that the impacts can be minimised by promotion and improvement of alternative modes of travel.

Local living is encouraged through the provision of a choice of attractive, well connected and environmentally sustainable dwellings that benefit from easy access to retail and leisure facilities. People living in the new development will have less dependency on car travel as jobs, shops, schools and recreational facilities will be in areas accessible by public transport, cycling and pedestrian routes.

7.2 Background

The overall context for the transport strategy has been drawn from a comprehensive review of policy. A number of local strategy documents refer to specific approaches and measures of relevance to the development proposals. These are detailed below.

7.2.1 GNDP JCS

The transport strategy draws guidance from the Greater Norwich Development Partnership (GNDP), Joint Core Strategy (JCS) for Broadland, Norwich and South Norfolk⁵. The strategy is designed to complement Policy 16 of the GNDP by ensuring that the approach is able to:

“Enhance the transportation system to promote sustainable economic development, reduce the contribution to climate change, promote healthy travel choices and minimise the need to use the private car”.

⁵ Technical Consultation, Regulation 25 (August 2008), Policy 16 - Strategic access and transportation.

7.2.2 Norwich Area Transport Strategy (NATS)

Norfolk County Council (NCC) is currently developing NATS. In doing so they are pulling together details of projects that will help to deliver the objectives of the strategy.

The strategic objectives of NATS are summarised in table 7.1. At the time of writing the NATS projects (classified as Bus services; Bus Stop Infrastructure; Car Parking; Technology; Ticketing; Traffic Light Priority; Smarter Choices; Freight; Walking; Cycling; Public Realm; and Rail) were being assessed according to their contribution towards the strategic objectives. From preliminary work available, it was noted that smarter choices, public realm improvements, pedestrian schemes and enhanced bus services appeared to score particularly well when assessed against the strategic objectives. This has been taken into consideration when compiling the transport strategy.

Table 7.1: NATS Strategic Objectives

<p>Overall Strategy</p> <ul style="list-style-type: none">• Promote a vibrant city centre and other commercial centres by improving accessibility for people and goods• Cater for travel consequences from growth aspirations. In particular, accommodate transport needs arising from future growth of the airport and the cluster of NRP, University and N&NUH• Maximise transport choice for all travellers <p>Accessibility</p> <ul style="list-style-type: none">• Reduce social exclusion through transport solutions• Enhance access for non-car modes• Promote sustainable means of travel, minimise length of trips through use of land use policies, layout of development and promotion of travel plans• Improve integration and interchange• Reduce the need to travel <p>Congestion</p> <ul style="list-style-type: none">• Minimise congestion and delays for all modes of transport by improving the efficiency of the transport network <p>Pollution</p> <ul style="list-style-type: none">• Reduce CO2 emissions from transport by encouraging sustainable modes of travel and vehicles using fuels from renewable sources• Promote the use of alternative transport and less polluting fuels, particularly within Air Quality Management Areas• Minimise noise, vibration and visual intrusion from transport, particularly in the public, urban open spaces in the historic city centre• Implement transport solutions that protect open space, wildlife habitats and water resources <p>Safety</p> <ul style="list-style-type: none">• Maximise safety and security for everyone• Minimise the number and severity of road traffic accidents <p>Economic Viability</p> <ul style="list-style-type: none">• Improve the competitiveness of the Norwich area as a retail, tourist and business centre whilst enhancing its image and maintaining a high quality environment <p>Liveability and Community</p> <ul style="list-style-type: none">• Lower the incidence of crime experienced on the transport system and remove the perception of fear of crime for vulnerable people• Minimise fear and intimidation from traffic• Protect and enhance residential amenity and minimise community severance
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7.3 Approach

The development proposals present a unique opportunity to showcase the benefits of a sustainable transport strategy underpinned by the philosophy of transport demand management (TDM). The UK Government is continually exploring how the planning system can contribute to tackling climate change, particularly as *“the location, design, construction and siting of built development and economic and social activity can significantly affect the level of greenhouse emissions”*⁶.

Good design alone will not necessarily change people’s travel behaviour. There is a need to provide real incentives so that individuals benefit from changing their travel behaviour and sustain these changes long term. It is essential to achieve better access for everyone to employment opportunities, and shopping facilities whether they have access to a car or not. The issue of climate change is a growing priority on the planning agenda and there is an increasing need to cut carbon emissions.

⁶ Climate Change: the UK Programme, Department for Environment, Food and Rural Affairs (Defra), page 108, 2006.

A transport strategy based on the principles of TDM can bring significant benefits to both the future users of the development, and to the developer. These benefits can come under several categories:

- **Economic benefits**
Those benefits that have a direct monetary value, which can be traced back to a particular measure. These include increased land values, attracting businesses and reducing infrastructure costs;
- **Environmental benefits**
Reducing motorised traffic (or even reducing growth in motorised traffic) will have a positive impact on reducing emissions and thus improved air quality. Other environmental benefits include less noise and vibration, and less visual intrusion caused by motorised vehicles;
- **Health benefits**
There are two types of health benefits – those associated with reduced emissions and those concerned with increased physical activity;
- **Liveability**
A combination of all the above benefits that make an area pleasant and attractive to employees. A high quality working environment means greater access to labour markets, staff retention and higher commercial turnover.

The transport strategy will be delivered by ensuring that the philosophy of TDM underpins the approach and influences a broad range of design considerations. The concept of TDM has been in existence for many decades. During this period many commentators have defined TDM and re-defined it, leading to some confusion regarding the meaning of the term. An effective TDM strategy will need to embrace a range of different aspects, namely:

- **Physical** – infrastructure to make demand management measures work
- **Operational** – processes to manage /influence trips
- **Financial** – using economics of affect trip choice
- **Organisational** – institutional integration
- **Political** - commitment to address obstacles and provide adequate funding
- **Research** - analysis to evaluate performance
- **Integration** - application across broad range of operational levels

The development team are able only to directly influence the organisational measures. These typically include what the UK Department for Transport refer to as Smarter Choices, encompassing travel planning. All other aspects of a successful strategy will need to be developed in partnership with local authorities and other agencies.

Undoubtedly international evidence and extensive research demonstrates the added-value and complementary benefits of a plan that builds on all aspects of an effective TDM strategy. A plan that can build on all aspects of TDM will be more successful than one that focuses predominately on the organisational aspects. This would require NCC and the Highways Agency to take a lead role implementing physical infrastructure to encourage and enhance the use of buses, car-sharing, cycling and walking; in addition they could implement technology such as 'active traffic management' to influence trips and make best use out of existing infrastructure.

It is possible to draw further detail of the types of measures and initiatives that could be included under each of these TDM categories from METRIC© (**M**obility **E**nhancement & **T**rip **R**eduction **I**ndex to aid **C**omparison)⁷. This database has therefore been used to inform the strategy and indicate the most appropriate package of measures based on international experience.

The generally accepted principle of TDM is "*to better balance people's needs to travel with the capacity of available facilities to efficiently handle this demand*". The TDM concept moves away from 'predict and provide' to a wider and more connected view of the choices that are available for travel and the considerations that influence the choices that an individual makes on a daily basis. It is the unifying philosophy of TDM that underpins the policy objective of a more sustainable system of transport. Put another way, TDM is the approach by which a more sustainable system of transport can be delivered and is not simply a stack of unrelated measures and initiatives.

Professionals, elected representatives and the public all now generally accept the principle that meeting unfettered demand for travel is impractical and that therefore the system needs to be managed by:

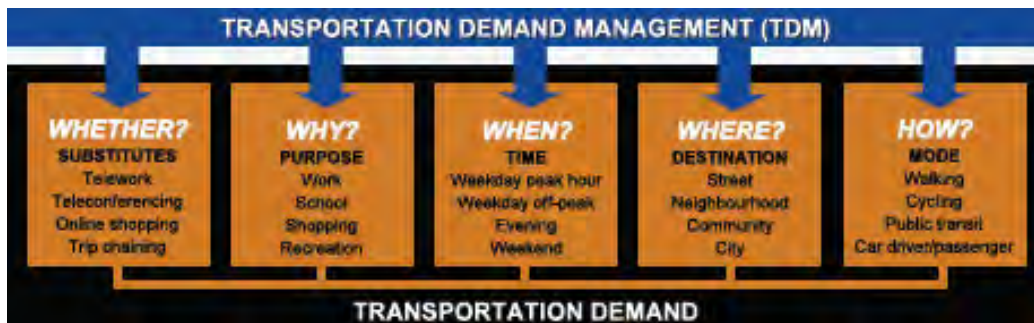
- Expanding supply of (more sustainable) alternatives;
- Controlling demand (particularly the use of less sustainable transport modes); and
- Implementing effective full-cost pricing.

TDM is better understood simply as transport management, i.e. obtaining a more appropriate balance in favour of needs over wants. TDM is relevant to various scales of plan, from a regional level down to an individual plot basis, because the concept of promoting sustainable transportation through a robust and properly integrated TDM strategy is valid for them all.

⁷ Understanding Transport Demand Management and Its Role in Delivery of Sustainable Urban Transport, *Transportation Research Record: Journal of the Transportation Research Board*, Transportation Research Board of the National Academies, Volume 2163/2010, pg. 81-88, ISSN 0361-1981.

Put simply, where transport used to be supplied to accommodate travel demand, travel must now be managed to use the available transport supply most efficiently. To do this the five questions, illustrated in figure 7.1 have been applied.

Figure 7.1: Principles of Transport Demand Management



7.4 Principles and Benefits of the Transport Strategy

Obviously the transport strategy cannot be developed on a blank canvas as it needs to respond to local circumstances. It is important therefore to consider the broad range of issues and opportunities that will need to be addressed by the strategy and to prioritise those most likely to deliver the objectives. To help assist the development of the strategy a number of guiding principles have been identified and permeate through the approach.

- **Apply good practice in sustainable transport initiatives and measures as part of a coordinated and integrated strategy**

In most cases the future of transport is already here. The approaches and the technology are already available but the information and technological know-how is unevenly distributed around the UK and the rest of the world. The strategy will bring together good practice examples appropriate for this site to ensure that it is recognised for its leading approach to transport.

- **The transport pricing strategy will support and encourage the use of sustainable transport**

Financial incentives are a powerful motivator to use certain methods of travel. The transport strategy will therefore ensure that different travel options are evenly priced, and wherever practicable, users pay for the marginal cost of using their preferred mode, and different methods are cross-subsidised by each other to help promote the most sustainable.

- **Work openly and transparently with local and national government to disseminate practical advice and seek assistance to address external barriers to success**

Liaison with government locally and nationally is essential to articulate the sustainable transport logic underpinning the strategy and to ensure their buy-in and assistance wherever barriers are identified. The ability of the transport strategy to maximise its potential could be constrained if the local authorities fail to ensure that local strategy and infrastructure improvements are designed to dovetail with the site strategy.

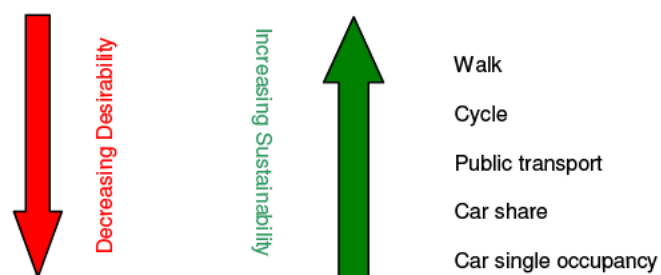
- **Reflect the sustainable transport hierarchy in the strategy**

The sustainable transport hierarchy is a visual representation of the impact of different transport modes. The hierarchy can best be pictured as a pyramid with walking at the top, followed by cycling, public transport and car-sharing, then car use. Carbon emissions are often used as the proxy for measuring sustainability. According to official DEFRA figures⁸, the following figures (in kg/km per passenger) are the CO₂ emissions for each mode:

- Walking: 0kg/pkm;
- Cycling: 0kg/pkm;
- Train (electric): 0.0602kg/pkm.
- Bus: 0.0891kg/pkm; and
- Car: 0.2162kg/pkm;

Given these figures, the sustainable transport hierarchy is as shown in figure 7.2.

Figure 7.2: Sustainable Transport Hierarchy



The modes at the top of the hierarchy are those considered to have the least environmental impact and thus are considered to be the most sustainable and most desirable (in sustainable terms). The intention of the strategy is that it encourages the use of the most sustainable

⁸ Note: the CO₂ output from vehicles depends upon age, maintenance regime, fuel type (predominantly petrol/diesel) and driver characteristics and in calculating the CO₂ values above, averages per vehicle are assumed.

modes of travel and, where conflicts may exist between modes on site, those higher up the hierarchy take precedence.

The principles underpinning the transport strategy are set out below.

- **Maximise accessibility to the site by properly integrating provision for a wide range of transport modes**

The strategy is not about just providing the bus service, or the footpaths, or the car parks, it is about providing information about how to reach and use them to ensure that access is maximised.

- **Address requirements of those with mobility impairments through effective design and the implementation of appropriate measures and initiatives**

Good design, properly integrated services, and easy access to information will all help ensure that those people with mobility impairments have good levels of access to and from the site. This might include people with disabilities, parents with pushchairs, or the elderly.

- **Ensure that transport provision is equitable**

The concept of sustainability has a strong inter and intra generational equity dimension to it. It is important that this is recognised in the practical application of the strategy. For example, it is important that the access needs of the lowest income groups are considered alongside those of the highest to help ensure that all have equal access to shopping opportunities.

- **Establish SMART targets that are monitored and reviewed regularly**

Well considered targets will help ensure that the strategy is able to demonstrate added value. Targets also provide essential information for the regular reviews that will help maintain the momentum of continuous improvement.

These principles for sustainable transport strategies inform the transport strategy to ensure that the key benefits can be realised, as summarised in table 7.2.

Table 7.2: Key Benefits of Sustainable Transport Strategy

<p>Reduces the need for new or wider roads</p> <p>By persuading people to drive less often, to closer destinations, outside of rush hours or using less busy routes, the strategy will help reduce the demand for new road infrastructure.</p>
<p>Makes personal travel decisions more efficient</p> <p>Many drivers make travel decisions based on poor information and a lack of experience with non-automobile options. The transport strategy will improve awareness and understanding of options, and willingness to trial</p>

Good Practice Guidelines: Delivering Travel Plans through the Planning Process suggests that a Transport Management Association (TMA) is an appropriate organisational structure to help to oversee the process of implementing travel plans across a specific area.

The use of a TMA is an established and recognised method through which it is possible to encourage people in a defined geographic area to cooperate on issues relating to congestion reduction and TDM. A TMA provides an appropriate organisational structure to deliver TDM objectives and to coordinate marketing and communication as part of an area wide travel plan. These include initiatives categorised as Smarter Travel by the DfT. There is no one size fits all solution when it comes to TMA's. TMA's come in all different shapes, sizes and forms. To be successful TMA's need to be individually tailored to meet the specific needs of a particular area.

Some TMA's are informal and others set up as legal entities such as not-for-profit companies. TMA's are inherently flexible in that they adapt to fit the needs and interests of key stakeholders in an area. Advice from TMA experts around the world is clear and consistent: Asking which TMA model will work is usually the wrong question. The appropriate TMA model⁹ is something that will evolve, depending on funding partners, purpose and support.

7.6.2 TMA Benefits

DfT guidance¹⁰ suggests that a good model for a TMA is a private, not for profit, company that is set up to provide an institutional framework for the delivery of travel planning for a defined geographical area. It emphasises that TMAs are member-controlled and therefore offer benefits over and above simplified travel plan networks. It suggests that the TMA is secured through a Section 106 obligation as the mechanism to deliver the framework travel plan, and the developer establishes and pump-primed the TMA. The TMA manages the individual travel plans of occupiers and provides the area-wide travel plan elements. This approach is now being applied to new developments, as a means to deliver the framework travel plan. Each occupier is required to be a member of the TMA through legal obligation and pays a membership fee on an annual basis.

The DfT recognises the following benefits of establishing a TMA to deliver the travel plans in multiple use developments:

- Provides a mechanism for the continuity and longevity of travel planning at the development after the developer involvement is finished;

⁹ Center for Urban Transportation Research (2001) *TMA Handbook: A Guide to Successful Transportation Management Associations*, Association for Commuter Transport /University of South Florida.

¹⁰ Department of Transport (2009) *Good Practice Guidelines: Delivering Travel Plans through the Planning Process*, pg105.

- Means for long term funding of travel planning at the development;
- Delivery of economies of scale to travel planning measures;
- Equity for all occupiers in achieving travel plan objectives and targets;
- Allowing occupiers of different sizes to offer meaningful travel planning benefits to their employees;
- Provides a means to reward individual occupier success and penalise failure in meeting global targets;
- Enables provision of ongoing advice to occupiers;
- Establishes a membership that speaks with one voice and has credibility with the local authorities;
- Provides a means to bid for future public sector finding/grants.

The TMA will help augment the efforts of individual organisations to obtain a critical mass capable of achieving economies of scale, increasing the effectiveness of the travel plan and providing ongoing support and monitoring.

It provides a structured framework through which the existing travel planning activities of Norfolk County Council, May Gurney, Unilever, Whitlingham Trust and other organisations and residential areas can be better coordinated. The collective approach, including technical and strategic support, keeps participants involved in the program. As enthusiasm or priority wanes with one partner, it is usually growing in another. The TMA therefore provides an important framework for maintaining momentum. At any one period a business is able to share experiences with members through the TMA, helping to sustain motivation through internal competition and inspiration to lead on issues of corporate social responsibility, particularly with regards to climate change.

The TMA model is also a good way to achieve collective engagement within and around the development area. An organisation is more likely to get involved if they know the costs are shared and less than if they did it on their own. The TMA manager can be there to provide the expertise that the firm may lack to make the travel plan work. The TMA will therefore help improve the impact and success of travel plans implemented on site.

The TMA would make travel demand management services available to smaller organisations (SME's) which may not otherwise be able to engage in them. For example, small companies would benefit from a wider database of potential car share partners if a car share scheme was organised by the TMA. Similarly, the lobbying power of a TMA is more likely to result in improvements to local services or facilities as required. A small organisation would not necessarily have such lobbying powers and generally would therefore be less successful in negotiating such services.

The TMA model is able to provide a level of financial robustness, transparency and accountability in the use of its funds and the monitoring of its effectiveness. It is an efficient mechanism through which planning gain revenue, along with business funding and public sector grants, can be allocated to ensure that the funds are used to deliver policy objectives.

7.6.3 Opportunities

The TMA structure provides the opportunity to generate greater value for money from travel planning activities. A TMA can procure TDM services and disseminate TDM information over a wider area, more effectively and consistently than by relying on individual businesses to do it independently on their own. These opportunities to achieve cost effective economies of scale for TDM activities are expanded further below.

Public transport

Working with NCC, a TMA can identify gaps in transport services that need to be addressed. This can be done through surveys and focus groups evaluating existing services. Following analysis of postcode data and existing services, bus routes and schedules could be better tailored to meet the needs of the TMA area.

Another possibility would be offering additional bespoke shuttle services or by extending or re-formatting existing shuttle services, such as the one operated to serve NCC at County Hall, to save money and make them available to a wider audience.

Discounted Rail/Bus tickets could be made available for members. With a substantial membership base the TMA will have significant bargaining power to gain discounts from transport providers.

Cycling

The TMA would use its bargaining power to enable its members to purchase new bikes at reduced prices through a local retailer. This scheme also would provide a tax break for both the organisation and the staff member. Equally the TMA would be able to cite any increase in cycling to encourage the appropriate highway authorities to improve cycle route facilities serving the TMA area.

Locations for bike storage have been identified on site to help address issues of secure cycle parking. When local off-site employers refit their premises they will be encouraged to accommodate washing, changing and equipment storage facilities, possible with the incentives such as grant funding. The TMA is able to liaise with the local train operating

company and Network Rail to ensure adequate provision is made for cyclists who wish to cycle to/from Norwich Station, and ensure they can leave their bike protected from theft or vandalism.

Car-sharing

A bespoke car-share database will be created for the TMA catchment area. It is anticipated that properly implemented this scheme has considerable potential. Due to the potential size of the database, there is a strong likelihood that someone looking to use the TMA website will be able to find a match. The TMA, when marketed properly, enhances the sense of local community and provides a level of reassurance that encourages greater car-sharing.

Travel surveys

Information about the performance and impact of TMA initiatives is vital. Regular surveys will be undertaken. The data will be centrally coordinated and will provide details of how employees travel to and from work, where from, along with improving understanding of barriers to change. An annual report will be published to monitor the success or shortcomings of TDM measures and allow for fine tuning of initiatives to respond to member suggestions.

It is recognised that some people may have little or infrequent access to the internet. To find out about their travel habits they can be surveyed face-to-face. A TMA can arrange for *travel clinicians* to be employed to come on site to interview staff on their travel behaviour and at the same time explain and promote travel options and alternatives. Often this is not cost effective, or too time consuming to organise at the individual organisation level.

7.6.4 Contribution to NCC Strategic Transport Objectives

Policy 16 of the NCC Local Transport Plan (2006-11) sets out Norfolk's approach to TDM. The NCC policy on 'Smarter Choices' states that: "*Measures to encourage a modal shift to public transport, walking and cycling, particularly in urban centres and market towns, will be investigated in the first instance before road capacity improvements are considered.*" NCC's ongoing initiatives to implement this policy can be more effectively delivered through a TMA in the following ways:

a) Improving Accessibility

The TMA approach provides the means to obtain greater participation in a range of TDM measures such as car sharing and improved delivery of TDM services through professional management. They also have the capacity to promote TDM measures to members and make them more aware of travel choices.

b) Workplace Travel Planning

An area-wide travel plan would be prepared by the TMA for the catchment area to inform the developments' residential travel plan. A workplace travel plans is required as part of the planning conditions for the new May Gurney headquarters and the TMA would be able to assist with the preparation and implementation. A monitoring strategy would be created to ensure that local travel plans are being effectively implemented. The TMA would assist by playing an important role coordinating and assisting the creation of bespoke travel plans under the umbrella of an area-wide strategy to ensure that economies of scale are maximised. Local bespoke support is likely to encourage a significant increase in the number and quality of travel plans implemented.

c) Communication of Smarter Travel Benefits

The NCC LTP chapter 7 states that travel planning measures, designed to give better information and opportunities, will be intensively developed. Again the TMA will assist NCC with this commitment by helping to promote the benefits of 'Smarter Travel' via internal road-shows and other media. Marketing materials can be created for each initiative. Using the TMA is an effective way of coordinating these types of outreach programs to educate companies of the benefits of Smarter Travel.

d) Travel Awareness Campaigns - Public Relations

Using its weight as an organisation representing the collective voice of local businesses a TMA is capable of generating a large amount of media interest with various initiatives being featured in the local press, and on the radio. This is important as it helps local people and organisations to realise that as they are part of the local transport problems, they also need to be part of the solution. The publicity also helps to promote the businesses in the area in a positive light which demonstrates that they are making a proactive contribution to addressing local issues. Engagement of the wider community in addressing local transport problems helps to deliver strategic goals such as congestion reduction.

An important benefit of a TMA that should not be overlooked is the international understanding of the concept and its track record. TMA is an internationally recognised concept, along with TDM. Multinational organisations, such as Unilever, have offices in countries familiar with TMA's. It is a distinct advantage when talking to businesses to mention that their international office, or head office or subsidiary, is part of a TMA elsewhere. It provides a level of confidence that this is an appropriate place to invest time and resources to address local transport issues.

7.6.5 Proposed Funding Structure for TMA

The TMA approach provides an appropriate organisational structure to deliver the measures detailed in the residential travel plan and to coordinate marketing and communication.

It will work by providing a dedicated manager of TDM measures combined with a Board made up of the members of the area, which could include businesses, NCC, schools, and residents associations. The members of the Board, will meet monthly or quarterly to receive updates, exchange ideas and agree on strategic priorities. Representatives from the local authorities will be invited to sit on the board.

The TMA set up costs will be funded by the developer for a period of 3 years. During this time and after this period the TMA funding will be provided from the parking space lease arrangements.

Other TMA members will pay a small fee depending on size of organisation. In return they will have access to the resources of the TMA staff, will be given access to the car-sharing scheme, and will be given preferential access to other services provided by the TMA. The membership fees will help secure commitment to a coordinated approach through the TMA and create a small, but useful, budget to contribute to the strategic objectives of the organisation.

The TMA manager will have responsibility to contract other TDM providers such as car-share database providers, car-club providers, local bus operators etc. The manager acts as an advocate on behalf of the members with local and national government relating to transport improvements and funding within the TMA area. The structure of the organisation as a legal entity enables the TMA to apply for additional government grants which businesses acting individually would not be able to access.

The TMA will engage with the others in the area to encourage them to participate. This is done predominately through face to face meetings and local presentations with guest speakers. By creating a track record the TMA is able to prove its credibility, attract new members and gain its own momentum.

In itself the TMA will have little direct impact on trip composition for the development, but by coordinating efforts in partnership with surrounding organisations, it will help sustain a measurable net decrease in the number of single occupancy vehicle local trips. The TMA can also coordinate travel planning among individual businesses. By providing centralised marketing and promotional resources the TMA is able to achieve economies of scale and

spread the cost over a larger group. Again, this is another attractive proposition for local employers.

7.6.6 TMA Initiatives

It is proposed that the TMA would provide a range of initiatives to organisations in the area. These would include:

i. Parking management

The TMA will have responsibility for managing the parking system, potentially under contract to a parking management company. In particular the TMA would be responsible for the parking budget and for dealing and negotiating contracts with organisations.

ii. Public transport discounts

Discounted Rail/Bus tickets will be negotiated and made available for members. With a substantial initial membership base the TMA will have bargaining power to gain discounts from transport providers.

iii. Promotional road-shows

New initiatives will be promoted to via internal road-shows. Prior to its launch marketing materials are created for each initiative and provided. This communicates the benefits of TDM initiatives and helps to raise participation rates.

iv. Discounted bicycles

This initiative will enable members to purchase new bikes at greatly reduced prices through a local retailer. This scheme also provides a tax break for both organisations and individuals. Using the membership base a core group of cyclists can be established and maintained through promotional activities. This, alongside the discounts available will help encourage new cyclists to commute and increase demand for appropriate cycle provision.

v. Shuttle buses

Following analysis of postcode data additional services can be agreed with local bus operators to improve convenience and attractiveness of local services. Improvements to bus services are often out of reach to many organisations because of the lack of leadership or organisational framework, but they recognise the benefits of a TMA and the potential to share costs fairly.

vi. Excellent public relations

It is envisaged that the TMA would be capable of generating a large amount of media interest with various initiatives being featured in the local press, on the radio and on television. This is

important as it will help local businesses to realise that as they are part of the traffic congestion problem, they need to be part of the solution. The PR also helps to promote the retail stores and businesses in the area in a positive light which demonstrates that they are making a proactive contribution to addressing local issues.

vii. Road awareness training

It is important that the TMA plays an active role in addressing all potential barriers to cycling, in addition to reducing the cost of bicycle purchase. Training will therefore be provided to all members wishing to join the discounted bikes scheme to further encourage people to take up cycling as a commuting alternative.

viii. Travel survey

Information about the performance and impact of the TMA initiatives is vital. In addition to regular readings from automatic traffic counters, residents will be encouraged to conduct an on-line travel survey. The data will be centrally coordinated and will provide details of how employees travel to and from work, where from, along with improving understanding of barriers to change. An annual report will be published to monitor the success or shortcomings of TDM measures and allow for fine tuning of initiatives to respond to member suggestions.

ix. Car-share database

A bespoke car-share database will be created, using state of the art technology. It is anticipated that properly implemented this scheme has considerable potential. Due to the potential size of the database, there is a strong likelihood that someone looking to use the site will be able to find a match.

x. Discounts at local retailers

It is intended that discounts and other offers could be made available at selected stores for all members.

7.6.7 Implementing the TMA

A TMA administrator will be commissioned directly by the developer from a bespoke specialist business providing appropriate services. The initial task will be to set up and formalise the governance structure through the adoption of Terms of Reference (ToR) including the Board members and founding members. A draft ToR detailed recently by the Highways Agency in relation to another TMA is included in the table 7.3.

Table: 7.3: TMA Terms of Reference

Draft Terms of Reference for the Transport Management Association

A Transport Management Association (TMA), is a relatively new concept for delivering travel demand management in the UK. TMAs are typically 'not for profit' member organisations, providing organisational structure to deliver services to members in a particular area. Within the UK context, it is understood that a TMA could be established

as a private company limited by shares or guarantee (CLS or CLG) or Community Interest Company (CIC), if the additional requirements of the CIC status are applicable. To assist in defining the objectives and operation of the TMA, an initial attempt to draft Terms of Reference is provided below. Any Terms of Reference will need to be applicable to the nature of the organisation to which they are applied and therefore should accord with rules of incorporation with Companies House.

Name

The name of the Organisation is the Trowse Transport Management Association (TROTMA).

Purpose

The organisation will be established to:

- Manage transport services.
- Influence how people perceive the area as a better place to work and travel to.
- Identify areas of joint working to promote and enable the use of sustainable travel options.
- Provide a forum for discussing and analysing common transport issues.
- Provide advice on and deliver TDM measures to address issues of transport, access and congestion; and
- Represent members with third party organisations with respect to issues of transport, access and congestion.

Objectives

The objectives of the Steering Group will be to:

- Provide vision and shared commitment in the development and implementation of TDM measures;
- Develop and implement the TMA strategy as a means of implementing the STS. Key elements of which to be delivered include:
 - Parking management;
 - Public transport discounts;
 - Car share scheme;
 - Public transport improvements;
 - Bike lockers;
 - Cycle training; and
 - Promotion and marketing of measures.
- Promote the widespread use of alternative travel options to the single occupancy car i.e. public transport, cycling, walking and car sharing;
- Ensure that all stakeholders are consulted and represented, and that employers along the corridor have the opportunity to participate;
- Develop a monitoring strategy suitable for TMAs for approval with NCC and the HA prior to occupation of the development. The approved strategy will be used to establish an appropriate baseline case and ongoing monitoring of the effectiveness of the TMA.
- Undertake periodic review in accordance with the approved monitoring strategy, to identify any problems with implementation and measures and propose and instigate improvements.

Duties and Roles

Overall responsibility for the TMO will rest with the Board who shall:

- Manage the development and implementation process of the travel plan throughout construction and for 3 years following completion to final monitoring horizon.
- Monitor and evaluate the effectiveness of the travel plan at the agreed milestones in accordance with the approved monitoring strategy.

Membership

Membership of the TMA will be open to all organisations in the locality. Every member shall pay an annual subscription as determined by the Board. The Board will have the right to review and terminate membership of the TMA for those who discredit or disrupt the objectives of the Forum.

Membership of the Board shall consist of the following offices:

- Chairman
- Vice-Chairman
- Secretary
- Treasurer

The Board will invite the participation of statutory stakeholders in Board activities as observers and have the power to appoint working parties from its members and add any persons whose knowledge, public position or experience, as may be deemed desirable. These are likely to include:

- Developer Representative (during the obligated implementation and monitoring period)
- Local Authority representative(s)
- Bus Operator(s) representative

Meetings

Meetings will take place on a quarterly basis and be held in private. Notes of the group meetings will be taken and will be agreed as an accurate record at each subsequent meeting signed by the chairman and then kept in compliance with Open Government policy.

Quorum and Chairmanship

Three members of the group (including their nominated deputies) shall constitute a quorum. In the absence of the Chairman the group may choose a Chairman from within its own membership.

Review of the Terms of Reference

These Terms of Reference shall be reviewed and if necessary amended at the discretion of the Chairman with the agreement of all group members, including the statutory stakeholders identified above. Every employer represented by the TMA shall have one vote. In cases of equality of votes the Chairman shall have a casting vote. The Board shall not be able to vote to dissolve itself during the obligated implementation and monitoring period. After this time the Board may, if desired, carry a motion for dissolution of the TMA; to carry the vote it must be unanimous.

Following agreement of the ToR, a project plan for the TDM management company will then be agreed with the Board, but is likely to include:

- Creation of a contact data base and issuance of a letter to all relevant local organisations inviting them to participate;
- Develop an effective business model to ensure that the TMA continues to function effectively after the obligated period;
- Undertake analysis to understand the likely costs required to run the TMA. This would need to be informed by the work to develop the business model;
- Set up and execute survey to gauge local interest to participate in car share scheme;
- Contract a car-share database provider;
- Negotiate contracts with bus companies for any potential service enhancements;
- Conduct workshops with employers on the benefits of TDM measures;
- Encourage the adoption of flexitime and compressed work weeks to surrounding businesses to reduce weekday peak hour trips;
- Create a marketing plan and promotional materials to promote TDM measures;
- Liaise with NCC and the HA on potential highway improvements;
- Consult with current bus operators on improvements to public transport services and investigate ticket discount schemes;
- Create baseline data through a travel survey of corridor employees to assist in evaluating the effectiveness of individual TDM initiatives;
- Identify the potential of offering discounts from businesses to encourage linked trips;
- Investigate opportunity for employees to earn up to five days of paid time off each year by using a commute alternative;
- Explore feasibility of a scheme to earn points in a 'Commuter Cash' incentive program for use of alternative modes (with the intention that points can be converted to gift certificates at local retail stores); and
- Provide access to on-site car-sharing vehicles.

The site owner would be responsible for the costs of forming the TMA. The annual costs of running the TMA would then be derived from parking and service charges. A key business plan objective of the management company will be to ensure that the TMA is financially self sufficient by the end of the 3 year period. This means that it will be able to continue to provide the package of agreed services using ring-fenced revenue sources, including grants from the public sector and membership fees for organisations outside the proposed development, without need for additional top-up funding. As an independent body, the TMA will retain responsibility for communicating effectively with the members of the TMA and any changes that may result from the monitoring and review process.

7.6.8 Publicly Available Specification for Travel Plans (PAS 500)

It is intended that all workplaces joining the TMA will be assisted to develop a travel plan which conforms to the Publicly Available Specification for travel plans (PAS 500) published by the British Standards Institution (see figure 7.3).

PAS 500 came into effect in November 2008 and was developed by a Steering Group including the Department for Transport and the Highways Agency and was subject to extensive peer review and consultation. For the first time it established national requirements of a workplace travel plan considered of sufficient quality to be accredited to meet the BSI's PAS 500 criteria.

Figure 7.3: PAS 500



Workplaces on-site will have less than 100 staff and would therefore not meet the minimum recommended number of employees stated in PAS 500. They will be required to commit to travel planning activities organised on their behalf through the TMA as part of their lease requirements.

PAS 500 defines requirements for developing and implementing a workplace travel plan (WTP), including public availability, resources and claims of conformity. It is intended for use by any organisation planning or developing WTPs and applies to all WTPs and all the situations in which WTPs are initiated, developed and implemented, including WTPs submitted with planning applications and/or transport assessments as part of the development control process.

It is important to note that the specific recommendations and requirements of the PAS 500 have been taken into consideration when developing the trip rate and mode share assessments for the proposed development site. It specifies that when estimating possible outcomes from the travel plans *“it should be assumed that WTPs will be effective and that significant improvements in the use of walk, cycle, public transport and car share can be achieved when compared to regional averages obtained from the National Travel Survey or similar sources of transport statistics”*.

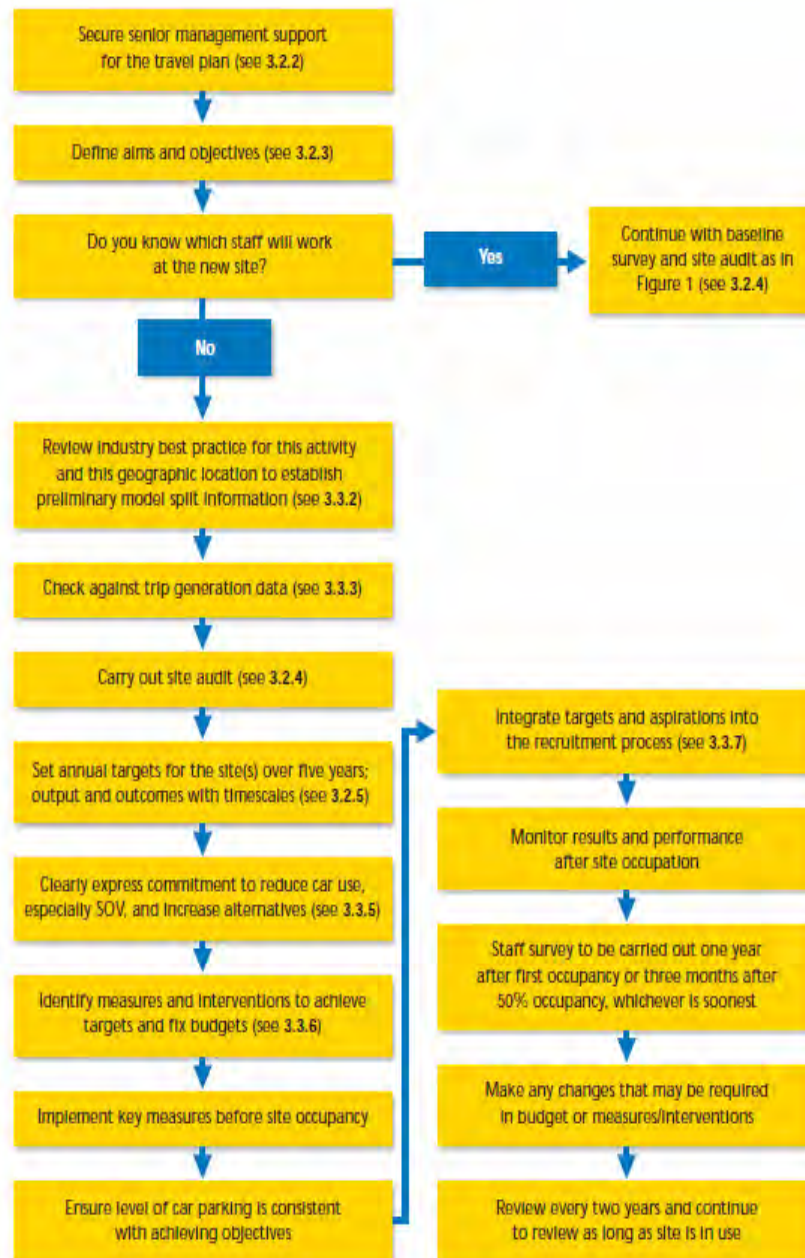
The PAS applies to all the main components of transport generated by a particular site. These include:

- Commuter trips made by staff;
- Trips made by staff in undertaking their duties or otherwise in relation to their work;
- Visitors to the site e.g. patients and visitors to hospitals, clinics and other NHS facilities, local residents visiting council offices, suppliers or customers making trips to businesses;
- Contractors involved in carrying out projects at a particular site e.g. building and construction, catering and cleaning;
- Students travelling to university and college campuses and sites;
- Trips made by all those carrying out work related tasks at premises covered by the travel plan (e.g. servicing plant and equipment, delivering supplies);
- Trips made by delivery vehicles of all types where the delivery is directly the result of demands made by the site to which the travel plan applies.

The TMA will be responsible for overseeing the design, development and implementation of workplace travel plans for each organisation locating on site. In order to demonstrate

conformance with the PAS it will be necessary to ensure that all the activity stages identified in figure 7.4 are included.

Figure 7.4: PAS 500 WTP Activities for a New Site



The output of a WTP is the list of practical, deliverable, funded interventions that will deliver the targets and objectives which will be developed in accordance with the DfT guidance. The site occupiers will be required to communicate the targets and aspirations of the travel plan into the recruitment process for staff at the new site so that prospective staff can form a clear view on the importance of changing travel behaviour in favour of walking, cycling, car sharing, public transport and alternative working practices (as appropriate). The WTP will set out in detail, the package of benefits and recruitment incentives to be offered to prospective staff

including discounted public transport offers and other physical and fiscal measures by means of which sustainable transport choice is to be rewarded. The WTP shall also include identification of the means whereby this information is to be made known to prospective staff.

This PAS provides for three grades of conformance, Bronze, Silver and Gold. The requirements for each grade are shown in table 7.4 below and a checklist to assist comparison is provided in figure 7.5. Working with the TMA it is anticipated that all workplaces can be encouraged to achieve and maintain the Gold level, and at the minimum the Silver level.

Table 7.4: PAS 500 Grades of Conformance

<p>Bronze</p> <ul style="list-style-type: none"> • Demonstrate that budgetary requirements have been fully investigated and sufficient budget and resources have been allocated to achieve the defined objectives. • Based on a survey, undertaken and analysed to identify the travel behaviour of proposed staff and visitors. Where the survey has been undertaken for new sites, it shall be based upon evidence from secondary sources showing geographically relevant travel choices for the journey to work and travel in course of work. • Identify a director/senior manager as holding overall responsibility for the travel plan strategy, its implementation and progress and for the individuals appointed to implement the plan. • Include an implementation strategy giving clearly defined targets and milestones covering at least five years. • Implementation plan shall include a marketing and communications strategy covering at least five years.
<p>Silver</p> <ul style="list-style-type: none"> • The detail of the WTP survey including questions, results and the process of analysis to identify how the results will be used to achieve the travel plan objectives, shall be published. • Targets specified for the first year shall have been achieved or where not achieved the requirements shall have been implemented. • Where a review of WTP targets is found to be necessary, the reasons for undertaking the review, detail of its findings and its outcomes shall be clearly documented and made available on request together with any supporting evidence, external to the review. • Implementation of the WTP shall have resulted in an increase in the use of alternative travel/work practices and a commensurate reduction in the proportion of SOV trips and evidence supporting this shall be made available. • A response rate of at least 30% of employees shall be achieved on the travel survey. • Evidence shall be available that the detail of the WTP and the full list of measures in place to achieve. • WTP objectives have been communicated to all staff and remain available on request. • Evidence shall be available that staff members responsible for the implementation of the WTP have undertaken training on travel planning and/or its associated issues.
<p>Gold</p> <ul style="list-style-type: none"> • WTP shall have been in operation for at least five years. • A survey undertaken in accordance with the specification provided in PAS 500 shall have been undertaken at the end of year five and the results published. • The survey undertaken in response to the requirement shall have achieved a response rate of at least 50% of respondents approached. • All targets included in the WTP for the first five year period shall have been achieved and evidence to support this shall be made available on request. • The organisation shall be able to demonstrate that good practice in WTP has been promoted, as opportunity arose.

Figure 7.5: PAS 500 - Comparison of Levels of Conformity

	Bronze	Silver	Gold
Requirements of clauses 3 and 4 met	✓	✓	✓
Budgetary requirements met	✓	✓	✓
Survey carried out and analysed (existing sites)	✓	✓	✓
Secondary sources on travel behaviour evaluated for new sites	✓	✓	✓
A named director or senior manager has overall responsibility	✓	✓	✓
A named individual is responsible for implementation	✓	✓	✓
Implementation strategy with targets and milestones for five years	✓	✓	✓
A marketing and communication strategy shall be in place for a five year period	✓	✓	✓
Travel survey questions and results shall be published and survey must have a 30% response rate		✓	✓
First year targets achieved		✓	✓
There shall be an increase in the use of alternative modes and a reduction in SOV trips		✓	✓
Full list of measures shall be communicated to all staff and made available on request to others		✓	✓
The member of staff responsible for implementation shall have completed training		✓	✓
The travel plan shall have been in place for five years			✓
A full survey shall be carried out at the end of year five and the results published			✓
The response rate for this survey shall be at least 50%			✓
There shall be evidences that all the targets in the travel plan up to and including year five have been achieved			✓
Good practice in travel planning shall be promoted to a wider audience			✓

The TMA will work with local membership organisations to help ensure the validity of claims of conformance with the PAS. The principal documentation provided for the travel plan for which the claim is being made, will be in accordance with BS EN ISO/IEC 17050 and in the form relevant to that particular claim. This statement will include unambiguous identification of the organisation claiming conformance¹¹.

The application and maintenance of PAS 500 by the TMA to all WTP will help ensure that the full potential for travel planning is realised and help to realise wider benefits beyond the immediate site jurisdiction. Importantly, it will also sustain the continued involvement of the employers in the future development and implementation of the sustainable transport strategy.

¹¹ At time of writing organisations need undertake a self-declaration route of conformance. This means that organisations must be able to demonstrate how they meet the requirements of the PAS using supporting documentation. The appropriate method for self-validation and for presentation of the results is through the application of BS EN ISO/IEC 17050.

7.7 Travel Plan Initiatives

The travel plan is a long-term management strategy for the site that will deliver sustainable transport objectives through positive action. The strategy is articulated in a document that will be regularly reviewed called the travel plan. Travel planning is the practical means of delivering an area's sustainable transport strategy. Travel plans typically seek to achieve the objectives and realise the benefits set out in table 7.5 below, which will affect their design and content.

Table 7.5: Objectives and Benefits of a Travel Plan

<p>Reducing the pressure of vehicle traffic from new development has many positive effects, for example:</p> <ul style="list-style-type: none">• Reducing pressure on highway capacity, particularly at peak times;• Creating more attractive and liveable neighbourhoods;• Cutting carbon emissions and their contribution to climate change;• Reducing road danger and protecting vulnerable road users;• Reducing the cost of works on the highway or other transport infrastructure;• Encouraging more active travel with gains for health;• Enabling children to travel independently;• Improving local air quality;• Reducing noise pollution;• Reducing parking/fleet management costs;• Improving staff morale. <p>At individual sites, stakeholders may place greater emphasis on particular outcomes. Understanding the importance attached to all these outcomes is essential in selecting the most appropriate local outcomes, measures and targets. For example, where a major concern is the impact of traffic at peak times, then the travel plan may prioritise modal shift for these journeys.</p> <p>In addition to meeting the objectives outlined above, travel plans can bring a number of other benefits. For example, workplace travel plans can save money by reducing the cost of parking and business travel. By improving access for staff they can aid staff recruitment and retention. By developing parking policies on the basis of need rather than seniority they can improve social inclusion. School travel plans can help to improve attendance and punctuality and can facilitate children's participation in local decision-making.</p> <p>Travel plans for leisure sites can help to promote the site and its attraction to new visitor markets and different sections of the community. Residential travel plans can release land for housing that would otherwise be used for parking and make sites more accessible to those without access to a car as well as improve the quality of the design and layout. It is important that the outcomes sought from the travel plan can be seen as a benefit to all parties, e.g. the developer, occupiers and site users, the community and the local authority. Such benefits can help in gaining widespread commitment.</p> <p>Source: DfT and DCLG (2009) Good Practice Guidelines: Delivering Travel Plans through the Planning Process</p>

Establishing travel plans as part of the design process helps ensure that the opportunities to maximise accessibility, minimise single occupancy vehicle (SOV) use, and manage the need to travel are utilised to the full potential. Travel plans also assist in the wider aims of encouraging sustainable travel, improving health, and reducing congestion, energy consumption and pollution. They address all the journeys that may be made to and from a site, by anyone who may have a need to visit or stay there.

The travel plans will be dynamic, living documents that will be updated regularly. Implementing a travel plan involves a continuous process for improving, monitoring, reviewing and adjusting the measures in the plan to reflect changing circumstances. Coordination and assistance provided through the TMA is key to ensure that this process is managed

effectively. The plans will continue for the life of the development and will require commitment from both future occupiers and partners, particularly the local planning and highways authorities. Regular monitoring will track that progress is being made towards achieving the outcome targets derived from the TA and updated for subsequent applications. Appropriate adjustments will be made to ensure that agreed outcomes are met and maintained.

The trip generation assessment detailed in the TA provides the evidence to support the outcomes sought and the measures needed in the travel plan. It estimates the demand for all travel to the new development, based on the implementation of an effective strategy and predicts the impact of these additional movements.

The travel plans, detailed in separate documents, establish clear outcomes to be achieved in relation to access and set out the measures to be implemented, with action plans, timescales, targets and responsibilities for implementation, monitoring and review.

7.7.1 Categories of Travel Plan

Travel plans fall into two broad categories:

- **Origin travel plans** – residential travel plans, which focus on the single origin (home), where journeys are made to many and varied places for a variety of different purposes.
- **Destination travel plans** - designed to increase sustainable travel to a specific destination, such as a workplace, school, or leisure attraction. The majority of trips therefore have a common journey purpose.

The development is largely residential, therefore origin travel plans are relevant, however given that there is a nominal allocation of local retail facilities destination travel plans for these facilities are also appropriate.

The interrelationship between travel plans is complex and the TMA can be used to help manage relationships and ensure effective delivery. The DfT and DCLG¹² emphasises that when a number of travel plans are being implemented in an area, that this can be assisted by the setting up of a Transport Management Association (TMA). The Highways Agency (HA) is currently developing a number of area-based travel plans relating to business parks and other complexes through their 'Influencing Travel Behaviour' programme. The intention is that these will be managed by the estate owners and occupiers in conjunction with the HA and other key agencies.

¹² DfT and DCLG (2009) Good Practice Guidelines: Delivering Travel Plans through the Planning Process

The site is in close proximity to other major generators of movement including the proposed development of the Utilities site, Norwich Football Club, Norfolk County Council, May Gurney and Unilever. It will be beneficial to work with external organisations to help develop and enhance their existing travel plans. In doing so reductions in local traffic will help to counter any increases experienced as a result of the new development.

DfT and DCLG (2009) guidelines emphasise the crucial role of the local authority in helping to secure the success of local travel plans. It notes that “*Local authority officers can do much to facilitate travel planning by running travel plan forums and liaising between developers or occupiers and other parties that can help them to improve sustainable access to the site, including other local authority departments*”.¹³ In line with good practice it is anticipated that the local authorities will play a key role in encouraging the existing employers in the area, including themselves, to participate actively as a full member of the TMA.

There are basically five types of travel plan, as defined by the DfT, namely:

- Full travel plan for a site;
- Interim travel plan for a site;
- Framework travel plan for a site;
- Travel plan statement for a site;
- Area-wide travel plan for a defined geographic area.

The appropriate type of travel plan depends on the planning application phase, size of development, the location and context, and the uses of the proposed development. The two most relevant types of travel plan for this development application at the outline planning stage are ‘framework’ and ‘area-wide’, as defined in table 7.6.

¹³ DfT and DCLG (2009) Good Practice Guidelines: Delivering Travel Plans through the Planning Process, Para 5.31

Table 7.6: Framework and Area-wide Travel Plans

Framework travel plans

In the case of large mixed-use developments with multiple occupants, it will be appropriate to prepare a framework travel plan. The framework travel plan should set overall outcomes, targets and indicators for the entire site. It is best administered centrally. It should set the parameters for the requirement for individual sites (or uses/elements) within the overall development to prepare and implement their own subsidiary travel plans. These should comply with and be consistent with the wider targets and requirements of the framework travel plan. Potential occupiers need to be advised of the travel plan requirements. The framework travel plan should also clarify as far as possible the timeframe for completion of individual travel plans and the implementation of specific measures within them as the development proceeds, including management and review.

Area-wide travel plans

In some situations it is essential to consider an area wider than an individual site if the outcomes sought are to be delivered. Experience of this type of approach is more limited than for the other types of travel plan. The approach can be followed where there are a number of developments in a particular area, e.g. a redeveloping commercial area. It is also suits areas where no single travel plan can effectively respond to the outcomes required, e.g. in a major complex development.

Source: DfT and DCLG (2009) Good Practice Guidelines: Delivering Travel Plans through the Planning Process

The framework travel plan will be produced by the TMA and will outline a commitment to travel plan development on the site and a strategy for this. It will set out measures which are to be delivered site-wide (eg infrastructure, site-wide marketing/promotion, etc) and who will be responsible for funding/delivering these. It will also clearly set out future actions for travel plan development and refinement, along with final or preliminary targets, each with appropriate timescales.

7.7.2 Outcomes Approach

Guidance on good practice has evolved, with the result that the main preferred approach to travel plans is now the 'outcomes' approach as distinct to 'measures'. Specific outcomes or targets are established by agreement on what should be achieved through the travel plan over time. It is focused on delivering achievable and appropriate mode-splits and trip rates from the beginning of the development, rather than establishing car-dependent lifestyles which it then attempts to change.

The advantage of this approach is that it is objective led. The outcomes sought relate to the local situation and local policy requirements. This approach provides scope for adjusting the means of achieving the outcomes over time in relation to experience at the site. The outcomes approach offers a 'win-win' situation, as agreed outcomes are of benefit to all relevant parties they are more likely to be delivered. As the trip generation and modal split calculations are informed by the transport strategy they are target outcomes for the travel plans.

Details of specific measures are also included, to demonstrate how the trip rates and mode share targets will be achieved. These include initiatives and measures to maximise the use of walking, cycling and public transport, and the management of single occupancy vehicle use through parking management and an integrated car-share scheme. The focus of the travel plan is to develop a strategy to support the delivery of mode-share and trip rate objectives, not to simply provide a list of measures.

7.8 Walking Strategy

Walking and cycling are the two most sustainable modes of transport and therefore play a key role in the STS. The site's location within walking and cycling distance of local facilities and amenities will allow new residents, visitors and employees to take advantage of these modes of travel. This section sets out a range of measures which will be utilised to help ensure that site users adopt sustainable travel behaviour from the outset.

People often do not consider walking to a destination that they perceive to be located a long distance from their home. The walking strategy aims to encourage walking by raising awareness of the facilities and amenities that are available via convenient and pleasant walking routes in the local area.

7.8.1 Information Provision

As part of the residential and workplace travel plans associated with the site local maps will be provided to residents and employees within welcome packs. Maps of the local area will highlight local facilities and show suggested walking routes to these destinations. Showing walking times to key destinations is an effective way of helping new residents appreciate convenient trips that could be completed without the need of a car.

7.8.2 Walking Infrastructure Improvements

A number of minor improvements could be made to local walking routes to make them more attractive. NCC has highlighted the need to include proposals to reduce the street width of Bracondale to widen the pavement to incorporate a shared cycle/footpath over the railway bridge and along the road to the junction with the site. This is supported by the walking strategy. At the Lafarge site entrance on the rail bridge drop curb facilities are only provided on the west side of the junction. Improvement of this junction would allow disabled access along this curb and would improve the walking route. It is understood that NCC are currently developing a scheme to redesign access to the Lafarge site. As part of this work it would be opportune to incorporate facilities to assist safe pedestrian access along Bracondale /The Street.

To the west of the rail bridge is the entrance to the Old Pineapple Pub. It is understood that this property has permission for the construction of a new fire station in the near future. No drop curb crossing facilities are provided here at present and it is assumed that as part of this redevelopment, they will be installed to improve access at the crossing of the junction.

At the junction of Europa Way and Bracondale opportunities for improvement are identified. The pavement on the left side (heading from Trowse towards the Martineau Lane Roundabout) from Europa Way onwards is designated as a shared pedestrian/cycle pathway and needs widening to allow adequate room for both pedestrians and cyclists to share the pathway. The route across the junction needs to be reinforced to give it a stronger identity and there may also be opportunities to shorten the splay of the junction.

At present the five arms of the Martineau Lane Roundabout can all be crossed using the pedestrian refuges. The high volumes of traffic using the roundabout make crossing difficult, especially at peak times. It is recommended that high visibility road markings are introduced to help reinforce pedestrian routes and improve conditions for pedestrians at the junction.

It is understood that Section 106 funding has been secured for a signal upgrade of the Bracondale and King Street junction, and also to improve pedestrian crossing facilities for Carrow Road north of Carrow Bridge.

7.9 Cycling Strategy

The benefits of cycling to work are well documented. A workforce that regularly cycles to work will be fit and healthy¹⁴. For that reason alone cyclists can be relied upon to be more alert and productive than their less active counterparts¹⁵. Cyclists should also be absent less often as their general health will be more robust¹⁶. If those were not reasons enough, the chances are they will be more reliable timekeepers too, since journey times for cyclists are more consistent than for all forms of motor traffic (including buses) at peak periods¹⁷. Besides increased productivity, from a business point of view there could well be other benefits from encouraging cycling to work. For example, a reduced need for parking will bring down overheads. In addition, providing good facilities that keep cyclists happy could cut down on staff turn-over

¹⁴ Tuxworth, W., Nevill, A., White, C. and Jenkins, C. (1986) Health, fitness, physical activity and morbidity of middle-aged factory workers, *British Journal of Industrial Medicine*

¹⁵ Health Education Authority (1993) *Health promotion in the workplace: a summary*, Health Education Authority, London

¹⁶ Lechner, L. and de Vries, H. (1997) Effects of an Employee Fitness Program on Reduced Absenteeism, *Journal of Occupational and Environmental Medicine*

¹⁷ National Cycling Forum (2001) *Cycling Works! How employers can benefit from increased cycling*, National Cycling Strategy

and help lessen recruitment costs¹⁸. Finally, cycle parking for customers at local retail businesses can increase profitability as cyclists are known to spend more per visit than car drivers¹⁹.

7.9.1 Support Measures

Support facilities will be provided through a Travel Centre located on site and administered centrally by the TMA. Facilities are likely to include the following:

a) Pumps and repair kits

A simple but effective form of support for cyclists is the provision of a quality pump and decent repair kit for use in emergency. Discounted cycle equipment will be made available to employees and residents through the Travel Centre. Through an arrangement with a local bike shop free puncture repairs will be provided to all employees and residents. They will also be able to provide assistance, should someone get a puncture or minor mechanical failure on their way to work.

b) Bicycle User Group (BUG)

A very useful form of continued support for those who have changed their habits and begun to cycle is the formation of a BUG. This will be created from among those people that are already cycling and are keen to see others doing the same. Not only are they helpful by publicising the benefits and facilities provided, the members also provide useful feedback on the effectiveness of measures introduced, and help provide valuable feedback to the local authorities. BUGs can keep in touch with fellow cyclists and also help the TMA by helping to promote and run a bike registration scheme. This is a useful way of keeping a record of who rides to work and who owns which bike. Not only is this good feedback for the travel plans of individual organisations, but it is also valuable if the owner of an individual bike needs to be identified. This could happen if a bike is damaged or needs to be moved for some reason, particularly if several businesses share the same site. It also provides a convenient way of introducing new cyclists to the BUG so that contact can be made and maintained.

c) Guaranteed ride home

Some potential cyclists may be put off because of fears that they may not be able to get home in an emergency. They might, for example, be concerned that they would be stranded if their bike becomes unridable, especially if their workplace is not near a bike shop or they work

¹⁸ Tsai et al. (1987) Relationship of employee turnover to exercise adherence in a corporate fitness program, Journal of Occupational Medicine

¹⁹ National Cycling Forum (1998) Cycling in urban areas - issues in retailing, National Cycling Strategy. See also: Sustrans (2006) Shoppers and how they travel, Information sheet LN02

shifts. This worry can be overcome by the operation of the guaranteed ride home scheme. This facility would be managed by the TMA and would match specific requirements either with a colleague who uses a car for work, or the purchase of a bus ticket or even a taxi if the need warrants it. Such emergencies rarely arise so the costs are minimal and, with efficient administration, unlikely to be abused. However, knowing that this level of assistance will be provided if called on will create a level of comfort among cyclists.

d) Training for staff

Supplying cycle training for residents, or helping them find it for themselves, can be a useful way of encouraging those potential cyclists who might be a little nervous about even attempting to cycle to work. A number of schemes are available and will be promoted through the TMA. For those who just need that little bit of extra encouragement, getting the BUG to operate a 'buddy' scheme to show potential cyclists the best routes to work is also a positive step.

e) Incentive schemes

Everyone likes to be rewarded for what they do and cyclists are no exception. A number of incentives can be used to encourage cycling to work. These range from a cheap or, better still, free 'Cyclists' Breakfast' during National Bike Week, to discounts on bikes, accessories or clothing by arrangement with a local bike shop. The latter are usually keen to be involved as they will expect to see more business as a result. Rewarding employees who consistently ride to work can also help overcome the natural resistance to cycling when, for example, the weather is particularly off-putting.

f) Pool bikes

A supply of pool bikes will be provided on site and administered by the TMA. These are intended to help provide access to cycling and encourage people or families to trial cycling. It is hoped that lease arrangements could be provided to allow residents to buy their own bikes over time.

g) Publicity

If the measures outlined above are to be effective, everyone in an organisation must know about them. To make sure this happens they should be the subject of the broadest possible publicity. This can take many forms ranging from a simple poster on a notice board to extensive coverage within the travel plan element of the TMA website. Every opportunity should be found to make new measures (and even old ones) 'newsworthy' to encourage staff to find out more about what is on offer or spread the word through discussion with colleagues. Additionally, events such as the annual National Bike Week can help to provide a focus for activities to assist promotion of cycling.

