Togher Area Masterplan

November - 2018

Future Analytics
Planning | Research | Economics

Laois County Council
Áras an Chontae, Portlaoise, Co. Laois

ARUP

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Introduction

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Introduction

1.1 | Introduction

Portlaoise is an expanding vibrant town with a skilled workforce and the required infrastructure to promote inward investment and the creation of more local jobs. Laois County Council is committed to facilitating the creation of employment within the town and this plan provides the appropriate framework for development through the masterplanning of adequately zoned lands underpinned by policies which support economic development.

Portlaoise's location on the national motorway and rail networks and proximity to the Greater Dublin Area in conjunction with the zoning and servicing of employment generating lands, including a significant land bank at Togher is of major benefit in attracting economic development to the town.

The zoning and servicing of land at Togher for a National Enterprise Park for enterprise, employment and industrial uses, in the immediate vicinity of national strategic transport infrastructure, represents a unique opportunity to develop a cluster of complementary enterprises and more generally a larger, more robust and diverse economic basis for the town, county and region.

A previous Masterplan was prepared for the Togher National Enterprise Park in 2010 in conjunction with the Department of the Environment, Planning and Local Government and Transport Infrastructure Ireland (formerly National Roads Authority). The Council prepared this previous Masterplan in order to guide the development of key sites within the Togher/ Clonminam area.

The Council has now commissioned Arup to prepare an updated Masterplan for the Togher/ Clonminam lands that will develop and deliver the most effective presentation in terms of layout and design, land management and traffic modelling associated with the site within the context of the Portlaoise Local Area Plan (2018 – 2024).

The movement strategy is a central pillar of the Masterplan as it outlines the way in which people will access, interact with and permeate through the area. This strategy sets ambitious targets in terms of modal splits and advocates the promotion of sustainable modes of transport over private vehicular travel through the implementation, monitoring and control of supporting mobility targets.

1.2 | Challenges and Opportunities

The creation of a National Enterprise Park is a massive opportunity, crucial to the well-being and prosperity of not only Portlaoise but the entire Midland Region.

Delivering the benefits associated with this Masterplan needs to take place in a wider framework, reflecting the County Council's commitment to responsible and sustainable development. Therefore, the development of the Togher Area Masterplan brings both challenges and opportunities.

The challenges arise from:

- Managing the impact on local people and the environment.
- Maintaining accessibility in the light of increasing demand for travel.

The opportunities arise from:

- Increasing economic activity, stimulating investment, regeneration and development.
- The creation of an extensive array of highly skilled jobs.
- The effective reduction of the need to travel to the Dublin Region to find work.

1.3 | Purpose of the Masterplan

The purpose of this Masterplan is to ensure the integrated and coordinated development of the Togher and Clonminam areas for appropriate uses as indicated in the Portlaoise Local Area Plan 2018 – 2024; and to maximise the beneficial return of public investment in the national transportation network by protecting the carrying capacity of such routes in the interest of public safety.

In order to achieve this objective, this Masterplan intends to guide the future development of the study area by providing a vision for the future development of the subject lands along with a preferred plan layout and specifying the necessary infrastructure to support the anticipated development demands at full build-out. This is accomplished by providing a series of development controls that will help the Council to safeguard the orderly implementation of the plan.

Such an approach is intended to ensure that all development is integrated, does not occur in a piecemeal or uncoordinated manner and does not evolve with little or no services. Where appropriate, the Master plan will address the phasing of development to ensure that the scheme is realized in a sustainable manner.

1.4 | The Vision

The vision for the Masterplan is to deliver a viable economic zone, as a National Enterprise Park, focused particularly on heavy, light and ICT industry, distribution, logistics and other uses associated with the transport industry. This has the potential to be a major boost to the economy of Portlaoise and to contribute to the growth of the County and the Region as a whole.

The Masterplan has been designed to accommodate and attract a range of potential business and industries to the candidate sites while meeting the needs of existing employers to expand their business.

The Masterplan envisages the creation of a sustainable movement strategy for the Togher Area, facilitating links to Portlaoise Town and its existing residential neighbourhoods through softer modes of travel. In tandem with this vison, the Masterplan is cognisant of the high importance of the M7 and strives towards minimizing impacts on the national road network.

1.5 | Masterplan Objectives

This Masterplan aims to achieve the following goals and objectives, which are designed first and foremost to deliver the vision for the articulation of the lands as a National Enterprise Park.

- To secure the town's role as one of the leaders for economic growth in the Midlands Area;
- To contribute to the prosperity of Portlaoise by facilitating the provision of adequate land for enterprise, including sites at suitable locations for industrial, enterprise, commercial and where appropriate small business uses having regard to spatial planning, infrastructural, environmental and transportation requirements and compatibility with adjoining land uses;
- To maximise the beneficial return of public investment in the National road network by protecting the safety, carrying capacity and efficiency of such routes;
- To support and protect the existing economic base and seek to diversify the economy through inward investments at key growth areas within the town and the environs;

- To support the provision of complementary facilities and land uses to support the sustainable development potential of the Togher Area;
- To promote developments of high-quality that incorporates a sensitive approach to design while protecting and enhancing the surroundings;
- To ensure that the area is developed in an orderly and sustainable manner;
- To promote energy efficient and sustainable development patterns, land uses and buildings that incorporate Leadership in Energy and Environmental Design (LEED) standards;
- To facilitate potential synergies in terms of energy, materials and logistics between the present and future uses in the area with a long-term aspiration to become an Eco-Enterprise Park;
- To seek an integrated transport approach linked to land use objectives which encourages a reduction in the need for travel, tackling traffic congestion and promoting public transport, cycling, walking as alternative means of travel to the use of car;
- To provide for and promote multi-modal transportation for the delivery of goods, services and overall access to the area; and
- To provide a positive gateway into the National Enterprise Park and Portlaoise.

The National Planning Framework is supported by National Strategic Outcomes (NSOs). The NSOs strive towards creating a single vision and a shared set of goals for communities, big and small, across Ireland. The following outcomes aim to ensure a solid foundation for delivering transformational change over the coming years;

1. Compact Growth
2. Enhanced Regional Accessibility
3. Strengthened Rural Economies and Communities
4. Sustainable Mobility
5. A Strong Economic, supported by Enterprise, Innovation and Skills
6. High-Quality International Connectivity
7. Enhanced Amenities and Heritage
8. Transition to a Low Carbon and Climate Resilient Society
9. Sustainable Management of Water, Waste and other Environmental Resources
10. Access to Quality Childcare, Education and Health Services

There is significant alignment between the objectives of the Togher Masterplan and the NSOs, particularly in the area of enhancing regional accessibility (NSO 2); strengthening rural economies and communities (NSO 3); and preparing high-quality international connectivity (NSO 6).

Finally, the Masterplan is structured to provide direction and a framework for future development patterns on each area but flexible enough to allow Laois County Council to respond to market conditions and developer interest.

1.6 | Status of the Masterplan

This Masterplan has been prepared within the context of the Portlaoise Local Area Plan 2018 – 2024 (LAP). The LAP sets out an overall strategy for the proper planning and sustainable development of Portlaoise, in the context of the Laois County Development Plan 2017 – 2023 and the Midland Regional Planning Guidelines 2010 – 2022. The LAP has also been informed by Ministerial Guidelines issued pursuant to Section 28 of the Act, together with EU requirements regarding Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA).

1.7 | Key Components of the Masterplan

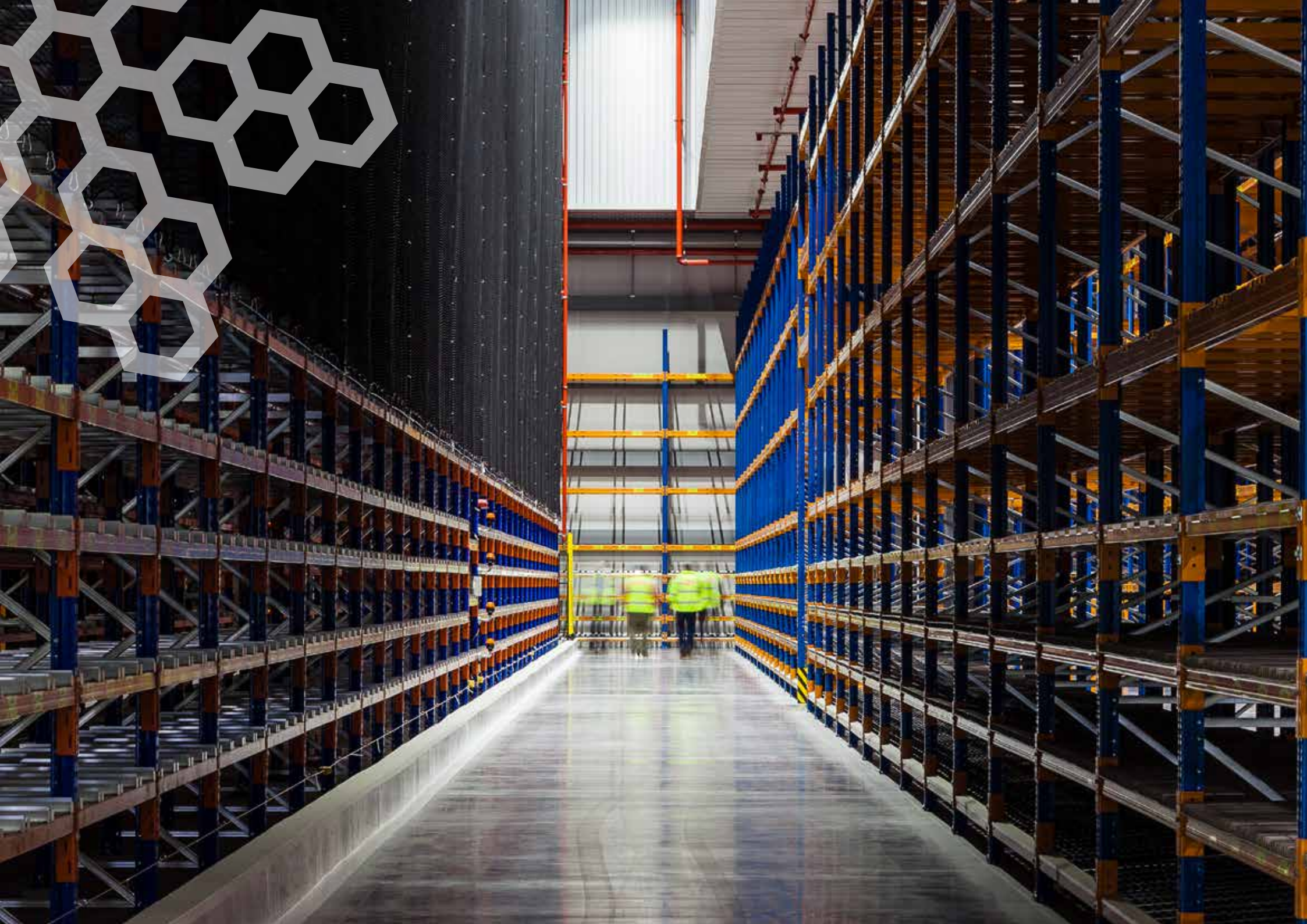
The structure of the Masterplan emerged as a result of a number of steps summarised below:

