

4 Traffic and transport

4.1 Introduction

- 4.1.1 This chapter assesses the likely significant traffic and transport effects resulting from the K3 Proposed Development and WKN Proposed Development.
- 4.1.2 A Transport Assessment (TA), a Draft Travel Plan and a Draft Construction Traffic Management Plan (CTMP) have been prepared to accompany this chapter and are attached at Appendices 4.1, 4.2 and 4.3 respectively.
- 4.1.3 The future baseline used within this assessment differs from the other chapters due to industry requirements used to assess the impact of development within the TA and is explained further in section 4.5.

4.2 Regulatory and Policy Framework

Planning Policies

National Policy Statements

- 4.2.1 National Policy Statements have been developed to guide the decision-making process for NSIPs. The NPSs define the national need for certain types of infrastructure, as well as the issues to be considered by the examining body when assessing whether a location is acceptable for the type and scale of development proposed.
- 4.2.2 EN-1 (DECC 2011a) sets out national policy for energy infrastructure projects defined as NSIPs under the Planning Act 2008. It is noted that this document refers to the former Infrastructure Planning Commission (IPC), whose functions are now replaced by the Planning Inspectorate's National Infrastructure Directorate. Section 1.1 of this document states that:

"For such applications this NPS, when combined with the relevant technology-specific energy NPS, provides the primary basis for decisions by the IPC."
- 4.2.3 In relation to traffic and transport EN-1 states that the consideration and mitigation of transport impacts is an essential part of the Government's wider policy objectives for sustainable development.
- 4.2.4 It highlights that for the applicant if a project is likely to have significant transport implications, the applicant's ES should include a transport assessment. Applicants should consult the Highways Agency and Highways Authorities as appropriate on the assessment and mitigation. Where appropriate a travel plan should also be prepared and if additional transport infrastructure is proposed, applicants should discuss with network providers the possibility of co-funding by Government for any third-party benefits.

- 4.2.5 Where mitigation is needed, possible demand management measures must be considered and if feasible and operationally reasonable, required, before considering requirements for the provision of new inland transport infrastructure to deal with remaining transport impacts. The IPC should have regard to the cost-effectiveness of demand management measures compared to new transport infrastructure.
- 4.2.6 The IPC state that they may attach requirements to a consent where there is likely to be substantial HGV Traffic that:
- *"Control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements;*
 - *Make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and*
 - *Ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force."*
- 4.2.7 It is noted that if an applicant suggests that the costs of meeting any obligations or requirements would make the proposal economically unviable this should not in itself justify the relaxation by the IPC of any obligations or requirements needed to secure the mitigation.
- 4.2.8 A further five technology-specific NPSs were published for the energy sector covering fossil fuel electricity generation (EN-2), renewable electricity generation (both onshore and offshore) (EN-3), gas supply infrastructure and gas and oil pipelines (EN-4), the electricity transmission and distribution network (EN-5), and nuclear electricity generation (EN-6).
- 4.2.9 EN-3 on renewable energy includes energy from waste technology. EN-3 states at paragraph 2.5.13:
- 'Throughput volumes are not, in themselves, a factor in IPC decision-making as there are no specific minimum or maximum fuel throughput limits for different technologies or levels of electricity generation. This is a matter for the applicant. However the increase in traffic volumes, any change in air quality, and any other adverse impacts as a result of the increase in throughput should be considered by the IPC in accordance with this NPS and balanced against the net benefits of the combustion of waste....'.*

National Planning Policy Framework (NPPF)

- 4.2.10 The National Planning Policy Framework (NPPF) published in July 2018 sets out national policy for delivering sustainable growth and development. The NPPF aims to make the planning system less complex and more accessible. The NPPF sets out the Government's planning policies for England and how these are expected

to be applied. In terms of transport the objectives outlined in NPPF are set out in paragraph 102:

"Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

a) the potential impacts of development on transport networks can be addressed;

b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places."

4.2.11 When determining planning applications, Paragraph 108 of the NPPF states it should be ensured that:

"a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."

4.2.12 Paragraph 109 states:

"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."

4.2.13 Paragraph 110 of the NPPF emphasises the importance of protecting and exploiting opportunities for the use of sustainable transport modes for the movement of goods or people:

"Within this context, applications for development should:

a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."

4.2.14 Planning Practice Guidance - Travel Plans, Transport Assessments and Statements in Decision-Taking (PPG) was published in March 2014 and provides a concise report on the use and importance of Transport Assessments / Statements and Travel Plans. Regarding whether to provide a Transport Assessment, Transport Statement or no assessment, the guidance states:

"Local planning authorities, developers, relevant transport authorities, and neighbourhood planning organisations should agree what evaluation is needed in each instance.

4.2.15 The guidance states that Transport Assessments / Statements and Travel Plans can positively contribute to:

- *"encouraging sustainable travel;*
- *lessening traffic generation and its detrimental impacts;*
- *reducing carbon emissions and climate impacts;*
- *creating accessible, connected, inclusive communities;*
- *improving health outcomes and quality of life;*
- *improving road safety; and*
- *reducing the need for new development to increase existing road capacity or provide new roads."*

4.2.16 The guidance states that Transport Assessments / Statements and Travel Plans should be proportionate to the size and scope of the proposed development, be tailored to particular local circumstances and be established at the earliest practicable possible stage of a development proposal.

- 4.2.17 The guidance continues by stating that these reports should be brought forward through collaborative ongoing working between the Local Planning Authority / Transport Authority, transport operators, Rail Network Operators, Highways Agency and other relevant bodies.

Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development

- 4.2.18 Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development was published by the Department for Transport in September 2013. The Circular sets out the way in which the Highways Agency (now Highways England) will engage with communities and the development industry to deliver sustainable development and economic growth whilst safeguarding the primary function and purpose of the strategic road network.
- 4.2.19 Circular 02/2013 replaces Circular 02/2007 and 01/2008. Circular 02/2013 states that 'the Highways Agency supports the economy through the provision of a safe and reliable strategic road network, which allows for the efficient movement of people and goods'. Similarly, to the NPPF, Circular 02/2013 states that 'development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

Vision for Kent 2012 – 2022

- 4.2.20 This is a countywide strategy for the social, economic and environmental wellbeing of Kent's communities. It has been written around three major ambitions:
- To grow the economy, by supporting businesses to be successful including improvements to the transport network and the provision of high-speed broadband;
 - Tackling disadvantage, by fostering aspiration rather than dependency including the provision of comprehensive reliable and affordable public transport services providing access to education and employment opportunities; and
 - To put citizens in control, by involving people in the making decisions and working with them to design services that meet their needs and suit them.

Growth without Gridlock (2010)

- 4.2.21 Growth without Gridlock is the county's 20-year plan for essential transport improvements and innovative funding solutions to support the substantial growth planned: 23,000 new homes and 40,000 new jobs by 2021. The Plan calls for greater transport funding and delivery powers for local transport authorities and calls on the DfT to progress those schemes of national importance, including a third Thames Crossing, a long-term solution to Operation Stack, improvements to the M2/ A2 corridor and a scheme of foreign road user charging.

Highways Agency – Kent Corridors to M25 Route Strategy Evidence Report (2014)

- 4.2.22 The A2/ M2 corridor forms part of the Trans European Transport Network (TEN-T) and is one of the gateways to Europe. Traffic flows at the western end of the route as it approaches the M25 are almost 140,000 vehicles per day. In the length of the M2 between Faversham and Sittingbourne, traffic flows are approximately 20,000 vehicles per day. The volume of goods vehicles is reasonably constant between Dover and Sittingbourne at approximately 3,000 per day.
- 4.2.23 The A249 between the A2 and M2 carries the lightest traffic flow of the strategic road network but has a low rate of journey time reliability. There is consistently significant delay on the M2 between junctions 6 (Faversham) and 5 (Sittingbourne).
- 4.2.24 Junction 5 (Sittingbourne) and 7 (Brenley Corner) of the M2 are in the top 50 worst crash sites on the strategic route network. Lengths of route in Swale with poor crash records are:
- M2 J6 to J7 coast bound;
 - A249 southbound between A2 and M2; and
 - A249 Brielle Way, Sheerness.
- 4.2.25 The condition of the carriageway on the M2/ A2 corridor is considered to be severely degraded in both directions between J5 (Sittingbourne) and Canterbury. The majority of the A249 north of the M2 will reach the end of its design life by 2020. There are gaps in the remote monitoring of motorway incidents, CCTV and Variable message signing on the M2 between junctions 5 (Sittingbourne) and 7 (Brenley Corner).

Local Transport Plan for Kent 2016 - 2031

- 4.2.26 The preparation and submission of a Local Transport Plan (LTP) is a statutory requirement of all local transport authorities in England. An LTP sets out the authority's policies and delivery plans for managing and improving the local transport network. The government's Guidance on LTPs (July 2009) made clear that they should reflect and support Local Plans and that, in two-tier areas, county councils should work closely with districts to ensure alignment between these documents and ensure that the transport implications of development proposals are identified and mitigated at an early stage in the planning process.
- 4.2.27 Kent County Councils (KCC) strategic approach for Kent's fourth Local Transport Plan (LTP4), covering the period 2016 to 2031, stems from the following ambition for Kent:

"To deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported."

4.2.28 This ambition will be realised through five overarching policies that are targeted at delivering specific outcomes. These outcomes are:

- “Outcome 1: Economic growth and minimised congestion;
- Outcome 2: Affordable and accessible door-to-door journeys;
- Outcome 3: Safer travel;
- Outcome 4: Enhanced Environment;
- Outcome 5: Better health and wellbeing.”

4.2.29 Transport Priorities for Swale with relevance to the K3/WKN Sites include:

- “The A249 / Grovehurst Road junction;
- Extension of the Northern relief road to the A2 and then M2;
- A249 corridor capacity enhancements to support growth;
- Improvements to Key Street junction;
- Improvements to M2 Junction 5 – funding committed by Highways England;
- Improved transport connections to and from major centres of employment in the borough.”

4.2.30 The local transport plan highlights that the A249 provides a primary north, south route for Kent. Capacity issues at M2 Junction 5, where the A249 meets, is acting as a major barrier to growth in the Borough. Highways England is currently evaluating options to improve the M2 J5 and consultation with the wider public on final proposed options is proposed for early 2017.

4.2.31 It also states that a corridor study of the A249 is needed to define what improvements to the principal junctions (Grovehurst, Key Street and Bobbing) will be required to support the new allocations in the Local Plan, with the A249/Grovehurst Road Junction already identified.

Swale Borough Local Plan

4.2.32 The Swale Borough Local Plan is a key planning document for Swale, setting out the vision and overall strategy for the area and how it will be achieved for the period from 2014 to 2031. The Local Plan was adopted in July 2017.

4.2.33 The local plans overarching vision for the transformation of the borough is:

4.2.34 “to transform its economic, social and environmental prospects, making it one of the best places in Britain in which to live, work, learn and invest.”

- 4.2.35 Policy DM 6 - Managing transport demand and impact - states that development proposals generating a significant amount of transport movements will be required to support their proposal with the preparation of a Transport Assessment (including a travel plan) which will be based on the councils most recent strategic modelling work. The highways Agency may also require a Transport Assessment if the development is deemed to impact on the strategic road network.
- 4.2.36 It also highlights that development proposals should be sustainable, avoid a new direct access onto the strategic or primary distributor route network, integrate air quality management and environmental quality, and where traffic generation leads to a decrease in safety or is in excess of capacity of the highway network, improvements will be required.
- 4.2.37 The new Swale Borough Local Plan sets out the strategy for the Borough, including the achievement of sustainable development (Chapter 4). The chapter also includes a key diagram which indicates broad locations for growth, protection and enhancement:
- a series of core policies that take important issues for Swale and create the necessary linkages with the policy themes, set out in national planning policy and other local plan policies (Chapter 5);
 - details of allocations, the identification of regeneration areas, a neighbourhood plan and an area of search (Chapter 6);
 - a framework of development management policies to guide the determination of planning applications by setting out criteria for development proposals (Chapter 7); and
 - a framework for implementation and monitoring of the Local Plan. Chapter 8 sets out the issues affecting the delivery of the Local Plan, whilst a separately published Implementation Delivery Schedule details the infrastructure necessary to support the Local Plan.

The Swale Transportation Strategy 2014 – 2031 Draft, Appendix

- 4.2.38 The transportation strategy for Swale is a comprehensive document looking at the issues regarding transport in Swale and potential solutions to these. It does this in line with national and local policies, which are set out within the policy context. The transportation action plan is structured into four main sections, with each section supported by actions and outcomes, linked to the Borough's ambitions:
- Encouraging sustainable travel;
 - Improvements to transport infrastructure;
 - Alternative access to services; and
 - Road Safety.

4.2.39 Several key transport challenges are identified for Swale with those relevant to the K3/WKN Sites listed:

- Congestion at M2 junction 5 acts as a barrier to further development on Swale;
- Capacity improvements required at A49 Key Street and Grovehurst interchanges;
- Public transport tends to be inaccessible for the mobility impaired;
- Traffic congestion with school / employment commuting into Sittingbourne, causing rural rat runs in the south of town, and air quality issues;
- Transport interchange between cycle routes, bus services, and train services is poor, therefore encouraging the use of cars to rail stations, which add to problems with parking and congestion; and
- Constrained viability of new development to provide significant infrastructure contributions.

4.2.40 The success of the strategy will be measured objectively against the following target indicators:

- "Traffic volumes at specific location
- Number of journeys to work by car
- Mode share: walking cycling and bus
- Bus timetable reliability
- Number of people killed and seriously injured
- Vehicle emissions"

4.2.41 Target 1 states to maintain traffic flows at key locations, in relation to the K3/WKN Sites it states that Grovehurst Road traffic flows should be maintained at 15,400 vehicles per day.

4.2.42 For employment and other non-residential development, where considered appropriate, the Borough Council will expect the submission of a Travel Plan (as part of a Transport Assessment) alongside the planning application, in accordance with the relevant County Council SPG on such matters.

4.2.43 Any provision or financial contribution sought will be secured through a planning condition or appropriate legal agreement.

Summary

- 4.2.44 The above policy documents make reference to mitigation and in this sense a Draft Travel Plan and a Draft CTMP have been prepared and are attached at Appendices 4.1, 4.3 and 4.4 respectively.

4.3 Methodology***Scoping and Consultation***

- 4.3.1 The formal scoping exercise is summarised in Chapter 3. This ES follows the advice received from Highway Officers at Kent County Council and Highways England set out within the formal scoping response and following ongoing discussions with Officers. The assessment covers:

- The effects of the construction of the K3 Proposed Development;
- The effects of K3 Proposed Development during operation;
- The effects of K3 the Proposed Development during decommissioning;
- The practical effect of the K3 Proposed Development;
- The effects of WKN Proposed Development during construction;
- The effects of WKN Proposed Development during operation;
- The effects of WKN Proposed Development during decommissioning;
- The effects of K3 Proposed Development during operation plus WKN Proposed Development during construction;
- The practical effects of K3 Proposed Development during operation plus WKN Proposed Development during construction;
- The effects of K3 Proposed Development during operation plus WKN Proposed Development during operation;
- The practical effects of K3 Proposed Development during operation plus WKN Proposed Development during operation;
- The effects of K3 Proposed Development during operation plus other cumulative sites (excluding WKN Proposed Development);
- The practical effects of K3 Proposed development during operation plus other cumulative sites (excluding WKN Proposed Development);
- The effects of WKN Proposed Development during operation plus other cumulative sites (excluding K3 Proposed Development);

- The effects of K3 Proposed Development during operation plus WKN Proposed Development during operation plus other cumulative sites; and
- The practical effects of K3 Proposed Development during operation plus WKN Proposed Development during operation plus other cumulative sites.

Relevant Guidance

- 4.3.2 As a matter of best practice, this assessment has been undertaken based on current relevant guidance for assessing the environmental effects of traffic. This is set out within The Institute of Environmental Assessment (IEA) (now the IEMA) publication 'Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic', 1993, the 'IEMA Guidelines' with reference to Volume 11 – Environmental Impact Assessment of the Design Manual for Roads and Bridges (DMRB).

Establishing Baseline Conditions

- 4.3.3 Site visits have been undertaken which identified the geometries and layout of the highway network, its local environs and the location of sensitive receptors. Traffic flow data has been obtained from the Department for Transport and Highways England and site-specific traffic surveys have been undertaken. Personal Injury Accident data has been obtained from the Crashmap website to enable road safety to be analysed. Full details of these are set out in Section 2 of the Transport Assessment attached at Appendix 4.1.

Significance Criteria

- 4.3.4 The approach to the assessment of significance of effects is summarised in Table 4.1 and Table 4.2 below, adapted from the Design Manual for Roads and Bridges (DMRB) HA 205/08. This considers the duration, magnitude, direction and location of each effect as well as the sensitivity of the receptor. Where any of the above potential effects define any specific criteria to determine effects, these will be assessed to establish the significance.

Magnitude	Typical Descriptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse). Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Medium	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Low	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements

Magnitude	Typical Descriptors
	(Adverse). Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Table 4.1: Definitions of Magnitude

Sensitivity	Magnitude of Impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or slight	Negligible or slight	Slight
Low	Negligible or slight	Negligible or slight	Slight	Slight or moderate
Medium	Negligible or slight	Slight	Moderate	Moderate or Substantial
High	Slight	Slight or moderate	Moderate or substantial	Substantial

Table 4.2: Assessment Matrix

4.3.5 The broad definitions of the terms used to determine significance criteria are as follows:

- Substantial: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process;
- Moderate: These beneficial or adverse effects may be important but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a resource or receptor;
- Slight: These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project; and
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
- Effects described as moderate are considered to be significant as set out in Chapter 3.

4.3.6 In accordance with the IEMA guidelines, the assessment is based upon the relative change between the baseline conditions and the baseline plus construction /

development / decommissioning conditions. The effect along key highway links of the adjacent highway network where any K3 Proposed Development / WKN Proposed Development related traffic is predicted to route along and could result in an environmental effect will be assessed.

Assessment of Effects

- 4.3.7 The IEMA Guidelines recommend two rules to be considered when assessing the impact of development traffic on a road link and how far the geographical boundaries of that assessment should extend:
- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
 - Rule 2: Include any other specifically sensitive areas where total traffic flows have increased by 10% or more.
- 4.3.8 The above guidance is based upon knowledge and experience of environmental effects of traffic. The 30% threshold is based upon research and experience of the environmental effects of traffic, with less than a 30% increase generally resulting in imperceptible changes in the environmental effects of traffic. At a simple level, the guidance considers that projected changes in total traffic flow of less than 10% creates no discernible environmental effect, hence the second threshold as set out in Rule 2.
- 4.3.9 In cases where the thresholds are exceeded, Column 3 in Table 2.1 of the IEMA guidelines set out a list of environmental effects which should be assessed for their magnitude of change: noise, vibration, visual impact, severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety, hazardous loads, air pollution and dust and dirt.
- 4.3.10 Definitions of each of the potential effects identified in the IEMA guidelines are summarised below along with explanatory text relating to assessment criteria to determine the magnitude of impact. It is on this basis that the assessment in this chapter has been undertaken.
- 4.3.11 It is acknowledged at paragraph 2.4 of the IEMA guidelines that not all the effects listed in Column 3 of Table 2.1 would be applicable to every development. A detailed inspection of the surrounding road network incorporating the current geometric layout of the road, traffic management and regulation orders and general observations of existing road user movements has been undertaken to assist with the assessments.

Noise and Vibration

- 4.3.12 The potential effects relating to noise and vibration as a result of construction traffic is set out in Chapter 7.

Visual Effects

- 4.3.13 The visual effect of traffic is complex and subjective and includes both visual obstruction and visual intrusion. The IEMA guidelines states that obstruction refers to the blocking of views, by structures for example, and intrusion refers to the more subjective impact by traffic on an area of scenic beauty or of historical or conservation interest.
- 4.3.14 It goes on to state that increases in the number of large or high-sided vehicles may have an intrusive impact in areas of scenic beauty and in historic or conservation areas and acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect.
- 4.3.15 Where relevant, the visual effects of traffic are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the IEMA Guidelines. The visual effects of the scheme are considered in Chapter 11.

Severance

- 4.3.16 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance can also result from difficulty in crossing a heavily trafficked road (IEMA, March 1993).
- 4.3.17 The guidance indicates that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively.
- 4.3.18 Where relevant, effects on severance are considered within this chapter.

Driver Delay

- 4.3.19 Where roads affected by development are at or near capacity, the traffic associated with such development can cause or add to vehicle delays. Some roads are typically at or near capacity during the weekday AM (07:30 to 08:30) and PM (16:30 to 17:30) peak hours. Other sources of delay for non-development traffic can include:
- at the proposed K3/WKN Site access where there will be additional turning movements;
 - on the roads passing the K3/WKN Site where there is likely to be additional traffic;
 - at other key intersections along the road which might be affected by increased traffic; and
 - at junctions where the ability to find gaps in the traffic may be reduced, thereby lengthening delays.

- 4.3.20 Where relevant, the effects on driver delay are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Pedestrian Delay

- 4.3.21 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. Studies have shown that pedestrian delay is perceptible or considered significant beyond a lower delay threshold of 10 seconds, for a link with no crossing facilities. A 10 second pedestrian delay in crossing a road broadly equates to a two-way link flow of approximately 1,400 vehicles per hour (IEMA, March 1993).
- 4.3.22 Where relevant, the effects on pedestrian delay are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Pedestrian Amenity

- 4.3.23 The term pedestrian amenity is broadly defined as the relative pleasantness of a journey. It is considered to be affected by traffic flow, speed and composition as well as footway width and the separation/protection from traffic.
- 4.3.24 It encompasses the overall relationship between pedestrians and traffic. There are no commonly agreed thresholds for quantifying the significance of changes in pedestrian amenity, although the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.
- 4.3.25 Where relevant, the effects on pedestrian amenity are considered within this chapter and the magnitude of impact identified using the tentative threshold where the traffic flow (or its HGV component) is halved or doubled.

Accidents and Safety

- 4.3.26 It is possible to estimate the effects of increased traffic on accidents and safety from existing accident records, national statistics, the type and quantity of traffic generated, journey lengths and the characteristics of the routes in question.
- 4.3.27 Where relevant, the effects on accidents and safety are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Hazardous Loads

- 4.3.28 Some developments may involve transporting hazardous loads by road such as special wastes, toxic materials and chemicals. Where appropriate, the risks associated with accidents on such movements are identified or quantified within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Dust and Dirt

- 4.3.29 Certain types of development, particularly construction sites, can give rise to deposition of dust and dirt on surrounding roads. The overall impact of this phenomenon normally depends to a large extent on the management practices adopted at a site, such as vehicle sheeting and wheel washing.
- 4.3.30 Problems with dust and dirt are unlikely to occur at distances greater than 50m from the road (IEMA, March 1993).
- 4.3.31 Where relevant, the effects relating to dust and dirt are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Sensitive Receptors

- 4.3.32 Paragraph 2.5 of the IEMA Guidelines explains that locations which may be sensitive to changes in traffic conditions could be:
- people at home;
 - people in work places;
 - sensitive groups such as children, the elderly or the disabled;
 - sensitive locations such as hospitals, churches, schools or historical buildings;
 - people walking or cycling;
 - open spaces;
 - recreational sites;
 - shopping areas;
 - sites of ecological/nature conservation value; and
 - sites of tourist/visitor attraction.
- 4.3.33 Matters relating to ecology and nature conservation are addressed in Chapter 11 Ecology.
- 4.3.34 As a general guide, the determination of receptor sensitivity is based on the criteria of value, adaptability and tolerance. In terms of transport, receptors include people that are living in and using facilities, and using transport networks, in the area.
- 4.3.35 Given that all persons are deemed to be of equal value, sensitivity to changes in transport conditions is generally focussed on vulnerable user groups who are less able to tolerate, adapt to or recover from changes. Table 4.4 summarises the broad criteria for identifying receptor sensitivity as based on the IEMA Guidelines.

Sensitivity	Typical Descriptors
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident black spots (with reference to accident data), retirement homes, urban/residential roads without footways that are used by pedestrians
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycleways, community centres, parks, recreation facilities
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions

Table 4.4: Definitions of Sensitivity or Value

4.3.36 Highway links with descriptions of high or medium sensitivity will be considered against the Rule 2 threshold described above. Other links with descriptions of low or negligible sensitivity will be considered against the Rule 1 threshold. Where necessary, professional judgement has been applied in identifying the relevant category for each link.

4.3.37 Receptors to be considered within the impact assessment were selected based upon the access route that K3 Proposed Development and WKN Proposed Development vehicles will use i.e. Barge Way, Swale Way, A249.

Limitations and Assumptions

4.3.38 The baseline data has been obtained from recognised sources and methodologies and in that sense, there is only limited limitations to their use. The traffic surveys, Department for Transport and Highways England data covers 2015, 2016 and 2017 and is considered representative of current conditions.

4.3.39 The route to be utilised by K3 Proposed Development and WKN Proposed Development vehicles (Barge Way, Swale Way, A249, M2) is an established HGV route. Construction details have been informed by construction contractors and thus there is low uncertainty about some of the construction parameters adopted.

4.4 Baseline Conditions

K3 and WKN Site Access

4.4.1 The K3 Proposed Development and WKN Proposed Development will utilise the northern site access formed by a roundabout on Barge Way.

Highway Network

- 4.4.2 From the north, as shown on Figure 4.1, the private access road forms the southern arm of a three-arm roundabout with Barge Way. The roundabout has been constructed to have four-arms, however, the north-western arm is incomplete and only the kerbs forming its entry and exit are constructed to enable later access to the north-west.
- 4.4.3 Barge Way is a 7.3m wide single carriageway road with a 3.0m wide combined footway / cycleway along its northern side. It has street lighting, a 40mph speed restriction and no parking restrictions. To the north, Barge Way accesses Ridham Docks and to the west it forms the eastern arm of a four-arm roundabout with Fleet End, which provides access to a Morrison's distribution centre. Barge Way continues south to form the northern arm of a three-arm roundabout with Swale Way.
- 4.4.4 Swale Way forms part of the Sittingbourne Northern Perimeter Road, linking the A249 to the Eurolink Industrial Estate with a number of junctions along it providing access to the surrounding residential and industrial areas of Sittingbourne.
- 4.4.5 Swale Way is a 7.3m wide single carriageway road with street lighting, 40mph speed restriction and no parking restrictions. There is a 3.0m wide combined footway / cycleway along its southern side between Barge Way and the A249 and along its south-western side between Barge Way and the Eurolink Industrial Estate.
- 4.4.6 At its western end, Swale Way forms a grade separated dumbbell roundabout with the A249 and the B2005 Grovehurst Road. The eastern roundabout is a five-arm roundabout connecting Swale Way, the B2005 Grovehurst Road, the A249 on-slip road, the A249 off-slip road and the A249 over-bridge.
- 4.4.7 The western roundabout is a four-arm roundabout connecting Grovehurst Road, the A249 on-slip road, the A249 off-slip road and the A249 over-bridge.
- 4.4.8 The A249 is a dual carriageway road and forms part of the trunk road network. It routes broadly north to south between the Isle of Sheppey and the County town of Maidstone respectively. It forms grade separated junctions with the B2006, A2, M2 and M20 and provides access to London, M25 and the remainder of the strategic highway network.

Pedestrian Routes

- 4.4.9 There are combined footway / cycleways along the northern side of Barge Way and along the southern and south-western sides of Swale Way. These link to the residential streets in the immediate vicinity of Swale Way, which in turn provide access to the wider residential areas of Sittingbourne. These residential streets generally have footways on both sides of the carriageway; therefore, a good network of footways allows pedestrians to route between the K3/WKN Sites and the surrounding residential areas.

- 4.4.10 The Saxon Shore Way is a long-distance footpath which follows the shore of the Swale to the east of the Kemsley Paper Mill. The footpath continues north towards Chertney Marshes and further to Gillingham. To the south it links into Sittingbourne and continues east towards Faversham. The route is not lit and is not generally surfaced.

Cyclist Routes

- 4.4.11 The K3/WKN Site is within close proximity to on and off-road cycle routes which link to the wider Kemsley and Sittingbourne area. The National Cycle Network Route 1 is a long-distance cycle route connecting Dover and the Shetland Islands, passing along the B2005 Grovehurst Road between Sittingbourne and Kemsley. National Cycle Network Route 174 routes on Sheppey Way linking Route 1 to the Isle of Sheppey.
- 4.4.12 The combined footway / cycleways along Barge Way and Swale Way to provide a range of cycle routes to surrounding areas, linking to Routes 1 and 174 of the National Cycle Network.

Public Transport

- 4.4.13 A summary of the bus services in the vicinity of the K3/WKN Sites is summarised in Table 4.5.
- 4.4.14 The closest bus stops are located on Ridham Avenue, approximately 1km west of the Sites, and are served by bus service number 347 which provides a direct link to Sittingbourne town centre. The journey time from Kemsley to Sittingbourne is approximately 20 minutes and the service operates 4 buses per hour throughout the day and 3 buses per hour on a Saturday.
- 4.4.15 Additional bus stops are located on Grovehurst Road approximately 2km west of the K3/WKN Sites. These bus stops are served by service numbers 324, 326, 339, and 341.

No.	Operator	Route	Service Frequencies (per hour)				
			Monday - Friday				Saturday
			AM Peak	Off Peak	PM Peak	Evening	
347	Arriva	Kemsley-Sittingbourne	4	4	4	4	3
324	Chalkwell Coaches	Sheerness - Iwade-Kemsley-Milton Regis - Sittingbourne - Faversham - Canterbury	1 service per day Monday, Wednesday and Friday each way				0
326	Chalkwell Coaches	Sheerness - Sittingbourne - Chatham	1 service per day each way				
339	Chalkwell Coaches	Sheerness - Iwade - Sittingbourne - Hempstead valley	1 service per Tuesday and Thursday each way				0

Table 4.5: Summary of Local Bus Services

- 4.4.16 Kemsley Railway Station is located approximately 2km west of the K3/WKN Sites on Grovehurst Road. Southeastern Trains operate all services from Kemsley Railway Station.
- 4.4.17 Kemsley Railway Station has some direct services to London Victoria with a service frequency of two trains during the weekday morning with a journey time of approximately one hour and twenty-five minutes. Additional half-hourly services are available to London Victoria which require a change over at Sittingbourne.
- 4.4.18 Kemsley Railway Station has access to far more frequent train services via Sittingbourne Railway Station. With services from Kemsley approximately every 20 to 30 minutes and a journey time of 4-6 minutes, Sittingbourne Railway Station has frequent train services to London Victoria, London St Pancras International, Ramsgate and Dover Priory.

Traffic Flows

- 4.4.19 To determine existing traffic flows on the adjacent local highway network, traffic surveys were commissioned and undertaken by ATR, an independent traffic survey company, in March 2017. Figure 4.1 shows the road network.
- 4.4.20 Automatic Traffic Counters (ATCs) were placed at three locations. They operated for seven consecutive days. The survey locations were as follows:
- Swale Way, south of the Barge Way roundabout and north of the Reams Way priority junction (24/03/2017 – 30/03/2017);
 - Swale Way, south of Reams Way and north of the Ridham Avenue roundabout (29/03/2017 – 04/04/2017); and
 - Swale Way, south of Ridham Avenue (24/03/2017 – 30/03/2017).
- 4.4.21 The ATC on Swale Way, south of Reams Way and north of the Ridham Avenue roundabout had some incomplete data due to damage to the counter. Traffic flows during these periods were therefore calculated using factors from the other ATCs.
- 4.4.22 Traffic surveys were also undertaken in June 2016 by another traffic survey company, TRACSIS. ATCs were placed at three locations. They operated for seven consecutive days. The survey locations were as follows:
- Swale Way between the B2005 Grovehurst Roundabout and Barge Way (13/06/2016 – 19/06/2016);
 - Barge Way between Swale Way (06/06/2016 – 12/06/2016); and
 - Barge Way east of Fleet End (06/06/2016 – 12/06/2016).
- 4.4.23 The ATC on Swale Way between the B2005 Grovehurst Roundabout and Barge Way had some incomplete data due to damage to the counter. This occurred on

the Monday between 00:00 and 04:00 and on Sunday between 03:00 and 24:00. Traffic flows during these periods were therefore calculated using factors from the other ATCs.