7.9.2 Cycle Infrastructure Improvements

All residential units will have secure cycle parking and storage facilities conveniently located close to their homes. The site will have a dedicated cycle route running through the residential area from north to south. The route will connect into and enhance the national cycle network. It will be of a high standard and incorporate new bridge links over the Rivers Wensum and Yare to create new routes. These routes will enhance accessibility and establish local benefits for cyclists meaning that key destinations, such as the railway station and town centre, are more convenient and usually quicker by bicycle than by car.

Improvements to local cycle infrastructure will make local routes to facilities and amenities more attractive, and would therefore encourage cycling among new residents and site users.

NCC has highlighted the need to include proposals to reduce the street width of Bracondale to widen the pavement to incorporate a shared cycle/footpath over the railway bridge and along the road to the junction with the site. This is supported by the cycling strategy. It is understood that NCC are currently developing a scheme to redesign access to the Lafarge site. As part of this work it would be opportune to incorporate facilities to assist safe cycle access along Bracondale /The Street.

No cycle facilities currently exist on Bracondale to the west of the King Street junction, this is a fairly narrow uphill stretch of road which is also a bus route. The provision of either an on road or off road cycle facility on the southern side of Bracondale would improve conditions for cyclists on this stretch of road.

At present cycle facilities are provided on Martineau Lane, however these diminish beyond the A146 junction as the road merges with Barrett Road. Cyclists intending to access Lakenham must then dismount and cross Martineau Lane/Barrett Road to access Arnold Miller Road which is a traffic free route to Lakenham.

To improve this route an off-road cycle path leading from the southern end of Europa Way to Martineau Lane beneath the A146 overpass has been proposed by NCC. It is understood from NCC that Network Rail are willing to provide the land to facilitate this connection. If such a route were provided it would emerge on Martineau Lane/Barrett Road close to a current un-signalled crossing. The provision of a toucan crossing in this location linking the cycle path to Arnold Miller Road would complete a new cycle friendly connection from the site to Lakenham.

Provision of a traffic free cycle route from the Martineau Lane Roundabout to Lakenham Sports Ground via the County Hall site is also a potential future route. This option would need to be further investigated as conflicts may exist over rights of way.

7.10 Public Transport Strategy

It is essential that the public transport strategy is properly integrated as part of the overarching transport strategy. Whilst the key focus of the transport strategy is on active travel modes of walking and cycling, the public transport strategy will have an important complementary role to play. The strategy recognises that people can change mode daily according to specific circumstances, weekly according to a wide range of personal and employment factors that will influence their decision, seasonally perhaps in relation to climate conditions, and over longer periods in response to a wide range of external factors, such as family commitments, health requirements, financial restrictions or simply personal choice. For this reason it is important that the public transport strategy maximises the alternative travel options available.

This section sets out the broad range of complementary measures that will be put in place to maximise the effectiveness of the public transport strategy. The site has a high level of accessibility to public transport, benefiting from its proximity on the edge of the Norwich urban area. An extensive range of services provided by local operators are accessible from the site and will be capable of catering for the needs of all new residents, employees and visitors. Implementation of the public transport strategy will further enhance the sites connectivity to the City Centre and surrounding area.

7.10.1 Information Provision

Through the site travel plans new residents and businesses will be supplied with network maps and timetables. These will be issued via welcome packs, and will raise awareness of public transport services on offer in the local area. High quality signage will also be provided at the new bus stop to be installed on The Street.

7.10.2 Provision of New Bus Stops

The recent NCFE masterplan included a new bus stop to be located close to the southern corner of the stadium. Buses serving the NCFE bus stop would enter the site via Canary Way and would exit via a bus gate on Carrow Road which would allow bus priority crossing to the Riverside Shopping Centre. NCC have confirmed that they are awaiting a decision from NCFE regarding the proposed new bus route. NCC would ensure that a pedestrian crossing is incorporated into the design of the proposed bus gate on Carrow Road. It would also

encourage the re-routing of services via the new NCFC stop, and would make public transport services to the north more accessible.

The existing May Gurney request only bus stop on The Street is only available to passengers using eastbound services. No westbound stop exists; therefore services to the City Centre are not currently available from directly outside the site entrance. The installation of a westbound May Gurney bus stop would significantly improve public transport provision to the site. Both stops would be within 800m of the entire site, and would be served by the Anglian 587 and 588. An upgrade of the eastbound stop is also recommended, as is the provision of a facility to assist pedestrian crossing on The Street to help provide safe access to the westbound stop.

7.10.3 Re-route Existing Services

There is opportunity to create additional capacity by re-routing existing services, reducing the need to put more buses on the highway network. To the north of the site the proposed installation of an NCFC bus stop and bus gate on Carrow Road would make it possible to re-route existing inbound services. The new stop is likely to be located 400m from the northern end of the site, thus making it attractive to new residents. First were approached regarding the re-routing of the 25/35 to a new NCFC stop. The operator confirmed an interest in re-routing the service, however this would depend on new facilities provided and a study of the time requirements of the new route. It may also be possible to re-route the First 12 and 17 services via the NCFC bus stop, these offer routes to Norfolk and Norwich University Hospital and Norwich Business Park. First have expressed an interest in utilising this opportunity, but have suggested that re-routing the 25/35 service may be more likely due to less disruption being caused to regular passengers.

There is also potential to re-route Anglian services via the NCFC bus stop as the Anglian A47, 123 and 124 all have potential to serve the new stop. The 123 provides the most frequent service and may therefore be the most attractive choice for re-routing via the NCFC stop. The 124 currently serves the Riverside Shopping Centre, on an hourly frequency. Exchanging the routes of the 123 and 124 would be favourable as Anglian could provide a frequent service to the NCFC stop while at the same time maintaining a good level of service on Thorpe Road. Anglian have confirmed that re-routing services via a potential NCFC stop is of interest, however this would probably only be possible if the proposed bus gate is installed on Carrow Road.

7.10.4 Enhancements to Existing Services

It is evident that there is opportunity to enhance the capacity of most bus services by simply upgrading the size of bus used. At present the Anglian 587 service consists of two single decker buses each with a capacity of 40, upgrading these to double deckers could substantially increase the capacity offered to Trowse. The Anglian 588 service consists of 7 buses, 3 of which are already double deckers. Anglian have confirmed that they are confident demand can be met by existing timetables and capacity offered by the 587 and 588 services. Should demand exceed capacity in future there are also options to upgrade the buses used to increase capacity.

As existing bus services to the site are run on a commercial basis, it is the operator who will ultimately be responsible for providing a service sufficient to meet demand. The TMA will liaise closely with the operators, existing organisations in the surrounding area and new organisations locating at the site to ensure that efficient services are put in place at an early stage. This will maximise accessibility and enable sustainable travel behaviour to be established from first occupation of new employment and residential premises.

7.10.5 Shuttle Bus Service

The NCC 100 is available for use by the general public. Any modification to the route would have to ensure that the new service does not reduce current service frequencies. This would require adding an additional bus to the route. If demand from the southern end of the site expands beyond that predicted and cannot be met by re-routing existing Anglian services, the provision of a new NCC100 bus could be considered. It would be possible to extend this service to Whitlingham Country Park to increase patronage by opening up a new travel market.

7.10.6 River Ferry

The provision of a river ferry service between the Rail Station and Whitlingham Country Park is an attractive proposition. Close liaison with the Broads Authority would be required to understand how a viable service could be offered.

City Boats currently offer various ferry services in Norwich including daily cruises, private hire and unique private charters for events. At present daily cruise boats travel east to the Broads, however no regular river ferry service is offered. A river ferry serving the site and Whitlingham Country Park would potentially be attractive to new residents accessing the rail station, to employees accessing the site, and to local residents and tourists for recreational use.

A 4mph speed limit is currently in place on the Wensum between the site and Station Quay, this limits the capability of a river service to offer an attractive service in comparison to other travel modes. At this speed it would take 20 minutes to travel the 1.7km from the site to the Station Quay, this includes turning around and docking time. It would take the average person around 15 minutes to walk the same distance at an average walking speed. An exemption from the 4mph speed limit would allow the ferry to reach Station Quay in less than 15 minutes and would therefore be more attractive. Innovative hull design could theoretically allow a ferry travelling at 6mph to cause fewer disturbances to fellow river users than the current 4mph boats used by City Boat. However the Broads Authority has expressed concern for the safety of rowing clubs using the river, and has mentioned that an exemption from the 4mph speed limit for a new ferry service would be very unlikely.

City Boats have confirmed that they would be interested in operating a new service; this would require a standard size quay at the site provided by the developer. A Whitlingham Country Park quay would also be attractive, and would potentially encourage use of the ferry by tourists throughout the day. One ferry could potentially stop once an hour at Station Quay, Whitlingham Quay and Deal Quay on a regular circuit. A more frequent half hourly service provided by 2 ferries during peak times would be more attractive to commuters.

7.11 Parking Strategy

The careful management of car parking is an essential and integral part of the transport strategy. It is a challenge to strike a balance between commercial viability of the development and the provision of parking at levels that do not induce car travel, or that make car dependent lifestyles difficult to change in future. It is important therefore that the parking strategy is fully integrated and retains the flexibility to adapt to changing circumstances in the future.

The parking strategy has been developed with reference to PPG13 which states (paragraph 49) that *“The availability of car parking has a major influence on the means of transport people choose for their journeys. Some studies suggest that levels of parking can be more significant than levels of public transport provision in determining means of travel (particularly for the journey to work) even for locations very well served by public transport. Car parking also takes up a large amount of space in development, is costly to business, and reduces densities. Reducing the amount of parking in new development (and in the expansion and change of use in existing development) is essential, as part of a package of planning and transport measures, to promote sustainable travel choices”*.

7.11.1 Parking Standards

The local authorities in Norfolk have previously agreed standards for application throughout Norfolk with the County Council. The standards cover those vehicular modes of transport commonly in use, e.g. bicycles, powered two wheelers, cars, buses, coaches and servicing vehicles. The standards take the form of maximum standards for car parking and minimum standards for all other vehicle types to accord with the latest Government advice as set out in PPS 3 - Housing (November 2006), and PPG 13 –Transport (March 2001).

These policies will accord with Government advice, Regional Planning advice, Structure Plan policies and other relevant transport policies and strategies. It is expected that the Councils will refine and modify the parking standards through the ongoing LDF process to reflect local circumstances.

At present the parking standards that apply to the development site are:

- Parking Standards for Norfolk 2007
- Norwich Local Plan – Appendix 4: Standards for Transportation Requirements within New Developments
- South Norfolk Local Plan – Appendix 3: Car Parking Standards

7.11.2 Norwich City Council Parking Standards

Table 7.7: Norwich Parking Standards - Use Class A1, A2 and A3

Use Class	Shops, High Street Offices and Restaurants (Use Class A1, A2 and A3)
Location	Elsewhere in the urban area
Cycle Parking Standard (Min)	Staff - 1 covered and secure per 100m ² . Customer – 1 per 50m ² (or part) adjacent to principle entrances.
Car Parking Standards (Max)	Customer – one space per 20m ² gfa Disabled – 5% of total. Parent & Child – 5% of total. Motorcycle – 1 per 500m ²
Servicing	A bay capable of holding a rigid 11m vehicle normally required. Developments over 1000m ² require standing for an articulated vehicle for every 2000m ² or part.

Source: Norwich Local Plan – Appendix 4: Standards for Transportation Requirements within New Developments

Table 7.8: Norwich Parking Standards - Housing

Use Class	Housing (Use Class C3)
Location	Elsewhere in the urban area
Cycle Parking Standard (Min)	Residents – 1 covered and secure space per dwelling. Visitors - cycle parking for visitors is required in the vicinity.
Car Parking Standards (Max)	1 and 2 bed units - 1 space per dwelling. 3+ bed units - 2 spaces per dwelling. On average, developments should average 1.5 spaces per unit or fewer.
Servicing	Access for emergency services, removal lorries, refuse vehicles will be necessary.

Source: Norwich Local Plan – Appendix 4: Standards for Transportation Requirements within New Developments

7.11.3 South Norfolk District Council Parking Standards

Table 7.9: Norwich Parking Standards - Use Class A1

Use Class	A1 (shops)
Cycle Parking Standard (Min)	Customers – 1 space per 200m ² . Staff – 1 space per 100m ² .
Car Parking Standards (Max)	1 space per 20m gfa

Source: South Norfolk Local Plan – Standards for Parking in Norfolk 1998

Table 7.10: Norwich Parking Standards - Use Class C3 Dwelling Houses

Use Class	C3 (Dwelling Houses)
Cycle Parking Standard (Min)	None for individual houses with garages or rear gardens for a garden shed. Residents – 1 space per unit. Visitors – 1 space per 4 units.
Car Parking Standards (Max)	1 bed unit – 1 space 2-3 bed unit – 2 spaces 4 or more units – 3 spaces

Source: South Norfolk Local Plan – Standards for Parking in Norfolk 1998

7.11.4 Car Parking Proposals

There are two elements to the car parking strategy that need to be considered, which can be summarised as:

- **C3 Residential** - residential parking; residential visitor parking
- **A1-5 Commercial** – employee parking; customer parking

The sustainable transport strategy is designed to continually seek improvements in the use of methods of travel other than single occupancy car use, therefore it is important that the parking strategy is able to respond to potential decreases in demand. For this reason it is essential that the parking strategy retains the flexibility to expand to meet emerging demand within carefully managed limits. The strategy recognises that the over provision of parking early on in the lifecycle of the development has the potential to create the impression of a plentiful supply of parking and as a consequence could encourage car-dependent travel behaviours that would then be difficult to change retrospectively.

7.11.5 Residential Car Parking

A total of 641 parking spaces will be allocated for residents of the proposed 682 dwellings. The parking ratio has been determined at a level required to support the use of the car club²⁰.

²⁰ CarPlus (2007) Car Clubs in Property Developments: An information pack for developers and local authorities.

Guidance produced by CarPlus suggests that the car club works best if some residents are pushed into not having a private car parking space as well as others choosing the service out of preference as a first or second car.

The overall parking ratio of 0.98 spaces per dwelling is intended to help manage demand for car use. There is some variability within this figure as some residential units do not have allocated parking and some of the larger units have 2 spaces per dwelling allocated.

Table 7.11: Residential Parking Allocation

Type	Beds	May Gurney			Marsh Reach			Wensum Riverside		
		Units	P-ratio	Parking	Units	P-ratio	Parking	Units	P-ratio	Parking
Terrace	3	76	1	76	81	1	81	53	1	53
Townhouse	4				47	1.5	71	14	1.5	21
Townhouse	6				26	2	52	20	2	40
Apartment	2	12	NIL	NIL	20	0.75	15	157	0.75	118
Apartment	1				4	NIL	NIL	130	0.4	52
Duplex	3							42	1.5	63

A total of 671 spaces will be available. Up to 5 of these spaces will be allocated for use by the Car-Club vehicles only.

The combined ratio for allocated off-street residential and other parking below permitted limits. Depending on demand some spaces may be available for rental by residents through the TMA. The overall total is therefore fixed, but there is flexibility in how the parking is apportioned according to a combination of need and price.

7.11.6 Car Parking for A1-5 Units

A total of 32 on-street parking spaces will be provided at the northern (24 spaces) and southern (8 spaces) areas of the site. This relatively small amount of parking is intended to cater for pass-by trips to the local convenience retail and to enable pick-up and drop-off, and disabled parking close to the other commercial units.

The parking provision for the A1-5 is below permitted limits which, if applied, would allow an additional 90 spaces to be provided.

7.11.7 Management of Car Parking

Access to the parking spaces will be controlled through the operation of on-street controlled parking zones and parking permits. The intention is that off-street parking will be managed through the TMA. Residents will not own their parking spaces, they will be leased from the TMA and charged on a monthly basis.

This is an important part of the strategy as it will ensure that residents think carefully about the need for parking before purchasing a car parking space. This process also enables them to release a parking space and reduce associated expenditure if they decide subsequently to change their travel behaviour.

Through the TMA a system for allocating parking spaces can be established that meets local requirements. For example, some residents with mobility impairments may be exempt from parking charges and might require dedicated parking close to their home. Alternatively, some residents may be willing to pay a premium for parking nearer to their home, whereas others may be content to park their vehicle further away. The TMA is important as it provides a mechanism for effectively managing the parking resource.

It is important that the parking strategy has flexibility to respond to needs as the site is occupied. Operating the parking through the TMA will enable revenue to be generated from efficient use of the parking facilities from first occupation. Leases for parking provision can be allocated on a renewal or notice basis to ensure that parking is available for new residents according to need. Once the site is fully occupied it is expected that an internal market for parking will be established. Those who require additional parking will pay a premium to secure parking required, whilst others may decide to downscale their parking requirements in response to an effective travel plan and local sustainable transport initiatives.

The traditional model of parking is to provide a fixed quantum of parking allocated to a specific building. This parking is then available regardless of demand. The potential to change demand, say in response to an effective travel plan, is then limited as this would make an expensive resource redundant. Changing the operation of the parking model will allow greater flexibility to allocate parking according to need and willingness to pay the full marginal cost of use. This helps to eliminate common barriers to behaviour change and improves the potential for effective travel planning.

7.11.8 Car Parking Enforcement

De-criminalised parking enforcement, [now known as Civil Parking Enforcement] was introduced in 2002. Since then Norwich City Council has taken responsibility for the enforcement of parking Traffic Regulation Orders [TRO] both on and off-street. Norwich City Council has a parking enforcement team who implement the parking regulations. The powers to enforce the on-street TROs have been delegated. Although parking contraventions have been de-criminalised, they have not been de-legalised. It therefore remains an illegal act to park in contravention of the restrictions. The Traffic Management Act, 2004, which replaced

the previous Legislation, imposes on Local Authorities an explicit duty to effectively manage the road network within their respective areas in order to reduce congestion and disruption.

The situation in South Norfolk District is different to Norwich. The South Norfolk District Council (SNDC) are responsible for the enforcement of off street car parking on its own property and have a small enforcement team for these facilities. Enforcement of on-street car parking has been the responsibility of the Constabulary for many years. With the decriminalisation of on-street car parking offences, responsibility has transferred to Norfolk County Council (NCC). NCC is currently undertaking a project to coordinate parking enforcement across the county in liaison with the Districts and has a timescale of 2011 for completion of this work. In the meantime the Norfolk Police Constabulary continues to provide the on-street parking enforcement service in SNDC.

The use of parking restrictions are a relatively crude demand management tool and need to be supported by a suite of complementary measures and initiatives, carefully coordinated in a sustainable transport strategy.

Peak parking demand is likely to be in the evening as residents return to their properties and at weekends when a greater proportion of visitors will be present. There is unlikely to be overspill parking on to surrounding streets, such as Whitlingham Lane, during these periods given the length of the walk distance to the residential properties.

Parking restrictions already exist on a number of the main roads surrounding the site. It is anticipated that new restrictions on parking along The Street will be necessary to enable footpaths to be extended. These requirements will be set out in the detailed design for the new junction of the site with The Street. It is not envisaged that there will be a need to address parking restrictions on other roads in proximity of the site.

The TMA will be responsible for parking enforcement within the off-street car parks. It is intended that the streets on-site will be adopted highway and will be covered by a controlled parking zone preventing any on-street parking, except in the designated parking bays, from first occupation. Most new developments are now covered by this arrangement and it is not uncommon nor will it be unexpected by prospective occupants. It is envisaged that by the time the development is built out SNDC will hold delegated powers for enforcement. Design features integral to the scheme will ensure that parking is carefully managed on site and directed to appropriate areas.

The parking strategy is an important component that has been carefully integrated into the transport strategy. In the main parking management will be implemented through the TMA

which will have the flexibility to target any off-site parking with tailored communications to address any issues that may arise.

7.11.9 Cycle Parking

Provision for cycle parking and its security is essential to support the development of cycling as a practical transport choice. Local authorities and developers are expected to make appropriate provision for cycle parking which will support cycling as a means of transport.

Cycle parking will be provided in line with minimum parking requirements as set out for SNDC and NCC respectively, shown in table 7.12. Demand for cycle parking will be monitored regularly by the TMA and expanded to meet requirements as set out in the strategy below.

Table 7.12: Proposed Development Cycle Parking Standards

SNDC		NCC	
1 per 200m ² customer	6	1 per 50m ² customer	24
1 per 100m ² staff	13	1 per 100m ² staff	12
Total A1 cycle parking	19²¹	Total A1-3 cycle parking	35²²
1 per unit residential	90	1 per dwelling	597
1 per 4 units visitors	23	(No requirement)	(149) ²³
Total residential cycle parking	113		817
Total cycle parking	132		703 (852)

Locating the cycle parking in the right place is crucial. In addition, there are four essential requirements for the cycle parking facility itself:

- It should support any type of bicycle without damaging it – both when the cycle is parked and if it is accidentally knocked
- It should be possible to secure both the frame and the front bicycle wheel to the stand
- Whether or not in use, a stand should not be a danger to pedestrians, particularly those who are blind or partially sighted, or obstruct pedestrian movements or desire lines
- In public places the facility should not detract from the environment

Presently there are no clear or consistent standards for cycle parking in public places in Norfolk, and only limited records of past investment and the extent and condition of facilities available for public use. Norfolk publishes minimum cycle parking provision for new development, but this is primarily aimed at occupiers of the development rather than visitors.

²¹ SNDC have a minimum cycle parking requirement for A1 only.

²² NCC have a minimum cycle parking requirement for A1-3 only.

²³ NCC requirement is to provide visitor parking “in vicinity” so figures shown are based on SNDC requirements as guideline.

Cycle parking facilities in Norwich are inadequate in a number of respects that need to be addressed when considering cycle parking provision in the future. It is intended that this development will set the benchmark against which future applications will be encouraged to aspire to in the future.

Evidence of cycles in Norwich parked informally reflects the inadequacy of the cycle parking facilities available. Informal parking, sometimes described as 'fly parking', is more likely to obstruct pedestrians, disfigure public spaces and reinforce negative attitudes towards cycling and investment in cycling. This does not mean that all 'fly parking' is undesirable, but that its presence means that alternatives need to be considered.

Cyclists suffer from a high level of cycle theft and vandalism. Trips are not made, or not made by cycle that otherwise would be. Damaged or vandalised cycles left in public view signal the insecurity of cycle parking. In some areas cycle parking facilities are unlawfully occupied by motorcycles and scooters, sending a similar negative message.

As a general rule, cyclists who cannot find a cycle stand within 25m of their destination are likely to 'fly park' if their visit will be short. For longer visits a greater distance of say 50m will apply, but in such cases the security of the location will become more important than its exact distance from the destination. In both cases, cyclists will normally expect to park on the same side of a main road as their destination.

It is hoped that the appropriate local authorities in the area will ensure that other development and transport plans include proposals for addressing the gaps in provision for cycle parking facilities and for preparing a full asset register of provision. These facilities can then be communicated to cyclists to ensure that they are aware of the provision of secure parking.

The intention is that cycle parking stands will be added progressively ensuring that there are some spare at the busiest times. Gross over-provision with a large number of unused stands can attract public irritation and will therefore be avoided as this could send a negative message to potential cyclists that few other people are using cycles. Rather, the aim is to give the impression of well-used stands, even if the numbers of stands at each location is modest initially.

Provision of individual stands at locations where they are used for a short period of time and frequently, for example outside local shops, will be a key design feature of the development. Cycle parking can provide for up to eight times as many shoppers as one car park space for a local shop. For on street cycle parking, small groups of stands spread around are generally preferred to a large cycle park.

A good location for cycle parking is essential. It may be better not to provide cycle parking facilities at all, if the only feasible location is far from a natural cycling or walking desire line and natural surveillance. Flexibility in the landscape design will be retained to respond to any evidence of 'fly parking' that is both more convenient and more overlooked.

7.12 Car Club

"Many new developments are marketed as a lifestyle decision. The "city living" message fits well with car club marketing. Both focus on convenience, services rather than products, and a modern and smarter way to live. When people move house they also reassess their transport needs, therefore it is a perfect time to join a car club so joint marketing promotions will be ideal".²⁴

7.12.1 Background

There is a car club scheme currently in operation in Norwich. It was originally launched by City Car Club and is run by Commonwheels. There are currently four cars being regularly used in and around Norwich city centre, this is one of the smallest schemes in the country but is slowly expanding. Operators such as City Car Club and Commonwheels are usually accredited by Carplus, the national organisation set up to promote car clubs. The operators are then responsible for providing vehicles, roadside rescue, insurance, cleaning, maintenance and repair.

According to the Department for Transport: *"A car club gives people the choice of a fleet of vehicles parked in their neighbourhood. This gives them access to a car whenever they need it, but without the high fixed costs of individual car ownership. Car club members are able to mix and match their travel, using a car when that is the best option but travelling by public transport, on foot or by bike at other times. Members of a car club pay an annual fee of between £100 and £200, plus a charge for each mile and hour they use a car. The total annual cost for members who do not clock up high mileages is less than that of buying and running a car."²⁵*

Car clubs in the UK are presently at a relatively early stage of development. There is an opportunity to benefit from best practice to ensure that new car clubs make a significant impact on the transport behaviour of residents. If car clubs can be utilised as successful additions to sustainable transport strategies from the early stages of new development, they can help discourage car ownership from first occupancy. Over recent years car clubs have seen rapid expansion as their popularity has spread across the country. Member numbers

²⁴ CarPlus (2007) Car Clubs in Property Developments: An information pack for developers and local authorities.

²⁵ Department for Transport (2004/5) Making Smarter Choices Work: 34/35 Car Clubs.

have been steadily increasing, and the service is now offered in many cities. However the process of actually switching over to total reliance on car clubs has been found to take long periods of time. Therefore incorporating these schemes within new developments from the very beginning and marketing them successfully is key to making new residents aware of the car clubs and encouraging use of this service from an early stage. In effect, the introduction of a car club early on in the development is able to influence travel behaviour by discouraging private car ownership and offering an attractive alternative.

Car clubs give people access to a vehicle on a pay-as-you-go basis. This can be for those who do not want to own a car but still have occasional need for one, or for business usage in place of car pool vehicles. Such schemes extend the transport options available by giving people access to a car when they need one for trips including shopping, leisure, business journeys and night travel. They save members having to own their own vehicle or incur the associated costs (capital costs, depreciation, insurance, tax, maintenance etc).

7.12.2 Vehicular Trip Management

Car clubs can also reduce parking demand. A study carried out by TfL²⁶ in 2007 suggests that a single club car can remove up to four private vehicles from the road and defer the purchase of a further six. This study also provides evidence that car clubs can increase accessibility to services in areas of deprivation and support low-car housing development. The hourly/daily/weekly payment structure makes the real cost of car use transparent and encourages users to think about whether a car is the most appropriate means of travel. By breaking the link with habitual car use, car clubs reduce congestion and pollution and increase physical activity.

For car clubs to succeed the community needs should match the services offered by a car club. Obviously this is difficult to second guess before residential occupancy is known, but the dynamic management of transport services by the TMA will provide a key role in helping to coordinate requirements. The availability of travel alternatives and local services mean that residents do not necessarily need a car full time. The presence of a number of businesses in the area provides a potential use for the cars during the working day when there can be reduced demand elsewhere for the service. A comprehensive network of cars and good relationships between operators and the local authority can create a service that residents begin to know and trust. Integration with the local community and direct marketing campaigns also help to provide an effective and well used service.

Especially relevant to new developments is the existence of parking control. If new residents are provided with over adequate parking, the demand for a car club could be reduced. The

²⁶ Transport for London (2008) Car Club Guidance: How car clubs work in London

clubs become more attractive in neighbourhoods with tightest parking controls as members are able to reduce car ownership related stress by signing up to a local scheme.

7.12.3 Potential for Local Trip Reduction

Local businesses, such as May Gurney and Unilever can also take advantage of car clubs. Typically periods of lowest demand are during working hours on weekdays which is ideal for businesses. The car club also benefits from extra use as the cars are often idle during these hours, therefore helping to improve scheme viability²⁷. The headquarters of May Gurney is located on site and major employers, such as NCC and Unilever are situated in close proximity. Inclusion of the car clubs in the development would allow local businesses located on site to utilise this form of transport.

The ability to use club cars for business trips would greatly reduce the need for employees at businesses in the local area to need to drive personal vehicles to work for business use. This would help local employers to maximise the success of their travel plan strategies. The club cars could also be used for other daily business purposes, again reducing the need for employees to have a car at work and decreasing pressure on parking places.

If the club incorporated vans within the new scheme it may be possible to attract further interest from businesses and residents alike. Several car club providers specifically aim their service at companies to ensure daily use. They market the service on the wide availability of a fleet of new vehicles, no maintenance costs, lower prices than car hire firms and taxis, less environmental damage, easy accounts management and even personalised reports. Companies can benefit significantly from this range of incentives, which a car club operating in Norwich could easily provide.

7.12.4 Proposed Car Club Operation

The existing car club operator in Norwich, Commonwheels, is likely to be an appropriate service provider for the development. When available, using an existing and recognised provider to setup a car club service for a new development is recommended by Carplus.

It will be possible to book cars by telephone, the internet or even at the car itself 24-hours-a-day, as cars can be accessed using a smart card and PIN. By offering a wide range of vehicles the service should be sufficient to cope with the different demands of residents on the Development. Details of the Commonwheels operation is provided in the following text box.

²⁷ Department for Transport - Cairns S, Sloman L, Newson C, Anable J, Kirkbride A & Goodwin P (2004) Smarter Choices – Changing the Way We Travel.

Members pay for the service monthly by cheque, transfer or direct debit. A statement is issued once a month detailing car use and outstanding balance, this amount is either billed to the member or debited from the account ten days later. Membership is purchased by paying a one off joining fee of £25, if direct debit is not chosen a £150 returnable insurance deposit is also required. Members are then charged an hourly rate for the service depending on what kind of car they use, a minimum monthly charge of £5 is applicable.

Costs for particular vehicle types are; standard cars for £4 an hour and economic cars for £3 an hour. Rental is also available on a daily basis; a standard car is £36 for 24 hours and an economic car is £24. Cars can also be rented for longer time periods, the daily rate will apply no matter how long the car is taken.

Commonwheels offer two different types of vehicle; the standard car is a Volkswagen Golf, and the economic car is a Volkswagen Polo.

To maximise the potential of the scheme, the cars will need to be placed in high visibility locations throughout the development from outset to raise awareness. The TMA will be responsible for funding the start-up, however when the scheme is up and running it should begin to pay for itself within the first year. When the car-club starts to make profit, this provides a revenue stream to enable re-investment in more cars to allow expansion of the club.

The members will be expected to pay the standard car-club rates for on-going use of the cars. However, the TMA will subsidise the one-off joining fee (normally £25 per person) for all households on site. The revenue for the TMA to pay for this will be generated from the parking space lease arrangements.

Ensuring that all households are automatically eligible will help reinforce the message that the car-club provides a convenient alternative to needing to own and park a personal vehicle. Each time the car-club vehicle is used the individual will need to make a conscious decision to book the car and will have a clear appreciation of the marginal costs of each trip made. By reducing the opportunity for habitual car use the overall trip generation of the development will be reduced significantly.

The installation of the new car club will depend on progress throughout the construction phases of the development. If the development is completed in stages it would make sense to install a certain amount of cars with each stage. Generally, car-club operators suggest that one car is installed alongside every 200 dwellings; to raise awareness of the service from the very beginning and encourage involvement. At present, 5 parking spaces have been earmarked for potential car-club spaces throughout the development. There is also potential to expand the number of spaces for the car-club if required.

7.12.5 Proposed Car Club Costs

The local provider Commonwheels recommended that 2 cars should initially be installed, and 3 extra spaces should be reserved for potential expansion. The scheme can then expand

according to demand and development phasing. To properly integrate the scheme within the new development all households would automatically be given free membership to encourage use from first occupancy.

Commonwheels ask for contributions to help cover set up costs in the first two years. They suggest funding of £15,000 per car in the first year, and approximately £2,000 per car in the second year. The TMA will therefore contract the implementation of the car-club at an estimated cost of £35,000. This covers car purchase, maintenance, running and membership for all residents.

It is intended that all households would automatically be given free membership to the car-club. Beyond the second year this is estimated at a standard cost of approximately £25 per individual. The annual membership cost can therefore be estimated to be about £32,000 for an estimated maximum of 1,270 eligible people resident on site. As a proxy, approximately £55 per space from the parking lease charge would need to be allocated to pay to provide compulsory ongoing membership of the car-club.

Running the club would most likely be the responsibility of Commonwheels or whoever the existing provider is in Norwich at the time of development under contract with the TMA. This is the approach recommended by Carplus. This helps facilitate integration of car-clubs not just in new but also in existing neighbourhoods.

7.12.6 Impact on Trip Generation

Research²⁸ carried out by TfL in 2007 provides an indication of the impact the car club could have on the development trip rates. This suggests that a “single club car can remove up to four private vehicles from the road and defer the purchase of a further six.”

Installing 4 club cars should therefore have the effect of removing 16 cars from the road, and deferring purchase of another 24 providing a total reduction of approximately 40 cars. It is obviously difficult to accurately predict the impact of a car-club for any specific development proposal. However, it is likely that the introduction of the scheme properly integrated and integral to the development will have a more significant impact than those retro-fitted to existing urban areas. The car-club supports the vehicle trip generation estimates by significantly reducing peak time car use, and reduces demand for on-site parking by reducing the need to own a vehicle.

²⁸ Transport for London (2008) Car Club Guidance: How car clubs work in London

8 Construction traffic

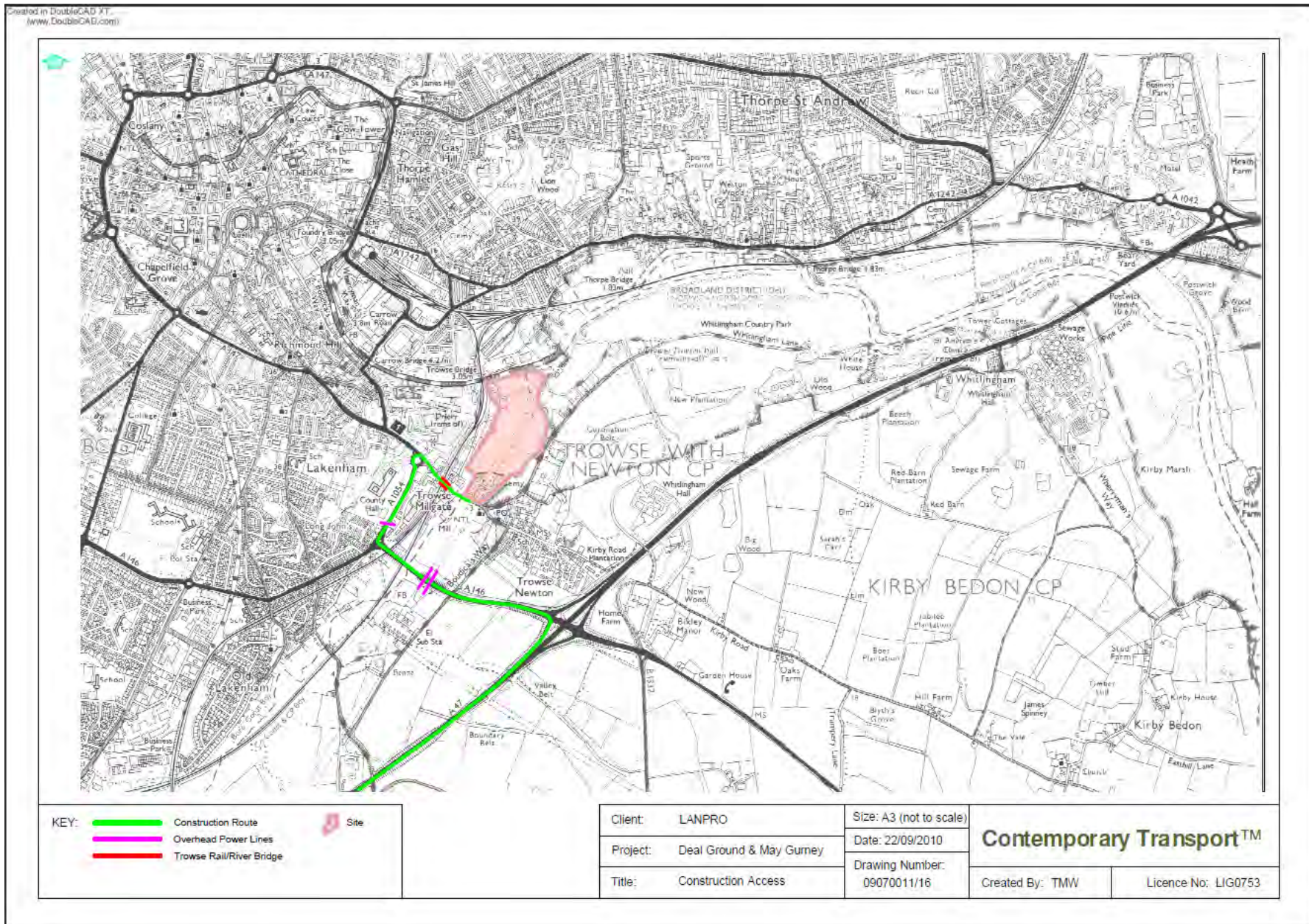
8.1 Route Options

It will be necessary for heavy plant equipment to access the site during the construction phases of the development. An assessment of appropriate routes for heavy plant equipment to follow has therefore been carried out to ensure that access will be available.

It is unlikely that heavy plant equipment will be accessing the site from the city centre. It is more likely that this type of equipment will be brought to Norwich from the wider region.

The most likely route for heavy plant equipment to use when accessing the site from the wider region is via the A47, A146 and Martineau Lane. The A47 or Southern Distributor Road is accessible from all major routes into the city. Bracondale and The Street would be used for the final stage of this route, a map is shown in figure 8.1.

Figure 8.1: Construction Access



8.2 Constraints

Overhead wires can act as a constraint to the movement of over-sized plant equipment. Two locations have been identified on the route to the site from the wider region. It is considered unlikely that the overhead wires identified will effect heavy plant equipment as they are located a considerable height from the road surface. Images in figures 8.2 and 8.3 show where the overhead wires cross the route.

Figure 8.2: A47 Inbound



Figure 8.3: Martineau Lane



During the final stage of the route heavy plant equipment will cross the Trowse Rail Bridge. This is currently used by heavy goods vehicles (HGV's) accessing the Lafarge aggregates site which is adjacent to the site. It is understood that a restriction exists regarding the movement of HGV's, this allows no more than 70 HGV's to cross the bridge during any 12 hour period. Current levels of HGV access to the Lafarge site are unknown, however as heavy plant access to the site is not expected to be a regular occurrence a significant impact on the daily crossing threshold is unlikely.

8.3 Conclusions

The construction route assessment has determined that there is a viable route to connect the site with the Highways Agency's strategic road network. This can be used to bring in construction materials and heavy plant equipment required. The route is not subject to any prohibitive constraints and is considered appropriate for this purpose.

9 Trip Generation, Distribution and Modal Split

9.1 Background

At the outset it is important to note the unique aspects of this development, particularly in terms of its relationship with the natural environment and the informed approach to design responding to address specific constraints that have limited past ability to agree an appropriate development response.

There are no directly comparable developments with data available to provide readily available information on suitable trip generation, mode split and directional analysis. It has been possible, working in close collaboration with officers from Norfolk City Council and Norfolk County Council on behalf of South Norfolk District Council, to determine an appropriate proxy for the level of trips that a development of this type could be expected to generate. It is apparent from the design, layout and accompanying transport strategy that this is not a normal development. This has heightened the need to work closely with both local authorities to establish a bespoke approach to trip generation for this site.

This approach detailed in this section follows the clear procedures for good practice set out in the DfT Guidance on Transport Assessments. This is important, as the DfT guidance promotes strongly the development of a strategy working in collaboration with the local authorities to implement a sustainable approach to address travel requirements. It does not seek to create a level of traffic that will then need to be subsequently reduced. Instead the strategy seeks to deliver an appropriate and acceptable level of traffic that will then be maintained through the implementation of the strategy.

This development is very different in character to the residential properties characterising the rural area surrounding Trowse. For example, if current local levels of car ownership²⁹ were accommodated on site then it would be necessary for dedicated residential parking to be at least 36% than allocated.

A detailed transport strategy has been developed with an innovative TMA, robust funding allocation and well considered integrated parking management. Throughout the project the design has been informed by the transport strategy to ensure that they are complementary. It is vital therefore that the complementary and inter-connected nature of the strategy with the trip generation methodology is fully understood. Equally misleading would be to present figures based on a fictitious account of what might happen if the transport strategy was not

²⁹ Using car ownership ratios per household as per the ONS Super Output 2001 Census data covering the Trowse Area (006G): No car 13%; 1 car 50%; 2 cars 29%; 3 cars 6%, 4 cars+ 2%.

implemented. Due to the inter-relationship with the design the transport strategy is integral to the development. It is not possible to deliver the project without it.

9.2 Introduction

This chapter sets out the methodology and rationale applied to agree trip rates and mode share estimates appropriate for the proposed development. The adopted approach needs to take into consideration the unique nature of the development mix, behaviour of the target occupants and location. For this reason a 'first principles' approach has been followed, which requires a detailed analysis of existing data and in-depth consideration of likely travel behaviours.

It is important to reiterate some key factors influencing the trip rate and mode share estimates. There will be a high quality pedestrian and cycle link connecting the site with the city centre and railway station, implemented before first occupancy of the Deal Ground residential units. This route will be more direct and quicker by bicycle (at peak times) than travelling by car or public transport.

The rates used are based on analysis of what is practicable and deliverable. They are based on what is appropriate given the implementation of the sustainable transport strategy and the design principles underpinning the development, which include diligently managed parking. They are therefore different to what has been achieved in the past and are unique to the location of this development. The trip rates reflect the potential of an integrated TDM strategy, including the implementation of a comprehensive package of complementary Smarter Travel interventions (as defined by the Department for Transport).

The DfT recently commissioned a detailed review of evidence³⁰ which demonstrated that Smarter Travel interventions:

- Create significant changes in mode of travel and in particular walking, cycling and bus use;
- Reduce resident's car use leading to reductions in traffic, particularly to central areas;
- Affect shorter trips more than longer trips, but noted that nearly half the effect on car driver distance was from medium length trips;
- Influence travel behaviour through a combination of mode-switching, trip evaporation (7%) and destination switching;

³⁰ Sloman, L., Cairns, S., Newson, C., Anable, J., Pridmore, A., Goodwin, P. (2010) *The effects of smarter choice programmes on household travel and town-wide traffic: triangulating the evidence from three English Sustainable Travel Towns*, 5th International Symposium on Travel Demand Management, University of Aberdeen.

- Reduce car driving especially for leisure and shopping purpose, but equally emphasised that full-time workers contributed to around a third of total car driver distance savings;
- Establish greatest behaviour change among college students, job seekers, and moderate for recently retired people on home duties.

In line with good practice this research evidence has informed the trip generation methodology. The trip rate methodology is concerned primarily with the AM peak trip generation as this is the critical period of concern identified with Norwich and Norfolk Councils when scoping the requirements for the Transport Assessment.

9.3 Travel to Work

The development is located close to the city centre and is therefore likely to display travel behaviour similar to that of the city rather than its environs, as defined by Norwich shown in Table 9.1. Given the strong emphasis on cycling and sustainable living it is reasonable to assume that travel as a single occupant in a car will be lower than the rate suggested by the 2001 Census shown in table 9.1.

Table 9.1: Method of Travel to Work - Resident Population

	South Norfolk		Norwich		East of England		England	
Works mainly at or from home	6326	12.0%	3567	6.7%	243485	9.4%	2055224	9.2%
Train	437	0.8%	512	1.0%	177742	6.9%	1659409	7.4%
Bus, minibus or coach	2273	4.3%	4516	8.4%	102838	4.0%	1685361	7.5%
Taxi or minicab	81	0.2%	262	0.5%	11693	0.5%	116503	0.5%
Driving a car or van	34184	65.0%	23489	43.8%	1518613	58.9%	12324166	54.9%
Passenger in a car or van	3086	5.9%	3322	6.2%	150642	5.8%	1370685	6.1%
Motorcycle, scooter or moped	724	1.4%	795	1.5%	28637	1.1%	249456	1.1%
Bicycle	2004	3.8%	4691	8.8%	100193	3.9%	634588	2.8%
On foot	3163	6.0%	12169	22.7%	233737	9.1%	2241901	10.0%
Other	348	0.7%	283	0.5%	11798	0.5%	104205	0.5%
All working people	52626	100.0%	53606	100.0%	2579378	100.0%	22441498	100.0%
Not currently working	27257	34.1%	36226	40.3%	1304726	33.6%	13090593	36.8%
All People	79883		89832		3884104		35532091	

Source: Office for National Statistics (Census 2001) Information on Method of Travel to Work - Resident Population (UV39)³¹

Supplementary analysis of specific wards of *Mile Cross, Nelson (Norwich), Sewell, Town Close, Wensum (Norwich)* was undertaken to establish that the percentage of the daytime population who usually travel to work by car is 39% (including car passengers and taxi use). This helped to confirm with NCC that the Census data utilised provides an appropriate basis from which to determine a proxy for travel patterns.

With regards to the proposed development it is important to consider the following relevant factors:

- The trend for home working has increased considerably in the last decade. This has been influenced by significant improvements in broadband connections, continued expansion of the UK service sector, changes in societal norms, the 2002 Employment Act which introduced a package of family-friendly working rights, and increases in traffic congestion.

³¹ This dataset is about Method of Travel to Work. It shows the usual resident population aged 16 to 74 by the method of travel to work. Those people not currently working are shown separately. The method of travel to work is for the longest part, by distance, of the usual journey to work.

- Its close proximity to a major rail hub, with connections to London, the east coast, the Midlands and beyond.
- Its location close to frequent bus services within a maximum 10 min walk from any point on the development. It is also situated close to the bus station for connecting services further afield.
- Improved passenger information relating to arrival times at bus stops
- The implementation of a parking management strategy, which will control parking availability and in doing so limit the number of cars available for use.
- The strong emphasis on cycle facilities as part of the development, cycle friendly street design, close proximity to local facilities by cycle, situation on National Cycle Route 1.
- Provision of an attractive, non-trafficked pedestrian route within 20 minutes walk of the city centre.
- Continued emphasis of healthy living and increased awareness of environmental issues over the last 10 years.

With reference to the factors noted above, the 2001 Census data for Norwich has been taken as a baseline and used to predict the future modes of travel for the journey to work. The predicted target mode shares for the journey to work are shown in table 9.2.

Table 9.2: Predicted Future Modes of Travel for Journey to Work

	Mode	Norwich	Predicted Mode-share
a	Works mainly at or from home	6.7%	10%
b	Train	1.0%	2%
c	Bus, minibus or coach	8.4%	9%
d	Taxi or minicab	0.5%	1%
e	Driving a car or van	43.8%	33%
f	Passenger in a car or van	6.2%	6%
g	Motorcycle, scooter or moped	1.5%	2%
h	Bicycle	8.8%	12%
i	On foot	22.7%	25%
	All working people	100%	100%

To help understand the appropriateness of the predicted mode share it is useful to summarise the key assumptions with reference to the table above.

- More people will work from home. In 2001 on average 12% of people already worked from home across South Norfolk and 6.5% in Norwich. Over the last decade there has been a considerable improvement in computing power, broadband connections, coupled with a continued expansion of the UK service sector, and changes in societal norms which mean that it is a more commonly accepted practice. In 2002 the Employment Act introduced a package of family-friendly working rights which encourage home-working. Furthermore, during the last decade increases in traffic congestion and the relative cost of travel by public transport have also increased demand for home-working.
- Commuting by train is likely to be higher for residents living closer to the railway station. It is viable as it is possible to walk to the station within 10-15 minutes. Importantly this provides confidence in journey time reliability to the station, and reduces the necessity of

expenditure on bus travel or for parking. Rail commuters often chose to live close to the station for these reasons. This is likely to be relatively long distance commuting (principally to London), but there will also be some to Cambridge and north and East Norfolk.

- c) The average mode share for the Norwich city region in 2001 was 8.4% of people travelling by bus to work. Obviously this average figure for Norwich is affected by pockets of poorer quality bus services within Norwich, and conversely where bus services were particularly good the rate will have been higher. A majority of the site is within 400m (5 min walk) of a bus stop and the whole site is located within 800m (10 min walk). The proposed mode share of 9% by bus is realistic and could actually be higher given the travel plan activities planned to communicate and promote the benefits of bus travel as well as improved and more widely accessible sources of passenger information.
- d) Travel by taxi may increase slightly as parking is restricted and options to travel by car are therefore more limited. Other options, such as bus, will be strongly promoted and may be more attractive to many residents than using taxis.
- e) The car use figure has been derived by estimating appropriate proportions for other modes and then calculating the pro-rata impact on car use. Norwich is compact and is relatively easy to access without a car. Beyond the urban area, there is practically no alternative to the car to access Norfolk and as a consequence, people living on the development will need access to a car. The car club to be implemented on the site will provide this accessibility without the need to own a car. Reducing car-ownership inhibits the ability to commute by car.
- f) As a proportion of car use the number of car-sharing journeys is anticipated to increase in future. Increasing restrictions in the availability of parking across Norwich are likely to encourage future residents to share the car for more journeys. Access to the internet increases and improvements in the security of car sharing databases will increase car sharing. This will offset the fact that the propensity for matching car-share journeys will decrease with less car trips being made to and from a particular area. Based on 2001 Census data, the Norwich average ratio of car passengers per car driver is currently 0.14. It is considered that this is likely to be higher with the use of area -wide journey matching system. The trip generation data therefore assumes that the proportion of car-sharers will be static, despite the fact that fewer car trips will be undertaken.
- g) Only a small increase in the use of motorcycles has been assumed. Electric-assisted bicycles are becoming increasingly popular and are likely to replace some of these journeys in time.
- h) Cycling is expected to be a popular mode of travel. In 2001 the average mode share for Norwich was 9%. As this figure includes some parts of Norwich that are less attractive in terms of cycling due to its large peripheral /transitional border with its rural hinterland, it is likely to have been higher for cycle-accessible areas. Cycling is currently under-represented in the UK as a viable mode. In other European countries the national average for the commute to work is higher, take for example Holland (27%) and Denmark (19%) which have geography more similar to that found in Norwich. The development site is exceptionally well located in terms of viability for cycling, with most of Norwich employment located within 5km of the site. It is therefore appropriate to assume a

increased mode share is realistic, given the facilities provided on site, and promotion to be provided through the travel plan.

- i) Walking is expected to be the most popular mode of travel, given the proximity of the development to a significant number of major employers within a short walk. The Norwich average for walking was 23% in 2001. Given the location, the provision of good quality links to the surrounding area and in particular to the City Centre, and the strong promotion of walking through the travel plan, it is realistic to expect the proportion of people walking to work to be significant. The likely demographic composition of the development is appropriate to support high levels of walking. Similar to the City Centre and inner suburbs, the development has a high proportion of smaller homes, which are therefore more likely to be occupied by proportionately higher levels of young and older people. Almost half of all residential units are 1-2 bedroom apartments (47%). The development contains a small proportion of large family residential units (7%).

9.4 Trips to Employment

To calculate the number of trips generated by the residential component of the development it is necessary first to estimate the number of people living in the properties. Given the difficulties of estimating the composition of residents occupying properties, it is necessary to make some assumptions. Table 9.4 sets out an estimate of household composition based on the average household composition for Norfolk.

The average household composition has been applied to 682 proposed residential units. Based on the Census categories assumptions have been made with regards to the average number of people per household, including number of children and people of working age. The number of persons per household calculated using this methodology correlates with the average household occupancy of 2.14 persons per household (Source: Office for National Statistics (Census 2001), Number of People Living in Households (UV51)).

The total number of people of working age is then adjusted to take into consideration the fact that at any time a certain proportion of these people will not be working, because of a number of reasons including childcare responsibilities, financial self-sufficiency, health issues or unemployment.

Of the total number of people of working age that are currently working a proportion of these will be working part-time as shown in table 9.3. Part-time work is generally considered to be less than 20 hours per week and hours worked vary considerably. It is therefore necessary to assume a reasonable proxy for the average number of trips at peak travel time per day. It is assumed that on average part-time workers travel at peak-time a maximum of 3 days per week.

Table 9.3: Employment Statistics

	Number	Percent	Norfolk	National
Economic activity rate		72.6%	76.7%	74.3%
Full time employment	63,800	64%	65%	69%
Part time employment		36%	35%	31%
Self employed		10.0%	15.1%	12.1%
Unemployed (Claimant count)	2,858	3.2%	2.3%	2.6%

Source: http://www.norwich.gov.uk/site_files/pages/City_Council_Key_Statistics.html (Original source ref: Floor Targets Interactive (DCLG), Claimant Count and ABI 2006 (ONS))

Of the full time employees it is assumed that on any one day 1.7% are absent due to sickness³² and that 11% are absent due to leave³³.

³² Barham, C., and Begum, N. (2005) *Sickness absence from work in the UK*, National statistics feature, pp149-158, Office for National Statistics – Labour market trends.

³³ There are generally considered to be 260 working days in the year, and UK workers have an average entitlement of 28 days leave (20 days plus 8 bank holidays).

Table 9.4: Household Composition for Norfolk Urban Area (less sparse)

Household type	% by type ³⁴	No households	Av. persons per household	Total people	Active working age persons	No. children	No. pensioners	Working age persons not working ³⁵	Total working persons
One person: Pensioner	15.79%	108.2	1	108	0	0	108	0	0
One person: Other	16.5%	113.0	1	113	113	0	0	46	67
One family and no others: All pensioners	10.5%	71.9	2	144	0	0	144	0	0
One family and no others: Married couple households: No children	12.98%	88.9	2	178	178	0	0	72	106
One family and no others: Married couple households: With dependent children	15.03%	103.0	3.5	360	206	154	0	83	123
One family and no others: Married couple households: All children non-dependent	5.23%	35.8	3.5	125	125	0	0	51	75
One family and no others: Cohabiting couple households: No children	5.56%	38.1	2	76	76	0	0	31	45
One family and no others: Cohabiting couple households: With dependent children	3.75%	25.7	3.5	90	51	39	0	21	31
One family and no others: Cohabiting couple households: All children non-dependent	0.37%	2.5	3.5	9	9	0	0	4	5
One family and no others: Lone parent	6.1%	41.8	2.5	104	42	63	0	17	25

³⁴ Source: KS20 Household composition: 33_5 Urban >10k - Less Sparse

³⁵ See figure for Norwich in table 9.1

households: With dependent children									
One family and no others: Lone parent households: All children non-dependent	2.64%	18.1	2.5	45	45	0	0	18	27
Other households: With dependent children	1.51%	10.3	3.5	36	21	16	0	8	12
Other households: All student	0.44%	3.0	4	12	12	0	0	5	7
Other households: All pensioner	0.4%	2.7	4	11	0	0	11	0	0
Other households: Other	3.21%	21.0	2.5	55	55	0	0	22	33
			2.14 average	1467	933	271	263	376	557

The benefit of this methodology is that it allows some assumptions to be made with regards to the number of people likely to be working and therefore generating demand for peak time travel.

Table 9.5: Trip Rate and Mode-share Assumptions for the Journey to Work

Mode of Travel to Work	Mode Share	Trips	Trip rate per dwelling	Trip rate per bedroom
Works mainly at or from home	10.0%	41	0.060	0.023
Train	2.0%	8	0.012	0.005
Bus, minibus or coach	9.0%	37	0.054	0.020
Taxi or minicab	1.0%	4	0.006	0.002
Driving a car or van	33.0%	135	0.197	0.075
Passenger in a car or van	6.0%	25	0.036	0.014
Motorcycle, scooter or moped	2.0%	8	0.012	0.005
Bicycle	12.0%	49	0.072	0.027
On foot	25.0%	103	0.149	0.057

9.5 Trips to School

It is estimated that there will be approximately 272 children resident on the site, based on Census data for average household composition. Assuming an even split between year groups, it is estimated that there will be approximately 68 pre-school (25% of all children) and 204 of school age. Of the school aged children it is reasonable to assume that 119 will attend primary school (58%) and 85 will be at secondary school (42%).

There are two primary schools within a short walking or cycling distance the site. Both Lakenham and Trowse Primary Schools have had School Travel Plans (STP) in place for at least 2 years. As part of their STP the schools regularly monitor methods of travel to school as shown in table 9.6. Lakenham is the larger school and approximately 12% of pupils travel by car. Trowse is considerably smaller and has a more rural catchment area with 39.5% of pupils travelling by car to school. Given that the development is situated between the two primary schools an average of the mode-shares has been used to estimate the total number of peak time vehicle trips generated by the journey to school.

Table 9.6: Method of Travel to Local Primary Schools 2009/10

	Walk	Cycle	Car	Bus	Total
Lakenham	191 (86%)	3 (1%)	26 (12%)	2 (1%)	222
Trowse	45 (49.5%)	10 (11%)	36 (39.5%)	0 (0%)	91
	236 (75.5%)	13 (4%)	62 (20%)	2 (0.5%)	313

Source: Norfolk County Council, School Census Results

Of the 119 children attending primary school, it has been assumed that up to 20% might travel by car which would equate to 24 pupils.

Studies³⁶ of the behaviour of over 4,000 parents of primary school children have shown that in general approximately 39% of parents who take their children to school by car combine this journey with the journey to work; 9% combine the journey with a trip to another school or nursery; 8% link their car journey with an ongoing trip for shopping, to visit friends, etc and 44% usually returned home immediately afterwards.