- The establishment of a vision and key principles;
- A detailed analysis of the strategic planning policy context;
- A detailed survey and analysis of the site context;
- The translation of the key objectives and policy context into proposals for the type and quantum of development to be accommodated on the lands over the lifetime of the Masterplan; and
- The establishment of an Urban Design framework that sets out the layout, structure and other aspects of development form, taking into account the characteristics of the site context and zoning.

The structure of the document is as follows:

- Section 2 sets out the national, regional and local planning policy context, emphasising the strategic importance of employment creation within the Togher area;
- Section 3 sets out a profile of Portlaoise in terms of the historical growth of the town and recent patterns of development and provides an analysis of the Togher Masterplan Area in terms of land use, land ownership, existing transport environment, current infrastructure provision and the character of the landscape;
- Section 4 includes the full Masterplan description including the vision, the land use strategy, and the proposed character areas;
- Section 5 sets out the movement strategy for the lands, including the overall transport policies and framework envisaged for the development with an outline of the traffic assessments carried out to determine the potential impact of the development proposals;
- Section 6 outlines the proposed services and utilities strategy for the area;
- Section 7 outlines the proposed sustainability strategy for the area with the intention of creating an Eco-Industrial Park within the Togher lands;
- Section 8 sets out the public realm design standards which will be used as a reference guide for all development proposals in terms of public art, materials, signage, and landscaping;
- Section 9 sets out the built form design guide which will be used as a reference guide for all development proposals in terms of plot arrangements, built form, and internal circulations; and
- Section 10 describes the implementation and delivery of the Masterplan in terms of phasing arrangements and funding proposals for the implementation of the overall development.

- Appendix A includes the Traffic Assessment report carried out for the Togher Masterplan.



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Strategic and Policy Context

Strategic and Policy Context

2.1 | Strategic Location

At a national and regional scale Portlaoise is extremely well connected to the rest of the country. The town is located on the M7/M8 National Motorway Network which enables easy access to Cork, Limerick and Dublin including Dublin Airport and Port. The N77 National Secondary Route runs from the town centre of Portlaoise along the eastern boundary of the Masterplan landbank but ventilates the midway development also within the study area. The N80 National Secondary route extends through Portlaoise providing access to Carlow, Waterford and Rosslare Europort to the south and Tullamore, Mullingar and Athlone to the north. Portlaoise is also located on the Dublin to Cork railway line, which provides a high degree of rail connectivity nationally. Portlaoise in its national context is illustrated in Figure 1.

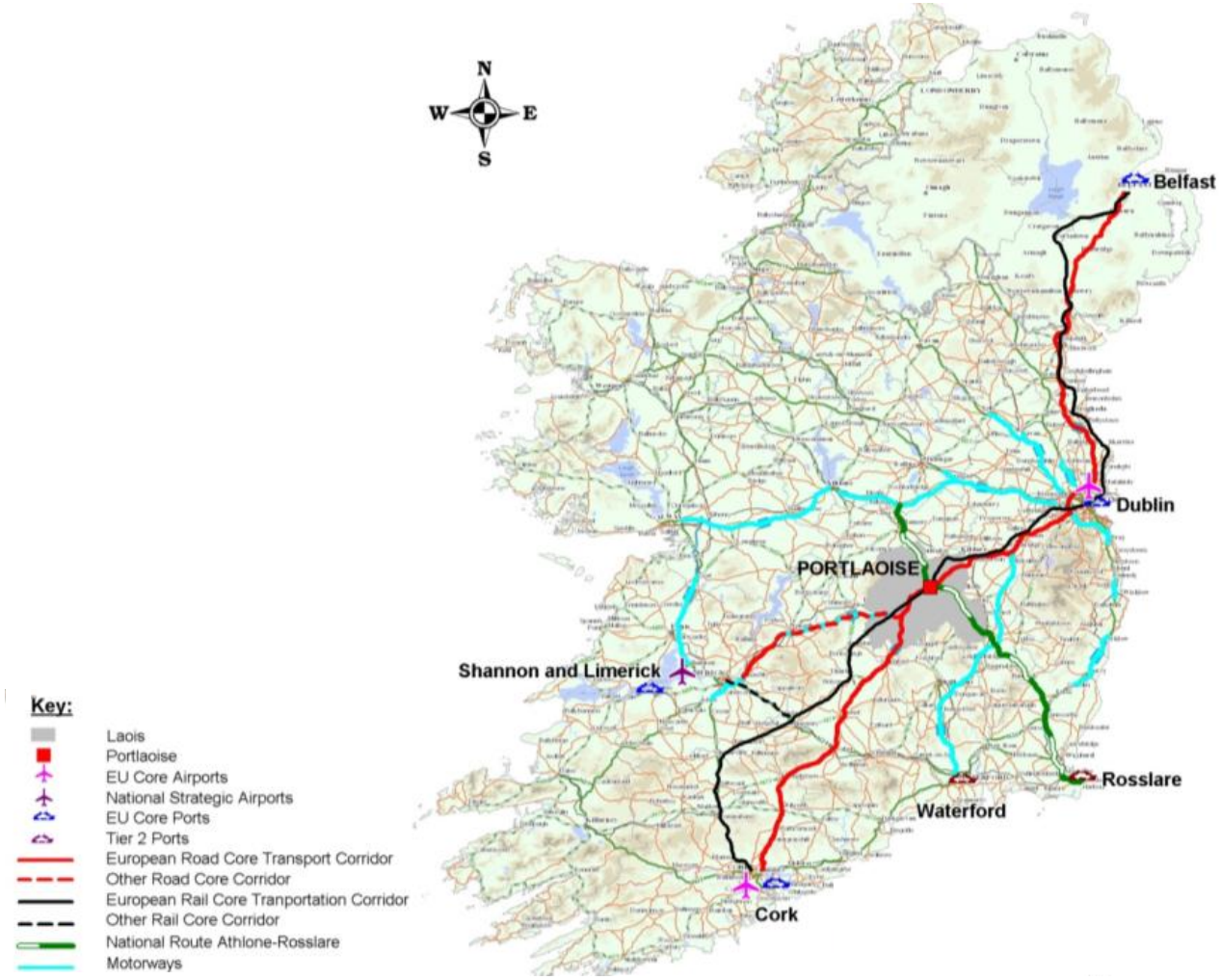


Figure 1: Portlaoise National Context

(Source: Submission on behalf of Laois County Council to the National Planning Framework "Ireland 2040 – Our Plan")

2.2 | The Togher Masterplan Area's Strategic National and Regional Role

The National Enterprise Park for the Togher Masterplan Area is supported by the *National Planning Framework and the Midlands Regional Planning Guidelines 2010-2022.*

The National Planning Framework (NPF) (Section 4.2) identifies Portlaoise as one of Ireland's fastest growing large towns.