4.4.24 Manual Classified Counts (MCCs) were also undertaken at key junctions on the network as follows:

- Swale Way / Barge Way Roundabout;
- Fleet End / Barge Way Roundabout;
- Barge Way / Site Access Roundabout; and
- A249 / Grovehurst Road / Swale Way / B2005 Grade Separated Dumbbell Junction.

4.4.25 These surveys were undertaken by ATR between 07:00 and 19:00 on Tuesday 28th March 2017 and identified the weekday AM and PM peak hours as between 07:30 and 08:30 and between 16:30 and 17:30 respectively.

4.4.26 The Annual Average Daily Traffic Flow (AADT) was obtained from the Department for Transport for the A249, south of the B2005 Grovehurst Road / Swale Way junction and for the M2, east and west of the A249 / M2 junction.

4.4.27 Traffic flow data was also obtained from Highways England. The latest hourly traffic flow data was obtained for the A249, between the A2 and the M2 and north of the B2005 Grovehurst Road / Swale Way junction for the month of June 2017 and 2013 respectively (a neutral month). Hourly data for a weekday, a Saturday and a Sunday were calculated using the hourly data obtained for the A249 between the A2 and the M2.

4.4.28 Based on the above, the following links have been assessed in terms of development impact, as shown on Figure 4.1:

- Link 1 – Swale Way between the A249 and Barge Way;
- Link 2 – Barge Way between Swale Way and Fleet End;
- Link 3 – Barge Way east of Fleet End;
- Link 4 – A249 South of Swale Way Junction;
- Link 5 – A249 between the A2 and M2;
- Link 6 – Swale Way North of Reams Way Junction;
- Link 7 – Swale Way South of Reams Way Junction;
- Link 8 – Swale Way South of Ridham Avenue Roundabout;
- Link 9 – M2 East of A249;

- Link 10 – M2 West of A249; and
- Link 11 – A249 north of Swale Way.

- 4.4.29 The HGV route to the K3/WKN Sites will be from the A249 to Swale Way and then Barge Way. No HGVs will route directly from the A2 using Castle Road and Swale Way south of the Barge Way roundabout; therefore, no assessment of the links on Castle Road has been undertaken.
- 4.4.30 The complete traffic flow data is included within the Transport Assessment attached at Appendix 4.1.

Road Safety

Local Highway Network

- 4.4.31 In order to assess road safety along the local highway network, Personal Injury Accident (PIA) data has been obtained from the Crashmap website for the five-year period from 1st January 2013 to 31st December 2017. The study area includes the HGV route – Barge Way and Swale Way between the site access to the north and Swale Way between the B2005 Grovehurst Road grade-separated junction and the grade separated junction itself.
- 4.4.32 Of the 13 injury accidents, there were no fatalities, two resulted in serious injuries and 11 resulted in slight injuries.
- 4.4.33 Both serious injury accidents occurred at the junction of Lloyd Drive and Swale Way. The injury accidents had different contributory factors. The first was a head-on collision between two cars in darkness with rain and high winds; street lights were present and lit. The second occurred in darkness with fine weather; a motorcyclist was hit whilst turning right into Lloyd Drive when a car was egressing from the junction.
- 4.4.34 There are no clusters of injury accidents and their analysis suggests that there are no common contributory factors amongst them, and that driver error was the main reason for the incidences. It is therefore, considered that there are no existing road safety issues in the vicinity of the K3/WKN Sites on the local road network.

Strategic Highway Network

- 4.4.35 The A249, from the B2005 Grovehurst Road grade-separated junction to the M2 junction, has also been assessed. PIA data has been obtained from Kent County Council from 1st April 2011 to 31st March 2016.
- 4.4.36 There have been 73 injury accidents recorded within the study area, during the five-year analysis period. This equates to on average 15 injury accidents per year. Five injury accidents resulted in serious injuries and 68 injury accidents resulted in slight injuries. There were no fatal injury accidents.

- 4.4.37 The five serious injury accidents all occurred at different locations. One occurred on the A249 northbound when a vehicle failed to look and struck the back of another vehicle when it entered the carriageway from the Kemsley slip road.
- 4.4.38 A second serious PIA occurred on the A249 under the Key Street overbridge due to a driver driving the wrong way on the northbound carriageway. A further serious PIA occurred on the A249 slip road from the A2 Key Street when a motorcyclist lost control after a stationary vehicle opened its door.
- 4.4.39 A fourth serious PIA occurred on the A249 approach to the M2 roundabout when a goods vehicle failed to stop and collided with a broken-down vehicle. A final serious PIA occurred on the A249 when approaching the M2 roundabout due to a shunt.
- 4.4.40 From the A249 to the Bobbing roundabout (northbound) there were six slight PIA's. Three were shunts, one was due to failure to give due care and attention and two were caused by loss of control. There were four slight PIA's on the A249 southbound close to Bobbing roundabout, all of which were shunts. The slip road southbound from the Key Street roundabout had four slight PIA's which were all due to vehicles failing to look.
- 4.4.41 There were 32 PIA's on the A249 dual carriageway northbound and southbound from the A249/Sittingbourne Road roundabout. Eight occurred leading away from the roundabout, northbound, six of which were shunts, one was caused by a failure to look and one was due to a motorcyclist losing control. There were 24 PIA's leading to the roundabout, southbound, 23 of which were shunts, and one was due to a loss of control through oil on the road.
- 4.4.42 The remaining PIA's all occurred at different locations. From the analysis undertaken, it appears that driver error was the common factor. It appears that there are no aspects with the local highway network that suggests it contributes to a road safety issue.
- 4.4.43 The above analysis of the A249 covers the five year period up to 31st March 2016. To ensure the most recent data is considered, PIA data has been extracted from www.crashmap.co.uk for the entirety of 2017. The AADT and the length of the A249 have then been incorporated to calculate the injury accident rate for 2017 and this has been compared to the 2017 national average injury accident rate for rural A roads, as obtained from the Transport Statistics for Great Britain 2018, published by the Department for Transport (DfT).
- 4.4.44 The observed injury accident rate was calculated as 118 injury accidents per billion vehicle-kilometres. The national average injury accident rate is 128 injury accidents per billion vehicle-kilometres.
- 4.4.45 The observed injury accident rate for the A249 is less than the national average injury accident rate for comparable rural A roads and there is nothing to suggest that a different conclusion should be drawn from that above.

Sensitivity of Receptors

- 4.4.46 The sensitive receptors listed in Table 4.6 below have the potential to be affected by effects arising from the Proposed Development. The assessment in this Chapter has considered the effects listed in the table upon the identified sensitive receptors.
- 4.4.47 Receptors to be considered within the impact assessment were selected based upon the access route to be taken by vehicles to the K3/WKN Sites and the assessment methodology set out above.
- 4.4.48 Table 4.6 highlights the qualification of the sensitivity assessment of each receptor group for the proposals.

Receptor	Sensitivity	Qualification
Swale Way between the A249 and Barge Way	Low	Road link contains residential properties on its southern side only that are set back from the carriageway and screened. There is a good standard footway / cycleway on its southern side.
Barge Way between Swale Way and Fleet End	Low / Negligible	There is a good standard footway / cycleway on its western side. Road link does not contain any other sensitive receptors as advised by the IEMA Guidelines.
Barge Way east of Fleet End	Low / Negligible	There is a good standard footway / cycleway on its northern side. Road link does not contain any other sensitive receptors as advised by the IEMA Guidelines.
A249 south of Swale Way	Negligible	Road link does not contain any other sensitive receptors as advised by the IEMA Guidelines.
M2 East of A249	Negligible	Road link does not contain any other sensitive receptors as advised by the IEMA Guidelines.
M2 West of A249	Negligible	Road link does not contain any other sensitive receptors as advised by the IEMA Guidelines.

Table 4.6: Sensitivity of Road Links

- 4.4.49 On the basis of the above, all road links will be assessed against the Rule 1 threshold.

4.5 Future baseline***Future Assessment Year***

- 4.5.1 The baseline for the K3 Proposed Development is 2021 when it is operational.
- 4.5.2 For WKN Proposed Development the earliest start date for construction is 2021 and is expected to last 40 months. The baseline for WKN Proposed Development is 2021 for the construction phase and 2024 when the proposed facility becomes operational.

Traffic Growth Rates and Committed Development

- 4.5.3 A future year baseline traffic scenario of 2021 / 2024 / 2031 for K3 Proposed Development and 2 WKN Proposed Construction and Development has been created by applying the traffic associated with committed traffic only i.e. developments that have planning consent but are not yet generating traffic on the network. No growth rates have been applied as the committed development exceeds the assumed development growth in TEMPRO.
- 4.5.4 This is consistent with the Transport Assessment that is attached at Appendix 4.1. The Transport Assessment considers sustainability, the ultimate capacity of the highway network and the impact of development upon the transport network. Developments that already have planning consent have already been through that process and have identified any highway and transport improvements that may or may not be necessary to mitigate their impact. There is no further opportunity for these developments to provide additional highway or transport mitigation and so these developments and their highway and transport schemes are treated as committed within any future year scenarios.
- 4.5.5 For this reason, those developments (traffic flows and their highway and transport mitigation schemes) form part of a future transport baseline scenario for any other developments that follow. In doing that, the impact of development proposals that follow consented developments is able to be determined in the knowledge of what has already been consented in transport and highways terms along with the need for any additional highway and transport improvements that may be necessary.
- 4.5.6 Other developments that emerge at the same time are treated together and are cumulatively assessed against the baseline scenario described above to determine their cumulative impact and their cumulative highway and transport mitigation requirements (if required).
- 4.5.7 The Transport Assessment is undertaken in this way so that the NPPF 'severity test' (Paragraph 109, NPPF) is correctly judged and correct conclusions are drawn. This chapter adopts the same approach in terms of committed developments and cumulative developments for consistency with the Transport Assessment and to ensure the traffic scenarios are the same. The creation of the future baseline scenario with the inclusion of committed developments is set out below.
- 4.5.8 It should be noted that growth rates include allowances for background traffic growth as well as development growth and, in some instances, the application of growth rates and the addition of traffic flows from committed developments plus cumulative developments (i.e. emerging developments that do not yet have planning consent) can result in double counting of traffic flows.
- 4.5.9 The DfT software TEMPRO has been interrogated to understand the assumptions used for household and employment growth, as the committed development below is greater than the assumptions within TEMPRO, growth rates have not been applied to the surveyed traffic flows. The TEMPRO software presents the output of the DfT's National Trip End Model which forms part of the National Transport Model (NTM). The DfT's Webtag guidance Unit 3.15.2 advises the use

of NTM in preference to the National Road Traffic Forecasts (NRTF) as the NTM data is based on a more up-to-date model.

Existing Permissions at the Kemsley Paper Mill

- 4.5.10 Proposed development in combination with other schemes that are operational / constructed, consented or for which planning permissions are currently being sought, and which affect traffic flows, will be assessed and are described below.

K3

- 4.5.11 K3 was granted consented by Kent County Council and is currently under construction. Under the existing programme of construction, it is due to be completed and operational by late 2019.
- 4.5.12 The estimated traffic flows at K3 and along the adjacent highway network have been taken from the Transport Assessment that was prepared in support of its original planning application. These flows have been adjusted in accordance with the accepted assumptions of 24-hour 7 days a week deliveries. The 90 additional vehicle movements associated with Refuse Collection Vehicles (RCVS) have been taken from the Transport Assessment prepared in support of SW/17/502996.
- 4.5.13 These operational traffic flows associated with K3 have not been included in the committed flows for the assessment of the effect of K3 Proposed Development.
- 4.5.14 These operational traffic flows associated with K3 have been included in the committed flows for the assessment of the practical effect of K3 Proposed Development and form the future baseline.
- 4.5.15 Several additional applications have been made in relation to K3. These applications do not affect the consented traffic flows at K3, save for SW/12/506680 which enables HGV movements 24 hours 7 days per week.

IBA Facility

- 4.5.16 There is planning consent for the construction of a standalone IBA facility adjacent to the K3 Site (planning ref. KCC/SW/0265/2016) (granted 2016).
- 4.5.17 The IBA permission allows for 84 daily HGV movements.
- 4.5.18 WKN Proposed Development will sit on the site of the IBA facility and WTI are making an application to vary part of the K3 license to reflect the removal of the IBA. Therefore, the movements associated with the IBA facility have not been included in the baseline.

Recycling Depot

- 4.5.19 Construction of a new baling plant building within an existing waste paper storage yard (planning ref: 16/501228) (granted 2016).

4.5.20 These operational traffic flows associated with K3 have been included in the committed flows.

Anaerobic Digester

4.5.21 Anaerobic digester and associated ground profiling and landscaping (planning ref: SW/11/1291) (granted 2012).

4.5.22 Operational flows lower than existing permission; traffic flows included in surveyed flows; no reduction made to baseline flows.

Other Committed Developments

4.5.23 An assessment of 'committed' developments in the local area that have gained permission has been undertaken to determine whether they are operational, or when they are likely to be operational within the timescales of K3 Proposed Development and WKN Proposed Development. This is to form a view of whether the traffic generated by the developments will already be present in the traffic surveys undertaken for the assessment of K3 Proposed Development and WKN Proposed Development, or whether they should be added as 'committed' developments within the Future Baseline traffic flows and assessments. All of the committed are sites included in Table 4.7 and have been reviewed [for inclusion within the Future Year Baseline traffic flows](#).

Site Number	Site Name	Application number	Status	Submitted / Decision Date	Status	Traffic Flows
1	Anaerobic Digester	SW/11/1291	Granted	2011/2012	Built	Vehicle movements included within surveyed flows. Not included in committed flows.
2	Tonge Corner Solar Park	SW/14/0224	Granted	2014/2015	Partly built	Construction flows only – no operational flows. No flows onto local network, therefore not included within committed flows.
3	Fulcrum Business Park Development	14/500327/OUT	Granted	2014/2016	Not Built	Operational traffic flows included within committed flows and form the future baseline.
4	Ridham B CHP Plant	14/501181/COUNTY		2014/2014	Scoping	Scoping only, no planning application submitted. Not included.
5	Thermal Energy Facility	15/500348/COUNTY	Granted	2015/2015	Not built	Operational traffic flows included within

Site Number	Site Name	Application number	Status	Submitted / Decision Date	Status	Traffic Flows
	Kemsley Field Business Park					committed flows and form the future baseline.
6	Eurolink V	15/510589/OUT	Granted	2015/2016	Not Built	Operational traffic flows included within committed flows and form the future baseline.
7	Recycling Depot	16/501228/FULL	Granted	2016/2016	Under Construction	Operational traffic flows included within committed flows and form the future baseline.
8	Gypsum Recycling Building (Ridham Docks)	16/501484/COUNTY	Granted	2016/2016	Not Built	Operational traffic flows included within committed flows and form the future baseline.
9	Land South of Iwade – 275 dwellings	16/506193/ENVSCR		2016/201	Scoping	Scoping only, no planning application submitted. Not included in committed flows.
10	Concrete Tile Factory, Smeed Dean Works	17/505073/FULL	Granted	2017/2018	Not built	Operational Traffic Flows included within committed flows and form the future baseline.
11	Land adjacent Quinton Farm – 155 dwellings	18/500257/EIFUL	Awaiting decision	2018/ -		Permission not granted. Not included in committed flows.
12	Plot N2c, Castle Road, Eurolink	18/500393/FULL	Awaiting Decision	2018/ -		Permission not granted. Not included in committed flows.
13	Unit 10 Kemsley Fields Business Park	15/502197/FULL	Granted	2015/2015	Built	No traffic flows in application. Assumed no additional movements. Not included in committed flows.
14	Sita UK, Ridham Dock. Increase HGV movements for 12 months.	SW/13/1495	Granted	2013/2013		Unknown whether this permission has been implemented – temporary permission. Not included in committed flows.

Site Number	Site Name	Application number	Status	Submitted / Decision Date	Status	Traffic Flows
15	Kemsley Paper Mill	18/502489/FULL	Granted	2018/2018	Under Construction	Minimal construction vehicles only, therefore not included within committed flows.
16	K4	18/501923/ADJ	Granted	2018/2019 -		Construction flows only – no operational flows. Included as committed flows and form the 2021 baseline only due to temporary nature.
17	KPM	15/504458	Granted	2015/2015	Built	No traffic flows included in assessment but would be temporary. Not included in committed flows.
18	Steam Pipeline (Ridham Dock to KPM)	16/506935	Granted	2016/2016	Assumed not built	Minimal construction vehicles only, therefore not included within committed flows.
19	Concrete Tile Factory Smeed Dean Works	17/504034/COUNTY	Granted	2017/2017	Assumed not built	No construction information. Additional staff vehicle movements already included in extant permission. Not included in committed flows.
20	Countrystyle Recycle, Ridham Dock Extension to existing HGV shed	SW/14/0191	Granted	2014/2014	Assumed built	No additional vehicle movements. Not included in committed flows.
21	Ballast Phoenix Ridham Docks Section 3 application to vary hours of operation and alter number of	17/502678/COUNTY	Granted	2017/2017	Assumed implemented	Additional movements minimal. Not included in committed flows.

Site Number	Site Name	Application number	Status	Submitted / Decision Date	Status	Traffic Flows
	vehicle movements					
22	Ridham Docks 3 Kemsley Fields Business Park. Extension of existing IBA recycling facility.	17/505919/COUNTY	Granted	2017/2017	Assumed completed	No vehicle movements included in application. Not included in committed flows.
23	Proposed Sonora Pipeline Route	17/502834/FULL	Granted	2017/2018	Assumed not built	Minimal construction vehicles only, therefore not included within committed flows.
24	Land at Stones Farm 550-600 dwellings	14/501588/OUT	Granted	2014/2017	Not built	Operational traffic flows included within committed flows and form the future baseline.
25	Land to the West of Crown Quay Lane 383 dwellings	16/507877/FULL	Granted	2016/2018	Not built	Operational traffic flows included within committed flows and form the future baseline.
26	Land North West of Sittingbourne 1200 dwellings, secondary and primary schools	18/502190/EIHYB	Awaiting decision	2018/ -		Permission not granted. Not included in committed flows.
27	Land East and North of Iwade	18/503873/ENVS CR		2018/2018		Scoping only, no planning application submitted. Not included in committed flows.
28	IBA Facility	16/507687/COUNTY	Granted	2016/2016	Will not be progressed	WKN Proposed Development will sit on the site of the IBA facility and WTI are making an application to vary part of the K3 license to reflect the removal of the IBA. Therefore, the movements associated with the IBA facility

Site Number	Site Name	Application number	Status	Submitted / Decision Date	Status	Traffic Flows
						have not been included in the baseline.
29	New Hook Farm Agricultural Anaerobic Digestion Plant	16/507943/FULL	Granted	2016/2017	Built	Vehicle movements included within daily variation. Not included in committed flows.
30	New Rides Farm	SW/13/1571	Appeal Allowed	2013/2017	Assumed Built	Additional movements minimal. Not included in committed flows.
31	Land adj to 9 Neatscourt Cottages Installation of battery storage facility.	17/503032/FULL	Awaiting decision	2017/ -		No traffic flows included in application. Permission not granted. Not included in committed flows.
32	Dredging Disposal Site	15/506005/COUNTY		2015/2015		No information. Screening opinion only. Not included in committed flows.
33	Paradise Farm Extraction of brick earth, access improvement, restoration and replanting back to agricultural use	16/507594/COUNTY	Granted	2016/2017	Unknown	To be included in committed flows.
34	Land at Cleve Hill Construction and Operation of PV Electricity Generating and Storage	18/503075/NSIP		2018/2018		Consultation only. Not included in committed flows.
35	Kent Science Park Redevelopment of site	15/506166/ENCSR		2015/2015		Scoping only. Not included in committed flows.
36	New Cement Plant, Thamesport, Isle of Grain	MC/18/2229		2018/2018		No information. Screening opinion only. Not included in committed flows. Outside study area on opposite

Site Number	Site Name	Application number	Status	Submitted / Decision Date	Status	Traffic Flows
						side of the Thames Estuary.
A1	Ridham and Kemsley Sittingbourne (SW/95/0099 G-Park)	SW/95/0099	Granted	1995/2004	Part Built	Existing already included in surveyed flows. Not built element included in committed flows.
A10	Milton Pipes Mill Way Sittingbourne (15/502912 Milton Pipes)	15/502912	Granted	2015 / 2017	Unknown	The application does not predict traffic to be generated onto the highway links assessed within paragraph 4.4.28. Not included in committed flows.

Table 4.7: Review of Committed Developments

[4.5.24](#) The A1 land allocation, as shown in Table 4.7, has elements of committed development and elements of cumulative development. The A1 land allocation is split into two parts, a northern part at Neatscourt, Isle of Sheppey and a southern part at Ridham and Kemsley, Sittingbourne. The northern part is addressed within section 4.9 as it is part of the A1 allocation without any planning permissions. The southern part contains a section which has received planning permission in the form of G-Park (SW/95/0099). The remainder of the southern part is allocated (A1) with no planning permission, therefore has been treated as a cumulative development, as discussed at section 4.9.

[4.5.25](#) The total area for the A10 land allocation, for a minimum of 240 dwellings, received planning approval in 2017, under the Milton Pipes application for 242 dwellings (15/502912). It is thus a committed development, however, following a review of its planning application, it does not predict traffic to be generated onto the highway links assessed within paragraph 4.4.28 and is therefore not included within the committed traffic flows.

4.5.26 Based on the above, the following developments are considered as committed developments and will form part of the future year baseline scenarios:

- 3 - Fulcrum Business Park;
- 5 - Kemsley Field Thermal Energy Facility;
- 6 - Eurolink V;
- 7 - Recycling Depot;

- 8 - Gypsum Recycling Building;
- 10 - Concrete Tile Factory, Smeed Dean Works;
- 16 - K4 (2021 baseline only);
- 24 - Land at Stones Farm;
- 25 - Land to the West of Crown Quay Lane;
- 33 - Paradise Farm; and
- [A1 - G-Park, a section of the A1 land allocation from the southern part, Ridham and Kemsley, Sittingbourne \(the remainder of the southern part and the northern part of A1 is a cumulative development, as set out in section 4.9\).](#)

4.5.27 The traffic flows generated by these committed developments have been taken from their respective Transport Assessments that supported their planning applications; where the Transport Assessment did not assign traffic to the wider network, observed junction turning movements and observed link movements along with distributions used in other applications and Census 2011 Journey to Work data have been used.

4.5.28 The committed development traffic flows are set out in the Transport Assessment attached at Appendix 4.1.

4.5.29 The committed development traffic flows have been added to the 2021 and 2024 base traffic and the resultant 2021 and 2024 baseline scenarios are attached at Appendix 4.1.

4.5.30 It should be noted that the G-Park development which generates significant traffic flows on Swale Way and through the Grovehurst junction has not been considered within the NW Sittingbourne development assessment and therefore, projected traffic flows and subsequent junction operation will report as significantly different from the NW Sittingbourne TA which is currently under consideration by SBC.

4.6 K3 Proposed Development

Construction Effects

4.6.1 Whilst Development Consent is sought for construction, the works proposed remain as consented by the planning permission for K3 (SW/10/444). There will be no physical additional construction works to K3. Construction of the plant, in accordance with the extant permission, began in July 2016 and is expected to be completed by late 2019. The traffic and transport effects of the construction of K3 was scoped out of the Environmental Impact undertaken, submitted and approved as part of the existing planning consent (attached at Appendix 4.1), as the level of traffic was assessed to be less than the operational traffic. Therefore, no significant effect was predicted.

Completed Development EffectsTrip Generation

- 4.6.2 The K3 Proposed Development will generate 416 daily HGV movements. Of these movements 348 (258 HGV and 90 RCV) are permitted under the consented K3 development. Using the ratio of HGVs to RCVs from the above numbers the assessment undertaken is for 308 HGV movements and 108 RCV movements.
- 4.6.3 Staff movements have been based on three shifts of five staff (07:00-14:00, 14:00-22:00 and 22:00-07:00) and 14 staff working office hours (09:00-17:00).

Mode Share

- 4.6.4 To estimate the likely mode of transport that employees would use to travel to and from the K3 Site, the 2011 Census Journey to Work data has been analysed for the Kemsley Workplace Zone. The workplaces within this zone include the Kemsley Paper Mill as well as the adjoining employment units, all of which have similar levels of accessibility and shift patterns and is thus reasonably representative for assessment purposes for employee at the K3 Proposed Development.
- 4.6.5 The Workplace Population Census is set out within the Transport Assessment at Appendix 4.1 and has been applied to the level of staff to predict the level of vehicle trip generation for the K3 site.
- 4.6.6 In summary, the Census data predicts 85% of staff will arrive via car, 4.9% would arrive as a car passenger, 3.1% would arrive by bicycle, 2.6% would arrive on foot and 1.5% would arrive by train.
- 4.6.7 On the basis of the above and staff on rest days due to shift patterns, it is estimated there would be a maximum of 49 staff arriving and departing via car per day to the K3 Proposed Development.

Temporal Distribution***HGVs***

- 4.6.8 The K3 Proposed Development will operate with 24 hours a day, seven days a week HGV movement.
- 4.6.9 HGV movements would be generated throughout the day and would typically be spread fairly equally in terms of hourly movements. Although there may be occasional peaks of HGV movements at various times of the day, these would be balanced by subsequent troughs. Therefore, an average day would see a fairly equal spread of HGV movements across the typical working day, then during the evening and night.

- 4.6.10 As part of their Section 42, consultation response KCC asked for evidence to be supplied from other waste to energy sites (i.e. Aylesford) regarding vehicle arrival times to substantiate the estimations of vehicle profiles throughout the day.
- 4.6.11 It is suggested this is an inappropriate methodology to calculate the temporal distribution for such facilities as vehicle profiles are specific to each facility based upon the contracts they have in place. If a facility accepts Municipal Solid Waste from a local area via refuse collection vehicles, then there are a number of factors which affect the subsequent arrival times and patterns of these refuse collection vehicles, which include (but not limited to):
- The location of the overnight parking for refuse collection vehicles;
 - Any planning restrictions that may be attached to the overnight parking areas;
 - Refuse collection vehicle operative working hours;
 - The distance and time required to travel between the overnight parking of refuse collection vehicles to the area within which they are collecting;
 - The size of the area within which collections are made and the time required to complete their collection round from within these areas;
 - The capacity of the refuse collection vehicles;
 - The distance and time required for the refuse collection vehicle to then travel to the facility;
 - The time required for the refuse collection vehicle to deposit their load within the facility;
 - The distance and time required for the refuse collection vehicle to then travel to its next collection area;
 - The relevant above variables are then repeated for the refuse collection vehicles' second round of collections to return to the facility; and
 - The distance and time required for the refuse collection vehicle to then travel from the facility to its own depot.
- 4.6.12 The same variables apply to all other waste inputs, for example bulked loads from a waste transfer station. Given these variables, the waste vehicle arrival times for one facility will be different to another facility.
- 4.6.13 From experience of other facilities, Municipal Solid Waste delivered via refuse collection vehicles can create two peaks during the day, generated by two collection rounds per day. By creating such peaks, this results in troughs during the highway network peak hours with very little, if any at all, waste vehicle movements during these periods.

4.6.14 Therefore, an assumption of a flat profile throughout the day maximises the number of HGV movements during the highway network peak hours and therefore generates a robust assessment.

4.6.15 A flat profile has therefore been assumed throughout the day to maximise the number of HGV movements during the highway network peak hours. A robust assessment is therefore undertaken.

RCVs

4.6.16 Due to the nature of the fuel being delivered i.e. from local commercial and industrial premises, directly from RCVs, it is assumed that all deliveries will occur between 07:00 - 19:00 hours on a weekday and 07:00 - 13:00 on a Saturday. It is assumed, that the HGVs will be evenly spread throughout the day.

4.6.17 For the reasons set out above, evidence from other waste to energy sites (i.e. Aylesford) regarding vehicle arrival times to substantiate the estimations of vehicle profiles throughout the day is not considered to be an appropriate methodology. A flat profile throughout the day maximises the number of HGV movements during the highway network peak hours and therefore generates a robust assessment, and this has been adopted.

4.6.18 Based upon the calculations set out above, a breakdown of the operational traffic flows associated with the K3 Proposed Development is shown in Table 4.8. The traffic flows are shown on the basis of each day and should not be read cumulatively in the context of one full week. HGV deliveries are not expected on every Saturday afternoon or Sunday but are shown in the event that deliveries are made during these periods at the same intensification as weekdays. If there were any such occurrences, then this would result in reduced weekday vehicle movements to compensate. However, this is not shown. The calculations have been presented below for all seven days of the week for assessment purposes only.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
01:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
02:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
03:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
04:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
05:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
06:00	4	2	0	2	4	5	4	2	0	2	4	5	4	2	0	2	4	5
07:00	0	16	4	14	4	30	0	15	4	13	4	29	0	16	4	14	4	30
08:00	12	14	0	16	12	30	12	13	0	15	12	29	12	14	0	16	12	30
09:00	0	15	0	14	0	29	0	14	0	13	0	28	0	15	0	14	0	29
10:00	0	14	0	15	0	29	0	13	0	14	0	28	0	14	0	15	0	29
11:00	0	15	0	14	0	29	0	14	0	13	0	28	0	15	0	14	0	29

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
12:00	0	14	0	15	0	29	0	13	0	14	0	28	0	14	0	15	0	29
13:00	4	16	0	14	4	30	4	14	0	13	4	27	4	11	0	10	4	21
14:00	0	14	4	16	4	30	0	13	4	14	4	27	0	10	4	11	4	21
15:00	0	16	0	14	0	30	0	15	0	13	0	28	0	11	0	10	0	21
16:00	0	14	0	16	0	30	0	13	0	15	0	28	0	10	0	11	0	21
17:00	0	16	12	14	12	30	0	14	12	13	12	27	0	11	12	10	12	21
18:00	0	8	0	9	0	17	0	6	0	8	0	15	0	4	0	4	0	8
19:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
20:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
21:00	4	5	0	4	4	9	4	5	0	4	4	9	4	5	0	4	4	9
22:00	0	4	4	5	4	9	0	4	4	5	4	9	0	4	4	5	4	9
23:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
Total	25	205	25	205	49	417	25	194	25	194	49	394	25	180	25	180	49	363

Table 4.8: K3 Proposed Development Operational Traffic Flows

Trip Distribution and Assignment

HGVs

- 4.6.19 For the purposes of this assessment, it is assumed that up to 20% of HGVs delivering waste arisings would be from neighbouring areas. These movements would be via the M2 east of the A249 (6.67% i.e. 1/3 of 20%), the M2 west of the A249 (6.67%) and the A249 south of the M2 (6.67%). Of the remaining 80%, 25% could be from areas in south / south of London with HGVs travelling via the M20 and the A249 south of the M2 to / from the K3 Site and 55% could be from areas in north / north of London with HGVs travelling via the M2 west of the A249 and the A249 south of the M2 to / from the K3 Site.