On average 20% of pupils have a brother /sister at the same school. It is therefore reasonable to assume that 5 pupils will travel together by car. Assuming there will be some family and friend groups of 3 children travelling together it is considered that the total number of car trips to primary school can be reduced by 2 to 22 car trips. Of these car trips approximately 8 trips will be by parents linking their journey to work with the school run, i.e. trips that have already been accounted for in the journey to work trip rate calculations. It is estimated that the journey to primary school may generate 14 additional car trips during the morning peak.

Secondary school children have different patterns of travel behaviour compared to primary school children. In general fewer children walk and more travel by bus as shown in table 9.7. This is due largely to the increased distance to secondary schools in the local area compared to primary schools.

Table 9.7: Average Mode Shares for Travel to Norwich Area Secondary Schools 2009/10

Mode	Walk	Cycle	Car	Bus	Taxi
Average %	49%	7%	18%	24%	1%

Source: Norfolk County Council, School Census Results

Applying these averages to the secondary school children anticipated to be living on the development it can be estimated that 15 will travel to school by car. If it is assumed that an equivalent proportion of parents combine the trip to school with the journey to work by car, then it can be assumed that 5 of these trips have already been accounted for in the journey to work trip rate calculations. It is estimated that the development is likely to generate 10 car trips to secondary school during the morning peak period.

In total it is estimated that 24 additional car trips may be generated by the journey to school. If 44% are assumed to make a special journey then the 24 car trips leaving the site during the

³⁶ Black, C.S. (1997) Behavioural Dimensions of the Transport Sustainability Problem, Ph.D Thesis, University of Portsmouth, Chapter 3: Social Complexities of travel behaviour; *School transport - the scale of the problem.*

morning peak period with generate approximately 11 return trips back into the site during the morning peak period. This is on the basis of current observed travel behaviour and does not take into account the potential impact of the residential travel plan or the school travel plan. Walking and cycling will be strongly promoted on site through the residential travel plan, and coordinated externally with local schools through the transport management association (TMA). A range of initiatives will be used to promote active travel choices for the journey to school, such as walking-buses, scooter-clubs and cycle-trains.

Most local secondary schools are within an acceptable cycling distance from the site. The target of the residential travel plan is that, especially given the emphasis on cycling during primary-years education, cycling will be the significant mode selected for the journey to school. To further incentivise the use of cycling to secondary school a new bike will be provided for each child by the TMA before they start secondary school, in return for a pledge to cycle to school. Not only does the transport strategy commit the provision of bicycles for secondary school travel, but it also identifies an independent revenue stream for funding and a management body to coordinate it. This promotion of cycling will also be reinforced by the local school travel plan and the residential travel plan will continually communicate the benefits of cycling.

Car journeys specifically to take children to school may be less common than the trip rate analysis suggests, given that it is generally likely to be quicker to walk or cycle to school and vehicles will not be parked directly outside residential properties. Parents would also need to make a special journey to and from the schools during the most congested traffic period which is likely to act as a disincentive in itself. There may be some car trips to work which combine a linked trip to school, but this would not affect overall trip generation by car.

9.6 Non-work Related Peak-time Trips

There are two categories of resident that could potentially generate non-work related trips during the morning peak period, namely: pensioners; and people of a working age but not currently working. The trip generation potential of each of these groups is considered in turn.

9.6.1 Peak-time Trips by Pensioners

From the analysis of household composition based on Census data it is estimated that approximately 263 residents could be categorised as pensioners.

When evaluating the potential for peak time travel it is useful to the finding for recent work into the *travel needs, behaviour and aspirations of people in later life* commissioned and published

by the Department of Transport³⁷. The research notes that respondents “*discussed making choices about the time of day they travelled, and expressed a preference for avoiding or minimising the travel they did at night-time or during rush hours, including the school run*” (page 4).

The report emphasises that “*not having to travel during peak hours was considered to be one of the positive benefits of retirement, and respondents generally avoided doing so*” (page 24). It was evident that for both car drivers and users of public transport, the weight of traffic on the roads meant that journeys during these times invariably took longer and made travelling during the peak less attractive. Respondents who needed to travel during rush hour periods commonly complained about traffic congestion. Choosing to take a less direct, but less congested, route to work was one strategy employed by those who had to drive during the rush hour. This was experienced as less stressful than sitting in traffic. In some cases, respondents said that it was actually quicker than taking a more direct route. A further benefit was sometimes to enjoy more pleasant scenery. A number of respondents, for example, chose to drive to work through country lanes rather than on other major roads. Another strategy employed was to work non-standard or flexi-hours in order to avoid commuting to work during the rush hour.

The likely journey types and purposes are detailed in table 9.8. There appear to be few reasons for retired people to make regular weekday morning trips. Journeys to assist with the school run have been accounted for separately. Short trips to purchase a morning paper, etc are likely to be internal to the neighbourhood shop. It is however important to recognise that on any particular weekday morning a proportion of retired people may be making journeys by car outside of the development.

³⁷ Department for Transport (2007) *Understanding the travel needs, behaviour and aspirations of people in later life*, HMSO.

Table 9.8: Potential Journey Purposes and Destinations for Pensioners

Journey type	Domestic and personal	Social and recreational
Journeys into the town or city centre	Accessing further education Hospital appointments Shopping non-food.	Going out for a meal/drink Personal fitness swimming, gym, yoga. Theatre/cinema/museum outings Visiting family and friends
Journeys within the local area	Personal finance banking and financial advice. Medical appointments GP surgery, hospital and dentists. Accessing further education Dropping off family at work, school or nursery Hair salon/barbers Food shopping local shops.	Attending weekly social events political meetings, places of worship, community clubs. Going out for a meal/drink Theatre/cinema outings Tending allotment Visiting library Airport runs as lift givers and travellers. Day trips walking tours, visiting places of interest. Visiting family and friends Personal fitness swimming, gym, yoga.
Journeys across, or to the outskirts of, town	Food shopping out of town supermarkets. Shopping non-food. Running errands for family Medical appointments GP surgery, hospital and dentists. Accessing further education	Going out for a meal/drink Airport runs as lift givers and travellers. Visiting family and friends Day trips walking tours, visiting places of interest. Pursuing hobbies fishing/playing golf. Attending sporting events

Source: Department for Transport (2007) Understanding the travel needs, behaviour and aspirations of people in later life.

There is however little data available from which it is possible to determine the actual travel behaviour of retired persons. TRICS residential data on retirement flats has been used to calculate a proxy for estimating trip generation. The database contains multi-modal data for 3 sites in the UK that could be used, shown in the table below. As might be expected, peak time car journeys are low. The number of vehicle trips per dwelling is shown in table 9.9. In the 07:00 to 07:59 period for 2 sites there were no recorded trips, and in these instances the other site has been used to produce an average figure.

Table 9.9: TRICS Multi-Modal Data for Retirement Homes

TRICS Reference	Location	Arrival		Departures	
		07:00-07:59	08:00-08:59	07:00-07:59	08:00-08:59
CF - 03 - N - 02	Cardiff	0	0.029	0	0.058
SH - 03 - N - 01	Shrewsbury	0.018	0.018	0.036	0.036
TW - 03 - N - 02	North Shields	0	0.028	0	0.028
Average trip rate per dwelling		0.018	0.025	0.036	0.041

There are estimated to be approximately 263 retired people living on site. To use the TRICS data to calculate vehicle trip generation it is necessary to make assumptions regarding the likely living arrangements of retired people per dwelling. For purposes of this trip estimation it has been assumed that 40% (105) of people are living alone³⁸ and 60% (158) with a partner /another, therefore the total number of dwellings occupied will be approximately 184.

Based on the assumption that retired people living on the development will occupy approximately 184 dwellings the vehicle trip generation has been calculated for the 2 hour morning peak period 07:00 to 08:59 for both outgoing and incoming movements. The results are shown in table 9.10.

Table 9.10: Estimated Vehicle Trip Generation from Retired Residents

	Arrival		Departures	
	07:00-07:59	08:00-08:59	07:00-07:59	08:00-08:59
Number of trips per hour	3	5	7	7
Peak period trip generation	8		14	

It is estimated that retired persons resident on the site will make approximately 14 car trips during the morning peak and that there will be 8 car trips in to site.

9.6.2 Peak-time Trips by People of Working Age but not Working

From the analysis of household composition based on Census data it is estimated that approximately 376 residents could be categorised as people of working age but not working. Retired people are considered separately, so this category is likely to include the range people shown in table 9.11. The composition was derived from analysis of the household composition. Further explanation and consideration of likely travel patterns is provided below.

Table 9.11: Estimated Composition of People of Working Age but not Working

People of Working Age but not Working	Proportion	No. People
Un-employed	14%	52
Responsible for household /childcare	33%	126
Financially independent /supported by main employed person	31%	118
Students	22%	83

Approximately 4% of the workforce in Norwich is currently registered unemployed. Those registered unemployed are those actively seeking re-employment. It is estimated that there will be 1,309 people of working age resident on the development. It is reasonable therefore to assume that approximately 52 of those people of working age but not currently working may

³⁸ Note that this estimate may slightly over-estimate trip generation from retired persons. 18% of men and 32% of women aged over 50 (16% and 29% respectively for those aged 60-74) were living alone in 2001. Soule, A., *et al.* (2005) Focus on Older People, Department of Work and Pensions, National Statistics, HMSO.

be unemployed. These people are unlikely to be travelling by car at peak time on a regular basis. Job interviews are generally held outside of peak periods and those who are unemployed are less likely to be able to afford to travel by car. A small proportion may travel by car during the peak period on any particular day, say 5%. Unemployed residents are therefore estimated to generate 3 car trips during the morning peak on an average day.

Those people with household or childcare responsibilities are likely to constitute the largest proportion of non-working people of working age. A substantial proportion of these people are likely either to be at home during the morning peak period, or walking /cycling with their children to school. Those parents driving their children to school have already been accounted for in the analysis of school travel journeys.

Some parents may take children to pre-school or nursery in the morning peak period. It is estimated that there will be approximately 68 pre-school children. It is important to note that pre-school activities are not generally full-time every day for children below school age. Also that it is most common for children to be placed into nursery when both parents are working and car trips to nursery are therefore undertaken in conjunction with the journey to work. It is however recognised that on any particular morning a certain proportion of parents may be taking children to pre-school or nursery.

It is estimated that on an average term-time morning 40% of the 17 pre-school children aged 3 to 4 will be going to pre-school, a total of 7 children. It can be assumed that about 50% of these children will be driven to school and that therefore this activity will generate 4 peak time car trips. Other pre-school children may be taken to school by car as part of the journey to take older siblings to school or as part of the journey to work. It is anticipated that average nursery attendance for the 51 children aged 0 to 3 will be lower than for pre-school. Approximately 20% of children are anticipated to be taken to nursery on any particular morning, a total of 10 children. Trips to a nursery of a significant distance are regularly undertaken by car because of safety and for convenience. It is therefore assumed that this activity is likely to generate a 10 peak time car trips. Other children may be taken to nursery by car as part of the journey to take older siblings to school or as part of the journey to work. In total 14 journeys by car to nursery and pre-school are estimated to occur during the morning peak period. It is assumed that these trips will also return to the site during the morning peak traffic period.

A proportion of residents of working age but not working are likely to either be financially independent or supported by a main employed person living in the household. Financially independent people may no longer need to work because of inheritance, or a successful business venture, for example. Other people in this category may not need to work as they are supported by their partner or are claiming benefits from the state. On any one day a

proportion of these people may undertake a trip during the peak period, for a wide range of reasons, such as for child-care responsibilities, appointments, shopping, etc. However, they are unlikely to need to make regular journeys during the peak periods. It is reasonable to assume that a maximum of 10% of these people might undertake a car trip during the morning peak period, accounting for 12 trips. In addition there is likely to be a small number of inbound trips by visitors during the morning peak period on any one day. For purposes of the trip generation calculations a total of 3 incoming visitor trips have been assumed, as most are likely to avoid the school traffic and will travel later.

A significant proportion of residents are likely to be students in further education. The journey to school data considers only children up to the age of 16. It is estimated that there is likely to be approximately 83 students over the age of 16 living on the site. Many of these students will not be eligible for a driving licence under the age of 17. Most students will be full-time education and a proportion part-time. They are unlikely to need to travel every morning in for courses /lectures starting at 9 AM, only a proportion. To many students the cost of car ownership is prohibitive and the limited ability to park it close to their educational establishment discourages use of the car. That said some students may be older, and/or more wealthy, and more likely to use their car for the journey to college. It is reasonable to assume that 60% of students would need to travel during the peak period, approximately 50. On any one day it is estimated that a maximum of 20% might travel independently by driving car to their college, accounting for 10 trips. Others may be taken to college by car with friends, as part of the journey to take younger siblings to school, or as part of the journey to work.

In total people of working age resident on the site but not working are predicted to generate 39 outgoing car trips during the morning peak period.

9.7 Additional Incoming Trips to the Site

Some incoming trips will be generated by the residential development from the site in the morning period, but in general only those which are non-discretionary will occur during the peak. Some incoming return trips and visitor trips were identified in the previous section equating to 17 incoming trips. Other incoming trips are likely to include arrivals by a child-minder, or to drop off a child or children at a child-minder. Regular trips by health visitors may also be non-discretionary because of wider scheduling constraints.

On the basis that child-minding takes place in one dwelling per 100 dwellings of three bedrooms or more (of which there are 320 proposed) then there will be 3 dwellings generating such trips. On the basis that each child-minding operation looks after 4 children of which 2 live within Deal Ground, i.e., are internalised trips, then a maximum total of 6 incoming trips

would be generated. It is likely that, because of the age of the children then these trips will be car-based however it is considered that 50% of these trips would be linked to employment on the site and therefore have already been accounted for. The remaining 50%, 3 in and 3 out, will be new trips to and from Deal Ground, but diverted trips that are already on the adjoining road network.

For the evening peak, it is considered that the flows above will be reversed.

It is considered that up to three families may employ a child-minder however it is unlikely that more than one will travel by car. It is considered that bus and bicycle are the most likely means of travel for the other two child-minders.

For health visitor or similar trips it is considered that no more than two trips will be incoming in the morning peak since trips to all residents requiring this type of service can be scheduled in sequence. As this is likely to occupy the whole of the peak period it is considered that no outbound trips will be generated by this activity. In the evening peak hour it is considered that this type of activity will have ceased and therefore there will be no trips generated. There will be some trips to collect children from Nursery during the evening peak, but often children are collected as part of the afternoon school run.

9.8 Trips to A1-5 Commercial Units

The commercial units are intended to service a range of local requirements including some convenience food shops. These are unlikely to open prior to the morning peak period so any incoming staff are unlikely to travel during this time.

Many of the uses for this commercial space are likely to be either specialised A1 uses, such as a ship chandlers, boutique shops, or restaurants and/or bars. In these cases they are more likely to open from 10:00 to 19:00 or later, and at lunchtimes and evenings for those selling food and beverages. In this case there will be next to no am peak occupancy and evening peak occupancy will not occur until later in the evening than the Norwich pm peak.

Trip generation for staff is expected to be very low during the morning peak period. During the afternoon peak period there may be some trips if shops close at 17:00, but these are likely to be few. If all commercial was accommodated by A1 closing at 17:00 then the maximum number of staff leaving the site during this period is approximately 15.

Many of the jobs created by the commercial land uses may be filled by local people resident on the site. This would internalise trips within the site. There will be no specific parking spaces allocated for use by staff working at the commercial units and parking on-site will be

controlled. This will further discourage in-bound car trips. Given these assumptions, peak time incoming and outgoing car trips are considered to be inconsequential.

The local convenience stores are intended to provide for local requirements. A small amount of parking has been provided to cater for local pass-by trips only. Equally there is only a small amount of on-street parking available to the north of the site for customers to the commercial units. These commercial units are not expected to generate traffic during the peak weekday periods. Given the level of accessibility by foot from the city centre via an attractive riverside walk, and the situation of the commercial units adjacent to the popular National Cycle Route, it is anticipated that the significant proportion of customers will arrive by non-car modes of travel. It is therefore unlikely that customers to the site will generate significant additional peak-time traffic.

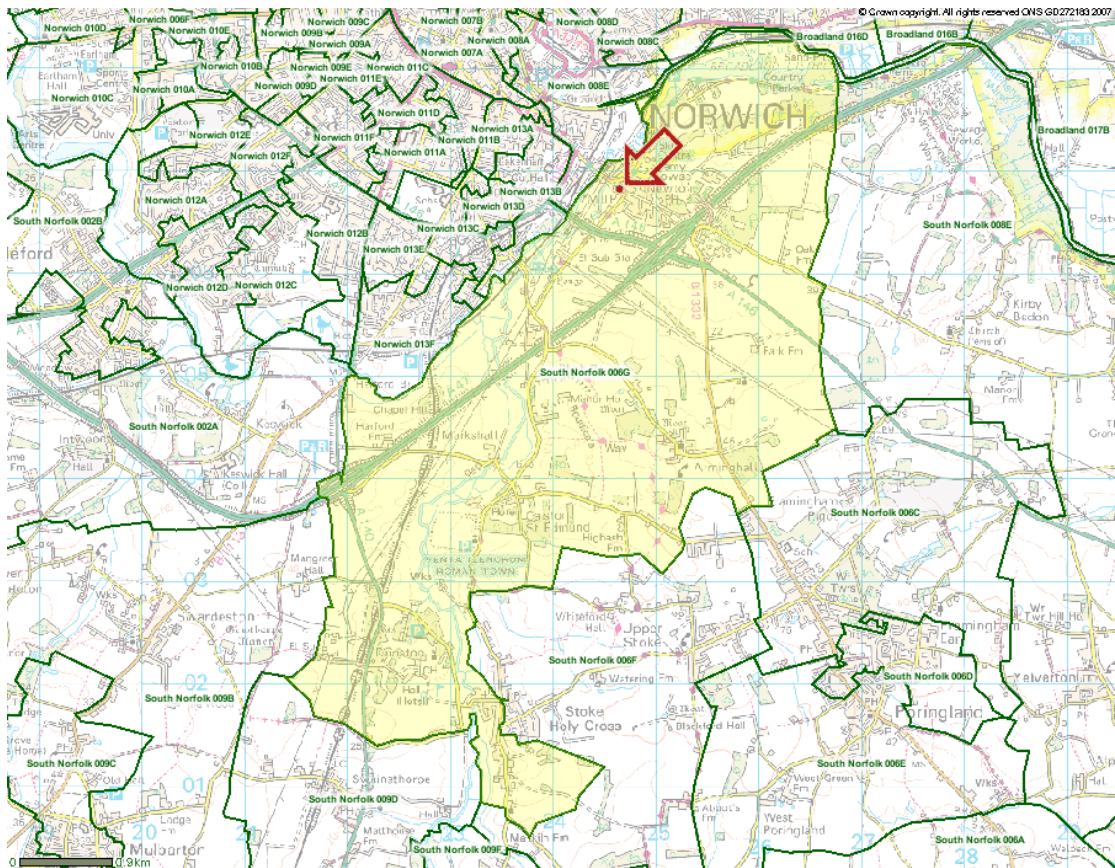
Businesses generate common service trips such as postal deliveries and collections, waste collection, contract cleaning companies. As the timing of these types of trips are generally non-discretionary, it is considered that an overall allowance of 3 trips in and out should be allowed for as part of the site's trip generation.

9.9 Additional Bicycle Trips Generated by External Local Residents

The village of Trowse, also called Trowse with Newton, is situated close to the site and about 1.5 miles (2.4 km) south-east of Norwich city centre. It covers an area of 4.49 km² (1.73 sq m) and had a population of 479 in 233 households as of the 2001 census.

Detailed Census data is available for the area of South Norfolk in which Trowse is situated, as shown in figure 9.1.

Figure 9.1: South Norfolk 006G (Super Output Area Middle Layer)



The data³⁹ shows that the 426 people travelling to work from the area, 69% currently drive, a further 5% travel as a car passenger, 4 % travel by bus, 7% by bicycle and 10% by foot. 50% of people travelling to their workplace undertake a trip of less than 5km and 79% travel less than 10km.

From the above it can be derived that approximately 294 people currently drive to work from the area. This corresponds with recent traffic survey data which observed 239 vehicles travelling west-bound along The Street during the morning peak, with 229 continuing on to Bracondale.

The Census data indicates that 50% of local car drivers travel less than 5km to work. This is generally recognised as an appropriate cycling distance. The new cycle infrastructure including bridges over the River Yare and River Wensum will reduce distances to some employment areas. This will increase the number of people within 5km cycle distance of their employer. It is estimated therefore that there is potential for up to 114 existing trips undertaken by car to transfer mode of travel to work to bicycle.

³⁹ Office for National Statistics, 006G Mid-2007 population estimate, UV39, UV35

Naturally, not all people who could cycle will switch from car travel to using a bicycle for their commute to work. From the Census data only 7% of local residents (30 people) from the Trowse area travel by cycle to work. To access most major local employers within cycling distance they would currently need to travel via The Street /Bracondale. The new dedicated cycle infrastructure will provide a real benefit in terms of reduced journey times to a greater number of employers, using an attractive, safe, largely non-vehicular route. It is therefore reasonable to consider that the mode share for the journey to work could be increased to a similar level as that to be achieved on site at 12% or a total of 51 cyclists. This increase of 21 cycle journeys represents only a small modal shift from car driver to cyclist as over 80% of car drivers would not change, nevertheless this would reduce car trips travelling along Bracondale by approximately 21 vehicles during peak hours (new total of 51 minus 30 existing).

9.10 Potential Off-site TMA Impact

During the morning commute period 07:30 to 09:30 16% of cars travelling through the Martineau Lane roundabout were recorded entering County Hall. This major employer also generates trips in other directions through the junction as staff park cars off-site due to insufficient on-site parking capacity.

Through the implementation of an effective local Transport Management Association, there is the potential to work with NCC to significantly improve the operational capacity of the Martineau Lane roundabout. Providing assistance with the trip reduction strategies of nearby major trip generators to provide capacity for more sustainable developments is an approach advocated by the Highways Agency in its Influencing Travel Behaviour programme.

The actual impact of the TMA ultimately depends on the willingness of NCC to work in partnership to implement effective travel plan initiatives at County Hall. There is substantial potential to address local traffic congestion through the TMA. The specific impact on the TMA on local traffic has not been quantified as part of this TA due to the difficulties of obtaining a commitment from local employers to meet targets set which reflect potential for changing travel behaviour.

9.11 Local Peak-time Traffic Generation

The current pattern of journeys to the May Gurney headquarters site shows that 92% of movements into the site during the morning peak (07:00 to 09:00) left turn in from Martineau Lane roundabout. Of these movements through the Martineau Lane roundabout approximately half travel down Bracondale (47%) and the remainder (53%) along Martineau Lane. This pattern is repeated in the afternoon with 88% of movements out of the site during

the afternoon peak (16:00 to 18:00) are right-turns towards Martineau Lane roundabout. At the roundabout journeys home are almost evenly split left along Martineau Lane (52%) and right along Bracondale (48%).

It is important to recognise however that these are incoming employment trips and are therefore likely to differ from the trips generated by the development site. The site is particularly accessible for people living there to access local employment areas and the city centre. It is less likely therefore that they will travel along Bracondale during the morning peak (and return via this route in the afternoon) as cycling or walking is likely to be a preferred travel option. Car trips that are generated by the residential development are more likely to be for journeys to employment hubs situated around the Norwich perimeter (such as the Norwich Research Park /Norwich and Norfolk University Hospital) or further afield. It is anticipated therefore that these trips will utilise the quickest routes, such as the A47, which are accessed via Martineau Lane.

In line with observed behaviour of traffic at present, is anticipated that these journeys would be carried out in reverse during the afternoon peak.

The travel behaviour estimates for trip generation on the local highway as identified for the journey purposes detailed above are consolidated in tables 9.12 and 9.13. These show an estimated number of total trips by mode likely to be generated during the peak periods.

Table 9.12: Local Highway Network Morning Peak-time Car Trips⁴⁰ – AM Peak

	Employment trips	Education trips	Non-work related		Commercial units	External local trips	Total
			Pensioners	Others			
Outbound	139	24	14	39	--	-21	195
Inbound	4	11	8	20	3	--	46

Table 9.13: Local Highway Network Morning Peak-time Car Trips⁴¹ – PM Peak

	Employment trips	Education trips	Non-work related		Commercial units	External local trips	Total
			Pensioners	Others			
Inbound	139	11	14	39	--	-21	182
Outbound	4	11	8	3	3	--	29

⁴⁰ Including trips by taxi

⁴¹ Including trips by taxi

Education return trips occur predominately outside of the peak afternoon traffic period. A number of return trips will be undertaken to collect children from after-school clubs, etc so an allowance has been included to cater for these journeys. It is anticipated that most of the 14 children at Nursery are expected either to be picked up on the return journey from work, or at the same time that school finishes.

All other trips have been reversed for the afternoon peak period to provide a reasonable proxy for traffic generation.

9.12 Directional Flows of Traffic Tested by Modelling

Norfolk County Council has requested that the ability of Martineau Lane roundabout to cater for increased traffic generated by the application is tested. From the data detailed above, further analysis has therefore been undertaken to estimate the potential impact of generated traffic on this junction and others in the vicinity of the site.

The peak-time is spread over a period of over 2 hours. Survey data has been analysed for movements during this period to ascertain directional flows of traffic. 2 hour periods of 07:30 to 09:30 and 16:00 to 18:00 have been selected for use in the modelling.

AM Peak (07:30 – 09:30) – Outbound

Table 9.14: Site Access /Egress (onto The Street)

Westbound (The Street)	Eastbound (Trowse direction)
96.5%	3.5%

It has been assumed that virtually all traffic will exit right out of the site and travel towards the Martineau Lane roundabout. Assuming that the car trips to primary school are split equally between the two most local schools, then approximately 7 car trips into Trowse would be generated in the morning peak period, equating to 3.5% of total trips.

Table 9.15: Martineau Lane Roundabout (Bracondale /Martineau Lane junction)

	North-westbound (Bracondale)	Southbound (Martineau Lane – A1054)
Scenario 1	50%	50%
Scenario 2	25%	75%
Scenario 3	75%	25%

Table 9.16: Brancondale /KingStreet Signalised Junction

North-Westbound (Bracondale)	Northbound (King Street)
23%	77%

Table 9.17: A146 /Martineau Lane Signalised Junction

Southbound (Martineau Lane)	Eastbound (A146)
29%	71%

AM Peak (07:30 – 09:30) – Inbound**Table 9.18: Site Access /Egress (from The Street)**

Eastbound (from City)	Westbound (from Trowse)
100%	0%

Note that school traffic from Trowse occurs outside the afternoon peak period therefore all trips are expected to return via Martineau Lane roundabout. It should however be noted that there are no restrictions on travel through Trowse during the evening peak.

Table 9.19: Martineau Lane Roundabout (Bracondale /Martineau Lane junction)

	Southbound (from Brancondale)	Northbound (from Martineau Lane – A1054)
Scenario 1	50%	50%
Scenario 2	75%	25%
Scenario 3	25%	75%

Table 9.20: Brancondale /KingStreet Signalised Junction

Southbound (from Bracondale)	Southbound (from King Street)
63%	37%

Table 9.21: A146 /Martineau Lane Signalised Junction

Northbound (from Martineau Lane)	Northbound (from East - A146)
22%	78%

PM Peak (16:00 – 18:00) – Inbound**Table 9.22: Site Access /Egress (from The Street)**

Eastbound (from City)	Westbound (from Trowse)
100%	0%

Table 9.23: Martineau Lane Roundabout (Bracondale /Martineau Lane junction)

	Southbound (from Brancondale)	Northbound (from Martineau Lane – A1054)
Scenario 1	50%	50%
Scenario 2	25%	75%
Scenario 3	75%	25%

Table 9.24: Brancondale /KingStreet Signalised Junction

Southbound (from Bracondale)	Southbound (from King Street)
51%	49%

Table 9.25: A146 /Martineau Lane Signalised Junction

Northbound (from Martineau Lane)	Northbound (from East - A146)
27%	73%

PM Peak (16:00 – 18:00) – Outbound

Table 9.26: Site Access /Egress (onto The Street)

Westbound (The Street)	Eastbound (Trowse direction)
100%	0%

Table 9.27: Martineau Lane Roundabout (Bracondale /Martineau Lane junction)

	North-westbound (Bracondale)	Southbound (Martineau Lane – A1054)
Scenario 1	50%	50%
Scenario 2	75%	25%
Scenario 3	25%	75%

Table 9.28: Brancondale /KingStreet Signalised Junction

North-Westbound (Bracondale)	Northbound (King Street)
15%	85%

Table 9.29: A146 /Martineau Lane Signalised Junction

Southbound (Martineau Lane)	Eastbound (A146)
19%	81%

10 Transport Network Capacity Analysis

10.1 Traffic Assignment

Traffic has been assigned at the principal junctions on the basis of existing turning counts with the exception of Martineau Lane Roundabout. Existing turning counts in the morning indicate that of the traffic entering the roundabout from Bracondale (SE), i.e., Trowse and Whitlingham Lane, 70% turn towards the city centre and 30% turn left along Martineau Lane.

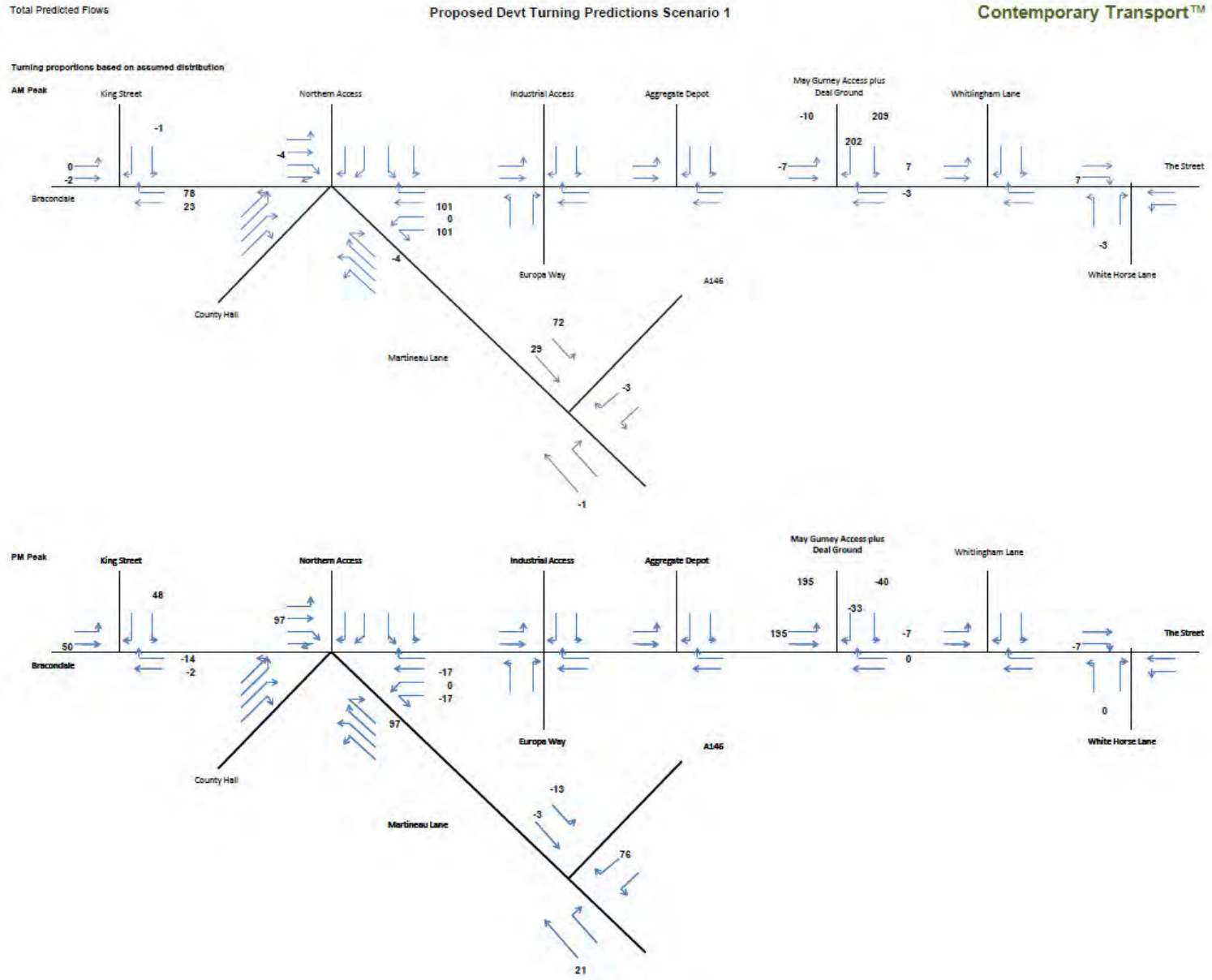
In the evening it can be derived that of the traffic turning into Bracondale (SE) approximately 50% approaches from the city centre and 50% from Martineau Lane. The large majority of this traffic is likely to have a residential origin in the morning and a residential destination in the evening and therefore this distribution could be used as a proxy in order to assignment new trips from the residential element of the proposed development.

However, the overall trip-making from the proposed development and in the future from Trowse/Whitlingham Lane will be affected by the significantly improved links to the city centre for non-car modes. Accordingly it is considered that the proportion of vehicular trips between the city centre and the Bracondale (SE) arm of the Martineau Lane Roundabout will reduce significantly, especially in the morning.

On the above basis the first scenario (Scenario 1) presented for assessing the overall traffic impact of the proposed development incorporates the current evening distribution, i.e., 50% to/from the north (city centre) and 50% to/from the south via Martineau Lane. A second scenario (Scenario 2) is also considered following the assessment of the impact of Scenario 1, the details of which are presented later in this section.

Since the proposed development will remove the existing May Gurney Headquarters and its associated traffic generation, as recorded in the base traffic model, the Total Net Predicted Flows for Scenario 1 are as shown in figure 10.1 for the AM and PM Peak 2-hour periods.

Figure 10.1: Total Net Predicted Flows for Scenario 1



10.2 Transport Network Capacity Analysis

10.2.1 Method

Using the predicted traffic flows from the development, the network performance has been modelled and assessed using LinSig models previously submitted to Norfolk County Council (NCC) and approved by them for use in connection with development proposals for the site. The models and their outputs have also been presented in connection with the renewal of a planning consent for B1 development adjacent to the existing May Gurney headquarters building on the southern part of the Deal Ground site.

It may be noted that the permitted development of the area adjacent to the existing May Gurney headquarters building on the southern part of the Deal Ground site constitutes permitted development and accordingly should be taken into account in assessing the overall impact of the proposed development.

As part of the modelling process locally adjusted growth factors were provided by NCC as shown in Table 10.1.

Table 10.1: Locally Adjusted Growth Factors Provided by NCC

Growth Years	AM Peak	PM Peak
2009 to 2010	1.0049	1.0069
2009 to 2015	1.1251	1.1353

These were incorporated into the LinSig models by applying the factors below to produce years 2010 and 2015 base flows to represent the current situation and opening year of the proposed development. The predicted development flows were added to the base flows to provide the development scenarios. No other changes have been made to the model. Cycle times remain as in the base model for comparison purposes.

NCC has requested that all junctions are modelled where development traffic will be more than 5% on the arm to which the traffic is added.

10.2.2 Scenario 1

Martineau Lane/A146 Junction

The flows on the arms of the Martineau Lane/A146 Junction affected by the development traffic are shown in tables 10.2 and 10.3;

Table 10.2: AM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (66% of 2-hr flow)	%age increase
Martineau Lane (N)	1142	101	67	5.9
A146	2200	-3	-2	-0.1
Martineau Lane (S)	1030	-1	-1	-0.1

Table 10.3: PM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (75% of 2-hr flow)	%age increase
Martineau Lane (N)	1553	-16	-12	-0.8
A146	1191	76	57	4.8
Martineau Lane (S)	1174	21	16	1.4

From the above it can be seen that only the Martineau Lane (N) arm in the AM Peak exceeds the NCC criterion. The effect of these increases in flows can be considered in more detail by reviewing the outputs of the LinSig modelling. The results of the LinSig modelling are shown in Tables 10.4 and 10.5.

Table 10.4: Base and Proposed Development Results for Martineau Lane / A146 (AM Peak)

AM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Martineau Lane (N) Left	51.1	53.5	+2.4	58.0	60.4	+2.4
Martineau Lane (N) Ahead	80.4	85.1	+4.7	90.1	94.8	+4.7
A146 (E) Right Left	94.5	94.4	-0.1	105.4	105.3	-0.1
A146 (E) Right	90.4	90.3	-0.1	104.4	104.3	-0.1
Martineau Lane (S) Ahead	65.4	65.2	-0.2	70.7	70.6	-0.1
Martineau Lane (S) Right	95.2	95.2	0	100.6	100.6	0

Table 10.5: Base and Proposed Development Results for Martineau Lane / A146 (PM Peak)

PM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Martineau Lane (N) Left	96.1	95.4	-0.7	111.2	112.4	+1.2
Martineau Lane (N) Ahead	61.2	67.5	+6.3	68.6	75.7	+7.1
A146 (E) Right Left	74.8	77.1	+2.3	84	87.6	+3.6
A146 (E) Right	61.5	64.8	+3.3	73.2	78.8	+5.6
Martineau Lane (S) Ahead	21.7	29.3	+7.6	29.9	31.5	+1.6
Martineau Lane (S) Right	96.7	96.7	0	112.4	110	-2.4

In the AM Peak it can be seen that the increase in flow on the Martineau Lane (N) arm is accommodated without any adverse impact on the Degrees of Saturation for the other arms of the junction. In the PM Peak there are some significant increases in the Degree of Saturation however these increases are for lanes where there is considerable spare capacity.

Martineau Lane Roundabout

The flows on the main arms of the Martineau Lane Roundabout affected by the development traffic are shown in tables 10.6 and 10.7;

Table 10.6: AM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (66% of 2-hr flow)	%age increase
Bracondale (SE)	396	202	133	33.6
Martineau Lane	2002	97	62	3.1
Bracondale (N)	1264	-4	-3	-

Table 10.7: PM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (75% of 2-hr flow)	%age increase
Bracondale (SE)	321	-17	-13	-4.0
Martineau Lane	1097	97	62	5.7
Bracondale (N)	1186	97	55	4.6

From the above it can be seen that flows entering the roundabout from Bracondale (SE) in the AM Peak and from Martineau Lane in the PM Peak exceed the NCC criterion. The effect of these increases in flows can be considered in more detail by reviewing the outputs of the LinSig modelling. The results of the LinSig modelling are shown in Tables 10.8 and 10.9.

Table 10.8: Base and Proposed Development Results for Martineau Lane Roundabout (AM Peak)

AM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale North Ahead Left	90.5	90.4	-0.1	95.5	94.0	-1.5
Bracondale North Ahead	27.5	27.5	0	28.8	28.4	-0.4
Northern Access Ahead Left	4.4	4.4	0	5.1	5.0	-0.1
Bracondale SE Left	17.9	26.3	+8.4	20.8	29.2	+8.4
Bracondale SE Ahead	41.2	49.6	+8.4	47.4	55.7	+8.3
Martineau Ln Ahead Left	96.6	98.4	+1.8	109.6	111.5	+1.9
Martineau Ln Ahead	100.2	101.8	+1.6	112.9	114.8	+1.9
County Hall Left	10.9	11.3	+0.4	12.6	12.9	+0.3
County Hall Ahead	10.7	11.0	+0.3	12.3	12.5	+0.2

The lanes with greater than a 5% increase are highlighted. As can be seen, the Degree of Saturation on the Bracondale (SE) arm increases, however the Degree of Saturation for both lanes on this arm remain significantly below 90% indicating that there is considerable spare capacity on this arm in the AM Peak. There are small increases in the Degrees of Saturation

on the lanes which are already at capacity in the base situation which is to be expected as even small changes in overall demand in the junction cannot be readily accommodated.

Table 10.9: Base and Proposed Development Results for Martineau Lane Roundabout (PM Peak)

PM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale North Ahead Left	102.2	111.3	+9.1	117.6	127.4	+9.8
Bracondale North Ahead	2.9	2.9	0	3.3	3.4	+0.1
Northern Access Ahead Left	13.9	14.3	+0.4	16.0	16.4	+0.4
Bracondale SE Left	29.5	26.2	-3.3	32.9	29.6	-3.3
Bracondale SE Ahead	25.4	22.3	-3.1	28.2	25.0	-3.2
Martineau Ln Ahead Left	35.8	35.6	-0.2	40.6	40.5	-0.1
Martineau Ln Ahead	64.1	70.3	+6.2	72.7	78.9	+6.2
County Hall Left	35.2	36.4	+1.2	43.0	44.4	+1.4
County Hall Ahead	51.1	52.7	+1.6	62.6	64.7	+2.1

The lanes with a greater than 5% increase are highlighted. As can be seen, the Degree of Saturation on the Bracondale (N) lane carrying vehicles away from the city centre increases because there is more circulating traffic on the roundabout as a result of returning trips to the proposed residential development as well as trips returning to the Proposed Development from this direction. However, with the exception of this arm for which demand exceeds capacity in the Base situation, the Degrees of Saturation for all other lanes on this roundabout remain significantly below 90%.

Bracondale/King Street Junction

The flows on the arms of the Bracondale/King Street Junction affected by the development traffic are shown in tables 10.10 and 10.11;

Table 10.10: AM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (66% of 2-hr flow)	%age increase
Bracondale (W)	647	-2	-1	-0.2
King Street	1173	-1	-1	-0.1
Bracondale (E)	1736	101	67	3.9

Table 10.11: PM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (75% of 2-hr flow)	%age increase
Bracondale (W)	682	50	38	5.6
King Street	1030	48	36	3.5
Bracondale (E)	1305	-16	-12	-0.9

From the above it can be seen that only the flow entering the roundabout from Bracondale (W) in the PM Peak exceeds the NCC criterion. The effect of this increase in flow can be considered in more detail by reviewing the outputs of the LinSig modelling. The results of the LinSig modelling are shown in Tables 10.12 and 10.13

Table 10.12: Base and Proposed Development Results for Martineau Lane Roundabout (AM Peak)

AM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale (W) Left	60.9	60.9	0	62.7	65.3	+2.6
Bracondale (W) Ahead	102.4	102.2	-0.2	105.5	109.1	+3.6
King St Right/Left	102.6	102.6	0	108.8	108.8	0
Bracondale (E) Ahead	57.1	58.0	+0.9	59.8	59.8	0
Bracondale (E) Right	101.7	105.0	+3.3	108.5	110.5	+2.0

Table 10.13: Base and Proposed Development Results for Martineau Lane Roundabout (PM Peak)

PM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale (W) Left	71.8	66.7	-5.1	80.9	75.1	-5.8
Bracondale (W) Ahead	81.5	83.2	+1.7	92.2	93.1	+0.9
King St Right/Left	80.7	84.7	+4.0	91.2	95.3	+4.1
Bracondale (E) Ahead	32.5	32.0	-0.5	36.4	35.9	-0.5
Bracondale (E) Right	83.8	84.2	+0.4	94.1	94.7	+0.6

There are no lanes with a greater than a 5% increase in the Degree of Saturation although, as can be seen, this junction is already operating at capacity in the AM Peak and close to capacity in the PM Peak. The development introduces a small amount of additional traffic which in the AM Peak cannot readily be accommodated. In practical terms this means that the limit of throughput in the peak hour at the junction has been reached and accordingly flows adjust to extend the peak hour in order to achieve the desired overall throughput. Rather than extending journey times, drivers tend to re-time their journeys to take advantage of the greater capacity available on the 'shoulders' of the peak hour in the base situation.

For each case the LinSig models were optimised for Practical Reserve Capacity (PRC) to offer the fairest representation of each situation. Table 10.14 summarises the PRC for each of the critical junctions and table 10.15 compares the PRC found in the base situation with the base plus proposed development situation.

Table 10.14: Scenario 1: Practical Reserve Capacity Results for 2010 and 2015

	Practical Reserve Capacity (PRC)							
	2010				2015			
	Base		Base + Dev		Base		Base + Dev	
	AM	PM	AM	PM	AM	PM	AM	PM
Martineau Lane / A146	-5.7 %	-7.4 %	-5.7 %	-7.4 %	-17.1 %	-24.9 %	-17.0 %	-24.9 %
King Street / Bracondale	-14.0 %	7.4 %	-16.7 %	6.3 %	-21.0 %	-4.6 %	-22.7 %	-5.9 %
Bracondale Roundabout	-11.3 %	-13.5 %	-13.1 %	-23.7 %	-25.5 %	-30.7 %	-27.5 %	-41.5 %

Table 10.15: Scenario 1: Practical Reserve Capacity Comparison

	PRC Difference between Base and Base + Dev			
	2010		2015	
	AM	PM	AM	PM
Martineau Lane / A146	0	0	+ 0.1	0
King Street / Bracondale	- 2.7	- 1.1	- 1.7	- 1.3
Bracondale Roundabout	- 1.8	-10.2	- 2.0	-10.8

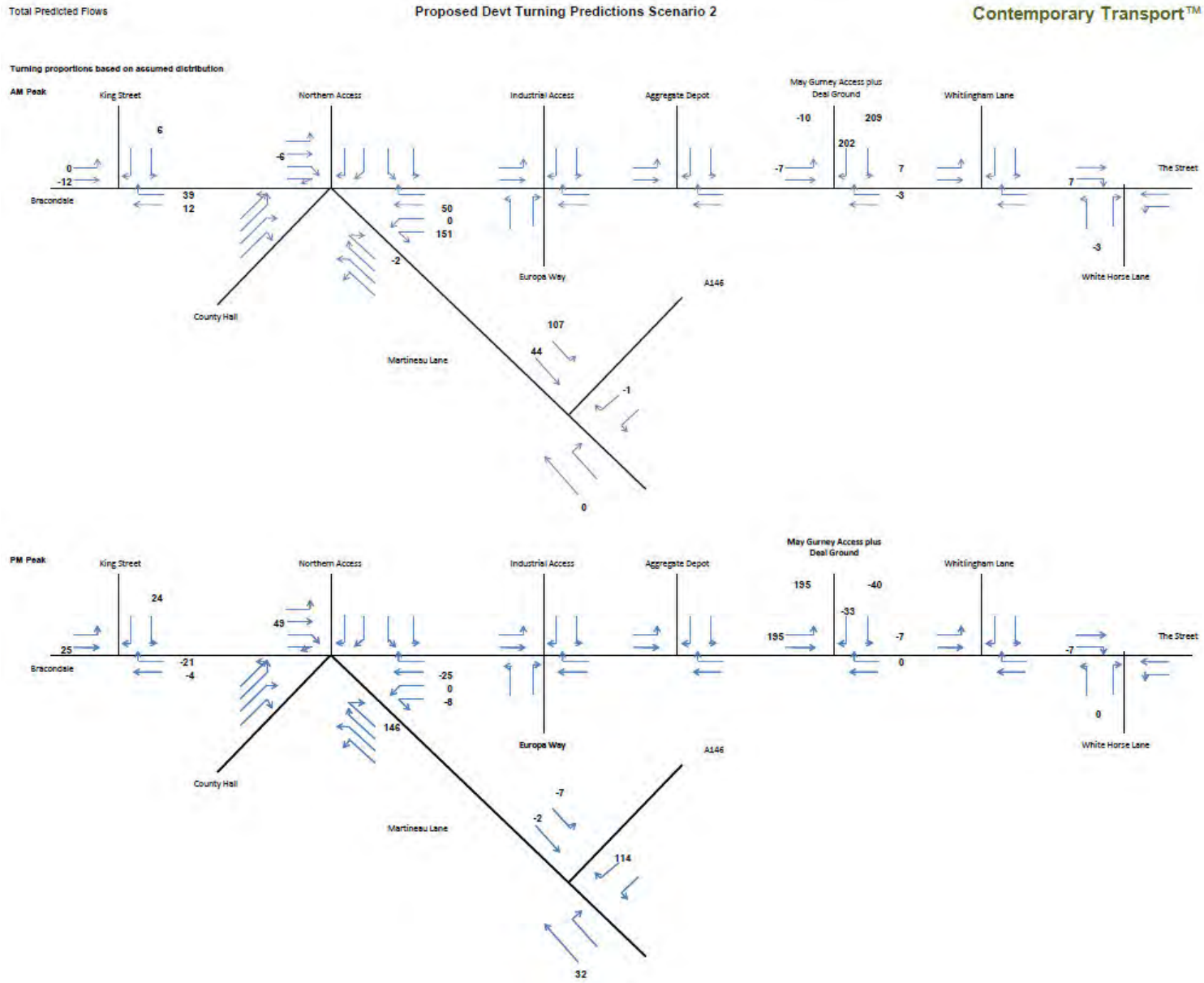
The overall analysis shows that the change between the base and with development scenarios is not significant other than at the Bracondale Roundabout in the PM Peak. As previously discussed, this is solely due to the performance of the Bracondale (N) arm because there is more circulating traffic on the roundabout as a result of returning trips to the proposed residential development as well as trips returning to the proposed development from this direction. It should also be noted that demand exceeds capacity in the 2010 base situation for this arm.

Because in the existing situation the Bracondale Roundabout and Bracondale/King Street junctions already operate at capacity, it is likely that additional demand at these junctions has historically been accommodated by peak spreading or through traffic re-routing to avoid those movements where there is a greater impact. The movements particularly affected are the turn from Bracondale into King Street in the AM Peak and the entry on to the Martineau Lane Roundabout from Bracondale (N) in the PM Peak.

It is likely that the process of peak-spreading will continue in the future since the peakiness of the 2-hour peak periods in the morning (66%) and especially the evening (75%) suggest that there is considerable scope for further peak spreading.

In order to assess the effect of a change in driver behaviour, i.e., re-routeing, to avoid these pinch-points, a scenario with a different distribution of flows to and from the proposed development has also been considered. Rather than traffic being evenly split between Bracondale (N) and Martineau Lane at the Martineau Lane Roundabout, traffic has been assigned 75% to/from Martineau Lane and 25% to/from Bracondale (N). The Development flows associated with this alternative assignment are shown at Figure 10.2 and the outcome of the assessment of the impact of this scenario (Scenario 2) is set out below.

Figure 10.2: Total Net Predicted Flows for Scenario 2



10.2.3 Scenario 2

Martineau Lane/A146 Junction

The flows on the arms of the Martineau Lane/A146 Junction affected by the development traffic are shown in tables 10.16 and 10.17;

Table 10.16: AM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (66% of 2-hr flow)	%age increase
Martineau Lane (N)	1142	153	101	8.8
A146	2200	-1	-1	-
Martineau Lane (S)	1030	0	0	-

Table 10.17: PM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (75% of 2-hr flow)	%age increase
Martineau Lane (N)	1553	-9	-7	-0.1
A146	1191	114	86	7.2
Martineau Lane (S)	1174	32	24	2.0

From the above it can be seen that the Martineau Lane (N) arm in the AM Peak and the A146 arm in the PM Peak exceed the NCC criterion. The effect of these increases in flows can be considered in more detail by reviewing the outputs of the LinSig modelling. The results of the LinSig modelling are shown in Tables 10.18 and 10.19.

Table 10.18: Base and Proposed Development Results for Martineau Lane / A146 (AM Peak)

AM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Martineau Lane (N) Left	51.1	54.7	+3.6	58.0	61.6	+3.6
Martineau Lane (N) Ahead	80.4	87.7	+7.3	90.1	97.4	+7.3
A146 (E) Right Left	94.5	94.4	-0.1	105.4	103.7	-1.7
A146 (E) Right	90.4	90.4	0	104.4	105.8	+1.2
Martineau Lane (S) Ahead	65.4	65.4	0	70.7	70.7	0
Martineau Lane (S) Right	95.2	95.2	0	100.6	100.6	0

Table 10.19: Base and Proposed Development Results for Martineau Lane / A146 (PM Peak)

PM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Martineau Lane (N) Left	96.1	95.7	-0.4	111.2	110.9	-0.3
Martineau Lane (N) Ahead	61.2	67.5	+6.3	68.6	75.7	+7.1
A146 (E) Right Left	74.8	78.9	+4.1	84	87.7	+3.7
A146 (E) Right	61.5	67.3	+5.8	73.2	79.1	+5.9
Martineau Lane (S) Ahead	21.7	30.1	+8.4	29.9	33.0	+3.1
Martineau Lane (S) Right	96.7	96.7	0	112.4	112.4	0

In the AM Peak it can be seen that the increase in flow on the Martineau Lane (N) arm is accommodated without any significantly adverse impact on the Degrees of Saturation for the other arms of the junction, albeit by 2015 the junction is forecast to be at capacity in the Base situation. IN the PM situation, the arms which carry additional flows have considerable spare capacity.

Martineau Lane Roundabout

The flows on the main arms of the Martineau Lane Roundabout affected by the development traffic are shown in tables 10.20 and 10.21;

Table 10.20: AM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (66% of 2-hr flow)	%age increase
Bracondale (SE)	396	202	133	33.6
Martineau Lane	2002	151	100	5.0
Bracondale (N)	1264	-6	-4	-0.3

Table 10.21: PM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (75% of 2-hr flow)	%age increase
Bracondale (SE)	321	-33	-25	-7.8
Martineau Lane	1097	146	110	10.0
Bracondale (N)	1186	49	37	3.1

From the above it can be seen that flows entering the roundabout from Bracondale (SE) in the AM Peak and from Martineau Lane in the AM and PM Peak exceed the NCC criterion. The effect of these increases in flows can be considered in more detail by reviewing the outputs of the LinSig modelling. The results of the LinSig modelling are shown in Tables 10.22 and 10.23.

Table 10.22: Base and Proposed Development Results for Martineau Lane Roundabout (AM Peak)

AM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale North Ahead Left	90.5	90.7	+0.2	95.5	94.3	-1.2
Bracondale North Ahead	27.5	27.6	+0.1	28.8	28.5	-0.3
Northern Access Ahead Left	4.4	4.4	0	5.1	5.0	-0.1
Bracondale SE Left	17.9	30.6	+12.7	20.8	33.6	+12.8
Bracondale SE Ahead	41.2	45.7	+4.5	47.4	51.7	+4.3
Martineau Ln Ahead Left	96.6	97.6	+1.0	109.6	110.6	+1.0
Martineau Ln Ahead	100.2	101.0	+0.8	112.9	113.9	+1.0
County Hall Left	10.9	11.1	+0.2	12.6	12.7	+0.1
County Hall Ahead	10.7	10.8	+0.1	12.3	12.4	+0.1

The lanes with greater than a 5% increase are highlighted. As can be seen, the Degree of Saturation on the Bracondale (SE) arm increases however the Degree of Saturation for both lanes on this arm remain significantly below 90% indicating that there is considerable spare capacity on this arm in the AM Peak. There are small increases in the Degrees of Saturation on the lanes which are already at capacity in the base situation which is to be expected as even small changes in overall demand in the junction cannot be readily accommodated.

Table 10.23: Base and Proposed Development Results for Martineau Lane Roundabout (PM Peak)

PM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale North Ahead Left	102.2	109.5	+7.3	117.6	125.8	+8.2
Bracondale North Ahead	2.9	3.0	+0.1	3.3	3.5	+0.2
Northern Access Ahead Left	13.9	14.5	+0.6	16.0	16.7	+0.7
Bracondale SE Left	29.5	27.5	-2.0	32.9	30.7	-2.2
Bracondale SE Ahead	25.4	21.5	-3.9	28.2	24.1	-3.9
Martineau Ln Ahead Left	35.8	35.6	-0.2	40.6	40.4	-0.2
Martineau Ln Ahead	64.1	73.4	+9.3	72.7	82.0	+9.3
County Hall Left	35.2	37.0	+1.8	43.0	45.2	+2.2
County Hall Ahead	51.1	53.6	+2.5	62.6	65.9	+3.3

The lanes with a greater than a 5% increase are highlighted. As can be seen, the Degree of Saturation on the Bracondale (N) lane carrying vehicles away from the city centre in the PM Peak increases because there is more circulating traffic on the roundabout as a result of trips returning from the south to the proposed residential development. However, with the exception of this arm for which demand exceeds capacity in the Base situation, the Degrees of Saturation for all other lanes on this roundabout remain significantly below 90%.

Bracondale/King Street Junction

The flows on the arms of the Bracondale/King Street Junction affected by the development traffic are shown in tables 10.24 and 10.25;

Table 10.24: AM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (66% of 2-hr flow)	%age increase
Bracondale (W)	647	-12	-8	-0.1
King Street	1173	6	4	-0.3
Bracondale (E)	1736	51	34	2.0

Table 10.25: PM Peak

Arm	2010 Network Flow (pcu/hr)	Devt Flow (over 2 hrs)	Peak Hourly Flow (75% of 2-hr flow)	%age increase
Bracondale (W)	682	25	19	2.8
King Street	1030	24	18	1.7
Bracondale (E)	1305	-25	-19	-1.5

From the above it can be seen that none of the flows entering the roundabout in either the AM or PM Peak exceed the NCC criterion. Notwithstanding the low increase in flows, the detailed effect of changes in flow are shown in the outputs of the LinSig modelling. The results of the LinSig modelling are shown in Tables 10.26 and 10.27.

Table 10.26: Base and Proposed Development Results for Martineau Lane Roundabout (AM Peak)

AM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale (W) Left	60.9	60.9	0	62.7	65.3	+2.6
Bracondale (W) Ahead	102.4	100.7	-1.7	105.5	107.7	+2.2
King St Right/Left	102.6	102.6	0	108.8	108.8	0
Bracondale (E) Ahead	57.1	57.6	+0.5	59.8	59.8	0
Bracondale (E) Right	101.7	103.3	+1.6	108.5	108.8	+0.3

Table 10.27: Base and Proposed Development Results for Martineau Lane Roundabout (PM Peak)

PM Peak	Degree of Saturation (%)					
	2010			2015		
	Base	Base + Dev	Change	Base	Base + Dev	Change
Bracondale (W) Left	71.8	69.2	-2.6	80.9	77.9	-3.0
Bracondale (W) Ahead	81.5	82.3	+0.8	92.2	92.6	+0.4
King St Right/Left	80.7	81.3	+0.6	91.2	91.4	+0.2
Bracondale (E) Ahead	32.5	32.3	-0.2	36.4	36.2	-0.2
Bracondale (E) Right	83.8	83.7	-0.1	94.1	94.2	+0.1

There are no lanes with a greater than 5% increase although, as can be seen, this junction is already operating at capacity and the introduction of a small amount of additional traffic can only partly be accommodated. In practical terms this means that the limit of throughput in the peak hour at the junction has been reached and accordingly flows adjust to extend the peak hour in order to achieve the desired overall throughput. Rather than extending journey times, drivers tend to re-time their journeys to take advantage of the greater capacity available on the 'shoulders' of the peak hour in the base situation.

For each case the LinSig models were optimised for Practical Reserve Capacity (PRC) to offer the fairest representation of each situation. Table 10.28 summarises the PRC for each of the critical junctions and Table 10.29 compares the PRC found in the base situation with the base plus proposed development situation.