> *"There is also a category of historically larger town, mainly in Leinster, that experienced significant commuter based residential growth during the same period, but not jobs growth, in part due to a decline in traditional industrial and process-based employment. These include, for example, Balbriggan, Navan and Portlaoise, Ireland's three fastest growing large towns between 1996 and 2016, where the population has grown rapidly, without equivalent increases in jobs."*

It is interesting to compare the dynamics of change in Portlaoise compared to the other main Midland towns. While the population rose by 9.5% to 22,050 between 2011 and 2016 in Portlaoise, Athlone saw its total number of people grow by 6% to 21,349. Mullingar, the third largest town in the region and second biggest in Westmeath, is just behind with a population of 20,928 (up 4%). Offaly's county town, Tullamore saw its numbers rise by less than 2 per cent to 14,607. So while Athlone is the designated Regional Centre under NPF 2040 Portlaoise has overtaken it in terms of population and growth, and Portlaoise is now the largest town in the Midlands region

The NPF notes that this has not been balanced with a proportionate increase in employment. At section 3.2 it comments:

> *"In the wider Mid-East Region, the rapid growth experienced by many towns in recent decades was mainly driven by housing, rather than jobs centred development. An integrated approach to the development of these and similar towns is a priority, but playing to local strengths and securing employment opportunities to drive self-sustaining, rather than mainly housing-led development."*

At section 4.4 'Planning for Urban Employment Growth' the NPF advises that *"At an urban scale, in cities and towns generally, it is important to identify locations where enterprises can access competitively priced development lands, utilities and commercial properties to the highest standards available internationally. Planning to accommodate strategic employment growth at regional, metropolitan and local level should include consideration of:*

- *Current employment location, density of workers, land-take and resource/infrastructure dependency, including town centres, business parks, industrial estates and significant single enterprises;*
- *Locations for expansion of existing enterprises;*
- *Locations for new enterprises, based on the extent to which they are people intensive (i.e. employees/ customers), space extensive (i.e. land), tied to resources, dependent on the availability of different types of infrastructure (e.g. telecoms, power, water, roads, airport, port etc.) or dependent on skills availability;*
- *Locations for potential relocation of enterprises that may be better suited to alternative locations and where such a move, if facilitated, would release urban land for more efficient purposes that would be of benefit to the regeneration and development of the urban area as a whole, particularly in metropolitan areas and large towns."*

In addition to the five cities, the NPF stresses *"there are opportunities for other urban areas and in particular well connected towns that are accessible to a significant population catchment and/or can offer a good quality of life, to accommodate employment growth"* (p.65).

The NPF also highlights that "*a competitive, innovative and resilient regional enterprise base is essential to provide the jobs and employment opportunities for people to live and prosper in the regions"* (NSO 6 - p.144).

The NPF includes the following relevant **National Policy Objectives**:

Objective 1b: *Eastern and Midland Region: 490,000 - 540,000 additional people i.e. a population of around 2.85 million;*

Objective 1c: *Eastern and Midland Region: around 320,000 additional people in employment i.e. 1.34 million in total;*

Objective 5: *Develop cities and towns of sufficient scale and quality to compete internationally and to be drivers of national and regional growth, investment and prosperity;*

Objective 6: *Regenerate and rejuvenate cities, towns and villages of all types and scale as environmental assets, that can accommodate changing roles and functions, increased residential population and employment activity and enhanced levels of amenity and design quality, in order to sustainably influence and support their surrounding area; and*

Objective 10b: *Regional and Local Authorities to identify and quantify locations for strategic employment development, where suitable, in urban and rural areas generally.*

The development of Togher as a National Enterprise Park with logistics and distribution uses, is supported by the policy frameworks on a national and regional level as it has the potential to connect the metropolitan cities of Cork, Limerick, and Dublin and therefore give effect to the vision of the National Planning Framework 2040 to support growth of the largest Metropolitan Cities. With the national and regional planning frameworks in place, and the strategic location of Portlaoise connecting Cork, Limerick, and Dublin, there is considerable weight of policy towards the development of Togher as a National Transport Node while strengthening and supporting the growth of Portlaoise as a key Midlands settlement, and balancing population growth with employment growth.

The Regional Action Plan for Jobs 2015-2017 in the section 'Being Connected - internationally, nationally and regionally' notes:

"An open economy relies on effective connections. We will build connections regionally, nationally and internationally through business, people and the research system.

We will: roll out a new approach for a National Clustering initiative in key sectors of strength that has visibility and stature in an international context."

The strong population growth of Portlaoise is well established and identified in both the National Planning Framework and Regional Action Plan for Jobs 2015-2017. The development of Togher Masterplan Area as a National Enterprise Park would provide Portlaoise with employment opportunities to meet the population increase, as well as contribute to the regional growth and economic development of the Metropolitan Area of Dublin and Eastern and Midland Regional Assembly area, in accordance with the objectives of the National Planning Framework.

In addition to the population growth, there is an identified need to balance this with an increase in employment. The strategic location of the Togher Masterplan Area, with services infrastructure and several established enterprises, would be in line with the considerations outlined in the NPF regarding strategic employment growth. The development of the National Enterprise Park in the Togher Masterplan Area would thereby provide the Region with the opportunity to strengthen the employment activities locally.

Along with the National Policy Objectives, the National Strategic Outcomes set a framework for making the cities, towns and villages in Ireland places where many people choose to live, work and visit. By prioritising strategic investment in the following areas; housing and sustainable urban development; national road network; rural development; environmentally sustainable public transport; enterprise, skills and innovation capacity; airports and ports; culture, heritage and sport; climate action; water infrastructure; and education, health and childcare, Ireland's potential for continued growth will be realised.

The National Strategic Outcomes are as follows:

1. Compact Growth:

"Carefully managing the sustainable growth of compact cities, towns and villages will add value and create more attractive places in which people can live and work. All our urban settlements contain many potential development areas, centrally located and frequently publicly owned, that are suitable and capable of re-use to provide housing, jobs, amenities and services, but which need a streamlined and co-ordinated approach to their development, with investment in enabling infrastructure and supporting amenities, to realise their potential. Activating these strategic areas and achieving effective density and consolidation, rather than more sprawl of urban development, is a top priority"

2. Enhanced Regional Accessibility:

"A co-priority is to enhance accessibility between key urban centres of population and their regions. This means ensuring that all regions and urban areas in the country have a high degree of accessibility to Dublin, as well as to each other. Not every route has to look east and so accessibility and connectivity between places like Cork and Limerick, to give one example, and through the Atlantic Economic Corridor to Galway as well as access to the North-West is essential."

3. Strengthened Rural Economies and Communities:

"Rural areas play a key role in defining our identity, in driving our economy and our high-quality environment and must be a major part of our country's strategic development to 2040. In addition to the natural resource and food sector potential as traditional pillars of the rural economy, improved connectivity, broadband and rural economic development opportunities are emerging which offer the potential to ensure our countryside remains and strengthens as a living and working community"

4. Sustainable Mobility:

"In line with Ireland's Climate Change mitigation plan, we need to progressively electrify our mobility systems moving away from polluting and carbon intensive propulsion systems to new technologies such as electric vehicles and introduction of electric and hybrid traction systems for public transport fleets, such that by 2040 our cities and towns will enjoy a cleaner, quieter environment free of combustion engine driven transport systems."

5. A Strong Economy, supported by Enterprise, Innovation and Skills:

"This will depend on creating places that can foster enterprise and innovation and attract investment and talent. It can be achieved by building regional economic drivers and by supporting opportunities to diversify and strengthen the rural economy, to leverage the potential of places. Delivering this outcome will require the coordination of growth and place making with investment in world class infrastructure, including digital connectivity, and in skills and talent to support economic competiveness and enterprise growth."

6. High-Quality International Connectivity:

"This is crucial for overall international competitiveness and addressing opportunities and challenges from Brexit through investment in our ports and airports in line with sectoral priorities already defined through National Ports Policy and National Aviation Policy and signature projects such as the second runway for Dublin Airport and the Port of Cork - Ringaskiddy Redevelopment."

7. Enhanced Amenities and Heritage:

"This will ensure that our cities, towns and villages are attractive and can offer a good quality of life. It will require investment in well-designed public realm, which includes public spaces, parks and streets, as well as recreational infrastructure. It also includes amenities in rural areas, such as national and forest parks, activity-based tourism and trails such as greenways, blueways and peatways. This is linked to and must integrate with our built, cultural and natural heritage, which has intrinsic value in defining the character of urban and rural areas and adding to their attractiveness and sense of place."

8. Transition to a Low Carbon and Climate Resilient Society:

"The National Climate Policy Position establishes the national objective of achieving transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. This objective will shape investment choices over the coming decades in line with the National Mitigation Plan and the National Adaptation Framework. New energy systems and transmission grids will be necessary for a more distributed, renewables-focused energy generation system, harnessing both the considerable on-shore and off-shore potential from energy sources such as wind, wave and solar and connecting the richest sources of that energy to the major sources of demand."

9. Sustainable Management of Water, Waste and other Environmental Resources:

"Ireland has abundant natural and environmental resources such as our water sources that are critical to our environmental and economic wellbeing into the future. Conserving and enhancing the quality of these resources will also become more important in a crowded and competitive world as well as our capacity to create beneficial uses from products previously considered as waste, creating circular economic benefits."

10. Access to Quality Childcare, Education and Health Services:

"Good access to a range of quality education and health services, relative to the scale of a region, city, town, neighbourhood or community is a defining characteristic of attractive, successful and competitive places. Compact, smart growth in urban areas and strong and stable rural communities will enable the enhanced and effective provision of a range of accessible services."

The Togher Masterplan Area has the potential to contribute positively to achieve the National Strategic Outcome 2 - *Enhanced Regional Accessibility* by the capacity to "*enhance connectivity between centres of population of scale*". It also complements National Strategic Outcome 3 - *Strengthened rural economies and communities*, by developing and diversifying the employment opportunities as well as services and facilities in Portlaoise and its rural hinterland.

The National Enterprise Park supports National Strategic Outcome 6 - *A Strong Economy, supported by Enterprise, Innovation and Skills* by "*creating places that can foster enterprise and innovation and attract investment and talent. It can be achieved by building regional economic drivers and by supporting opportunities to diversify and strengthen the rural economy, to leverage the potential of places*".