RCVs

- 4.6.20 The assignment of RCVs has been based on the assumptions that the RCVs will be delivering waste from within the boundaries of Kent and Medway unitary authority. Vehicle movements have been assigned equally to each of the districts with the exception of Thanet which has been included with Canterbury due to its size and nature. Therefore, each district / unitary generates one twelfth of the proposed development traffic.

Impact of Operational Traffic

- 4.6.21 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the K3 Proposed Development.

4.6.22 In accordance with the IEMA guidelines, the operational traffic flows as attached to the Transport Assessment at Appendix 4.1 and have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.9.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	1.9	11.5	2.9	17.3	4.0	27.4
Barge Way between Swale Way and Fleet End	5.4	15.7	8.1	19.6	10.3	22.1
Barge Way east of Fleet End	11.6	34.3	23.3	69.6	29.6	96.9
A249 south of Swale Way	1.1	7.2	1.1	11.0	1.2	12.5
A249 between the A2 and M2	0.8	5.6	0.8	8.8	0.8	9.9
Swale Way north of Reams Way	0.0	0.3	0.0	0.4	0.0	0.0
Swale Way south of Reams Way	0.0	0.3	0.0	0.4	0.0	0.0
Swale Way south of Ridham Avenue	0.0	0.4	0.0	0.8	0.0	0.0
M2 East of A249	0.1	0.4	0.1	0.7	0.1	0.8
M2 West of A249	0.3	2.2	0.3	4.4	0.4	5.8
A249 north of Swale Way	0.0	0.1	0.0	0.1	0.0	0.0

Table 4.9: Summary of Daily Impact of K3 Proposed Development Traffic Flows

4.6.23 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 11.6%, 23.3 and 29.6% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 34.3%, 69.6% and 96.9% are predicted on a weekday, Saturday and Sunday respectively.

4.6.24 As can be seen, with the exception of 'Barge Way east of Fleet End' the increases as a result of the K3 Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.

4.6.25 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.6.26 There are some hours when the total vehicle percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Barge Way east of Fleet End – on a weekday between 22:00-23:00; on a Saturday between 08:00-09:00, 12:00-13:00, 17:00-18:00, 21:00-24:00; on a Sunday between 05:00-0:00, 07:00-13:00, 14:00-16:00, 17:00-18:00, 21:00-23:00

4.6.27 There are some hours when the HGV percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Swale Way between the A249 and Barge Way – on a Saturday between 22:00-23:00; on a Sunday between 00:00 - 05:00, 07:00-09:00, 12:00-13:00, 16:00-18:00 and 22:00-24:00;
- Barge Way between Swale Way and Fleet End – on a Saturday between 12:00-13:00, 17:00-18:00, 22:00-23:00; on a Sunday between 17:00-18:00, 22:00-23:00.
- Barge Way east of Fleet End – on a weekday between 07:00-19:00 and 21:00-23:00; on a Saturday between 00:00-01:00, 03:00-04:00 and 07:00-24:00; on a Sunday between 00:00-24:00.

4.6.28 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.6.29 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.6.30 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.6.31 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.6.32 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar in type of vehicle to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.6.33 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.6.34 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 29.6% which is below such changes.

- 4.6.35 Daily increases for HGV movements peak at 209.2% on Barge Way East of Fleet End on a Sunday, tripling the HGV movements.
- 4.6.36 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect would therefore be negligible/slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.6.37 **Pedestrian Delay** – The maximum increase in hourly vehicles expected due to the K3 Proposed Development will be 42 on Barge Way between Swale Way and Fleet End with existing traffic flows of between 67 and 545 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.6.38 The maximum increase in hourly vehicles expected due to the K3 Proposed Development will be 42 on Barge Way East of Fleet End with existing traffic flows of between 11 and 308 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.6.39 On Swale Way, the baseline traffic flows are up to 2,200 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is 41 vehicles per hour, which according to the IEMA guidelines, would equate to a pedestrian delay of 16.0 seconds. This represents a change of 0.3 seconds. A change in pedestrian crossing delay of 0.3 seconds would be difficult to perceive.
- 4.6.40 On this basis, it is therefore considered the effect on pedestrian delay as a result of K3 Proposed Development would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.6.41 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the K3 Proposed Development operational HGVs upon receptors along the local road network would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.6.42 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.6.43 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

Decommissioning Effects

- 4.6.44 When the K3 Proposed Development reaches the end of its operational life it would be demolished and decommissioned. Since there is no further use for some of the materials, such materials can be removed in bulk after demolition. This means that larger payloads can be achieved, and the traffic flows associated with decommissioning are lower than those during its construction. As such, a lower impact from traffic can be expected to occur in comparison to the construction phase. For reporting purposes, the same effects as construction are assumed.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
Construction Effects					
Increase in traffic flows	Negligible / Low	Negligible/Low	Adverse	Short term	Negligible / slight
Completed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible/low/medium	Adverse	Long term	Negligible / slight
Decommissioning Effects					
Increase in traffic flows	Negligible / Low	Negligible / Low	Adverse	Short term	Negligible / slight

Table 4. 10 – Summary of K3 Proposed Development Effects Prior to Mitigation

MitigationMitigation from Operational Effects

- 4.6.45 The impact of the K3 Proposed Development operational flows is predicted not to have any significant effect.
- 4.6.46 Due to the low level of staffing associated with the K3 Proposed Development, a Travel Plan was not prepared, in agreement with KCC and Highways England (then the Highways Agency) as part of the original Town and Country Planning permission. Notwithstanding, K3 incorporates internal pedestrian routes to enable employees to walk to bus stops and surrounding areas.

Mitigation from Demolition and Construction Effects

- 4.6.47 A CTMP was prepared as part of the construction of K3 and set out a range of management measures for construction vehicles pursuant to the original Town and Country Planning permission. These same measures will be adopted during the demolition phase. A Decommissioning Traffic Management Plan (DTMP) similar to the CTMP, will be prepared and agreed with Highway Officers prior to the decommissioning commencing and the works will be undertaken in accordance with this. This is secured through the draft Development Consent Order submitted in support of the application.

Residual Effects

4.6.48 Residual effects are those that are predicted to remain after implementation of the secondary mitigation measures. The assessment has demonstrated that the traffic generated by the K3 Proposed Development is not to be significant and no further mitigation measures are required. It is concluded that the K3 Proposed Development will cause no residual transport related environmental effects.

4.6.49 The residual effects are summarised in Table 4.11.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible / Low / Medium	Adverse	Long term	Negligible / slight	Reasonable

Table 4. 11 – Summary of K3 Proposed Development Residual Effects

4.7 The Practical Effect of the K3 Proposed Development Predicted Effects**Completed Development Effects**

4.7.1 Planning permission was first granted on 6th March 2012 by Kent County Council under reference KCC/SW/10/444 (as amended) on the K3 Site for the 'development of a Sustainable Energy Plant to serve Kemsley Paper Mill, comprising waste fuel reception, moving grate technology, power generation and export facility, air cooled condensers, transformer, bottom ash handling facility, office accommodation, vehicle parking, landscaping, drainage and access'. As built it will be capable of processing 550,000 tonnes of waste per annum and have a generating output of 49.9MW.

4.7.2 K3 pursuant to the above permission is at an advanced stage of construction and will become fully operational in accordance with its extant permission in later 2019.

4.7.3 The DCO being sought would allow K3 as consented and currently being built to operate to an upgraded power generation level of 75MW (an additional 25.1MW) and to process 657,000 tonnes of waste per annum (an additional 107,000 tonnes) above and beyond that permitted under its existing planning permission. The practical effect of the consent sought would not result in any additional external physical changes to K3 as permitted and the layout and appearance of the facility will remain as per its consented design (see Chapter 2 for further details).

Trip Generation

4.7.4 The practical effect of the K3 Proposed Development would be to generate an additional 68 daily HGV movements above that already permitted by its existing planning permission.

- 4.7.5 K3 has permission for 258 daily HGV vehicle movements and 90 HGV movements undertaken by refuse collection vehicles (RCV).
- 4.7.6 Therefore, using the ratio of HGVs to RCVs from the above numbers the assessment undertaken is for 50 HGV movements and 18 RCV movements.
- 4.7.7 The practical effect of the K3 Proposed Development does not require any additional staff and therefore staff vehicle movements are not included in the assessment.

Temporal Distribution

HGVs

- 4.7.8 K3 as permitted is permitted to operate HGVs 24 hours a day, seven days a week.
- 4.7.9 HGV movements would be generated throughout the day and would typically be spread fairly equally in terms of hourly movements. Although there may be occasional peaks of HGV movements at various times of the day, these would be balanced by subsequent troughs. Therefore, an average day would see a fairly equal spread of HGV movements across the typical working day, then during the evening and night.
- 4.7.10 As set out above for the K3 Proposed Development, as part of their Section 42 consultation response, KCC asked for evidence to be supplied from other waste to energy sites (i.e. Aylseford) regarding vehicle arrival times to substantiate the estimations of vehicle profiles throughout the day. For the reasons set out above, it is suggested this is an inappropriate methodology. A flat profile throughout the day maximises the number of HGV movements during the highway network peak hours and therefore generates a robust assessment, and this has been adopted.

RCVs

- 4.7.11 Due to the nature of the fuel being delivered i.e. from local commercial and industrial premises, directly from RCVs, it is assumed that all deliveries will occur between 07:00 - 19:00 hours on a weekday and 07:00 - 13:00 on a Saturday. It is assumed, as per calculations for K3, that the HGVs will be evenly spread throughout the day.
- 4.7.12 For the reasons set out above, evidence from other waste to energy sites (i.e. Aylesford) regarding vehicle arrival times to substantiate the estimations of vehicle profiles throughout the day is not considered to be an appropriate methodology. A flat profile throughout the day maximises the number of HGV movements during the highway network peak hours and therefore generates a robust assessment, and this has been adopted.
- 4.7.13 Based upon the calculations set out above, a breakdown of the operational traffic flows associated with the practical effect of the K3 Proposed Development is shown in Table 4.12. The traffic flows are shown on the basis of each day and should not be read cumulatively in the context of one full week. HGV deliveries are not expected on every Saturday afternoon or Sunday but are shown in the

event that deliveries are made during these periods at the same intensification as weekdays. If there were any such occurrences, then this would result in reduced weekday vehicle movements to compensate. However, this is not shown. The calculations have been presented below for all seven days of the week for assessment purposes only.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	3	0	2	0	5	0	3	0	2	0	5	0	2	0	1	0	4
08:00	0	2	0	3	0	5	0	2	0	3	0	5	0	1	0	2	0	4
09:00	0	2	0	2	0	4	0	2	0	2	0	4	0	1	0	1	0	3
10:00	0	2	0	2	0	4	0	2	0	2	0	4	0	1	0	1	0	3
11:00	0	2	0	2	0	4	0	2	0	2	0	4	0	1	0	1	0	3
12:00	0	2	0	2	0	4	0	2	0	2	0	4	0	1	0	1	0	3
13:00	0	3	0	2	0	5	0	2	0	1	0	3	0	2	0	1	0	3
14:00	0	2	0	3	0	5	0	1	0	2	0	3	0	1	0	2	0	3
15:00	0	3	0	2	0	5	0	2	0	1	0	4	0	2	0	1	0	4
16:00	0	2	0	3	0	5	0	1	0	2	0	4	0	1	0	2	0	4
17:00	0	3	0	2	0	5	0	2	0	1	0	3	0	2	0	1	0	3
18:00	0	2	0	3	0	5	0	1	0	2	0	3	0	1	0	2	0	3
19:00	0	1	0	1	0	3	0	1	0	1	0	3	0	1	0	1	0	3
20:00	0	1	0	1	0	3	0	1	0	1	0	3	0	1	0	1	0	3
21:00	0	2	0	1	0	4	0	2	0	1	0	4	0	2	0	1	0	4
22:00	0	1	0	2	0	4	0	1	0	2	0	4	0	1	0	2	0	4
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	34	0	34	0	68	0	30	0	30	0	60	0	26	0	26	0	51

Table 4.12: Practical Effect of the K3 Proposed Development Operational Traffic Flows

Trip Distribution and Assignment

HGVs

4.7.14 For the purposes of this assessment, it is assumed that up to 20% of HGVs delivering waste arisings would be from neighbouring areas. These movements would be via the M2 east of the A249 (6.67% i.e. 1/3 of 20%), the M2 west of

the A249 (6.67%) and the A249 south of the M2 (6.67%). Of the remaining 80%, 25% could be from areas in south / south of London with HGVs travelling via the M20 and the A249 south of the M2 to / from the K3 Site and 55% could be from areas in north / north of London with HGVs travelling via the M2 west of the A249 and the A249 south of the M2 to / from the K3 Site.

RCVs

- 4.7.15 The assignment of RCVs has been based on the assumptions that the RCVs will be delivering waste from within the boundaries of Kent and Medway unitary authority. Vehicle movements have been assigned equally to each of the districts with the exception of Thanet which has been included with Canterbury due to its size and nature. Therefore, each district / unitary generates one twelfth of the proposed development traffic.

Impact of Operational Traffic

- 4.7.16 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the practical effect of the K3 Proposed Development.
- 4.7.17 In accordance with the IEMA guidelines, the operational traffic flows as attached to the Transport Assessment at Appendix 4.1 and have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.13.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	0.3%	1.7%	0.4%	2.5%	0.5%	3.7%
Barge Way between Swale Way and Fleet End	0.8%	2.3%	1.1%	2.8%	1.3%	3.1%
Barge Way east of Fleet End	1.6%	4.4%	2.8%	7.3%	3.4%	8.9%
A249 south of Swale Way	0.2%	1.1%	0.2%	1.7%	0.2%	1.9%
A249 between the A2 and M2	0.1%	0.9%	0.1%	1.4%	0.1%	1.5%
Swale Way north of Reams Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Reams Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
M2 East of A249	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%
M2 West of A249	0.0%	0.4%	0.1%	0.7%	0.1%	0.9%
A249 north of Swale Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4.13: Summary of Daily Impact of K3 Practical Proposed Development Traffic Flows

- 4.7.18 As can be seen, the increases as a result of the practical effect of the K3 Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.
- 4.7.19 The largest predicted increases in traffic flows and therefore HGV movements occur on 'Barge Way east of Fleet End' where increases of 1.6%, 2.8% and 3.4% in total vehicles and 4.4%, 7.3% and 8.9% in HGVs are predicted on a weekday, Saturday and Sunday respectively.

- 4.7.20 The largest predicted hourly increase is 24.4% in HGVs on 'Swale Way between the A249 and Barge Way' between 22:00 and 23:00 on a Sunday and 18.3% on 'Barge Way east of Fleet Road' between 22:00 and 23:00 on a Sunday.
- 4.7.21 On the basis that the increases on all the links are lower than the Rule 1 threshold, and in accordance with the IEMA Guidelines, the practical effect of the K3 Proposed Development operational traffic flows will result in imperceptible effects along the adjacent highway network.
- 4.7.22 The magnitude of impact of the practical effect of the K3 Proposed Development operational traffic flows along the adjacent highway network would be negligible as defined in Table 4.1. The significance of the increase in traffic flows along the adjacent highway network would therefore be negligible adverse as determined by the IEMA Guidelines, thus the effect would be not significant as shown in Table 4.14.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
Construction Effects					
None identified					
Completed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible	Adverse	Long term	Negligible / slight
Decommissioning Effects					
Increase in traffic flows	Negligible / Low	Negligible / Low	Adverse	Short term	Negligible / slight

Table 4.14 – Summary of the practical effect of the K3 Proposed Development Effects Prior to Mitigation

Mitigation

Mitigation from Operational Effects

- 4.7.23 The practical effect of the K3 Proposed Development operational flows are predicted not to have any significant effect. The increase in total traffic as a result of the practical effect of the K3 Proposed Development is less than the threshold set out in the IEMA guidelines.
- 4.7.24 Due to the low level of staffing associated with the K3 Proposed Development, a Travel Plan was not prepared, in agreement with KCC and Highways England (then the Highways Agency) as part of the original Town and Country Planning permission. Notwithstanding, K3 incorporates internal pedestrian routes to enable employees to walk to bus stops and surrounding areas. The practical effect of the K3 Proposed Development will not increase staffing levels.

Mitigation from Demolition Effects

- 4.7.25 A Decommissioning Traffic Management Plan (DTMP) similar to the CTMP, will be prepared and agreed with Highway Officers prior to the decommissioning commencing and the works will be undertaken in accordance with this. This is

secured through the draft Development Consent Order submitted in support of the application.

Residual Effects

4.7.26 Residual effects are those that are predicted to remain after implementation of secondary mitigation measures. The assessment has demonstrated that the traffic generated by the practical effect of the K3 Proposed Development is not to be significant and no mitigation measures are required. It is concluded that the K3 Proposed Development will cause no residual transport environmental effects.

4.7.27 The residual effects are summarised in Table 4.15.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible	Adverse	Long term	Negligible / slight	Reasonable

Table 4.15 – Summary of the practical effect of the K3 Proposed Development Residual Effects

4.8 WKN Predicted Effects

Construction Effects

Trip Generation

- 4.8.1 Construction vehicle movements have been estimated by the project team, based on K3 construction scheme.
- 4.8.2 During construction, it is estimated there will be a peak of up to 482 staff on the WKN Site during month 24 of the 40-month construction programme.
- 4.8.3 It is estimated that the construction of WKN Proposed Development will generate a maximum of 45 HGV deliveries per day (maximum of 90 HGV movements per day) during the peak construction period. This includes all associated construction activities including all deliveries (including abnormal indivisible loads) and all removal of material / waste etc. The average HGV generation over the 40-month construction period will be 27 HGV deliveries per day (54 HGV movements per day).

Mode Share

- 4.8.4 To estimate the likely main mode of transport that construction workers would use to travel to and from the WKN Site, the 2011 Census Journey to Work data has been analysed for the Kemsley Workplace Zone. The workplaces within this zone include the Kemsley Paper Mill as well as the adjoining employment units, all of which have similar levels of accessibility and shift patterns and is thus

reasonably representative for assessment purposes for construction workers to WKN Proposed Development.

- 4.8.5 The Workplace Population Census data is set out within the Transport Assessment at Appendix 4.1 and has been applied to the level of construction staff to predict the level of vehicle trip generation for the WKN Site.
- 4.8.6 In summary, the Census data predicts that 85% of staff will arrive via car, 4.9% would arrive as a car passenger, 3.1% would arrive by bicycle, 2.6% would arrive on foot and 1.5% would arrive by train. These are the main modes of transport and the main mode may be supplemented by another mode over a shorter distance, for example travel by train and walk or cycle to / from the station.
- 4.8.7 Due to the nature of teams of construction workers moving from one site to the next, workers tend to quickly identify others in their team who live near to them and car share amongst themselves. It can therefore be expected that the proportion of car sharers may be higher than the above and thus the proportion of car drivers may reduce. However, the above provides for a robust analysis based on a robust estimate of construction workers arriving by car.
- 4.8.8 On the basis of the above, it is estimated there would be a maximum of 409 construction staff arriving and departing as a car driver per day to WKN Proposed Development during the construction peak period.

Temporal Distribution

- 4.8.9 Construction activities will be undertaken during normal construction working hours of 07:00 and 19:00 on weekdays and 07:00 to 16:00 on Saturdays and on Sundays where needs dictate, which is consistent with the K3 construction activities that are currently ongoing and were permitted as part of its planning consent. Construction HGV movements may occur during these hours.
- 4.8.10 Construction HGV movements will be generated throughout the day and will be typically spread fairly equally in terms of hourly movements. Although there may be occasional peaks of construction HGV movements at various times of the day, these will be balanced by subsequent troughs and balance out on different days to being typically evenly spread. Therefore, an average day will see a fairly equal spread of construction HGV movements across the working day.
- 4.8.11 Daily construction HGV movements have therefore been spread equally across the twelve-hour working weekday and nine hour working weekend.
- 4.8.12 Construction staff would typically arrive between 06:00 and 07:00 and depart between 19:00 and 20:00 on a weekday. On a weekend, construction staff would typically arrive between 06:00 and 07:00 and depart between 16:00 and 17:00. It is assumed that all staff arrive and depart within these hours to ensure a robust assessment.
- 4.8.13 Based upon the calculations set out above, a breakdown of the peak construction traffic flows is shown in Table 4.16.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	409	0	0	0	409	0	409	0	0	0	409	0	409	0	0	0	409	0
07:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
08:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
09:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
10:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
11:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
12:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
13:00	0	4	0	4	0	7	0	4	0	4	0	7	0	4	0	4	0	7
14:00	0	4	0	4	0	7	0	4	0	4	0	7	0	4	0	4	0	7
15:00	0	4	0	4	0	7	0	4	0	4	0	7	0	4	0	4	0	7
16:00	0	4	0	4	0	7	0	0	409	0	409	0	0	0	409	0	409	0
17:00	0	4	0	4	0	8	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	4	0	4	0	8	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	409	0	409	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	409	46	409	46	817	92	409	35	409	35	817	69	409	35	409	35	817	69

Table 4.16: WKN Proposed Development Peak Construction Traffic Flows

Trip Distribution and Assignment

- 4.8.14 The origin of construction HGVs and their route to the WKN Site will vary through the process and is expected to vary on a day by day basis depending upon the construction activity being undertaken and the contractor(s) involved. Given the layout of the adjacent highway network and the strategic nature of its routes and destinations, it is likely that the routes by construction HGVs will be on the strategic road network to the A249 then Swale Way and Barge Way.
- 4.8.15 For the purposes of this assessment, it is assumed that up to 20% of construction HGVs would be from neighbouring areas and these movements would be via the M2 east of the A249 (6.67% i.e. 1/3 of 20%), the M2 west of the A249 (6.67%) and the A249 south of the M2 (6.67%). Of the remaining 80%, 25% would be

from areas in south / south of London with HGVs travelling via the M20 and the A249 south of the M2 to / from the WKN Site and 55% would be from areas in north / north of London with HGVs travelling via the M2 west of the A249 and the A249 south of the M2 to / from the WKN Site.

- 4.8.16 Census 2011 Journey to Work data has formed the basis of the assumptions of construction staff vehicle routeing.
- 4.8.17 The construction traffic has been assigned to the road network in accordance with the above, and the resultant predicted peak construction traffic flows are attached at the Transport Assessment at Appendix 4.1.

Impact of Construction Traffic

- 4.8.18 Assessments have been undertaken for the peak construction traffic flows to enable an understanding of the maximum effects throughout the construction phase to be identified.
- 4.8.19 In accordance with the IEMA guidelines, the construction traffic flows have been assessed against the 2021 baseline traffic flows as attached at the Transport Assessment at Appendix 4.1. A summary of the assessments is set out in Table 4.17.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	3.7%	2.3%	6.2%	2.9%	9.4%	5.0%
Barge Way between Swale Way and Fleet End	10.1%	3.1%	16.3%	3.2%	23.2%	4.2%
Barge Way east of Fleet End	20.5%	5.9%	41.5%	8.4%	58.1%	12.0%
A249 south of Swale Way	2.0%	1.5%	2.4%	1.9%	2.8%	2.5%
A249 between the A2 and M2	1.4%	1.2%	1.6%	1.5%	1.9%	2.0%
Swale Way north of Reams Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Reams Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
M2 East of A249	0.2%	0.1%	0.2%	0.1%	0.2%	0.2%
M2 West of A249	0.4%	0.6%	0.4%	0.9%	0.5%	1.2%
A249 north of Swale Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4.17: Summary of Daily Impact of Peak WKN Proposed Development Construction Traffic Flows

- 4.8.20 As can be seen, with the exception of Barge Way east of Fleet End, the increases as a result of the peak construction 24-hour traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. The effect on the Barge Way east of Fleet End receptor are due to the existing traffic levels, which are lower on a Saturday and Sunday.
- 4.8.21 The peak construction period sees the largest predicted increases in traffic flows on 'Barge Way east of Fleet End' where increases of 20.5%, 41.5% and 58.1% in total vehicles and 5.9%, 8.4% and 12.0% in HGVs are predicted on a weekday, Saturday and Sunday respectively.

- 4.8.22 Hourly increases along the M2 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.8.23 There are instances where the total vehicle percentage impact is greater than the Rule 1 Threshold, as detailed below:
- Swale Way between the A249 and Barge Way – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
 - Barge Way between Swale Way and Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
 - Barge Way east of Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
 - A249 south of Swale Way – between 06:00-07:00 on a Saturday and between 06:00-07:00 on a Sunday; and
 - A249 between the A2 and M2 – between 06:00-07:00 on a Sunday.
- 4.8.24 These impacts are entirely due to the staff vehicle movements during the peak construction period, all of which fall outside of the highway network peak hours.
- 4.8.25 Although these percentages can appear high, this is largely as a result of the low baseline traffic flows. Due to these increases being over the Rule 1 threshold, assessment has been undertaken below to assess the effect in detail.
- 4.8.26 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.
- 4.8.27 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur. The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.
- 4.8.28 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay as a result of the temporary WKN Proposed Development construction workforce upon receptors along Barge Way, Swale Way and the A249 would be short-term and negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.8.29 **Increased Risk of Accidents** - PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.30 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.31 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 58.1% on Barge Way and for HGV movements peak at 12.0% on Barge Way, which are below such changes.
- 4.8.32 On Swale Way, daily increases in total vehicle movements are predicted to peak at 9.4% and for HGV movements peak at 5.0%, which are well below such changes. There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.8.33 It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.34 **Pedestrian Delay** - The maximum increase in hourly vehicles expected due to the WKN Proposed Development workforce will be 407 on Barge Way with existing traffic flows of between 76 and 558 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.8.35 On Swale Way, the baseline traffic flows are up to 2,236 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 16.0 seconds. The increase during this period is 8 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.0 seconds. This represents no change.
- 4.8.36 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.

- 4.8.37 On this basis, it is therefore considered the effect on pedestrian delay as a result of the temporary WKN Proposed Development construction workforce would be short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.38 **Dust and Dirt** – Staff vehicles will park in the laydown area which will be a hardcore surface. The hardcore will be laid such to support construction HGVs as well as staff vehicles and to prevent mud and dirt being exposed and then transferred to vehicles. By its nature, the hardcore surface would be permeable so that there is no standing surface water and allowing it to wash away any dust and dirt that may have been transposed onto it. Furthermore, as set out above, the IEMA guidelines advise that problems with dust and dirt are unlikely to occur over distances greater than 50m; there is more that 50m of surfaced road between the access road and the public highway. Notwithstanding, a Construction Traffic Management Plan will evolve and be agreed with the highway authorities prior to construction commencing and this will set out measures to ensure dust and dirt is not transposed to the highway. It is therefore considered the dust and dirt effect as a result of the temporary WKN Proposed Development workforce on sensitive receptors on Barge Way would be short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.39 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way, Swale Way and the A249 are not located in such locations and there are already HGVs travelling along it.
- 4.8.40 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

Effects of Abnormal Indivisible Loads

- 4.8.41 Notwithstanding the above conclusions on the effects of construction traffic, it is noted that the movement of abnormal indivisible loads can sometimes require separate consideration. To ensure a robust assessment it is therefore considered appropriate to consider possible effects of the abnormal indivisible loads along the local access route from the trunk road network (i.e. between the A249 and the WKN Site) below.
- 4.8.42 **Traffic Noise and Vibration** – Abnormal indivisible loads tend to be slow moving and mainly cause delay.
- 4.8.43 Existing and forecast traffic noise levels are greatly influenced by the volume of traffic, percentage of HGVs and distance from the source. The movement of abnormal indivisible loads will not alter total traffic volumes or percentage of HGVs by any noticeable amounts, whilst residential properties are all set back from the local road network and incorporate screening (fences). It is considered that the

effect of noise as a result of the abnormal indivisible loads upon receptors along the local access route would be short-term and negligible to slight adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.8.44 There are two types of vibration caused by HGVs; ground borne vibration and air borne vibration. Ground borne vibration principally occurs from poorly maintained roads, and people hear and experience the effects of vehicles passing over ruts and holes in the road surface. The local access road is newly constructed and there are no such ruts or holes that would induce ground borne vibration. Other ground borne vibration effects may arise from the road structure being unsuitable to accommodate very heavy loads. Modern roads are built to accommodate heavy loads and in instances where they are not then this is identified as part of the detailed abnormal indivisible load route analysis required as part of the Special Order process (which permits large vehicles to travel along the road network) and overcome by increasing the number of axles on the transporting vehicle to spread the load and reduce axle loadings.
- 4.8.45 Airborne vibration can lead to a number of effects, such as window rattling and floor movement, and this may concern people living adjacent to roads particularly where there is a large increase in lorry traffic. In this instance, the abnormal indivisible loads would not be regular, properties are set back from the local access road and there is screening in place. It is considered that the effect of vibration as a result of the abnormal indivisible loads upon receptors along the local access route would be short-term and negligible or slight adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.46 **Disruption and Driver Delay** - Any effects of delay to other road users would only be apparent during the movement of abnormal indivisible loads as a result of their large size and low speed rather than their numbers. Along the local access roads, the police and any other escort personnel would ensure that driver delay is minimised by identifying locations ahead of the abnormal indivisible load where it could stop safely to allow vehicles to pass.
- 4.8.47 It is considered that some driver delay would occur as a result of the abnormal indivisible loads, however the temporary nature and safe escorting of vehicles should be borne in mind. It is considered that the disruption and driver delay effect as a result of the abnormal indivisible loads upon receptors along the local access roads would be short-term and negligible or slight adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.48 **Increased Risk of Accidents** - There is a potential for impacts on safety as a consequence of driver frustration related to the movement of abnormal indivisible loads. However, all abnormal indivisible loads will be under police escort who will be there not only to assist the abnormal indivisible loads but to control any oncoming vehicles or vehicles following the abnormal indivisible load. On this basis, driver frustration should be minimised, and the risk of accidents reduced. It is therefore considered the accidents and safety effect as a result of the abnormal indivisible loads upon receptors along the local access route would be

short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.8.49 **Severance, Intimidation and Pedestrian Delay** - An increase in vehicle numbers, particularly HGVs, could result in additional delays to pedestrians wishing to cross the road or result in a perceived severance of a community. HGV traffic, particularly abnormal indivisible loads, can reduce the amenity of pedestrian routes in towns and villages to the extent that pedestrians feel intimidated by the traffic.
- 4.8.50 Abnormal indivisible loads, which could result in intimidation, pedestrian delay or severance, would be infrequent. On this basis, it is therefore considered the effect of severance, intimidation and pedestrian delay as a result of the abnormal indivisible loads upon receptors along the local access roads would be short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.51 **Dust and Dirt** - HGVs have the potential to distribute dust and dirt from the construction site onto the local road network. These effects would be most pronounced in the immediate vicinity of the WKN Site entrance, where a wheel wash will be located, and the abnormal indivisible loads will have to utilise it like all other HGVs. It is therefore considered the dust and dirt effect as a result of the abnormal indivisible loads upon receptors along the local road network would be short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.52 **Visual Effects** - The movements of high-sided vehicles could be considered visually intrusive. This effect would be short-term and only occur during the movement of abnormal indivisible loads. It is therefore considered the visual effect as a result of the abnormal indivisible loads upon receptors along the local access roads would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

Completed Development Effects

Trip Generation

- 4.8.53 The proposed development will generate 250 daily HGV movements.
- 4.8.54 K3 has permission for 258 daily HGV movements and an additional 90 daily HGV movements undertaken by refuse collection vehicles (RCV), thus totalling 348 daily HGV movements.
- 4.8.55 Therefore, for the WKN Proposed Development, using the ratio of HGVs to RCVs from the above numbers the assessment undertaken is for 185 HGV movements and 65 RCV movements.