Table 10.28: Scenario 2: Practical Reserve Capacity Results for 2010 and 2015

	Practical Reserve Capacity (PRC)							
	2010				2015			
	Base		Base + Dev		Base		Base + Dev	
	AM	PM	AM	PM	AM	PM	AM	PM
Martineau Lane / A146	-5.7 %	-7.4 %	-5.7 %	-7.4 %	-17.1 %	-24.9 %	-17.5 %	-24.9 %
King Street / Bracondale	-14.0 %	7.4 %	-14.8 %	7.6 %	-21.0 %	-4.6 %	-20.9 %	-4.7 %
Bracondale Roundabout	-11.3 %	-13.5 %	-12.3 %	-21.7 %	-25.5 %	-30.7 %	-26.5 %	-39.8 %

Table 10.29: Scenario 2: Practical Reserve Capacity Comparison

	PRC Difference between Base and Base + Dev			
	2010		2015	
	AM	PM	AM	PM
Martineau Lane / A146	0	0	- 0.4	0
King Street / Bracondale	- 0.8	+ 0.2	+ 0.1	- 0.1
Bracondale Roundabout	- 1.0	- 8.2	- 1.0	- 9.1

By comparison with the PRC changes resulting from Scenario 1, it can be derived from the above that some benefits will accrue should drivers adapt their behaviour to re-route away from the busiest parts of the network. It is however likely that there would be greater advantage from re-timing journeys to avoid the peak hours which dominate the morning and evening peak periods (66% and 75% of peak 2-hour flow respectively).

The situation on the surrounding road network has previously been acknowledged in the Inspector's Decision on the proposal for a business park on the southern part of the Deal Ground Site as unstable in that it is likely to lead to some congestion, but not so unstable as to not allow the Appeal. The analysis presented in connection with the proposed business park showed the changes in PRC at each of the principal junctions, reproduced here at Table 10.30. The slight differences in the PRC figures for the Base situations are because of the differing treatment of the existing traffic using the May Gurney headquarters in the two assessments.

Table 10.30: Committed Development: Practical Reserve Capacity Results for 2010 and 2015

	Practical Reserve Capacity (PRC)							
	2010				2015			
	Base		Base + Dev		Base		Base + Dev	
	AM	PM	AM	PM	AM	PM	AM	PM
Martineau Lane / A146	-5.7 %	-7.4 %	-6.8 %	-7.5 %	-17.0 %	-24.9 %	-18.3 %	-24.9 %
King Street / Bracondale	-14.0 %	7.4 %	-12.4 %	4.0 %	-20.9 %	-5.1 %	-20.7 %	-7.9 %
Bracondale Roundabout	-11.3 %	-13.5 %	-17.0 %	-13.5 %	-26.3 %	-30.8 %	-32.2 %	-30.8 %

Table 10.31: Committed Development: Practical Reserve Capacity Comparison

	PRC Difference between Base and Base + Dev			
	2010		2015	
	AM	PM	AM	PM
Martineau Lane / A146	- 1.1	- 0.1	- 1.3	0
King Street / Bracondale	+ 1.6	- 3.4	+ 0.2	- 2.8
Bracondale Roundabout	- 5.7	0	- 5.9	0

Comparing the results above with those for Scenario 1 and Scenario 2 it can be seen that whereas the committed development would give rise to a more noticeable difference in performance in the AM Peak, either of the two scenarios for the proposed development would give rise to a more noticeable difference in performance in the PM peak.

The change in the peak hour performance between the Base and the Base plus Development was considered acceptable when granting consent for the renewal application for the Committed Development. There is only a small difference in the change in peak hour performance between the Base and the Base plus Development for the Proposed Development. On the above basis it is clear that, as was the case at the time of the Appeal and subsequent renewal of the planning consent, there is no evidence to suggest that impact over the already permitted business park development would be so great that it would warrant refusing consent for the proposed development.

Taking into account the committed development, it may be noted that the net increases in two-way traffic on the surrounding road network reflect the very small differences in the impact of the committed and proposed developments. The net changes in two-way traffic flow along The Street/Bracondale (SE) west of the proposed development are;

AM Peak = 18 vph

PM Peak = 48 vph

It follows from the above that the significance thresholds for adverse environmental effects from generated traffic as a result of substituting the Proposed Development for the Committed Development are most unlikely to be reached and accordingly qualitative rather than quantitative assessment is appropriate.

11 Summary and Conclusions

Contemporary Transport™ has consulted with NCC in detail to ensure that this transport assessment meets all requirements as specified and that technical analysis was undertaken in line with specific NCC requirements.

This TA highlights the potential for local traffic behaviour modification and the opportunity to manage and to further influence site-related transport impacts through the transport strategy and travel plan.

The impact analysis consequently demonstrates that the change between the without and with development scenarios for the proposed development is only marginally significant and even less so taking into account the effect of the committed development that would be replaced by the proposed development. Furthermore, any change can be accommodated by peak spreading.

Accordingly there is no evidence to suggest that impact over the already permitted development would be so great that it would warrant refusing consent. This finding is in line with the Inspector's reasoning and conclusion in connection with the business park proposal for the southern part of the Deal Ground site for which consent is granted.

It should be noted that the Temprow traffic growth rate factor has been applied in addition to development traffic, as requested by NCC. This factor incorporates consideration of allocated development and assumes growth in traffic of over 12% over the next 5 years to 2015. The appropriateness of the growth factor should be considered in relation to the continued uncertainty over the deliverability of the joint core strategy and the influence of the current economic recession on traffic growth.

The functioning of the local highway network is significantly influenced by the travel demands of nearby large local employers. For example, during the morning commute period 07:30 to 09:30 16% of cars travelling through the Martineau Lane roundabout were recorded entering County Hall. This major employer also generates trips in other directions through the junction as staff park cars off-site due to insufficient on-site parking capacity. Through the implementation of an effective travel plan strategy, Norfolk County Council has the potential to significantly improve the operational capacity of the Martineau Lane roundabout. Providing assistance with the trip reduction strategies of nearby major trip generators through a Transport Management Association to provide capacity for more sustainable developments is an approach advocated by the Highways Agency in its Influencing Travel Behaviour programme. Against this backdrop it is evident that the implementation of an effective TMA to

coordinate the effectiveness of workplace travel plans as part of an area-wide sustainable transport strategy has the potential to deliver significant network benefits.

12 Appendices

Annex A: Detailed Walking Route Assessment

Note: All distances are calculated from the centre point of the site.

Routes to Public Transport Facilities				
Route	To	Available Services	Route Assessment	Junctions Identified
1	May Gurney Eastbound Bus Stop (request only) Distance: 0.5km	Anglian 587 Anglian 588	The MG bus stop is located 50m to the west of the site entrance. The stop is located on the north side of The Street. <ul style="list-style-type: none"> Exit via site entrance and walk 50m west on The Street, adequate pavement facilities provided on northern side of The Street. This stop is a request only for passengers travelling away from Norwich city centre. There is currently no westbound bus stop for passengers travelling towards Norwich city centre. These passengers must use the Trowse Primary bus stop (see Route 2) A junction at the site entrance could include provision of a pedestrian crossing on The Street to give access to a new bus stop located opposite the existing stop The new bus stop would provide residents with a convenient link to Norwich city centre 	None
2	Trowse Primary School Northwest Bound Bus Stop Distance: 0.7km	Anglian 587 Anglian 588	The Trowse Primary bus stop is located on the west side of Trowse Village. <ul style="list-style-type: none"> Exit via site entrance and walk southeast on The Street, adequate pavement facilities are provided on the north side of The Street all the way into Trowse After 100m cross Whitlingham Lane using the drop curb facilities provided, this is a quiet country lane which experiences low volumes of traffic Proceed for 100m then cross The Street to the Trowse Primary bus stop, 20mph speed limit through Trowse and peak hour restriction allow safe crossing 	None
3	Bracondale Northwest Bound Bus Stop Distance: 1km	Anglian 587 Anglian 588 First X2 NCC 100	The Bracondale Bus stop is located to the northwest of the site. <ul style="list-style-type: none"> Exit site and walk northwest on The Street, adequate pavement provided On Rail Bridge cross Lafarge site entrance. No drop curb is provided After 300m cross small junction where no drop curb facilities currently provided Cross the north side of the Martineau Lane roundabout passing Unilever site entrance, security gates slow all vehicles entering the site and therefore allow safe crossing On the northwest side of the roundabout cross Bracondale, drop curbs and island crossing facilities are provided. The bus stop is located 100m northwest of the roundabout on Bracondale, adequate pavement facilities provided. 	Lafarge site entrance, Old Pineapple Pub site entrance
4	Martineau Lane	Anglian 570	The Martineau Lane bus stop is located 100m southwest of the Martineau	Europa Way

	South Bound Bus Stop Distance: 1km	First X2	Lane Roundabout. <ul style="list-style-type: none">Exit site entrance and walk along The Street and cross.After 300m cross Europa Way, this is a no entry road which generates a low volume of traffic. Drop curb facilities are provided, however the section of the pavement that pedestrians must rejoin after crossing is a narrow shared walking/cycle path, pedestrians using this route should be wary of oncoming bicyclesAt Martineau Lane roundabout (MLR) proceed southwest on Martineau Lane using one of two options, either roadside pavement or a shared cycle path separated from the roadThe bus stop is located 100m along Martineau Lane	and The Street
5	Cremorne Lane West Bound Bus Stop Distance: 1km	Anglian A47/X47 Anglian 123 First 12/12a/12b First 17/17a First 25/35	The Cremorne Lane bus stop is located on Thorpe Road which is to the north of the site. The Wensum bridge crossing and subsequent development of the Utilities site will enable access to Cremorne Lane via a pedestrian friendly environment. <ul style="list-style-type: none">Use pedestrian/cycle bridge to gain access to Utilities site, proceed across site to northern border and cross the railway line to access Cremorne LaneProceed north on Cremorne Lane for 200m to reach Thorpe Road, the bus stop is located at the end of Cremorne Lane	None
6	Cremorne Lane East Bound Bus Stop Distance: 1.1km	Anglian A47/X47 Anglian 123 First 12/12a/12b First 17/17a First 25/35	The Cremorne Lane east bound bus stop is located on Thorpe Road which is to the north of the site. Access Cremorne Lane via a pedestrian friendly environment through the Utilities site. <ul style="list-style-type: none">Follow Route 5 to Cremorne Lane Bus StopTurn east on Thorpe Road and proceed for 80m, adequate pavement providedCross Thorpe Road using the traffic light controlled pedestrian crossingThe Cremorne Lane east bound bus stop is located just west of the crossing	None
7	Possible NCFC West Bound Bus Stop Distance: 0.85km	Extended First 25	The NCFC bus stop would be located close to the clubs stadium which is located to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum pedestrians will be able to use this route to reach the new bus stop. <ul style="list-style-type: none">Cross the new footbridge over the river Wensum to access the extended riverside towpathFollow the riverside towpath for 400m in a westerly directionTurn north and use a new footpath to access the NCFC bus stop 25m from the water at its planned location	None
8	Norwich Rail Station Distance: 1.85km	East Midlands Trains and Numerous Other Services	Norwich Rail Station is located 1km as the crow flies to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum, pedestrians will be able to use this route to reach the rail station. <ul style="list-style-type: none">Gain access to the extended riverside towpath via the new footbridge and proceed in a westerly directionAfter 600m cross Carrow Road, drop curb and central island facilities providedPart of the NCFC development Section 106 agreement includes	Carrow Road north of Carrow Bridge

			<p>a pedestrian crossing at this location, such facilities would make this crossing safer</p> <ul style="list-style-type: none"> • Rejoin the riverside towpath and follow for 800m before reaching Foundry Bridge • Before the bridge exit the riverside walk onto Riverside Road, and immediately cross using the traffic light controlled crossing facilities • The rail station entrance is located less than 50m to the east of Riverside Road • This traffic free route is slightly longer than Route 8A, however it should take the average pedestrian around less than 15 mins to complete and is a more attractive option than the use of congested roads 	
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Routes to Local Shops				
Route	To	Facilities	Assessment	Junctions Identified
1	Trowse Village Distance: 0.7km	Village Store, Budgens Food Retailer, Local Pub /Restaurant	<p>Trowse village is located to the southeast of the site.</p> <ul style="list-style-type: none"> • Exit site and walk southeast on The Street, adequate pavement facilities are provided on the north side of The Street all the way into Trowse Village • After 100m cross Whitlingham Lane using the drop curb facilities provided • Proceed for 100m to reach Trowse village and the local shops 	None
2	Lakenham Shops, Queens Road Distance: 1.8km	Butchers, Baker, Express Store, Post Office, Chinese/Indian/Vietnamese/USA Takeaways, Hair Dressers, Hair and Beauty, Laundry and Dry Cleaning, Clothes Shop, Charity Shop, Local Pubs, Bars and Sainsbury's 300m west on Queens	<p>Lakenham is located to the west of the site and offers a wide range of services.</p> <ul style="list-style-type: none"> • Exit site and walk northwest on The Street (see previous section for audit of route to Martineau Lane roundabout). • Re-join Bracondale and continue northwest towards Lakenham • After 200m cross King Street using the traffic light controlled crossing facilities provided • Proceed along the north side of Bracondale • After 200m cross 3 lightly trafficked cul-de-sac junctions • After 450m from King Street cross Carrow Hill, this is a one way road that exits onto Bracondale. Drop curb facilities exist at this crossing. • After 100m cross Ber Street using the drop curb and central island facilities. • The local shops at Lakenham begin just after the Ber Street crossing. 	Lafarge site entrance, Old Pineapple Pub site entrance

		Road		
3	Riverside Shopping Centre Distance: 1.4km	Supermarket, Petrol Station, Sports Store, Pharmacy, Digital Outlet, Home Ware, Coffee Shop, Restaurants, Bars, Take Away Food, Hotels	The Riverside Shopping Centre is a modern development providing a wide range of services, located to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum pedestrians will be able to use this route to reach the Riverside shopping centre. <ul style="list-style-type: none"> Gain access to the extended riverside towpath via the new footbridge and proceed in a westerly direction After 600m cross Carrow Road, drop curb and central island facilities provided Rejoin the riverside towpath, and after 200m would turn right at the Novisad Bridge Proceed northeast across the traffic calmed Wherry Way onto Albion Way, this road is also traffic calmed and pedestrian friendly After 100m arrive at the south-western end of the Riverside shopping centre 	Carrow Road north of Carrow Bridge

Routes to Leisure Facilities			
Route	To	Assessment	Junctions Identified
1	Trowse Boat Club Distance: Less than 0.5km	The Trowse boat club is located immediately to the northeast of the site. New residents who enjoy sailing will have direct access to the boating facilities offered by the club. <ul style="list-style-type: none"> Use the pedestrian friendly environment provided throughout the development to access the boat club 	None
2	Norfolk Ski Club Distance: 1km	The Norwich dry ski slope is very close to the southern end of site. <ul style="list-style-type: none"> Exit site entrance and walk southeast on The Street, adequate pavement provided After 100m pedestrians would turn east on Whitlingham Lane, continue for 300m using the ample pavement facilities provided Cross Whitlingham Lane to reach the dry ski centre, this is a quiet country lane which is considered safe to cross 	None
3	Whitlingham Country Park Distance: 1.6km	Whitlingham Country park is also located within close proximity of the site and offers desirable leisure facilities for people of all ages. <ul style="list-style-type: none"> Follow Route 3 to Norfolk Ski Club, continue along Whitlingham Lane using the adequate pavement facilities provided The country park begins around 300m beyond the dry ski slope on Whitlingham Lane 	None
4	Lakenham Sports and Leisure Centre Distance: 1.8km	The Lakenham sports centre is located to the west of the site, and provides a cricket ground as well as tennis courts and other sporting facilities. <ul style="list-style-type: none"> See previous sections for audit of route After 500m turn southwest onto Corton Road and follow for 150m, then turn left again and continue south on Carshalton Road After a further 100m the route reaches the Lakenham sports centre 	Lafarge site entrance, Old Pineapple Pub site entrance
5	Norwich City Football Club Distance:	The NCFC stadium is located to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum pedestrians will be able to use this route to reach the NCFC stadium. <ul style="list-style-type: none"> Cross the new footbridge over the river Wensum to access the extended 	None

	0.9km	<p>riverside towpath</p> <ul style="list-style-type: none"> Follow the riverside towpath for 400m in a westerly direction 	
6	<p>Riverside Swimming Centre and Gym</p> <p>Distance: 1.1km</p>	<p>The Riverside Swimming Centre is located close to the riverside shopping centre to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum pedestrians will be able to use this route to reach the Riverside Swimming Centre and Gym.</p> <ul style="list-style-type: none"> Gain access to the extended riverside towpath via the new footbridge and proceed in a westerly direction After 600m cross Carrow Road, drop curb and central island facilities provided Part of the NCFC development Section 106 agreement includes a signal controlled crossing at this location Once across Carrow Road follow the northern pavement in a north-easterly direction After 20m turn west on Wherry Way and arrive at the Riverside Swimming Centre and Gym 	<p>Carrow Road north of Carrow Bridge</p>
7	<p>All Weather Playing Field</p> <p>Distance: 0.7km</p>	<p>An all weather playing field is located just to the north of the site.</p> <ul style="list-style-type: none"> Cross the new footbridge over the river Wensum to access Hardy Road and proceed in a westerly direction Follow Hardy Road for 300m then turn east onto Kerrison Road, both are quiet residential roads which are considered safe to cross The All Weather Playing field can be accessed from Kerrison Road 	<p>None</p>

Routes to Industrial Areas			
Route	To	Assessment	Junctions Identified
1	<p>Europa Way</p> <p>Distance: 0.9km</p>	<p>Europa Way is currently home to several employers including Ben Burgess & Co (local John Deere Dealer) and Travis Perkins among others.</p> <ul style="list-style-type: none"> See previous audit The pavement on Europa Way does not extend to Bracondale, but falls 15m short, this pavement extension could be extended with relative ease 	<p>Bracondale and Europa Way</p>
2	<p>Norfolk County Hall</p> <p>Distance: 1km</p>	<p>NCC is a major local employer within Norwich and county hall is located close to the site making the new development potentially attractive to NCC workers.</p> <ul style="list-style-type: none"> See previous audit Once across Martineau Lane pedestrians would arrive at County Hall entrance 	<p>Bracondale and Europa Way</p>
3	<p>Unilever</p> <p>Distance: 1km</p>	<p>Unilever is another major employer in Norwich with a site located in very close proximity to the west of the site.</p> <ul style="list-style-type: none"> Exit site and walk northwest on The Street, adequate pavement provided On Rail Bridge cross Lafarge site entrance, low vehicular use makes crossing safe. No drop curb is provided on west side of crossing, this may have changed since Google Street View surveys were carried out After 300m cross small junction providing access to two sites, one of which could be a future fire station. No drop curb facilities are currently provided After a further 200m arrive at the north side of the MLR and the Unilever site entrance 	<p>Lafarge site entrance, Old Pineapple Pub site entrance</p>
4	<p>Riverside Shopping Centre</p> <p>Distance: 1.4km</p>	<p>The Riverside Shopping centre is a modern development offering a wide range of services and is located to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum pedestrians will be able to use this route to reach the Riverside shopping centre.</p> <ul style="list-style-type: none"> Gain access to the extended riverside towpath via the new footbridge and 	<p>Carrow Road north of Carrow Bridge</p>

		<p>proceed in a westerly direction</p> <ul style="list-style-type: none"> • After 600m cross Carrow Road, drop curb and central island facilities provided • Part of the NCFC development Section 106 agreement includes a signal controlled crossing at this location, such facilities would make this crossing notably safer • Rejoin the riverside towpath, and after 200m would turn right at the junction with Novisad Bridge • Proceed northeast across the traffic calmed Wherry Way onto Albion Way, this road is also traffic calmed and pedestrian friendly <p>After 100m arrive at the south-western end of the Riverside shopping centre</p>	
5	<p>ATB Lawrence Scott, and Norwich Rail Station Yard</p> <p>Distance: 0.5km</p>	<p>The industrial area to the north of the site across the river Wensum is occupied by several different employers.</p> <ul style="list-style-type: none"> • Cross the new footbridge at the northern end of the site • Join Hardy Road, from here the rail yard and Lawrence and Scott Electrical can be accessed directly 	None

Routes from Surrounding Catchment			
Route	From	Assessment	Junctions Identified
1	<p>Trowse Village</p> <p>Distance: 0.8km</p>	<p>Trowse Village is located close to the southern end of the site, the new development is likely to act as a trip attractor to residents of the village.</p> <ul style="list-style-type: none"> • Northwest out of Trowse on The Street, pavement provided on northern side • After 100m cross Whitlingham Lane, low volume of traffic and drop curb facilities allow safe crossing • Further 50m on The Street to May Gurney site entrance, pavement provided on northern side 	None
2	<p>Residential Area at Old Lakenham</p> <p>Distance: 1.8km</p>	<p>The Old Lakenham area is located around 2km to the southwest of the sites.</p> <ul style="list-style-type: none"> • North on Barrett Road to merge with Martineau Lane near A146 junction, pavement provided on both sides of both roads • Possible crossing of Long John Hill, traffic light controlled crossing provided • Northern side of Martineau Lane crosses Thrifty Car Rental entrance and exit, low usage and drop curbs allow safe crossing, continue 500m to Martineau Lane roundabout (MLR) • Southern side of Martineau Lane crosses A146 using traffic light controlled crossing to join shared pedestrian bike pavement, after 200m cross BP entrance and exit, drop curbs and low usage make crossing safe, continue 300m to MLR • At MLR cross to southern side of Martineau Lane using drop curb and central island facilities, busy junction • At MLR turn southeast onto The Street, cross Europa Way, low usage and drop curbs make crossing safe • Continue southeast on southern side of The Street for 300m, pavement provided • Cross to northern pavement, crossing safe due to low volume of traffic • Further 50m is May Gurney site entrance 	Bracondale and Europa Way
3	<p>Residential Area at Lakenham</p> <p>Distance: 1.8km</p>	<p>Lakenham is a residential area located to the west of the site.</p> <ul style="list-style-type: none"> • Southeast on southern side of Bracondale, no busy junctions to cross and pavement provided • After 300/500m cross Bracondale on north side of MLR, drop curbs and central island provided but busy junction to cross 	Lafarge site entrance, Old Pineapple Pub site

		<ul style="list-style-type: none"> Join The Street and follow southeast on southern side, pavement provided and only have to cross future fire station entrance After 400m reach the may Gurney site entrance 	entrance
4	Residential Area at Carrow Distance: 1.3km	<p>The Carrow Area is located close the river front to the west of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum this route will be available to Carrow residents.</p> <ul style="list-style-type: none"> Cross the Novisad Bridge and head southeast on riverside towpath After 150m cross Carrow Road, drop curbs and central island provided Continue on towpath for 600m where route meets the footbridge 	Lafarge site entrance, Old Pineapple Pub site entrance, Carrow Road north of Carrow Bridge
5	Area North of the Rail Station Distance: 1.9km	<p>The residential area to the north of the rail station is within 2km of the site. Once the riverside towpath has been extended to reach the new footbridge over the river Wensum this route will be available to residents living to the north of the rail station.</p> <ul style="list-style-type: none"> Use Thorpe Road or Riverside Road to access the rail station, cross traffic light controlled crossing to Westside of Riverside Road Join riverside towpath, follow for 600m then cross Carrow Road, drop curbs and central island provided Continue on towpath for 600m where route meets the footbridge 	Carrow Road north of Carrow Bridge
6	Thorpe St Andrews Distance: 1.1km	<p>Thorpe St Andrews is a residential area located directly to the north of the site. Once the Utilities site has been redeveloped the residents of Thorpe St Andrew will be able to walk through the site to access the site. The redevelopment of the Utilities site is expected to provide a pedestrian friendly traffic calmed environment.</p> <ul style="list-style-type: none"> Access Thorpe Road and cross to southern pavement using either traffic light controlled crossing or island crossing. Proceed on southern side of Thorpe Road to Cremorne Lane, pavement provided. Follows Cremorne Lane for around 200m to the south, pavement provided. At end of Cremorne Lane cross rail line to Utilities Site. Walk 400m through Utilities pedestrian friendly environment to the new footbridge. 	None

Routes from Public Transport Facilities				
Route	From	Services	Assessment	Junctions Identified
1	May Gurney East Bound Bus Stop (request only) Distance: 0.5km	Anglian 587 Anglian 588	<p>The May Gurney bus stop is located on the north side of The Street around 50m west of the current site entrance.</p> <ul style="list-style-type: none"> Disembark and walk 50m east on northern side of The Street, pavement facilities provided Enter site entrance 	None
2	Trowse Primary School West Bound Bus Stop Distance: 0.7km	Anglian 587 Anglian 588	<p>The Trowse Primary bus stop is located on the west side of the village of Trowse.</p> <ul style="list-style-type: none"> Disembark and cross to northern side of The Street, 20mph speed limit and peak hour restrictions allow safe crossing. Proceed 100m to northwest, pavement facilities provided on northern side of The Street from Trowse to May Gurney 	None

			<ul style="list-style-type: none"> • Cross Whittingham Lane, drop curb facilities and low volumes of traffic allow safe crossing • Continue 50m to site entrance 	
3	Bracondale West Bound Bus Stop Distance: 1km	Anglian 587 Anglian 588 First X2 NCC 100	<p>The Bracondale Bus stop is located to the west of the site.</p> <ul style="list-style-type: none"> • Disembark and proceed 100m to the southeast on Bracondale, pavement facilities provided • Cross Bracondale on northwest side of Martineau Lane roundabout (MLR), drop curbs and central island facilities provided but due to high volumes of traffic pedestrians should cross with caution • Cross north side of MLR, pass Unilever site entrance not considered hazardous due to security gate • Join The Street and follow southeast, after 50m cross small junction not currently generate a high volume of traffic • Continue 100m on northern side of The Street to site entrance, pavement facilities provided 	Lafarge site entrance, Old Pineapple Pub site entrance
4	Martineau Lane South Bound Bus Stop Distance: 1km	Anglian 570 First X2	<p>The Martineau Lane bus stop is located 100m southwest of the Martineau Lane roundabout (MLR).</p> <ul style="list-style-type: none"> • Disembark and proceed northeast on Martineau Lane, using either pavement or shared pedestrian/cycle path separated from road • After 100m turn right at MLR and continue southeast on The Street • Cross Europa Way exit, low volume of traffic and drop curbs allow safe crossing, pedestrians must be wary of oncoming bicycles • Continue on southern side of The Street in a south-easterly direction, pavement provided • After around 300m cross to north side of The Street at May Gurney bus stop • Continue 50m to site entrance, adequate pavement provided 	Bracondale and Europa Way
5	Cremorne Lane West Bound Bus Stop Distance: 1km	Anglian A47/X47 Anglian 123 First 12/12a/12b First 17/17a First 25/35	<p>The Cremorne Lane bus stop is located on Thorpe Road which is to the north of the site. Once the Utilities site has been redeveloped pedestrians will be able to walk through the site, this is expected to be a pedestrian friendly traffic calmed environment.</p> <ul style="list-style-type: none"> • Disembark at Cremorne Lane bus stop located 300m east of Barton Way bus stop • Exit Thorpe Road and proceed 200m south on Cremorne Lane, adequate pavement provided • Cross rail line to Utilities site, continue 400m through newly created pedestrian friendly environment • Cross the new footbridge to site 	None
6	Cremorne Lane East Bound Bus Stop Distance: 1.1km	Anglian A47/X47 Anglian 123 First 12/12a/12b First 17/17a First 25/35	<p>The Cremorne Lane east bound bus stop is located on Thorpe Road which is to the north of the site. Once the Utilities site has been redeveloped pedestrians will be able to use a newly provided route to cross the site for access to the site.</p> <ul style="list-style-type: none"> • Disembark and cross Thorpe Road using traffic light controlled pedestrian crossing • Proceed west for 80m on southern side of Thorpe Road, 	None

			<p>pavement facilities provided</p> <ul style="list-style-type: none"> Join Route 5 to access the site via Cremorne Lane and Utilities site 	
7	<p>Possible NCFC Bus Stop</p> <p>Distance: 0.85km</p>	<p>Extended First 25</p>	<p>The potential NCFC bus stop would be located close to the Norwich City Football Club (NCFC) which is located to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the Wensum pedestrians will be able to use this route to reach the site from the new NCFC bus stop.</p> <ul style="list-style-type: none"> Disembark and follow new footpath 25m south to access the riverside towpath Follow the towpath 400m east to access new footbridge Cross the footbridge to site 	None
8	<p>Norwich Rail Station</p> <p>Distance: 1.85km</p>	<p>East Midlands Trains and Others</p>	<p>Norwich Rail Station is located 1km as the crow flies to the northwest of the site. Once the riverside towpath has been extended to reach the new footbridge over the Wensum pedestrians will be able to use this route to reach the site from the new rail station via an attractive pedestrian friendly route.</p> <ul style="list-style-type: none"> Exit the rail station to the west and cross Riverside Road using traffic light controlled crossing Proceed south on the towpath for 600m before reaching Carrow Road, cross using drop curb and central island facilities provided Part of the NCFC development Section 106 agreement includes a signal controlled crossing at this location, such facilities would make this crossing notably safer Rejoin riverside towpath and proceed 600m to new footbridge for access to the site This is a pleasant traffic free 1.5 km route which should take less than 15 minutes 	<p>Carrow Road north of Carrow Bridge</p>

Annex B: Detailed Public Transport Route Assessment

All assessments were carried out using Transport Direct (www.transportdirect.info). The installation of a Norwich City Football Club (NCFC) bus stop would improve public transport links to and from the site. However as the NCFC bus stop is not yet in existence it has not been included in the following assessment.

Key to Bus Stops:

- NSS* – Norwich St Stephens
- NBS* – Norwich Bus Station
- NCM* - Norwich Castle Meadow

Table A1: Route 1 - Broadland Business Park

Travelling From	Travelling To	Leave	Arrive	Duration (mins)	Changes	Services Used	
						Leg 1	Leg 2
SITE (South Side)	Postwick Business Park	08:10	08:49	39 (10 min walk)	1 (NSS*)	Anglian 587	First 17
Postwick Business Park	SITE (South Side)	17:13	17:46	33 (10 min walk)	1 (NBS* -NSS*)	Norse 605	Anglian 588
SITE (North Side)	Postwick Business Park	08:35	08:49	14 (2 min walk)	0	First 17	
Postwick Business Park	SITE (North Side)	17:04	17:17	13 (2 min walk)	0	First 17	

Table A2: Route 2 - To and From Norwich Airport Industrial Estate

Travelling From	Travelling To	Leave	Arrive	Duration (mins)	Changes	Services Used	
						Leg 1	Leg 2
SITE (South Side)	Norwich Airport Industrial Estate	07:30	08:13	43 (11 min walk)	1 (NSS*)	Anglian 587	Sanders Coaches 44
Norwich Airport Industrial Estate	SITE (South Side)	17:12	18:00	48 (17 min walk)	1 (NBS*, NSS*)	Norse 603	Anglian 587
SITE (North Side)	Norwich Airport Industrial Estate	07:33	08:13	40 (8 min walk)	1 (NCM*)	Anglian 123	Sanders Coaches 44
Norwich Airport Industrial Estate	SITE (North Side)	17:12	17:51	39 (14 min walk)	1 (NCM*)	Norse 603	First 12a

Table A3: Route 3 - To and From Norwich and Norfolk University Hospital

Travelling From	Travelling To	Leave	Arrive	Duration (mins)	Changes	Services Used	
						Leg 1	Leg 2
SITE (South Side)	NNUH	8:03	8:40	37 (10 min walk)	1 (NSS*)	Anglian 588	First 24
NNUH	SITE (South Side)	17:13	17:46	33 (10 min walk)	1 (NSS*)	Konectbus 3	Anglian 588
SITE (North Side)	NNUH	8:15	8:46	31 (2 min walk)	0	First 12	
NNUH	SITE (North Side)	17:24	17:51	27 (2 min walk)	0	First 12a	

Table A4: Route 4 - To and From the University of East Anglia

Travelling From	Travelling To	Leave	Arrive	Duration (mins)	Changes	Services Used	
						Leg 1	Leg 2
SITE (South Side)	UEA	8:17	8:50	33 (10 min walk)	1 (NSS*)	Anglian 588	First 25
UEA	SITE (South Side)	17:09	17:45	36 (7 min walk)	1 (NSS*)	First 25	Anglian 587
SITE (North Side)	UEA	8:13	8:50	37 (11 min walk)	1 (NSS*)	First 12	First 25
UEA	SITE (North Side)	17:09	17:46	37 (10 min walk)	0	First 35	

Table A5: Route 5 - To and From Norwich Business Park

Travelling From	Travelling To	Leave	Arrive	Duration (mins)	Changes	Services Used	
						Leg 1	Leg 2
SITE (South Side)	Norwich Business Park	08:23	08:47	24 (10 min walk)	1 (NSS*)	Anglian 588	First 17a
Norwich Business Park	SITE (South Side)	17:02	17:30	28 (15 min walk)	1 (NBS*, NSS*)	First 602	Anglian 587
SITE (North Side)	Norwich Business Park	08:26	08:47	21 (2 min walk)	0	First 17a	
Norwich Business Park	SITE (North Side)	17:01	17:22	21 (2 min walk)	0	First 17	

Annex C: Detailed Cycle Route Assessment

Note: All distances are calculated from the centre point of the site.

Routes to Adjacent Residential Areas				
Route	To	Distance	Route Assessment	Junctions Identified
1	Trowse Village	0.8km	<ul style="list-style-type: none"> Exit via site entrance and cycle 300m southeast on The Street, no cycle facilities however 20mph speed limit creates a safe cycling environment. 	None
2	Residential Area at Old Lakenham	1.8km	<ul style="list-style-type: none"> Exit site entrance and follow The Street west to the Martineau Lane roundabout, this is part of National Route 1 (NR1) and although on road is considered safe. At the roundabout join Martineau Lane and use off road shared pedestrian/cycle facility to continue west for 500m, cross junctions using drop curb facilities. At Martineau Lane/Trowse By-Pass junction cross using traffic light facilities then rejoin Martineau Lane. Continue on road, this narrows to one lane and becomes Barrett Road, 30mph limit makes route safe for cyclists. Cross Barrett Road using unmarked crossing to access Arnold Miller Road and access Old Lakenham via quiet route. 	None
3	Residential Area at Lakenham	1.8km	<ul style="list-style-type: none"> Follow Route 2 to Martineau Lane Roundabout. At roundabout follow the NR1 across Bracondale and continue off road around northern side of roundabout. Continue northwest on shared pedestrian/cycle facility on northern side of Bracondale Road. After 200 meters use traffic light controlled crossing to cross King Street, then immediately cross to southern side of Bracondale. Continue northwest on road for 300m before arriving at Lakenham, road is narrow and uphill on this stretch as well as being shared with local buses. 	Bracondale Road beyond King Street junction
4	Residential Area at Carrow	1.8km	<ul style="list-style-type: none"> Cross new pedestrian/cycle bridge over river Wensum at the north end of the site. Join extended riverside towpath and continue west for 600m to carrow Road. Cross Carrow Road using central island facility and rejoin riverside towpath. After 200m reach the Novisad Bridge, cross to arrive in the Carrow residential area. 	Carrow Road north of Carrow Bridge
5	Residential Area North of Rail Station	1.9km	<ul style="list-style-type: none"> Follow Route 4 to the Novisad Bridge. Continue on the towpath for 600m to Foundry Bridge. Exit the towpath onto Riverside Road and cross Prince of Wales Road to the north using traffic light facility. Rejoin Riverside Road and continue north on road to access the residential area north of the rail station, on road 	None

			section of route considered safe.	
6	Thorpe St Andrews	1.1km	<ul style="list-style-type: none"> • Cross new pedestrian/cycle bridge over river Wensum at the north end of the site. • Continue 400m northeast through the Utilities site to cross the railway line and join Cremorne Lane. • Continue 200m north on Cremorne Lane to arrive at Thorpe residential area, this is a quiet residential road considered safe for cyclists • To reach northern Thorpe St Andrew follow Thorpe Road east for 300m then turn left to join Wellesley Avenue, this is a cycle friendly avenue which can be followed north. 	None

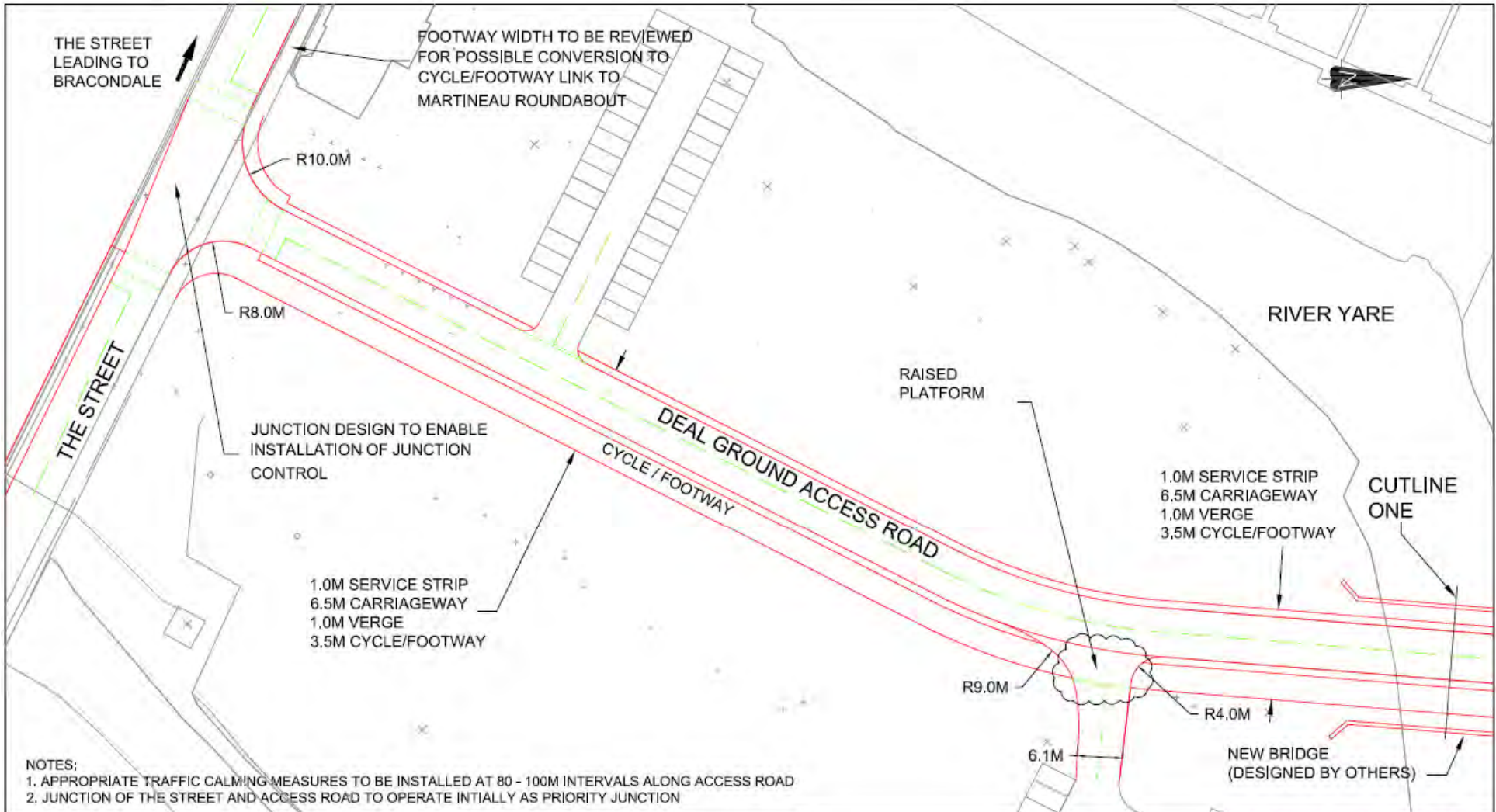
Routes to Local Shopping Areas				
Route	To	Distance	Assessment	Junctions Identified
1	Trowse Village Shops (Village Store, Budgens Food Retailer, Local Pub/Restaurant)	0.8km	<ul style="list-style-type: none"> • Exit via site entrance and follow The Street to the southeast (see previous section for audit of route to Trowse Village). 	None
2	Lakenham Shops, Queens Road (Butchers, Baker, Express Store, Post Office, Chinese/Indian/Vietnamese/USA Takeaways, Hair Dressers, Hair and Beauty, Laundry and Dry Cleaning, Clothes Shop, Charity Shop, Local Pubs, Bars, and Sainsbury's 300 meters west on Queens Road)	1.8km	<ul style="list-style-type: none"> • Exit via site entrance and follow The Street west to Martineau Lane roundabout (see previous section for audit of route to residential area at Lakenham). • Beyond Lakenham residential area continue 300m on Bracondale Road which becomes Queens Road and arrive at the Lakenham shopping area. • No cycle facilities are provided beyond King Street on Bracondale Road, this section is not considered attractive to cyclists, however ample room is provided on Queens Road for safe cycling. 	Bracondale Road beyond King Street junction
3	Riverside Shopping Centre (Supermarket, Petrol Station, Sports Store, Pharmacy, Digital Outlet, Home Ware, Coffee Shop, Restaurants, Bars, Take Away Food, Hotels)	1.4km	<ul style="list-style-type: none"> • Cross new pedestrian/cycle bridge over river Wensum at the north end of the site. • Join the riverside towpath (see previous section for audit of route to residential area at Carrow). • At the Novisad Bridge turn northeast, cross Wherry Way and continue northeast on Albion Way, both roads are traffic calmed and cycle friendly. • Continue 100m northeast on Albion Road to arrive at the Riverside Shopping Centre. 	Carrow Road north of Carrow Bridge

Routes to Industrial Areas				
Route	To	Distance	Assessment	Junctions Identified
1	Europa Way	0.9km	<ul style="list-style-type: none"> Exit via site entrance and follow The Street west for 300m using the NR1 to reach Europa Way. 	None
2	Norfolk County Hall & Unilever	1km	<ul style="list-style-type: none"> Exit via site entrance and follow The Street west (see previous section for route to Martineau lane roundabout). At roundabout join off road shared pedestrian/cycle facility and cross Martineau Lane using the island crossing provided to arrive at County Hall. For Unilever follow the NR1 to the north side of the roundabout to arrive at the site entrance. 	None
3	Norwich Business Park	2.5km	<ul style="list-style-type: none"> Exit via site entrance and follow The Street west (see previous section for route to Martineau lane roundabout). At roundabout join off road shared pedestrian/cycle facility and continue west on Martineau Lane. Cross Trowse By-Pass junction using traffic light facilities then rejoin Martineau Lane. After 100m exit A road to the left and follow Martineau Lane to the southwest. At end of Martineau Lane use Long John Hill and Mansfield Lane to reach Sandy Lane. Follow Sandy Lane for 600m to reach the eastern side of Norwich Business Park, this is cycle friendly route on residential side roads. 	None
4	UEA (University of East Anglia)	7.3km	<ul style="list-style-type: none"> Follow Route 3 to Norwich Business Park and continue through Park to Hall Road. Turn southwest and follow Hall Rd for 1.1km. Cross Ipswich Road and follow north for 100m to access Marston Lane. Follow Marston Lane off road route to the east for 1.3km, this is an attractive vehicle free route. Marston Lane then merges with Church Lane, continue northwest for 800m. Cross underneath Newmarket Road, and continue north for 1.1km on Bluebell Road. Turn east at North Park Avenue and follow vehicle free cycle path for a further 400m to arrive at UEA. 	None
5	Bowthorpe Industrial Estate	4.2km	<ul style="list-style-type: none"> See previous audit for route to Novisad Bridge. Cross Novisad bridge and arrive in the Carrow residential area. Join National Route 1 (NR1) and proceed along King Street towards the city centre. The NR1 provides a cycle friendly route directly through the city centre. Follow the NR1 all the way through Norwich city centre via Upper King Street, Tombland Road and Princes Street. At the end of Princes Street leave the NR1 and proceed west on St Andrews Street. 	None

			<ul style="list-style-type: none"> • Proceed west as road merges with Charing Cross Road and Benedict Street, and after 700m becomes Dereham Road. • Follow Dereham Road for 1km, this section is on road however should be upgraded in the near future. • At junction turn southwest onto Bowthorpe Road and continue for 400m to reach Bowthorpe Industrial Estate. 	
6	City Trading Estate	3km	<ul style="list-style-type: none"> • Follow route 5 to Princes Street, and continue north on NR1 using St Georges Street, Colegate Street and Oak Street. • The route then reaches the A147 (St Crispins Road), from here access the City Trading Estate from the roundabout at the west end of the road. 	None
7	Sweet Briar Industrial Estate	5.1km	<ul style="list-style-type: none"> • Follow Route 6 to the A147 (St Crispins Road). • From the roundabout at the west end of the road continue on the NR1. • Follow the off road route for 2.1km. • Turn north off the NR1 to access the southern end of the Sweet Briar Industrial Estate. 	None
8	Caston Industrial Estate	4.1km	<ul style="list-style-type: none"> • See previous audit for route to Thorpe Road residential area via the Utilities site. • Join Thorpe Road and proceed 300m east cycling on the road, this is part of the cycle network but few cycle facilities are offered. • Turn north onto Telegraph Lane then join Wellesley Avenue which is a cycle friendly route, follow for 900m to Plumstead Road. • Turn east and proceed 200m to Hiliary Avenue. • Turn north and follow for 300m to Borrowdale Drive. • Continue using Borrowdale Drive and Ridgeway to reach Heartsease Lane 600m to the east. • Proceed 600m north on Heartsease Lane then turn east on Salhouse Road. • Follow for 100m to arrive at the western end of Caston Industrial Estate. 	None
9	St Andrews Business Park (Broadland Business Park)	3.5km (4.5km to Broadland Business Park)	<ul style="list-style-type: none"> • Follow Route 8 to Harvey Lane and continue east on Thorpe Road. • Continue for 2.5 km on Yarmouth Road cycling on road, this is part of the cycle network. • Arrive at western end of St Andrews Business Centre. • For Broadland Business Park continue for 400m on Yarmouth Road • Turn left at roundabout and proceed north on Northside Road, this is a quiet road. • Continue for 200m then turn east onto off road cycle path. • Continue for 200m then turn left and continue north on cycle path for a further 200m. • The cycle path then arrives at Peachman Way and the Broadlands Business Park. 	None

Routes to Local Schools				
Route	To	Distance	Assessment	Junctions Identified
1	Trowse Primary	0.7km	<ul style="list-style-type: none"> Exit via site entrance and cycle 200m southeast on The Street to Trowse Primary. No cycle facilities however 20mph speed limit creates a safe cycling environment. 	None
2	Lakenham	1.8km	<ul style="list-style-type: none"> Exit site entrance and follow NR1 west on The Street. See earlier audit for cycle route to residential area at Lakenham. After the Bracondale Road and King Street junction proceed west, this section of road is narrow and uphill as well as being shared with local buses. Continue for 300m then turn left onto Cotton Road, this is a quiet residential street. Continue for 250m then turn left on City Road, this is part of the cycle network. Continue south for a 300m and arrive at Lakenham School. 	Bracondale Road beyond King Street junction
3	Lionwood Infant and Nursery	1.9km	<ul style="list-style-type: none"> See previous audit for route to Thorpe Road residential area via the Utilities site. From Cremorne Lane follow Thorpe Road east for 300m to Telegraph Lane. Turn west and proceed on Telegraph Lane for 600m to reach Lionwood Infant and Nursery School. 	None
4	Thorpe House Girls	1.9km	<ul style="list-style-type: none"> Follow Route 3 to Telegraph Lane, and continue east on Thorpe Road which becomes Yarmouth Road. After 800m turn north onto School Lane and follow to Thorpe House Girls School. 	None

Annex D: 1:500 Site Plans



- NOTES:
1. APPROPRIATE TRAFFIC CALMING MEASURES TO BE INSTALLED AT 80 - 100M INTERVALS ALONG ACCESS ROAD
 2. JUNCTION OF THE STREET AND ACCESS ROAD TO OPERATE INITIALLY AS PRIORITY JUNCTION



DEAL GROUND, NORWICH

PROPOSED ACCESS ARRANGEMENTS (SHEET ONE OF FOUR)

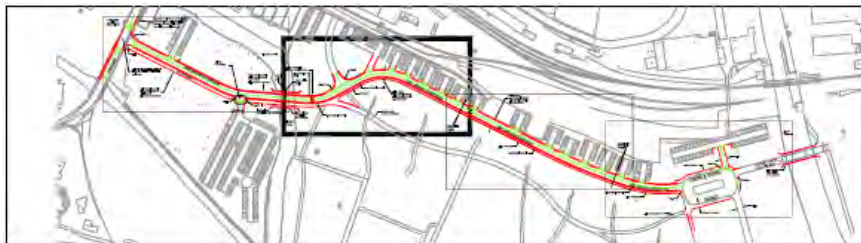
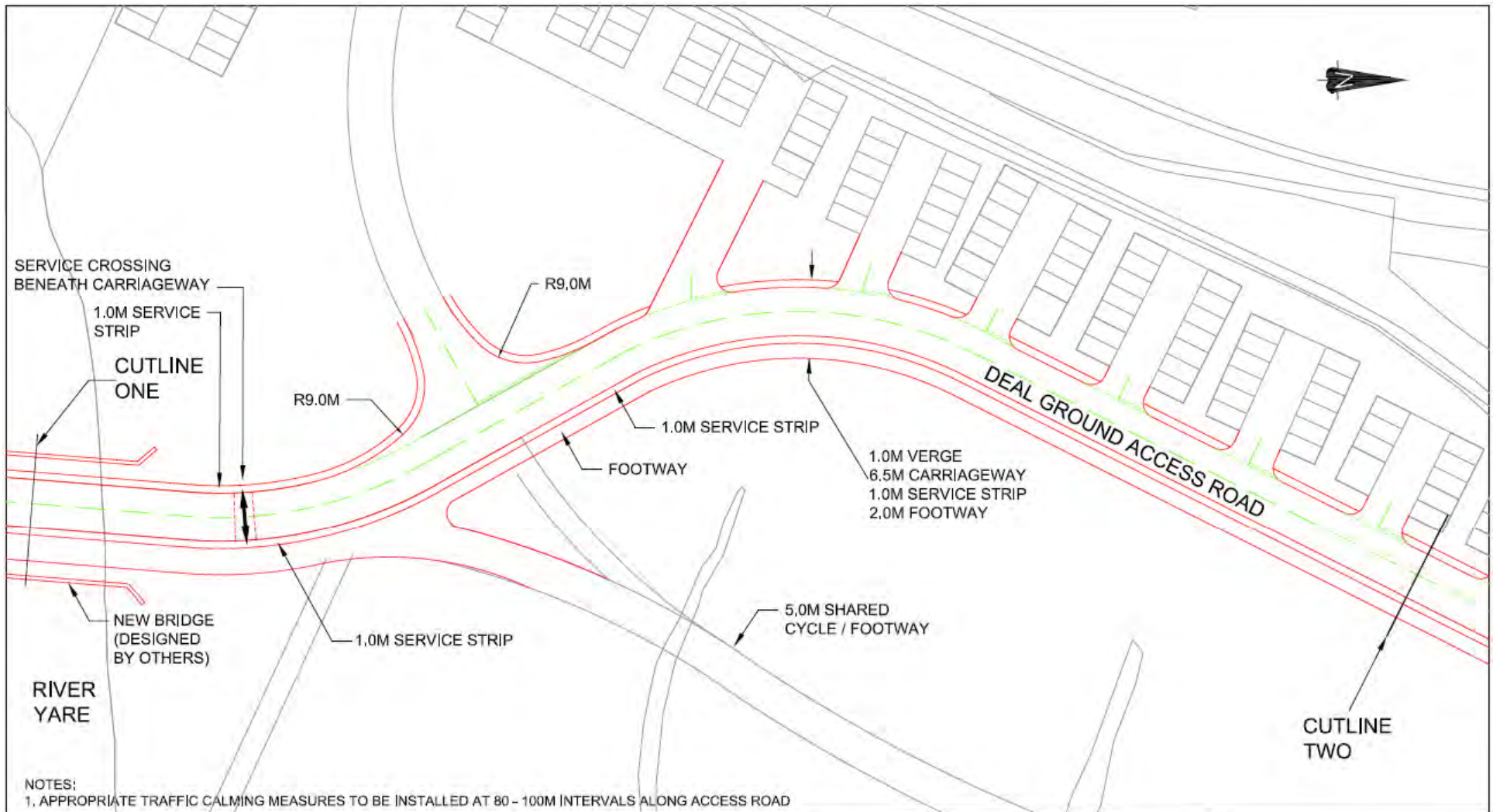
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DATE	DESIGNED BY	DATE	DRAWN BY	DATE	CHECKED BY	SCALE(S)	DRAWING STATUS	DRAWING NUMBER	REVISION
AUG 2010	SC	AUG 2010	SC	AUG 2010	SC	1:500	PRELIMINARY	3009005/A/015	





DEAL GROUND, NORWICH

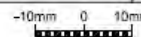
PROPOSED ACCESS ARRANGEMENTS (SHEET TWO OF FOUR)

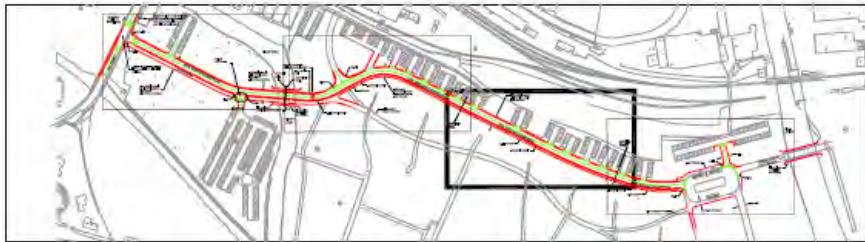
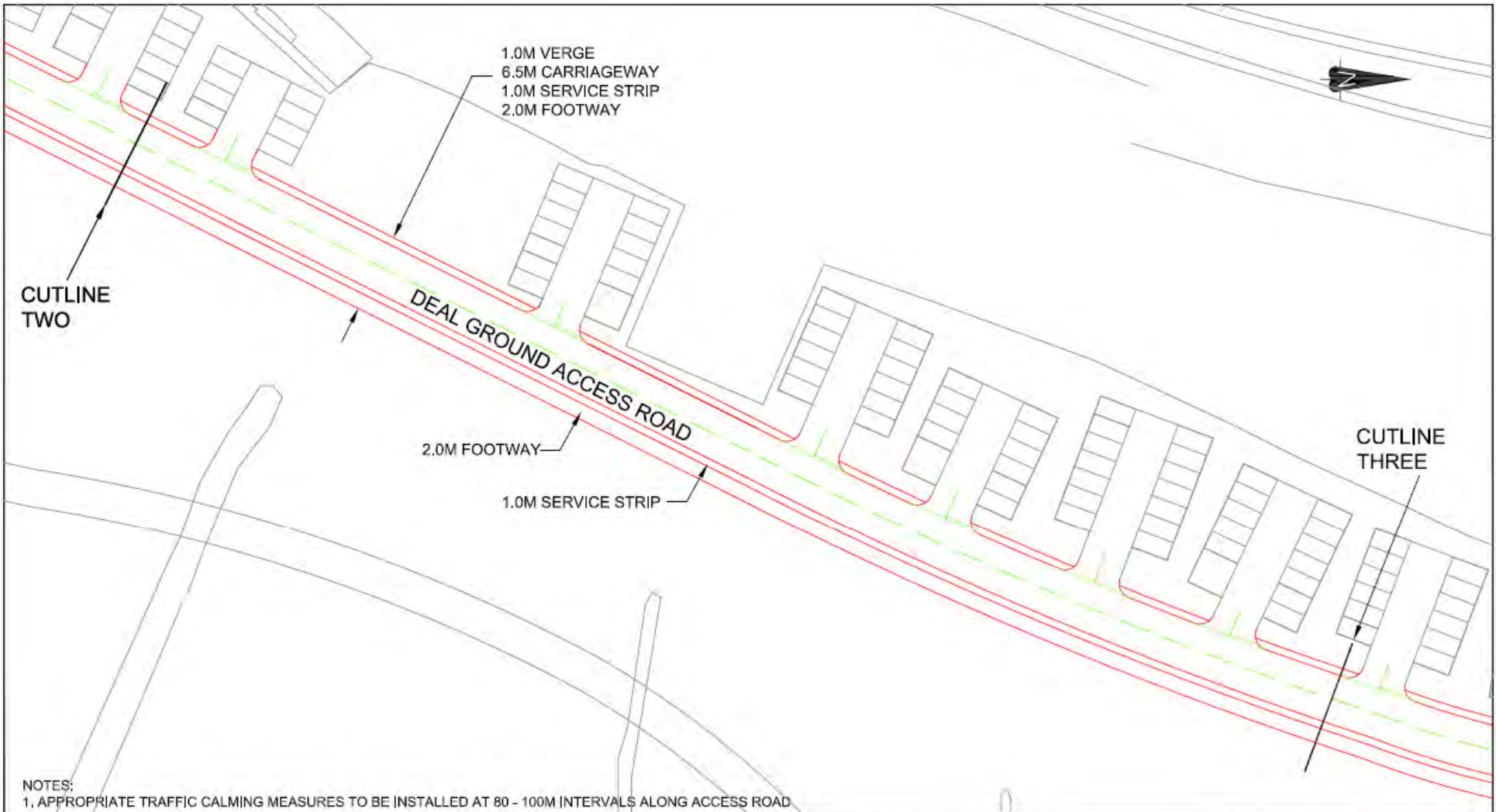
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DEAL GROUND, NORWICH

PROPOSED ACCESS ARRANGEMENTS (SHEET THREE OF FOUR)

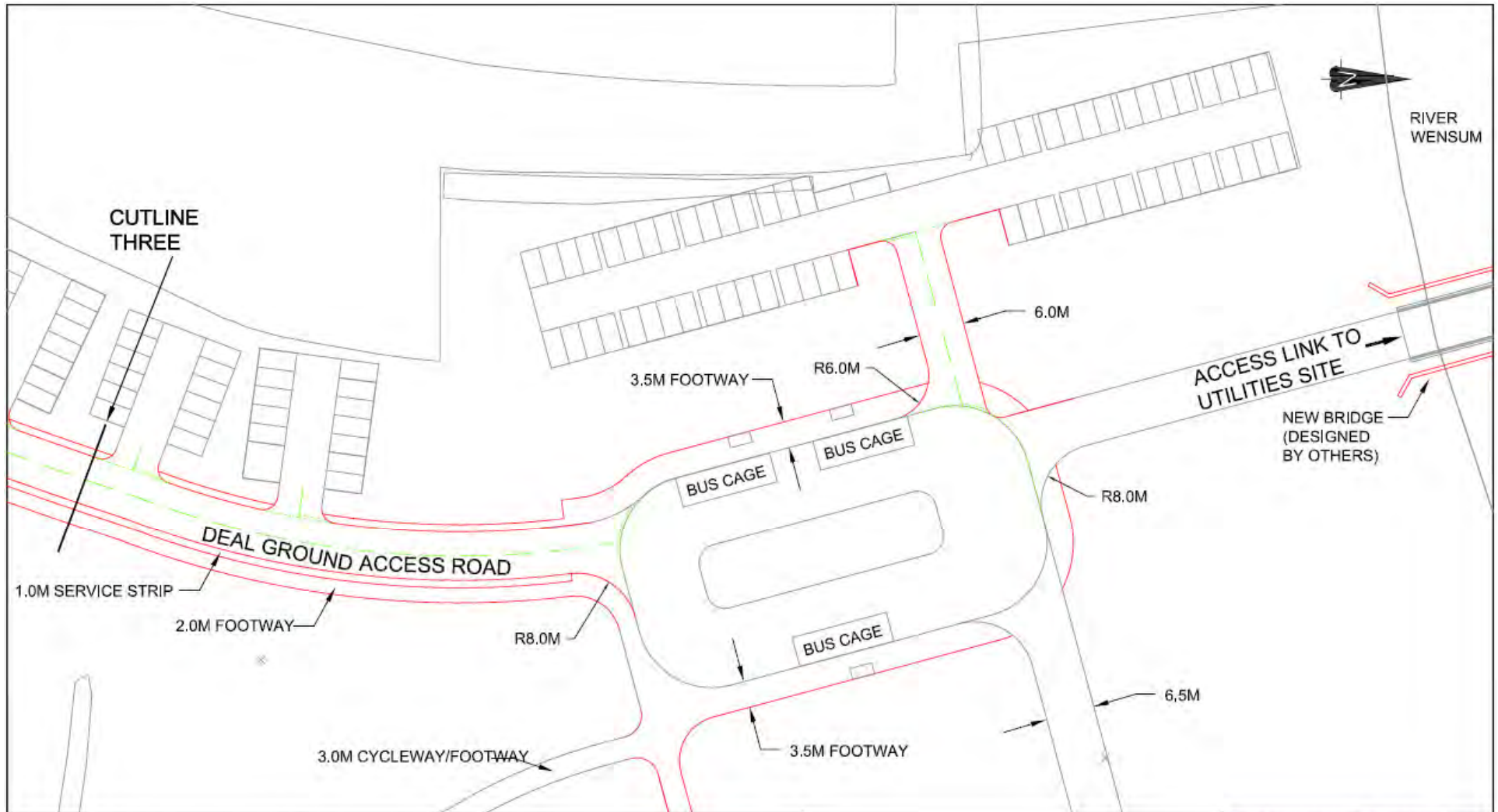
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Riverside House,
River Lawn Road,
Tonbridge, UK. TN9 1EP
tel: 44 (0) 1732783500

SERRUYS PROPERTY COMPANY

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DEAL GROUND, NORWICH

PROPOSED ACCESS ARRANGEMENTS (SHEET FOUR OF FOUR)

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Riverside House,
River Lawn Road,
Tonbridge, UK, TN9 1EP
tel: 44 (0) 1732783500

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Environmental Statement Addendum – Chapter 10: Transport Appendix 10.2



ODYSSEY

DEVELOPING JOURNEYS

**LAND AT DEAL GROUND AND MAY
GURNEY, BRACONDALE, NORWICH**

TRANSPORT ASSESSMENT ADDENDUM



**LAND AT DEAL GROUND AND MAY GURNEY, BRACONDALE,
NORWICH**

**TRANSPORT ASSESSMENT ADDENDUM
ON BEHALF OF SERRUYS PROPERTY COMPANY LIMITED**

Prepared by

Odyssey

Tuscany House

White Hart Lane

Basingstoke

Hampshire

RG21 4AF

Tel: 01256 331144

June 2023



DOCUMENT CONTROL SHEET

Project Name Land at Deal Ground and May Gurney

Project No. 23-005

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
-	Draft for client review	ESH	BM	ESH	BM	10/05/2023
A	Submission	ESH	BM	ESH	BM	16/06/2023



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APPENDICES

Appendix A	Outline Planning Application and Non-Material Amendment Decision Notices (Norwich City Council Ref. 12/00875/O, 20/00698/NMA and 22/01040/NMA, South Norfolk Council Ref. 2011/0152/O, 2020/1062, and 2022/1574)
Appendix B	Environmental Impact Assessment Scoping Opinion - Norfolk County Council Highways Response (Norwich City Council Ref. 22/01225/EIA2, South Norfolk Council Ref. 2022/1847)
Appendix C	Deal Ground and May Gurney (Norwich City Council Ref. 12/00875/O, South Norfolk Council Ref. 2011/0152/O) Traffic Flow Diagrams
Appendix D	Utilities Site (Ref. 15/00997/F) Traffic Flow Diagrams
Appendix E	2023 Traffic Survey Results
Appendix F	'Proposed Access Arrangements' and 'Proposed Cycle/Footway on Bracondale / The Street' (Drawings '3009005/A/015 Rev B' and '3009005/B/002Rev A') (Norwich City Council Ref. 12/00875/O, South Norfolk Council Ref. 2011/0152/O) Appendix G
Appendix G	Framework Residential Travel Plan (2011) (Norwich City Council Ref. 12/00875/O, South Norfolk Council Ref. 2011/0152/O)



1.0 INTRODUCTION

1.1 Preamble

1.1.1 Odyssey have been instructed by Serruys Property Company Limited to prepare this Transport Assessment Addendum (TAA) with respect to the permitted development at Land at Deal Ground and May Gurney, Bracondale, Norwich.