Under this Outcome, the NPF supports *Entrepreneurialism and Building Competitive Cultures*, by "*Transforming firms in the regions for long-term success through a focus on productivity, innovation and internationalisation and building competitive regional clusters in manufacturing and services"* (p.144).

The Midland Regional Planning Guidelines (MRPG) 2010-2022 recognised that population growth in Portlaoise was expected to increase and that the demand for employment and enterprise of the town would grow accordingly. The MRPG's priority for the Midlands is to support the progression of the logistics and distribution sector, and in particular the development of Togher to provide for this sector based on its strategic location.

The Laois County Development Plan 2017-2023, reiterates the objective to support Portlaoise as the Principal Town with specific key strategic aims as follows:

*"**Aim 6 -** Promote and encourage the development of critical mass in Portlaoise and enable more economic development opportunities and the provision of services in a cost effect manner;"*

*"**Aim 7 -** Target Foreign Direct Investment (FDI) to appropriate zoned locations in the principal town of Portlaoise and the key service town of Portarlington and build on the economic strengths and tourism opportunities of County Laois in a balanced and sustainable manner focusing on the opportunities as outlined in the following sections,"*

The IDA Annual Report and Accounts 2017 shows an increase of 8.2% in total employment by region in IDA Ireland supported companies in the Midlands Region between the years 2014 and 2017. This is indicative of a growing trend for Foreign Direct Investment (FDI) to locate in the region. The zoned land of the proposed National Enterprise Park has the potential to draw FDI into the county, fulfilling Strategic Aims 6 and 7 of the Laois County Development Plan (2017-2023).

With the envisaged National Enterprise Park in mind, a review of the Central Statistics Office's (CSO's) Business Demography data allows us to examine the trends in types of businesses in County Laois over time. The 2017 data relates to the period 2012 to 2015 and indicates that County Laois has seen steady growth in the types of business uses proposed for the National Enterprise Park at Togher. This demonstrates both a market for such uses as well as the availability of suitable employees in these sectors.

As set out in Table 1, between 2012 and 2015 the number of active enterprises as well as the number of people employed in the NACE code sectors of 'Manufacturing', 'Professional, scientific and technical activities' and 'Administrative and support service activities' has increased. The most significant increases in the number of enterprises over this period have come in the 'Administrative and support service' sector with a 6% increase of 'active enterprises' in this sector. The latter sector shows a decrease in active enterprise but significant increase in employees, indicating growing concentrations of business activity.

County Laois Business type	No of Active Enterprises and Employees	2012	2015	% Change
Manufacturing	Active Enterprise (Number)	254	258	2%
	Employees (Number)	831	927	12%
Transportation and storage	Active Enterprise (Number)	333	317	-5%
	Employees (Number)	382	486	27%
Professional, scientific and technical activities	Active Enterprise (Number)	331	320	-3%
	Employees (Number)	521	487	-7%
Administrative and support service activities	Active Enterprise (Number)	168	178	6%
	Employees (Number)	345	445	29%

Table 1: Number of Businesses and Employees in County Laois 2012-2015 (CSO, 2017: BRA18)

2.3 | Council's Policy Approach

It is considered that Laois County Council will act in accordance with the land use zoning and local area plans to support the development of the Togher Masterplan Area as a National Enterprise Park. It has been recognised at both a national and regional context that Portlaoise has the potential to enable surrounding rural communities to grow and prosper. With Togher being served by excellent transport connections, the development of the Masterplan Area as a National Enterprise Park and the associated opportunities for employment will play a key role in this.

The zoning and servicing of land at Togher for a National Enterprise Park for enterprise, employment and industrial uses, in the immediate vicinity of national strategic transport infrastructure, represents a unique opportunity to develop a cluster of complementary enterprises and more generally a larger, more robust and diverse economic basis for the town, county and region.

As per the land use zoning of enterprise and employment for Portlaoise, the objective of Laois County Council is to provide for these activities, with the purpose to accommodate employment and enterprise uses that cannot be provided in a town centre location due to their scale and function. It is considered that adopting the Masterplan for the Togher Enterprise and Employment lands will therefore be supported by Laois County Council as it will unlock the strategic potential of the area with significant benefits to the local economy and quality of life, as well as being aligned with National and Regional policy direction.

3

Local Context

Local Context

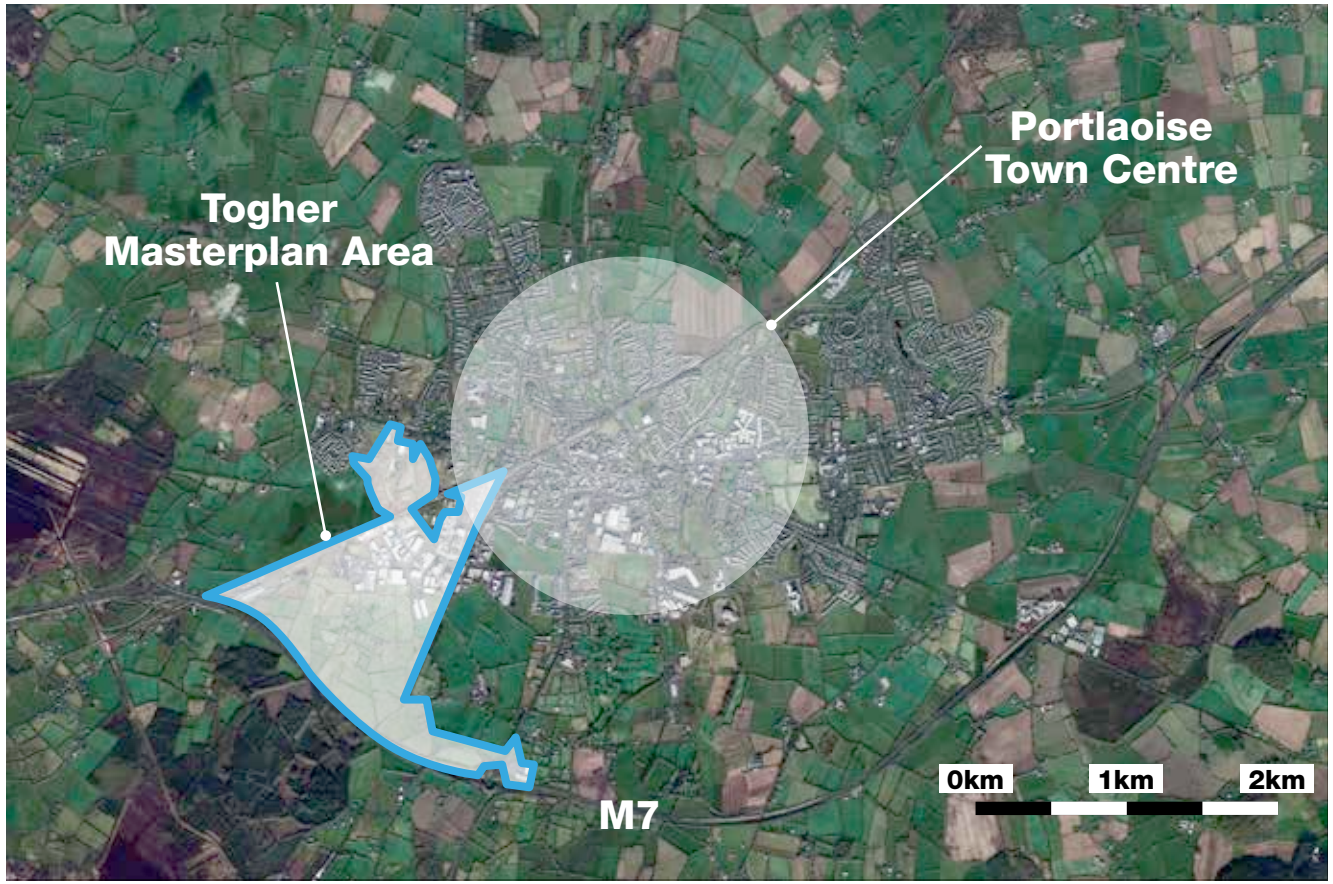


Figure 2: Location of Togher Masterplan Area within Portlaoise

3.1 | A Profile of Portlaoise

3.1.1 | The History of Portlaoise

The town of Portlaoise was founded around the crown fort 'Fort Protector', which was established in the 16th century as a British military outpost. The siting of a military fort at this location reflects its strategic military importance, situated on rising ground southeast of the river Triogue and with the Esker ridge forming a natural defensive barricade to the east.

From these martial beginnings the town experienced rapid expansion in the eighteenth and nineteenth centuries, with the urban core of the town emerging in addition to the varied streetscapes of nineteenth century dwellings. An institutional quarter developed on the Dublin Road with the construction of the prison and St. Fintan's Hospital while an ecclesiastical quarter developed to the north and east of the old fort with the building of the Church of St. Peter & Paul and the Presentation convent. The market square began to develop as the town's central market place in the nineteenth century.

The railway arrived in Portlaoise in 1844 connecting the town to lands further afield. As Portlaoise began to look outward, the town expanded along the principal routes out of town. This pattern continued into the twentieth century with the construction of a number

of housing estates at the periphery of the town. The delivery of James Fintan Lalor Avenue in the 1970s as an inner relief road facilitated new commercial and industrial development in this quarter of the town.