- 4.8.56 The staffing numbers for K3 (49 employees) have been used for assessment providing a robust assessment as K3 is a double-line waste facility and the WKN Proposed Development is a single-line facility.

Mode Share

- 4.8.57 To estimate the likely mode of transport that employees would use to travel to and from the WKN Site, the 2011 Census Journey to Work data has been analysed for the Kemsley Workplace Zone. The workplaces within this zone include the Kemsley Paper Mill as well as the adjoining employment units, all of which have similar levels of accessibility and shift patterns and is thus reasonably representative for assessment purposes for construction workers to the WKN Proposed Development.
- 4.8.58 The Workplace Population Census data is set out within the Transport Assessment at Appendix 4.1 and has been applied to the level of staff to predict the level of vehicle trip generation for the WKN Site.
- 4.8.59 In summary, the Census data predicts that 85% of staff will arrive via car, 4.9% would arrive as a car passenger, 3.1% would arrive by bicycle, 2.6% would arrive on foot and 1.5% would arrive by train.
- 4.8.60 On the basis of the above and staff on rest days due to shift patterns, it is estimated there would be a maximum of 37 staff arriving and departing via car per day to the WKN Proposed Development.

Temporal Distribution

HGVs

- 4.8.61 The consent order seeks permission for HGV movements 24 hours a day, seven days a week.
- 4.8.62 HGV movements would be generated throughout the day and would typically be spread fairly equally in terms of hourly movements. Although there may be occasional peaks of HGV movements at various times of the day, these would be balanced by subsequent troughs. Therefore, an average day would see a fairly equal spread of HGV movements across the typical working day, then during the evening and night.
- 4.8.63 As set out above for the K3 Proposed Development, as part of their Section 42, consultation response KCC asked for evidence to be supplied from other waste to energy sites (i.e. Aylesford) regarding vehicle arrival times to substantiate the estimations of vehicle profiles throughout the day. For the reasons set out above, it is suggested this is an inappropriate methodology. A flat profile throughout the day maximises the number of HGV movements during the highway network peak hours and therefore generates a robust assessment, and this has been adopted.

RCVs

- 4.8.64 Due to the nature of the fuel being delivered i.e. from local commercial and industrial premises, directly from RCVs, it is assumed that all deliveries will occur between 07:00 - 19:00 hours on a weekday and 07:00 - 13:00 on a Saturday. It is assumed, as per calculations for K3, that the HGVs will be evenly spread throughout the day.
- 4.8.65 For the reasons set out above, evidence from other waste to energy sites (i.e. Aylesford) regarding vehicle arrival times to substantiate the estimations of vehicle profiles throughout the day is not considered to be an appropriate methodology. A flat profile throughout the day maximises the number of HGV movements during the highway network peak hours and therefore generates a robust assessment, and this has been adopted.
- 4.8.66 Based upon the calculations set out above, a breakdown of the operational traffic flows associated with the WKN Proposed Development is shown in Table 4.14.

Staff

- 4.8.67 Staff arrivals and departures have been based upon estimates by the operator. The management (8 staff) and maintenance (14 staff) teams will arrive at 07:30 and depart at 16:30; the day work team (10 staff) will arrive at 07:00 and depart at 19:00 and the operating team (17 staff) will work in teams of three to provide a two-shift pattern 07:00 - 19:00 (three staff) and 19:00 - 07:00 (three staff) with rest days.
- 4.8.68 Based upon the calculations set out above, a breakdown of the operational traffic flows associated with WKN Proposed Development is shown in Table 4.18. The traffic flows are shown on the basis of each day and should not be read cumulatively in the context of one full week. HGV deliveries are not expected on every Saturday afternoon or Sunday but are shown in the event that deliveries are made during these periods at the same intensification as weekdays. If there were any such occurrences, then this would result in reduced weekday vehicle movements to compensate. However, this is not shown. The calculations have been presented below for all seven days of the week for assessment purposes only.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
001:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
06:00	11	0	0	0	11	0	11	0	0	0	11	0	11	0	0	0	11	0
07:00	22	10	3	9	25	19	22	10	3	9	25	19	22	7	3	6	25	13
08:00	0	9	0	10	0	19	0	9	0	10	0	19	0	6	0	7	0	13
09:00	0	9	0	9	0	18	0	9	0	9	0	18	0	6	0	6	0	12
10:00	0	9	0	9	0	18	0	9	0	9	0	18	0	6	0	6	0	12
11:00	0	9	0	9	0	18	0	9	0	9	0	18	0	6	0	6	0	12
12:00	0	9	0	9	0	18	0	9	0	9	0	18	0	6	0	6	0	12
13:00	0	5	0	9	0	14	0	2	0	6	0	8	0	2	0	6	0	8
14:00	0	9	0	5	0	14	0	6	0	2	0	8	0	6	0	2	0	8
15:00	0	10	0	9	0	19	0	7	0	6	0	13	0	7	0	6	0	13
16:00	0	9	11	10	11	19	0	6	11	7	11	13	0	6	11	7	11	13
17:00	0	5	11	9	11	14	0	2	11	6	11	8	0	2	11	6	11	8
18:00	3	9	0	5	3	14	3	6	0	2	3	8	3	6	0	2	3	8
19:00	0	6	11	6	11	12	0	6	11	6	11	12	0	6	11	6	11	12
20:00	0	6	0	6	0	12	0	6	0	6	0	12	0	6	0	6	0	12
21:00	0	7	0	6	0	13	0	7	0	6	0	13	0	7	0	6	0	13
22:00	0	6	0	7	0	13	0	6	0	7	0	13	0	6	0	7	0	13
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	36	126	36	126	71	252	36	110	36	110	71	219	36	94	36	94	71	187

Table 4.18: WKN Proposed Development Operational Traffic Flows

Trip Distribution and Assignment

HGVs

4.8.69 For the purposes of this assessment, it is assumed that up to 20% of HGVs delivering waste arisings would be from neighbouring areas. These movements would be via the M2 east of the A249 (6.67% i.e. 1/3 of 20%), the M2 west of the A249 (6.67%) and the A249 south of the M2 (6.67%). Of the remaining 80%, 25% could be from areas in south / south of London with HGVs travelling via the M20 and the A249 south of the M2 to / from the WKN Site and 55% could be from areas in north / north of London with HGVs travelling via the M2 west of the A249 and the A249 south of the M2 to / from the WKN Site.

RCVs

4.8.70 The assignment of RCVs has been based on the assumptions that the RCVs will be delivering waste from within the boundaries of Kent and Medway unitary authority. Vehicle movements have been assigned equally to each of the districts with the exception of Thanet which has been included with Canterbury due to its size and nature. Therefore, each district / unitary generates one twelfth of the development traffic.

Staff

- 4.8.71 Census 2011 Journey to Work data has formed the basis of the assumptions of construction staff vehicle routing.
- 4.8.72 The operational traffic has been assigned to the road network in accordance with the above, and the resultant predicted peak construction traffic flows are attached at the Transport Assessment at Appendix 4.1.

Impact of Operational Traffic

- 4.8.73 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the WKN Proposed Development.
- 4.8.74 In accordance with the IEMA guidelines, the operational traffic flows as attached at the Transport Assessment at Appendix 4.1 have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.19.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	1.3%	6.5%	2.1%	9.4%	2.9%	14.1%
Barge Way between Swale Way and Fleet End	3.6%	8.6%	5.4%	10.5%	6.9%	11.7%
Barge Way east of Fleet End	7.5%	17.0%	14.1%	28.7%	17.7%	36.2%
A249 south of Swale Way	0.7%	4.2%	0.8%	6.2%	0.9%	7.0%
A249 between the A2 and M2	0.5%	3.3%	0.6%	5.0%	0.6%	5.6%
Swale Way north of Reams Way	0.0%	0.1%	0.0%	0.5%	0.0%	0.0%
Swale Way south of Reams Way	0.0%	0.1%	0.0%	0.5%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.0%	0.2%	0.0%	0.8%	0.0%	0.0%
M2 East of A249	0.0%	0.3%	0.0%	0.4%	0.0%	0.5%
M2 West of A249	0.2%	1.3%	0.2%	2.6%	0.2%	3.4%
A249 north of Swale Way	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%

Table 4.15: Summary of Daily Impact of WKN Proposed Development Traffic Flows

- 4.8.75 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 7.5%, 14.1% and 17.7% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 17.0%, 28.7% and 36.2% are predicted on a weekday, Saturday and Sunday respectively.
- 4.8.76 As can be seen, with the exception of 'Barge Way east of Fleet End' on a Saturday and a Sunday the increases as a result of the WKN Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. The effect on Barge Way on a Sunday will be predominantly due to the lower existing traffic levels that are present on a Sunday.
- 4.8.77 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the

traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.8.78 There are some hours when the HGV / total vehicle percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Swale Way between the A249 and Barge Way HGV increase – on a Saturday between 22:00 – 23:00 and a Sunday between 21:00 – 23:00;
- Barge Way between Swale Way and Fleet End HGV increases – on a weekday between 22:00 – 23:00, a Saturday between 22:00 – 23:00 and a Sunday between 21:00 – 23:00;
- Barge Way east of Fleet End HGV increases – on a weekday between 18:00 – 23:00, a Saturday between 07:00 – 08:00, 12:00 – 13:00, 15:00 – 17:00, 18:00 – 23:00 and a Sunday between 07:00 – 12:00, 15:00 – 17:00 and 18:00 – 23:00; and
- On the 'Barge Way east of Fleet End link' there are hours where the total traffic percentage impact is greater than the Rule 1 threshold – on a weekday between 22:00 – 23:00, a Saturday between 19:00 – 23:00 and a Sunday between 19:00 – 23:00.

4.8.79 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.8.80 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.8.81 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.8.82 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.8.83 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to

low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.8.84 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.85 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 17.7% and for HGV movements peak at 36.2%, which are well below such changes.
- 4.8.86 It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.87 **Pedestrian Delay** – The maximum increase in hourly vehicles expected due to the WKN Proposed Development will be 43 on Barge Way with existing traffic flows of between 16 and 551 vehicles per hour. The total future traffic movements falls below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.8.88 On this basis, it is therefore considered the effect on pedestrian delay as a result of WKN Proposed Development would be negligible (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.89 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the WKN Proposed Development operational HGVs upon receptors along the local road network would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.8.90 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.8.91 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

Decommissioning Effects

- 4.8.92 When the WKN Proposed Development reaches the end of its operational life it would be demolished and decommissioned. Since there is no further use for some of the materials, such materials can be removed in bulk after demolition. This means that larger payloads can be achieved, and the traffic flows associated with decommissioning are lower than those during its construction. As such, a lower impact from traffic can be expected to occur in comparison to the construction phase. For reporting purposes, the same effects as construction are assumed.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
Construction Effects					
Increase in traffic flows	Negligible / Low	Negligible/Low	Adverse	Short term	Negligible / slight
Completed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term	Negligible / slight
Decommissioning Effects					
Increase in traffic flows	Negligible / Low	Negligible / Low	Adverse	Short term	Negligible / slight

Table 4.20 – Summary of WKN Proposed Development Effects Prior to Mitigation

MitigationMitigation from Operational Effects

- 4.8.93 The effect of the WKN Proposed Development operational flows is predicted not to have any significant effect.
- 4.8.94 Despite the low level of staffing at WKN Proposed Development a Draft Travel Plan (Appendix 4.3) has been prepared in relation the movement of staff, visitors and waste vehicle movements during its operational phase. The measures include seeking to avoid HGV movements during the weekday peak hours and seeking to utilise existing HGV routes.

Mitigation from Demolition and Construction Effects

- 4.8.95 A draft CEMP has been prepared (Appendix 2.1), which requires a CTMP to be prepared and agreed with Highway Officers prior to construction commencing and the works will be undertaken in accordance with this. In advance of this, and to support this application, a Draft CTMP (Appendix 4.2) has been prepared, from which a Full CTMP will evolve prior to construction commencing once a contractor has been appointed. The CTMP is a management tool that contractors will follow to minimise the impact of construction vehicles. It will be regularly monitored and reviewed on an ongoing basis to seek to further reduce impacts where

possible. The measures and outcome of the CTMP have been considered when undertaking the above assessments.

- 4.8.96 Given the above conclusions, there is no requirement for any additional mitigation over and above the CTMP from an environmental impact perspective, and hence no additional mitigation schemes are proposed over and above the CTMP.
- 4.8.97 A Decommissioning Traffic Management Plan (DTMP), similar to the CTMP, will be prepared and agreed with Highway Officers prior to decommissioning commencing and the works will be undertaken in accordance with this.

Residual Effects

- 4.8.98 Residual effects are those that are predicted to remain after implementation of the secondary mitigation measures. The assessment has demonstrated that the traffic generated by the WKN Proposed Development is not to be significant and no further mitigation measures are required. It is concluded that the WKN Proposed Development will cause no residual transport related environmental effects.
- 4.8.99 The residual effects are summarised in Table 4.21.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible / Low	Adverse	Long term	Negligible / slight	Reasonable

Table 4.21 – Summary of WKN Proposed Development Residual Effects

4.9 Cumulative Effects

- 4.9.1 [The Future Year Baseline is addressed in section 4.5. The Future Year Baseline has been formed by adding the traffic generated by committed developments \(developments that have planning consent but are not yet generating traffic on the network\) to the observed traffic flows. No traffic growth rates have been applied as the traffic generated by the committed developments exceed the traffic flows generated by the assumed development growth in TEMPRO.](#)
- 4.9.2 [Cumulative developments \(allocated sites and / or development proposals that have not yet been granted planning permission\) are assessed against the Future Year Baseline scenario to determine their cumulative impact.](#)
- 4.9.3 The assessment of cumulative effects has been considered in the context of the build out of the K3 Proposed Development, the practical effect of the K3 Proposed Development and the WKN Proposed Development and also being mindful of the build out of the cumulative sites. As set out above, in accordance with the IEMA guidelines, assessment years of 2021 and 2024 were adopted to assess the K3 Proposed Development, the practical effect of the K3 Proposed Development and the WKN Proposed Development. Some of the cumulative sites are Local Plan

allocations that will not come forward until the end of the Local Plan period (2031).

4.9.4 Given the various status of the cumulative sites (some are simply a Local Plan allocation and do not have a planning application submitted), there is very little prospect that traffic would be generated by them all in 2021. However, there are some cumulative sites that may.

4.9.5 Therefore, three cumulative assessment years have been assessed for 2021, 2024 and 2031.

4.9.6 The following [allocations and](#) developments have been [reviewed for inclusion within](#) the cumulative assessment and a subsequent description is provided to determine their status and their potential timescales:

- [12 - 18/500393/FULL](#) - Natural gas fuelled reserve power plant - Plot N2c, Castle Road, Eurolink;
- [A1 - land allocated for 'B' class employment uses at Ridham and Kemsley \(southern part\) and at Sittingbourne and Neatscourt, Isle of Sheppey \(northern part\);](#)
- [A10 - 15/502912 - a minimum of 240 dwellings at Milton Pipes, Mill Way, Sittingbourne](#)
- A17- 564 dwellings - Iwade;
- [MU1 - 18/502190/EIHYB and 18/500257/EIFUL](#) - 1,500 dwellings - North West Sittingbourne;
- MU2 - 43,000sqm of 'B' use class employment and 106 dwellings - North-east Sittingbourne;
- A3 - 7,500sqm of 'B' use class employment - Sheerness;
- A4 - small hotel and 5,600sqm of 'B' use employment - Queenborough;
- MU3 - 564 dwellings - South-west Sittingbourne;
- MU4 26,840sqm of 'B' use class employment - Teynham; and
- MU5 1,500sqm commercial uses and 330 dwellings - Faversham.

4.9.7 [Site 12, 18/500393/FULL](#) - the natural gas fuelled reserve power plant at plot N2c does not have everyday vehicle flows associated with its operation. A planning application has been submitted. If permission is granted, then construction is expected to be completed before 2024. Therefore, the construction traffic generated by this development is only included in the 2021 cumulative assessment.

- 4.9.8** A1 allocation for 'B' class employment uses – The A1 land allocation is split into two parts, Neatscourt, Isle of Sheppey (northern part) and Ridham and Kemsley, Sittingbourne (southern part). For the Neatscourt, Isle of Sheppey area, recent work undertaken for other planning applications in that local area has shown that the majority of people working within the Isle of Sheppey live within the area and therefore there are unlikely to be significant volumes of traffic generated within the study area. Furthermore, any new traffic flows to this area to the northern part of the A1 allocation would be generated from the new residential developments such as MU1 and A17 land allocations and the traffic flows from those would account for such new traffic flows. Therefore, to avoid double counting, the northern part of the A1 land allocation is not included in the cumulative assessments. For the Ridham and Kemsley, Sittingbourne area (southern part of A1), operational traffic flows, excluding development permitted under the G-Park development (SW/95/0099), are included in the 2031 cumulative assessment. It has been assumed, due to the extant G-Park permission and the available floorspace to be built out that the southern part of the A1 allocation will come forward towards the end of the Local Plan period (2031) and therefore construction traffic flows in respect of A1 have not been included in the 2024 cumulative assessment. The extant G-Park permission is discussed in section 4.5, whereby part of the Ridham and Kemsley area of the A1 land allocation has received planning approval in the form of G-Park (SW/95/0099). As stated, a section became operational in 2009 and thus those traffic flows are included within the surveyed traffic flows. The remainder of G-Park, including the section within the A1 land allocation has been treated as a committed development. Therefore, the section of G-park within the Ridham and Kemsley area of the A1 land allocation (southern part) is not included within the cumulative assessment.
- 4.9.9** A10 allocation for residential – planning application submitted and approved. As discussed in section 4.5 the A10 allocation (15/502912) has received planning approval and as such is as a committed development (however the application does not predict traffic to be generated onto the highway links assessed within paragraph 4.4.28 and therefore it has not been included in committed flows).
- 4.9.10** A17 allocation for residential – no planning application submitted. Traffic flows associated with full occupation are included in the 2031 cumulative assessment. Traffic flows associated with construction are included in the 2024 cumulative assessment.
- 4.9.11** MU1 allocation for residential – planning application submitted (18/502190/EIHYB and 18/500257/EIFUL). The developers are in discussion with Kent County Council. The applicant provided an estimate of the number of dwellings that may be built out by 2023, however, KCC considered this to be unachievable. This assumption has been utilised to estimate the 2024 traffic flows from this development with traffic flows associated with its remaining construction also included in the 2024 cumulative assessment. The 2031 traffic flows from the submitted TA are included in the 2031 cumulative assessment.
- 4.9.12** MU2 allocation for employment and residential – no planning application submitted. Employment allocation has been included in the committed traffic flows. Traffic flows associated with the full occupation of the residential are

- included in the 2031 cumulative assessment. Traffic flows associated with construction are included in the 2024 cumulative assessment.
- 4.9.13 A3 allocation for employment - no planning application submitted. Recent work undertaken has shown that the majority of people working within the Isle of Sheppey live within the area and therefore there is unlikely to be significant volumes of traffic generated within the study area. Therefore, this development is not included in the cumulative assessments.
- 4.9.14 A4 allocation for small hotel and employment - no planning application submitted. Recent work undertaken has shown that the majority of people working within the Isle of Sheppey live in within the area and therefore there is unlikely to be significant volumes of traffic generated within the study area. Therefore, this development is not included in the cumulative assessments.
- 4.9.15 MU3 allocation for residential - no application to date. Traffic flows associated with full occupation are included in the 2031 cumulative assessment. Traffic flows associated with construction are included in the 2024 assessment.
- 4.9.16 MU4 allocation for employment - no planning application submitted. Due to its geographical position in relation to the site and vehicle routing, it is unlikely to be significant volumes of traffic generated by the allocation within the study area. Therefore, this development is not included in the cumulative assessments.
- 4.9.17 MU5 allocation for employment and residential - no planning application submitted. Due to its geographical position in relation to the site and vehicle routing, it is unlikely to be significant volumes of traffic generated by the allocation within the study area. Therefore, this development is not included in the cumulative assessments.
- 4.9.18 With a mix of housing and employment development within the committed and cumulative assessments there is an element of double counting that will occur if the individual traffic generation estimates from all such sites are simply added together. A simplistic approach to adjusting the traffic flows on Swale Way due to this double counting has been undertaken. The traffic flows on Swale Way associated with the residential sites are very small in comparison with the employment sites. It is reasonable to assume these residential trips are included within the employment trips. Therefore, the residential trips have been removed to ensure no double counting.
- 4.9.19 These cumulative development traffic flows are set out in the Transport Assessment attached at Appendix 4.1.
- 4.9.20 The cumulative development traffic flows have been added to the 2021, 2024 and 2031 baseline scenarios and the cumulative scenarios are attached at the Transport Assessment at Appendix 4.1 with assessments undertaken below.

4.10 Cumulative Effects of K3 Proposed Development

Impact of K3 Proposed Development and 2021 Cumulative Sites

- 4.10.1 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the K3 Proposed Development in conjunction with the cumulative sites in 2021.
- 4.10.2 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.22.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	2.0	11.8	2.9	17.3	4.0	27.4
Barge Way between Swale Way and Fleet End	5.4	15.7	8.1	19.6	10.3	22.1
Barge Way east of Fleet End	11.6	34.3	23.3	69.6	29.6	96.9
A249 south of Swale Way	1.1	7.3	1.1	11.0	1.2	12.5
A249 between the A2 and M2	0.8	5.8	0.8	8.8	0.8	9.9
Swale Way north of Reams Way	0.2	1.0	0.0	0.4	0.0	0.0
Swale Way south of Reams Way	0.2	1.0	0.0	0.4	0.0	0.0
Swale Way south of Ridham Avenue	0.3	1.3	0.0	0.8	0.0	0.0
M2 East of A249	0.1	0.5	0.1	0.7	0.1	0.8
M2 West of A249	0.3	2.3	0.3	4.4	0.4	5.8
A249 north of Swale Way	0.0	0.1	0.0	0.1	0.0	0.0

Table 4.22: Summary of Daily Impact of Cumulative Development in 2021 Including K3 Proposed Development Traffic Flows

- 4.10.3 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 11.6%, 23.3% and 29.6% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 34.3%, 69.6% and 96.9% are predicted on a weekday, Saturday and Sunday respectively.
- 4.10.4 As can be seen, with the exception of Barge Way east of Fleet End and HGV increase on Swale Way between the A249 and Barge Way on a Sunday, all the increases in traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.
- 4.10.5 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.10.6 There are some hours when the total vehicle percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Barge Way east of Fleet End – on a weekday between 22:00-23:00; on a Saturday between 08:00-09:00, 12:00-13:00, 17:00-18:00, 21:00-24:00; on a Sunday between 00:00-04:00, 07:00-13:00, 14:00-16:00, 17:00-18:00, 21:00-23:00.

4.10.7 There are some hours when the HGV percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Swale Way between the A249 and Barge Way – on a Saturday between 22:00-23:00; on a Sunday between 00:00-05:00, 07:00-09:00, 12:00-13:00, 16:00-18:00 and 22:00-24:00;
- Barge Way between Swale Way and Fleet End – on a Saturday between 12:00, 17:18:00 and 22:00-23:00; on a Sunday between 17:00-18:00 and 22:00-23:00;
- Barge Way east of Fleet End – on a weekday between 07:00-19:00 and 21:00-23:00; on a Saturday between 00:00-01:00, 03:00-04:00 and 07:00-24:00; on a Sunday between 00:00 and 24:00;

4.10.8 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.10.9 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.10.10 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.10.11 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.12 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five-year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.13 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would

therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.10.14 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 29.6% which is below such changes.
- 4.10.15 Daily increases for HGV movements peak at 69.6% on a Saturday and 96.9% on a Sunday on Barge Way East of Fleet End, almost doubling the HGV movements.
- 4.10.16 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect would therefore be negligible/slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.17 **Pedestrian Delay** – On Swale Way between the A249 and Barge Way, the baseline weekday traffic flows are up to 2,200 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The maximum hourly increase is 42 vehicles per hour, which according to the IEMA guidelines, would equate to a pedestrian delay of 16.0 seconds. This represents a change of 0.3 seconds. A change in pedestrian crossing delay of 0.3 seconds would be difficult to perceive. The majority of the increase in traffic is due to the workforce movements associated with the construction of K4 and will therefore be temporary.
- 4.10.18 On Barge Way between Swale Way and Fleet End with existing traffic flows of between 67 and 545 vehicles per hour the increase in traffic movements is predicted to be a maximum of 42. This falls below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.10.19 On Barge Way East of Fleet End with existing traffic flows of between 11 and 308 vehicles per hour the increase in traffic movements is predicted to be a maximum of 42. This falls below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.10.20 On this basis, it is therefore considered the effect on pedestrian delay as a result of K3 Proposed Development plus Cumulative Development would be negligible/slight adverse (low magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.21 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.22 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and

Swale Way are not located in such locations and there are already HGVs travelling along them.

4.10.23 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.24 A summary of the above is shown in Table 4.23.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Proposed Development plus Cumulative Development Effects in 2021					
Increase in traffic flows	Negligible / Low	Negligible / low/medium	Adverse	Long term / Short term	Negligible / slight

Table 4.23 – Summary of Cumulative Development in 2021 Including K3 Proposed Development Effects Prior to Mitigation

Mitigation

4.10.25 The cumulative effect is predicted to be not significant. Due to the low level of staffing associated with the K3 Proposed Development, a Travel Plan was not prepared, in agreement with KCC and Highways England (then the Highways Agency) as part of the original Town and Country Planning permission. Notwithstanding, K3 incorporates internal pedestrian routes to enable employees to walk to bus stops and surrounding areas.

Residual Effects

4.10.26 The residual effects are summarised in Table 4.24.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low/medium	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.24: Residual cumulative traffic effects of Cumulative Development in 2021 Including K3 Proposed Development Traffic

Impact of K3 Proposed Development and 2024 Cumulative Sites

4.10.27 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the K3 Proposed Development in conjunction with the cumulative sites in 2024.

4.10.28 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.25.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	2.3	12.1	3.7	18.1	4.1	28.9
Barge Way between Swale Way and Fleet End	5.4	16.2	8.2	20.3	10.4	23.1
Barge Way east of Fleet End	11.8	36.7	24.1	78.6	31.2	119.2
A249 south of Swale Way	4.8	8.8	5.1	12.5	3.8	12.8
A249 between the A2 and M2	5.9	7.1	5.3	10.2	5.2	10.1
Swale Way north of Reams Way	0.6	1.2	1.0	1.8	0.0	0.0
Swale Way south of Reams Way	0.6	1.1	1.0	1.9	0.0	0.0
Swale Way south of Ridham Avenue	0.7	1.5	1.1	3.2	0.0	0.0
M2 East of A249	0.4	0.9	0.4	1.2	0.2	0.8
M2 West of A249	1.3	2.7	1.4	4.9	1.2	5.8
A249 north of Swale Way	1.4	0.1	1.4	0.1	1.5	0.0

Table 4.25: Summary of Daily Impact of Cumulative Development in 2024 Including K3 Proposed Development Traffic Flows

4.10.29 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 11.8%, 24.1% and 31.2% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 36.7%, 78.6% and 119.3% are predicted on a weekday, Saturday and Sunday respectively.

4.10.30 As can be seen, with the exception of 'Barge Way east of Fleet End' the increases as a result of 2024 Cumulative including K3 Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.

4.10.31 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.10.32 There are some hours when the total vehicle percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Barge Way east of Fleet End – on a weekday between 22:00-23:00; on a Saturday between 08:00-0900, 11:00-13:00, 17:00-18:00' 21:00-24:00; on a Sunday between 00:00-04:00, 07:00-13:00, 14:00-16:00, 17:00-18:00, 21:00-23:00

4.10.33 There are some hours when the HGV percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Swale Way between the A249 and Barge Way – on a Saturday between 22:00-23:00; on a Sunday between 00:00 – 05:00, 07:00 – 10:00, 12:00 – 18:00 and 22:00 – 24:00;

- Barge Way between Swale Way and Fleet End – on a Saturday between 12:00-13:00; 17:00-18:00 and 22:00-23:00; on a Sunday between 08:00-09:00, 12:00-13:00; 17:00-18:00 and 22:00-23:00;
- Barge Way east of Fleet End – on a weekday between 07:00-19:00 and 21:00-23:00; on a Saturday between 00:00-01:00, 03:00-04:00 and 07:00-24:00; on a Sunday between 00:00 and 24:00.

4.10.34 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.10.35 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.10.36 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.10.37 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.38 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.39 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.40 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 31.2% which is below such changes.

4.10.41 Daily increases for HGV movements peak at 119.3% on Barge Way East of Fleet End on a Sunday, more than doubling the HGV movements.

- 4.10.42 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect would therefore be negligible/slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.43 **Pedestrian Delay** – The maximum increase in hourly vehicles expected due to the 2024 Cumulative plus K3 Proposed Development will be 42 on Barge Way between Swale Way and Fleet End with existing traffic flows of between 67 and 545 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.10.44 The maximum increase in hourly vehicles expected due to the 2024 Cumulative plus K3 Proposed Development will be 42 on Barge Way East of Fleet End with existing traffic flows of between 11 and 301 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.10.45 On Swale Way, the baseline traffic flows are up to 2,193 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is 77 vehicles per hour, which according to the IEMA guidelines, would equate to a pedestrian delay of 16.2 seconds. This represents a change of 0.5 seconds. A change in pedestrian crossing delay of 0.5 seconds would be difficult to perceive.
- 4.10.46 On this basis, it is therefore considered the effect on pedestrian delay as a result of K3 Proposed Development and the cumulative development would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.47 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the K3 Proposed Development and the cumulative development operational HGVs upon receptors along the local road network would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.48 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.10.49 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.50 A summary of the above is shown in Table 4.26.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Proposed Development plus Cumulative Development Effects in 2024					
Increase in traffic flows	Negligible / Low	Negligible / low / medium	Adverse	Long term	Negligible / slight

Table 4.26 – Summary of Cumulative Development in 2024 Including K3 Proposed Development Effects Prior to Mitigation

Mitigation

4.10.51 The effect of the 2024 cumulative assessment is predicted to be not significant. Due to the low level of staffing associated with the K3 Proposed Development, a Travel Plan was not prepared, in agreement with KCC and Highways England (then the Highways Agency) as part of the original Town and Country Planning permission. Notwithstanding, K3 incorporates internal pedestrian routes to enable employees to walk to bus stops and surrounding areas.

Residual Effects

4.10.52 The residual effects are summarised in Table 4.27.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible / low / medium	Adverse	Long term	Negligible / slight	Reasonable

Table 4.27: Residual cumulative traffic effects of Cumulative Development in 2024 Including K3 Proposed Development Traffic

Impact of K3 Proposed Development and 2031 Cumulative Sites

4.10.53 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the K3 Proposed Development in conjunction with the cumulative sites in 2031.