1.1.2 The site currently has outline planning permission '*...(full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3): a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures inc earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats*' (Norwich City Council (NCiC) planning Reference 12/00875/O, South Norfolk Council (SNC) planning Reference 2011/0152/O).

1.2 Planning Background

1.2.1 Condition 1 of planning approval Ref. 12/00875/O, and Condition 2 of planning approval Ref. 2011/0152/O, refer **Appendix A**, secured the requirement for the access / main spine road to '*...be begun before the expiration of ten years from the date of this permission*'; the date of the permission being 12th July 2013. The application is therefore still valid until the 12th July 2023, subject to works starting on the access / spine road.

1.2.2 Subsequent Non-Material Amendment (NMA) applications have been sought to the original outline planning permission (NCiC planning reference 12/00875/O, SNC planning reference 2011/0152/O), as outlined below:

- NCiC planning reference 20/00698/NMA, SNC reference 2020/1062), sought to amended 24 of the original planning conditions. The approval of this Reserved Matters Application however, did not grant a new planning consent, but rather revised some of the conditions of the original consent. The Decision Notices (NCiC Ref. 20/00698/NMA, SNC Ref. 2020/1062) are presented in **Appendix A**.
- NCiC planning reference 22/01040/NMA, SNC reference 2022/1574, sought to amend the timing of when the proposed access / main spine road is required to be begun. The Decision Notices are presented in **Appendix A**.



1.2.3 A subsequent Environmental Impact Assessment (EIA) Scoping Opinion Request had been submitted for the site (NCiC planning reference 22/01225/EIA2, SNC planning reference 2022/1847), with the response provided in November 2022. This included a response from Norfolk County Council (NCoC) Highways, as extracted herein and as also presented in **Appendix B**.

“The highway authority has reviewed the information provided and considers that given the age of the original application, a revised Transport Assessment is required. The revised assessment should take into account the East Norwich development (given that there is a submitted, albeit un-validated planning application).

In addition, the assessment years will have changed and there will have been changes in traffic levels since the original traffic surveys were undertaken.

Consideration will also need to be made regarding access to catchment schools and walking/cycling routes to local facilities and employment areas.”

1.2.4 Given that the original outline planning application (NCiC planning reference 12/00875/O, SNC planning reference 2011/0152/O) is still valid, it is considered that there should be no reason for NCoC to require that further or updated traffic impact assessments are undertaken, and in respect of East Norwich it is more appropriate that that application takes account of the consent rather than vice versa. This TAA does however seek to provide NCoC with reassurance as to the permitted development’s impact on the local highway network, as per the NCoC advice provided for the EIA Scoping Opinion.

1.3 Planning Policy

1.3.1 In the intervening period since the original application was prepared there have been updates to national planning policy which the development should follow. Whilst it is noted that the application has outline planning permission that is still valid, an update of the National Planning Policy Framework (NPPF) is presented herein, this being the national guidance upon which any new planning application should be determined. Accordingly, as part of the reserved matters application for the permitted development, the latest policy and guidance will be adhered to.

National Planning Policy Framework

1.3.2 The NPPF (July 2021) provides a structure for development within the UK, with a ‘*presumption in favour of sustainable development*’.



1.3.3 Paragraph 85 of the NPPF states '*...it will be important to ensure that development is sensitive to its surroundings, does not have an unacceptable impact on local roads and exploits any opportunities to make a location more sustainable (for example by improving the scope for access on foot, by cycling or by public transport). The use of previously developed land, and sites that are physically well-related to existing settlements, should be encouraged where suitable opportunities exist.*'

1.3.4 As such, the NPPF states in Paragraph 111 that '*Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.*'

1.3.5 Paragraph 113 continues, '*All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.*'

1.4 Report Structure

1.4.1 This TAA is structured as follows:

- **Section 2.0** provides a summary of the historic and current traffic flows on the local highway network.
- **Section 3.0** provides a summary of the site's (off-site) accessibility for pedestrians and cyclists.
- **Section 4.0** provides a summary of the site's Travel Plan.
- **Section 5.0** summarises and concludes the report.



2.0 TRAFFIC IMPACT ASSESSMENT

2.1 2009 Traffic Data

2.1.1 The original traffic impact assessment, as presented in the 'Deal Ground Norwich traffic modelling – Report 09070-A' (JCT Consultancy, March 2010) submitted with the original outline planning application (NCiC planning reference 12/00875/O, SNC planning reference 2011/0152/O), was based upon 2009 traffic data with a 2010 base year and 2015 future year assessed, these being determined by NCoC providing growth factors to be applied to the traffic survey data. A copy of the 2009 traffic flow diagrams for the peak periods, extracted from the aforementioned traffic modelling report are presented in **Appendix C**.

2.2 2015 Traffic Data

2.2.1 Further traffic surveys of the local highway network were undertaken as part of the now withdrawn planning application at the 'Utilities Site' (NCiC planning Reference 15/00997/F), which sought:

Full planning permission for demolition works and the development, on the Utilities site, of a biomass fuelled energy centre (49.9 MWe installed capacity), associated fuel storage, offloading facilities and railway works, district heating network centre and associated utilities linkages to the Carrow Works; 435 units of student accommodation; commercial units; boat moorings, landscaping and public realm provision; controlled access to Hardy Road and new vehicular access via the Deal Ground with new vehicular bridges over the River Wensum and River Yare; together with associated infrastructure works and all enabling and preparatory works.

Outline planning permission (with all matters reserved) for demolition works and provision of 120 residential dwellings; 282 units of student accommodation; research centre; data centre; education centre; offices and training buildings; a new pedestrian and cycle access to Cremorne Lane; boat moorings, landscaping and public realm provision; together with associated infrastructure works and all enabling and preparatory works.

2.2.2 The Utilities Site would have been accessed via the development with an all-modes bridge across the River Wensum. Whilst the application was withdrawn, NCoC Highways were consulted; it is noted that they did not raise any comments on the validity of the traffic surveys.

2.2.3 The traffic surveys for the Utilities Site planning application were undertaken in April 2015. The traffic flows have been sourced from the accompanying Transport Assessment (Axis July 2015), with the relevant extracts contained in **Appendix D**.



2.3 2023 Traffic Data

2.3.1 New traffic surveys have been undertaken to determine the current flows of traffic on the local highway network. The recent traffic surveys have comprised of classified turning count and queue length surveys, undertaken in the AM and PM ‘network’ peak periods of 07:00-10:00 and 16:00-19:00 on a typical weekday, at the ‘Martineau Roundabout’ (roundabout junction of Bracondale (west) / Northern Access (Carrow Works) / Bracondale (east) / Martineau Lane / County Hall access). Two additional Automatic Traffic Count (ATC) surveys were also undertaken on Bracondale / The Street for a period of one week. The ATC surveys were undertaken from Wednesday 1st March to Tuesday 7th March 2023. The traffic survey of Martineau Roundabout was undertaken on Wednesday 1st March 2023. The full survey results are presented in **Appendix E**.

2.3.2 Analysis of the westernmost ATC located on Bracondale (‘ATC 1’) has demonstrated that Wednesday 1st March 2023 had the highest weekday recording for total daily vehicle movements, and it had comparable network peak hour vehicle movements to the other weekdays recorded; refer to **Table 2.1** in addition to **Appendix E**. It is therefore considered that a ‘typical’ weekday has been surveyed at Martineau Roundabout.

Table 2.1: Bracondale ATC1 Survey - Total Vehicle Movements Summary

Time	Total Two-Way Vehicle Movements							Weekday Average
	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	
	01/03/2023	02/03/2023	03/03/2023	04/03/2023	05/03/2023	06/03/2023	07/03/2023	
0700-0800	81	91	77	58	34	90	102	88
0800-0900	192	191	194	137	85	181	168	185
0900-1000	131	139	96	185	134	114	122	120
1600-1700	156	140	178	144	166	143	166	157
1700-1800	178	180	164	105	83	152	163	167
1800-1900	167	136	141	110	69	115	133	138
Daily	2,098	2,048	1,970	2,199	1,918	1,617	1,914	1,929



2.3.3 The classified count survey of Martineau Roundabout was recorded in 15-minute intervals, such that the AM and PM peak hours at this junction could be determined. This has shown that the AM peak hour in terms of turning movements occurs from 07:45 to 08:45. The PM peak period occurs from 16:45 to 17:45, although it is noted that there is very little variation in traffic flows in any given hourly period from 16:00 to 18:00.

2.3.4 In order to determine the change in the peak hour traffic flows at Martineau Roundabout, between 2009 and 2023, the peak hour traffic flows as surveyed in 2023 have been compared to the surveyed traffic flows as contained in the original planning application Transport Assessment (from 2009) and the Transport Assessment for the Utilities Site (from 2015). This has been summarised in **Table 2.2**.

2.3.5 As presented in **Table 2.2**, it can be seen that over the 14 year period, from 2009 to 2023, there has been a slow reduction in both the AM and PM peak hour traffic flows at the Martineau Roundabout. A summary of this change is presented in **Table 2.3**.



Table 2.2: 2009, 2015 and 2023 Peak Hour Surveyed Traffic Flow Summary – Martineau Roundabout

Junction Arm	Vehicle Movements											
	AM Peak Hour						PM Peak Hour					
	A	B	C	D	E	Total	A	B	C	D	E	Total
	2009						2009					
A - Bracondale (west)	0	48	124	936	156	1,264	0	9	128	1,041	14	1,192
B - Northern Access	6	0	1	30	1	38	38	0	8	58	1	105
C - Bracondale (east)	272	2	0	119	1	394	144	3	0	172	2	321
D - Martineau Lane	1,413	128	127	0	334	2,002	907	6	127	0	50	1,090
E - County Hall	41	0	0	40	0	81	209	0	0	304	0	513
Total	1,732	178	252	1,125	492	3,779	1,298	18	263	1,575	67	3,221
	2015						2015					
A - Bracondale (west)	4	50	62	930	167	1,213	0	10	162	1,149	13	1,334
B - Northern Access	2	0	0	29	0	31	14	0	0	151	0	165
C - Bracondale (east)	166	0	0	62	16	244	110	0	0	83	14	207
D - Martineau Lane	1,446	22	48	25	188	1,729	1,032	35	47	15	28	1,157
E - County Hall	23	0	1	25	0	49	119	2	3	170	0	294
Total	1,641	72	111	1,071	371	3,266	1,275	47	212	1,568	55	3,157
	2023						2023					
A - Bracondale (west)	9	9	104	746	103	971	0	0	110	1,133	17	1,260
B - Northern Access	4	0	0	5	0	9	2	0	0	14	0	16
C - Bracondale (east)	97	1	2	116	12	228	103	0	2	143	6	254
D - Martineau Lane	1,456	14	58	31	248	1,807	989	3	61	21	9	1,083
E - County Hall	20	0	4	22	0	46	88	0	7	141	0	236
Total	1,586	24	168	920	363	3,061	1,182	3	180	1,452	32	2,849



Table 2.3: Net and Percentage Change in Traffic Flows from 2009 to 2023 – Martineau Roundabout

Junction Arm	Vehicle Movements											
	AM Peak Hour						PM Peak Hour					
	A	B	C	D	E	Total	A	B	C	D	E	Total
Net change from 2009 to 2023												
A - Bracondale (west)	9	-39	-20	-190	-53	-293	0	-9	-18	92	3	68
B - Northern Access	-2	0	-1	-25	-1	-29	-36	0	-8	-44	-1	-89
C - Bracondale (east)	-175	-1	2	-3	11	-166	-41	-3	2	-29	4	-67
D - Martineau Lane	43	-114	-69	31	-86	-195	82	-3	-66	21	-41	-7
E - County Hall	-21	0	4	-18	0	-35	-121	0	7	-163	0	-277
Total	-146	-154	-84	-205	-129	-718	-116	-15	-83	-123	-35	-372
Percentage change from 2009 to 2023												
A - Bracondale (west)	-	-433%	-19%	-25%	-51%	-30%	-	-	-16%	8%	18%	5%
B - Northern Access	-50%	-	-	-500%	-	-322%	-1800%	-	-	-314%	-	-556%
C - Bracondale (east)	-180%	-100%	-	-3%	92%	-73%	-40%	-	-	-20%	67%	-26%
D - Martineau Lane	3%	-	-119%	-	-35%	-11%	8%	-100%	-108%	-	-456%	-1%
E - County Hall	-105%	-	-	-82%	-	-76%	-138%	-	-	-116%	-	-117%
Total	-9%	-642%	-50%	-22%	-36%	-23%	-10%	-500%	-46%	-8%	-109%	-13%



2.3.6 Within the ‘Traffic modelling for proposed development at May Gurney Site, Trowse - Report 10054-B’ (JCT Consultancy, November 2010) accompanying the original outline planning permission, a base year of 2010 was assessed, together with a future year of 2015; calculated by applying TEMPro growth factors to the 2009 surveys. The TEMPro growth factors as advised by NCoC, for the aforementioned traffic modelling report, to be applied to the 2009 survey data are extracted in **Table 2.4**.

Table 2.4: Traffic modelling for proposed development at May Gurney Site, Trowse - Report 10054-B, ‘Table 2: Locally adjusted growth factors provided by NCC [NCoC]’, Page 4

Growth Years	AM Peak	PM Peak
2009 to 2010	1.0049	1.0069
2009 to 2015	1.1251	1.1353

2.3.7 The original traffic impact assessment, as submitted with the original outline planning application, forecast that there would be an increase in traffic on the local highway network, however, as presented with the 2015 and 2023 survey data there has in fact been a decrease in peak period traffic on the local highway network. This is considered to be likely due to a number of reasons such as: the local highway network already being close to capacity detracting from the attractiveness of peak period travel by car in the area; the promotion of active and sustainable travel in the intervening 14 year period; and more recently the reduction in peak period traffic due to the change in working habits following the Covid-19 pandemic. During, and continued following, the Covid-19 pandemic more office-based workers have flexible working hours, meaning there has been a plateau in the peak hour vehicle movements with more employees choosing to start and finish work slightly earlier or later in the day. There has also been an increase in home working which has reduced the need for people to travel, particularly at peak times. It is considered that this is reflected in the 2023 survey results.

2.3.8 It is noted in the NCoC Highways response to the EIA Scoping Opinion, refer to **Appendix B**, that consideration should be given to ‘*the East Norwich development (given that there is a submitted, albeit un-validated planning application)*’. At the time of preparing this TAA there was no planning application available publicly on the NCiC planning portal for the East of Norwich site (noting that it is understood in this instance that NCoC were referring to the Carrow Works site to the west of the permitted development). Furthermore, given that the original outline planning application for the site is still valid, it is more appropriate that the East Norwich application takes account of the consent rather than vice versa. This is also considered to be the case for other committed developments locally.



2.4 Trip Generation

2.4.1 The trip generation, distribution and modal split of the development is discussed in Chapter 9 of the 'Transport Assessment, Proposed Development at Deal Ground and May Gurney Site' (Contemporary Transport, December 2010) submitted with the original outline planning application (NCiC planning reference 12/00875/O, SNC planning reference 2011/0152/O). This detailed the site specific assessment that was undertaken of the multi-modal trip generation of the development taking into account the specific circumstances of the site (its sustainable location to the south east of Norwich) together with the measures that the development would implement (cycleway provision etc.) that would impact the multi-modal trip generation. The multi-modal trip rates were further determined based upon the implementation of the Framework Residential Travel Plan, upon which there are some updates to the measures to be implemented, such as promoting the cycle hire scheme 'Beryl Bikes', which would also help to reduce the number of vehicle trips forecast. Given that the multi-modal trip generation and distribution was tailored specifically to the development it is still considered to be valid.

2.5 Summary

2.5.1 Through undertaking recent traffic surveys it has been demonstrated that there has not been the traffic growth forecast in the original Transport Assessment. It is further noted that due to the site-specific assessment that was undertaken as part of the Transport Assessment, that the multi-modal vehicle trip forecast for the development is still considered to be valid. The outline planning approval was therefore granted on the basis of an assessment of a future year with notably higher traffic flows than have been shown to be existing. It is therefore considered that even if a new planning application was to be submitted, the development's traffic impact would not be 'severe' such that the application should be refused on highways grounds.

2.5.2 The original Transport Assessment, which accounted for the specific circumstances of the development, is thus considered to have presented a robust traffic impact assessment. There is, therefore, not considered to be a justifiable highways reason why the permitted outline planning application, from a highways perspective, is not still valid.



3.0 SITE ACCESSIBILITY

3.1 *Accessibility to Local Schools and Facilities*

3.1.1 As per the NCoC Highways response to the EIA Scoping Opinion, '*Consideration will also need to be made regarding access to catchment schools and walking/cycling routes to local facilities and employment areas*'.

3.1.2 In the 'East Norwich Masterplan Report (Avison Young, Allies and Morrison, Hydrock, RPS, November 2021), the site referred to as 'East Norwich' comprises of the development site (Deal Ground and May Gurney) in addition to 'Carrow Abbey' (also referred to as Carrow Works located to the west of the site) and the Utilities site located to the north of the site and the River Wensum. The development site is therefore located centrally to a wider development area of which the other sites in the wider masterplan are allocated for additional non-residential land uses.

3.1.3 Together with the pedestrian and cycle improvements and facilities that the other 'East Norwich' developments would provide in the long term, the permitted development would be situated in a location where there is a reduced need to travel. This is alongside the site being located a short distance to the south-east of the centre of Norwich, and therefore numerous employment opportunities, shops and services are available within a short walk or cycle.

3.1.4 The permitted development would be connected to the 'Carrow Works' site via a pedestrian and cycle underpass, under the railway line, located at the north-western corner of the development. The development would also be connected to the Utilities site, initially, through the provision of a pedestrian / cycle bridge across the River Wensum; however, the future implementation of an all-mode bridge would be safeguarded.

3.1.5 The development is expected to be within the catchment area for the following schools (as determined from the NCoC website and School Catchment finder, assuming that no education land use would be provided as part of the other sites that make up the East Norwich development):

- Lakenham Primary School
- City of Norwich School
- The Hewett Academy, Norwich
- City Academy, Norwich

3.1.6 All of the afore listed schools are located to the west of the site, and would be accessed, by future residents of the development, via Bracondale and the Martineau Roundabout. This is also the same routeing as would be required for pedestrians and cyclists accessing the centre of Norwich.



3.2 Pedestrian and Cycle Infrastructure

3.2.1 As set out in NCiC Condition 3 / SNC Condition 5 of the planning approval for the site (NCiC planning reference 12/00875/O, SNC planning reference 2011/0152/O, refer to **Appendix A**), the Highway Authority, NCoC, require off-site improvements to be implemented on The Street, together with an on-cycle carriageway cycle lane; as extracted below:

Notwithstanding the details indicated on the submitted drawings no works shall commence on site until a detailed scheme for the access and off-site highway improvement works on the Street as indicated on drawings numbered 3009005/A/015 Rev B and 3009005/B/002Rev A have been submitted to and approved in writing by the local planning authority in consultation with the Highway Authority. For the removal of doubt the site access/The Street junction will not be signalised. Also the footway/cycleway works proposed for Bracondale will not be constructed and will be replaced by an on-carriageway cycle lane scheme.

3.2.2 Drawings '3009005/A/015 Rev B' and '3009005/B/002Rev A' referenced in NCiC Condition 3 / SNC Condition 5 are contained in **Appendix F** of this TAA.

3.2.3 The wording of NCiC Condition 3 / SNC Condition 5 requires that off-site improvements works, primarily for the benefit of walking and cycling trips, are to be submitted and approved prior to works commencing on site (noting that NCiC Condition 4 / SNC Condition 6 requires these works to then be completed prior to occupation).

3.2.4 The wording of NCiC Condition 3 / SNC Condition 5 notes that the drawings referenced are not the final scheme of off-site works to be implemented, intimating that new off-site improvement drawings would need to be prepared. This, therefore, allows for scope to provide a betterment of the footway and cycleway network on The Street / Bracondale.

3.2.5 With respect to the pedestrian and cycle trips that would be generated by the development and travel through the Martineau Roundabout, it is noted that a cohesive pedestrian cycle network is already in place, with the provision of a shared footway / cycleway leading from the roundabout towards the centre of Norwich and towards the NCoC offices, which provide a good quality pedestrian and cycle connection to the west of the site.

3.2.6 It is, therefore, not considered that any further off-site highway improvements are required for the permitted development, further to those already secured as part of NCiC Condition 3 / SNC Condition 5 of the outline planning approval.



4.0 TRAVEL PLAN SUMMARY

4.1 *Overview*

4.1.1 This section provides a summary of the active and sustainable travel measures to be implemented as part of the proposal, as detailed within the Framework Residential Travel Plan submitted as part of the original application (NCiC planning reference 12/00875/O, SNC planning reference 2011/0152/O), contained in **Appendix G** for ease of reference.

4.1.2 It is further noted that there is the requirement for an 'Interim Travel Plan' to be submitted and approved prior to works commencing (excluding the spine road), as set out in NCiC Condition 25 / SNC Condition 26 (refer to **Appendix A**), with NCiC Condition 18 / SNC Condition 19 requiring the secured Interim Travel Plan to be implemented, with a subsequent Full Travel Plan to be submitted and approved by the highway authority, and then be implemented as per the agreed timetable.

4.2 *Travel Plan Measures*

Travel Plan Co-Ordinator

4.2.1 A Travel Plan Co-Ordinator (TPC) will be appointed by the developer prior to the preparation of the Interim Travel Plan. The role of the TPC is to:

- Prepare, implement and monitor the TP;
- Manage the day-to-day delivery of the Travel Plan (TP) measures;
- Market the TP to encourage interest and involvement of residents;
- Maintain a good level of knowledge of sustainable travel opportunities in the vicinity of the site, so as to provide a basic personal journey planning service for residents, i.e. how to access schools, workplaces and local facilities by non-car modes;
- Liaise with both public transport operators and local authorities on appropriate measures, such as negotiating possible discounted bus tickets or obtaining information on any local travel plan measures;
- Seek to negotiate discounts for residents with local cycle shops, to promote a bicycle user group and any cycle training courses for groups of interested residents; and
- Provide monitoring feedback to residents and to liaise with the local authority as necessary.



Welcome Packs

4.2.2 Upon occupation residents would be provided with a 'Welcome Pack' that provides details to help promote walking, cycling and the use of public transport.

4.2.3 It is proposed that the following items would be included, however this is subject to the availability of information at the appropriate stage:

- An information leaflet about the Travel Plan, its aims and objectives, how to get involved and how travel will be monitored and reported back to residents;
- Contact details for the TPC;
- A sustainable transport voucher for every household with residents being able to choose from a menu of incentives such as: 'bikeability' training, a financial contribution towards a bus or train season ticket, or towards a new bicycle or bicycle equipment;
- Details regarding the provision of broadband to enable easy access to local home delivery services and home working;
- A plan of the new development, highlighting local facilities and the nearby key destinations, the walking and cycling routes to these, locations of public transport routes and the location of bus stops;
- Details of any negotiated discounts at local cycle stores etc., if applicable;
- Information about opportunities to travel to local schools and services in the vicinity of the site by sustainable modes;
- Bus and rail maps and timetable information;
- Information about journey planning services, e.g. www.nationalrail.co.uk, and <https://www.pushingaheadnorfolk.co.uk/journey-planner/>;
- Information about car clubs and car sharing through the 'liftshare' website; and
- Information about the home delivery services offered by supermarkets in the local area.

Promotion Cycling

4.2.4 To encourage cycling, secure and sheltered cycle parking will be provided in accordance with the prescribed standards. The development will also be provided with designated cycle routes internal to the site, these being segregated from the carriageway providing a safe space for less confident cyclists. The cycleway will also provide a physical reminder to all road users that cycling is an feasible option.

4.2.5 Cycling would further be encouraged through the provision of 'Beryl Bike' stands in the public realm of the development. Beryl operate a public cycle and scooter hire scheme within Norwich, which along with self-promotion through the provision of dedicated Beryl bike parking,



would be further promoted via information on use and costs, together with any promotional offers, provided as part of the Welcome Pack.

Promotion of Public Transport

4.2.6 Improvement to local bus stops will be implemented, as secured through Condition 6 of the outline planning approval.

4.2.7 Future residents will also be encouraged to use local bus services through the provision of free trial tickets and reduced season tickets. The use of public transport would also be promoted, by raising awareness of the local services that are accessible from the development.

4.2.8 Bus timetables and supporting information will be provided in the Welcome Packs.

Promotion of Car Sharing

4.2.9 Car sharing would be promoted to future residents of the development, particularly in relation to journeys to work. Residents will be provided with information about car sharing via the car share website (<https://liftshare.com/uk>). Information explaining the benefits of the car share scheme and how to register would be included in the Welcome Pack to be issued to residents.

Promotion of Car Clubs

4.2.10 Car club parking spaces would be provided on-site in accordance with NCiC parking standards, subject to a commercial provider being found. Along with the self-promotion of the car clubs through their physical presence within the development, the car club(s) located on-site would be promoted through the Welcome Pack with details provided on how to use them and membership details. Information would also be provided of any promotional discounts for joining the car club.



5.0 SUMMARY AND CONCLUSIONS

5.1 Summary

5.1.1 Odyssey have been instructed by Serruys Property Company Limited to prepare this Transport Assessment Addendum with respect to the permitted development at Land at Deal Ground and May Gurney, Bracondale, Norwich.

5.1.2 The site currently has outline planning permission '*...(full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3): a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures inc earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats*' (NCiC planning Reference 12/00875/O, SNC planning Reference 2011/0152/O).

5.1.3 Further to the highway authority's request, via the EIA Scoping Opinion, for further information to be provided with regard to the traffic conditions on the local highway network; as contained in **Section 2.0**, it has been demonstrated that there has not been the growth in traffic originally forecast in the Transport Assessment submitted with the approved outline planning application.

5.1.4 It has further been demonstrated that there has been a steady reduction in peak hour traffic movements in the vicinity of the site. The Transport Assessment submitted with the approved outline planning application, with respect to the off-site traffic impact of the proposal, is therefore considered to still be valid, and indeed robust in presenting a worst-case scenario assessment.

5.1.5 As secured through NCiC Condition 3 / SNC Condition 5 of the outline planning approval, off-site pedestrian and cycle improvements are to be implemented on The Street / Bracondale, which would connect to the existing footway and cycleway network at the Martineau Roundabout, providing onward connections to the west and the centre of Norwich. It is further noted that the site is located within the wider 'East Norwich' area site allocation, which would see, in the long term, a large mixed-use redevelopment to the south-east of the centre of Norwich, reducing the need for longer distance travel in the future.

5.1.6 As secured though NCiC Conditions 25 and 26 / SNC Condition 26 and 27, of the outline planning application, an Interim and Full Travel Plan will be implemented, however for ease of reference a summary of the measures to be implemented to encourage active and sustainable travel has been provided.



5.2 Conclusion

5.2.1 The Transport Assessment that supported the outline planning permission is still valid, and it has been demonstrated that the content within it presented a worst-case scenario assessment with regard to the development's impact on the local highway network.

5.2.2 The permitted development is therefore still considered suitable from a highways and transport perspective.

APPENDIX A

Outline Planning Application and Non-Material Amendment Decision Notices (Norwich City Council Ref. 12/00875/O, 20/00698/NMA and 22/01040/NMA, South Norfolk Council Ref. 2011/0152/O, 2020/1062, and 2022/1574



Application submitted by:

Lanpro Services
4 St Mary's House
Duke Street
Norwich
NR3 1QA

On behalf of:

Serruys Property Company Limited
C/O Lanpro Services
4 St Mary's House
Duke Street
Norwich
NR3 1QA

TOWN AND COUNTRY PLANNING ACT 1990

PLANNING PERMISSION

Application Number: 12/00875/O

Valid date of application: 3 March 2012

Decision date: 12 July 2013

Location: Deal Ground Bracondale Norwich

Proposal: Outline planning application (full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3): a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures inc earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats.

Conditions:

1. The access/main spine road as detailed on approved drawings; 3009005/B/001A, 3009005/B/002 A, 3009005/A/015 B, 3009005/AB/016 A, 3009005/A/017 A and 3009005/A/018 A, received by the local planning authority on 13 April 2012 shall be begun before the expiration of ten years from the date of this permission.
2. No development shall take place in pursuance of this permission until the following details have been submitted to and approved in writing by the local planning authority in consultation with the Highway Authority and where necessary the Environment Agency:
 - a) full details of the access/ spine road and associated footways and cycle ways;
 - b) lighting scheme for the route;
 - c) foul and surface water strategy;



- d) technical drawings of the Yare bridge and any culverts. In the event of the bridge design and culvert sizes departing from those modelled in the Flood Risk Assessment received by the local planning authority 13 April 2012 the details shall include further modelling to demonstrate no adverse impact on flood flows;
- e) details of the secondary/emergency routes and measures to control access;
- f) phasing plan for the construction and implementation of infrastructure listed above.

The infrastructure shall be implemented in full accordance with the agreed details and implementation plan.

- 3. Notwithstanding the details indicated on the submitted drawings no works shall commence on site until a detailed scheme for the access and off-site highway improvement works on the Street as indicated on drawings numbered 3009005/A/015 Rev B and 3009005/B/002Rev A have been submitted to and approved in writing by the local planning authority in consultation with the Highway Authority. For the removal of doubt the site access/The Street junction will not be signalised. Also the footway/cycleway works proposed for Bracondale will not be constructed and will be replaced by an on-carriageway cycle lane scheme.
- 4. Prior to first occupation of the development hereby permitted the off-site highway improvements referred to in condition 3 shall be completed to the written satisfaction of the local planning authority in consultation with the Highway Authority unless otherwise agreed in writing.
- 5. The secondary/emergency access as indicated on plan no. 3009005/B/001A and 3009005/B/002 A and agreed by condition 2, shall be available for use prior to first occupation of any dwelling on the Deal Ground. The access shall be permanently available for secondary /emergency use thereafter.
- 6. No dwelling shall be occupied until a public transport scheme that has been submitted to and agreed in writing by the Local Planning Authority in consultation with the Local Highway Authority. The scheme shall provide residents:
 - a) convenient and easy access to a bus stop with shelter; and
 - b) access to a bus service of at least 20 minute frequency (7am - 7pm weekdays) between the development and Norwich City Centre.

The scheme shall be implemented in accordance with the approved details prior to the occupation of the 100th dwelling.

- 7. No development shall take place in pursuance of this permission until a detailed landscaping scheme for the main spine road corridor has been submitted to and agreed in writing by the local planning authority. The scheme shall include



arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012 and the following details:

- a) proposed finished levels or contours;
- b) planting plans showing the location, species and numbers of proposed new trees, hedging, shrubs and other planting on the site;
- c) planting schedules, noting species, planting sizes (at time of planting) and proposed numbers/densities where appropriate;
- d) written specifications (including cultivation and other operations associated with plant and grass establishment);
- e) an implementation programme clearly indicating a timescale for the completion of all landscaping works;

The development shall be carried out in full accordance with the agreed details and implementation programme.

8. Prior to commencement of the spine road and or submission of reserved matters, an Environmental Action Plan (EAP) covering the site and the adjacent County Wildlife Site (CWS) shall be submitted to and agreed in writing by the local planning authority. The EAP shall include the following:

- a) detailed scheme of ecological and protected species mitigation and enhancement, informed by the Ecological Report received by the local planning authority 13 April 2013, up dated ecology surveys and hydrological information;
- b) physical measures, in the form of a wet ditch system, to safeguard the long term ecological functioning of the CWS;
- c) a phasing plan for the implementation of the ecological and protected species mitigation and enhancement measures;
- d) a comprehensive Nature Conservation Management Plan relating to land inside the red line boundary depicted on drawing number 1565/NCMF2 (9.16 chapter 9 Ecology). The Plan shall include details of management responsibilities, plan review arrangements, funding, a schedule of management actions covering all phases of development (construction and long-term operation) and include provisions for any unforeseen cessation in management.

The agreed EAP Plan shall be updated prior to the commencement of each phase. The development shall be undertaken in accordance with the approved EAP and the land shall be managed in accordance with the agreed Nature Conservation Management Plan thereafter. Any subsequent variations to the EAP shall first be approved in writing by the local planning authority



9. Application for the approval of all reserved matters shall be made to the local planning authority not later than the expiration of ten years beginning from the date of this permission. The development hereby permitted shall be begun not later than the expiration of two years from the final approval of the reserved matters, or in the case of approval on different dates, the final approval of the last such matter to be approved.
10. With the exception of the access and the main spine road (as detailed under condition 2), no development shall take place in pursuance of this permission until approval of the reserved matters has been obtained from the local planning authority. The reserved matters shall relate to the layout, scale, external appearance and landscaping. Any reserved matters submissions for layout and/or landscaping shall include arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012.
11. The reserved matters shall comply with the mitigation measures included in the Environmental Statement received by the local planning authority on 13 April 2012 (as amended by documents dated 19 October 2012, 1 December 2012 and 1 January 2013), the parameters set out on the Proposed Development Areas plan received 14 February 2013 and the design concept described in the Design and Access Statement (first received 13 April 2012 revised by Addendums D & E) in respect of Vision, the quantum of development, approximate layout of the site, height of blocks (see informative note 1), character areas, access and sustainable transport strategy, landscape/play strategy and integrated design approach.
 - a) Notwithstanding illustrative materials submitted with the application, reserved matters shall exclude the eight storey block previously proposed in the south-west corner of the Marsh Reach character area. For the avoidance of doubt this part of the site is shown on the approved Proposed Development Areas plan received 14 February 2013, as part of the landscaping setting of the development.
 - b) Reserved matters shall include a scheme to facilitate the water based leisure and recreational use of the river frontage, including the provision of moorings and de-masting facilities.
 - c) Notwithstanding the illustrative materials submitted with the application, the detailed site layout within the Marsh Reach/Wensum Riverside areas and the appearance, internal room layout, and glazing and ventilation specifications shall be informed by the need to mitigate the impact of noise from adjacent sources, in particular the asphalt plant/rail head, in order to ensure satisfactory levels of amenity for future residents. Mitigation should be informed by the Noise and Vibration Report dated 19 October 2012, updated and revised where necessary.
 - d) Development within the Wensum Riverside character area shall comply with drawing no. SER001-0014/BZ-DG received by the Local Planning Authority 8 May 2013 regarding the set back of buildings and access roads from the River Yare and River Wensum



- e) Notwithstanding the illustrative materials, landscape details shall include a comprehensive landscape scheme that shall seek to mitigate the visual and environmental impacts of the adjacent minerals site and railhead.
12. Reserved matters applications shall include a scheme for sustainable construction and renewable or low carbon energy for that phase. The scheme/s shall:
- a) maximise opportunities for sustainable construction so far as it is viable and practicable to do so;
 - b) provide for the generation of a minimum of 10% of the predicted energy requirement of the phase from decentralised renewable and/or low carbon sources (as defined in the glossary of Planning Policy Statement: Planning and Climate Change (December 2007) or any subsequent version);
 - c) demonstrate whether or not there is viable and practicable scope for exceeding 10% of the predicted energy requirement of the phase.

The scheme shall include:

- d) details of the sustainable construction techniques proposed; and
 - e) based on d) the estimated annual energy consumption of the phase (expressed in kWh);
 - f) the type/s of decentralised renewable and/or low carbon energy sources proposed including the number or areas of units proposed;
 - g) a plan detailing the location of all external equipment associated with the decentralised renewable and/or low carbon source/s and the part of the development it serves;
 - h) the energy produced per unit or m² for the chosen decentralised renewable and/or low carbon energy source/s (expressed in kWh/unit or kWh/m²);
 - i) the average annual combined energy production of the renewable and/or low carbon energy sources (expressed in kWh);
 - j) details of the ongoing operation and management of the decentralised renewable and/or low carbon energy source/s including maintenance responsibilities.
13. Prior to the submission of any reserved matters application relating to Wensum Riverside character area, a detailed design code for that area shall be submitted to the local planning authority and approved in writing. The design code shall include the following information:



- a) frontage principles, including the set back of properties from the road, division of public and private space and boundary treatments;
- b) building heights and built form including approach to roofscape;
- c) approach to parking location and layout;
- d) landscaping strategy for external areas (private / communal gardens; streets; parking areas; public realm and riverside) including palette of materials to be used in the external surfaces;
- e) approach to the multi-functional use of the Wensum riverside frontage, including the provision of 2m wide (minimum width) pedestrian access for uninhibited public use;
- f) palette of materials for buildings;
- g) architectural treatment (including details of openings and materials) of building elevations at street-level;
- h) approach to the integration of sustainability measures within the building design.

The design code shall conform with the parameters approved at outline stage. All reserved matters applications relating to Wensum Riverside shall comply with the approved design code.

- 14. With the exception of the spine road (as detailed under condition 2) no development shall take place until a development phasing plan and timetable has been submitted to and agreed in writing by the local planning authority. The phasing plan shall cover the whole site including all areas of green infrastructure and surface water drainage features/measures. The phasing plan may subsequently be varied subject to the agreement of the local planning authority in writing. The development shall thereafter be constructed in full accordance with the agreed phasing plan.
- 15. No occupation of any part of the development shall take place until details for the provision of equipped children's play space within the development, based on details set out in the Design and Access Statement Addendum A section 2.3 and Addendum B section A.5 received 13 April 2012 and section A.11 Addendum D received 22 November 2012 have been submitted to the local planning authority and approved in writing. The play spaces should be capable of facilitating the needs of the whole development and should be in line with guidance within the adopted open space and play provision supplementary planning document. The play space shall be provided in full accordance with the approved details and in accordance with the timetable for the provision of green infrastructure as agreed under condition 14.
- 16. With the exception of the spine road (as detailed under condition 2) and the areas covered by the EAP (as detailed under condition 8) no development of any phase agreed under condition 14 shall take place until an open space



management plan has been submitted to the local planning authority and approved in writing for that phase. The open space management plan shall detail management responsibilities and include a schedule of maintenance operations for all areas of green infrastructure within that phase and all other areas of that phase which do not form part of the private curtilage of a property or adopted highway (including, for the avoidance of doubt, both soft and hard landscaped areas and parking areas). The plan shall provide for the replacement of any trees or plants which die, are removed, uprooted, destroyed or become seriously damaged or defective. Management shall commence in full accordance with the approved landscape management plan immediately after completion of landscape works details of which are to be agreed under condition 10 (reserved matters for landscaping).

17. With the exception of the spine road (as detailed under condition 2) no development of any phase agreed under condition 14 shall take place in pursuance of this permission until precise details of the slab levels of the dwelling/blocks of dwellings have been submitted to and agreed in writing by the local planning authority. Such details shall also provide comparative levels with existing adjoining properties and details of the levels of any ground levels and boundary treatments proposed. The development shall be carried out in accordance with the details as approved.
18. At least 10% of dwellings on the site shall be designed to lifetime homes standard.
19. The small local centre hereby permitted shall provide no more than a total of 1,265 sqm gross external floor space as specified in the Environmental Statement Section 10 Table 15 received 13 April 2012 and shall provide no more than 9 individual planning units and no individual planning unit shall exceed 500 sqm gross external floor space. The small local centre shall only be used for uses within use classes A1 (shops), A2 (financial and professional services) or A3 (restaurants and cafes) as defined by the Town and Country Planning (Use Classes) Order 1987 as amended (or in any provision equivalent to that Class in any statutory instrument revoking and re-enacting that Order, with or without modification) and notwithstanding the provisions of Schedule 2, Part 3 of the Town and Country Planning (General Permitted Development) Order 1995 as amended (or any Order revoking and re-enacting that Order, with or without modification) at least 50% of the gross external floor space of the small local centre shall be in A1 retail use.
20. The dining quarter hereby permitted shall provide no more than a total of 999 sqm gross external floor space as specified in the Environmental Statement Section 10 Table 15 received 13 April 2012, as amended by the letter from the applicant's agent dated 25th April 2013 and shall provide no more than 6 individual planning units and no individual planning unit shall exceed 500 sqm gross external floor space. The dining quarter shall only be used for uses within use classes A3 (restaurants and cafes) or A4 (drinking establishments) as defined by the Town and Country Planning (Use Classes) Order 1987 as amended (or in any provision equivalent to that Class in any statutory instrument revoking and re-enacting that Order, with or without modification). The premises which form the dining quarter shall not be open to the public,



trading, or have members of the public, as customers or guests, on the premises between 0000 and 0700 on any day.

21. No commercial extract ventilation or fume extraction system shall be installed or erected on the site unless in accordance with a detailed scheme that has been submitted to and approved in writing by the local planning authority. The detailed scheme shall include the position of ventilation, fume or flue outlet points and the type of filtration or other fume treatment to be installed and used in the premises in pursuance of this permission, together with a schedule of maintenance. No use of the premises as hereby permitted shall take place until the approved scheme has been installed and is operational and thereafter it shall be retained in full accordance with the approved details and the maintenance of the system, including any flue, shall be carried out in accordance with the scheme as agreed.
22. No development shall take place until a detailed scheme for the undergrounding of the overhead power cables and the removal of existing infrastructure and cables, as agreed with the distribution network operator, has been submitted to and agreed in writing with the local planning authority.
23. With the exception of the spine road (as detailed under condition 2), unless otherwise agreed in writing by the local planning authority, no development of any phase on the Deal Ground, agreed under condition 14, shall take place until it has been demonstrated and the local planning authority has confirmed in writing, that it is satisfied that relevant consents and full access rights are in place to allow public access for pedestrians and cyclists into perpetuity from The Street over a bridge crossing the River Wensum to either the adopted highway or where it exists to the formal Riverside Walk network, on the northern side of the river.
24. Unless otherwise agreed in writing by the local planning authority, no dwelling on the Deal Ground shall be occupied prior to the provision of the Yare bridge (as approved under condition 2) and a bridge providing pedestrian and cycle access over the River Wensum and a route for cyclists and pedestrians being freely available for public use in perpetuity linking either the adopted highway or the formal Riverside Walk network on the northern side of the River Wensum to adopted highway on the Deal Ground.
25. With the exception of the spine road (as detailed under condition 2), no development shall take place in pursuance of this permission until an Interim Travel Plan has been submitted to and approved in writing by the local planning authority, in consultation with the Highway Authority. Such a Travel Plan shall accord with Norfolk County Council document 'Guidance Notes for the Submission of Travel Plans' (or any approved variation to that document) or be produced using the Workplace Travel Plan Generator Tool, www.worktravelplan.net.
26. No part of the development hereby permitted shall be occupied until the approved Interim Travel Plan referred to in condition 25 above has been implemented. During the first year of occupation a Full Travel Plan, based on the Interim Travel Plan referred to in condition 25 above and including details of



proposed implementation and mechanisms for monitoring and review, shall be submitted to the local planning authority for approval, in consultation with the Highway Authority. The Approved Full Travel Plan shall be implemented in accordance with the timetable and targets contained therein and shall continue to be implemented as long as any part of the development is occupied and used for a purpose in accordance with this permission, subject to approved modifications as agreed by the local planning authority, in consultation with the Highway Authority, as part of the annual review.

27. With the exception of the accesses and spine road (as detailed under condition 2), no development of any phase agreed under condition 14 shall take place until details of the design, construction and surfacing of roadways, footpaths and cycle ways and an implementation plan for the works have been submitted to and approved in writing by the local planning authority for that phase. The roadways, footpaths and cycle ways shall be constructed in full accordance with the approved details and implementation plan.
28. No occupation of any dwelling shall take place until car parking, cycle parking and storage and bin storage and collection facilities have been provided in accordance with details to be agreed under condition 10 (reserved matters for layout and landscaping).
29. With the exception of the access and spine road (as detailed under condition 2), no occupation of any phase agreed under condition 14 shall take place until appropriate traffic regulations orders have been secured to facilitate the delivery of the Transport Strategy (Environmental Statement - Section 6 dated July 2010, received 13 April 2013) and parking and access arrangements to be agreed under condition 10 (reserved matters for layout and landscaping).
30. The development shall be constructed with a minimum finished floor level of 2.4AOD, as detailed in the approved Flood Risk Assessment.
31. Prior to the commencement of development, details of a safe exit route, not adversely affecting the flood regime, to land outside the 1:100 year floodplain shall be submitted to and agreed, in writing, with the local planning authority. The route shall be constructed and completed before occupancy of any part of the proposed development
32. Prior to the commencement of the main spine road or development of any phase agreed under condition 14, a scheme for the provision and implementation of compensatory flood storage works for that phase based on the principles set out in the Flood Risk Assessment (Environmental Statement: Section 7 dated November 2010, received 13th April 2012) and section 2.6 of the Design and Access Statement (Addendum A, received 13th April 2012) shall be submitted to and approved, in writing by the local planning authority. The approved scheme shall be constructed and completed in accordance with the approved details and implementation timetable.
33. No development of the main spine road (as detailed under condition 2), or any phase agreed under condition 14 shall take place until a surface water drainage scheme for that phase, based on sustainable drainage principles and an



assessment of the hydrological and hydro geological context of the development and the principles outlined in the Flood Risk Assessment and section 2.6 of the Design and Access Statement (addendum A) received 13 April 2012, has been submitted to and approved in writing by the local planning authority. The scheme shall also include:

- a) details of the proposed location, dimensions and design of each element of the surface water scheme;
- b) calculations of the existing runoff rates from the sites in a range of probability rainfall events including 1 in 1 year, the 1 in 30 year and the 1 in 100 year, and a range of rainfall durations for each probability rainfall event;
- c) restriction of the surface water runoff into the river to no greater than the existing runoff rates to ensure there is no increase in offsite flood risk. This should include consideration of how the proposed runoff rates compare to the existing runoff events for a range of rainfall events from the 1 in 1 year to the 1 in 100 year events including climate change, with an assessment of a range of rainfall durations for each event;
- d) calculations to demonstrate that the proposed attenuation storage features are sized to contain the peak duration 1:100 year rainfall event including climate change;
- e) calculations to demonstrate how the pipe network will perform in the 1 in 30 year and 1 in 100 year rainfall events including climate change, to show that there will be no above ground flooding in the 1 in 30 year rainfall events, and details of the volumes and location of any surcharging water in the 1 in 100 year rainfall event including climate change to demonstrate where it will be stored to ensure no flooding of buildings or offsite flooding;
- f) details of the location and volumes of surface water exceedence flows in an extreme rainfall event or in the event of pump failure, to demonstrate where the water will flow and be stored to prevent buildings flooding;
- g) details of who is responsible for the adoption and maintenance of each aspect of the proposed surface water system for the lifetime of the proposed development, and details of the maintenance measures proposed.

The scheme shall subsequently be implemented in accordance with the approved details before the development is completed.

34. With the exception of spine road (as detailed under condition 2, no development of any phase agreed under condition 14 shall take place until a details of Flood Resilient Construction measures for that phase based on the the principles outlined within the submitted Flood Risk Assessment 7.66 - 7.71 (Environmental Statement: Section 7 received by the local planning authority on 13th April 2012, has been submitted to and approved in writing by the local



planning authority. The scheme shall be constructed and completed in accordance with the agreed details before occupancy of any part of the proposed development

35. Prior to the occupation of any building a Flood Risk Management Plan including arrangements for flood warning and evacuation shall be submitted to and approved in writing by the local planning authority. The approved plan, up dated where necessary, shall remain in force for the life time of the development.
36. No development shall take place within the site in pursuance of this permission until the following components of a scheme to deal with the risks associated with contamination of the site have each been submitted to and approved, in writing, by the local planning authority:
 - a) a preliminary risk assessment which has identified:
 - i) all previous uses;
 - ii) potential contaminants associated with those uses;
 - iii) a conceptual model of the site indicating sources, pathways and receptors;
 - iv) potentially unacceptable risks arising from contamination at the site;
 - b) a site investigation scheme, based on the preliminary risk assessment, to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site;
 - c) a written report containing the site investigation results and the detailed risk assessment of the risk to all receptors that may be affected and, based on these, if required, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken;
 - d) a verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

Phasing of requirements b), c) and d) may be permissible where approved in writing by the local planning authority and provided works would not prevent the adequate investigation, assessment and validation remediation of subsequent phases of the development. Any works on site shall be in accordance with the scheme as approved and any changes to any of the details specified above would require the further express consent of the local planning authority.



37. No occupation of the development or where applicable any phase agree under condition 14 and 36 hereby approved shall take place, until a verification report demonstrating completion of the works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved in writing, by the local planning authority. The report shall include sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include any plan (a 'long-term monitoring and maintenance plan') for longer term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan, and for the reporting of this to the local planning authority. The long-term monitoring and maintenance plan shall be implemented as approved.
38. Reports on monitoring, maintenance and any contingency action carried out in accordance with a long-term monitoring and maintenance plan, shall be submitted to the local planning authority as set out in that plan. On completion of the monitoring programme a final report demonstrating that all long-term remediation criteria have been met and documenting the decision to cease monitoring shall be submitted to and approved in writing by the local planning authority.
39. If, during development, contamination not previously identified is found to be present, then no further development (unless otherwise agreed in writing with the local planning authority) shall be carried out until the developer has submitted and obtained written approval from the local planning authority for, a remediation strategy detailing how this unsuspected contamination shall be dealt with. The remediation strategy shall be implemented as approved.
40. Prior to the commencement of any development, a scheme for the provision and implementation of pollution control shall be submitted to, and agreed in writing by the local planning authority. The works/scheme shall be constructed and completed in accordance with the approved specification at such times as may be specified in the approved scheme.
41. With the exception of the accesses and spine road (as detailed under condition 2), no development of any phase agreed under condition 14 shall take place until details for the provision of fire hydrants have been submitted to and agreed in writing by the local planning authority in consultation with Norfolk Fire Service. No occupation of any part of the development hereby approved shall take place until the hydrant serving that part of the development has been provided in full accordance with the approved details. The hydrants shall be retained as such thereafter.
42. No development shall take place in pursuance of this permission until a Construction Method Statement for the spine road and for each phase of the development as agreed under condition 14, has been submitted to, and approved in writing by the local planning authority. The approved Statement/s shall be adhered to throughout the construction period for the construction of the accesses and spine road and for each phase of development. The Statement shall provide for:



- a) proposed construction hours;
- b) the parking of vehicles of site operatives and visitors;
- c) the location of site compounds;
- d) construction vehicle access routes;
- e) loading and unloading of plant and materials;
- f) storage of plant and materials used in constructing the development;
- g) storage of fuel/oil and hazardous products or chemicals and measures to prevent pollution of ground water;
- h) silt containment;
- i) the erection and maintenance of security hoarding, including decorative displays and facilities for public viewing, where appropriate;
- j) wheel washing facilities;
- k) measures to control the emission of dust and dirt during construction;
- l) measures to control light pollution from temporary lighting to areas of retained scrub, hedgerows and trees; and
- m) site clearance of any scrub, hedgerows or trees, which are to be removed, to take place outside bird nesting season March - August inclusive, unless otherwise agreed in writing with the local planning authority.

43. No development shall take place in pursuance of this permission until a Construction and Environmental Management Plan (CEMP) has been submitted to and approved in writing by the local planning authority. The approved CEMP shall be adhered to throughout the construction of the accesses and spine road and each phase of development. The Statement shall include:

- a) details of the project management structure and clearly identify the roles and responsibilities with regard to managing and reporting on the construction phase environmental aspects;
- b) an Environmental Risk Assessment identifying all aspects of construction that could have an environmental impact and assesses the potential risk and impact of that activity on the environment;
- c) management controls to eliminate and/or minimise identified impacts;
- d) a programme of monitoring, reporting and auditing of compliance in accordance with any obligations of the planning consent, licences and



approvals should also be contained in the CEMP to ensure that identified and appropriate control measures are effective.

44. Any buildings within Area 2 as identified on the plan entitled Proposed Development Areas received 14 February 2013 shall be for ancillary purposes only (e.g. service buildings and bins stores etc).
45. With the exception of the accesses and spine road (as detailed under condition 2) no occupation of any phase agreed under condition 14 shall take place until details of external lighting of roads, parking areas, green infrastructure and other public space has been submitted to the local planning authority and approved in writing. The details shall include the type, location, numbers and height of the proposed lighting. Lighting on site shall be in full accordance with the approved details and shall be retained thereafter.
46. With the exception of the accesses and spine road (as detailed under condition 2), no development of any phase agreed under condition 14 shall take place until a detailed scheme for the conversion of the brick kiln to a bat hibernaculum has been submitted and agreed in writing by the local planning authority. The scheme shall include details of: works to the structure; hard and soft landscaping proposals affecting the setting of the structure (including details of any ground level changes) and phasing plans for the works. The development shall be carried out in accordance with the approved details.
47. No development shall commence until a foul water strategy has been submitted to and approved in writing by the local planning authority. The development shall be carried out in strict accordance with the approved scheme prior to first occupation of any dwelling unless otherwise approved in writing by the local planning authority.
48. All imported topsoil and subsoil for use on the site shall either (a) be certified to confirm its source and that it is appropriate for its intended use. No occupation of the development shall take place until a copy of the certification has been submitted to the local planning authority; or (b) in the absence of suitable certification, analysis of the imported material will be required along with evaluation against the derived assessment criteria for this site.

Reasons:

1. As required to be imposed by section 91 of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004. In this case an extended period of time is allowed given the complexity of this site and the adjacent Utilities site and the lead in period for infrastructure works.
2. To ensure the satisfactory provision of essential infrastructure in accordance with the NPPF, policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policy HBE12 of the adopted City of Norwich Replacement Local Plan 2004.