More recently, the town's centre of gravity has shifted somewhat south of the historic Main street towards the Laois Shopping Centre and a cluster of large retailers in the Kylekiproe area. In addition to this, the pull of the capital and commuting patterns have drawn the town further north and east with a number of housing estates spreading further along the R445. The Portlaoise bypass was delivered in 2010 relieving the town of a significant volume of through traffic travelling along the N7/N8 corridor. The location of the Togher Masterplan Area within the Portlaoise area is indicated in Figure 2.

3.1.2 | Recent Growth Trends

Today Portlaoise is the administrative capital of County Laois and is both the most populous and also the most densely populated town in the Midlands region. The population of Portlaoise has grown more than threefold since the1960s. The growth has been significant over the past decade, increasing by 45% between 2006 and 2016. The proportion of the county's population living within Portlaoise has grown steadily over this period, rising from 21% in 2006 to 26% in 2016.

Table 2 shows the population of the town between the years 1966 and 2016. The Laois County Development plan also sets a population target for the town of 25,382 persons by 2023.

Table 2: Portlaoise Population Trends

Year	1966	1974	1996	2002	2006	2011	2016	2023*
Population	5,927	6,470	9,474	12,127	14,613	20,145	22,050	25,382

**projected*

Source: CSO

Portlaoise benefits from a relatively young population, with 54.3% of the population below 35 years of age, compared to 47.1% elsewhere in the State. Portlaoise has a lower proportion of middle-aged and older residents, with just 16.1% of the population aged 55 or older, compared to 24% elsewhere in the State.

Portlaoise also benefits from an ethnically diverse population with 23% of its population being non-Irish. Of particular note, is that almost 15% of the population is made up of EU nationals excluding the UK.

These trends indicate that Portlaoise benefits from a young, diverse and growing workforce which lends support to the proposal for a National Enterprise Park within the town.

3.1.3 | Key Employment Areas

Among the largest employers in Portlaoise are state owned bodies such as the Department of Agriculture decentralised office, the Portlaoise and Midlands prisons, the Midlands Regional hospital, the ESB training centre, Laois County Council, Eir offices, the An Post mail centre as well as the various schools.

In addition to these public body employers a number of private sector employment centres have developed within the town. These employment areas are largely focused at the bottom half of the town, south of the Mountrath Road - Main Street – N80 Line as indicated in Figure 3. These employment centres are described below:

The Clonminam Business Park

The Clonminam Business Park is located to the south-west of Portlaoise within the Togher Masterplan lands and consists of a number of small and medium enterprises. The mix of uses within the estate varies from heavy industry to retail warehousing.

The Kylekiproe Retail Area

A number of retail centres are located within the Kylekiproe area. The first retail centre is the Laois Shopping Centre, situated between New Road and James Fintan Lalor Avenue. The shopping centre consists of retail stores, restaurants, a supermarket and other amenities and is the largest shopping centre in the County. The second retail centre in the Kypekiproe retail area is The Kyle Centre located on the New Road. The Kyle Centre contains a supermarket, a number of retail stores and other small enterprises. In addition to this, the Portlaoise Retail Park is located just off the R426 Timahoe Road. This centre contains a number of home supplies and furniture stores in addition to other retail offerings.

The Town Centre

The Portlaoise historical Town Centre is located along the Main Street and in the vicinity of the Market Square. It consists of a number of small enterprises, retail stores, restaurants, banks, public houses, supermarkets, hotels and entertainment and leisure establishments. The Town Centre represented the historical employment core of the town and still plays an important role in the economy of Portlaoise. Laois County Council recently published ‘2040 and Beyond A vision for Portlaoise’ which outlines a strategy for the revitalisation of the historical town centre of Portlaoise. One of the core objectives of this strategy is to provide for more employment within the historical Portlaoise Town Centre.

Ballymacken Industrial Centre

A small industrial and warehousing centre is located on the N80 Stradbally Road, adjacent to the motorway. This centre consists of several manufacturing, warehousing and construction firms. The Centre located outside of the town’s boundary, but is within a 10-km drive from most of the residential neighbourhoods.

Kea-Lew Business and Retail Park

The Kea-Lew Business and retail park is located south of the Irish Rail sleeper depot to the south-west of the town and contains a number of low density retail units.

Lismard Business Park

Lismard Business Park is located just off the N80 Timahoe Road, immediately south of the Portlaoise Retail Park and contains a number of light industrial uses as well as a small retail offering.

3.1.4 | Key Residential Areas

The majority of the existing residential development in Portlaoise is located to the north of the town, north of the R445 Mountrath Road - Main Street – N80 Line. Within the southern portion of the town there are several small residential clusters: the Bellingham housing complex, the Glenside estate, the Kyebrooke neighbourhood, the Downs, the Summerhill residential area and Beladd.

In the Northern half of the town, the majority of development is residential. These include Kilminchy village, the Forest Park development, Borris Court, Esker Hills, Maryborough Village and other developments along N80 and Borris Roads.

The distribution of employment and residential uses within Portlaoise, based on the zoning within the Portlaoise LAP (2018-2024) is indicated in Figure 3. Due to the number of strategic routes which radiate out from the town centre, the pattern of development has been clustered around and between these radial routes, with little connectivity in an orbital direction. Laois County Council are currently progressing a number of orbital routes in order to provide more orbital connectivity between these clusters of development.

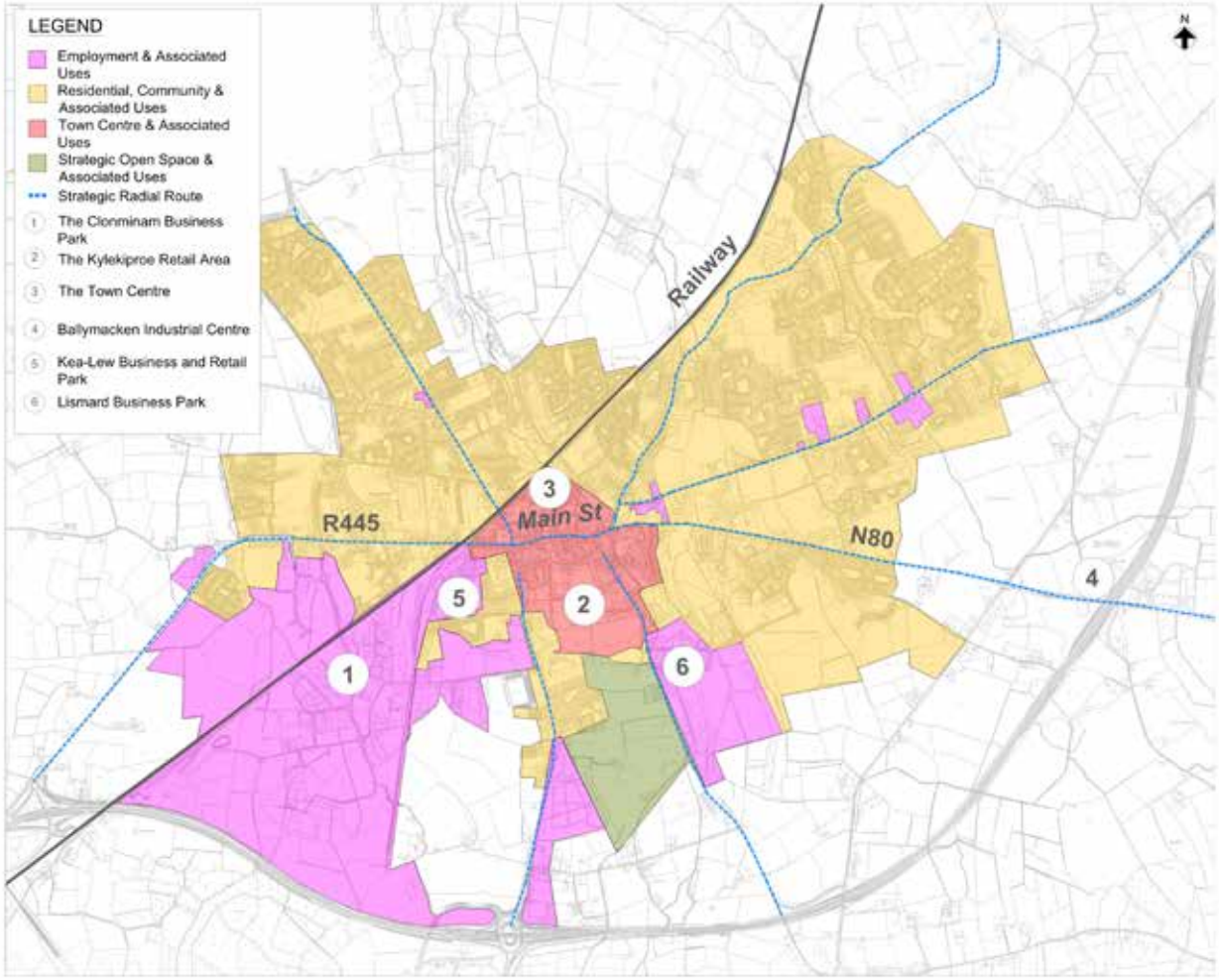


Figure 3: Simplified Portlaoise Zoning Map based on LAP (2018-2024)

3.2 | Togher Masterplan Area

At a more local scale, the Togher Masterplan Area is located to the south-west of Portlaoise Town, occupying a wedge shaped landbank between the existing fabric of the town, the M7 motorway and the Cork-Dublin rail line. The sites unique location affords it the opportunity to plug into the national road network outlined above as well as the national rail network, while also facilitating connectivity back to Portlaoise Town by softer modes of transport.