4.10.54 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2031 baseline traffic flows. A summary of the assessment is set out in Table 4.28.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	10.6	20.9	6.3	28.5	9.2	49.2
Barge Way between Swale Way and Fleet End	5.4	16.2	8.2	20.3	10.4	23.1
Barge Way east of Fleet End	11.8	36.7	24.1	78.6	31.2	119.3
A249 south of Swale Way	16.3	13.1	13.7	18.0	15.9	21.8
A249 between the A2 and M2	16.5	10.1	14.5	14.3	16.9	17.2
Swale Way north of Reams Way	0.2	0.3	0.3	0.4	0.3	0.0
Swale Way south of Reams Way	0.2	0.3	0.3	0.4	0.3	0.0
Swale Way south of Ridham Avenue	0.2	0.4	0.3	0.8	0.3	0.0

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
M2 East of A249	0.9	0.7	0.7	1.1	0.8	1.3
M2 West of A249	3.8	4.4	3.6	7.4	4.1	9.9
A249 north of Swale Way	3.4	0.1	3.3	0.1	3.7	0.0

Table 4.28: Summary of Daily Impact of Cumulative Development in 2031 Including K3 Proposed Development Traffic Flows

4.10.55 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 11.8%, 24.1% and 31.2% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 36.7%, 78.6% and 119.3% are predicted on a weekday, Saturday and Sunday respectively.

4.10.56 As can be seen, with the exception of 'Barge Way east of Fleet End' the increases as a result of 2031 Cumulative including K3 Proposed Development operational traffic flows on weekdays and Saturdays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. On a Sunday HGV increases of 49.2% are reported on Swale Way between the A249 and Barge Way. With the exception of this receptor and the Barge Way east of Fleet End receptor all the increases in traffic flows on Sundays are lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.

4.10.57 Hourly increases along the majority of the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the majority of the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.10.58 On a Sunday on the A249 south of Swale Way link between 07:00-09:00 the HGV impact exceeds the 30% threshold (33%) and will therefore the impact will be assessed in detail.

4.10.59 There are some hours when the total vehicle percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Barge Way east of Fleet End – on a weekday between 22:00-23:00; on a Saturday between 08:00-0900, 11:00-13:00, 17:00-18:00' 21:00-24:00; on a Sunday between 00:00-04:00, 07:00-13:00, 14:00-16:00, 17:00-18:00, 21:00-23:00

4.10.60 There are some hours when the HGV percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Swale Way between the A249 and Barge Way – on a Saturday between 22:00-23:00; on a Sunday between 00:00-05:00 and 07:00-24:00;
- Barge Way between Swale Way and Fleet End – on a Saturday between 12:00-13:00; 17:00-18:00 and 22:00-23:00; on a Sunday between 08:00-09:00, 12:00-13:00; 17:00-18:00 and 22:00-23:00;
- Barge Way east of Fleet End – on a weekday between 07:00-19:00 and 21:00-23:00; on a Saturday between 00:00-01:00, 03:00-04:00 and 07:00-24:00; on a Sunday between 00:00 and 24:00.

4.10.61 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.10.62 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.10.63 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.10.64 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.65 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.66 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.67 The A249 due to its road alignment, cutting into the environs and associated tree linings and pedestrian deterrents already forms a severance between development on the west and east of it. On a Sunday an additional 4,708 daily vehicles is expected against a baseline of 29,521. This increase equates to a change of 15.9%

which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.10.68 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 31.2% which is below such changes.
- 4.10.69 Daily increases for HGV movements peak at 119.3% on Barge Way East of Fleet End on a Sunday, more than doubling the HGV movements.
- 4.10.70 There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.10.71 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect would therefore be negligible/slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.72 **Pedestrian Delay** – The maximum increase in hourly vehicles expected due to the 2031 Cumulative plus K3 Proposed Development will be 42 on Barge Way between Swale Way and Fleet End with existing traffic flows of between 67 and 545 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.10.73 The maximum increase in hourly vehicles expected due to the 2031 Cumulative plus K3 Proposed Development will be 42 on Barge Way East of Fleet End with existing traffic flows of between 11 and 301 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.10.74 On Swale Way, the baseline traffic flows are up to 2,193 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is 248 vehicles per hour, which according to the IEMA guidelines, would equate to a pedestrian delay of 17.4 seconds. This represents a change of 1.7 seconds. A change in pedestrian crossing delay of 1.7 seconds may be perceivable by some pedestrians.
- 4.10.75 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.
- 4.10.76 On this basis, it is therefore considered the effect on pedestrian delay as a result of 2031 cumulative plus K3 Proposed Development would be negligible/slight adverse (low magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.10.77 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the K3 Proposed Development operational HGVs upon receptors along the local road network would be negligible

adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.78 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.

4.10.79 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.10.80 A summary of the above is shown in Table 4.29.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Proposed Development plus Cumulative Development Effects in 2024					
Increase in traffic flows	Negligible / Low	Negligible / low	Adverse	Long term	Negligible / slight

Table 4.29 – Summary of Cumulative Development in 2031 Including K3 Proposed Development Effects Prior to Mitigation

Mitigation

4.10.81 The effect of the 2031 cumulative assessment is predicted to be not significant. Due to the low level of staffing associated with the K3 Proposed Development, a Travel Plan was not prepared, in agreement with KCC and Highways England (then the Highways Agency) as part of the original Town and Country Planning permission. Notwithstanding, K3 incorporates internal pedestrian routes to enable employees to walk to bus stops and surrounding areas.

Residual Effects

4.10.82 The residual effects are summarised in Table 4.30.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible / low	Adverse	Long term	Negligible / slight	Reasonable

Table 4.30: Residual cumulative traffic effects of Cumulative Development in 2031 Including K3 Proposed Development Traffic

4.11 Cumulative Effects of the Practical Effect of the K3 Proposed Development

Impact of the practical effect of the K3 Proposed Development and 2021 Cumulative Sites

- 4.11.1 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the practical effect of the K3 Proposed Development in conjunction with the cumulative sites in 2021.
- 4.11.2 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.31.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	0.4%	2.0%	0.4%	2.5%	0.5%	3.7%
Barge Way between Swale Way and Fleet End	0.8%	2.3%	1.1%	2.8%	1.3%	3.1%
Barge Way east of Fleet End	1.6%	4.4%	2.8%	7.3%	3.4%	8.9%
A249 south of Swale Way	0.2%	1.3%	0.2%	1.7%	0.2%	1.9%
A249 between the A2 and M2	0.2%	1.0%	0.1%	1.4%	0.1%	1.5%
Swale Way north of Reams Way	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Reams Way	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.2%	0.9%	0.0%	0.0%	0.0%	0.0%
M2 East of A249	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%
M2 West of A249	0.1%	0.4%	0.1%	0.7%	0.1%	0.9%
A249 north of Swale Way	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%

Table 4.31: Summary of Daily Impact of Cumulative Development in 2021 Including the practical effect of the K3 Proposed Development Traffic Flows

- 4.11.3 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 1.6%, 2.8% and 3.4% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 4.4%, 7.3% and 8.9% are predicted on a weekday, Saturday and Sunday respectively.
- 4.11.4 As can be seen, all the increases in traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.
- 4.11.5 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase

in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.11.6 Due to these increases being below the Rule 1 threshold assessment no further assessment has been undertaken.

4.11.7 A summary of the above is shown in Table 4.32.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
The practical effect of the K3 Proposed Development plus Cumulative Development Effects in 2021					
Increase in traffic flows	Negligible / Low	Negligible / low	Adverse	Long term	Negligible / slight

Table 4.32 – Summary of Cumulative Development in 2021 Including the practical effect of the K3 Proposed Development Effects Prior to Mitigation

Mitigation

4.11.8 The cumulative effect is predicted to be not significant. As such, no mitigation is required.

Residual Effects

4.11.9 The residual effects are summarised in Table 4.33.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.33: Residual cumulative traffic effects of Cumulative Development in 2021 Including the practical effect of the K3 Proposed Development Traffic

Impact of the practical effect of the K3 Proposed Development and 2024 Cumulative Sites

4.11.10 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the K3 Proposed Development in conjunction with the cumulative sites in 2024.

4.11.11 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.34.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	0.7%	2.1%	1.1%	2.8%	0.6%	3.9%

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Barge Way between Swale Way and Fleet End	0.8%	2.4%	1.1%	2.9%	1.4%	3.2%
Barge Way east of Fleet End	1.6%	4.6%	2.9%	7.8%	3.5%	9.9%
A249 south of Swale Way	3.9%	2.6%	4.1%	2.9%	2.7%	1.9%
A249 between the A2 and M2	5.2%	2.2%	4.6%	2.6%	4.4%	1.5%
Swale Way north of Reams Way	0.6%	0.9%	1.0%	1.4%	0.0%	0.0%
Swale Way south of Reams Way	0.6%	0.9%	1.0%	1.4%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.7%	1.1%	1.1%	2.4%	0.0%	0.0%
M2 East of A249	0.3%	0.4%	0.6%	0.7%	0.2%	0.1%
M2 West of A249	1.0%	0.8%	1.1%	1.2%	0.9%	0.9%
A249 north of Swale Way	1.4%	0.0%	1.4%	0.0%	1.5%	0.0%

Table 4.34: Summary of Daily Impact of Cumulative Development in 2024 Including the practical effect of the K3 Proposed Development Traffic Flows

4.11.12 As can be seen, the increases as a result of the practical effect of the K3 Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.

4.11.13 The largest predicted hourly increase is 24.4% in HGVs on 'Barge Way east of Fleet End' between 22:00 and 23:00 on a Saturday.

4.11.14 On the basis that the increases on all the links are lower than the Rule 1 threshold, and in accordance with the IEMA Guidelines, the practical effect of the K3 Proposed Development plus cumulative development in 2024 traffic flows will result in imperceptible effects along the adjacent highway network.

4.11.15 The magnitude of impact of the practical effect of the K3 Proposed Development plus cumulative development in 2024 traffic flows along the adjacent highway network would be negligible as defined in Table 4.1.

4.11.16 The significance of the increase in traffic flows along the adjacent highway network would therefore be negligible adverse as determined by the IEMA Guidelines, thus the effect would be not significant as shown in Table 4.35.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Practical Proposed Development plus Cumulative Development Effects in 2024					
Increase in traffic flows	Negligible / Low	Negligible	Adverse	Long term	Negligible

Table 4.35 – Summary of Cumulative Development in 2024 Including the practical effect of the K3 Proposed Development Effects Prior to Mitigation

Mitigation

4.11.17 The cumulative assessment is predicted to be not significant. As such, no mitigation is required.

Residual Effects

4.11.18 The residual effects are summarised in Table 4.36.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible	Adverse	Long term / Short term	Negligible	Reasonable

Table 4.36: Residual cumulative traffic effects of Cumulative Development in 2024 Including K3 Practical Proposed Development Traffic

Impact of the practical effects of the K3 Proposed Development and 2031 Cumulative Sites

4.11.19 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the practical effects of the K3 Proposed Development in conjunction with the cumulative sites in 2031.

4.11.20 In accordance with the IEMA guidelines, these traffic flows have been assessed against the 2031 baseline traffic flows. A summary of the assessment is set out in Table 4.37.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	8.8%	10.2%	3.6%	11.9%	5.5%	20.2%
Barge Way between Swale Way and Fleet End	0.8%	2.4%	1.1%	2.9%	1.4%	3.2%
Barge Way east of Fleet End	1.6%	4.6%	2.9%	7.8%	3.5%	9.9%
A249 south of Swale Way	15.2%	6.6%	12.6%	7.9%	14.8%	10.1%
A249 between the A2 and M2	15.7%	5.1%	13.8%	6.3%	16.1%	8.1%
Swale Way north of Reams Way	0.2%	0.0%	0.3%	1.4%	0.3%	0.0%
Swale Way south of Reams Way	0.2%	0.0%	0.3%	1.4%	0.3%	0.0%
Swale Way south of Ridham Avenue	0.2%	0.0%	0.3%	2.5%	0.3%	0.0%
M2 East of A249	0.9%	0.3%	0.7%	0.6%	0.7%	0.7%
M2 West of A249	3.6%	2.5%	3.3%	3.7%	3.8%	4.8%
A249 north of Swale Way	3.4%	0.0%	3.3%	0.5%	3.7%	0.0%

Table 4.37: Summary of Daily Impact of Cumulative Development in 2031 Including the practical effects of the K3 Proposed Development Traffic Flows

4.11.21 The largest predicted increases in weekday, Saturday and Sunday traffic flows occur on the A249 between the A2 and the M2 at 15.7%, 13.8% and 16.1% respectively. The increases on the A249 between the A2 and the M2 are almost exclusively as a result of the cumulative sites; indeed, the impact as a result of the K3 Proposed Development is only 0.2%. Notwithstanding, the increase on the A249 between the A2 and the M2 is below the Rule 1 threshold.

- 4.11.22 The largest predicted increases in HGVs occur on 'Swale Way between A249 and Barge Way' where increases of 10.1%, 11.9% and 20.2% are predicted on a weekday, Saturday and Sunday respectively.
- 4.11.23 As can be seen, the increases as a result of the cumulative sites in 2031 plus K3 Proposed Development traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold.
- 4.11.24 The largest predicted hourly increase is 25.2% in HGVs on 'Swale Way between A249 and Barge Way' between 21:00 and 22:00 on a Sunday.
- 4.11.25 On the basis that the increases on all the links are lower than the Rule 1 threshold, and in accordance with the IEMA Guidelines, the practical effects of the K3 Proposed Development plus cumulative development in 2031 traffic flows will result in imperceptible effects along the adjacent highway network.
- 4.11.26 The magnitude of impact of the practical effects of the K3 Proposed Development plus cumulative development in 2031 traffic flows along the adjacent highway network would be negligible as defined in Table 4.1.
- 4.11.27 The significance of the increase in traffic flows along the adjacent highway network would therefore be negligible adverse as determined by the IEMA Guidelines, thus the effect would be not significant as shown in Table 4.38.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Practical Proposed Development plus Cumulative Development Effects in 2031					
Increase in traffic flows	Negligible / Low	Negligible	Adverse	Long term	Negligible

Table 4.38 – Summary of Cumulative Development in 2031 Including the practical effects of the K3 Proposed Development Effects Prior to Mitigation

Mitigation

- 4.11.28 The effect of cumulative assessment is predicted to be not significant. As such, no mitigation is required.

Residual Effects

- 4.11.29 The residual effects are summarised in Table 4.39.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible	Adverse	Long term / Short term	Negligible	Reasonable

Table 4.39: Residual cumulative traffic effects of Cumulative Development in 2031 Including the practical effects of the K3 Proposed Development Traffic

4.12 Cumulative Effects of WKN Proposed Development During Construction

Impact of WKN Proposed Development Construction and 2021 Cumulative Sites

- 4.12.1 The assessment has been undertaken to enable an understanding of the typical effects for the construction of the WKN Proposed Development in conjunction with the cumulative sites in 2021.
- 4.12.2 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.40.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	3.8%	2.6%	6.2%	2.9%	9.4%	5.0%
Barge Way between Swale Way and Fleet End	10.1%	3.1%	16.3%	3.2%	23.2%	4.2%
Barge Way east of Fleet End	20.5%	5.9%	41.5%	8.4%	58.1%	12.0%
A249 south of Swale Way	2.1%	1.7%	2.4%	1.9%	2.8%	2.5%
A249 between the A2 and M2	1.4%	1.3%	1.6%	1.5%	1.9%	2.0%
Swale Way north of Reams Way	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Reams Way	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.2%	0.9%	0.0%	0.0%	0.0%	0.0%
M2 East of A249	0.2%	0.1%	0.2%	0.1%	0.2%	0.2%
M2 West of A249	0.4%	0.6%	0.4%	0.9%	0.5%	1.2%
A249 north of Swale Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4.40: Summary of Daily Impact of Cumulative Development in 2021 Including WKN Proposed Development Construction Traffic Flows

- 4.12.3 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 20.5%, 41.5% and 58.1% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 5.9%, 8.4% and 12.0% are predicted on a weekday, Saturday and Sunday respectively.
- 4.12.4 As can be seen, with the exception of the Barge Way east of Fleet End link, all the increases in traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.
- 4.12.5 Hourly increases along the M2 and the links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase

in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.12.6 There are some hours where the total vehicle movements exceed the Rule 1 Threshold, the hours together with the percentage increase are detailed below:

- Swale Way between the A249 and Barge Way – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday, and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- Barge Way between Swale Way and Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday, and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- Barge Way east of Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- A249 south of Swale Way –between 06:00-07:00 on a Saturday and between 06:00-07:00 on a Sunday; and
- A249 between the A2 and M2 – between 06:00-07:00 on a Sunday.

4.12.7 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.12.8 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.12.9 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.12.10 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.12.11 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.12.12 **Severance** – The IEMA guidelines indicate that severance effects are considered ‘slight’, ‘moderate’ and ‘substantial’ with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.13 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 9.4% and for HGV movements peak at 5.0% on Swale Way between the A249 and Barge Way, which are well below such changes.
- 4.12.14 On Barge Way to the east of Fleet End, daily increases in total vehicle movements are predicted to peak at 58.1% and for HGV movements peak at 12.0%, which are below such changes.
- 4.12.15 There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.12.16 It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.17 **Pedestrian Delay** – The maximum increase in hourly vehicles will be 407 on Barge Way with existing traffic flows of up to 558 vehicles per hour. The total future traffic movements falls significantly below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.12.18 On Swale Way, the baseline traffic flows are up to 2,236 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 16.0 seconds. The increase during this period is 9 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.0 seconds. This represents no change.
- 4.12.19 On this basis, it is therefore considered the effect on pedestrian delay would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.20 **Dust and Dirt** – The HGVs will route to the laydown area which will be a hardcore surface. The hardcore will be laid such to support construction HGVs as well as staff vehicles and to prevent mud and dirt being exposed and then transferred to vehicles. By its nature, the hardcore surface would be permeable so that there is no standing surface water and allowing it to wash away any dust and dirt that may have been transposed onto it. Furthermore, as set out above, the IEMA guidelines advise that problems with dust and dirt are unlikely to occur over distances greater than 50m; there is more that 50m of surfaced road between the access road and the public highway.

- 4.12.21 Notwithstanding, a Construction Traffic Management Plan will evolve and be agreed with the highway authorities prior to construction commencing and this will set out measures to ensure dust and dirt is not transposed to the highway.
- 4.12.22 It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.23 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way, Swale Way and the A249 are not located in such locations and there are already HGVs travelling along them.
- 4.12.24 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.25 A summary of the above is shown in Table 4.41.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
WKN Proposed Development plus Cumulative Development Effects in 2021					
Increase in traffic flows	Negligible / Low	Negligible / low	Adverse	Long term	Negligible / slight

Table 4.41 – Summary of Cumulative Development in 2021 Including WKN Proposed Development Effects Prior to Mitigation

Mitigation

- 4.12.26 The effect of cumulative assessment is predicted to be not significant. Nevertheless, a Draft CTMP has been prepared for the WKN Proposed Development which sets out the measures that will be implemented to mitigate the impacts of construction related vehicles travelling to and from the WKN Proposed Development. The Draft CTMP will form the basis of a Full CTMP, which will evolve from this document once a contractor has been appointed, post consent. As such, no further mitigation is required.

Residual Effects

- 4.12.27 The residual effects are summarised in Table 4.42.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.42: Residual cumulative traffic effects of Cumulative Development in 2021 Including WKN Proposed Development Traffic

Impact of WKN Proposed Development and 2024 Cumulative Sites

4.12.28 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the WKN Proposed Development in conjunction with the cumulative sites in 2024.

4.12.29 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.43.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	1.7%	6.8%	2.7%	9.6%	2.9%	14.1%
Barge Way between Swale Way and Fleet End	3.6%	8.6%	5.4%	10.5%	6.9%	11.7%
Barge Way east of Fleet End	7.5%	17.0%	14.1%	28.7%	17.7%	36.2%
A249 south of Swale Way	4.5%	5.6%	4.7%	7.4%	3.4%	7.0%
A249 between the A2 and M2	5.6%	4.6%	5.1%	6.2%	4.9%	5.6%
Swale Way north of Reams Way	0.6%	1.0%	1.0%	1.9%	0.0%	0.0%
Swale Way south of Reams Way	0.6%	1.0%	1.0%	1.9%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.7%	1.3%	1.1%	3.3%	0.0%	0.0%
M2 East of A249	0.4%	0.7%	0.4%	0.9%	0.2%	0.5%
M2 West of A249	1.2%	1.8%	1.3%	3.1%	1.0%	3.4%
A249 north of Swale Way	1.4%	0.1%	1.4%	0.1%	1.5%	0.0%

Table 4.43: Summary of Daily Impact of Cumulative Development in 2024 Including WKN Proposed Development Traffic Flows

4.12.30 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 7.5%, 14.1% and 17.7% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 17.0%, 28.7% and 36.2% are predicted on a weekday, Saturday and Sunday respectively.

4.12.31 As can be seen, with the exception of Barge Way east of Fleet End on a Saturday and Sunday, all the increases in traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.

4.12.32 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

- 4.12.33 There are some hours when the total vehicle movements exceed the Rule 1 threshold on Barge Way east of Fleet End; 63.0% 22:00 to 23:00 on a Saturday and 47.2% between 22:00 to 23:00 on a Sunday.
- 4.12.34 There are some hours when the HGV movements exceed the Rule 1 threshold on Swale Way between the A249 and Barge Way; 44.4% 22:00 to 23:00 on a Saturday and 89.3% between 22:00 to 23:00 on a Sunday. Some hourly HGV movements exceed the Rule 1 threshold on Barge Way east of Fleet End; 51.6% 22:00 to 23:00 on a weekday; 89.3% 22:00 to 23:00 on a Saturday and 83.7% between 22:00 to 23:00 on a Sunday.
- 4.12.35 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.
- 4.12.36 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.
- 4.12.37 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.
- 4.12.38 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network. It concludes that the impact of the increased traffic flows as a result of the WKN Proposed Development is negligible upon junction performance and driver delay. However, when cumulative development traffic flows are added into the A249 Grovehurst roundabouts, the performance of the junctions deteriorate and there is an increase in driver delay. The shift away from a negligible change is solely as a result of the cumulative development. Indeed, the Local Plan identifies this and sets out that improvements are required to the A249 Grovehurst roundabouts to accommodate the cumulative developments. If the cumulative developments come forward, then they will have to come forward with improvements to the A249 Grovehurst roundabouts. Such improvements would reduce driver delay to at best minimal amounts or to levels that are similar to those currently experience i.e. no change, which is negligible adverse.
- 4.12.39 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five-year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.40 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would

therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.12.41 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 2.9% and for HGV movements peak at 14.1% on Swale Way between the A249 and Barge Way, which are well below such changes.
- 4.12.42 On Barge Way to the east of Fleet End, daily increases in total vehicle movements are predicted to peak at 17.7% and for HGV movements peak at 36.2%, which are below such changes.
- 4.12.43 It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.44 **Pedestrian Delay** – The maximum increase in hourly vehicles will be 43 on Barge Way with existing traffic flows of up to 330 vehicles per hour. The total future traffic movements fall significantly below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.12.45 On Swale Way, the baseline traffic flows are up to 2,229 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.9 seconds. The increase during this period is 20 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.1 seconds. This represents a change of 0.2 seconds. A change in pedestrian crossing delay of 0.2 seconds would be difficult to perceive.
- 4.12.46 On this basis, it is therefore considered the effect on pedestrian delay would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.47 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.48 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.12.49 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude

of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.12.50 A summary of the above is shown in Table 4.44.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
WKN Proposed Development plus Cumulative Development Effects in 2024					
Increase in traffic flows	Negligible / Low	Negligible / low	Adverse	Long term	Negligible / slight

Table 4.44 – Summary of Cumulative Development in 2024 Including WKN Proposed Development Effects Prior to Mitigation

Mitigation

4.12.51 The effect of cumulative assessment is predicted to be not significant. Despite the low level of staffing at the WKN Proposed Development a Draft Travel Plan has been prepared in relation the movement of staff, visitors and waste vehicle movements during its operational phase. The measures include seeking to minimise single occupancy vehicle movement by staff, seeking to avoid HGV movements during the peak hours and seeking to utilise existing HGV routes.

Residual Effects

4.12.52 The residual effects are summarised in Table 4.45.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.45: Residual cumulative traffic effects of Cumulative Development in 2024 Including WKN Proposed Development Traffic

Impact of WKN Proposed Development and 2031 Cumulative Sites

4.12.53 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the WKN Proposed Development and the cumulative sites in 2031.

4.12.54 In accordance with the IEMA guidelines, these traffic flows have been assessed against the 2031 baseline traffic flows. A summary of the assessment is set out in Table 4.46.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	9.9%	14.9%	5.2%	18.7%	7.8%	30.5%

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Barge Way between Swale Way and Fleet End	3.6%	8.6%	5.4%	10.5%	6.9%	11.7%
Barge Way east of Fleet End	7.5%	17.0%	14.1%	28.7%	17.7%	36.2%
A249 south of Swale Way	15.8%	9.6%	13.3%	12.4%	15.4%	15.1%
A249 between the A2 and M2	16.1%	7.5%	14.2%	10.0%	16.5%	12.2%
Swale Way north of Reams Way	0.2%	0.1%	0.3%	0.5%	0.3%	0.0%
Swale Way south of Reams Way	0.2%	0.1%	0.3%	0.5%	0.3%	0.0%
Swale Way south of Ridham Avenue	0.2%	0.2%	0.3%	0.8%	0.3%	0.0%
M2 East of A249	0.9%	0.5%	0.7%	0.8%	0.8%	1.0%
M2 West of A249	3.7%	3.5%	3.5%	5.4%	3.9%	7.3%
A249 north of Swale Way	3.4%	0.1%	3.3%	0.1%	3.7%	0.0%

Table 4.46: Summary of Daily Impact of Cumulative Development in 2031 Including WKN Proposed Development Operational Traffic Flows

4.12.55 The largest predicted increases in weekday traffic flows occur on the A249 between the A2 and the M2 at 16.1%. On a Saturday and Sunday, the largest daily increase is predicted on Barge Way east of Fleet End at 14.1% and 17.7% respectively. The increases on the A249 between the A2 and the M2 are almost exclusively as a result of the cumulative sites; indeed, the impact as a result of the WKN Proposed Development is only 0.7%. Notwithstanding, the increase on the A249 between the A2 and the M2 is below the Rule 1 threshold.

4.12.56 The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 17.0%, 28.7% and 36.2% are predicted on a weekday, Saturday and Sunday respectively.

4.12.57 As can be seen, with the exception of Swale Way between the A249 and Barge Way and Barge Way east of Fleet End on a Saturday and Sunday, the increases as a result of the cumulative sites in 2031 plus WKN Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold.

4.12.58 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.12.59 There are some hours when the HGV percentage impact is greater than the Rule 1 threshold on 'Swale Way between the A249 and Barge Way' – 44.4% increase 19:00 – 23:00 Saturday, 31.2% to 89.3% increase 07:00 – 23:00 Sunday; 'Barge Way between Swale Way and Fleet End' – 47.5% increase 22:00 – 23:00 Saturday, 66.8% increase 22:00 – 23:00 Sunday.

4.12.60 On 'Barge Way east of Fleet End' there are HGV increases of 31.9% – 55.1% over the weekday hours of 18:00 – 23:00; total traffic increases of between 36.7% and 63.0% between 19:00 and 23:00 Saturday; HGV increases of between 25.9% and 89.3% between 07:00 and 23:00 Saturday; total traffic increases of between

37.1% and 47.2% between 19:00 and 23:00 Sunday; HGV increases of between 29.7% and 83.7% between 07:00 and 23:00 Sunday.

- 4.12.61 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.
- 4.12.62 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.
- 4.12.63 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.
- 4.12.64 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network. It concludes that the impact of the increased traffic flows as a result of the WKN Proposed Development is negligible upon junction performance and driver delay. However, when cumulative development traffic flows are added into the A249 Grovehurst roundabouts, the performance of the junctions deteriorate and there is an increase in driver delay. The shift away from a negligible change is solely as a result of the cumulative development. Indeed, the Local Plan identifies this and sets out that improvements are required to the A249 Grovehurst roundabouts to accommodate the cumulative developments. If the cumulative developments come forward, then they will have to come forward with improvements to the A249 Grovehurst roundabouts. Such improvements would reduce driver delay to at best minimal amounts or to levels that are similar to those currently experience i.e. no change, which is negligible adverse.
- 4.12.65 It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.66 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.67 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.68 **Pedestrian Amenity** – The IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow

- (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 9.9% and for HGV movements peak at 30.5% on Swale Way between the A249 and Barge Way, which are well below such changes.
- 4.12.69 On Barge Way between Swale Way and Fleet End, daily increases in total vehicle movements are predicted to peak at 6.9% and for HGV movements peak at 11.7%, which are well below such changes.
- 4.12.70 On Barge Way to the east of Fleet End, daily increases in total vehicle movements are predicted to peak at 17.7% and for HGV movements peak at 36.2%, which are below such changes.
- 4.12.71 It is therefore considered that the magnitude of impact on pedestrian amenity would be low. The effect would therefore be slight adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.72 **Pedestrian Delay** – The maximum increase in hourly vehicles expected will be 43 on Barge Way with existing traffic flows of up to 551 vehicles per hour. The total future traffic movements fall well below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.12.73 On Swale Way, the baseline traffic flows are up to 2,229 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.9 seconds. The increase during this period is 231 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 17.6 seconds. This represents a change of 1.7 seconds. In percentage terms, this change in delay is 10% when it is already at a level (1,400 vehicles per hour) whereby the IEMA guidelines advise may result in a crossing delay which may be perceptible.
- 4.12.74 On this basis, it is therefore considered the effect on pedestrian delay would be slight adverse (medium magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.75 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.12.76 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.12.77 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude

of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.12.78 A summary of the above is shown in Table 4.47.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
WKN Proposed Development plus Cumulative sites in 2031 Effects					
Increase in traffic flows	Negligible / Low	Negligible / Low / Medium	Adverse	Long term	Negligible / slight

Table 4.47 – Summary of Cumulative Development in 2031 Including WKN Proposed Development Effects Prior to Mitigation

Mitigation

4.12.79 The cumulative sites in the Local Plan are required to improve the capacity of the A249 Grovehurst roundabouts and the two will need to come forward together to accord with the Local Plan. It is on this basis that negligible adverse effects are concluded for driver delay.

4.12.80 The effect of cumulative assessment is predicted to be not significant. Despite the low level of staffing at the WKN Proposed Development a Draft Travel Plan has been prepared in relation the movement of staff, visitors and waste vehicle movements during its operational phase. The measures include seeking to minimise single occupancy vehicle movement by staff, seeking to avoid HGV movements during the peak hours and seeking to utilise existing HGV routes. .

Residual Effects

4.12.81 The residual effects are summarised in Table 4.48.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low/medium	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.48: Residual cumulative traffic effects of Cumulative Development in 2031 Including WKN Proposed Development Traffic

4.13 Cumulative Effects of K3 and WKN Proposed Developments

K3 Proposed Development plus WKN Proposed Development Construction

4.13.1 Using a baseline of 2021 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operational K3 Proposed Development traffic with the WKN Proposed Development construction traffic.