3. To ensure that the highway improvement works are designed to an appropriate standard in the interest of highway safety and to protect the environment of the local highway corridor in accordance with policies HOU3, TRA3 and TRA15 of the adopted City of Norwich Replacement Local Plan 2004.
4. To ensure that the highway network is adequate to cater for the development proposed in accordance with policies HOU3, TRA3 and TRA15 of the adopted City of Norwich Replacement Local Plan 2004.
5. Primary access to the Deal Ground consists of a single spine road, crossing over an engineered structure (Yare Bridge). Given the scale of development a secondary means of access is required in order to ensure emergency access and egress (including during flooding events) at all times.
6. To promote the use of public transport by residents and facilitate modal shift in accordance with the NPPF policy 6 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policy TRA3 of the adopted City of Norwich Replacement Local Plan 2004.
7. In the interests of the satisfactory appearance of the development and to enhance biodiversity in accordance with the NPPF, policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policies HBE12, NE8 and NE9 of the adopted City of Norwich Replacement Local Plan 2004.
8. To ensure the ecological interest of the site, in terms of both wildlife and habitat, is enhanced as part of the development process, in accordance with the NPPF and saved policies NE8 and NE9 of the adopted City of Norwich Replacement Local Plan 2004.
9. As required to be imposed by section 92 of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004.
10. The application is submitted in outline form only and the details required are pursuant to the provisions of Article 4(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2010. Further arboricultural and ecological surveys have been identified as necessary to comply with the NPPF, policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk and saved policies NE1, NE7, NE8 and NE9 of the adopted City of Norwich Replacement Local Plan 2004 and due to the level of information submitted at outline stage and due to the lifetime of the development in question.
11. For the avoidance of doubt and to comply with Article 4 of the Town and Country Planning (Development Management Procedure) (England) Order 2010.
12. To ensure sustainable construction is maximised and to secure at least 10% of the site's energy from decentralised and renewable or low carbon sources to



accord with policy 3 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

13. To ensure a consistent approach to the design of the river frontage in the interests of the visual appearance of the site and to accord with the NPPF, policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk and saved policy HBE12 of the adopted City of Norwich Replacement Local Plan 2004.
14. To ensure that any phasing of the development is satisfactory in terms of the sites operation and visual appearance and to ensure that the delivery of mitigation measures can be co-ordinated across the phased development in accordance with the NPPF and saved policies NE8, NE9, HBE12 and EP22 of the adopted City of Norwich Replacement Local Plan 2004.
15. To ensure the satisfactory provision of childrens play space and to accord with saved policy SR7 of the adopted City of Norwich Replacement Local Plan 2004.
16. To ensure the satisfactory ongoing management and maintenance of all areas of public space on the site in accordance with the NPPF, policies 1 and 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk and saved policies NE8, NE9, HBE12 and EP22 of the adopted City of Norwich Replacement Local Plan 2004.
17. To ensure the development of the site results in a high quality design and does not result in an adverse visual impact, in accordance with the NPPF and saved policies NE1 and HBE12 of the adopted City of Norwich Replacement Local Plan 2004.
18. To ensure the provision of accessible housing which also meets the existing and changing needs of diverse households and to comply with saved policy HOU5 of the adopted City of Norwich Replacement Local Plan 2004.
19. To ensure the floor space is appropriate for the residential location outside of any defined centre and to ensure the vitality and viability of any unit/s provided on site, to accord with the NPPF and saved policies SHO3, SHO15 and EP22 of the adopted City of Norwich Replacement Local Plan 2004 and policy DM21 of the Development Management Policies Development Plan Document Regulation 22 Submission Plan April 2013.
20. To ensure the floor space is appropriate for outside of any defined centre and to ensure the vitality and viability of any unit/s provided on site, to protect the amenity of future residential properties and in the interests of fulfilling the City Council's duty under Section 17 of the Crime and Disorder Act 1998 to minimise the potential for crime, disorder and public nuisance, by ensuring the use operates in a manner that makes the most efficient use of available policing resources to accord with the NPPF and saved policies SHO3 and EP22 of the adopted City of Norwich Replacement Local Plan 2004.
21. To protect the visual and general amenities of the area and prevent nuisance arising from the discharge of fumes in accordance with the NPPF and saved



policies HBE12 and EP22 of the adopted City of Norwich Replacement Local Plan 2004.

22. To ensure that the works: minimise and appropriately mitigate impact on the flora and fauna of the site and County Wildlife Site; utilise proposed primary service routes and assist in facilitating the regeneration of the east Norwich area in accordance with the NPPF, policies 1 and 11 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policy NE7 of the adopted City of Norwich Replacement Local Plan 2004.
23. To provide improved access to the south-east of the city and ensure that future residents of the development have direct and connected pedestrian and cycle access to routes on the north side of the River Wensum, facilitating modal shift and sustainable travel towards the city centre, in accordance with the approved Transport Strategy (dated July 2010, received 13 April 2013), NPPF, policies 2 and 6 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policies TRA 3 and TRA 4 of the adopted City of Norwich Replacement Local Plan 2004.
24. To provide improved access to the south-east of the city and ensure that future residents of the development have direct and connected pedestrian and cycle access to the north side of the River Wensum facilitating modal shift and sustainable travel towards the city centre from the start of the development, in accordance with the approved Transport Strategy (dated July 2010, received 13 April 2013) for the development and NPPF, policies 2 and 6 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policies TRA 3 and TRA 4 of the adopted City of Norwich Replacement Local Plan 2004. Only in exceptional circumstances will the timing of the Wensum bridge be varied, that may be where there is evidence that a short term delay would result in the provision of a bridge to serve the needs of the wider east Norwich area. In such cases it would need to be demonstrated that the bridge had all relevant consents, the build contract had been awarded to allow an imminent start and that adequate temporary arrangements were in place to facilitate sustainable travel patterns by residents.
25. To ensure that the development offers a wide range of travel choices to reduce the impact of travel and transport on the environment in accordance with the NPPF and saved policies TRA3 and TRA12 of the adopted City of Norwich Replacement Local Plan 2004.
26. To ensure that the development offers a wide range of travel choices to reduce the impact of travel and transport on the environment in accordance with the NPPF and saved policies TRA3 and TRA12 of the adopted City of Norwich Replacement Local Plan 2004.
27. To ensure the satisfactory provision of essential infrastructure in accordance with the NPPF, policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policy HBE12 of the adopted City of Norwich Replacement Local Plan 2004.



28. To ensure a satisfactory development of the site which provides for adequate parking, turning, cycle parking and servicing provision for the development, in accordance with saved policies TRA5, TRA6, TRA7 and TRA8 of the adopted City of Norwich Replacement Local Plan 2004.
29. To ensure the effective implementation of the Transport strategy (dated July 2010, received 13 April 2013) and the efficient operation of the highway and in the interests of highway safety.
30. To minimise and mitigate flood risk in accordance with the NPPF and policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.
31. To minimise and mitigate flood risk in accordance with the NPPF and policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.
32. To minimise, mitigate and compensate for flood risk in accordance with the NPPF and policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.
33. To ensure that the development makes adequate provision for sustainable urban drainage and does not adversely contribute to surface water flooding, in accordance with the NPPF and saved policy EP16 of the adopted City of Norwich Replacement Local Plan 2004.
34. To minimise and mitigate flood risk in accordance with the NPPF and policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.
35. To minimise and mitigate flood risk in accordance with the NPPF and policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.
36. To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with the NPPF and saved policies EP1, EP16 and EP17 of the City of Norwich Replacement Local Plan 2004.
37. To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with the NPPF and saved policies EP1, EP16 and EP17 of the City of Norwich Replacement Local Plan 2004.
38. To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be



carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with the NPPF and saved policies EP1, EP16 and EP17 of the City of Norwich Replacement Local Plan 2004.

39. To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with the NPPF and saved policies EP1, EP16 and EP17 of the City of Norwich Replacement Local Plan 2004.
40. To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with the NPPF and saved policies EP1, EP16 and EP17 of the City of Norwich Replacement Local Plan 2004.
41. To ensure that adequate provision is made for fire hydrant infrastructure required for health and safety purposes as a direct result of the development hereby approved, in accordance with policy 20 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.
42. To ensure an adequate standard of residential amenity in the nearby area during construction and to limit the ecological impact of the development, in accordance with the NPPF and with saved policies NE1, NE7, NE8 and EP22 of the adopted City of Norwich Replacement Local Plan 2004.
43. To ensure the ecological interest of the site, in terms of both wildlife and habitat, is enhanced as part of the development process, in accordance with the NPPF and saved policies NE8 and NE9 of the adopted City of Norwich Replacement Local Plan 2004.
44. Area 2 is intended to provide car parking/refuse facilities to serve the development and scope for structure landscaping to both enhance the appearance of the development and mitigate the visual and environmental impacts of the adjacent land uses. For the avoidance of doubt any ancillary buildings within this location will have a sui generis use.
45. To ensure that lighting does not have a negative effect on biodiversity or the amenity of occupiers of the site and to accord with the NPPF, policies 1 and 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk and saved policies NE8, NE9, HBE12 and EP22 of the adopted City of Norwich Replacement Local Plan 2004.
46. To ensure the development preserves the special architectural and historic interest of the listed building, in accordance with the NPPF and saved policy HBE9 of the City of Norwich Replacement Local Plan 2004.
47. To ensure sufficient capacity is available and in the interest of avoiding pollution and flooding in accordance with the objectives of the NPPF.



48. To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with the NPPF and saved policies EP1, EP16 and EP17 of the City of Norwich Replacement Local Plan 2004.

Reasons for Approval:

The environmental information submitted with the application has been taken into account in the determination of the application and the decision has been made with particular regard to the policies 1, 2, 3, 4, 5, 6, 7, 9, 12, 19 and 20 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011, policy CS16 of the adopted Norfolk Minerals and Waste Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2011, saved policies NE1, NE2, NE7, NE8, NE9, HBE4, HBE8, HBE9, HBE12, EP1, EP5, EP10, EP16, EP17, EP18, EP20, EP22, TVA3, SHO3, HOU5, HOU6, SR1, SR2, SR3, SR4, SR5, SR7, SR11, SR12, TRA3, TRA5, TRA6, TRA7, TRA8, TRA10, TRA11, TRA12, TRA14, TRA15 and TRA16 of the adopted City of Norwich Replacement Local Plan 2004, the National Planning Policy Framework and other material considerations.

The Deal Ground comprises an extensive area of disused industrial land and has been identified for many years as a strategic priority for re-development. The site along with the adjoining May Gurney and Utilities site provide the potential for the major physical regeneration of east Norwich by bringing forward mixed development and enhanced green linkages and this is identified as a key objective in JCS 12. Although the proposals depart from Policy EMP9, the application is considered compliant with the NPPF by providing for a sustainable mix and scale of development which will facilitate this regeneration and make a substantial contribution to accommodating a strategic level of housing growth.

It is recognised that the site has significant constraints in terms of access, flood risk, noise environment, landscape and ecology. However, it is considered that the proposed development represents a comprehensive and integrated response to these constraints which manages and mitigates environmental impacts to an acceptable level.

The vision of creating an 'urban village', well connected with the city but integrated into a natural landscape provides the scope for a distinctive and sustainable development. The small local centre and dining quarter will provide local employment and assist the creation of a mixed vibrant development, but be of a scale to not result in an adverse impact elsewhere. The proposed transport strategy is considered a robust response to mitigating the transport impact of the development through actively promoting sustainable travel. The success of this approach will rely on the early provision of the Wensum Bridge and the effective and long term performance of the Transport Management Association.

Although the site is at risk of flooding the substantial regeneration benefits associated with this development, which could not be achieved elsewhere, and the ability to make it safe, justifies the development. Managing flood risk has informed the entire design



concept with the result that property and people will be safe and that over all flood risk would be reduced in this location through the creation of a net gain in flood storage.

The landscape-led approach provides the opportunity for the creation of a high quality, distinctive residential environment with a strong sense of place. Although development will be high in density, there are opportunities for good amenity levels accruing from the sense of landscape integration and views across the marshes to Whittingham. It is recognised that noise associated with the adjacent asphalt plant, rail head and bridge has the potential to have a negative impact on parts of the site. However it is possible to mitigate this impact at reserved matter stages through careful design, which seeks to use building orientation, insulation and landscaping to create psychological separation and reduced noise levels. On this basis the broad distribution and quantum of development is considered justified and not prejudicial to the adjacent safeguarded minerals site.

The design approach responds to the rural fringe location by creating a multi-storey urban form within a strong landscape setting. Although it is acknowledged the visual change will be significant, it is not considered that it will be adverse. The development will form part of a new gateway to the city created through the regeneration of east Norwich. The height of development, the loss of open space and the local impact on the Yare Valley character area have been balanced against the wide social and economic benefits associated with the regeneration of a brown field site.

Most of the development is proposed on land with low biodiversity value but there are direct impacts on the existing Carrow Abbey CWS, an entropic flood plain fen and a UK BAP habitat of moderate to high ecological importance at a county level. The development strategy minimises direct impact on the fen habitat and includes mitigation and enhancements. Long term management will be introduced to arrest the current decline of the fen habitat and reverse the natural succession of the habitat to woodland. The ecological approach proposed to the CWS and wider site will result in a net gain in the biodiversity baseline.

Taking the above matters in to account and the environmental information submitted it is considered that on balance given the need to provide housing and subject to conditions and the content of the S106 Obligation the proposals are considered to be acceptable.

Article 31 (1) (cc) Statement:

The local planning authority in making its decision has had due regard to paragraph 187 of the National Planning Framework as well as the environmental information submitted, the development plan, national planning policy and other material considerations, following negotiations with the applicant and subsequent amendments to the Environmental Statement the application has been approved subject to appropriate conditions and for the reasons outlined above.

Informatives:

1. The Proposed Development Areas plan received 14 February 2013 and the design concept described in the Design and Access Statement (first received 13 April 2012, revised by Addendums D and E) refers to number of storeys. For



the avoidance of doubt a storey has a maximum height of 3.0m and includes ground floor use/s.

2. Anglian Water: The development is within 15 metres of a sewage pumping station. Whilst Anglian Water takes all reasonably practicable steps to prevent any nuisance arising from the site, there should be no development within 15 metres from the boundary of a sewage pumping station of this type if the development is potentially sensitive to noise or other disturbance or which might give rise to complaint from the occupiers regarding the location of the pumping station.
3. This development involves a Travel Plan to be implemented within the scope of a legal agreement between the applicant and Norfolk County Council. Please note that it is the applicants' responsibility to ensure that, in addition to planning permission, any necessary Agreements under the Town and Country Planning Act 1990 or Highways Act 1980 are also obtained. Advice on this matter can be obtained from the County Council's Highways Development Control Group based at County Hall in Norwich. For residential development, Norfolk County Council offers a fully inclusive package covering the writing, implementation, on-going management and annual monitoring of a Travel Plan for 5 years post completion of the development. Up to date costs can at the time of issue be obtained by contacting Stevie Spencer 01603 223370 or stevie.spencer@norfolk.gov.uk.
4. It is an OFFENCE to carry out any works within the Public Highway without the permission of the Highway Authority. This development involves work to the public highway that can only be undertaken within the scope of a legal agreement between the developer and Norwich City Council. Please note that it is the applicants' responsibility to ensure that, in addition to planning permission, any necessary Agreements under the Highways Act 1980 are also obtained. Advice on this matter can be obtained from the City Council's Transport Team based at City Hall, Norwich. Please contact: transport@norwich.gov.uk.
5. This permission is subject to a planning obligation entered into under legal agreement under the provisions of section 106 of the Town and Country Planning Act 1990, as amended.

Note: This notice applies to the following drawings:

Design and Access Statement received 13 April 2012

Addendum B Design and Access Statement received 13 April 2012

Addendum C Design and Access Statement received 13 April 2012

Addendum D Design and Access Statement received 22 November 2012

Addendum E Design and Access Statement dated 1 November 2012



Environmental Statement received 13 April 2012

Revised LVIA Environmental Statement dated 1 November 2012

Revised Noise Environmental Statement received 22 November 2012

Revised Ecology Environmental Statement dated 1 January 2013

Location Plan received 13 April 2012

3009005/B/001 A Layout Plan - Proposed received 13 April 2012

3009005/B/002 A Layout Plan - Proposed received 13 April 2012

3009005/A/015 B Layout Plan - Proposed received 13 April 2012

3009005/A/016 A Layout Plan - Proposed received 13 April 2012

3009005/A/017 A Layout Plan - Proposed received 13 April 2012

3009005/A/018 A Layout Plan - Proposed received 13 April 2012

084/200/020 Layout Plan - Proposed received 13 April 2012

084/200/02B Indicative Master Layout Plan - Proposed received 13 April 2012

Proposed Development Areas Layout Plan - Proposed received 14 February 2013

SER001-0014/BZ-DG Layout Plan - Proposed received 8 May 2013

Graham Nelson
Head of Planning Services

Growth & Localism

Swan Lane Long Stratton Norwich NR15 2XE

Tel: 01508 533633 Fax: 01508 533625

Minicom: 01508 533622 **Answer phone:** 01508 533649 **Email:** planning@s-norfolk.gov.uk

DX 130080 Long Stratton 2 **Website** www.south-norfolk.gov.uk



APPROVAL OF OUTLINE PLANNING PERMISSION

Ref: 2011/0152/O

Agent

Mr Philip Atkinson
Lanpro Services
4 St Marys House
Duke Street
Norwich
NR3 1QA

Applicant

Serruys Property Company Ltd
C/O Agent

Location: The Deal Ground And Former May Gurney Site, The Street, Trowse

Proposal: Outline planning application (full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3): a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures inc earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats.

Particulars of decision: The District Council hereby gives notice in pursuance of the Town and Country Planning Act 1990 that outline planning permission **has been granted** for the carrying out of development referred to above in accordance with the application form and plans submitted subject to compliance with the following conditions:

1. Application for the approval of all reserved matters shall be made to the local planning authority not later than the expiration of ten years beginning from the date of this permission. The development hereby permitted shall be begun not later than the expiration of two years from the final approval of the reserved matters, or in the case of approval on different dates, the final approval of the last such matter to be approved.

Reason for condition

As required to be imposed by section 92 of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004.

2. The access/main spine road as detailed on approved drawings; 3009005/B/001 A, 3009005/B/002 A, 3009005/A/015 B, 3009005/AB/016 A, 3009005/A/017 A and 3009005/A/018 A, received by the Local Planning Authority on 17 April 2012 shall be begun before the expiration of ten years from the date of this permission.

Reason for condition

As required to be imposed by section 91 of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004. In this case an extended period of time is allowed given the complexity of this site and the adjacent Utilities site and the lead in period for infrastructure works.

3. With the exception of the access and the main spine road, no development shall take place in pursuance of this permission until approval of the reserved matters has been obtained from the local planning authority. The reserved matters shall relate to the layout, scale, external appearance and landscaping. Any reserved matters submissions for layout and/or landscaping shall include arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012.

Reason for condition

The application is submitted in outline form only and the details required are pursuant to the provisions of Article 4(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2010. Further arboricultural and ecological surveys have been identified as necessary to comply with the NPPF, and policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk.

4. No development shall take place in pursuance of this permission until the following details have been submitted to and approved in writing by the Local Planning Authority in consultation with the Highway Authority and where necessary the Environment Agency:
- a) full details of the access/ spine road and associated footways and cycle ways
 - b) lighting scheme for the route
 - c) foul and surface water strategy
 - d) technical drawings of the Yare bridge and any culverts. In the event of the bridge design and culvert sizes departing from those modelled in the Flood Risk Assessment dated July 2010 (received by the Local Planning Authority 13 April 2012) the details shall include further modelling to demonstrate no adverse impact on flood flows
 - e) details of the secondary/emergency routes and measures to control access
 - f) phasing plan for the construction and implementation of infrastructure listed above.

The infrastructure shall be implemented in full accordance with the agreed details and implementation plan.

Reason for condition

To ensure the satisfactory provision of essential infrastructure in accordance with the NPPF and policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

5. Notwithstanding the details indicated on the submitted drawings no works shall commence on site until a detailed scheme for the access and off-site highway improvement works on the Street as indicated on drawings numbered 3009005/A/015 Rev B and 3009005/B/002Rev A have been submitted to and approved in writing by the Local Planning Authority in consultation with the Highway Authority. (For the avoidance of doubt the site access/The street junction will not be signalised. Also the footway/cycleway works proposed for Bracondale will not be constructed and will be replaced by an on-carriageway cycle lane scheme.)

Reason for condition

To ensure that the highway improvement works are designed to an appropriate standard in the interest of highway safety and to protect the environment of the local highway corridor in accordance with saved policy IMP8 of the South Norfolk Local Plan 2003.

6. Prior to first occupation of the development hereby permitted the off-site highway improvements referred to above shall be completed to the written satisfaction of the Local Planning Authority in consultation with the Highway Authority unless otherwise agreed in writing.

Reason

To ensure that the highway network is adequate to cater for the development proposed in accordance with saved policy IMP8 of the South Norfolk Local Plan 2003.

7. No development shall take place in pursuance of this permission until a detailed landscaping scheme for the main spine road corridor has been submitted to and agreed in writing with the Local Planning Authority. The scheme shall include arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012 and the following details:
- a) proposed finished levels or contours;
 - b) planting plans showing the location, species and numbers of proposed new trees, hedging, shrubs and other planting on the site;
 - c) planting schedules, noting species, planting sizes (at time of planting) and proposed numbers/densities where appropriate;
 - d) written specifications (including cultivation and other operations associated with plant and grass establishment).
 - e) an implementation programme clearly indicating a timescale for the completion of all landscaping works;

The development shall be carried out in full accordance with the agreed details and implementation programme.

Reason

In the interests of the satisfactory appearance of the development and to enhance biodiversity in accordance with the NPPF, policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policy IMP2 of the South Norfolk Local Plan 2003.

8. The reserved matters shall comply with the mitigation measures included in the Environmental Statement received by the local planning authority on 13 April 2012 (as amended by documents dated 19 October 2012, 1 December 2012 and 1 January 2013), the parameters set out on the Proposed Development Areas plan received 7 February 2013 and the design concept described in the Design and Access Statement (first received 17 April 2012 revised by Addendums D & E) in respect of Vision, the quantum of development, approximate layout of the site, height of blocks (see informative note 1), character areas, access and sustainable transport strategy, landscape/play strategy and integrated design approach.
- a) Notwithstanding illustrative materials submitted with the application, reserved matters shall exclude the eight storey block previously proposed in the south-west corner of the Marsh Reach character area. For the avoidance of doubt this part of the site is shown on the approved Proposed Development Areas plan received 7 February 2013, as part of the landscaping setting of the development.
 - b) Reserved matters shall include a scheme to facilitate the water based leisure and recreational use of the river frontage, including the provision of moorings and de-masting facilities.
 - c) Notwithstanding the illustrative materials submitted with the application, the detailed site layout within the Marsh Reach/Wensum Riverside areas and the appearance, internal room layout, and glazing and ventilation specifications shall be informed by the need to mitigate the impact of noise from adjacent sources, in particular the asphalt plant/rail head, in order to ensure satisfactory levels of amenity for future residents. Mitigation should be informed

by the Noise and Vibration Report dated 19 October 2012, updated and revised where necessary.

d) Development within the Wensum Riverside character area shall comply with drawing no. SER001-0014/BZ-DG received by the Local Planning Authority 8 May 2013 regarding the set back of buildings and access roads from the River Yare and River Wensum

e) Notwithstanding the illustrative materials, landscape details shall include a comprehensive landscape scheme that shall seek to mitigate the visual and environmental impacts of the adjacent minerals site and railhead.

Reason for condition

For the avoidance of doubt and to comply with Article 4 of the Town and Country Planning (Development Management Procedure) (England) Order 2010

9. Reserved matters applications shall include a scheme for sustainable construction and renewable or low carbon energy. The scheme/s shall:
- a) maximise opportunities for sustainable construction so far as it is viable and practicable to do so;
 - b) provide for the generation of a minimum of 10% of the predicted energy requirement of the phase from decentralised renewable and/or low carbon sources (as defined in the glossary of Planning Policy Statement: Planning and Climate Change (December 2007) or any subsequent version);
 - c) demonstrate whether or not there is viable and practicable scope for exceeding 10% of the predicted energy requirement of the phase.
- The scheme shall include:
- d) details of the sustainable construction techniques proposed; and
 - e) based on d) the estimated annual energy consumption of the phase (expressed in kWh);
 - f) the type/s of decentralised renewable and/or low carbon energy sources proposed including the number or areas of units proposed;
 - g) a plan detailing the location of all external equipment associated with the decentralised renewable and/or low carbon source/s and the part of the development it serves;
 - h) the energy produced per unit or m² for the chosen decentralised renewable and/or low carbon energy source/s (expressed in kWh/unit or kWh/m²);
 - i) the average annual combined energy production of the renewable and/or low carbon energy sources (expressed in kWh);
 - j) details of the ongoing operation and management of the decentralised renewable and/or low carbon energy source/s including maintenance responsibilities.

Reason for condition

To ensure sustainable construction is maximised and to secure at least 10% of the site's energy from decentralised and renewable or low carbon sources to accord with policy 3 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

10. Prior to the submission of any reserved matters application relating to Wensum Riverside character area, a detailed design code for that area shall be submitted to the Local Planning Authority and approved in writing. The design code shall include the following information:
- a) Frontage principles, including the set back of properties from the road, division of public and private space and boundary treatments;
 - b) Building heights and built form including approach to roofscape

- c) Approach to parking location and layout;
 - d) Landscaping strategy for external areas (private / communal gardens; streets; parking areas; public realm and riverside) including palette of materials to be used in the external surfaces.
 - e) Approach to the multi-functional use of the Wensum riverside frontage including the provision of 2m wide (minimum width) pedestrian access for uninhibited public use.
 - f) Palette of materials for buildings
 - g) Architectural treatment (including details of openings and materials) of building elevations at street-level
 - h) Approach to the integration of sustainability measures within the building design.
- The design code shall conform with the parameters approved at outline stage. All reserved matters applications relating to Wensum Riverside shall comply with the approved design code.

Reason for condition

To ensure a consistent approach to the design of the river frontage in the interests of the visual appearance of the site and to accord with the NPPF and Policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk.

11. With the exception of the spine road no development shall take place until a development phasing plan and timetable has been submitted to and agreed by the Local Planning Authority in writing. The phasing plan shall cover the whole site including all areas of green infrastructure and surface water drainage features/measures. The phasing plan may subsequently be varied subject to the agreement of the Local Planning Authority in writing. The development shall thereafter be constructed in full accordance with the agreed phasing plan.

Reason for condition

To ensure that any phasing of the development is satisfactory in terms of the sites operation and visual appearance and to ensure that the delivery of mitigation measures can be co-ordinated across the phased development in accordance with the NPPF and Policy 2 of the Joint Core Strategy for Broadland, Norwich and South Norfolk.

12. With the exception of the spine road no development of any phase as agreed under condition 11 shall take place in pursuance of this permission until precise details of the slab levels of the dwelling/blocks of dwellings have been submitted to and agreed in writing by the local planning authority. Such details shall also provide comparative levels with existing adjoining properties and details of the levels of any ground levels and boundary treatments proposed. The development shall be carried out in accordance with the details as approved.

Reason for condition

To ensure the development of the site results in a high quality design and does not result in detriment to the living conditions of neighbouring residents, in accordance with the NPPF and saved policy IMP9 of the South Norfolk Local Plan 2003.

13. The small local centre hereby permitted shall provide no more than a total of 1,265 sqm gross external floor space as specified in the Environmental Statement Section 10 Table 15 received 17 April 2012 and shall provide no more than 9 individual planning units and no individual planning unit shall exceed 500 sqm gross external floor space. The small local centre shall only be used for uses within use classes A1 (shops), A2 (financial and professional services) or A3 (restaurants and cafes) as defined by the Town and Country Planning (Use Classes) Order 1987 as amended (or in any provision equivalent to that Class in any statutory instrument revoking and re-enacting that Order, with or without

modification) and notwithstanding the provisions of Schedule 2, Part 3 of the Town and Country Planning (General Permitted Development) Order 1995 as amended (or any Order revoking and re-enacting that Order, with or without modification) at least 50% of the gross external floor space of the small local centre shall be in A1 retail use.

Reason for condition

To ensure the floor space is appropriate for the residential location outside of any defined centre and to ensure the vitality and viability of any unit/s provided on site, to accord with the NPPF and saved policy SHO8 of the South Norfolk Local Plan 2003.

14. No development shall take place until a detailed scheme for the undergrounding of the overhead power cables and the removal of existing infrastructure and cables as agreed with the distribution network operator, has been submitted to and agreed in writing by the Local Planning Authority.

Reason for condition

To ensure that the works: minimise and appropriately mitigate impact on the on the flora and fauna on the site and County Wildlife Site; utilise proposed primary service routes and assists in facilitating the regeneration of the east Norwich area in accordance with the NPPF and policies 1 and 11 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

15. No occupancy of any dwelling within the the May Gurney site shall take place until the approved scheme for the undergrounding of the overhead power cables has been implemented and completed in full.

Reason for condition

In the interests of the amenities of the occupiers of the approved dwellings in accordance with section 6 NPPF.

16. With the exception of the spine road (as detailed under condition 2), unless otherwise agreed in writing by the local planning authority, no development of any phase on the Deal Ground, agreed under condition 11, shall take place until it has been demonstrated and the local planning authority has confirmed in writing, that it is satisfied that relevant consents and full access rights are in place to allow public access for pedestrians and cyclists into perpetuity from The Street over a bridge crossing the River Wensum to either the adopted highway or where it exists to the formal Riverside Walk network, on the northern side of the river.

Reason for condition

To provide improved access to the south-east of the city and ensure that future residents of the development have direct and connected pedestrian and cycle access to routes on the north side of the River Wensum, facilitating modal shift and sustainable travel towards the city centre, in accordance with the approved Transport Strategy (dated July 2010, received 13 April 2013), NPPF, policies 2 and 6 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

17. Unless otherwise agreed in writing by the local planning authority, no dwelling on the Deal Ground shall be occupied prior to the provision of the Yare bridge (as approved under condition 2) and a bridge providing pedestrian and cycle access over the River Wensum and a route for cyclists and pedestrians being freely available for public use in perpetuity linking either the adopted highway or the formal Riverside Walk network on the northern side of the River Wensum to adopted highway on the Deal Ground.

Reason for condition

To provide improved access to the south-east of the city and ensure that future residents of the development have direct and connected pedestrian and cycle access to the north side of the River Wensum facilitating modal shift and sustainable travel towards the city centre from the start of the development, in accordance with the approved Transport Strategy (dated July 2010, received 17 April 2013) for the development and NPPF, and policies 2 and 6 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011. Only in exceptional circumstances will the timing of the bridge be varied, that is where there is evidence that a short term delay would result in the provision of a bridge to serve the needs of the wider east Norwich area. In such cases it would need to be demonstrated that the bridge had all relevant consents, the build contract had been awarded to allow an imminent start and that adequate temporary arrangements were in place to facilitate sustainable travel patterns by residents.

18. With the exception of the spine road no development shall take place in pursuance of this permission until an Interim Travel Plan has been submitted to and approved in writing by the Local Planning Authority, in consultation with the Highway Authority. Such a Travel Plan shall accord with Norfolk County Council document 'Guidance Notes for the Submission of Travel Plans' (or any approved variation to that document) or be produced using the Workplace Travel Plan Generator Tool, www.worktravelplan.net.

Reason for condition

To ensure that the development offers a wide range of travel choices to reduce the impact of travel and transport on the environment in accordance with the NPPF and saved policy IMP8 of the South Norfolk Local Plan 2003.

19. No part of the development hereby permitted shall be occupied until the approved Interim Travel Plan referred to above has been implemented. During the first year of occupation a Full Travel Plan, based on the Interim Travel Plan referred to above and including details of proposed implementation and mechanisms for monitoring and review, shall be submitted to the local planning authority for approval, in consultation with the Highway Authority. The Approved Full Travel Plan shall be implemented in accordance with the timetable and targets contained therein and shall continue to be implemented as long as any part of the development is occupied and used for a purpose in accordance with this permission, subject to approved modifications as agreed by the Local Planning Authority, in consultation with the Highway Authority, as part of the annual review.

Reason for condition

To ensure that the development offers a wide range of travel choices to reduce the impact of travel and transport on the environment in accordance with the NPPF and saved policy IMP8 of the South Norfolk Local Plan 2003.

20. With the exception of the accesses and spine road no development of any phase as agreed under condition 11 shall take place until details of the design, construction and surfacing of roadways, footpaths and cycle ways and an implementation plan for the works have been submitted to and approved in writing by the Local Planning Authority. The roadways, footpaths and cycle ways shall be constructed in full accordance with the approved details and implementation plan.

Reason for condition

To ensure the satisfactory provision of essential infrastructure in accordance with the NPPF, policy 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011 and saved policy IMP8 of the South Norfolk Local Plan 2003.

21. No occupation of any dwelling shall take place until car parking, cycle parking and storage and bin storage and collection facilities have been provided in accordance with details agreed under the reserved matters for layout and landscaping.

Reason for condition

To ensure a satisfactory development of the site which provides for adequate parking, turning, cycle parking and servicing provision for the development, in accordance with saved policy IMP8 of the South Norfolk Local Plan 2003.

22. With the exception of the access and spine road no occupation of any phase shall take place until appropriate traffic regulations orders have been secured to facilitate the delivery of the Transport Strategy (Environmental Statement - Section 6 dated July 2010, received 17 April 2013) and parking and access arrangements.

Reason for condition

To ensure the effective implementation of the Transport strategy (dated July 2010, received 17 April 2013) and the efficient operation of the highway and in the interests of highway safety in accordance with saved policy IMP8 of the South Norfolk Local Plan 2003.

23. The development shall be constructed with a minimum finished floor level of 2.4 AOD, as detailed in the approved Flood Risk Assessment.

Reason for condition

To minimise and mitigate flood risk in accordance with section 10 of the NPPF and Policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

24. Prior to the commencement of development, details of a safe exit route, not adversely affecting the flood regime, to land outside the 1:100 year floodplain shall be submitted to and agreed, in writing, with the Local Planning authority. The route shall be constructed and completed before occupancy of any part of the proposed development.

Reason for condition

To minimise and mitigate flood risk in accordance with section 10 of the NPPF and policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

25. Prior to the commencement of the main spine road or development of any phase agreed under condition 11 a scheme for the provision and implementation of compensatory flood storage works for that phase based on the principles set out in the Flood Risk Assessment (Environmental Statement: Section 7 dated November 2010, received 17 April 2012) and section 2.6 of the Design and Access Statement (Addendum A, received 17 April 2012) shall be submitted to and approved, in writing by the Local Planning Authority. The approved scheme shall be constructed and completed in accordance with the approved details and implementation timetable.

Reason for condition

To minimise, mitigate and compensate for flood risk in accordance with section 10 of the NPPF and Policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

26. No development of the main spine road or any phase agreed under condition 11 shall take place until a surface water drainage scheme for that development/phase, based on sustainable drainage principles and an assessment of the hydrological and hydro geological context of the development and the principles outlined in the Flood Risk Assessment (Environmental Statement: Section 7 dated November 2010, received 17 April 2012) and

section 2.6 of the Design and Access Statement Addendum A received by the Local Planning Authority on 17 April 2012 has been submitted to and approved in writing by the local planning authority. The scheme shall also include:

- Details of the proposed location, dimensions and design of each element of the surface water scheme
- Calculations of the existing runoff rates from the sites in a range of probability rainfall events including 1 in 1 year, the 1 in 30 year and the 1 in 100 year, and a range of rainfall durations for each probability rainfall event
- Restriction of the surface water runoff into the river to no greater than the existing runoff rates to ensure there is no increase in offsite flood risk. This should include consideration of how the proposed runoff rates compare to the existing runoff events for a range of rainfall events from the 1 in 1 year to the 1 in 100 year events including climate change, with an assessment of a range of rainfall durations for each event
- Calculations to demonstrate that the proposed attenuation storage features are sized to contain the peak duration 1:100 year rainfall event including climate change
- Calculations to demonstrate how the pipe network will perform in the 1 in 30 year and 1 in 100 year rainfall events including climate change, to show that there will be no above ground flooding in the 1 in 30 year rainfall events, and details of the volumes and location of any surcharging water in the 1 in 100 year rainfall event including climate change to demonstrate where it will be stored to ensure no flooding of buildings or offsite flooding
- Details of the location and volumes of surface water exceedence flows in an extreme rainfall event or in the event of pump failure, to demonstrate where the water will flow and be stored to prevent buildings flooding
- Details of who is responsible for the adoption and maintenance of each aspect of the proposed surface water system for the lifetime of the proposed development, and details of the maintenance measures proposed.

The scheme shall subsequently be implemented in accordance with the approved details before the development is completed.

Reason for condition

To ensure that the development makes adequate provision for sustainable urban drainage and does not adversely contribute to surface water flooding, in accordance with section 10 of the NPPF and Policy 1 of the Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

27. With the exception of spine road no development of any phase agreed under condition 11 shall take place until a details of Flood Resilient Construction measures for that phase based on the the principles outlined within the submitted Flood Risk Assessment 7.66 - 7.71 (Environmental Statement: Section 7 dated November 2010, received by the Local Planning Authority on 17 April 2012), has been submitted to and approved in writing by the local planning authority. The scheme shall be constructed and completed in accordance with the agreed details before occupancy of any part of the proposed development

Reason for condition

To ensure that the development makes adequate provision for sustainable urban drainage and does not adversely contribute to surface water flooding, in accordance with section 10 of the NPPF and Policy 1 of the Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

28. Prior to the occupation of any building a Flood Risk Management Plan including arrangements for flood warning and evacuation shall be submitted to and approved in

writing by the Local Planning Authority. Approved plan, up dated where necessary, shall remain in force for the life time of the development.

Reason for condition

To minimise and mitigate flood risk in accordance with section 10 of the NPPF and Policy 1 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011

29. No development shall take place within the site in pursuance of this permission until the following components of a scheme to deal with the risks associated with contamination of the site have each been submitted to and approved, in writing, by the local planning authority:
- 1) A preliminary risk assessment which has identified:
 - a) all previous uses
 - b) potential contaminants associated with those uses
 - c) a conceptual model of the site indicating sources, pathways and receptors
 - d) potentially unacceptable risks arising from contamination at the site;
 - 2) A site investigation scheme, based on the preliminary risk assessment, to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site;
 - 3) A written report containing the site investigation results and the detailed risk assessment of the risk to all receptors that may be affected and, based on these, if required, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.
 - 4) A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

Phasing of requirements 2), 3) and 4) may be permissible where approved in writing by the Local Planning Authority and provided works would not prevent the adequate investigation, assessment and validation remediation of subsequent phases of the development. Any works on site shall be in accordance with the scheme as approved and any changes to any of the details specified above would require the further express consent of the local planning authority.

Reason for condition

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with policy UTL15 of the South Norfolk Local Plan.

Note

This must be conducted in accordance with DEFRA and the Environment Agency's 'Model Procedures for the Management of Land Contamination, CLR 11'.

30. No occupation of the development or where applicable any phase agree under condition 11 and 29 hereby approved shall take place until a verification report demonstrating completion of the works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved in writing, by the local planning authority. The report shall include sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include any plan (a 'long-term monitoring and maintenance plan') for

longer term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan, and for the reporting of this to the local planning authority. The long-term monitoring and maintenance plan shall be implemented as approved.

Reason for condition

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with policy UTL15 of the South Norfolk Local Plan.

31. If, during development, contamination not previously identified is found to be present, then no further development (unless otherwise agreed in writing with the local planning authority) shall be carried out until the developer has submitted and obtained written approval from the Local Planning Authority for, a remediation strategy detailing how this unsuspected contamination shall be dealt with. The remediation strategy shall be implemented as approved.

Reason for condition

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with policy UTL15 of the South Norfolk Local Plan.

32. Prior to the commencement of any development, a scheme for the provision and implementation of pollution control shall be submitted to, and agreed in writing with the Local Planning Authority. The works/scheme shall be constructed and completed in accordance with the as the approved specification at such times as may be specified in the approved scheme.

Reason for condition

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with policy UTL15 of the South Norfolk Local Plan.

33. With the exception of the accesses and spine road (as detailed under condition 2), no development of any phase agreed under condition 15 shall take place until details for the provision of fire hydrants have been submitted to and agreed in writing by the local planning authority in consultation with Norfolk Fire Service. No occupation of any part of the development hereby approved shall take place until the hydrant serving that part of the development has been provided in full accordance with the approved details. The hydrants shall be retained as such thereafter.

Reason for condition

To ensure that adequate provision is made for fire hydrant infrastructure required for health and safety purposes as a direct result of the development hereby approved, in accordance with Policy 20 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

34. No development shall take place in pursuance of this permission until a Construction Method Statement for the spine road and for each phase of the development as agreed under condition 11 has been submitted to, and approved in writing by the Local Planning Authority. The approved Statement/s shall be adhered to throughout the construction period for the construction of the accesses and spine road and for each phase of development. The Statement shall provide for:
- (a) proposed construction hours;
 - (b) the parking of vehicles of site operatives and visitors;
 - (c) the location of site compounds;
 - (d) construction vehicle access routes;
 - (e) loading and unloading of plant and materials;
 - (f) storage of plant and materials used in constructing the development;
 - (g) storage of fuel/oil and hazardous products or chemicals and measures to prevent pollution of ground water;
 - (h) silt containment;
 - (i) the erection and maintenance of security hoarding, including decorative displays and facilities for public viewing, where appropriate;
 - (j) wheel washing facilities;
 - (k) measures to control the emission of dust and dirt during construction;
 - (l) measures to control light pollution from temporary lighting to areas of retained scrub, hedgerows and trees; and
 - (m) site clearance of any scrub, hedgerows of trees which are to be removed to take place outside bird nesting season March - August inclusive, unless otherwise agreed in writing with the local planning authority.

Reason for condition

To ensure an adequate standard of residential amenity in the nearby area during construction and to limit the ecological impact of the development, in accordance with section 11 of the NPPF and with saved policy IMP9 of the South Norfolk Local Plan 2003.

35. No development shall take place in pursuance of this permission until a Construction and Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority. The approved CEMP shall be adhered to throughout the construction of the accesses and spine road and each phase of development. The Statement shall include:
- a) details of the project management structure and clearly identify the roles and responsibilities with regard to managing and reporting on the construction phase environmental aspects;
 - b) an Environmental Risk Assessment identifying all aspects of construction that could have an environmental impact and assesses the potential risk and impact of that activity on the environment;
 - c) management controls to eliminate and/or minimise identified impacts;
 - d) a programme of monitoring, reporting and auditing of compliance in accordance with any obligations of the planning consent, licences and approvals should also be contained in the CEMP to ensure that identified and appropriate control measures are effective.

Reason

To ensure the ecological interest of the site, in terms of both wildlife and habitat, is enhanced as part of the development process, in accordance with section 11 of the NPPF and saved policy ENV14 of the South Norfolk Local Plan 2003.

36. With the exception of the accesses and spine road no occupation of any phase agreed under condition 11 shall take place until details of external lighting of roads, green infrastructure and other public space has been submitted to the Local Planning Authority and approved in writing. The details shall include the type, location, numbers and height of the proposed lighting. Lighting on site shall be in full accordance with the approved details and shall be retained thereafter.

Reason

To ensure that lighting does not have a negative effect on biodiversity or the amenity of occupiers of the site and to accord with sections 7 and 11 of the NPPF, and policies 1 and 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk 2011.

37. No development shall commence until a foul water strategy has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in strict accordance with the approved scheme prior to first occupation of any dwelling unless otherwise approved in writing by the Local Planning Authority.

Reason

To ensure sufficient capacity is available and in the interest of avoiding pollution and flooding in accordance with the objectives of section 10 of the NPPF.

38. Prior to commencement of the spine road and or submission of reserved matters, an Environmental Action Plan (EAP) covering the site and the adjacent County Wildlife Site (CWS) shall be submitted to and agreed in writing by the local planning authority. The EAP shall include the following:

- a) Detailed scheme of ecological and protected species mitigation and enhancement, informed by the Ecological Report dated November 2010 (received by the local planning authority 17 April 2013), up dated ecology surveys and hydrological information.
- b) Physical measures, in the form of a wet ditch system, to safeguard the long term ecological functioning of the CWS.
- c) A phasing plan for the implementation of the ecological and protected species mitigation and enhancement measures.
- d) A comprehensive Nature Conservation Management Plan relating to land inside the red line boundary depicted on drawing number 1565/NCMF2 (9.16 chapter 9 Ecology). The Plan shall include details of management responsibilities, plan review arrangements, funding, a schedule of management actions covering all phases of development (construction and long-term operation) and include provisions for any unforeseen cessation in management.

The agreed EAP Plan shall be updated prior to the commencement of each phase. The development shall be undertaken in accordance with the approved EAP and the land shall be managed in accordance with the agreed Nature Conservation Management Plan thereafter. Any subsequent variations to the EAP shall first be approved in writing by the local planning authority

Reason for condition

To ensure the ecological interest of the site, in terms of both wildlife and habitat, is enhanced as part of the development process, in accordance with section 11 of the NPPF.

39. With the exception of the spine road (as detailed under condition 2) and the areas covered by the EAP (as detailed under condition 38) no development of any phase agreed under condition 11 shall take place until an open space management plan has been submitted to the local planning authority and approved in writing for that phase. The open space management plan shall detail management responsibilities and include a schedule of maintenance operations for all areas of green infrastructure within that phase and all other areas of that phase which do not form part of the private curtilage of a property or adopted highway (including, for the avoidance of doubt, both soft and hard landscaped areas and parking areas). The plan shall provide for the replacement of any trees or plants which die, are removed, uprooted, destroyed or become seriously damaged or defective. Management shall commence in full accordance with the approved landscape management plan immediately after completion of landscape works details of which are to be agreed under condition 3 (reserved matters for landscaping).

Reason for condition

To ensure the satisfactory ongoing management and maintenance of all areas of public space on the site in accordance with the NPPF, policies 1 and 2 of the adopted Joint Core Strategy for Broadland, Norwich and South Norfolk.

40. All imported topsoil and subsoil for use on the site shall either (a) be certified to confirm its source and that it is appropriate for its intended use. No occupation of the development shall take place until a copy of the certification has been submitted to the local planning authority; or (b) in the absence of suitable certification, analysis of the imported material will be required along with evaluation against the derived assessment criteria for this site.

Reason for condition

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with section 8 of the NPPF.

Reasons for Approval

- 1 The development of this site will bring forward a strategic location identified in JCS Policy 12. The scheme represents sustainable development that is compliant with the NPPF and one that makes a substantial contribution towards general housing provision with the Norwich Policy Area. The development approach successfully mitigates for its environmental impacts, and is considered acceptable in terms of highway safety, impact on existing residential amenity and flood risk, and accords with Local Plan policies IMP8 and IMP9 and Section 10 of the NPPF.

The development is accepted as a departure from JCS Policy 4 in respect of affordable housing provision, and Local Plan policy EMP7 in respect of employment site retention.

1. The Amount, Massing and Accommodation plan received 7 February 2013 and the design concept described in the Design and Access Statement (received 17 April 2012) refers to number of storeys. For the avoidance of doubt a storey has a maximum height of 3.0m and includes ground floor use/s.
2. Anglian Water: The development is within 15 metres of a sewage pumping station. Whilst Anglian Water takes all reasonably practicable steps to prevent any nuisance arising from the site, there should be no development within 15 metres from the boundary of a sewage pumping station of this type if the development is potentially sensitive to noise or other

disturbance or which might give rise to complaint from the occupiers regarding the location of the pumping station.

3. This development involves a Travel Plan to be implemented within the scope of a legal agreement between the applicant and Norfolk County Council. Please note that it is the applicants' responsibility to ensure that, in addition to planning permission, any necessary Agreements under the Town and Country Planning Act 1990 or Highways Act 1980 are also obtained. Advice on this matter can be obtained from the County Council's Highways Development Control Group based at County Hall in Norwich. For residential development, Norfolk County Council offers a fully inclusive package covering the writing, implementation, on-going management and annual monitoring of a Travel Plan for 5 years post completion of the development. Up to date costs can at the time of issue be obtained by contacting Stevie Spencer 01603 223370 or stevie.spencer@norfolk.gov.uk.
4. It is an OFFENCE to carry out any works within the Public Highway without the permission of the Highway Authority. This development involves work to the public highway that can only be undertaken within the scope of a legal agreement between the developer and Norwich City Council. Please note that it is the applicants' responsibility to ensure that, in addition to planning permission, any necessary Agreements under the Highways Act 1980 are also obtained. Advice on this matter can be obtained from the City Council's Transport Team based at City Hall, Norwich. Please contact: transport@norwich.gov.uk
5. This permission is subject to a planning obligation entered into under legal agreement under the provisions of section 106 of the Town and Country Planning Act 1990, as amended.
6. NOTE : The authority can confirm it has worked in a positive and proactive manner, based on seeking solutions to problems arising in relation to dealing with this planning application, in accordance with the National Planning Policy Framework.

This permission refers only to that required under the Town and Country Planning Act 1990 and does not include any consent or approval under any other enactment, bylaw, order or regulation and specifically any consent required under the Building Regulations 1991. The attached notes for applicants are also part of this decision notice.

Where development involves the demolition or part demolition of a listed building, no works can be undertaken (despite the terms of any consent granted by the Council) until notice of the proposal has been given to English Heritage, 62/74 Burleigh Street, Cambridge, CB1 1DJ and they have either been given reasonable access to the building for at least one month following the grant of consent, or have stated that they have completed their record of the building or that they do not wish to record it. A form is enclosed, if appropriate



On behalf of the Council

Date of Application: 3 March 2011

Date of Decision: 12 July 2013

Growth & Localism

Swan Lane Long Stratton Norwich NR15 2XE

Tel: 01508 533633 Fax: 01508 533625

Minicom: 01508 533622 **Answer phone:** 01508 533649 **Email:**

planning@s-norfolk.gov.uk

DX 130080 Long Stratton 2 **Website** www.south-norfolk.gov.uk



Decision Notice & Notes Attached

Approved Plans:

The Council's approval is only for the details shown on the plans originally submitted or, if amended, as listed on the decision notice. If you wish to change the approved plans in any way, please contact Planning Services quoting the application reference number to check if the changes would be acceptable. In some case/s, a fresh application for approval will be required for the proposed changes. You should not change the approved plans and start work until the proposed changes are approved by the Council.

Conditions of Approval:

If the Council's approval is subject to conditions, you must ensure that any action required, including the need to obtain the Council's further approval for items such as landscaping details or materials to be used, is taken before work commences.

The Council has the power to take action to force compliance with the approved plans and/or the requirements of any conditions attached to the decision notice. Any failure to carry out work strictly in accordance with the approved plans and/or any conditions may result in the work having to be removed or changed.

Notice of Commencement of Work

Before work starts on proposal, please complete and return the notice below to the Council at the address given. This will help us to check that the approved plans and conditions are being complied with. Please note this is not a formal notice of commencement for the purposes of the Building Regulations.

TO: Growth & Localism, South Norfolk Council, Swan Lane, Long Stratton, Norfolk, NR15 2XE

Application Reference Number: 2011/0152

Description of Development: Outline planning application (full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3): a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures including earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats.

Location/address of Development: The Deal Ground And Former May Gurney Site The Street Trowse

Contact Name: _____ Phone No: _____

Work on the above proposal is to commence on: Date: _____

If Building Regulation approval has already been obtained please quote Reference no: _____

Signed: _____

**Please ensure that your
expired Site Notice is
removed**



Notes relating to decisions on Applications for Planning Permission or Listed Building Consent under the provisions of the Town and Country Planning Act 1990 and the Planning (Listed Buildings and Conservation Areas) Act 1990

Important

Any permission granted relates only to that required under the relevant Town and Country Planning or Listed Buildings and Conservation Areas Acts and does not include any other consent or approval required under any other enactment, bylaw, order or requisition.

Consent under the Building Regulations may be required for the proposal and work should not proceed until any necessary consent has been obtained. Please contact CNC Building Consultancy on (01603) 430100 for more information.

1. Demolition of Listed Building

Attention is drawn to Section 8(1)-(2) of the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is that demolition either in whole or in part may not be undertaken (despite the terms of any consent granted by the Council) until notice of the proposed demolition has been given to English Heritage, Architectural Investigation Section, Brooklands Avenue, Cambridge CB2 2BU. English Heritage must be given reasonable access to the building for at least one month following the grant of consent, or have stated that they have completed their record of the building or that they do not wish to record it. The relevant form is available on request from the Council.

2. The needs of Disabled People

The Council must draw your attention to certain requirements for the needs of disabled people. Facilities including the means of access, parking, the provision of toilets and notices indicating such facilities, have to be provided in:

- a. any premises to which the public are to be admitted, whether or not on payment;
- b. office, shop, railway or factory premises in which people are employed;
- c. schools, universities and colleges.

Further information can be obtained by contacting the Council's Building Control section.

For detailed guidance you are also recommended to refer to:

- i) *The Chronically Sick and Disabled Persons Act 1970 (as amended by The Disabled Persons Act 1981, Sections 4, 7, 8 and 8a);*
- ii) *The British Standard Code of Practice on access for the disabled to buildings (BS 5810, 1979);*
- iii) *Design Note 18, 'Access for the Physically Disabled to Educational Buildings' published on behalf of the Secretary of State.*
- iv) *BS 5588, Part 8, 1988 Code of Practice for Means of Escape for Disabled People.*

3. Appeals to the Secretary of State

If you are aggrieved by the decision of the Council to refuse consent, permission or approval for the proposed development or works or to grant it subject to conditions, you can appeal to the Secretary of State for the Environment Transport & the Regions under Section 78 of the Town and Country Planning Act 1990 or Section 20 of the Planning (Listed Buildings and Conservation Areas) Act 1990 within six months of the date of this notice. **Appeal forms and information on Appeal procedures can be obtained from The Planning Inspectorate, Customer Support Unit, Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN or online at www.planningportal.gov.uk/pcs.**

The Secretary of State can allow a longer period for giving notice of appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal. The Secretary of State need not consider an appeal if it seems to him that permission for the proposed development could not have been given by the Council or could not have been given without the conditions imposed having regard to the statutory requirements, to the provisions of the development order and to any directions given under a development order. In practice, the Secretary of State does not refuse to consider appeals solely because the decision of the Council was based on a direction given by him.

4. Purchase Notices

If permission or Listed Building Consent to develop land or carry out works is refused or granted subject to conditions, whether by the Council or by the Secretary of State for the Environment, the owners of the land may claim that the land has become incapable of reasonably beneficial use by the carrying out of any development which has been or would be permitted. In these circumstances, the owner may serve on the Council a purchase notice requiring the Council to purchase his interest in the land in accordance with the provisions of either Part VI of the Town and Country Planning Act 1990 or Section 32 of the Planning (Listed Buildings and Conservation Areas) Act 1990.

5. Compensation

In certain circumstances, a claim may be made against the local planning authority for compensation, where permission is refused or granted subject to conditions by the Secretary of State on appeal or on a reference of the application to him. These are set out in Section 27 of the Planning (Listed Buildings and Conservation Areas) Act 1990.

Submitted by:

Matt Hill
68 Hanbury Street
London
E1 5JL

On behalf of:

Serruys Property Company Limited
C/o Maddox Planning

TOWN AND COUNTRY PLANNING ACT 1990 SECTION 96A

NON-MATERIAL AMENDMENT

Application Number: 20/00698/NMA

Valid date of application: 22 June 2020

Decision date: 2 September 2020

Location: Deal Ground Bracondale Norwich

Proposal: Amendment to planning application 12/00875/O.

The amendments as detailed within the application received 22 June 2020 and subsequent submissions are considered to be acceptable as non-material amendments to the original outline planning permission 12/00875/O.

Conditions 2, 7, 8, 10, 11, 12, 14, 15, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36, 40, 41, 42, 43, 47 and 48 below have been amended in accordance with section 96A(3)(b) of the Town and Country Planning Act 1990, as amended. For the avoidance of doubt this notice does not grant a new planning consent.

Application Number: 12/00875/O

Location: Deal Ground Bracondale Norwich

Proposal: Outline planning application (full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3): a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures inc earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats.

Amended conditions:

2. No development shall take place in pursuance of this permission until:
- (a) a phasing plan for the construction and implementation of the access/spine road has been submitted to and approved in writing by the local planning authority;
 - (b) No development of any phase approved under part (a) shall take place until the following additional details for each phase have been submitted to and approved in writing by the local planning authority in consultation with the Highway Authority and where necessary the Environment Agency:
 - (i) full details of the access/ spine road and associated footways and cycle ways;
 - (ii) a flood risk assessment for that phase;
 - (iii) lighting scheme for the route;
 - (iv) foul and surface water strategy;
 - (v) technical drawings of the Yare bridge and any culverts. In the event
 - (vi) of the bridge design and culvert sizes departing from those modelled in the Flood Risk Assessment received by the local planning authority 13 April 2012 the details shall include further modelling to demonstrate no adverse impact on flood flows;
 - (vii) details of the secondary/emergency routes and measures to control access;

The infrastructure shall be implemented in full accordance with the agreed details and implementation plan.

7. No development of any phase agreed under condition 2 shall take place in pursuance of this permission until a Landscape Strategy for the main spine road corridor and a detailed Landscape Scheme for the relevant phase has been submitted to and agreed in writing by the local planning authority. The scheme shall include arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012 and the following details:
- (a) proposed finished levels or contours;
 - (b) planting plans showing the location, species and numbers of proposed new trees, hedging, shrubs and other planting on the site;
 - (c) planting schedules, noting species, planting sizes (at time of planting) and proposed numbers/densities where appropriate;
 - (d) written specifications (including cultivation and other operations associated with plant and grass establishment);

- (e) an implementation programme clearly indicating a timescale for the completion of all landscaping works;

The development shall be carried out in full accordance with the agreed details and implementation programme.

8. Prior to commencement of the spine road and or submission of reserved matters for any phase as approved under condition 14, a Framework Environmental Action Plan (FEAP) covering the site and the adjacent County Wildlife Site (CWS) shall be submitted to and agreed in writing by the local planning authority. For each phase, a detailed EAP shall include the following:
 - (a) detailed scheme of ecological and protected species mitigation and enhancement, informed by the Ecological Report received by the local planning authority 13 April 2013, up dated ecology surveys and hydrological information;
 - (b) physical measures, in the form of a wet ditch system, to safeguard the long term ecological functioning of the CWS;
 - (c) a phasing plan for the implementation of the ecological and protected species mitigation and enhancement measures;
 - (d) a comprehensive Nature Conservation Management Plan relating to land inside the red line boundary depicted on drawing number 1565/NCMF2 (9.16 chapter 9 Ecology). The Plan shall include details of management responsibilities, plan review arrangements, funding, a schedule of management actions covering all phases of development (construction and long-term operation) and include provisions for any unforeseen cessation in management.