Junction 17 (the Togher M7 Interchange) acts as a gateway to Portlaoise and serves the Portlaoise Development Area as well as the Midlands Region. The capacity and operation of this junction must be safeguarded through sustainable development management measures.

The proposed uses in the Togher Masterplan Area are likely to generate some level of traffic by both employees and service traffic. It is therefore imperative to include additional vehicular and public transport infrastructure as a fully integrated development. In addition to the completed National Traincare Depot development located in the Masterplan Area, further opportunities exist to develop a light rail link and large intermodal facility between the main line service at Portlaoise and the Togher National Enterprise Park. The Masterplan Area is well connected to Portlaoise town by the existing road network, as well pedestrian routes and dedicated cycle facilities.

These lands have developed infrastructure with respect to wastewater, water and roads. The lands also have gas mains, a Metropolitan Area Network (MAN) for high-speed broadband and substantial electricity capacity at the location with the ESB substation for the region within 1km of the site.

The area within the Togher Masterplan Area is characterised by large open fields and hedgerows to the south. To the north of the site, the Clonminam Business Park is accessed by the Old Knockmay Road. The park contains a mix of enterprises including retail, industrial, commercial, recreational, service and manufacturing. The land use zoning in the immediate surrounding of the Masterplan Area is largely comprised of 'Enterprise and Employment', 'General Business', as well as minor zones of 'Residential' – proposed and existing, and 'Open Spaces'. There are a number of individual houses and farmsteads between the site and the south-western edge of Portlaoise, the area is predominantly characterised by light industrial and employment-generating enterprises. The continued development of Togher as a National Enterprise Park for enterprises and employment would therefore be complimentary to the existing uses and character of the area.

3.2.1 | Land Uses

The Togher Masterplan Area is a strategic land bank which occupies approximately 192 hectares to the south-west of Portlaoise Town. Approximately two-thirds of the land is currently undeveloped and used primarily for agriculture. The following land uses currently occupy the developed portion of the lands: Logistics, Industrial, Commercial, National Traincare Depot, Retail Warehousing and Offices.

The Portlaoise Local Area Plan (2018-2024) identifies the significance of the development of the Togher area as a diverse economic base, driving the sustainable growth of Portlaoise Town and the Midlands Region. A specific objective of this plan is to:

'Develop Togher, as a National Enterprise Park, focused in particular on trade warehousing, distribution, logistics and other uses associated with the transport industry.'

This objective is reflected in the zoning of the lands within the plan for primarily:

- Enterprise and Employment
  116.78 Ha
- Industrial and Warehousing
  35.76 Ha
- Transport and Utilities
  25.86 Ha
- Community – Educational – Institutional
  0.76 Ha

A small area of land just north of Junction 17 (~4.3 Ha) is not zoned and is currently used for agriculture. The zoning of the lands as per the LAP is indicated in Figure 4.

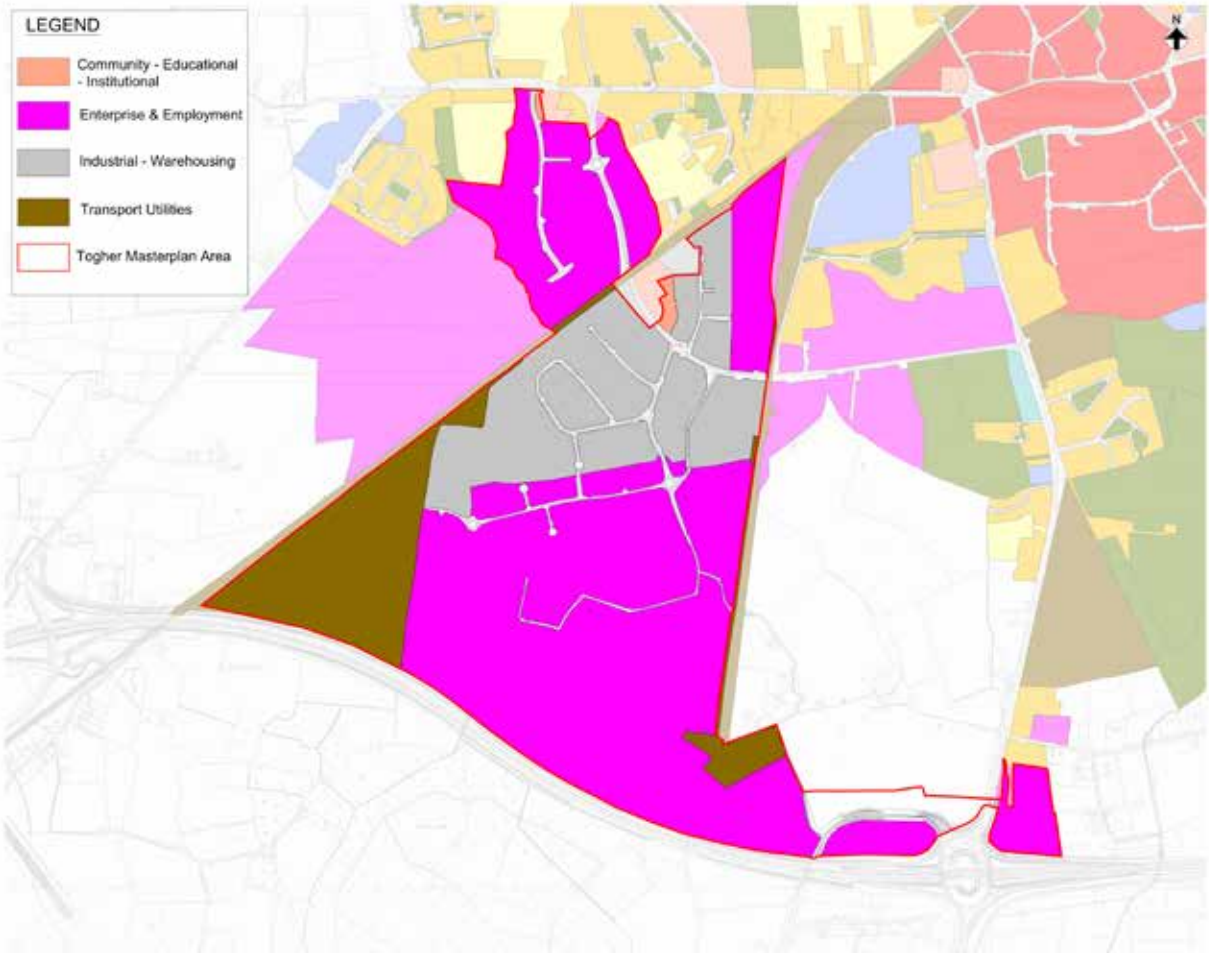


Figure 4: Portlaoise LAP 2018-2024 Land Use Zoning

3.2.2 | Land Ownership

In 2017 Laois County Council acquired approximately 32 Ha of undeveloped land within the Togher Masterplan Area between the M7 motorway and the disused railway line. The remainder of the land is held within private ownership. The landownership within the Masterplan Area is indicated in Figure 5.

This LCC owned landbank makes up approximately 17% of the overall Masterplan Area, however more importantly it makes up 23% of the undeveloped lands. This is a significant portion of land which, through council intervention, could be developed as a catalyst for the growth within the Togher Area.