4.13.2 Trip generation, temporal distribution and assignment to the highway network are as laid out above.

4.13.3 Based upon these calculations, a breakdown of the operational traffic flows associated with K3 Proposed Development and the construction of WKN Proposed Development is shown in Table 4.49.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
01:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
02:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
03:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
04:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
05:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
06:00	413	2	0	2	413	5	413	2	0	2	413	5	413	2	0	2	413	5
07:00	0	20	4	18	4	38	4	19	8	17	12	37	4	20	8	18	12	38
08:00	12	18	0	20	12	38	16	17	4	19	20	37	16	18	4	20	20	38
09:00	0	19	0	18	0	37	4	18	4	17	8	36	4	19	4	18	8	37
10:00	0	18	0	19	0	37	4	17	4	18	8	36	4	18	4	19	8	37
11:00	0	19	0	18	0	37	4	18	4	17	8	36	4	19	4	18	8	37
12:00	0	18	0	19	0	37	4	17	4	18	8	36	4	18	4	19	8	37
13:00	4	19	0	17	4	37	8	18	4	16	11	34	8	14	4	14	11	28
14:00	0	17	4	19	4	37	4	16	8	18	11	34	4	14	8	14	11	28
15:00	0	19	0	17	0	37	4	18	4	16	7	35	4	15	4	14	7	28
16:00	0	17	0	19	0	37	0	13	409	15	409	28	0	10	409	11	409	21
17:00	0	20	12	18	12	38	0	14	12	13	12	27	0	11	12	10	12	21
18:00	0	12	0	13	0	25	0	6	0	8	0	15	0	4	0	4	0	8
19:00	0	4	409	4	409	8	0	4	0	4	0	8	0	4	0	4	0	8
20:00	0	4	0	4	0	8	0	4	0	4	0	8	0	4	0	4	0	8
21:00	4	5	0	4	4	9	4	5	0	4	4	9	4	5	0	4	4	9
22:00	0	4	4	5	4	9	0	4	4	5	4	9	0	4	4	5	4	9
23:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
Total	433	251	433	251	867	509	468	229	468	229	936	463	468	214	468	214	936	432

Table 4.49: K3 Proposed Development Operational plus WKN Proposed Development Construction Traffic Flows

4.13.4 In accordance with the IEMA guidelines, the K3 Proposed Development operational traffic flows plus WKN Proposed Development peak construction traffic flows as attached at the Transport Assessment at Appendix 4.1 have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.50.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	5.7	14.0	9.3	20.5	13.7	33.5
Barge Way between Swale Way and Fleet End	15.9	19.2	25.4	23.4	35.5	27.1
Barge Way east of Fleet End	34.2	41.8	73.0	82.8	102.5	118.5
A249 south of Swale Way	3.1	8.8	3.5	13.1	4.0	15.3
A249 between the A2 and M2	2.2	6.9	2.4	10.4	2.8	12.1
Swale Way north of Reams Way	0.0	0.3	0.0	0.4	0.0	0.0
Swale Way south of Reams Way	0.0	0.3	0.0	0.4	0.0	0.0
Swale Way south of Ridham Avenue	0.0	0.4	0.0	0.8	0.0	0.0
M2 East of A249	0.2	0.5	0.3	0.8	0.3	0.9
M2 West of A249	0.6	2.8	0.8	5.3	0.9	7.0
A249 north of Swale Way	0.0	0.1	0.0	0.1	0.0	0.0

Table 4.50: Summary of Daily Impact of K3 Proposed Development Operational plus WKN Proposed Development Peak Construction Traffic Flows

- 4.13.5 As can be seen, with the exception of the Barge Way east of Fleet End link, the increases as a result of the K3 Proposed Development operational and WKN Proposed Development construction traffic flows on weekdays and Saturdays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. On a Sunday total vehicle increases of 35.5% are reported on Barge Way between Swale Way and Fleet End and HGV increases of 33.5% on Swale Way between the A249 and Barge Way. With the exception of these and the Barge Way east of Fleet End receptor all the increases in traffic flows on Sundays are lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.
- 4.13.6 The largest predicted increases in traffic flows occur on 'Barge Way east of Fleet End' where increases of 34.2%, 73.0% and 102.5% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 41.8%, 82.8% and 118.5% are predicted on a weekday, Saturday and Sunday respectively.
- 4.13.7 Hourly increases along the majority of the M2 and A249 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2, the majority of the A249 and Swale Way links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.13.8 On a Saturday and Sunday on the A249 south of Swale Way link between 06:00-07:00 the total vehicle impact exceeds the 30% Rule 1 threshold (33.1% and 50.7% respectively) and therefore the impact will be assessed in detail.
- 4.13.9 On a Sunday the A249 between the A2 and M2 link between 06:00-07:00 the total vehicle impact exceeds the 30% Rule 1 threshold (37.8%) and therefore the impact will be assessed in detail.

4.13.10 The impact on the A249 is primarily due to the lower weekend traffic baselines on a weekend and the workforces associated with the construction of K4 and WKN and will therefore be temporary in nature.

4.13.11 There are hours where the total vehicle percentage impact is above the Rule 1 Threshold, as detailed below:

- Swale Way between the A249 and Barge Way – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- Barge Way between Swale Way and Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- Barge Way east of Fleet End – between 06:00-07:00, 19:00-20:00 and 22:00-23:00 on a weekday, between 06:00-09:00, 10:00-13:00, 14:00-18:00 and 21:00-24:00 on a Saturday and from 00:00-04:00, 06:00-18:00 and 21:00-23:00 on a Sunday;

4.13.12 There are some hours when the HGV percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:

- Swale Way between the A249 and Barge Way – on a Saturday between 22:00-23:00; on a Sunday between 00:00 – 05:00 and 07:00-19:00 and 22:00-24:00;
- Barge Way between Swale Way and Fleet End – on a weekday between 17:00-18:00; on a Saturday between 07:00-09:00, 10:00-13:00; and 17:00-18:00; on a Sunday between 07:00-11:00, 12:00-16:00; 17:00-18:00 and 22:00-23:00;
- Barge Way east of Fleet End – on a weekday between 07:00-19:00 and 21:00-23:00; on a Saturday between 00:00-01:00, 03:00-04:00 and 07:00-24:00; on a Sunday between 00:00 and 24:00.

4.13.13 The total vehicle impacts are in the majority due to the staff vehicle movements during the peak construction period.

4.13.14 Although these percentages can appear high, this is largely as a result of the low baseline traffic flows. Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the effect in detail.

4.13.15 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.13.16 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur. The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.

- 4.13.17 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay as a result of the K3 Proposed Development operation plus the temporary WKN Proposed Development construction traffic upon receptors along Barge Way, Swale Way and the A249 would be short-term and negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.18 **Increased Risk of Accidents** - PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.19 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.20 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 102.5% on Barge Way on a Sunday and 118.5% for HGV movements peak on a Sunday more than doubling the total traffic and HGV movements.
- 4.13.21 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect would therefore be negligible/slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.22 **Pedestrian Delay** - The maximum increase in hourly vehicles expected due to the K3 Proposed Development operation plus WKN Proposed Development construction will be 416 on Barge Way with existing traffic flows of between 11 and 545 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.13.23 On Swale Way, the baseline traffic flows are up to 2,200 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is 416 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 18.7 seconds. This

represents a change of 3.0 seconds. In percentage terms, this change in delay is 19.1% when it is already at a level (1,400 vehicles per hour) whereby the IEMA guidelines advise may result in a crossing delay which may be perceptible.

4.13.24 On this basis, it is therefore considered the effect on pedestrian delay as a result of the K3 Proposed Development operation plus the temporary WKN Proposed Development construction would be short-term and negligible / slight adverse (medium magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.13.25 **Dust and Dirt** – Staff vehicles will be parked on a hardstanding within the site and are not expected to distribute dust and dirt onto the local road network. The HGVs route both off and on-site will be on made-up roads/hardstanding and are therefore unlikely to generate dust and dirt. Construction HGVs have the potential to distribute dust and dirt from the construction site onto the local network. These effects would be most pronounced in the immediate vicinity of the site entrance, where construction HGVs will utilise a wheel wash. It is therefore considered the dust and dirt effect as a result of the K3 Proposed Development operation plus the temporary WKN Proposed Development construction on sensitive receptors on Barge Way would be short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.13.26 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way, Swale Way and the A249 are not located in such locations and there are already HGVs travelling along it.

4.13.27 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Proposed Development plus WKN Proposed Development Construction Development Effects					
Increase in traffic flows	Negligible / Low	Negligible/low / medium	Adverse	Long term / short term	Negligible / slight

Table 4.51 – Summary of K3 Proposed Development and WKN Proposed Development Construction Effects Prior to Mitigation

Mitigation

4.13.28 The effect of the K3 Proposed Development operational flows and WKN Proposed Development construction flows is predicted not to have any significant effect.

- 4.13.29 The mitigation remains the same as detailed above i.e. a Draft CTMP for the WKN Proposed Development construction, evolving into a Full CTMP prior to construction.

Residual Effects

- 4.13.30 The residual effects are summarised in Table 4.52.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low/medium	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.52: Residual cumulative traffic effects of K3 and WKN Proposed Development Construction Effects

K3 Proposed Development Operational plus WKN Proposed Development Operational

- 4.13.31 Using a baseline of 2024 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operational K3 Proposed Development and the operational WKN Proposed Development.
- 4.13.32 Trip generation, temporal distribution and assignment to the highway network are as described above.
- 4.13.33 Based upon these calculations, a breakdown of the operational traffic flows associated with K3 Proposed Development and WKN Proposed Development is shown in Table 4.53.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
01:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
02:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
03:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
04:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
05:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
06:00	15	2	0	2	15	5	15	2	0	2	15	5	15	2	0	2	15	5
07:00	22	26	7	23	29	49	22	25	7	22	29	48	22	23	7	20	29	44
08:00	12	23	0	26	12	49	12	22	0	25	12	48	12	20	0	23	12	44
09:00	0	24	0	23	0	47	0	23	0	22	0	46	0	21	0	20	0	42
10:00	0	23	0	24	0	47	0	22	0	23	0	46	0	20	0	21	0	42
11:00	0	24	0	23	0	47	0	23	0	22	0	46	0	21	0	20	0	42
12:00	0	23	0	24	0	47	0	22	0	23	0	46	0	20	0	21	0	42

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
13:00	4	20	0	23	4	43	4	16	0	29	4	36	4	13	0	16	4	29
14:00	0	23	4	20	4	43	0	19	4	16	4	36	0	16	4	13	4	29
15:00	0	26	0	23	0	49	0	22	0	19	0	41	0	18	0	16	0	35
16:00	0	23	11	26	11	49	0	19	11	22	11	41	0	16	11	18	11	35
17:00	0	20	23	23	23	43	0	16	23	19	23	36	0	13	23	16	23	29
18:00	3	16	0	14	3	31	3	13	0	10	3	23	3	10	0	6	3	16
19:00	0	10	11	10	11	20	0	10	11	10	11	20	0	10	11	10	11	20
20:00	0	10	0	10	0	20	0	10	0	10	0	20	0	10	0	10	0	20
21:00	4	12	0	10	4	22	4	12	0	10	4	22	4	12	0	10	4	22
22:00	0	10	4	12	0	22	0	10	4	12	4	22	0	10	4	12	4	22
23:00	0	2	0	2	0	5	0	2	0	2	0	5	0	2	0	2	0	5
Total	60	331	60	331	120	668	60	304	60	304	120	613	60	274	60	274	120	550

Table 4.53: K3 Proposed Development plus WKN Proposed Development Operational Traffic Flows

4.13.34 In accordance with the IEMA guidelines, the traffic flows for the operation of the K3 Proposed Development and the WKN Proposed Development have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.54.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	3.3	18.9	5.2	28.5	7.1	46.4
Barge Way between Swale Way and Fleet End	9.2	26.0	13.9	32.6	18.0	37.1
Barge Way east of Fleet End	20.1	58.8	41.0	126.2	53.6	191.5
A249 south of Swale Way	1.8	11.7	2.0	18.0	2.1	20.6
A249 between the A2 and M2	1.3	9.2	1.4	14.3	1.4	16.2
Swale Way north of Reams Way	0.0	0.4	0.1	0.9	0.0	0.0
Swale Way south of Reams Way	0.0	0.4	0.1	0.9	0.0	0.0
Swale Way south of Ridham Avenue	0.0	0.5	0.1	1.6	0.0	0.0
M2 East of A249	0.1	0.7	0.1	1.2	0.1	1.3
M2 West of A249	0.5	3.6	0.6	7.1	0.6	9.3
A249 north of Swale Way	0.0	0.2	0.0	0.2	0.0	0.0

Table 4.54: Summary of Daily Impact of K3 Proposed Development Operational plus WKN Proposed Development Operational Traffic Flows

4.13.35 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 20.1%, 41.0% and 53.6% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 58.8%, 126.2% and 191.5% are predicted on a weekday, Saturday and Sunday respectively.

- 4.13.36 As can be seen, with the exception of 'Barge Way east of Fleet End' on a Saturday and Sunday, Swale Way between the A249 and Barge Way on a Sunday and Barge Way between Swale Way and Fleet End the increases as a result of the K3 Proposed Development plus WKN Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. On Barge Way and Swale Way on a Saturday and Sunday will be predominantly due to the lower existing traffic levels that are present.
- 4.13.37 Hourly increases along the majority of the M2 and A249 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2, the majority of the A249 and Swale Way links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.13.38 On a weekday on the A249 south of Swale Way link between 22:00-23:00 the HGV impact exceeds the 30% Rule 1 threshold (32.0%). On a Saturday the HGV impact on this link is a maximum of 50.0% between 21:00-23:00. On a Sunday the HGV impact on this link is 32.6% between 07:00-09:00 and 55.1% between 22:00-23:00. Therefore, the impact will be assessed in detail.
- 4.13.39 On a Saturday the A249 between the A2 and M2 link between 22:00-23:00 the HGV impact exceeds the 30% Rule 1 threshold (36.4%). On a Sunday the HGV impact on this link is 40.3% between 22:00-23:00. Therefore, the impact will be assessed in detail.
- 4.13.40 The impact on the A249 is primarily due to the lower weekend / evening traffic baselines.
- 4.13.41 There are hours where the total vehicle percentage impact is above the Rule 1 Threshold, as detailed below:
- Barge Way between Swale Way and Fleet End – between 22:00-23:00 on a Saturday and between 07:00-08:00 and 21:00-23:00 on a Sunday;
 - Barge Way east of Fleet End - between 21:00-23:00 on a weekday, between 06:00-13:00, 14:00-18:00; 07:00-24:00 on a Saturday and between 00:00-04:00 and 06:00-23:00 on a Sunday;
- 4.13.42 There are some hours when the HGV percentage impact is greater than the Rule 1 threshold on certain receptors, this is detailed below:
- Swale Way between the A249 and Barge Way – on a weekday between 21:00-23:00; on a Saturday between 07:00-13:00 and 21:00-23:00; on a Sunday between 00:00 – 05:00 and 07:00-24:00;

- Barge Way between Swale Way and Fleet End – on a weekday between 07:00-09:00, 12:00-13:00, 16:00-19:00 and 20:00-23:00; on a Saturday between 07:00-14:00, 16:00-19:00 and 20:00-23:00; on a Sunday between 07:00-23:00;
- Barge Way east of Fleet End – on a weekday between 07:00-23:00; on a Saturday between 00:00-01:00, 03:00-04:00 and 07:00-24:00; on a Sunday between 00:00 and 24:00.

4.13.43 Although these percentages can appear high, this is largely as a result of the low baseline traffic flows. Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the effect in detail.

4.13.44 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.13.45 **Driver Delay** – The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.

4.13.46 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay as a result of the K3 Proposed Development operation plus the WKN Proposed Development traffic upon receptors along Barge Way, Swale Way and the A249 would be long-term and negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.13.47 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.13.48 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.13.49 The A249 due to its road alignment, cutting into the environs and associated tree linings and pedestrian deterrents already forms a severance between development on the west and east of it. On a Saturday and Sunday on the link south of Swale Way, an additional 691 and 611 daily vehicles are expected against baselines of 35,179 and 29,521 respectively. These increases equate to changes of 2.0% and

2.1% on a Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant. On a Saturday and Sunday on the link between the A2 and M2, an additional 692 and 606 daily vehicles are expected against baselines of 49,865 and 41,914 respectively. These increases equate to changes of 1.4% and 1.7% on a Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.13.50 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 53.6% on Barge Way on a Sunday and therefore do not meet the requirement for assessment. HGV movements peak at 191.5 on Barge Way on a Sunday and 126.2% on a Saturday, more than doubling the total traffic and HGV movements.
- 4.13.51 There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.13.52 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.53 **Pedestrian Delay** – The maximum increase in hourly vehicles expected due to the K3 Proposed Development operation plus WKN Proposed Development operation will be 78 on Barge Way with existing traffic flows of between 10 and 301 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.13.54 On Swale Way, the baseline traffic flows are up to 2,193 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is 77 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.2 seconds. This represents a change of 0.5 seconds. Such a change in pedestrian crossing delay would be difficult to perceive.
- 4.13.55 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.
- 4.13.56 On this basis, it is therefore considered the effect on pedestrian delay as a result of the K3 Proposed Development operation plus the WKN Proposed Development operation would be long-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.57 **Dust and Dirt** – Staff vehicles will be parked on a hardstanding within the site and are not expected to distribute dust and dirt onto the local road network. The

HGVs route both off and on-site will be on made-up roads/hardstanding and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the K3 Proposed Development operation plus the WKN Proposed Development operation on sensitive receptors would be long-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.13.58 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way is not located in such locations and there are already HGVs travelling along it.

4.13.59 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.13.60 A summary of the above is shown in Table 4.55.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Proposed Development plus WKN Proposed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible / low / medium	Adverse	Long term	Negligible / slight

Table 4.55 – Summary of K3 Proposed Development and WKN Proposed Development Operational Effects Prior to Mitigation

Mitigation

4.13.61 The effect of the K3 Proposed Development and WKN Proposed Development operational flows is predicted not to have any significant effect. The mitigation remains the same as detailed above i.e. a Draft CTMP for the WKN Proposed Development construction, evolving into a Full CTMP prior to construction.

4.13.62 The residual effects are summarised in Table 4.56.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.56: Residual cumulative traffic effects of K3 Proposed Development operational and WKN Proposed Development construction

Impact of K3 Proposed Development, WKN Proposed Development Construction Traffic and 2021 Cumulative Sites

4.13.63 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the K3 Proposed Development in conjunction with the construction of WKN Proposed Development and the cumulative sites in 2021.

4.13.64 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.57.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	5.8	14.3	9.3	20.5	13.7	33.5
Barge Way between Swale Way and Fleet End	15.9	19.2	25.4	23.4	35.5	27.1
Barge Way east of Fleet End	34.2	41.8	73.0	82.8	102.5	118.5
A249 south of Swale Way	3.2	9.0	3.5	13.1	4.0	15.3
A249 between the A2 and M2	2.2	7.0	2.4	10.4	2.8	12.1
Swale Way north of Reams Way	0.2	1.0	0.0	0.4	0.0	0.0
Swale Way south of Reams Way	0.2	1.0	0.0	0.4	0.0	0.0
Swale Way south of Ridham Avenue	0.3	1.3	0.0	0.8	0.0	0.0
M2 East of A249	0.2	0.5	0.3	0.8	0.3	0.9
M2 West of A249	0.6	2.9	0.8	5.3	0.9	7.0
A249 north of Swale Way	0.0	0.1	0.0	0.1	0.0	0.0

Table 4.57: Summary of Daily Impact of Cumulative Development in 2021 Including K3 Proposed Development Operational and WKN Proposed Development Construction Traffic Flows

4.13.65 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 34.2%, 73.0% and 102.5% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 41.8%, 102.5% and 118.5% are predicted on a weekday, Saturday and Sunday respectively.

4.13.66 As can be seen, with the exception of the Barge Way east of Fleet End receptor, all the increases in traffic flows on weekdays and Saturdays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. On a Sunday total vehicle increases of 35.5% are reported on Barge Way between Swale Way and Fleet End and HGV increases of 33.5% are reported on Swale Way between the A249 and Barge Way. With the exception of these and the Barge Way east of Fleet End receptor all the increases in traffic flows on Sundays are lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.

4.13.67 Hourly increases along the M2 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result

in imperceptible effects along the M2 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.13.68 There are certain hours where the total vehicle movements exceed the Rule 1 Threshold, the hours together with the percentage increase are detailed below:

- Swale Way between the A249 and Barge Way – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday, and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- Barge Way between Swale Way and Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday, and between 06:00-07:00, 08:00-09:00 and 16:00-17:00 on a Sunday;
- Barge Way east of Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-09:00, 10:00-13:00, 14:00-18:00 and 22:00-24:00 on a Saturday and between 00:00-04:00, 06:00-18:00 and 21:00-23:00 on a Sunday;
- A249 south of Swale Way – between 06:00 to 07:00 on a Saturday and between 06:00 to 07:00 on a Sunday; and
- A249 between the A2 and M2 – between 06:00-07:00 on a Sunday;

4.13.69 There are also certain hours where the HGV movements exceed the Rule 1 Threshold, the hours together with the percentage increase they relate to are detailed below:

- Swale Way between the A249 and Barge Way – between 08:00-09:00, 12:00-13:00, and 22:00-23:00 on a Saturday; and between 00:00-05:00, 07:00-18:00 and 22:00-24:00 on a Sunday;
- Barge Way between Swale Way and Fleet End – between 17:00-18:00 on a weekday; between 07:00-09:00, 10:00 – 15:00, 17:00-18:00 and 22:00-23:00 on a Saturday; between 07:00-11:00, 12:00-16:00, 17:00-18:00 and 22:00-23:00 on a Sunday;
- Barge Way east of Fleet End – between 07:00-19:00 and 21:00-23:00 on a weekday, between 00:00-01:00, 03:00-04:00 and 07:00-24:00 on a Saturday and between 00:00-24:00 on a Sunday;

4.13.70 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail on the links identified above.

4.13.71 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

- 4.13.72 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur. The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.
- 4.13.73 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.74 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.75 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.76 The A249 due to its road alignment, cutting into the environs and associated tree linings and pedestrian deterrents already forms a severance between development on the west and east of it. On a weekday, Saturday and Sunday on the link south of Swale Way, an additional 1,358, 1,254 and 1,204 daily vehicles are expected against baselines of 42,824, 35,563 and 29,905 respectively. These increases equate to changes of 3.2%, 3.5% and 4.0% on a weekday, Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant. On a Saturday and Sunday on the link between the A2 and M2 an additional 1,220 and 1,166 daily vehicles are expected against baselines of 50,235 and 42,284 respectively. These increases equate to changes of 2.4% and 2.8% on a Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.77 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.

- 4.13.78 Daily increases in total vehicle movements and HGV movements are expected to peak at 13.7% and 33.5% respectively on a Sunday on Swale Way between the A249 and Barge Way, which are below such changes.
- 4.13.79 Daily increases in total vehicle movements and HGV movements are expected to peak at 35.5% and 27.1% respectively on a Sunday on Barge Way between Swale Way and Fleet End, which are below such changes.
- 4.13.80 Daily increases in total vehicle movements and HGV movements are expected to peak at 102.5% and 118.5% on a Sunday on Barge Way east of Fleet End, more than doubling the total number of vehicles and HGVs.
- 4.13.81 There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.13.82 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect on these links would therefore be negligible/ slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.83 **Pedestrian Delay** – The maximum increase in hourly vehicles will be 416 on Barge Way with existing traffic flows of up to 545 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.13.84 On Swale Way, the baseline traffic flows are up to 2,200 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is 50 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.1 seconds. This represents a change of 0.4 seconds. A change in pedestrian crossing delay of 0.4 seconds is unlikely to be perceived by pedestrians.
- 4.13.85 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.
- 4.13.86 On this basis, it is therefore considered the effect on pedestrian delay would be negligible or slight adverse (negligible magnitude of impact with low /negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.87 **Dust and Dirt** – The HGVs will route to the laydown area which will be a hardcore surface. The hardcore will be laid such to support construction HGVs as well as staff vehicles and to prevent mud and dirt being exposed and then transferred to vehicles. By its nature, the hardcore surface would be permeable so that there is no standing surface water and allowing it to wash away any dust and dirt that may have been transposed onto it. Furthermore, as set out above, the IEMA guidelines advise that problems with dust and dirt are unlikely to occur over distances greater than 50m; there is more than 50m of surfaced road between the access road and the public highway.

- 4.13.88 Notwithstanding, a Full Construction Traffic Management Plan will evolve and be agreed with the highway authorities prior to construction commencing and this will set out measures to ensure dust and dirt is not transposed to the highway.
- 4.13.89 It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.90 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way, Swale Way and the A249 are not located in such locations and there are already HGVs travelling along them.
- 4.13.91 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.13.92 A summary of the above is shown in Table 4.58.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
2021 Cumulative plus K3 Proposed Development plus WKN Proposed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible / low/medium	Adverse	Long term	Negligible / slight

Table 4.58 – Summary of Cumulative Development in 2021 Including K3 Proposed Development Operational and WKN Proposed Development Construction Effects Prior to Mitigation

Mitigation

- 4.13.93 The effect of cumulative assessment is predicted to be not significant. It is noted that the traffic generated by K3 Proposed Development plus WKN Proposed Development (construction) forms only a proportion of the overall cumulative traffic flows.
- 4.13.94 Due to the low level of staffing associated with K3 a Travel Plan was not prepared in agreement with KCC and Highways England (then the Highways Agency). Notwithstanding K3 has incorporated internal pedestrian routes to enable employees to walk to bus stops and surrounding areas.
- 4.13.95 Nevertheless, a CEMP will be prepared for the WKN Proposed Development (construction) and this will require a CTMP to be prepared and agreed with Highway Officers prior to the construction commencing and the works will be undertaken in accordance with this. In advance of this, and to support this application, a Draft CTMP has been prepared, from which a full CTMP will evolve prior to construction commencing once a contractor has been appointed. The CTMP is a management tool that contractors will follow to minimise the impact of construction vehicles. It will be regularly monitored and reviewed on an ongoing

basis to seek to further reduce impacts where possible. The measures and outcome of the CTMP have been considered when undertaking the above assessments.

Residual Effects

4.13.96 The residual effects are summarised in Table 4.59.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/ Low / Medium	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.59: Residual cumulative traffic effects of Cumulative Development in 2021 Including K3 Proposed Development Operational and WKN Proposed Development Construction Traffic

4.14 Completed Development Effects – 2024

Impact of K3 Proposed Development, WKN Proposed Development Traffic and 2024 Cumulative Sites

- 4.14.1 Using a baseline of 2024 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operational K3 Proposed Development Operational and the WKN Proposed Development Operational with cumulative sites in 2024.
- 4.14.2 Trip generation, temporal distribution and assignment to the highway network are as described above and the Transport Assessment at Appendix 4.1.
- 4.14.3 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.60.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	3.7	19.2	5.8	28.8	7.1	46.4
Barge Way between Swale Way and Fleet End	9.2	26.0	13.9	32.6	18.0	37.1
Barge Way east of Fleet End	20.1	58.8	41.0	126.2	53.6	191.5
A249 south of Swale Way	5.6	13.2	5.9	19.4	4.7	20.6
A249 between the A2 and M2	6.4	10.6	5.9	15.6	5.8	16.2
Swale Way north of Reams Way	0.6	1.3	1.1	2.3	0.0	0.0
Swale Way south of Reams Way	0.6	1.3	1.1	2.3	0.0	0.0
Swale Way south of Ridham Avenue	0.7	1.7	1.1	4.1	0.0	0.0
M2 East of A249	0.4	1.1	0.5	1.6	0.3	1.4
M2 West of A249	1.5	4.1	1.6	7.6	1.4	9.3
A249 north of Swale Way	1.4	0.2	1.4	0.2	1.5	0.0

Table 4.60: Summary of Daily Impact of Cumulative Development in 2024 Including K3 Proposed Development and WKN Proposed Development Operational Traffic Flows

- 4.14.4 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 20.1%, 41.0% and 53.6% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 58.8%, 126.2% and 191.5% are predicted on a weekday, Saturday and Sunday respectively.
- 4.14.5 As can be seen, with the exception of the Barge Way east of Fleet End receptor, all the increases in traffic flows on weekdays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. On a Saturday there is an expected 32.6% HGV increase on the Barge Way between Swale Way and Fleet End receptor and on a Sunday, there is an expected 46.4% and 37.1% HGV increase on the Swale Way east of the A249 and Barge Way between Swale Way and Fleet End receptors respectively.
- 4.14.6 Hourly increases along the M2 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.14.7 There are certain hours where the total vehicle movements exceed the Rule 1 Threshold, the hours together with the percentage increase are detailed below:
- Barge Way between Swale Way and Fleet End – between 22:00-23:00 on a Saturday, and between 07:00-08:00 and 21:00-23:00 on a Sunday;
 - Barge Way east of Fleet End – between 19:00-20:00 and 21:00-23:00 on a weekday, between 07:00-24:00 on a Saturday and between 06:00-24:00 on a Sunday;
- 4.14.8 There are also certain hours where the HGV movements exceed the Rule 1 Threshold, the hours together with the percentage increase they relate to are detailed below:
- Swale Way between the A249 and Barge Way – between 21:00-23:00 on a weekday; between 07:00-13:00, 15:00-18:00 and 21:00-23:00 on a Saturday; and between 00:00-05:00, 07:00-24:00 on a Sunday;
 - Barge Way between Swale Way and Fleet End – between 07:00-09:00, 12:00-13:00, 16:00-19:00 and 20:00-23:00 on a weekday; between 07:00-14:00, 16:00-19:00 and 20:00-23:00 on a Saturday; between 07:00-23:00 on a Sunday;

- Barge Way east of Fleet End – between 07:00-23:00 on a weekday, between 00:00-01:00, 03:00-04:00 and 07:00-24:00 on a Saturday and between 00:00-24:00 on a Sunday;
- A249 south of Swale Way – between 22:00-23:00 on a weekday; between 12:00-13:00 and 21:00-23:00 on a Saturday; between 07:00-09:00 and 22:00-23:00 on a Sunday;
- A249 between the A2 and M2 – between 22:00-23:00 on a Saturday; between 22:00-23:00 on a Sunday.

4.14.9 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail on the links identified above.

4.14.10 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.14.11 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.14.12 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network. It concludes that the impact of the increased traffic flows as a result of the K3 Proposed Development plus WKN Proposed Development is negligible upon junction performance and driver delay. However, when cumulative development traffic flows are added into the A249 Grovehurst roundabouts, the performance of the junctions deteriorate and there is an increase in driver delay. The shift away from a negligible change is solely as a result of the cumulative development. Indeed, the Local Plan identifies this and sets out that improvements are required to the A249 Grovehurst roundabouts to accommodate the cumulative developments. If the cumulative developments come forward, then they will have to come forward with improvements to the A249 Grovehurst roundabouts. Such improvements would reduce driver delay to at best minimal amounts or to levels that are similar to those currently experienced i.e. no change, which is negligible adverse.