The agreed Framework EAP Plan shall be updated prior to the commencement of each phase. The development shall be undertaken in accordance with the approved EAP and the land shall be managed in accordance with the agreed Nature Conservation Management Plan thereafter. Any subsequent variations to the EAP shall first be approved in writing by the local planning authority

10. With the exception of the access and the main spine road (as detailed under condition 2), no development of any phase agreed under condition 14 shall take place in pursuance of this permission until approval of the reserved matters has been obtained for that phase from the local planning authority. The reserved matters shall relate to the layout, scale, external appearance and landscaping of that phase. Any reserved matters submissions for layout and/or landscaping shall include a flood risk assessment, arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012.
11. The reserved matters of any phase as agreed under condition 14 shall have regard to the mitigation measures of that phase included in the Environmental Statement received by the local planning authority on 13 April 2012 (as amended by documents dated 19 October 2012, 1 December 2012 and 1 January 2013), the parameters set out on the Proposed Development Areas

plan received 14 February 2013 and the design concept described in the Design and Access Statement (first received 13 April 2012 revised by Addendums D & E) in respect of Vision, the quantum of development, approximate layout of the site, height of blocks (see informative note 1), character areas, access and sustainable transport strategy, landscape/play strategy and integrated design approach.

- (a) Notwithstanding illustrative materials submitted with the application, reserved matters shall exclude the eight storey block previously proposed in the southwest corner of the Marsh Reach character area. For the avoidance of doubt this part of the site is shown on the approved Proposed Development Areas plan received 14 February 2013, as part of the landscaping setting of the development.
 - (b) Reserved matters shall include a scheme to facilitate the water based leisure and recreational use of the river frontage, including the provision of moorings and de-masting facilities.
 - (c) Notwithstanding the illustrative materials submitted with the application, the detailed site layout within the Marsh Reach/Wensum Riverside areas and the appearance, internal room layout, and glazing and ventilation specifications shall be informed by the need to mitigate the impact of noise from adjacent sources, in particular the asphalt plant/rail head, in order to ensure satisfactory levels of amenity for future residents. Mitigation should be informed by the Noise and Vibration Report dated 19 October 2012, updated and revised where necessary.
 - (d) Development within the Wensum Riverside character area shall comply with drawing no. SER001-0014/BZ-DG received by the Local Planning Authority 8 May 2013 regarding the set back of buildings and access roads from the River Yare and River Wensum
 - (e) Notwithstanding the illustrative materials, landscape details shall include a comprehensive landscape scheme that shall seek to mitigate the visual and environmental impacts of the adjacent minerals site and railhead.
12. Reserved matters applications for any phase as agreed under condition 14 shall include a scheme for sustainable construction and renewable or low carbon energy for that phase. The scheme/s shall:
- (a) maximise opportunities for sustainable construction so far as it is viable and practicable to do so;
 - (b) provide for the generation of a minimum of 10% of the predicted energy requirement of the phase from decentralised renewable and/or low carbon sources (as defined in the glossary of Planning Policy Statement: Planning and Climate Change (December 2007) or any subsequent version);
 - (c) demonstrate whether or not there is viable and practicable scope for exceeding 10% of the predicted energy requirement of the phase.

The scheme shall include:

- (d) details of the sustainable construction techniques proposed; and based on d) the estimated annual energy consumption of the phase (expressed in kWh);
 - (e) the type/s of decentralised renewable and/or low carbon energy sources proposed including the number or areas of units proposed;
 - (f) a plan detailing the location of all external equipment associated with the decentralised renewable and/or low carbon source/s and the part of the development it serves;
 - (g) the energy produced per unit or m² for the chosen decentralised renewable and/or low carbon energy source/s (expressed in kWh/unit or kWh/m²);
 - (h) the average annual combined energy production of the renewable and/or low carbon energy sources (expressed in kWh);
 - (i) details of the ongoing operation and management of the decentralised renewable and/or low carbon energy source/s including maintenance responsibilities.
14. Prior to the submission of the first reserved matters a development phasing plan and timetable shall be submitted to and agreed in writing by the local planning authority. The phasing plan shall cover the whole site including all areas of green infrastructure and surface water drainage features/measures. The phasing plan may subsequently be varied subject to the agreement of the local planning authority in writing. The development shall thereafter be constructed in full accordance with the agreed phasing plan.
15. No occupation of any part of the development shall take place until details of a strategy for the provision of equipped children's play space within the development, based on details set out in the Design and Access Statement Addendum A section 2.3 and Addendum B section A.5 received 13 April 2012 and section A. 11 Addendum D received 22 November 2012 have been submitted to the local planning authority and approved in writing. The play spaces should be capable of facilitating the needs of the whole development and should be in line with guidance within the adopted open space and play provision supplementary planning document. The play space shall be provided in full accordance with the approved details for that phase and in accordance with the timetable for the provision of green infrastructure as agreed under condition 14.
25. With the exception of the spine road (as detailed under condition 2), no development of any phase as agreed under condition 14 shall take place in pursuance of this permission until an Interim Travel Plan has been submitted to and approved in writing by the local planning authority, in consultation with the Highway Authority. Such a Travel Plan shall accord with Norfolk County Council document 'Guidance Notes for the Submission of Travel Plans' (or any

approved variation to that document) or be produced using the Workplace Travel Plan Generator Tool, www.worktravelplan.net.

26. No part of the development of any phase as agreed under condition 14 hereby permitted shall be occupied until the approved Interim Travel Plan for that phase referred to in condition 25 above has been implemented. During the first year of occupation a Full Travel Plan, based on the Interim Travel Plan referred to in condition 25 above and including details of proposed implementation and mechanisms for monitoring and review, shall be submitted to the local planning authority for approval, in consultation with the Highway Authority. The Approved Full Travel Plan shall be implemented in accordance with the timetable and targets contained therein and shall continue to be implemented as long as any part of the development is occupied and used for a purpose in accordance with this permission, subject to approved modifications as agreed by the local planning authority, in consultation with the Highway Authority, as part of the annual review.
28. No occupation of any dwelling shall take place until car parking, cycle parking and storage and bin storage and collection facilities for that phase as agreed under condition 14 have been provided in accordance with details to be agreed under condition 10 (reserved matters for layout and landscaping).
30. The development shall be constructed with a minimum finished floor level as detailed in the Flood Risk Assessment approved under condition 10.
31. Prior to the commencement of any phase of development agreed under condition 14, details of a safe exit route based on the Flood Risk Assessment approved under condition 10 and not adversely affecting the flood regime to land outside the 1:100 year floodplain shall be submitted, along with an implementation plan, to be agreed, in writing, with the local planning authority. The route shall be constructed and completed in accordance with the agreed implementation plan
32. Prior to the commencement of the main spine road or development of any phase agreed under condition 14, a scheme for the provision and implementation of compensatory flood storage works for that phase based on the principles set out in the Flood Risk Assessment (Environmental Statement: Section 7 dated November 2010, received 13th April 2012), and as updated in details approved under condition 10, and section 2.6 of the Design and Access Statement (Addendum A, received 13th April 2012) shall be submitted to and approved, in writing by the local planning authority. The approved scheme shall be constructed and completed in accordance with the approved details and implementation timetable.
33. No development of the main spine road (as detailed under condition 2), or any phase agreed under condition 14 shall take place until a surface water drainage scheme for that phase, based on sustainable drainage principles and an assessment of the hydrological and hydro geological context of the development, the principles outlined in the Flood Risk Assessment and section 2.6 of the Design and Access Statement (addendum A) received 13 April 2012

and as updated in details approved under condition 10, has been submitted to and approved in writing by the local planning authority.

The scheme shall also include:

- (a) details of the proposed location, dimensions and design of each element of the surface water scheme;
- (b) calculations of the existing runoff rates from the sites in a range of probability rainfall events including 1 in 1 year, the 1 in 30 year and the 1 in 100 year, and a range of rainfall durations for each probability rainfall event;
- (c) restriction of the surface water runoff into the river to no greater than the existing runoff rates to ensure there is no increase in offsite flood risk. This should include consideration of how the proposed runoff rates compare to the existing runoff events for a range of rainfall events from the 1 in 1 year to the 1 in 100 year events including climate change, with an assessment of a range of rainfall durations for each event;
- (d) calculations to demonstrate that the proposed attenuation storage features are sized to contain the peak duration 1:100 year rainfall event including climate change;
- (e) calculations to demonstrate how the pipe network will perform in the 1 in 30 year and 1 in 100 year rainfall events including climate change, to show that there will be no above ground flooding in the 1 in 30 year rainfall events, and details of the volumes and location of any surcharging water in the 1 in 100 year rainfall event including climate change to demonstrate where it will be stored to ensure no flooding of buildings or offsite flooding;
- (f) details of the location and volumes of surface water exceedance flows in an extreme rainfall event or in the event of pump failure, to demonstrate where the water will flow and be stored to prevent buildings flooding;
- (g) details of who is responsible for the adoption and maintenance of each aspect of the proposed surface water system for the lifetime of the proposed development, and details of the maintenance measures proposed.

The scheme shall subsequently be implemented in accordance with the approved details before the development/phase is completed.

34. With the exception of spine road (as detailed under condition 2), no development of any phase agreed under condition 14 shall take place until a details of Flood Resilient Construction measures for that phase based on the principles outlined within the submitted Flood Risk Assessment 7.66 - 7.71 (Environmental Statement: Section 7 received by the local planning authority on 13th April 2012), and as updated in the details approved under condition 10 has been submitted to and approved in writing by the local planning authority. The

scheme shall be constructed and completed in accordance with the agreed details before occupancy of any part of that phase.

35. Prior to the occupation of any building a Flood Risk Management Plan including arrangements for flood warning and evacuation for any phase as agreed under condition 14 shall be submitted to and approved in writing by the local planning authority. The approved plan, up dated where necessary, shall remain in force for the life time of the development.
36. No development shall take place within any phase as agreed under condition 14 in pursuance of this permission until the following components of a scheme to deal with the risks associated with contamination of that phase have each been submitted to and approved, in writing, by the local planning authority:
 - (a) a preliminary risk assessment which has identified:
 - (i) all previous uses;
 - (ii) potential contaminants associated with those uses;
 - (iii) a conceptual model of the site indicating sources, pathways and receptors;
 - (iv) potentially unacceptable risks arising from contamination at the site;
 - (b) a site investigation scheme, based on the preliminary risk assessment, to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site;
 - (c) a written report containing the site investigation results and the detailed risk assessment of the risk to all receptors that may be affected and, based on these, if required, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken;
 - (d) a verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

Phasing of requirements b), c) and d) may be permissible where approved in writing by the local planning authority and provided works would not prevent the adequate investigation, assessment and validation remediation of subsequent phases of the development. Any works on site shall be in accordance with the scheme as approved and any changes to any of the details specified above would require the further express consent of the local planning authority.

40. Prior to the commencement of any development, of any phase as agreed under condition 14, a scheme for the provision and implementation of pollution control shall be submitted to, and agreed in writing by the local planning authority. The works/scheme shall be constructed and completed in accordance with the approved specification for that phase at such times as may be specified in the approved scheme.

41. With the exception of the accesses and spine road (as detailed under condition 2), no development of any phase agreed under condition 14 shall take place until details for the provision of fire hydrants on that phase have been submitted to and agreed in writing by the local planning authority in consultation with Norfolk Fire Service. No occupation of any part of that phase of the development hereby approved shall take place until the hydrant serving that part of the development has been provided in full accordance with the approved details. The hydrants shall be retained as such thereafter.
42. No development shall take place in pursuance of this permission on any phase or the spine road until a Construction Method Statement for the spine road and for each phase of the development as agreed under condition 14, has been submitted to, and approved in writing by the local planning authority. The approved Statement/s shall be adhered to throughout the construction period for the construction of the accesses and spine road and for each phase of development. The Statement shall provide for:
- (a) proposed construction hours;
 - (b) the parking of vehicles of site operatives and visitors;
 - (c) the location of site compounds;
 - (d) construction vehicle access routes;
 - (e) loading and unloading of plant and materials;
 - (f) storage of plant and materials used in constructing the development;
 - (g) storage of fuel/oil and hazardous products or chemicals and measures to prevent pollution of ground water;
 - (h) silt containment;
 - (i) the erection and maintenance of security hoarding, including decorative displays and facilities for public viewing, where appropriate;
 - (j) wheel washing facilities;
 - (k) measures to control the emission of dust and dirt during construction;
 - (l) measures to control light pollution from temporary lighting to areas of retained scrub, hedgerows and trees; and
 - (m) site clearance of any scrub, hedgerows of trees, which are to be removed, to take place outside bird nesting season March - August inclusive, unless otherwise agreed in writing with the local planning authority.

43. No development of any phase as agreed under condition 14 shall take place in pursuance of this permission until a Construction and Environmental Management Plan (CEMP) has been submitted to and approved in writing by the local planning authority.

The approved CEMP shall be adhered to throughout the construction of the accesses and spine road and each phase of development. The Statement shall include:

- (a) details of the project management structure and clearly identify the roles and responsibilities with regard to managing and reporting on the construction phase environmental aspects;
 - (b) an Environmental Risk Assessment identifying all aspects of construction that could have an environmental impact and assesses the potential risk and impact of that activity on the environment;
 - (c) management controls to eliminate and/or minimise identified impacts;
 - (d) a programme of monitoring, reporting and auditing of compliance in accordance with any obligations of the planning consent, licences and approvals should also be contained in the CEMP to ensure that identified and appropriate control measures are effective.
47. No development of any phase as agreed under condition 14 shall commence until a foul water strategy for that phase has been submitted to and approved in writing by the local planning authority. The development of that phase shall be carried out in strict accordance with the approved scheme prior to first occupation of any dwelling on that phase unless otherwise approved in writing by the local planning authority.
48. All imported topsoil and subsoil for use on the site shall either (a) be certified to confirm its source and that it is appropriate for its intended use. No occupation of any phase as approved under condition 14 of the development shall take place until a copy of the certification has been submitted to the local planning authority; or (b) in the absence of suitable certification, analysis of the imported material will be required along with evaluation against the derived assessment criteria for this site.



Mark Brown
Area Development Manager
Planning Services

Appeals to the Secretary of State

- If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.
- If you want to appeal against your local planning authority's decision then you must do so within 6 months of the date of this notice.
- Appeals must be made using a form which you can get from the Secretary of State at Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN (Tel: 0303 444 5000) or online at <https://acp.planninginspectorate.gov.uk>.
- The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

Purchase Notices

- If either the local planning authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that the owner can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.
- In these circumstances, the owner may serve a purchase notice on the Council. This notice will require the Council to purchase the owner's interest in the land in accordance with the provisions of Chapter I of Part VI of the Town and Country Planning Act 1990.

Agent

Maddox Planning
68 Hanbury Street
London
E1 5JL
United Kingdom

Applicant

Akis Chrisovelides
C/O Agent

DECISION NOTICE

Non Material Amendment Section 96A of the Town and Country Planning Act 1990

- Reference :** 2020/1062
- Application Type :** Non Material Amendment
- Applicant :** Akis Chrisovelides
- Location :** The Deal Ground And Former May Gurney Site The Street Trowse
Norfolk
- Proposal :** Non-material amendment to condition 11 of 2011/0152 to require approval of development phasing plan prior to submission of first reserved matters and to conditions to introduce phasing in line with condition 11
- Date of Decision :** 18 September 2020

The amendments set out in the application form and shown in the submitted documents are hereby **approved** as a non material amendment to the above planning permission for the following reason and **subject to the following conditions** :

Conditions

- 3 With the exception of the access and the main spine road (as detailed under condition 4), no development of any phase agreed under condition 11 shall take place in pursuance of this permission until approval of the reserved matters has been obtained for that phase from the Local Planning Authority. The reserved matters shall relate to the layout, scale, external appearance and landscaping of that phase. Any reserved matters submissions for layout and/or landscaping shall include a flood risk assessment, arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012.
- 4 No development shall take place in pursuance of this permission until:
 - 1) a phasing plan for the construction and implementation of the access/spine road has been submitted to and approved in writing by the Local Planning Authority
 - 2) No development of any phase approved under part 1) shall take place until the following additional details for each phase have been submitted to and approved in writing by the local planning authority in consultation with the Highway Authority and where necessary the Environment Agency.

- a) full details of the access/ spine road and associated footways and cycle ways;
- b) a flood risk assessment for that phase;
- c) lighting scheme for the route;
- d) foul and surface water strategy;
- e) technical drawings of the Yare bridge and any culverts. In the event of the bridge design and culvert sizes departing from those modelled in the Flood Risk Assessment received by the local planning authority 13 April 2012 the details shall include further modelling to demonstrate no adverse impact on flood flows;
- f) details of the secondary/emergency routes and measures to control access;

The infrastructure shall be implemented in full accordance with the agreed details and implementation plan.

- 7 No development of any phase agreed under condition 11 shall take place in pursuance of this permission until a Landscape Strategy for the main spine road corridor and a detailed Landscape Scheme for the relevant phase has been submitted to and agreed in writing by the Local Planning Authority. The scheme shall include arboricultural implications assessments, method statements and tree protection plans in line with BS5837:2012 and the following details:

- a) proposed finished levels or contours;
- b) planting plans showing the location, species and numbers of proposed new trees, hedging, shrubs and other planting on the site;
- c) planting schedules, noting species, planting sizes (at time of planting) and proposed numbers/densities where appropriate;
- d) written specifications (including cultivation and other operations associated with plant and grass establishment);
- e) an implementation programme clearly indicating a timescale for the completion of all landscaping works;

The development shall be carried out in full accordance with the agreed details and implementation programme

- 8 The reserved matters of any phase as agreed under condition 11 shall have regard to the mitigation measures of that phase included in the Environmental Statement received by the Local Planning Authority on 13 April 2012 (as amended by documents dated 19 October 2012, 1 December 2012 and 1 January 2013), the parameters set out on the Proposed Development Areas plan received 7 February 2013 and the design concept described in the Design and Access Statement (first received 17 April 2012 revised by Addendums D & E) in respect of Vision, the quantum of development, approximate layout of the site, height of blocks (see informative note 1), character areas, access and sustainable transport strategy, landscape/play strategy and integrated design approach.

a) Notwithstanding illustrative materials submitted with the application, reserved matters shall exclude the eight storey block previously proposed in the southwest corner of the Marsh Reach character area. For the avoidance of doubt this part of the site is shown on the approved Proposed Development Areas plan received 7 February 2013, as part of the landscaping setting of the development.

b) Reserved matters shall include a scheme to facilitate the water based leisure and recreational use of the river frontage, including the provision of moorings and de-masting facilities.

c) Notwithstanding the illustrative materials submitted with the application, the detailed site layout within the Marsh Reach/Wensum Riverside areas and the appearance, internal room layout, and glazing and ventilation specifications shall be informed by the need to mitigate the impact of noise from adjacent sources, in particular the asphalt plant/rail head, in order to ensure satisfactory levels of amenity for future residents. Mitigation should be informed by the Noise and Vibration Report dated 19 October 2012, updated and revised where necessary.

d) Development within the Wensum Riverside character area shall comply with drawing no. SER001-0014/BZ-DG received by the Local Planning Authority on 8 May 2013 regarding the set back of buildings and access roads from the River Yare and River Wensum

e) Notwithstanding the illustrative materials, landscape details shall include a comprehensive landscape scheme that shall seek to mitigate the visual and environmental impacts of the adjacent minerals site and railhead

9 Reserved matters applications for any phase as agreed under condition 11 shall include a scheme for sustainable construction and renewable or low carbon energy for that phase. The scheme/s shall:

a) maximise opportunities for sustainable construction so far as it is viable and practicable to do so;

b) provide for the generation of a minimum of 10% of the predicted energy requirement of the phase from decentralised renewable and/or low carbon sources (as defined in the glossary of Planning Policy Statement: Planning and Climate Change (December 2007) or any subsequent version);

c) demonstrate whether or not there is viable and practicable scope for exceeding 10% of the predicted energy requirement of the phase.

The scheme shall include:

d) details of the sustainable construction techniques proposed; and
e) based on d) the estimated annual energy consumption of the phase (expressed in kWh);

f) the type/s of decentralised renewable and/or low carbon energy sources proposed including the number or areas of units proposed;

g) a plan detailing the location of all external equipment associated with the decentralised renewable and/or low carbon source/s and the part of the development it serves;

h) the energy produced per unit or m² for the chosen decentralised renewable and/or low carbon energy source/s (expressed in kWh/unit or kWh/m²);

i) the average annual combined energy production of the renewable and/or low carbon energy sources (expressed in kWh);

j) details of the ongoing operation and management of the decentralised renewable and/or low carbon energy source/s including maintenance responsibilities.

11 Prior to the submission of the first reserved matters a development phasing plan and timetable shall be submitted to and agreed in writing by the Local Planning Authority. The phasing plan shall cover the whole site including all areas of green infrastructure and surface water drainage features/measures. The phasing plan may subsequently be varied subject to the agreement of the Local Planning Authority in writing. The development shall thereafter be constructed in full accordance with the agreed phasing plan.

- 18 With the exception of the spine road (as detailed under condition 4), no development of any phase as agreed under condition 11 shall take place in pursuance of this permission until an Interim Travel Plan has been submitted to and approved in writing by the Local Planning Authority, in consultation with the Highway Authority. Such a Travel Plan shall accord with Norfolk County Council document 'Guidance Notes for the Submission of Travel Plans' (or any approved variation to that document) or be produced using the Workplace Travel Plan Generator Tool, www.worktravelplan.net.
- 19 No part of the development of any phase as agreed under condition 11 hereby permitted shall be occupied until the approved Interim Travel Plan for that phase referred to in condition 18 above has been implemented. During the first year of occupation a Full Travel Plan, based on the Interim Travel Plan referred to in condition 18 above and including details of proposed implementation and mechanisms for monitoring and review, shall be submitted to the local planning authority for approval, in consultation with the Highway Authority. The Approved Full Travel Plan shall be implemented in accordance with the timetable and targets contained therein and shall continue to be implemented as long as any part of the development is occupied and used for a purpose in accordance with this permission, subject to approved modifications as agreed by the Local Planning Authority, in consultation with the Highway Authority, as part of the annual review.
- 21 No occupation of any dwelling shall take place until car parking, cycle parking and storage and bin storage and collection facilities for that phase as agreed under condition 11 have been provided in accordance with details to be agreed under condition 3 (reserved matters for layout and landscaping).
- 23 The development shall be constructed with a minimum finished floor level as detailed in the Flood Risk Assessment approved under condition 3.
- 24 Prior to the commencement of any phase of development agreed under condition 11, details of a safe exit route based on the Flood Risk Assessment approved under condition 3 and not adversely affecting the flood regime to land outside the 1:100 year floodplain shall be submitted, along with an implementation plan, to be agreed, in writing, with the Local Planning Authority. The route shall be constructed and completed in accordance with the agreed implementation plan
- 25 Prior to the commencement of the main spine road or development of any phase agreed under condition 11, a scheme for the provision and implementation of compensatory flood storage works for that phase based on the principles set out in the Flood Risk Assessment (Environmental Statement: Section 7 dated November 2010, received 17 April 2012), and as updated in details approved under condition 3, and section 2.6 of the Design and Access Statement (Addendum A, received 17 April 2012) shall be submitted to and approved, in writing by the Local Planning Authority. The approved scheme shall be constructed and completed in accordance with the approved details and implementation timetable.
- 26 No development of the main spine road (as detailed under condition 4), or any phase agreed under condition 11 shall take place until a surface water drainage scheme for that phase, based on sustainable drainage principles and an assessment of the hydrological and hydro geological context of the development, the principles outlined in the Flood Risk Assessment and section 2.6 of the Design and Access Statement (addendum A) received 17 April 2012 and as updated in

details approved under condition 3, has been submitted to and approved in writing by the Local Planning Authority.

The scheme shall also include:

- a) details of the proposed location, dimensions and design of each element of the surface water scheme;
- b) calculations of the existing runoff rates from the sites in a range of probability rainfall events including 1 in 1 year, the 1 in 30 year and the 1 in 100 year, and a range of rainfall durations for each probability rainfall event;
- c) restriction of the surface water runoff into the river to no greater than the existing runoff rates to ensure there is no increase in offsite flood risk. This should include consideration of how the proposed runoff rates compare to the existing runoff events for a range of rainfall events from the 1 in 1 year to the 1 in 100 year events including climate change, with an assessment of a range of rainfall durations for each event;
- d) calculations to demonstrate that the proposed attenuation storage features are sized to contain the peak duration 1:100 year rainfall event including climate change;
- e) calculations to demonstrate how the pipe network will perform in the 1 in 30 year and 1 in 100 year rainfall events including climate change, to show that there will be no above ground flooding in the 1 in 30 year rainfall events, and details of the volumes and location of any surcharging water in the 1 in 100 year rainfall event including climate change to demonstrate where it will be stored to ensure no flooding of buildings or offsite flooding;
- f) details of the location and volumes of surface water exceedance flows in an extreme rainfall event or in the event of pump failure, to demonstrate where the water will flow and be stored to prevent buildings flooding;
- g) details of who is responsible for the adoption and maintenance of each aspect of the proposed surface water system for the lifetime of the proposed development, and details of the maintenance measures proposed.

The scheme shall subsequently be implemented in accordance with the approved details before the development/phase is completed.

- 27 With the exception of spine road (as detailed under condition 4), no development of any phase agreed under condition 11 shall take place until a details of Flood Resilient Construction measures for that phase based on the principles outlined within the submitted Flood Risk Assessment 7.66 - 7.71 (Environmental Statement: Section 7 received by the Local Planning Authority on 17 April 2012), and as updated in the details approved under condition 3 has been submitted to and approved in writing by the Local Planning Authority. The scheme shall be constructed and completed in accordance with the agreed details before occupancy of any part of that phase.
- 28 Prior to the occupation of any building a Flood Risk Management Plan including arrangements for flood warning and evacuation for any phase as agreed under condition 11 shall be submitted to and approved in writing by the Local Planning Authority. The approved plan, up dated where necessary, shall remain in force for the life time of the development.
- 29 No development shall take place within any phase as agreed under condition 11 in pursuance of this permission until the following components of a scheme to deal

with the risks associated with contamination of that phase have each been submitted to and approved, in writing, by the Local Planning Authority:

- a) a preliminary risk assessment which has identified:
 - i) all previous uses;
 - ii) potential contaminants associated with those uses;
 - iii) a conceptual model of the site indicating sources, pathways and receptors;
 - iv) potentially unacceptable risks arising from contamination at the site;
- b) a site investigation scheme, based on the preliminary risk assessment, to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site;
- c) a written report containing the site investigation results and the detailed risk assessment of the risk to all receptors that may be affected and, based on these, if required, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken;
- d) a verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

Phasing of requirements b), c) and d) may be permissible where approved in writing by the Local Planning Authority and provided works would not prevent the adequate investigation, assessment and validation remediation of subsequent phases of the development. Any works on site shall be in accordance with the scheme as approved and any changes to any of the details specified above would require the further express consent of the Local Planning Authority.

- 32 Prior to the commencement of any development, of any phase as agreed under condition 11 a scheme for the provision and implementation of pollution control shall be submitted to, and agreed in writing by the Local Planning Authority. The works/scheme shall be constructed and completed in accordance with the approved specification for that phase at such times as may be specified in the approved scheme.
- 33 With the exception of the accesses and spine road (as detailed under condition 4), no development of any phase agreed under condition 11 shall take place until details for the provision of fire hydrants on that phase have been submitted to and agreed in writing by the Local Planning Authority in consultation with Norfolk Fire Service. No occupation of any part of that phase of the development hereby approved shall take place until the hydrant serving that part of the development has been provided in full accordance with the approved details. The hydrants shall be retained as such thereafter.
- 34 No development shall take place in pursuance of this permission on any phase or the spine road until a Construction Method Statement for the spine road and for each phase of the development as agreed under condition 11 has been submitted to, and approved in writing by the Local Planning Authority. The approved Statement/s shall be adhered to throughout the construction period for the construction of the accesses and spine road and for each phase of development. The Statement shall provide for:
 - a) proposed construction hours;
 - b) the parking of vehicles of site operatives and visitors;
 - c) the location of site compounds;
 - d) construction vehicle access routes;

- e) loading and unloading of plant and materials;
- f) storage of plant and materials used in constructing the development;
- g) storage of fuel/oil and hazardous products or chemicals and measures to prevent pollution of ground water;
- h) silt containment;
- i) the erection and maintenance of security hoarding, including decorative displays and facilities for public viewing, where appropriate;
- j) wheel washing facilities;
- k) measures to control the emission of dust and dirt during construction;
- l) measures to control light pollution from temporary lighting to areas of retained scrub, hedgerows and trees; and
- m) site clearance of any scrub, hedgerows of trees, which are to be removed, to take place outside bird nesting season March - August inclusive, unless otherwise agreed in writing with the local planning authority.

- 35 No development of any phase as agreed under condition 11 shall take place in pursuance of this permission until a Construction and Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority.

The approved CEMP shall be adhered to throughout the construction of the accesses and spine road and each phase of development. The Statement shall include:

- a) details of the project management structure and clearly identify the roles and responsibilities with regard to managing and reporting on the construction phase environmental aspects;
- b) an Environmental Risk Assessment identifying all aspects of construction that could have an environmental impact and assesses the potential risk and impact of that activity on the environment;
- c) management controls to eliminate and/or minimise identified impacts;
- d) a programme of monitoring, reporting and auditing of compliance in accordance with any obligations of the planning consent, licences and approvals should also be contained in the CEMP to ensure that identified and appropriate control measures are effective.

- 37 No development of any phase as agreed under condition 11 shall commence until a foul water strategy for that phase has been submitted to and approved in writing by the Local Planning Authority. The development of that phase shall be carried out in strict accordance with the approved scheme prior to first occupation of any dwelling on that phase unless otherwise approved in writing by the Local Planning Authority.


- 38 Prior to commencement of the spine road and or submission of reserved matters for any phase as approved under condition 11, a Framework Environmental Action Plan (FEAP) covering the site and the adjacent County Wildlife Site (CWS) shall be submitted to and agreed in writing by the Local Planning Authority. For each phase, a detailed EAP shall include the following:

- a) detailed scheme of ecological and protected species mitigation and enhancement, informed by the Ecological Report received by the Local Planning Authority 17 April 2013, up dated ecology surveys and hydrological information;
- b) physical measures, in the form of a wet ditch system, to safeguard the long term ecological functioning of the CWS;
- c) a phasing plan for the implementation of the ecological and protected species mitigation and enhancement measures;

d) a comprehensive Nature Conservation Management Plan relating to land inside the red line boundary depicted on drawing number 1565/NCMF2 (9.16 chapter 9 Ecology). The Plan shall include details of management responsibilities, plan review arrangements, funding, a schedule of management actions covering all phases of development (construction and long-term operation) and include provisions for any unforeseen cessation in management.

The agreed Framework EAP Plan shall be updated prior to the commencement of each phase. The development shall be undertaken in accordance with the approved EAP and the land shall be managed in accordance with the agreed Nature Conservation Management Plan thereafter. Any subsequent variations to the EAP shall first be approved in writing by the Local Planning Authority

- 40 All imported topsoil and subsoil for use on the site shall either (a) be certified to confirm its source and that it is appropriate for its intended use. No occupation of any phase as approved under condition 11 of the development shall take place until a copy of the certification has been submitted to the Local Planning Authority; or (b) in the absence of suitable certification, analysis of the imported material will be required along with evaluation against the derived assessment criteria for this site.



Assistant Director - Planning



Application submitted by:

Mr Matt Hill
Maddox Planning
33 Broadwick Street
London
W1F 0DQ

On behalf of:

Akis Chrisovelides
Serruys Property Company Limited
C/O Agent

TOWN AND COUNTRY PLANNING ACT 1990 SECTION 96A

NON-MATERIAL AMENDMENT

Application Number: 22/01040/NMA

Valid date of application: 11 August 2022

Decision date: 12 December 2022

Location: Deal Ground Bracondale Norwich

Proposal: Amendment to permission 12/00875/O to change timing of when the proposed access / main spine road is required to be begun.

The amendment as detailed within the application received 11 August 2022 and subsequent submissions is considered to be acceptable as a non-material amendment to the original outline planning permission 12/00875/O.

Condition 1 below has been amended in accordance with section 96A(3)(b) of the Town and Country Planning Act 1990, as amended. For the avoidance of doubt this notice does not grant a new planning consent.

Amended conditions:

1. The access/main spine road, as detailed on approved drawings; 3009005/B/001A, 3009005/B/002 A, 3009005/A/015 B, 3009005/AB/016 A, 3009005/A/017 A and 3009005/A/018 A, received by the local planning authority on the 13 April 2012, shall be completed to binder course surfacing level from its junction with The Street to the south bank of the River Yare and made available for use prior to the first occupation of any dwelling which forms part of the development.

Sarah Ashurst
Head of Planning and Regulatory Services

Appeals to the Secretary of State

- If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.
- If you want to appeal against your local planning authority's decision then you must do so within 6 months of the date of this notice.
- Appeals can be made online at: <https://www.gov.uk/planning-inspectorate>. If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form on tel: 0303 444 5000.
- The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

Purchase Notices

- If either the local planning authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that the owner can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.
- In these circumstances, the owner may serve a purchase notice on the Council. This notice will require the Council to purchase the owner's interest in the land in accordance with the provisions of Chapter I of Part VI of the Town and Country Planning Act 1990.

Thorpe Lodge, 1 Yarmouth Road, Norwich, NR7 0DU,
Tel : 01508 533633, Text phone 01508 533622,
Freephone 0808 168 2000,
Email planning.snc@southnorfolkandbroadland.gov.uk
Website www.southnorfolkandbroadland.gov.uk



Agent

Mr Matt Hill
Maddox Planning
33 Broadwick Street
London
W1F 0DQ

Applicant

Akis Chrisovelides
C/O Agent

DECISION NOTICE

Non Material Amendment Section 96A of the Town and Country Planning Act 1990

Reference : 2022/1574
Application Type : Non Material Amendment
Applicant : Akis Chrisovelides
Location : The Deal Ground And Former May Gurney Site The Street Trowse Norfolk
Proposal : Non-material amendment to condition 2 of 2011/0152 - to amend timing of when the proposed access / main spine road is required to be begun.
Date of Decision : 13 December 2022

The amendments set out in the application form and shown in the submitted documents are hereby **approved** as a non material amendment to the above planning permission for the following reason and **subject to the following conditions** :

Conditions

1 REVISED WORDING OF CONDITION 2 OF PERMISSION REF: 2011/0152

The access/main spine road as detailed on approved drawings; 3009005/B/001 A, 3009005/B/002 A, 3009005/A/015 B, 3009005/AB/016 A, 3009005/A/017 A and 3009005/A/018 A, received by the Local Planning Authority on 17 April 2012 shall be completed to binder course surfacing level from its junction with The Street to the south bank of the River Yare and made available for use prior to the first occupation of any dwelling which forms part of the development.

A handwritten signature in blue ink that reads "Helen Melors". The signature is written in a cursive style and is underlined with a single horizontal line.

Assistant Director - Planning

How did we do? Let us know your feedback on the service you received.
<https://www.smartsurvey.co.uk/s/CSANew2021/>

Information relating to appeals against the decision of the Local Planning Authority.

If you are aggrieved by this decision to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990 or Section 20 of the Planning (Listed Buildings and Conservation Areas) Act 1990.

Time periods to submit appeal

If the application relates to minor commercial development (as defined in Article 2 of the Town and Country Planning (Development Management Procedure) (England) Order 2015) this should be submitted with **12 weeks** of the date of this notice

If the decision relates to the same or substantially the same land and development as is already the subject of an enforcement notice, any appeal must be submitted within **28 days** of the date of this notice

If an enforcement notice is served relating to the same or substantially the same land and development as in your application and if you want to appeal against the decision on your application, then you must do so within: **28 days** of the date of service of the enforcement notice, or within 6 months of the date of this notice, whichever period expires earlier.

In all other cases the appeal should be submitted within **six months** of the date of this notice.

If you intend to submit an appeal that you would like examined by inquiry then you must notify the Local Planning Authority and Planning Inspectorate (inquiryappeals@planninginspectorate.gov.uk) at least 10 days before submitting the appeal. Further details are on GOV.UK

The Secretary of State can allow a longer period for giving notice of appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal. The Secretary of State need not consider an appeal if it seems to the Secretary of State that permission for the proposed development could not have been given by the Council or could not have been given without the conditions imposed having regard to the statutory requirements, to the provisions of the development order and to any directions given under a development order and to any directions given under a development order.

In practice, the Secretary of State does not refuse to consider appeals solely because the local planning authority based their decision on a direction given by him.

Appeals can be made online at <http://www.gov.uk/planning-inspectorate> If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form at Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN or tel no. 0303 444 5000

Purchase Notices

If permission to develop land or carry out works is refused or granted subject to conditions, whether by the Council or by the Secretary of State for the Environment, the owners of the land may claim that the land has become incapable of reasonably beneficial use by the carrying out of any development which has been or would be permitted.

In these circumstances, the owner may serve on the Council a purchase notice requiring the Council to purchase his interest in the land in accordance with the provisions of either Part VI of the Town and Country Planning Act 1990.

APPENDIX B

**Environmental Impact Assessment Scoping Opinion - Norfolk County Council Highways
Response (Norwich City Council Ref. 22/01225/EIA2, South Norfolk Council Ref.
2022/1847)**



Norfolk County Council

Community and Environmental
Services
County Hall
Martineau Lane
Norwich
NR1 2SG

Sarah Hinchcliffe
Norwich City Council
City Hall
Norwich
Norfolk
NR2 1NH

NCC contact number: 0344 800 8020
Text Relay - 18001 0344 800 8020

Your Ref: 22/01225/EIA2
Date: 10 November 2022

My Ref: 9/4/22/1225
Tel No.: 01603 638009
Email: liz.poole@norfolk.gov.uk

Dear Sarah,

EIA Scoping Opinion request for a mixed use residential and commercial development. Deal Ground, Bracondale, Norwich.

Thank you for your consultation regarding the above scoping opinion.

The highway authority has reviewed the information provided and considers that given the age of the original application, a revised Transport Assessment is required. The revised assessment should take into account the East Norwich development (given that there is a submitted, albeit un-validated planning application).

In addition, the assessment years will have changed and there will have been changes in traffic levels since the original traffic surveys were undertaken.

Consideration will also need to be made regarding access to catchment schools and walking/cycling routes to local facilities and employment areas.

If you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

Liz Poole

Major and Estate Development Team Manager
for Executive Director for Community and Environmental Services

Please be aware it is the applicants responsibility to clarify the boundary with the public highway. Private structures such as fences or walls will not be permitted on highway land. The highway boundary may not match the applicants title plan. Please contact the highway research team at highway.boundaries@norfolk.gov.uk for further details.

www.norfolk.gov.uk



Norfolk County Council

Community and Environmental
Services
County Hall
Martineau Lane
Norwich
NR1 2SG

Sarah Hinchcliffe
Norwich City Council
City Hall
Norwich
Norfolk
NR2 1NH

NCC contact number: 0344 800 8020
Text Relay - 18001 0344 800 8020

Your Ref: 22/00540/EIA2
Date: 4 May 2022

My Ref: 9/4/22/0540
Tel No.: 01603 638009
Email: liz.poole@norfolk.gov.uk

Dear Sarah,

EIA Scoping Request for environmental consultancy associated with the proposed development of the site. Carrow Works, King Street, Norwich, NR2 1DD

Thank you for your consultation regarding the above.

The highway authority will require a full Transport Assessment which should be scoped with the highway authority in advance of any submission.

Yours sincerely

Liz Poole

Major and Estate Development Team Manager
for Executive Director for Community and Environmental Services

Please be aware it is the applicants responsibility to clarify the boundary with the public highway. Private structures such as fences or walls will not be permitted on highway land. The highway boundary may not match the applicants title plan. Please contact the highway research team at highway.boundaries@norfolk.gov.uk for further details.



Blanaid Skipper
South Norfolk Council
South Norfolk House
Swan Lane
Long Stratton
Norfolk
NR15 2XE

NCC contact number: 0344 800 8020
Text Relay - 18001 0344 800 8020

Your Ref: 2022/1847
Date: 10 November 2022

My Ref: 9/7/22/1847
Tel No.: 01603 638009
Email: liz.poole@norfolk.gov.uk

Dear Blanaid,

EIA Scoping Opinion for the development of mixed use residential and commercial development. The Deal Ground And Former May Gurney Site, The Street, Trowse, Norfolk. NR1 1JD.

Thank you for your consultation regarding the above scoping opinion.

The highway authority has reviewed the information provided and considers that given the age of the original application, a revised Transport Assessment is required. The revised assessment should take into account the East Norwich development (given that there is a submitted, albeit un-validated planning application).

In addition, the assessment years will have changed and there will have been changes in traffic levels since the original traffic surveys were undertaken.

Consideration will also need to be made regarding access to catchment schools and walking/cycling routes to local facilities and employment areas.

If you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

Liz Poole

Major and Estate Development Team Manager
for Executive Director for Community and Environmental Services

Please be aware it is the applicants responsibility to clarify the boundary with the public highway. Private structures such as fences or walls will not be permitted on highway land. The highway boundary may not match the applicants title plan. Please contact the highway research team at highway.boundaries@norfolk.gov.uk for further details.

APPENDIX C

Deal Ground and May Gurney (Norwich City Council Ref. 12/00875/O, South Norfolk Council Ref. 2011/0152/O) Traffic Flow Diagrams

**Report
09070-A**

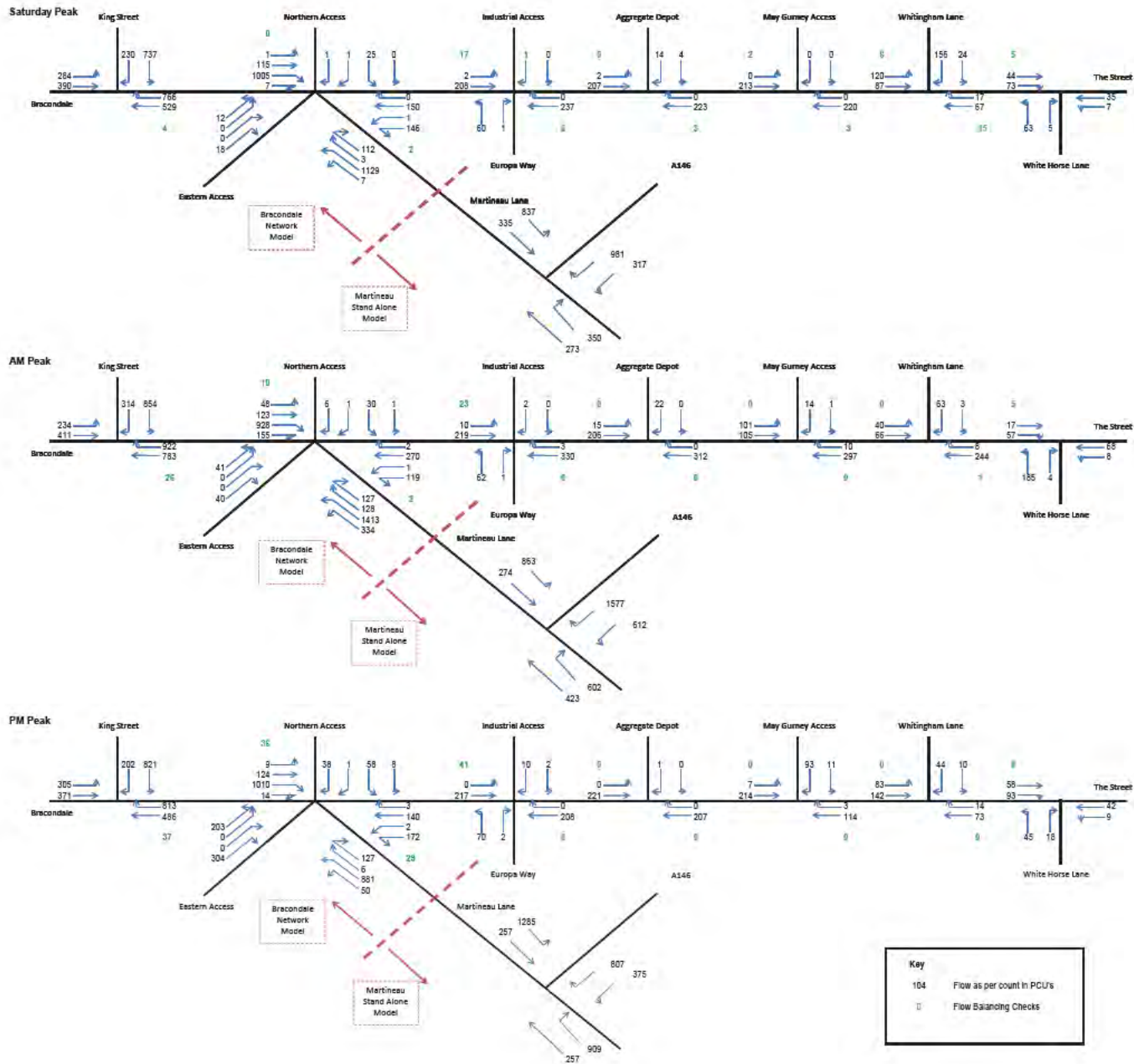
Deal Ground Norwich traffic modelling

**Issue 1.0
4th March 2010**

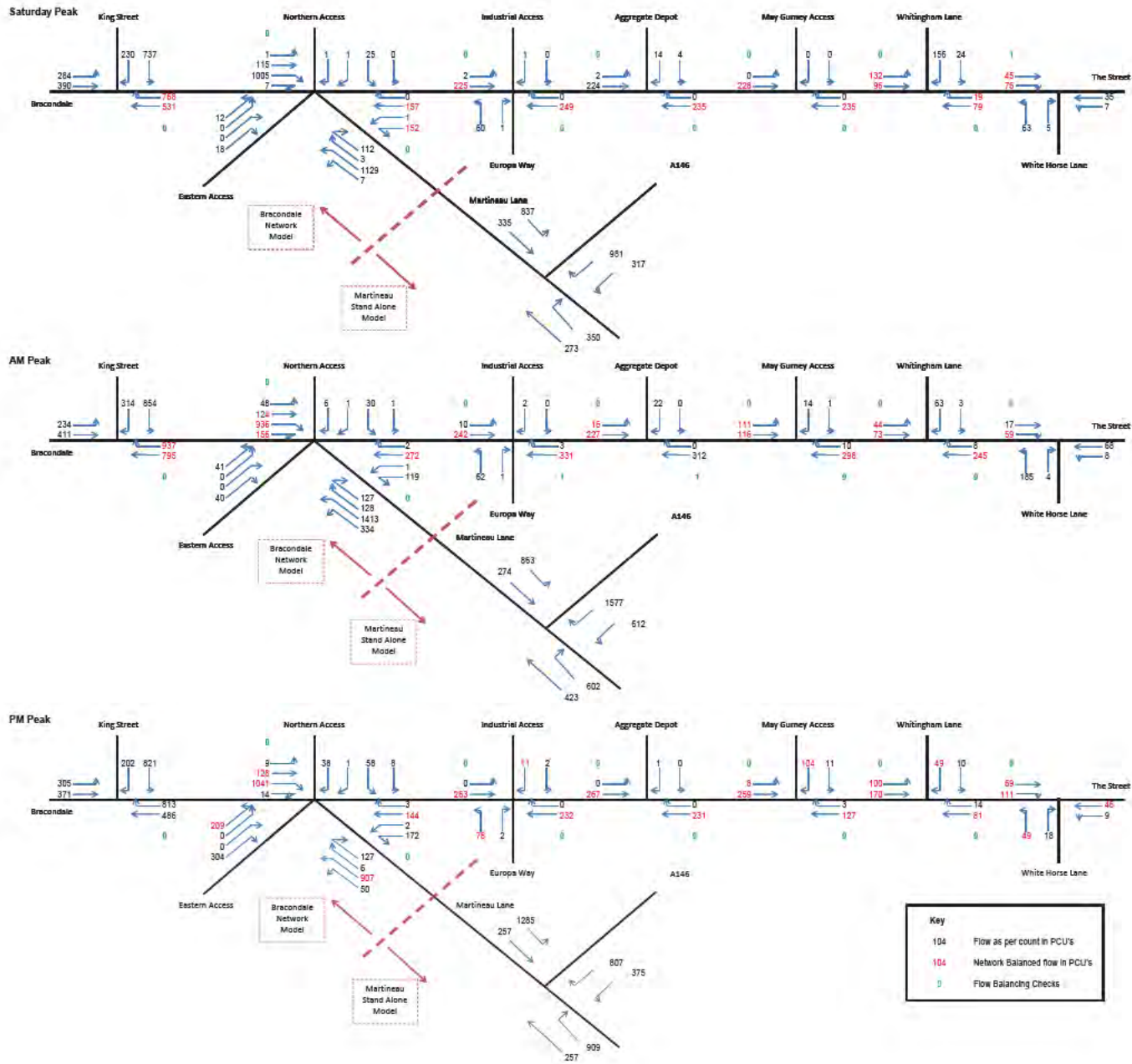


APPENDIX A
Network traffic flow diagrams

Network Flows as per count data for peak periods in PCU's



Network Flows Balanced for peak periods in PCU's



APPENDIX D

Utilities Site (Ref. 15/00997/F) Traffic Flow Diagrams

MH/1619-01-TA01b

July 2015

**Generation Park
Utilities Site – Norwich**

Transport Assessment



Prepared on behalf of:
NPH (Norwich) LLP



Axis
Camellia House
76 Water Lane
Wilmslow
SK9 5BB

Tel: 0844 8700 007
www.axisped.co.uk



FIGURES

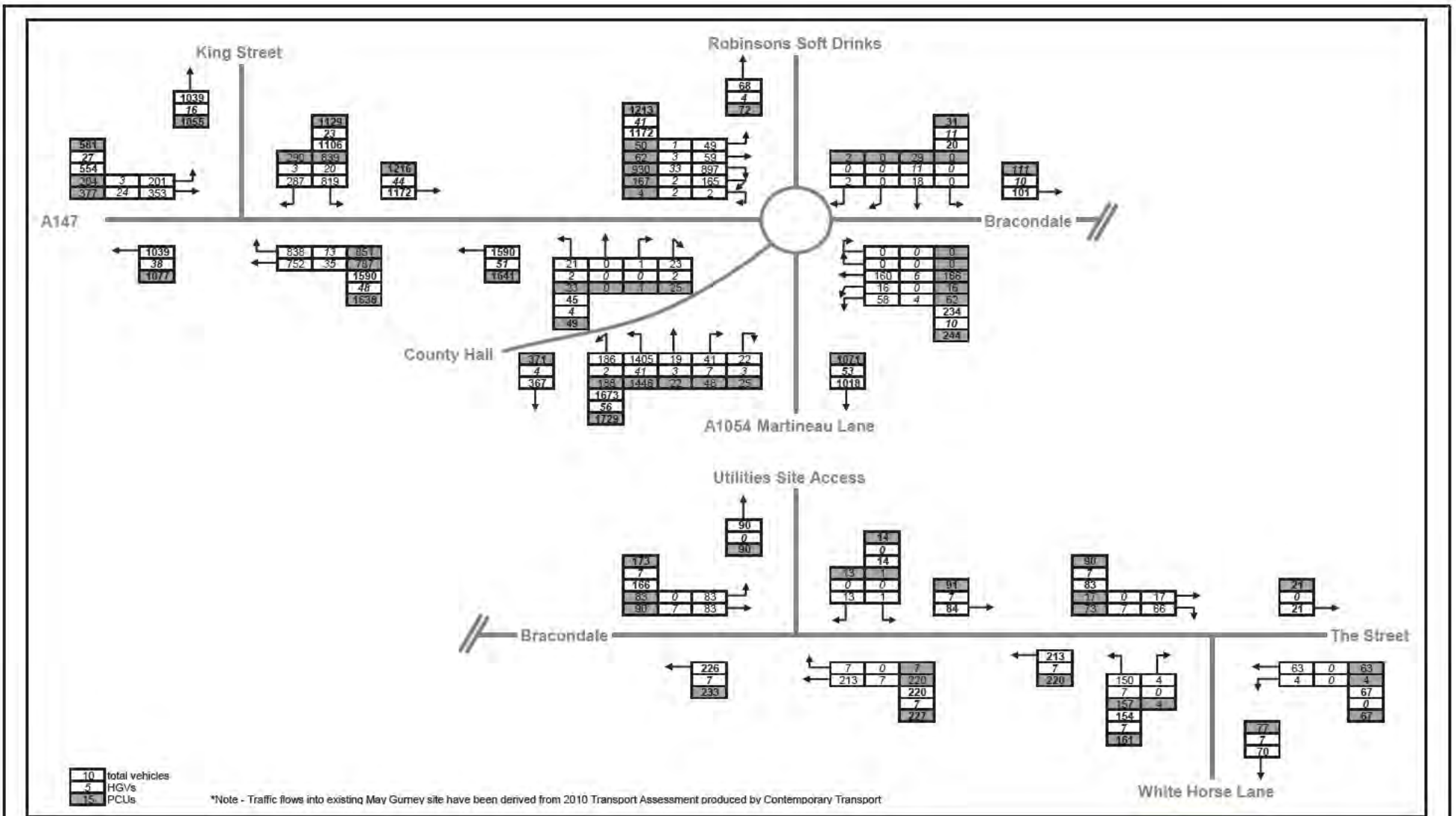


Figure TA4a

**2015 Surveyed Traffic Flows
(AM Peak, 07:30-08:30)**

axis Camellia House
76 Water Lane,
Wilmslow
Cheshire, SK9 5BB

1619-01

Generation Park Norwich, Former Utilities Site

June 2015

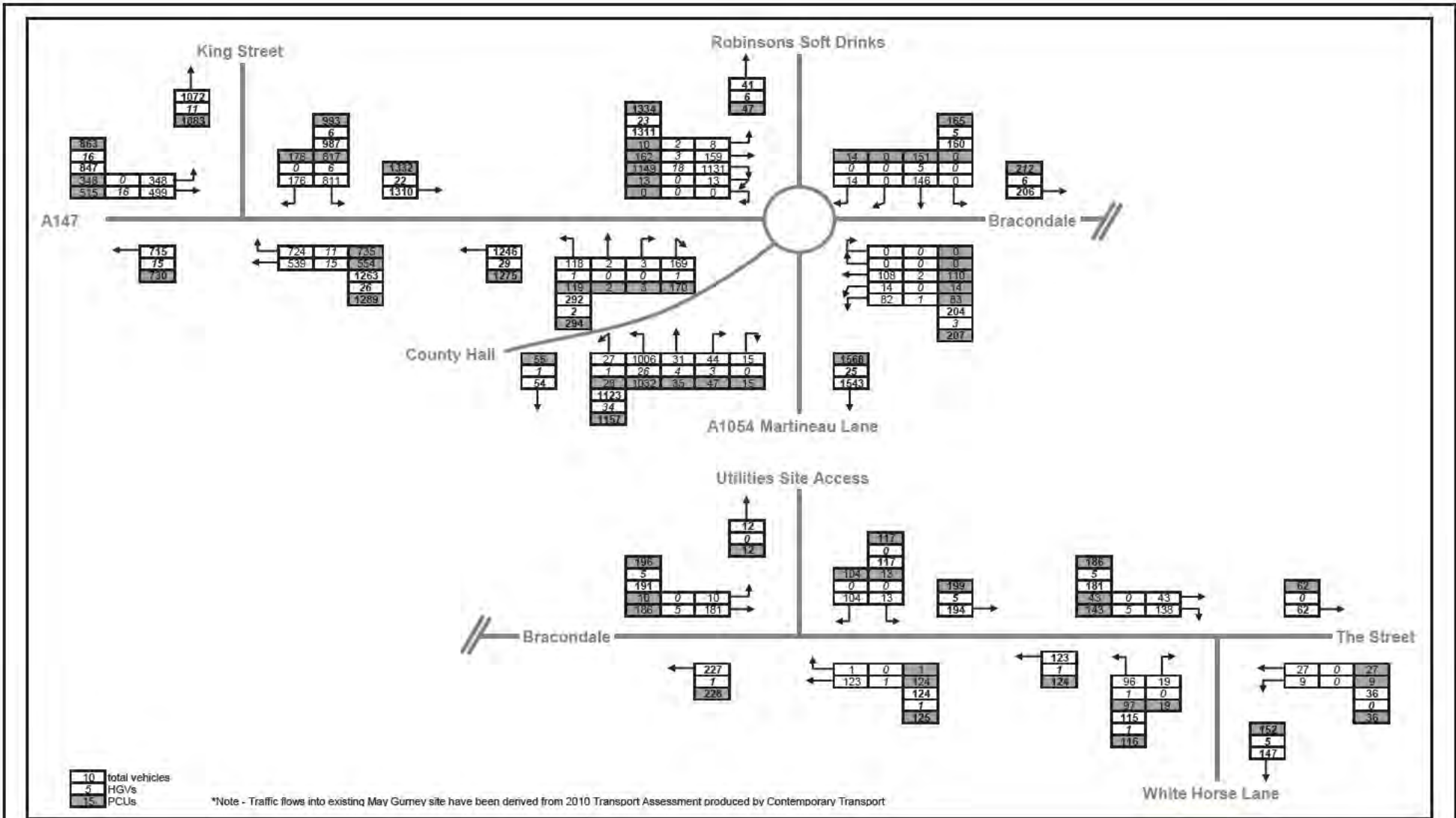


Figure TA4b

**2015 Surveyed Traffic Flows
(PM Peak, 17:15-18:15)**

axis Camellia House
76 Water Lane,
Wilmslow
Cheshire, SK9 5BB

1619-01

Generation Park Norwich, Former Utilities Site

June 2015

APPENDIX E

2023 Traffic Survey Results



Bracondale, Norwich: Queue Length Survey - Wednesday, 01 March 2023

Produced by Streetwise Services Ltd.