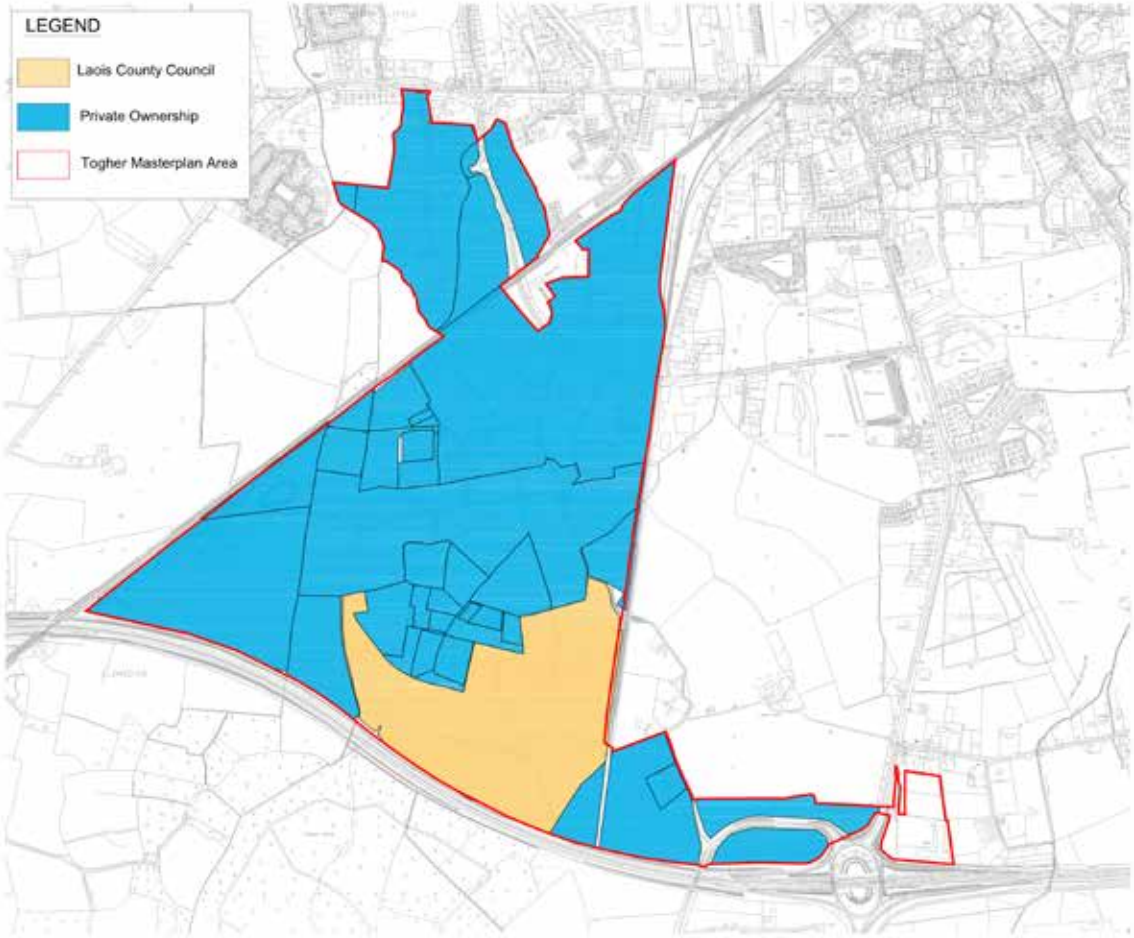


Figure 5: Togher Masterplan Area Indicative Landownership

3.3 | Transport Environment

3.3.1 | Road Network

At a local scale, one strategic road, Old Knockmay Road / Father Brown Avenue, currently traverses the Togher Masterplan Area near its north-eastern boundary. This strategic road currently operates as a part of a bypass of the town centre for heavy traffic, avoiding height restrictions on the N80. In addition to this link, several secondary roads of a lower hierarchy provide access to the existing businesses and houses within the lands.

The character of secondary roads varies significantly as shown in Figure 6 below.

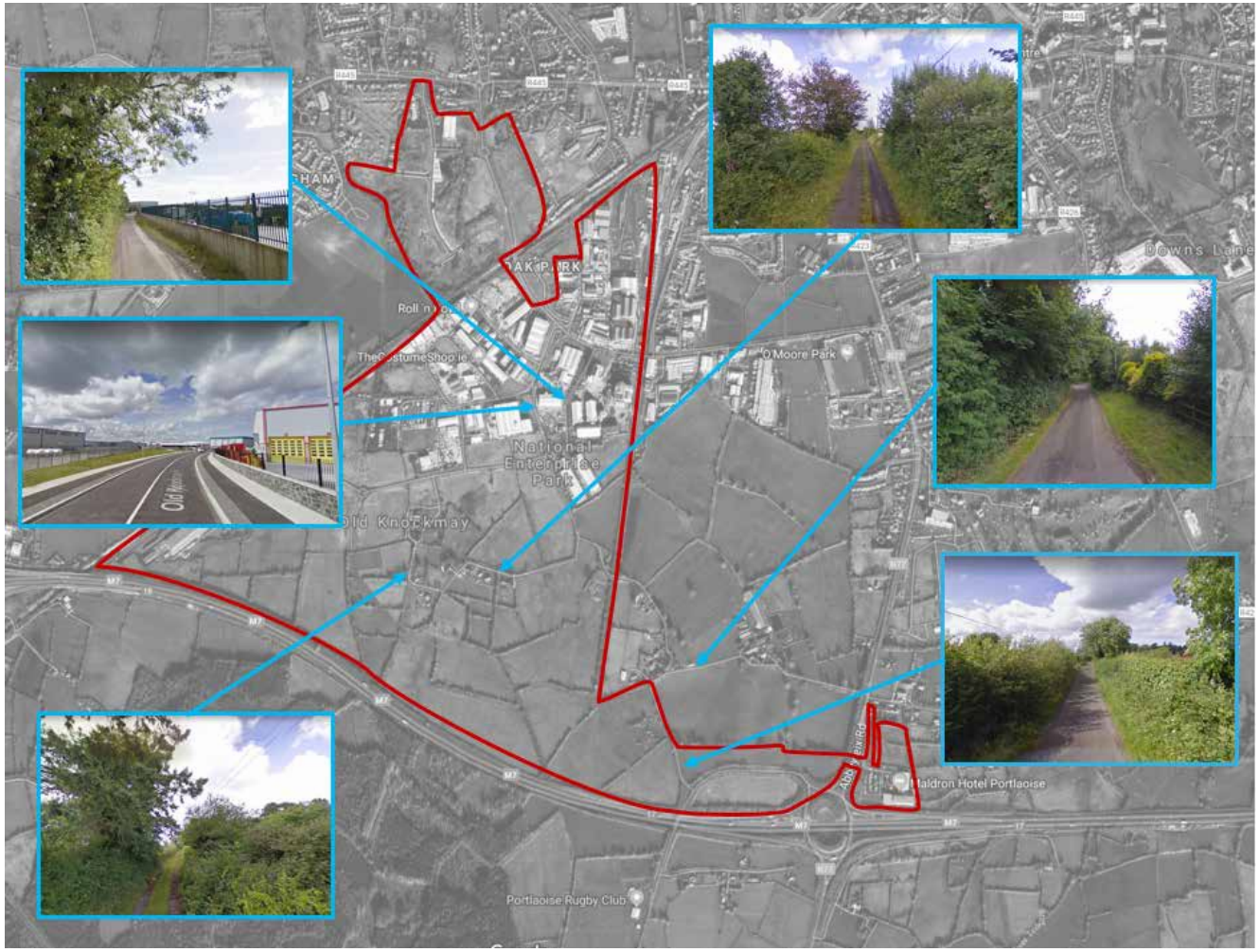


Figure 6: Character of Existing Secondary Roads

The existing road network is primarily located near the north-eastern corner of the Masterplan lands, within the Clonminam Business Park. Towards the southern end of the Masterplan lands, the lands are much more rural in nature and the level of road infrastructure provided is significantly less.

To the east of the Togher Masterplan Area, the N77 is a main route to the town centre, providing access to Junction 17. The Masterplan Area is partialy bounded by the R445 in the north, providing access to Junction 17.

At a larger scale, the Portlaoise Local Area Plan outlines key infrastructure to be delivered including:

- The Togher Central Access Route, including services and infrastructure, which has received Part VIII planning permission. Detailed Design of Phase 1 of this road link began in Q2 2018;
- The Portlaoise Northern Orbital Route (PNOR);
- The Southern Circular (Kylekiproe), the construction of which has commenced as of Q3 2018. Construction is expected to be completed in Q1 2019;
- The Eastern Circular Route to link the Dublin Road (R445) and Borris Road;
- The completion of the Southern Orbital Route to link Rathleague and Meelick;
- A relief road to link the Stradbally Road and the Dublin Road through St. Fintan's land; and
- A road linking the R425 at Rathleague to the Southern Circular at Summerhill.