4.14.13 The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.

4.14.14 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.14.15 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would

be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.14.16 **Severance** – The IEMA guidelines indicate that severance effects are considered ‘slight’, ‘moderate’ and ‘substantial’ with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.17 The A249 due to its road alignment, cutting into the environs and associated tree linings and pedestrian deterrents already forms a severance between development on the west and east of it. On a weekday, Saturday and Sunday on the link south of Swale Way, an additional 2,365, 2,086 and 1,376 daily vehicles are expected against baselines of 42,420, 35,179 and 29,521 respectively. These increases equate to changes of 5.6%, 5.9% and 4.7% on a weekday, Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant. On a Saturday and Sunday on the link between the A2 and M2, an additional 2,944 and 2,425 daily vehicles are expected against baselines of 49,865 and 41,914 respectively. These increases equate to changes of 5.9% and 5.8% on a Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.18 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.
- 4.14.19 Daily increases in total vehicle movements and HGV movements are expected to peak at 7.1% and 46.4% respectively on a Sunday on Swale Way between the A249 and Barge Way, which are below such changes.
- 4.14.20 Daily increases in total vehicle movements and HGV movements are expected to peak at 18.0% and 37.1% respectively on a Sunday on Barge Way between Swale Way and Fleet End, which are below such changes.
- 4.14.21 Daily increases in total vehicle movements and HGV movements are expected to peak at 53.6% and 191.5% on a Sunday on Barge Way east of Fleet End, more than doubling the number of total vehicles and HGVs.
- 4.14.22 There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.14.23 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect on these links would therefore be negligible / slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.14.24 **Pedestrian Delay** – The maximum increase in hourly vehicles will be 789 on Barge Way with existing traffic flows of up to 545 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.14.25 On Swale Way, the baseline traffic flows are up to 2,193 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.5 seconds. This represents a change of 0.8 seconds. A change in pedestrian crossing delay of 0.8 seconds is unlikely to be perceived by pedestrians.
- 4.14.26 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.
- 4.14.27 On this basis, it is therefore considered the effect on pedestrian delay would be negligible or slight adverse (negligible magnitude of impact with low /negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.28 **Dust and Dirt** – Staff vehicles will be parked on a hardstanding within the site and are not expected to distribute dust and dirt onto the local road network. The HGVs route both off and on-site will be on made-up roads/hardstanding and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the K3 Proposed Development operation plus the WKN Proposed Development operation on sensitive receptors would be long-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.29 It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.30 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way, Swale Way and the A249 are not located in such locations and there are already HGVs travelling along them.
- 4.14.31 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.32 A summary of the above is shown in Table 4.61.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
2024 Cumulative plus K3 Proposed Development plus WKN Proposed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible / Low / Medium	Adverse	Long term	Negligible / slight

Table 4.61 – Summary of Cumulative Development in 2024 Including K3 Proposed Development and WKN Proposed Development Operational Effects Prior to Mitigation

Mitigation

- 4.14.33 The cumulative sites in the Local Plan are required to improve the capacity of the A249 Grovehurst roundabouts and the two will need to come forward together to accord with the Local Plan. It is on this basis that negligible adverse effects are concluded for driver delay.
- 4.14.34 Due to the low level of staffing associated with the K3 Proposed Development, a Travel Plan was not prepared, in agreement with KCC and Highways England (then the Highways Agency) as part of the original Town and Country Planning permission. Notwithstanding, K3 incorporates internal pedestrian routes to enable employees to walk to bus stops and surrounding areas.
- 4.14.35 The cumulative effect is predicted to be not significant. In relation to the WKN Proposed Development, a Draft Travel Plan has been prepared in order to seek to minimise single occupancy vehicle movement by staff, seek to utilise existing HGV routes and to seek to avoid HGV movements during the peak hours. No further mitigation measures are necessary.

Residual Effects

- 4.14.36 The residual effects are summarised in Table 4.62.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low / medium	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.62: Residual cumulative traffic effects of Cumulative Development in 2024 Including K3 Proposed Development and WKN Proposed Development Operational Traffic

Impact of K3 Proposed Development, WKN Proposed Development and 2031 Cumulative Sites

- 4.14.37 Using a baseline of 2031 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operational K3 Proposed Development and the construction of the WKN Proposed Development with cumulative sites in 2031.
- 4.14.38 Trip generation, temporal distribution and assignment to the highway network are as described above and the Transport Assessment at Appendix 4.1.
- 4.14.39 In accordance with the IEMA guidelines, these traffic flows have been assessed against the 2031 baseline traffic flows. A summary of the assessment is set out in Table 4.63.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	12.0	28.1	8.4	39.2	12.2	66.7
Barge Way between Swale Way and Fleet End	9.2	26.0	13.9	32.6	18.0	37.1
Barge Way east of Fleet End	20.1	58.8	41.0	126.2	53.6	191.5
A249 south of Swale Way	17.0	17.5	14.6	24.8	16.8	29.6
A249 between the A2 and M2	17.0	13.6	15.1	19.6	17.5	23.3
Swale Way north of Reams Way	0.2	0.4	0.3	0.9	0.3	0.0
Swale Way south of Reams Way	0.2	0.4	0.3	0.9	0.4	0.0
Swale Way south of Ridham Avenue	0.3	0.5	0.3	1.6	0.4	0.0
M2 East of A249	1.0	0.9	0.7	1.5	0.8	1.8
M2 West of A249	4.0	5.8	3.8	10.0	4.3	13.4
A249 north of Swale Way	3.4	0.2	3.3	0.2	3.7	0.0

Table 4.63: Summary of Daily Impact of Cumulative Development in 2031 Including K3 Proposed Development and WKN Proposed Development Operational Traffic Flows

4.14.40 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 20.1%, 41.0% and 53.6% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 58.8%, 126.2% and 191.5% are predicted on a weekday, Saturday and Sunday respectively.

4.14.41 As can be seen, with the exception of the Swale Barge Way east of Fleet End receptor, all the increases in traffic flows on weekdays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. On a Saturday there is an expected 32.6% HGV increase on the Barge Way between Swale Way and Fleet End receptor and on a Sunday, there is an expected 66.7% and 37.1% HGV increase on the Swale Way east of the A249 and Barge Way between Swale Way and Fleet End receptors respectively.

4.14.42 Hourly increases along the M2 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.14.43 There are certain hours where the total vehicle movements exceed the Rule 1 Threshold, the hours together with the percentage increase are detailed below:

- Swale Way between the A249 and Barge Way – between 07:00-08:00 on a Sunday;
- Barge Way between Swale Way and Fleet End – between 22:00-23:00 on a Saturday, and between 07:00-08:00 and 21:00-23:00 on a Sunday;

- Barge Way east of Fleet End – between 19:00-20:00 and 21:00-23:00 on a weekday, between 07:00-24:00 on a Saturday and between 00:00-04:00 and 06:00-23:00 on a Sunday;

4.14.44 There are also certain hours where the HGV movements exceed the Rule 1 Threshold, the hours together with the percentage increase they relate to are detailed below:

- Swale Way between the A249 and Barge Way – between 07:00-13:00 and 16:00-23:00 on a weekday; between 07:00-23:00 on a Saturday; and between 00:00-06:00 and 07:00-24:00 on a Sunday;
- Barge Way between Swale Way and Fleet End – between 07:00-09:00, 12:00-13:00, 16:00-19:00 and 20:00-23:00 on a weekday; between 07:00-14:00, 16:00-19:00 and 20:00-23:00 on a Saturday; between 07:00-23:00 on a Sunday;
- Barge Way east of Fleet End – between 07:00-23:00 on a weekday, between 00:00-01:00, 03:00-04:00 and 07:00-24:00 on a Saturday and between 00:00-24:00 on a Sunday;
- A249 south of Swale Way – between 22:00-23:00 on a weekday; between 07:00-08:00, 10:00-13:00, 16:00-17:00 and 20:00-23:00 on a Saturday; between 07:00-14:00, 15:00-17:00 and 22:00-20:00 on a Sunday;
- A249 between the A2 and M2 – between 21:00-23:00 on a Saturday; between 07:00-09:00 and 22:00-23:00 on a Sunday.

4.14.45 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail on the links identified above.

4.14.46 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.14.47 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur. The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.

4.14.48 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network. It concludes that the impact of the increased traffic flows as a result of the K3 Proposed Development plus WKN Proposed Development is negligible upon junction performance and driver delay. However, when cumulative development traffic flows are added into the A249 Grovehurst roundabouts, the performance of the junctions deteriorate and there is an increase in driver delay. The shift away from a negligible change is solely as a result of the cumulative development. Indeed, the Local Plan identifies this and sets out that improvements are required to the A249 Grovehurst roundabouts to accommodate the cumulative developments. If the cumulative developments come forward, then they will have to come forward with improvements to the

A249 Grovehurst roundabouts. Such improvements would reduce driver delay to at best minimal amounts or to levels that are similar to those currently experience i.e. no change, which is negligible adverse.

- 4.14.49 **Increased Risk of Accidents** - PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.50 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.51 The A249 due to its road alignment, cutting into the environs and associated tree linings and pedestrian deterrents already forms a severance between development on the west and east of it. On a weekday, Saturday and Sunday on the link south of Swale Way, an additional 7,211, 5,119 and 4,963 daily vehicles are expected against baselines of 42,420, 35,179 and 29,521 respectively. These increases equate to changes of 17.0%, 14.6% and 16.8% on a weekday, Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant. On a Saturday and Sunday on the link between the A2 and M2, an additional 7,539 and 7,335 daily vehicles are expected against baselines of 49,865 and 41,914 respectively. These increases equate to changes of 15.1% and 17.5% on a Saturday and Sunday respectively which is below the IEMA guidelines. The effect therefore would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.52 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.
- 4.14.53 Daily increases in total vehicle movements and HGV movements are expected to peak at 12.2% and 66.7% respectively on a Sunday on Swale Way between the A249 and Barge Way, which are below such changes.
- 4.14.54 Daily increases in total vehicle movements and HGV movements are expected to peak at 18.0% and 37.1% respectively on a Sunday on Barge Way between Swale Way and Fleet End, which are below such changes.

- 4.14.55 Daily increases in total vehicle movements and HGV movements are expected to peak at 53.6% and 191.5% on a Sunday on Barge Way east of Fleet End, almost tripling the number of HGV movements.
- 4.14.56 There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.14.57 It is therefore considered that the magnitude of impact on pedestrian amenity would be medium. The effect on these links would therefore be negligible / slight adverse (medium magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.58 **Pedestrian Delay** – The maximum increase in hourly vehicles will be 789 on Barge Way with existing traffic flows of up to 545 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.14.59 On Swale Way, the baseline traffic flows are up to 2,193 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.7 seconds. The increase during this period is 267 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 17.6 seconds. This represents a change of 1.9 seconds. In percentage terms, this change in delay is 12% when it is already at a level (1,400 vehicles per hour) whereby the IEMA guidelines advise may result in a crossing delay which may be perceptible.
- 4.14.60 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.
- 4.14.61 On this basis, it is therefore considered the effect on pedestrian delay would be negligible/ slight adverse (medium magnitude of impact with low /negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.62 **Dust and Dirt** – Staff vehicles will be parked on a hardstanding within the site and are not expected to distribute dust and dirt onto the local road network. The HGVs route both off and on-site will be on made-up roads/hardstanding and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the K3 Proposed Development operation plus the WKN Proposed Development operation on sensitive receptors would be long-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.14.63 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way, Swale Way and the A249 are not located in such locations and there are already HGVs travelling along them.
- 4.14.64 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude

of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.14.65 A summary of the above is shown in Table 4.64.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Proposed Development plus WKN Proposed Development Effects plus 2031 Cumulative Sites					
Increase in traffic flows	Negligible / Low	Negligible / Medium	Adverse	Long term	Negligible / slight

Table 4.64 – Summary of Cumulative Development in 2031 Including K3 Proposed Development and WKN Proposed Development Operational Effects Prior to Mitigation

Mitigation

4.14.66 The cumulative sites in the Local Plan are required to improve the capacity of the A249 Grovehurst roundabouts and the two will need to come forward together to accord with the Local Plan. It is on this basis that negligible adverse effects are concluded for driver delay.

4.14.67 The effect of 2031 cumulative assessment is predicted to be not significant. In relation to the WKN Proposed Development, a Draft Travel Plan has been prepared in order to seek to minimise single occupancy vehicle movement by staff, seek to utilise existing HGV routes and to seek to avoid HGV movements during the peak hours. No further mitigation measures are necessary.

Residual Effects

4.14.68 The residual effects are summarised in Table 4.65.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.65: Residual cumulative traffic effects of Cumulative Development in 2031 Including K3 Proposed Development and WKN Proposed Development Operational Traffic

4.15 Cumulative Effects of the practical effects of the K3 Proposed Development and WKN Proposed Development

Practical effects of the K3 Proposed Development plus WKN Proposed Development Construction

4.15.1 Using a baseline of 2021 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operation of the practical effects of the K3 Proposed Development traffic with the WKN Proposed Development construction traffic.

4.15.2 Trip generation, temporal distribution and assignment to the highway network are as laid out above.

4.15.3 Based upon these calculations, a breakdown of the operational traffic flows associated with the practical effects of the K3 Proposed Development and the construction of WKN Proposed Development is shown in Table 4.66.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	409	0	0	0	409	0	409	0	0	0	409	0	409	0	0	0	409	0
07:00	0	7	0	6	0	13	0	7	0	6	0	13	0	6	0	5	0	12
08:00	0	6	0	7	0	13	0	6	0	7	0	13	0	5	0	6	0	12
09:00	0	6	0	6	0	12	0	6	0	6	0	12	0	5	0	5	0	11
10:00	0	6	0	6	0	12	0	6	0	6	0	12	0	5	0	5	0	11
11:00	0	6	0	6	0	12	0	6	0	6	0	12	0	5	0	5	0	11
12:00	0	6	0	6	0	12	0	6	0	6	0	12	0	5	0	5	0	11
13:00	0	6	0	6	0	12	0	6	0	5	0	10	0	6	0	5	0	10
14:00	0	6	0	6	0	12	0	5	0	6	0	10	0	5	0	6	0	10
15:00	0	7	0	6	0	12	0	6	0	5	0	11	0	6	0	5	0	11
16:00	0	6	0	7	0	12	0	1	409	2	409	4	0	1	409	2	409	4
17:00	0	7	0	6	0	13	0	2	0	1	0	3	0	2	0	1	0	3
18:00	0	6	0	7	0	13	0	1	0	2	0	3	0	1	0	2	0	3
19:00	0	1	409	1	409	3	0	1	0	1	0	3	0	1	0	1	0	3
20:00	0	1	0	1	0	3	0	1	0	1	0	3	0	1	0	1	0	3
21:00	0	2	0	1	0	4	0	2	0	1	0	4	0	2	0	1	0	4
22:00	0	1	0	2	0	4	0	1	0	2	0	4	0	1	0	2	0	4
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	409	80	409	80	817	161	409	64	409	64	817	129	409	60	409	60	817	120

Table 4.66: Practical effects of the K3 Proposed Development Operational plus WKN Proposed Development Construction Traffic Flows

4.15.4 In accordance with the IEMA guidelines, the practical effects of the K3 Proposed Development operational traffic flows plus WKN Proposed Development peak construction traffic flows as attached at the Transport Assessment at Appendix 4.1 have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.67.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	4.0%	4.1%	6.6%	5.4%	10.0%	8.7%
Barge Way between Swale Way and Fleet End	10.8%	5.4%	17.4%	6.0%	24.6%	7.3%
Barge Way east of Fleet End	22.1%	10.3%	44.4%	15.6%	61.5%	20.8%
A249 south of Swale Way	2.2%	2.7%	2.5%	3.6%	3.0%	4.4%
A249 between the A2 and M2	1.5%	2.1%	1.7%	2.9%	2.0%	3.5%
Swale Way north of Reams Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Reams Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
M2 East of A249	0.2%	0.1%	0.2%	0.2%	0.2%	0.3%
M2 West of A249	0.4%	1.0%	0.5%	1.6%	0.5%	2.1%
A249 north of Swale Way	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4.67: Summary of Daily Impact of the practical effects of the K3 Proposed Development Operational plus WKN Proposed Development Peak Construction Traffic Flows

- 4.15.5 As can be seen, with the exception of the Barge Way east of Fleet End link, the increases as a result of the practical effects of the K3 Proposed Development operational and WKN Proposed Development construction traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.
- 4.15.6 The largest predicted increases in traffic flows occur on 'Barge Way east of Fleet End' where increases of 22.1%, 44.4% and 61.5% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 10.3%, 15.6% and 20.8% are predicted on a weekday, Saturday and Sunday respectively.
- 4.15.7 Hourly increases along the M2 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2, A249 and Swale Way links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.15.8 There are hours where the total vehicle percentage impact is above the Rule 1 Threshold, as detailed below:
- Swale Way between the A249 and Barge Way – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
 - Barge Way between Swale Way and Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;

- Barge Way east of Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- A249 between Swale Way and the A2 – between 06:00-07:00 on a Saturday and between 06:00-07:00 on a Sunday; and
- A249 between the A2 and M2 – between 06:00-07:00 on a Sunday.

4.15.9 There are hours where the HGV percentage impact is above the Rule 1 Threshold, as detailed below:

- Barge Way east of Fleet End – between 07:00-11:00 and 13:00-16:00 on a Sunday.

4.15.10 The total vehicle impacts are in the majority due to the staff vehicle movements during the peak construction period.

4.15.11 Although these percentages can appear high, this is largely as a result of the low baseline traffic flows. Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the effect in detail.

4.15.12 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.15.13 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur. The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.

4.15.14 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay as a result of the practical effects of the K3 Proposed Development operation plus the temporary WKN Proposed Development construction traffic upon receptors along Barge Way, Swale Way and the A249 would be short-term and negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.15.15 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.15.16 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.17 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 61.5% on Barge Way and for HGV movements peak at 20.8% on Barge Way, which are well below such changes.
- 4.15.18 On Swale Way, daily increases in total vehicle movements are predicted to peak at 10.0% and for HGV movements peak at 8.7%, which are well below such changes. There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.15.19 It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect would therefore be negligible / slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.20 **Pedestrian Delay** - The maximum increase in hourly vehicles expected due to the practical effects of the K3 Proposed Development operation plus WKN Proposed Development construction will be 409 on Barge Way with existing traffic flows of between 76 and 558 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.15.21 On Swale Way, the baseline traffic flows are up to 2,236 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 16.0 seconds. The increase during this period is 13 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.1 seconds. This represents a change of 0.1 seconds. Such a change in pedestrian crossing delay would be difficult to perceive.
- 4.15.22 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.
- 4.15.23 On this basis, it is therefore considered the effect on pedestrian delay as a result of the practical effects of the K3 Proposed Development operation plus the temporary WKN Proposed Development construction would be short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.24 **Dust and Dirt** - Staff vehicles will be parked on a hardstanding within the site and are not expected to distribute dust and dirt onto the local road network. The HGVs route both off and on-site will be on made-up roads/hardstanding and are therefore unlikely to generate dust and dirt. Construction HGVs have the potential to distribute dust and dirt from the construction site onto the local network. These

effects would be most pronounced in the immediate vicinity of the site entrance, where construction HGVs will utilise a wheel wash. It is therefore considered the dust and dirt effect as a result of the practical effects of the K3 Proposed Development operation plus the temporary WKN Proposed Development construction on sensitive receptors on Barge Way would be short-term and negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.15.25 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way is not located in such locations and there are already HGVs travelling along it.

4.15.26 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Practical Proposed Development plus WKN Proposed Development Construction Development Effects					
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term	Negligible / slight

Table 4.68 – Summary of the practical effect of the K3 Proposed Development and WKN Proposed Development Construction Effects Prior to Mitigation

Mitigation

4.15.27 The effect of the practical effects of the K3 Proposed Development operational flows and WKN Proposed Development construction flows is predicted not to have any significant effect.

4.15.28 The mitigation remains the same as detailed above i.e. a Draft CTMP for the WKN Proposed Development construction, evolving into a Full CTMP prior to construction.

Residual Effects

4.15.29 The residual effects are summarised in Table 4.69.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term	Negligible / slight	Reasonable

Table 4.69: Residual cumulative traffic effects of Cumulative Development in 2024 Including the practical effects of the K3 Proposed Development and WKN Proposed Development Operational Traffic

Practical effects of the K3 Proposed Development Operational plus WKN Proposed Development Operational

4.15.30 Using a baseline of 2024 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operational the practical effects of the K3 Proposed Development and the operational WKN Proposed Development.

4.15.31 Trip generation, temporal distribution and assignment to the highway network are as described above.

4.15.32 Based upon these calculations, a breakdown of the operational traffic flows associated with the practical effects of the K3 Proposed Development and WKN Proposed Development is shown in Table 4.70.

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	11	0	0	0	11	0	11	0	0	0	11	0	11	0	0	0	11	0
07:00	22	13	3	11	25	24	22	13	3	11	25	24	22	10	3	8	25	17
08:00	0	11	0	13	0	24	0	11	0	13	0	24	0	8	0	10	0	17
09:00	0	11	0	11	0	22	0	11	0	11	0	22	0	8	0	8	0	15
10:00	0	11	0	11	0	22	0	11	0	11	0	22	0	8	0	8	0	15
11:00	0	11	0	11	0	22	0	11	0	11	0	22	0	8	0	8	0	15
12:00	0	11	0	11	0	22	0	11	0	11	0	22	0	8	0	8	0	15
13:00	0	7	0	11	0	18	0	4	0	8	0	12	0	4	0	8	0	12
14:00	0	11	0	7	0	18	0	8	0	4	0	12	0	8	0	4	0	12
15:00	0	13	0	11	0	24	0	10	0	8	0	17	0	10	0	8	0	17
16:00	0	11	11	13	11	24	0	8	11	10	11	17	0	8	11	10	11	17
17:00	0	7	11	11	11	18	0	4	11	8	11	12	0	4	11	8	11	12
18:00	3	11	0	7	3	18	3	8	0	4	3	12	3	8	0	4	3	12
19:00	0	8	11	8	11	15	0	8	11	8	11	15	0	8	11	8	11	15

Time Begin	Weekday Average						Saturday						Sunday					
	Arrivals		Departures		Two Way		Arrivals		Departures		Two Way		Arrivals		Departures		Two Way	
	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV	Cars	HGV
20:00	0	8	0	8	0	15	0	8	0	8	0	15	0	8	0	8	0	15
21:00	0	10	0	8	0	17	0	10	0	8	0	17	0	10	0	8	0	17
22:00	0	8	0	10	0	17	0	8	0	10	0	17	0	8	0	10	0	17
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	36	160	36	160	71	320	36	140	36	140	71	279	36	119	36	119	71	238

Table 4.70: Practical effects of the K3 Proposed Development plus WKN Proposed Development Operational Traffic Flows

4.15.33 In accordance with the IEMA guidelines, the traffic flows for the operation of the practical effects of the K3 Proposed Development and the WKN Proposed Development have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.71.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	1.6%	8.2%	2.5%	11.9%	3.4%	17.9%
Barge Way between Swale Way and Fleet End	4.4%	11.0%	6.5%	13.4%	8.3%	14.9%
Barge Way east of Fleet End	9.0%	21.6%	17.0%	36.5%	21.2%	46.1%
A249 south of Swale Way	0.9%	5.3%	1.0%	7.9%	1.0%	8.9%
A249 between the A2 and M2	0.6%	4.2%	0.7%	6.4%	0.7%	7.2%
Swale Way north of Reams Way	0.0%	0.1%	0.0%	0.5%	0.0%	0.0%
Swale Way south of Reams Way	0.0%	0.1%	0.0%	0.5%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.0%	0.2%	0.0%	0.8%	0.0%	0.0%
M2 East of A249	0.0%	0.3%	0.1%	0.6%	0.1%	0.6%
M2 West of A249	0.2%	1.7%	0.3%	3.3%	0.3%	4.3%
A249 north of Swale Way	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%

Table 4.71: Summary of Daily Impact of the practical effects of the K3 Proposed Development Operational plus WKN Proposed Development Operational Traffic Flows

4.15.34 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 9.0%, 17.0% and 21.2% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 21.6%, 36.5% and 46.1% are predicted on a weekday, Saturday and Sunday respectively.

4.15.35 As can be seen, with the exception of 'Barge Way east of Fleet End' on a Saturday and Sunday the increases as a result of the practical effects of the K3 Proposed Development plus WKN Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. The effect on Barge Way on a Saturday and Sunday will be predominantly due to the lower existing traffic levels that are present

4.15.36 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.15.37 There are some hours when the HGV / total vehicle percentage impact is greater than the Rule 1 threshold on the following receptors:

- Swale Way between the A249 and Barge Way HGV increases – between 22:00–23:00 on a weekday, between 21:00–23:00 on a Saturday and between 20:00–23:00 on a Sunday;
- Barge Way between Swale Way and Fleet End HGV increases – between 21:00–23:00 on a weekday, between 21:00–23:00 on a Saturday, between 21:00– 3:00 on a Sunday;
- Barge Way east of Fleet End HGV increases – between 18:00 – 23:00 on a weekday, between 07:00–23:00 on a Saturday and between 07:00–23:00 on a Sunday;
- Barge Way east of Fleet End total traffic increases – between 07:00–08:00 and between 19:00–23:00 on a Saturday, and between 07:00–23:00 on a Sunday.

4.15.38 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.15.39 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.15.40 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.15.41 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.15.42 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to

low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.15.43 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.44 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 21.2% and for HGV movements peak at 46.1%, which are well below such changes.
- 4.15.45 It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.46 **Pedestrian Delay** – The maximum increase in hourly vehicles expected due to the practical effects of the K3 Proposed Development and WKN Proposed Development will be 48 on Barge Way with existing traffic flows of up to 551 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.15.47 On this basis, it is therefore considered the effect on pedestrian delay as a result of the practical effects of the K3 Proposed Development and WKN Proposed Development would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.48 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect as a result of the WKN Proposed Development operational HGVs upon receptors along the local road network would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.49 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.15.50 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.15.51 A summary of the above is shown in Table 4.72.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
K3 Practical Proposed Development plus WKN Proposed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible / low	Adverse	Long term	Negligible / slight

Table 4.72 – Summary of the practical effects of the K3 Proposed Development and WKN Proposed Development Operational Effects Prior to Mitigation

Mitigation

4.15.52 The effect of the practical effects of the K3 Proposed Development and WKN Proposed Development operational flows is predicted not to have any significant effect. Despite this a Draft Travel Plan for the WKN Proposed Development has been prepared in order to seek to minimise single occupancy vehicle movement by staff, seek to utilise existing HGV routes and to seek to avoid HGV movements during the peak hours. No further mitigation measures are necessary.

Residual Effects

4.15.53 The residual effects are summarised in Table 4.73.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.73: Residual cumulative traffic effects of the practical effects of the K3 Proposed Development operational and WKN Proposed Development construction

Impact of the practical effects of the K3 Proposed Development, WKN Proposed Development Construction Traffic and 2021 Cumulative Sites

4.15.54 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the practical effects of the K3 Proposed Development in conjunction with the construction of WKN Proposed Development and the cumulative sites in 2021.

4.15.55 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2021 baseline traffic flows. A summary of the assessment is set out in Table 4.74.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	4.1%	4.3%	6.6%	5.4%	10.0%	8.7%
Barge Way between Swale Way and Fleet End	10.8%	5.4%	17.4%	6.0%	24.6%	7.3%

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Barge Way east of Fleet End	22.1%	10.3%	44.4%	15.6%	61.5%	20.8%
A249 south of Swale Way	2.2%	2.8%	2.5%	3.6%	3.0%	4.4%
A249 between the A2 and M2	1.6%	2.2%	1.7%	2.9%	2.0%	3.5%
Swale Way north of Reams Way	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Reams Way	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.2%	0.9%	0.0%	0.0%	0.0%	0.0%
M2 East of A249	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%
M2 West of A249	0.4%	1.0%	0.5%	1.6%	0.5%	2.1%
A249 north of Swale Way	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%

Table 4.74: Summary of Daily Impact of Cumulative Development in 2021 Including the practical effects of the K3 Proposed Development Operational and WKN Proposed Development Construction Traffic Flows

4.15.56 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 22.1%, 44.4% and 61.5% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 10.3%, 15.6% and 20.8% are predicted on a weekday, Saturday and Sunday respectively.

4.15.57 As can be seen, with the exception of the Barge Way east of Fleet End receptor, all the increases in traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6.

4.15.58 Hourly increases along the M2 links are lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2, the A249 and Swale Way links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.

4.15.59 There are certain hours where the total vehicle movements exceed the Rule 1 Threshold, the hours together with the percentage increase are detailed below:

- Swale Way between the A249 and Barge Way – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday, and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- Barge Way between Swale Way and Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday, and between 06:00-07:00 and 16:00-17:00 on a Sunday;
- Barge Way east of Fleet End – between 06:00-07:00 and 19:00-20:00 on a weekday, between 06:00-07:00 and 16:00-17:00 on a Saturday and between 06:00-07:00 and 16:00-17:00 on a Sunday;

- A249 between Swale Way and the A2 –between 06:00-07:00 on a Saturday and between 06:00-07:00 on a Sunday; and
- A249 between the A2 and M2 - between 06:00-07:00 on a Sunday.

4.15.60 There are also certain hours where the HGV movements exceed the Rule 1 Threshold, the hours together with the percentage increase they relate to are detailed below:

- Barge Way east of Fleet End - between 18:00-19:00 on a weekday, between 07:00-16:00 on a Saturday and between 07:00-16:00 on a Sunday.

4.15.61 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.15.62 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.15.63 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur. The A249 sees higher vehicle movements in the peak hours than at the times of the greatest vehicular impact.

4.15.64 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay. It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.15.65 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.15.66 **Severance** – The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.15.67 **Pedestrian Amenity** – the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow

- (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 10.0% and for HGV movements peak at 8.7% on Swale Way between the A249 and Barge Way, which are well below such changes.
- 4.15.68 On Barge Way between Swale Way and Fleet End, daily increases in total vehicle movements are predicted to peak at 24.6% and for HGV movements peak at 7.3%, which are well below such changes.
- 4.15.69 On Barge Way to the east of Fleet End, daily increases in total vehicle movements are predicted to peak at 61.5% and for HGV movements peak at 20.8%, which are below such changes.
- 4.15.70 There are no pedestrians on the A249, and thus pedestrian amenity is not relevant for this receptor.
- 4.15.71 It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.72 **Pedestrian Delay** – The maximum increase in hourly vehicles will be 409 on Barge Way with existing traffic flows of up to 558 vehicles per hour. The total future traffic movements fall below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.15.73 On Swale Way, the baseline traffic flows are up to 2,236 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 16.0 seconds. The increase during this period is 14 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.1 seconds. This represents a change of 0.1 seconds. A change in pedestrian crossing delay of 0.1 seconds would be difficult to perceive.
- 4.15.74 There are no pedestrians on the A249, and thus pedestrian delay is not relevant for this receptor.
- 4.15.75 On this basis, it is therefore considered the effect on pedestrian delay would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.76 **Dust and Dirt** – The HGVs will route to the laydown area which will be a hardcore surface. The hardcore will be laid such to support construction HGVs as well as staff vehicles and to prevent mud and dirt being exposed and then transferred to vehicles. By its nature, the hardcore surface would be permeable so that there is no standing surface water and allowing it to wash away any dust and dirt that may have been transposed onto it. Furthermore, as set out above, the IEMA guidelines advise that problems with dust and dirt are unlikely to occur over distances greater than 50m; there is more than 50m of surfaced road between the access road and the public highway.

- 4.15.77 Notwithstanding, a Full Construction Traffic Management Plan will evolve and be agreed with the highway authorities prior to construction commencing and this will set out measures to ensure dust and dirt is not transposed to the highway.
- 4.15.78 It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.79 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.15.80 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.15.81 A summary of the above is shown in Table 4.75.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
2021 Cumulative plus the practical effects of the K3 Proposed Development plus WKN Proposed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible / low	Adverse	Long term	Negligible / slight

Table 4.75 – Summary of Cumulative Development in 2021 Including the practical effects of the K3 Proposed Development Operational and WKN Proposed Development Construction Effects Prior to Mitigation

Mitigation

- 4.15.82 The effect of 2021 cumulative assessment is predicted to be not significant. Nevertheless, a Draft CTMP has been prepared for the WKN Proposed Development. It is noted that the traffic flows generated by the WKN Proposed Development forms only a proportion of the overall 2021 cumulative traffic flows. The Draft CTMP sets out the measures that will be implemented at the WKN Proposed Development to mitigate the impacts of construction related vehicles travelling to and from the WKN Proposed Development. The Draft CTMP will form the basis of a Full CTMP, which will evolve from this document once a contractor has been appointed, post consent.