Junction: A - Access Road / B - Bracondale / C - A1054 Martineau Lane / D - Car Park Access / E - A147 Bracondale

CLASSIFICATION	PCU
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0
P/CYCLE	0.2
M/CYCLE	0.4



Streetwise - National T-Office and Queue Length by way Wednesday 01 Feb 2023

By way: A - Arundel B - Bathurst C - Broken Hill D - Canberra E - Darwin F - Fremantle G - Gold Coast H - Hobart I - Melbourne J - Perth K - Sydney L - Townsville M - Wollongong

Way to: A - Arundel B - Bathurst C - Broken Hill D - Canberra E - Darwin F - Fremantle G - Gold Coast H - Hobart I - Melbourne J - Perth K - Sydney L - Townsville M - Wollongong

	By way: A - Arundel B - Bathurst C - Broken Hill D - Canberra E - Darwin F - Fremantle G - Gold Coast H - Hobart I - Melbourne J - Perth K - Sydney L - Townsville M - Wollongong														Way to: A - Arundel B - Bathurst C - Broken Hill D - Canberra E - Darwin F - Fremantle G - Gold Coast H - Hobart I - Melbourne J - Perth K - Sydney L - Townsville M - Wollongong													
	A	B	C	D	E	F	G	H	I	J	K	L	M	A	B	C	D	E	F	G	H	I	J	K	L	M		
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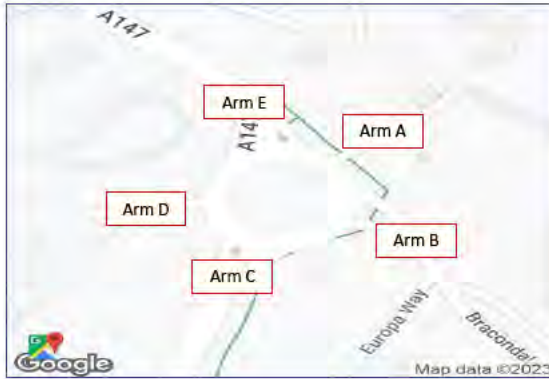
	By way: A - Arundel B - Bathurst C - Broken Hill D - Canberra E - Darwin F - Fremantle G - Gold Coast H - Hobart I - Melbourne J - Perth K - Sydney L - Townsville M - Wollongong														Way to: A - Arundel B - Bathurst C - Broken Hill D - Canberra E - Darwin F - Fremantle G - Gold Coast H - Hobart I - Melbourne J - Perth K - Sydney L - Townsville M - Wollongong													
	A	B	C	D	E	F	G	H	I	J	K	L	M	A	B	C	D	E	F	G	H	I	J	K	L	M		
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18/11/2022																												
19/11/2022																												
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31/12/2022																												



Bracondale, Norwich - Manual Traffic and Queue Length Survey: Wednesday, 01 March 2023

Produced by Streetwise Services Ltd.

Junction: **A - Access Road / B - Bracondale / C - A1054 Martineau Lane / D - Car Park Access / E - A147 Bracondale**



Matrix Totals **Counts**

Show single Session **No**
07:00 to 10:00

Custom Start / End **07:00** **19:00**

Show Peak Times **No**

		Arm Destination					Total	% Total
		A	B	C	D	E		
Arm Origin	A	0	1	36	0	14	51	100.00%
	B	1	5	684	32	535	1257	100.00%
	C	45	417	199	521	6291	7473	100.00%
	D	0	22	405	0	258	685	100.00%
	E	29	554	5173	243	12	6011	100.00%
Total		75	999	6497	796	7110		
% Total		100.00%	100.00%	100.00%	100.00%	100.00%		

Classifications	Include
CAR	Yes
LGV	Yes
OGV1	Yes
OGV2	Yes
BUS	Yes
P/CYCLE	Yes
M/CYCLE	Yes



2 maanden Na werk - Kennis 7- offic and Queue Length Za vry - Wednesday 01 Feb 2023

Report 3 - 2 - 01022023 - 10:00:00

ID	Name	01 Feb 2023					02 Feb 2023					03 Feb 2023					04 Feb 2023					Total
		M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	
1
2
3
4
5
6
7
8
9
10

ID	Name	01 Feb 2023					02 Feb 2023					03 Feb 2023					04 Feb 2023					Total
		M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	
11
12
13
14
15
16
17
18
19
20



2 aandeels No which - Kennis 7 offic and Queue Length In vry Wednesday 01 Ma ch 2023

2 Ma 23

2023

2023

Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son	Ma	Di	Wo	Do	Vr	Sa	Son													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31



Bracondale, Norwich: Queue Length Survey - Wednesday, 01 March 2023

Produced by Streetwise Services Ltd.

Junction: A - Access Road / B - Bracondale / C - A1054 Martineau Lane / D - Car Park Access / E - A147 Bracondale

Survey Period	A - Access Road		B - Bracondale		C - A1054 Martineau Lane		D - Car Park Access		E - A147 Bracondale	
	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
07:00 - 07:05	0	0	1	0	0	0	0	0	1	0
07:05 - 07:10	0	1	0	0	1	1	0	0	3	0
07:10 - 07:15	0	0	1	1	1	3	1	2	0	0
07:15 - 07:20	0	0	0	0	2	2	0	2	10	1
07:20 - 07:25	0	0	1	1	2	3	0	0	18	1
07:25 - 07:30	0	0	2	1	1	1	0	0	6	1
07:30 - 07:35	0	0	2	1	1	1	0	0	2	0
07:35 - 07:40	0	0	3	2	10	10	0	2	7	0
07:40 - 07:45	0	0	3	3	4	12	0	0	3	2
07:45 - 07:50	0	0	1	2	11	6	2	1	3	0
07:50 - 07:55	0	0	2	2	15	14	0	2	4	2
07:55 - 08:00	0	0	4	1	15	12	1	1	7	0
08:00 - 08:05	1	0	3	2	16	27	0	1	2	0
08:05 - 08:10	0	1	1	4	13	28	0	2	3	0
08:10 - 08:15	0	0	0	2	20	33	1	2	6	1
08:15 - 08:20	0	0	3	3	24	38	1	4	0	38
08:20 - 08:25	0	0	3	1	12	39	0	0	3	0
08:25 - 08:30	0	1	2	4	16	37	2	2	5	1
08:30 - 08:35	0	0	2	2	6	32	0	2	10	2
08:35 - 08:40	1	0	2	1	8	30	1	2	12	2
08:40 - 08:45	1	0	2	0	19	28	0	0	3	2
08:45 - 08:50	0	0	1	2	6	24	1	1	12	2
08:50 - 08:55	0	1	2	3	8	30	1	2	3	1
08:55 - 09:00	1	0	1	4	6	37	0	1	6	1
09:00 - 09:05	0	0	2	1	4	3	1	2	7	0
09:05 - 09:10	0	0	0	3	10	7	1	1	3	0
09:10 - 09:15	0	0	1	2	4	4	2	2	2	0
09:15 - 09:20	1	0	1	1	2	2	2	2	6	2
09:20 - 09:25	0	0	1	3	8	7	1	0	2	2
09:25 - 09:30	0	0	1	1	6	9	1	1	9	0
09:30 - 09:35	0	0	0	1	6	3	1	0	11	0
09:35 - 09:40	1	0	1	2	5	12	0	1	5	0
09:40 - 09:45	0	0	2	3	4	14	0	1	4	2
09:45 - 09:50	0	2	1	1	1	1	1	2	4	0
09:50 - 09:55	1	0	3	1	1	13	1	0	3	1
09:55 - 10:00	0	0	1	1	1	3	1	3	3	2
16:00 - 16:05	0	0	6	3	0	0	1	2	15	0
16:05 - 16:10	0	0	5	1	1	4	3	5	32	0
16:10 - 16:15	0	0	6	2	2	10	2	3	34	0
16:15 - 16:20	0	0	6	2	4	4	2	5	35	0
16:20 - 16:25	0	0	2	2	2	2	2	2	32	0
16:25 - 16:30	0	0	9	2	1	3	2	4	37	0
16:30 - 16:35	1	0	3	2	0	6	1	2	34	0
16:35 - 16:40	1	0	2	2	3	3	1	3	7	1
16:40 - 16:45	0	0	1	2	4	4	3	3	10	0
16:45 - 16:50	0	0	1	4	1	5	3	2	8	1
16:50 - 16:55	0	0	2	2	4	4	2	2	10	0
16:55 - 17:00	0	0	3	4	4	3	2	9	9	0
17:00 - 17:05	0	0	6	1	0	3	1	3	13	0
17:05 - 17:10	1	0	3	3	1	6	2	3	22	0
17:10 - 17:15	0	0	2	5	3	4	3	6	19	0
17:15 - 17:20	4	0	5	3	0	27	3	7	10	0
17:20 - 17:25	2	1	4	1	5	41	2	8	23	1
17:25 - 17:30	0	0	2	2	1	26	3	10	32	0
17:30 - 17:35	1	0	2	4	5	18	2	4	30	1
17:35 - 17:40	1	0	5	4	10	14	2	5	31	0
17:40 - 17:45	1	0	3	3	2	12	1	4	37	1
17:45 - 17:50	0	0	2	1	1	18	1	2	40	0
17:50 - 17:55	1	0	8	5	4	5	2	2	37	0
17:55 - 18:00	0	0	9	6	6	12	2	2	34	0
18:00 - 18:05	0	0	1	3	2	12	2	2	8	0
18:05 - 18:10	0	1	2	1	2	3	0	1	7	1
18:10 - 18:15	1	0	2	1	1	4	2	2	9	0
18:15 - 18:20	0	0	2	1	3	0	2	3	8	0
18:20 - 18:25	0	0	2	2	0	3	1	2	8	1

18:25 - 18:30	0	0	1	1	0	1	1	2	6	0
18:30 - 18:35	0	0	1	1	0	2	1	1	4	0
18:35 - 18:40	0	0	1	2	1	1	1	1	8	0
18:40 - 18:45	0	0	1	1	0	1	1	1	2	0
18:45 - 18:50	0	0	1	0	6	3	0	1	6	0
18:50 - 18:55	0	0	1	1	0	3	0	1	3	1
18:55 - 19:00	0	0	0	1	3	3	1	1	3	1

Bracondale, Norwich ATC 02, Bracondale East
Produced by Streetwise Services Ltd



Table with 10 columns: Date, Vehicle Flow, Average Speed. Shows data for Channel 1 Eastbound from 01/03/2023 to 07/03/2023.

Bracondale, Norwich ATC 02, Bracondale East
Produced by Streetwise Services Ltd

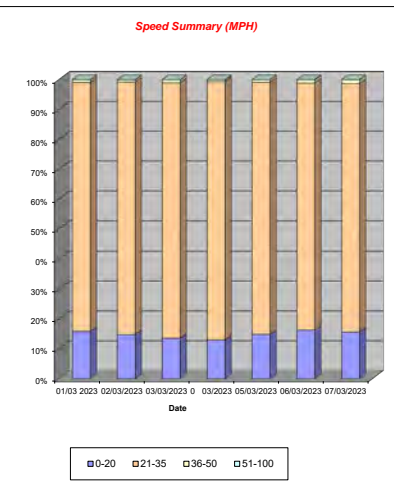


Table with 10 columns: Date, Average Speed, 85th Percentile. Shows data for Channel 1 Eastbound from 01/03/2023 to 07/03/2023.

Bracondale, Norwich ATC 02, Bracondale East
Produced by Streetwise Services Ltd



Speed Summary (MPH) table with columns for Date, Speed (MPH), and Average Speed. Shows summary data for Channel 1 Eastbound.



Bracondale, Norwich ATC 02, Bracondale East
Produced by Streetwise Services Ltd



Table with 6 columns: Date, Chassis, Car/LGV/Category 1, OGV/Bus, DVG2, 4 Ls 5s 11 13, 0 AL. Shows vehicle class distribution data for Channel 1 Eastbound.

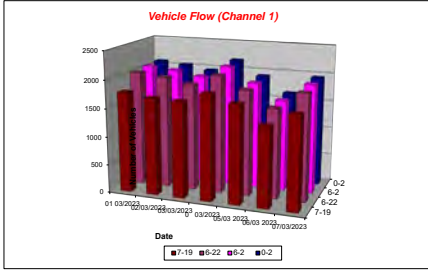
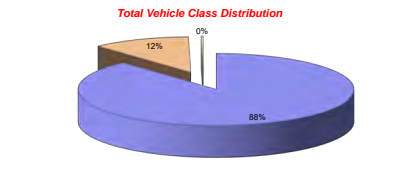


Table with 10 columns: Date, Vehicle Flow, Average Speed. Shows data for Channel 2 Westbound from 01/03/2023 to 07/03/2023.

Table with 10 columns: Date, Average Speed, 85th Percentile. Shows data for Channel 2 Westbound from 01/03/2023 to 07/03/2023.

Speed Summary (MPH) table for Channel 2 Westbound.

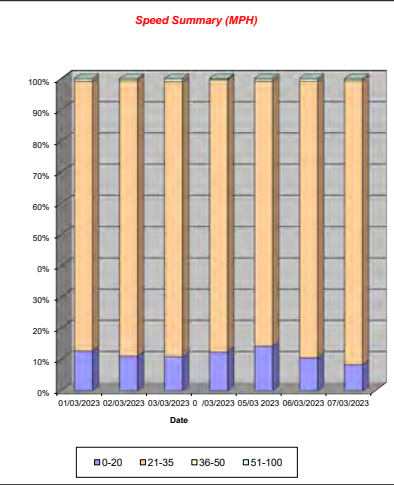


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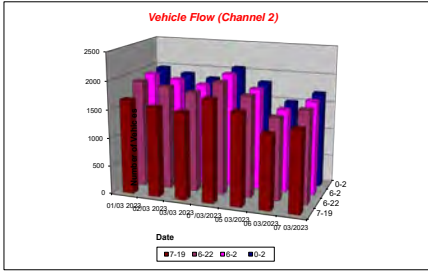
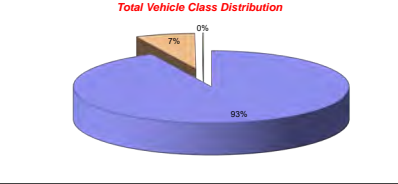
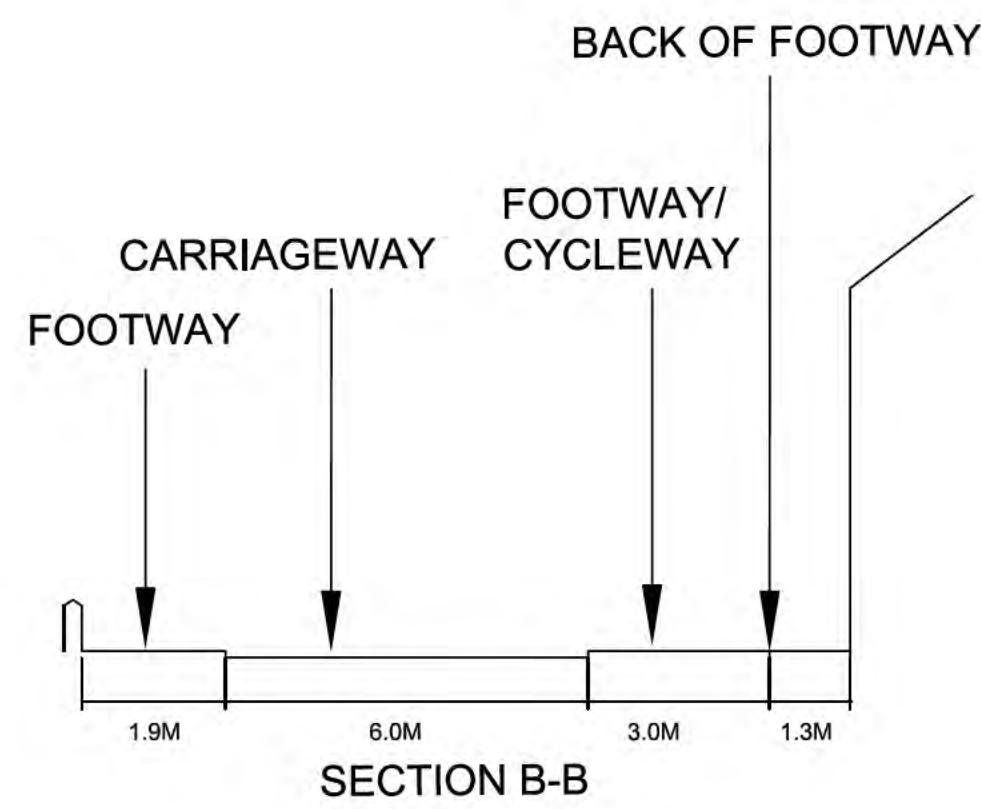
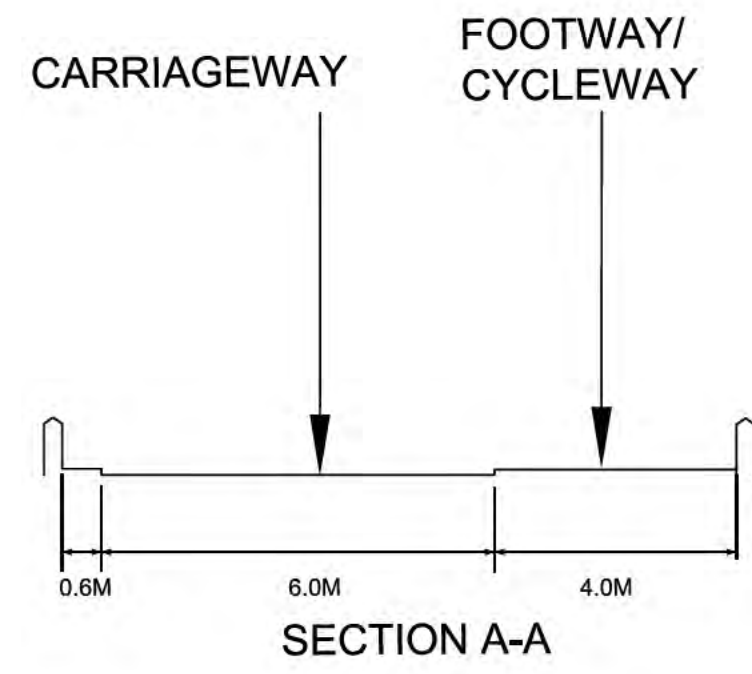
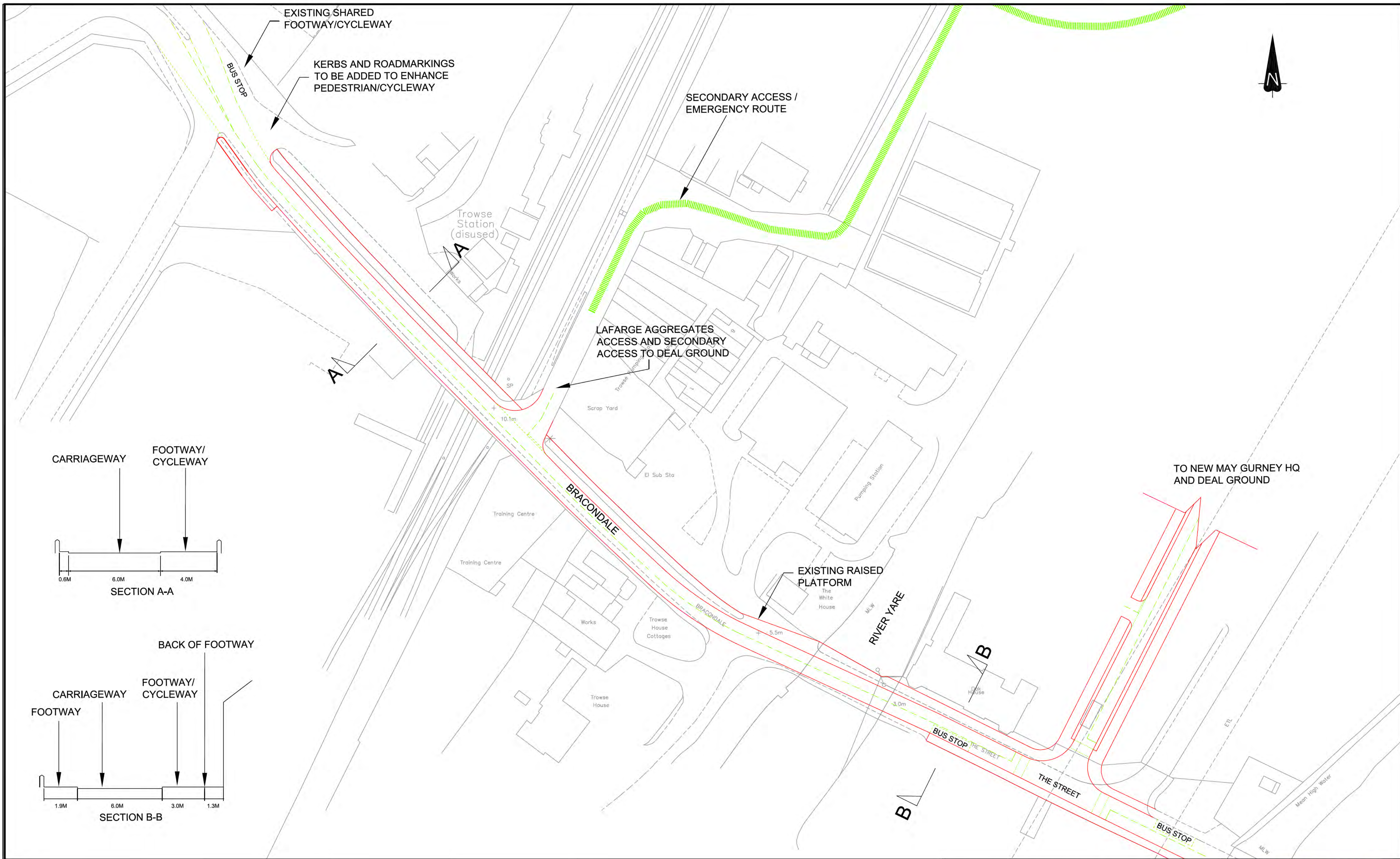


Table with 10 columns: Date, Average Speed, 85th Percentile. Shows data for Channel 2 Westbound from 01/03/2023 to 07/03/2023.

7 Day Ave: 28.6

APPENDIX F

'Proposed Access Arrangements' and 'Proposed Cycle/Footway on Bracondale / The Street' (Drawings '3009005/A/015 Rev B' and '3009005/B/002Rev A') (Norwich City Council Ref. 12/00875/O, South Norfolk Council Ref. 2011/0152/O)



NOTES:

DEAL GROUND, NORWICH

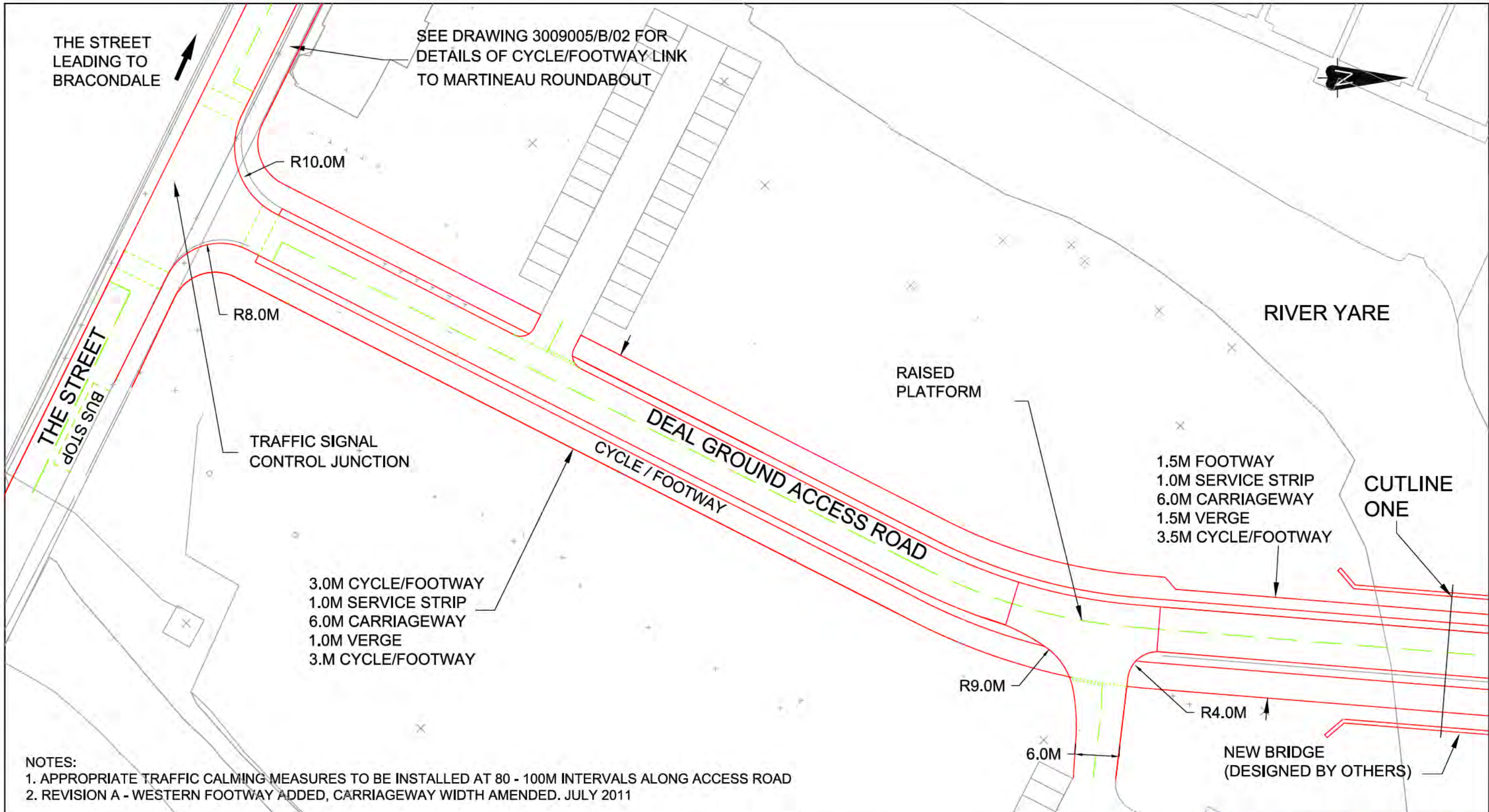
PROPOSED CYCLE/FOOTWAY
ON BRACONDAL / THE
STREET

Contemporary Transport™

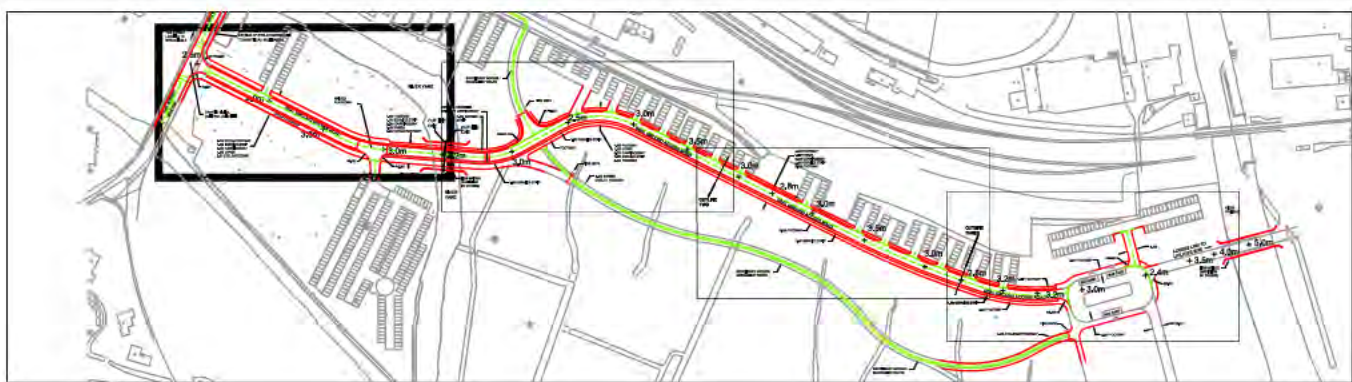
Riverside House,
River Lawn Road,
Tonbridge, UK. TN9 1EP
tel: 44 (0) 1732783500

SERRUYS PROPERTY
COMPANY

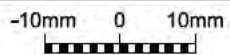
DATE	AUG 2011	DATE	AUG 2011	DATE	AUG 2011	SCALES @A1	DRAWING STATUS	DRAWING NUMBER	REVISION
DESIGNED BY	SC	DRAWN BY	SC	CHECKED BY	SC	1:1000	PRELIMINARY	3009005/B/002	A



- NOTES:
 1. APPROPRIATE TRAFFIC CALMING MEASURES TO BE INSTALLED AT 80 - 100M INTERVALS ALONG ACCESS ROAD
 2. REVISION A - WESTERN FOOTWAY ADDED, CARRIAGEWAY WIDTH AMENDED. JULY 2011



DEAL GROUND, NORWICH					Contemporary Transport™	
PROPOSED ACCESS ARRANGEMENTS (SHEET ONE OF FOUR)					Riverside House, River Lawn Road, Tonbridge, UK. TN9 1EP tel: 44 (0) 1732783500	
					SERRUYS PROPERTY COMPANY	
DATE	AUG 2010	DATE	AUG 2010	DATE	AUG 2010	SCALES @A3
DESIGNED BY	SC	DRAWN BY	SC	CHECKED BY	SC	1:500
				DRAWING STATUS	PRELIMINARY	
				DRAWING NUMBER	3009005/A/015	
				REVISION	B	



APPENDIX G

**Framework Residential Travel Plan (2011) (Norwich City Council Ref. 12/00875/O, South
Norfolk Council Ref. 2011/0152/O)**

Contemporary Transport™

Framework Residential Travel Plan

**Proposed Development at
Deal Ground and
May Gurney Site, Trowse**

Job title: Deal Ground and May Gurney Development

Job number: 10080023

Document title: Framework Residential Travel Plan

Document ref: Projects/Deal Ground,
Norwich/CTS/Travel Plans/Framework
Residential Travel Plan

Revision	Date	Filename	FRTP – DG&MG – Draft v1		
1	30/11/2010	Description	Draft Framework Residential Travel Plan to meet requirements specified by NCC.		
			Prepared by	Checked by	Approved by
		Name	CSB	TMW	CSB
2	20/01/2011	Filename	FRTP – DG&MG		
		Description	Issued to Highways Agency		
			Prepared by	Checked by	Approved by
		Name	CSB	TMW	CSB
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			

Issue Document Verification with Document



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1 Introduction

This Framework Residential Travel Plan (RTP) has been prepared to support the development of land designated for employment and housing uses at the Deal Ground and May Gurney site (the site) in southeast Norwich.

Overall the development consists of 685 residential units comprising terraces, town houses, duplex units, and apartments.

The purpose of this RTP is to ensure that all new residents support and encourage the use of sustainable modes of transport. Therefore the main focus is on specific measures which are appropriate for encouraging residents to maximise the use of sustainable transport.

The principal aims of this RTP are to:

- Minimise the need to travel;
- Maximise access to local employers via sustainable modes of transport; and
- Manage demand for single occupancy car use.

The Transport Assessment (TA) carried out in association with this RTP included a review of walking, cycling and public transport facilities currently available in the local area. The site is well served by local walking and cycle routes and bus services, providing good access to local destinations via non-car modes.

The RTP therefore focuses on:

- Promotion of sustainable transport choices for residents; and
- Reducing demand for single occupancy vehicle (SOV) trips during peak-hour commute times.

1.1 Objectives

The objectives of this RTP accord with those of the National Government, Norfolk County Council (NCC), and South Norfolk District Council (SNDC). By meeting these objectives this RTP will:

- Reduce the need to travel by ensuring that new residents can easily access facilities for work, education, health, leisure, recreation and shopping;
- Encourage sustainable travel behaviour from the initial day of resident occupation;

- To maintain and continually improve attractive environments for pedestrians and cyclists throughout the site;
- Reduce the impact of traffic generated by the development;
- Improve personal and wider community health by promoting healthy lifestyles and reducing the reliance on private vehicle use; and
- Improve the viability of public transport in the local area through increased use.

This RTP is intended to provide a suitable framework for the development of a full residential travel plan strategy. This will be developed by the Travel Plan Co-ordinator (TPC) in partnership with the Transport Management Association (TMA). At present an outline application will be submitted for proposals covering the majority of the site. Once further development details have been determined it will be possible to provide more detail to the RTP. The RTP is intended to support and to be read in conjunction with the Transport Assessment (TA).

1.2 Structure

A description of the site will be provided along with information on the location and existing transport facilities. A range of initiatives which will form the core of the RTP will then be explained in detail along with what they hope to achieve. The importance of setting targets and monitoring is then highlighted, and baseline mode share targets are set out along with a monitoring method and schedule. Finally the action plan is set out to clearly show when each stage of implementation will be completed and the resource required for achievement.

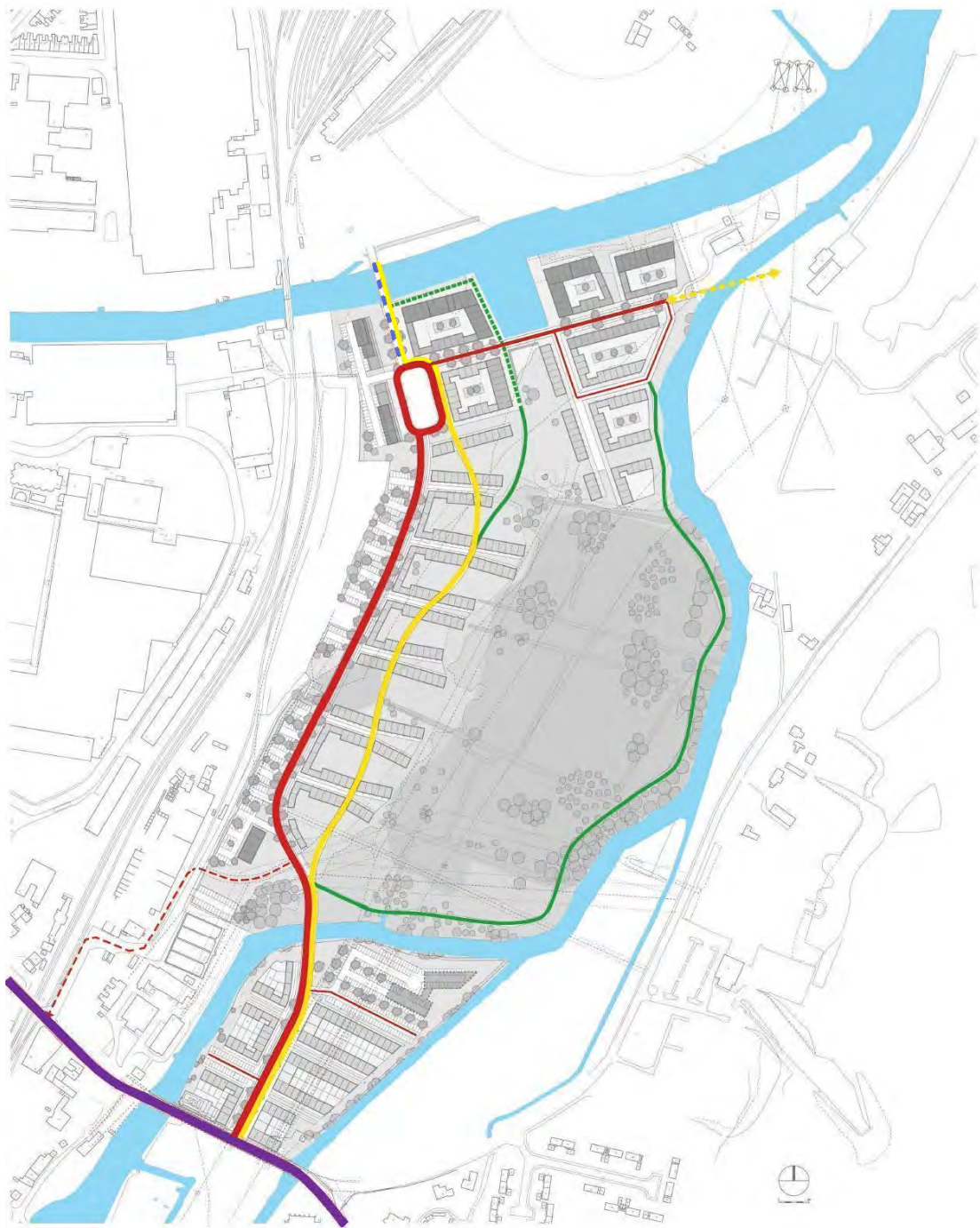
2 Site Details

This section provides a description of the site to help outline the context for the RTP. Further detail of the development and specific transport schemes is provided within the associated TA. Figure 2.1 contains a site map showing the location of the site.

2.1 Location

The site is located close to the village of Trowse in east Norwich, and benefits from close proximity to Norwich city centre. The site can currently be accessed from The Street to the south, and will be accessible via the riverside towpath and Utilities site to the north.

Figure 2.1: Site Map



Key:

- Public Highway
- Multi Modal Route
- Walk and Cycle Route
- Pedestrian Route
- - - Emergency Route
- - - Service Access

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blad	0904	

2.2 Transport Links

Existing walking and cycle routes are available to and from public transport links, local shops, and to major local employers including NCC and Unilever. National Route 1 (NR1) currently runs on The Street to the south of the site and is a popular route used by recreational and commuter cyclists travelling to and from the city centre.

Bus links are available from a bus stop in close proximity to the site on The Street and from Trowse. Services connect the site to the city centre and surrounding area. Bus services are also available from Martineau Lane and Bracondale to the west, these again offer connections to the city centre and wider area. Services to the north on Thorpe Road will be available via a pedestrian and cycle bridge at the northern end of the site, this will have been constructed prior to development occupation.

Norwich Railway Station will be within reasonable walking distance of the site. It offers regular services to the surrounding region and to London Liverpool Street. The site is adjacent to the river Wensum; a potential river ferry link may be installed depending on viability.

3 Initiatives

A range of initiatives to encourage the use of sustainable transport modes are appropriate. The initiatives will be refined, specified in detail and budgets allocated as part of the full RTP. At this stage a summary of key initiatives has been provided as set out below.

3.1 Appoint Travel Plan Co-ordinator

The first step to creating an effective RTP is the appointment of a TPC, it will be this person's responsibility to oversee the implementation of the RTP. As detailed within the TA, a TMA will be created to effectively manage the site; the TMA will provide TPC resources to implement the RTP.

The duties of the TPC are set out below, responsibilities may vary but will include:

- Overseeing the development and implementation of the RTP;
- Obtaining and maintaining commitment and support from residents;
- Designing and implementing effective marketing and awareness raising campaigns to promote the RTP;
- Setting up and co-ordinating a Local Resident Group and attending/meeting as appropriate;
- Co-ordinating the necessary data collection exercise required to develop the RTP;
- Acting as a point of contact for all residents requiring information;
- Liaising with the local authority to promote maintenance of paths and cycle routes in the vicinity of the site;
- Liaising with local bus operators to promote services and offer incentives; and
- Co-ordinating the monitoring programme for the RTP.

3.2 Promote Walking and Cycling

The TA identified existing walking and cycling routes to and from public transport facilities, local shops, local schools, local employers, leisure facilities and surrounding neighbourhoods. Most facilities are located in close proximity and for most journeys sustainable modes of transport are likely to be attractive.

Upon occupation residents will be given a welcome pack that includes walking and cycling guides to the local area. Welcome packs will also include material that promotes the benefits of walking and cycling. These will also explain the personal benefits of active travel which include: leading a healthy lifestyle, financial savings, improved punctuality and in many cases a shorter and less stressful journey to work.

To encourage cycling amongst residents there will be secure, covered cycle parking located throughout the site. Cycle parking will be placed in prominent locations to promote cycling through raised awareness and ease of access. Placing cycle parking next to residential units will make bicycle access more convenient than car access. Residents will be reminded of this each time they walk past the bicycle to access their car parked further away.

Walking and cycling can be promoted through a range of events. For example guided cycle rides through the city centre or around the Broads following NR1 will be held to raise interest and competence in cycling. Bicycle maintenance sessions can also be a useful way of promoting cycling by educating residents as to how to take care of bikes.

3.3 Promote Use of Public Transport

The site is well served by public transport, bus stops will be accessible within reasonable walking distance to both the north and south. Local bus operators currently offer routes to the city centre and surrounding areas. All major employment areas in and around Norwich can be accessed via public transport. The TA included a public transport assessment which identified improvements to existing services such as the installation of new bus stops and the extension or re-routing of existing services. Improvements to local bus stops will be implemented in association with the development.

New residents will be encouraged to make use of public transport services rather than relying on vehicular use. Incentives such as free trial tickets, reduced price season tickets and promotion of local services will be used to raise awareness of available services. Bus timetables will also be included within welcome packs to ensure that new residents are fully aware of available public transport options.

3.4 Promote Car Sharing Scheme

Residents will be encouraged to join a car share system which will match commuters who have similar journeys to work. Details of the car sharing scheme and how to join it will be provided within the welcome pack for new residents. A car sharing scheme can help to reduce single car occupancy use during journeys to work. It will be the responsibility of the TMA to create a bespoke car sharing system which will be available to the entire site.

3.5 Promote Car Club

A car club has been included within the Transport Strategy (TS), 2 cars will initially be provided onsite and all residents will receive free membership to the service. The availability

of club cars on-site should help to reassure residents that they do not need to rely on owning private vehicles. The car club will be promoted by placing club cars in prominent locations to ensure that they are clearly identifiable. Membership details will be included within welcome packs for residents, and will explain how the club works and the benefits of using the service.

4 Targets and Monitoring

The successful impact of an RTP can be ensured through the use of effective target setting and monitoring. Monitoring re-enforces this approach by taking a regular snapshot of performance, results will show how effective the RTP has been. Measuring the progress of the RTP can also help to identify areas where there may be room for improvement, this allows the RTP to continually evolve and become more effective.

4.1 Modal Share and Trip Rates

The TA provided details of the trip generation and mode share calculations derived to estimate new demand from the development, results are shown within the following table.

Table 4.1: Trip Rate and Mode Share Assumptions for the Journey to Work

Mode of Travel to Work	Mode Share	Trips
Works mainly at or from home	10.0%	41
Train	2.0%	8
Bus, minibus or coach	9.0%	37
Taxi or minicab	1.0%	4
Driving a car or van	33.0%	135
Passenger in a car or van	6.0%	25
Motorcycle, scooter or moped	2.0%	8
Bicycle	12.0%	49
On foot	25.0%	102

4.2 Targets

The mode share figures highlighted in yellow will be used as target trip rates for full occupation. Initial monitoring surveys carried out once the site is fully occupied will be used to set trip reduction targets. As actual trip rates generated by the site have not yet been established it is difficult to set stretch targets for the development to meet.

The TS is intended to work with the site design to deliver the trip rates shown. The travel plan will ensure that targets are monitored and that initiatives are focussed on achieving desired outcomes.

4.3 Monitoring

A full monitoring strategy will be designed in collaboration with the TMA and NCC as part of the detailed RTP that will be required before first occupation.

Initial monitoring surveys will be carried out 3 months after the site is fully occupied, these will produce actual trip rate figures for the site. Fully classified surveys will be carried out by placing vehicle counts at the site entrance on The Street and on the bridge over the River Yare which will provide access to the Deal Ground. The single point of access to the site will allow accurate vehicle counts as all trips will be accounted for.

Once a good understanding of residential travel behaviour has been gained and targets have been set, monitoring will be carried out once a year and will be co-ordinated by the TMA. This will ensure that progress is continually checked, and improvements made for the foreseeable future.

5 Action Plan

The TMA will be responsible for ensuring that the initiatives detailed through the travel plan are implemented, and that targets are set and monitored. A suggested timescale from occupation of premises is set out in the table below.

Table 5.1: Action plan

ACTION	TIMESCALE	RESPONSIBILITY	RESOURCE IMPLICATIONS	SUCCESS CRITERIA
CREATE TRANSPORT MANAGEMENT ASSOCIATION	UPON COMPLETION	DEVELOPER	DEVELOPER FUNDED	TMA CREATED
LIAISE WITH LOCAL AUTHORITY	FIRST WEEK	TMA	TIME TO LIAISE	CONTACT MADE WITH LA
ORGANISE WELCOME PACKS TO RAISE AWARENESS OF WALKING, CYCLING AND PUBLIC TRANSPORT FACILITIES	FIRST WEEK	TMA	SAME PACKS FOR ALL HOUSES AND APARTMENTS	ALL PROPERTIES ISSUED WITH WELCOME PACKS
ALLOCATE RESIDENT PARKING	FIRST WEEK	TMA	TIME TO WORK OUT DISTRIBUTE PARKING AMONG RESIDENTS	PARKING DISTRIBUTED TO RESIDENTS
PROMOTE CAR SHARING	SECOND WEEK	TMA	TIME TO PROMOTE	RESIDENTS CAR SHARING
PROMOTE CAR CLUBS	SECOND WEEK	TMA	TIME TO PROMOTE	RESIDENTS MAKING USE OF CLUB CARS
HOLD EVENTS TO ENCOURAGE WALKING AND CYCLING	WITHIN 3 MONTHS	TMA	TIME TO ORGANISE EVENTS	10% OF RESIDENTS TAKING PART IN EVENTS
CARRY OUT INITIAL SURVEY	WITHIN 3 MONTHS	TMA	TIME TO ARRANGE SURVEY	INITIAL TARGETS ACHIEVED
SET TARGETS FOR YEAR 1	FOURTH MONTHS	TMA	TIME TO ANALYSE RESULTS	TARGETS SET
MONITORING	1 YEAR ON	TMA	TIME TO CARRY OUT SURVEY AND ANALYSE RESULTS	TARGETS ACHIEVED

Environmental Statement Addendum – Chapter 10: Transport Appendix 10.4



Norfolk County Council

Community and Environmental
Services
County Hall
Martineau Lane
Norwich
NR1 2SG

Sarah Hinchcliffe
Norwich City Council
City Hall
Norwich
Norfolk
NR2 1NH

NCC contact number: 0344 800 8020
Text Relay - 18001 0344 800 8020

Your Ref: 22/01225/EIA2
Date: 10 November 2022

My Ref: 9/4/22/1225
Tel No.: 01603 638009
Email: liz.poole@norfolk.gov.uk

Dear Sarah,

EIA Scoping Opinion request for a mixed use residential and commercial development. Deal Ground, Bracondale, Norwich.

Thank you for your consultation regarding the above scoping opinion.

The highway authority has reviewed the information provided and considers that given the age of the original application, a revised Transport Assessment is required. The revised assessment should take into account the East Norwich development (given that there is a submitted, albeit un-validated planning application).

In addition, the assessment years will have changed and there will have been changes in traffic levels since the original traffic surveys were undertaken.

Consideration will also need to be made regarding access to catchment schools and walking/cycling routes to local facilities and employment areas.

If you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

Liz Poole

Major and Estate Development Team Manager
for Executive Director for Community and Environmental Services

Please be aware it is the applicants responsibility to clarify the boundary with the public highway. Private structures such as fences or walls will not be permitted on highway land. The highway boundary may not match the applicants title plan. Please contact the highway research team at highway.boundaries@norfolk.gov.uk for further details.

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Norfolk County Council

Community and Environmental
Services
County Hall
Martineau Lane
Norwich
NR1 2SG

Sarah Hinchcliffe
Norwich City Council
City Hall
Norwich
Norfolk
NR2 1NH

NCC contact number: 0344 800 8020
Text Relay - 18001 0344 800 8020

Your Ref: 22/00540/EIA2
Date: 4 May 2022

My Ref: 9/4/22/0540
Tel No.: 01603 638009
Email: liz.poole@norfolk.gov.uk

Dear Sarah,

EIA Scoping Request for environmental consultancy associated with the proposed development of the site. Carrow Works, King Street, Norwich, NR2 1DD

Thank you for your consultation regarding the above.

The highway authority will require a full Transport Assessment which should be scoped with the highway authority in advance of any submission.

Yours sincerely

Liz Poole

Major and Estate Development Team Manager
for Executive Director for Community and Environmental Services

Please be aware it is the applicants responsibility to clarify the boundary with the public highway. Private structures such as fences or walls will not be permitted on highway land. The highway boundary may not match the applicants title plan. Please contact the highway research team at highway.boundaries@norfolk.gov.uk for further details.

Environmental Statement Addendum – Chapter 10: Transport Appendix 10.3

Contemporary Transport™

Framework Residential Travel Plan

**Proposed Development at
Deal Ground and
May Gurney Site, Trowse**

Job title: Deal Ground and May Gurney Development

Job number: 10080023

Document title: Framework Residential Travel Plan

Document ref: Projects/Deal Ground,
Norwich/CTS/Travel Plans/Framework
Residential Travel Plan

Revision	Date	Filename	FRTP – DG&MG – Draft v1		
1	30/11/2010	Description	Draft Framework Residential Travel Plan to meet requirements specified by NCC.		
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			Prepared by	Checked by	Approved by
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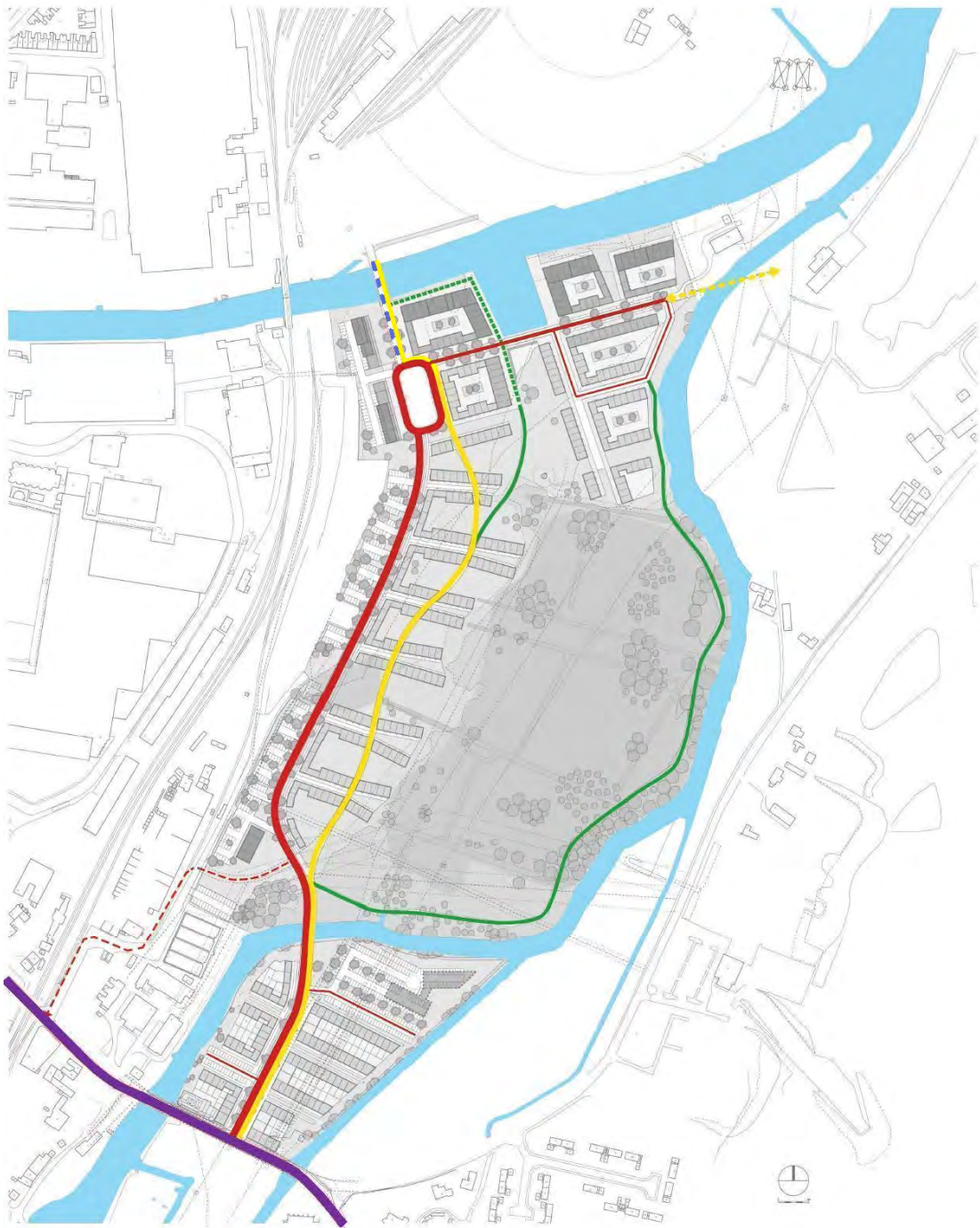
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Key:

- | | |
|----------------------|------------------|
| Public Highway | Pedestrian Route |
| Multi Modal Route | Emergency Route |
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PRO

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Existing walking and cycle routes are available to and from public transport links, local shops, and to major local employers including NCC and Unilever. National Route 1 (NR1) currently runs on The Street to the south of the site and is a popular route used by recreational and commuter cyclists travelling to and from the city centre.

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- Setting up and co-ordinating a Local Resident Group and attending/meeting as appropriate;
- Co-ordinating the necessary data collection exercise required to develop the RTP;
- Acting as a point of contact for all residents requiring information;
- Liaising with the local authority to promote maintenance of paths and cycle routes in the vicinity of the site;
- Liaising with local bus operators to promote services and offer incentives; and
- Co-ordinating the monitoring programme for the RTP.

3.2 Promote Walking and Cycling

The TA identified existing walking and cycling routes to and from public transport facilities, local shops, local schools, local employers, leisure facilities and surrounding neighbourhoods. Most facilities are located in close proximity and for most journeys sustainable modes of transport are likely to be attractive.

Upon occupation residents will be given a welcome pack that includes walking and cycling guides to the local area. Welcome packs will also include material that promotes the benefits of walking and cycling. These will also explain the personal benefits of active travel which include: leading a healthy lifestyle, financial savings, improved punctuality and in many cases a shorter and less stressful journey to work.

To encourage cycling amongst residents there will be secure, covered cycle parking located throughout the site. Cycle parking will be placed in prominent locations to promote cycling through raised awareness and ease of access. Placing cycle parking next to residential units will make bicycle access more convenient than car access. Residents will be reminded of this each time they walk past the bicycle to access their car parked further away.

Walking and cycling can be promoted through a range of events. For example guided cycle rides through the city centre or around the Broads following NR1 will be held to raise interest and competence in cycling. Bicycle maintenance sessions can also be a useful way of promoting cycling by educating residents as to how to take care of bikes.

3.3 Promote Use of Public Transport

The site is well served by public transport, bus stops will be accessible within reasonable walking distance to both the north and south. Local bus operators currently offer routes to the city centre and surrounding areas. All major employment areas in and around Norwich can be accessed via public transport. The TA included a public transport assessment which identified improvements to existing services such as the installation of new bus stops and the extension or re-routing of existing services. Improvements to local bus stops will be implemented in association with the development.

New residents will be encouraged to make use of public transport services rather than relying on vehicular use. Incentives such as free trial tickets, reduced price season tickets and promotion of local services will be used to raise awareness of available services. Bus timetables will also be included within welcome packs to ensure that new residents are fully aware of available public transport options.

3.4 Promote Car Sharing Scheme

Residents will be encouraged to join a car share system which will match commuters who have similar journeys to work. Details of the car sharing scheme and how to join it will be provided within the welcome pack for new residents. A car sharing scheme can help to reduce single car occupancy use during journeys to work. It will be the responsibility of the TMA to create a bespoke car sharing system which will be available to the entire site.

3.5 Promote Car Club

A car club has been included within the Transport Strategy (TS), 2 cars will initially be provided onsite and all residents will receive free membership to the service. The availability

of club cars on-site should help to reassure residents that they do not need to rely on owning private vehicles. The car club will be promoted by placing club cars in prominent locations to ensure that they are clearly identifiable. Membership details will be included within welcome packs for residents, and will explain how the club works and the benefits of using the service.

4 Targets and Monitoring

The successful impact of an RTP can be ensured through the use of effective target setting and monitoring. Monitoring re-enforces this approach by taking a regular snapshot of performance, results will show how effective the RTP has been. Measuring the progress of the RTP can also help to identify areas where there may be room for improvement, this allows the RTP to continually evolve and become more effective.

4.1 Modal Share and Trip Rates

The TA provided details of the trip generation and mode share calculations derived to estimate new demand from the development, results are shown within the following table.

Table 4.1: Trip Rate and Mode Share Assumptions for the Journey to Work

Mode of Travel to Work	Mode Share	Trips
Works mainly at or from home	10.0%	41
Train	2.0%	8
Bus, minibus or coach	9.0%	37
Taxi or minicab	1.0%	4
Driving a car or van	33.0%	135
Passenger in a car or van	6.0%	25
Motorcycle, scooter or moped	2.0%	8
Bicycle	12.0%	49
On foot	25.0%	102

4.2 Targets

The mode share figures highlighted in yellow will be used as target trip rates for full occupation. Initial monitoring surveys carried out once the site is fully occupied will be used to set trip reduction targets. As actual trip rates generated by the site have not yet been established it is difficult to set stretch targets for the development to meet.

The TS is intended to work with the site design to deliver the trip rates shown. The travel plan will ensure that targets are monitored and that initiatives are focussed on achieving desired outcomes.

4.3 Monitoring

A full monitoring strategy will be designed in collaboration with the TMA and NCC as part of the detailed RTP that will be required before first occupation.

Initial monitoring surveys will be carried out 3 months after the site is fully occupied, these will produce actual trip rate figures for the site. Fully classified surveys will be carried out by placing vehicle counts at the site entrance on The Street and on the bridge over the River Yare which will provide access to the Deal Ground. The single point of access to the site will allow accurate vehicle counts as all trips will be accounted for.

Once a good understanding of residential travel behaviour has been gained and targets have been set, monitoring will be carried out once a year and will be co-ordinated by the TMA. This will ensure that progress is continually checked, and improvements made for the foreseeable future.

5 Action Plan

The TMA will be responsible for ensuring that the initiatives detailed through the travel plan are implemented, and that targets are set and monitored. A suggested timescale from occupation of premises is set out in the table below.

Table 5.1: Action plan

ACTION	TIMESCALE	RESPONSIBILITY	RESOURCE IMPLICATIONS	SUCCESS CRITERIA
CREATE TRANSPORT MANAGEMENT ASSOCIATION	UPON COMPLETION	DEVELOPER	DEVELOPER FUNDED	TMA CREATED
LIAISE WITH LOCAL AUTHORITY	FIRST WEEK	TMA	TIME TO LIAISE	CONTACT MADE WITH LA
ORGANISE WELCOME PACKS TO RAISE AWARENESS OF WALKING, CYCLING AND PUBLIC TRANSPORT FACILITIES	FIRST WEEK	TMA	SAME PACKS FOR ALL HOUSES AND APARTMENTS	ALL PROPERTIES ISSUED WITH WELCOME PACKS
ALLOCATE RESIDENT PARKING	FIRST WEEK	TMA	TIME TO WORK OUT DISTRIBUTE PARKING AMONG RESIDENTS	PARKING DISTRIBUTED TO RESIDENTS
PROMOTE CAR SHARING	SECOND WEEK	TMA	TIME TO PROMOTE	RESIDENTS CAR SHARING
PROMOTE CAR CLUBS	SECOND WEEK	TMA	TIME TO PROMOTE	RESIDENTS MAKING USE OF CLUB CARS
HOLD EVENTS TO ENCOURAGE WALKING AND CYCLING	WITHIN 3 MONTHS	TMA	TIME TO ORGANISE EVENTS	10% OF RESIDENTS TAKING PART IN EVENTS
CARRY OUT INITIAL SURVEY	WITHIN 3 MONTHS	TMA	TIME TO ARRANGE SURVEY	INITIAL TARGETS ACHIEVED
SET TARGETS FOR YEAR 1	FOURTH MONTHS	TMA	TIME TO ANALYSE RESULTS	TARGETS SET
MONITORING	1 YEAR ON	TMA	TIME TO CARRY OUT SURVEY AND ANALYSE RESULTS	TARGETS ACHIEVED