Residual Effects

- 4.15.83** The residual effects are summarised in Table 4.76.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.76: Residual cumulative traffic effects of Cumulative Development in 2021 Including the practical effects of the K3 Proposed Development Operational and WKN Proposed Development Construction Traffic

4.16 Completed Development Effects – 2024

Impact of the practical effect of the K3 Proposed Development, WKN Proposed Development Traffic and 2024 Cumulative Sites

- 4.16.1 Using a baseline of 2024 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operation of the practical effects of the K3 Proposed Development and the WKN Proposed Development with cumulative sites in 2024.
- 4.16.2 Trip generation, temporal distribution and assignment to the highway network are as described above and the Transport Assessment at Appendix 4.1.
- 4.16.3 In accordance with the IEMA guidelines, the traffic flows have been assessed against the 2024 baseline traffic flows. A summary of the assessment is set out in Table 4.77.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	2.0%	8.6%	3.2%	12.2%	3.4%	17.9%
Barge Way between Swale Way and Fleet End	4.4%	11.0%	6.5%	13.4%	8.3%	14.9%
Barge Way east of Fleet End	9.0%	21.6%	17.0%	36.5%	21.2%	46.1%
A249 south of Swale Way	4.6%	6.7%	4.9%	9.1%	3.6%	8.9%
A249 between the A2 and M2	5.7%	5.5%	5.2%	7.6%	5.0%	7.2%
Swale Way north of Reams Way	0.6%	1.0%	1.0%	1.9%	0.0%	0.0%
Swale Way south of Reams Way	0.6%	1.0%	1.0%	1.9%	0.0%	0.0%
Swale Way south of Ridham Avenue	0.7%	1.3%	1.1%	3.3%	0.0%	0.0%
M2 East of A249	0.4%	0.8%	0.4%	1.0%	0.2%	0.6%
M2 West of A249	1.2%	2.2%	1.3%	3.8%	1.1%	4.3%
A249 north of Swale Way	1.4%	0.1%	1.4%	0.1%	1.5%	0.0%

Table 4.77: Summary of Daily Impact of Cumulative Development in 2024 Including K3 Practical Proposed Development and WKN Proposed Development Operational Traffic Flows

- 4.16.4 The largest predicted increases in daily traffic flows occur on 'Barge Way east of Fleet End' where increases of 9.0%, 17.0% and 21.2% are predicted on a weekday, Saturday and Sunday respectively. The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 21.6%, 36.5% and 46.1% are predicted on a weekday, Saturday and Sunday respectively.

- 4.16.5 As can be seen, with the exception of 'Barge Way east of Fleet End' on a Saturday and Sunday the increases as a result of the 2024 cumulative plus the practical effect of the K3 Proposed Development plus WKN Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold of a 30% increase identified above as the relevant threshold for the links due to their receptor sensitivity identified in Table 4.6. The effect on Barge Way on a Saturday and Sunday are due to the lower existing traffic levels that are present.
- 4.16.6 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.16.7 There are some hours when the HGV / total vehicle percentage impact is greater than the Rule 1 threshold, as noted below:
- Swale Way between the A249 and Barge Way – there is an HGV increase between 22:00–23:00 on a weekday, between 21:00–3:00 on a Saturday and between 20:00–23:00 on a Sunday;
 - Barge Way between Swale Way and Fleet End – a HGV increase between 21:00–23:00 on a weekday, a HGV increase between 21:00–23:00 on a Saturday and a HGV increase between 21:00–23:00 on a Sunday;
 - Barge Way east of Fleet End – there are HGV increases over the weekday hours of 18:00–23:00, HGV increases between 07:00–23:00 on a Saturday and HGV increases between 07:00–23:00 on a Sunday;
 - Barge Way east of Fleet End – there are total traffic increases between 07:00–08:00 and between 19:00–23:00 on a Saturday and between 07:00–08:00 and between 19:00–23:00 on a Sunday.
- 4.16.8 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.
- 4.16.9 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.
- 4.16.10 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.
- 4.16.11 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network. It concludes that the impact of the increased traffic flows as a result of the practical effect of the K3 Proposed Development and WKN Proposed Development is negligible upon junction performance and driver delay. However, when 2024 cumulative development

traffic flows are added into the A249 Grovehurst roundabouts, the performance of the junctions deteriorate and there is an increase in driver delay. The shift away from a negligible change is solely as a result of the cumulative development. Indeed, the Local Plan identifies this and sets out that improvements are required to the A249 Grovehurst roundabouts to accommodate the cumulative developments. If the cumulative developments come forward, then they will have to come forward with improvements to the A249 Grovehurst roundabouts. Such improvements would reduce driver delay to at best minimal amounts or to levels that are similar to those currently experience i.e. no change, which is negligible adverse.

- 4.16.12 It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.13 **Increased Risk of Accidents** - PIA statistics have been obtained for the highway network for the latest available five-year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.14 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.15 **Pedestrian Amenity** - The IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 3.4% and for HGV movements peak at 17.9% on Swale Way between the A249 and Barge Way, which are well below such changes.
- 4.16.16 On Barge Way between Swale Way and Fleet End, daily increases in total vehicle movements are predicted to peak at 8.3% and for HGV movements peak at 14.9%, which are well below such changes.
- 4.16.17 On Barge Way to the east of Fleet End, daily increases in total vehicle movements are predicted to peak at 21.2% and for HGV movements peak at 46.1%, which are below such changes.
- 4.16.18 It is therefore considered that the magnitude of impact on pedestrian amenity would be low. The effect would therefore be slight adverse (low magnitude of

impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.16.19 **Pedestrian Delay** – The maximum increase in hourly vehicles expected on Barge Way will be 48 with baseline traffic flows of up to 551 vehicles per hour. The total future traffic movements fall well below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.16.20 On Swale Way, the baseline traffic flows are up to 2,229 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.9 seconds. The increase during this period is 91 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 16.6 seconds. This represents a change of 0.7 seconds. It is unlikely that a delay of 0.7 seconds will be perceived by pedestrians.
- 4.16.21 On this basis, it is therefore considered the effect on pedestrian delay would be slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.22 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect upon receptors along the local road network would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.23 **Visual Effects** – The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.
- 4.16.24 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.25 A summary of the above is shown in Table 4.78.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
2024 Cumulative plus the practical effect of the K3 Proposed Development plus WKN Proposed Development Effects					
Increase in traffic flows	Negligible / Low	Negligible / Low	Adverse	Long term	Negligible / slight

Table 4.78 – Summary of Cumulative Development in 2024 Including the practical effect of the K3 Proposed Development and WKN Proposed Development Operational Effects Prior to Mitigation

Mitigation

4.16.26 The cumulative sites in the Local Plan are required to improve the capacity of the A249 Grovehurst roundabouts and the two will need to come forward together to accord with the Local Plan. It is on this basis that negligible adverse effects are concluded for driver delay.

4.16.27 The effect of cumulative assessment is predicted to be not significant. In relation to the WKN Proposed Development, a Draft Travel Plan has been prepared in order to seek to minimise single occupancy vehicle movement by staff, seek to utilise existing HGV routes and to seek to avoid HGV movements during the peak hours. No further mitigation measures are necessary.

Residual Effects

4.16.28 The residual effects are summarised in Table 4.79.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.79: Residual cumulative traffic effects of Cumulative Development in 2024 Including the practical effect of the K3 Proposed Development and WKN Proposed Development Operational Traffic

Impact of the practical effect of the K3 Proposed Development, WKN Proposed Development and 2031 Cumulative Sites

4.16.29 Using a baseline of 2031 and including traffic from committed schemes, an assessment has been undertaken to assess the effects of the operation of the practical effects of the K3 Proposed Development and the construction of the WKN Proposed Development with cumulative sites in 2031.

4.16.30 Trip generation, temporal distribution and assignment to the highway network are as described above and the Transport Assessment at Appendix 4.1.

4.16.31 In accordance with the IEMA guidelines, these traffic flows have been assessed against the 2031 baseline traffic flows. A summary of the assessment is set out in Table 4.80.

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Swale Way between the A249 and Barge Way	10.2%	16.6%	5.7%	21.2%	8.4%	34.3%
Barge Way between Swale Way and Fleet End	4.4%	11.0%	6.5%	13.4%	8.3%	14.9%

Receptor	Weekday Impact		Saturday Impact		Sunday Impact	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Barge Way east of Fleet End	9.0%	21.6%	17.0%	36.5%	21.2%	46.1%
A249 south of Swale Way	15.9%	10.8%	13.4%	14.2%	15.6%	17.1%
A249 between the A2 and M2	16.2%	8.4%	14.3%	11.4%	16.7%	13.7%
Swale Way north of Reams Way	0.2%	0.1%	0.3%	0.5%	0.3%	0.0%
Swale Way south of Reams Way	0.2%	0.1%	0.3%	0.5%	0.3%	0.0%
Swale Way south of Ridham Avenue	0.2%	0.2%	0.3%	0.8%	0.3%	0.0%
M2 East of A249	0.9%	0.6%	0.7%	0.9%	0.8%	1.1%
M2 West of A249	3.7%	3.8%	3.5%	6.1%	4.0%	8.2%
A249 north of Swale Way	3.4%	0.1%	3.3%	0.1%	3.7%	0.0%

Table 4.80: Summary of Daily Impact of Cumulative Development in 2031 Including the practical effect of the K3 Proposed Development and WKN Proposed Development Operational Traffic Flows

- 4.16.32 The largest predicted increases in weekday traffic flows occur on the A249 between the A2 and the M2 at 16.2%. On a Saturday and Sunday, the largest daily increase is predicted on Barge Way east of Fleet End at 17.0% and 21.2% respectively. The increases on the A249 between the A2 and the M2 are almost exclusively as a result of the 2031 cumulative sites; indeed, the impact as a result of the practical effect of the K3 Proposed Development and WKN Proposed Development is only 0.7%. Notwithstanding, the increase on the A249 between the A2 and the M2 is below the Rule 1 threshold.
- 4.16.33 The largest predicted increases in HGVs occur on 'Barge Way east of Fleet End' where increases of 21.6%, 36.5% and 46.1% are predicted on a weekday, Saturday and Sunday respectively.
- 4.16.34 As can be seen, with the exception of 'Barge Way east of Fleet End' on a Saturday and Sunday and Swale Way between the A249 and Barge Way on a Sunday, the increases as a result of the cumulative sites in 2031 plus the practical effect of the K3 Proposed Development plus WKN Proposed Development operational traffic flows on weekdays, Saturdays and Sundays are all lower than the Rule 1 threshold.
- 4.16.35 Hourly increases along the M2 and the A249 links are also all lower than the Rule 1 threshold. On this basis, and in accordance with the above IEMA guidance, the traffic flows will result in imperceptible effects along the M2 and the A249 links. In accordance with the above IEMA guidance, the magnitude of impact of the traffic flows along these links would be negligible. The significance of the increase in traffic flows along these links would therefore be negligible adverse, thus the effect would be not significant.
- 4.16.36 There are some hours when the HGV or total vehicle percentage impact is greater than the Rule 1 threshold. Where this is the case, the receptors together with the percentage impact and the hours which they relate to are included below:
- Swale Way between the A249 and Barge Way HGVs – between 21:00–23:00 on a weekday, between 19:00–23:00 on a Saturday, and between 07:00– 3:00 on a Sunday;

- Barge Way between Swale Way and Fleet End HGVs – between 21:00–23:00 on a weekday, between 21:00–23:00 on a Saturday, and between 21:00–23:00 on a Sunday;
- Barge Way east of Fleet End total vehicles – between 07:00–08:00 and 19:00–23:00 on a Saturday and between 07:00–08:00 and 19:00–23:00 on a Sunday;
- Barge Way east of Fleet End HGV's – there are HGV increases between the weekday hours of 18:00–23:00, there are HGV increases between 07:00–23:00 on a Saturday and there are HGV increases between 07:00–23:00 on a Sunday.

4.16.37 Due to these increases being over the Rule 1 threshold assessment has been undertaken below to assess the impact in detail.

4.16.38 **Traffic Noise and Vibration** – The noise and vibration effects of the road traffic are assessed in detail in Chapter 7.

4.16.39 **Driver Delay** – Any effects of delay to other road users would only be apparent during the identified peak hours when congestion may occur.

4.16.40 The Transport Assessment at Appendix 4.1 undertakes operational assessments of key junctions on the highway network. It concludes that the impact of the increased traffic flows as a result of the practical effect of the K3 Proposed Development and WKN Proposed Development is negligible upon junction performance and driver delay. However, when 2031 cumulative development traffic flows are added into the A249 Grovehurst roundabouts, the performance of the junctions deteriorate and there is an increase in driver delay. The shift away from a negligible change is solely as a result of the cumulative development. Indeed, the Local Plan identifies this and sets out that improvements are required to the A249 Grovehurst roundabouts to accommodate the cumulative developments. If the cumulative developments come forward, then they will have to come forward with improvements to the A249 Grovehurst roundabouts. Such improvements would reduce driver delay to at best minimal amounts or to levels that are similar to those currently experience i.e. no change, which is negligible adverse.

4.16.41 It is therefore considered that the effect upon driver delay would be negligible adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.16.42 **Increased Risk of Accidents** – PIA statistics have been obtained for the highway network for the latest available five-year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible to low. The effect would therefore be slight adverse (negligible to low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

- 4.16.43 **Severance** – The IEMA guidelines indicate that severance effects are considered ‘slight’, ‘moderate’ and ‘substantial’ with changes in traffic flows of 30%, 60% and 90% respectively. However, the community is only on one side of the road and thus there is no opportunity for severance to occur. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.44 **Pedestrian Amenity** – The IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to peak at 10.2% and for HGV movements peak at 34.3% on Swale Way between the A249 and Barge Way, which are well below such changes.
- 4.16.45 On Barge Way between Swale Way and Fleet End, daily increases in total vehicle movements are predicted to peak at 8.3% and for HGV movements peak at 14.9%, which are well below such changes.
- 4.16.46 On Barge Way to the east of Fleet End, daily increases in total vehicle movements are predicted to peak at 21.2% and for HGV movements peak at 46.1%, which are below such changes.
- 4.16.47 It is therefore considered that the magnitude of impact on pedestrian amenity would be low. The effect would therefore be slight adverse (low magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.48 **Pedestrian Delay** – The maximum increase in hourly vehicles expected will be 48 on Barge Way with existing traffic flows of up to 551 vehicles per hour. The total future traffic movements fall well below the 1,400 vehicles per hour as described in the IEMA guidelines.
- 4.16.49 On Swale Way, the baseline traffic flows are up to 2,229 vehicles per hour, which is above the 1,400 vehicles per hour as described in the IEMA guidelines, and which, according to the IEMA guidelines, equates to a pedestrian delay of 15.9 seconds. The increase during this period is 230 vehicles per hour, which, according to the IEMA guidelines, would equate to a pedestrian delay of 17.6 seconds. This represents a change of 1.7 seconds. In percentage terms, this change in delay is 10% when it is already at a level (1,400 vehicles per hour) whereby the IEMA guidelines advise may result in a crossing delay which may be perceptible.
- 4.16.50 On this basis, it is therefore considered the effect on pedestrian delay would be slight adverse (medium magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.
- 4.16.51 **Dust and Dirt** – The HGVs route both off and on-site will be on made-up roads / floor areas and are therefore unlikely to generate dust and dirt. It is therefore considered the dust and dirt effect would be negligible adverse (negligible magnitude of impact with negligible sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.16.52 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. Barge Way and Swale Way are not located in such locations and there are already HGVs travelling along them.

4.16.53 It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be negligible adverse (negligible magnitude of impact with negligible / low sensitivity as set out in Tables 4.3 and Table 4.4) and thus not significant.

4.16.54 A summary of the above is shown in Table 4.81.

Effect Identified	Receptor Sensitivity	Impact Magnitude	Nature	Duration	Degree of Effect
Practical effect of the K3 Proposed Development plus WKN Proposed Development Effects plus 2031 Cumulative Sites					
Increase in traffic flows	Negligible / Low	Negligible / Low / Medium	Adverse	Long term	Negligible / slight

Table 4.81 – Summary of Cumulative Development in 2031 Including the practical effect of the K3 Proposed Development and WKN Proposed Development Operational Effects Prior to Mitigation

Mitigation

4.16.55 The cumulative sites in the Local Plan are required to improve the capacity of the A249 Grovehurst roundabouts and the two will need to come forward together to accord with the Local Plan. It is on this basis that negligible adverse effects are concluded for driver delay.

4.16.56 The effect of 2031 cumulative assessment is predicted to be not significant. In relation to the WKN Proposed Development, a Draft Travel Plan has been prepared in order to seek to minimise single occupancy vehicle movement by staff, seek to utilise existing HGV routes and to seek to avoid HGV movements during the peak hours. No further mitigation measures are necessary.

Residual Effects

4.16.57 The residual effects are summarised in Table 4.82.

Residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Degree of effect	Level of certainty
Increase in traffic flows	Negligible / Low	Negligible/low/medium	Adverse	Long term / Short term	Negligible / slight	Reasonable

Table 4.82: Residual cumulative traffic effects of Cumulative Development in 2031 Including the practical effect of the K3 Proposed Development and WKN Proposed Development Operational Traffic

4.17 Summary

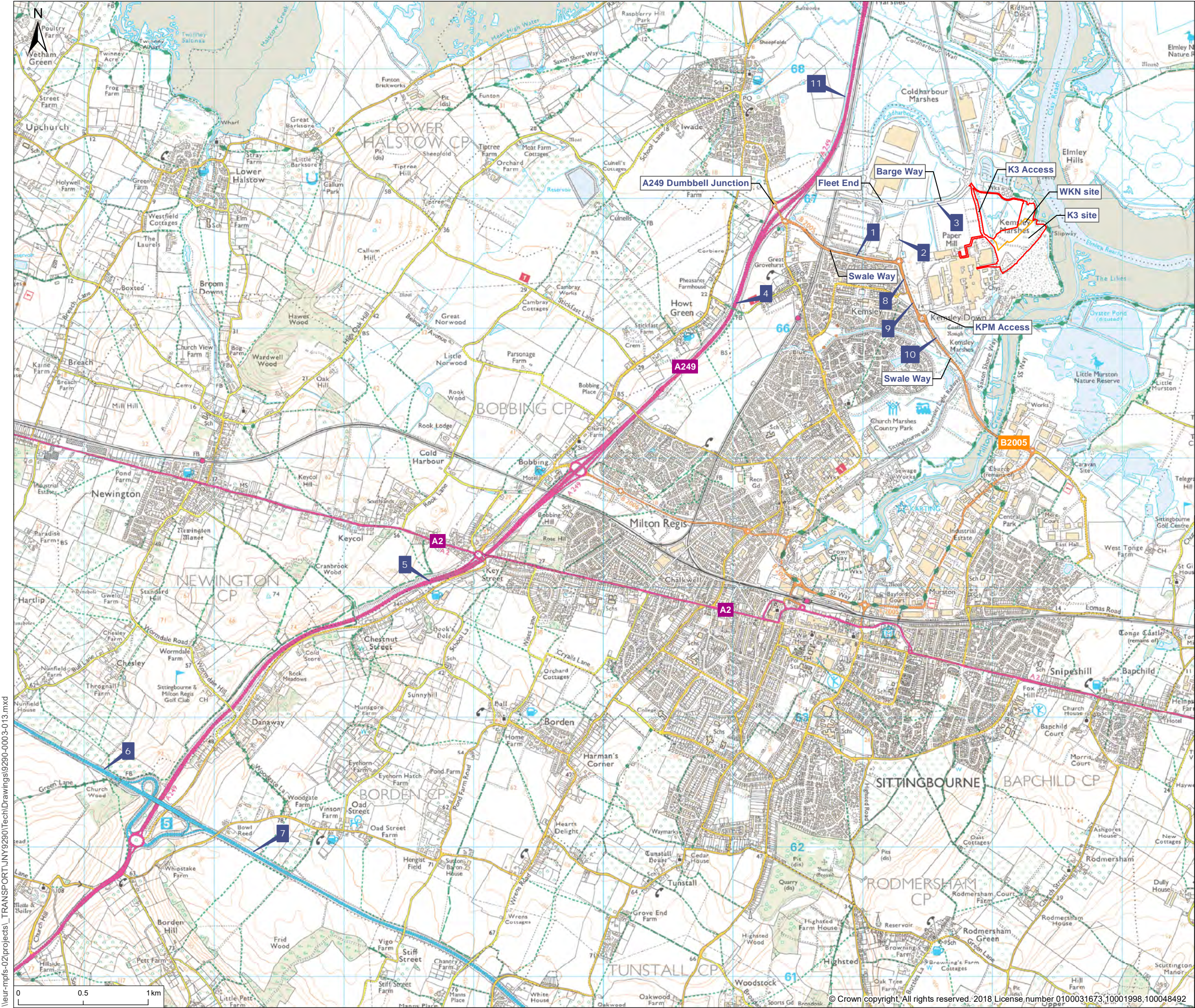
- 4.17.1 This chapter assesses the likely significant traffic and transport effects resulting from the K3 Proposed Development, the practical effect of the K3 Proposed Development and the WKN Proposed Development. Assessments have been undertaken using current guidance documents and best practice and baseline conditions have been established through industry standard methods.
- 4.17.2 The Chapter has considered the effect of the K3 Proposed Development, the practical effect of the K3 Proposed Development and the WKN Proposed Development on their own and combined and also cumulatively with other emerging developments.
- 4.17.3 The assessments predict that the, K3 Proposed Development, the practical effect of the K3 Proposed Development or the WKN Proposed Development would result in effects that are not significant. They also predict that the K3 Proposed Development, the practical effect of the K3 Proposed Development and the WKN Proposed Development combined would result in effects that are not significant.
- 4.17.4 The assessments also predict that the K3 Proposed Development, the practical effect of the K3 Proposed Development and the WKN Proposed Development cumulatively with other emerging developments would result in effects that are not significant.

References

Department for Communities and Local Government (DCLG) (2012): *National Planning Policy Framework*, London: DCLG

Institute for Environmental Management and Assessment (IEMA) (1993) *Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic*: IEMA

Volume 11 – Environmental Impact Assessment, Design Manual for Roads and Bridges (DMRB): Highways Agency et al



Legend

- DCO Boundary
- Road Link

Road Link ID	Road Link/Description
1	Swale Way East of B2005 Grovehurst Roundabout
2	Barge Way North of Swale Roundabout
3	Barge Way, East of Fleet End Roundabout
4	A249 South of Swale Way Junction
5	A249 between the A2 and M2
6	M2 West
7	M2 East
8	Swale Way north of Reams Way Junction
9	Swale Way south of Reams Way Junction
10	Swale Way south of Ridham Avenue Roundabout
11	A249, North of Swale Way Junction

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Client Wheelabrator Technologies Inc
Project K3 and WKN DCO
Title Site Location

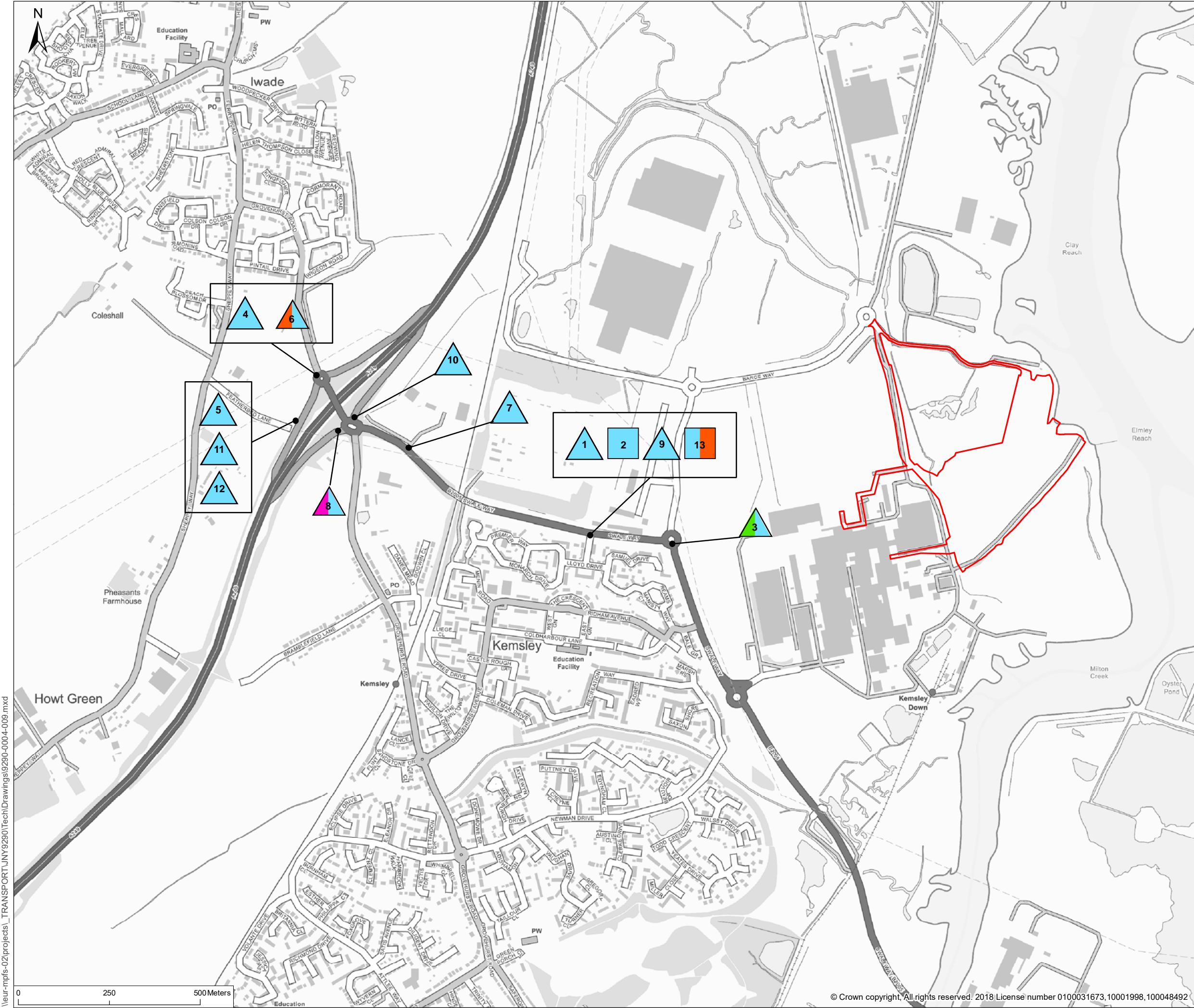
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Job Ref JNY9290 Scale @ A3 1:28,000 Date Created SEPT 2019

Figure Number
4.1

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Legend

DCO Boundary

Severity of accident:

- Slight injury
- Serious injury
- Fatal injury

Accident involving:

- Car
- Goods vehicle
- Motorcycle
- Pedestrian

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Client Wheelabrator Technologies Inc

Project K3 and WKN DCO
Summary of Personal Injury
Title Accidents (1st January 2013 to 31st December 2017)

Status SUBMISSION Drawn By: CR PM/Checked By: AS

Job Ref JNY9290 Scale @ A3 1:10,000 Date Created SEPT 2019

Figure Number

4.2

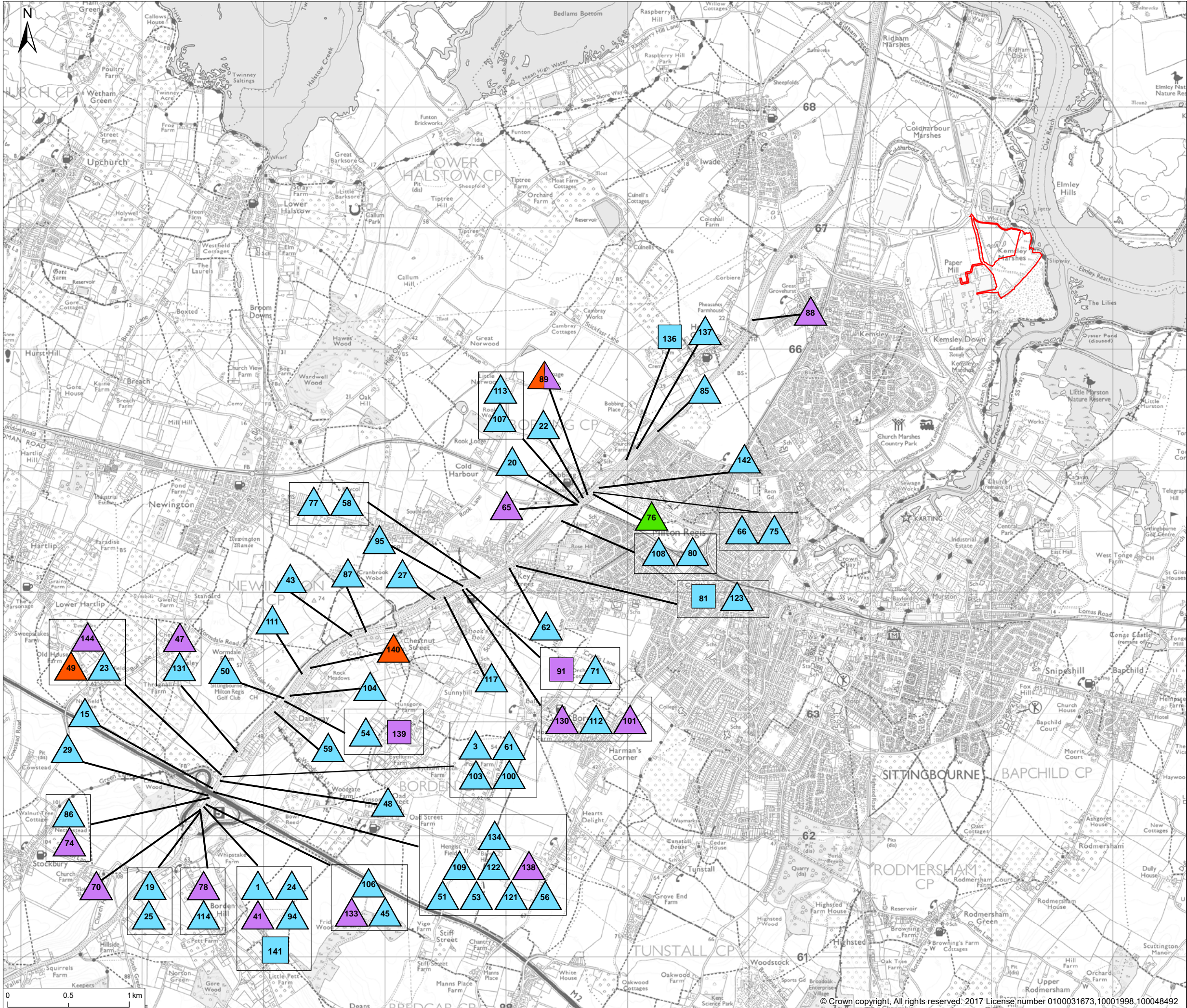
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Legend

DCO Boundary

Severity of accident:

△ Slight injury

□ Serious injury

○ Fatal injury

Accident involving:

● Car

● Goods vehicle

● Motorcycle

● Pedal cycle

● Agricultural vehicle

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Client Wheelabrator Technologies Inc

Project K3 and WKN DCO

Title Summary of Personal Injury
Accidents (1st April 2011 to 31st
March 2016)

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Figure Number

4.3

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