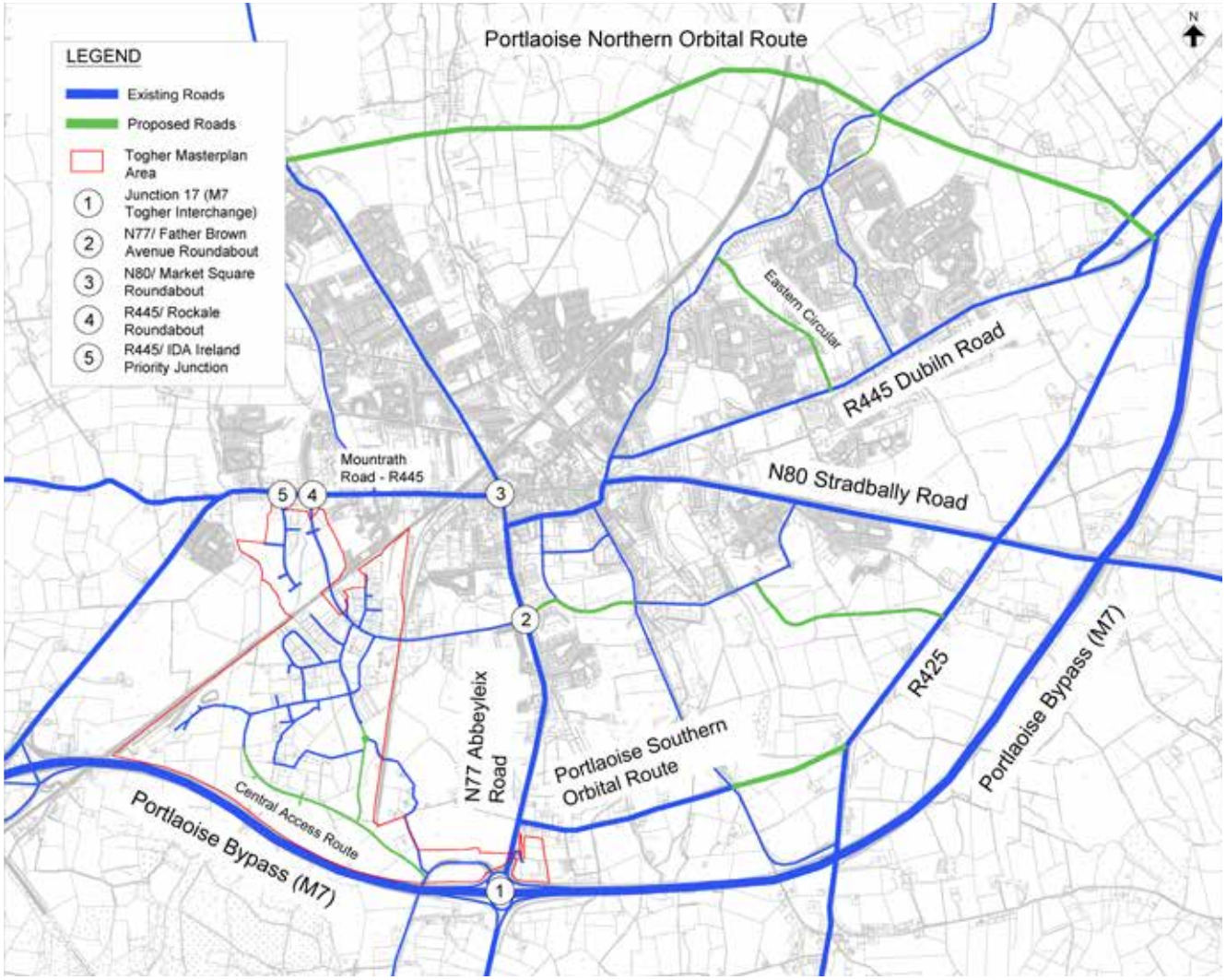


Figure 7: Existing & Proposed Orbital & Circular Road Network

3.3.2 | Key Junctions

The principal junctions (as shown in Figure 7) located at the cordon of the Masterplan lands which are serving it presently from the N77 and R445 are summarised below:

1. **Junction 17 (M7 Togher Interchange)** – this is a five-arm elevated roundabout on the M7 Motorway and connects the N77 National Secondary Road. The interchange above the M7 motorway has the form of a roundabout via two bridge crossings with two lanes on the gyratory. The traffic to/ from the eastbound and westbound direction of the M7 Motorway enters the interchange via slip roads. There is no provision for pedestrians crossing on the roundabout. The primary access from this interchange to the Togher Lands is via the Togher Road towards the northwest.

2. **N77/ Father Brown Avenue Roundabout** – this is a four-arm roundabout with a single wide lane on the gyratory. It connects to Junction 17 via the southern arm and Portlaoise Town via the northern arm. The western arm connects the Father Brown Avenue and acts as a southern circular bypass of Portlaoise Town. The eastern approach leads to the electricity supply station. The Southern Circular Road is proposed to connect via this arm, the construction of which is due to begin towards the end of 2018.

3. **N80/ Market Square Roundabout** – this is a four-arm single lane roundabout and is the busiest junction in Portlaoise Town. The roundabout connects the national roads; N80 towards the north, the N77 towards the south and regional road R445 towards the west. The eastern arm serves the market shops and becomes a one-way inbound street approximately 50m away from this junction. The junction experiences congestion during both the AM and PM peak hours in the current situation and has a mix of both the local and N80/ N77 through traffic.

4. **R445/ Rockale Roundabout** – this is a four-arm single lane roundabout on the R445 and connects the Togher Masterplan lands from the R445 via the southern approach (Old Knockmay Road) and further connects the N77/ Father Brown Avenue Roundabout. The northern arm serves the Rockale residential developments towards the north. The east-west approach is the R445 and experiences higher traffic movements. There are off road cycle lanes present on all the approaches except at the southbound approach.

5. **R445/ IDA Ireland Priority Junction** – this is a three-arm priority junction west of the R445/ Rockdale Roundabout. The southern approach (minor arm) serves the IDA Business Park and the R445 acts as a major arm. All the approaches to the roundabout are single lanes with footpaths on all arms and on-road cycle lanes along the R445.

3.3.3 | Public Transport Network

Portlaoise is located on the Cork to Dublin rail line with regular services between Dublin Heuston and Cork Kent Station as well as Dublin Heuston to Limerick Colbert also serving Ennis. The national sleeper depot is located adjacent to the Clonminam Business Park. This is also the distribution depot for the west of Ireland. The site has potential to be served by rail with the National Traincare Depot located within the area which has been operational since July 2008. A disused section of railway runs from the mainline, through the sleeper depot and into the Togher Masterplan lands, where it terminates.

In relation to bus services, Portlaoise's location on the M7 corridor means that a number of regional and intercity bus routes serve the town. Routes operated by Dublin Coach (# 726), Martleys (# 824), Bus Eireann (# 73), and JJ Kavanagh & Sons and Kenneally's (# 735) link Portlaoise to Dublin and Limerick cities as well as Cork via Limerick. In addition to this, a small number of local services are provided by Martleys, M&A Coaches (# 828) and Slieve Bloom Coach Tours (#'s 829, 830, 838), serving local schools and hospitals as well as linking Portlaoise to its surrounding towns.

There are currently no dedicated bus routes which serve the Masterplan lands however the importance of a public transport connection to the residential areas to the northwest and northeast of the town centre has been identified by the NTA. The particular requirements and constraints of these connections are currently being developed.

These bus routes are indicatively shown in Figure 8.

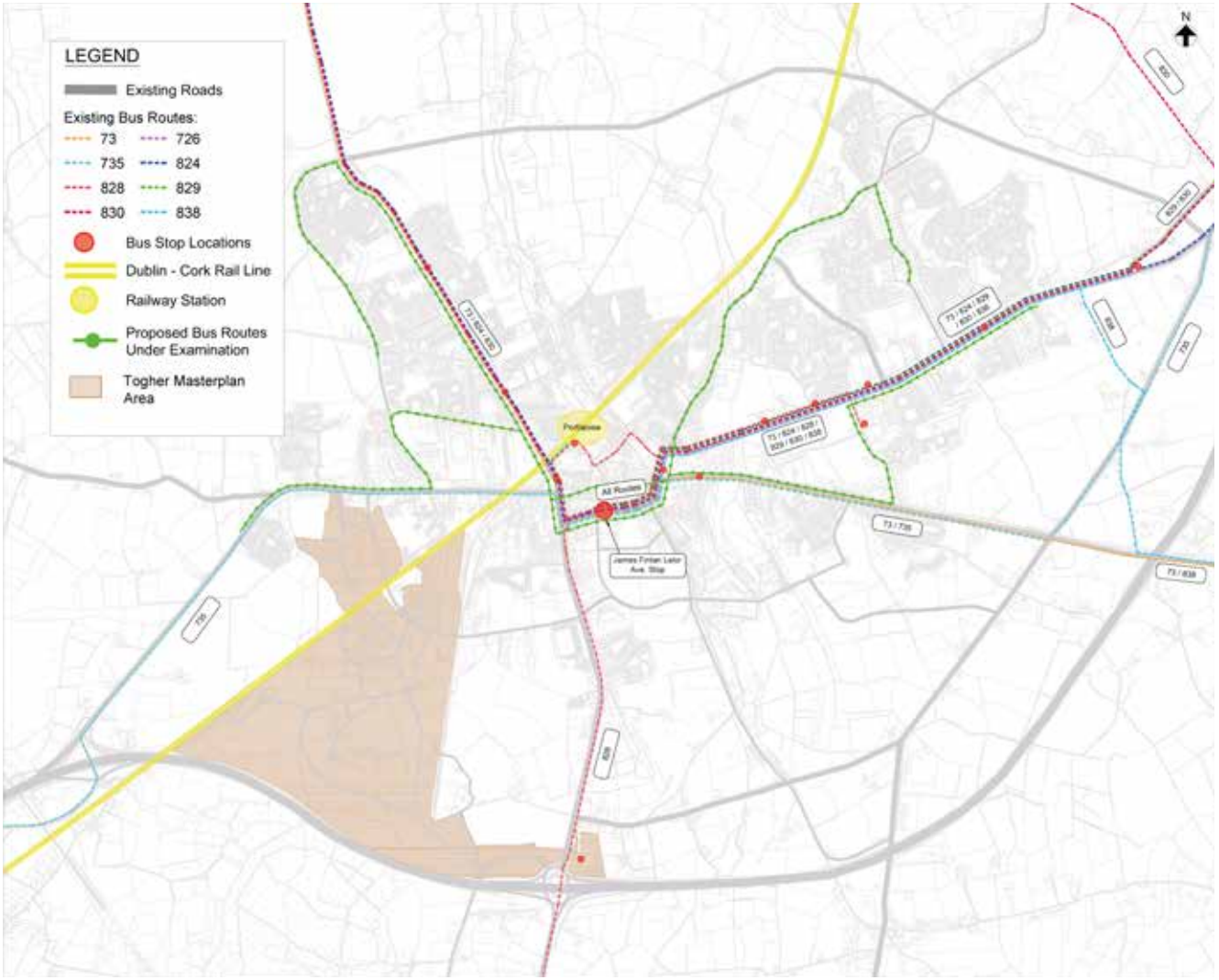


Figure 8: Existing and proposed public transport links

3.3.4 | Cycle Network

The cycle network in the Togher Masterplan Area consists of segregated cycle facilities along the majority of Old Knockmay Road. South of the junction with Mountrath Road the facilities continue all the way towards the junction with Old Knockmay Road. From this junction to the east the cyclist is on road, whereas south of the junction the facilities continue past the roundabout. Further links towards the town centre are missing.

There is a proposal to build a new road within the Togher Area, which will have cycling facilities on it. The road and the proposed cycle path is referred to as the Togher Central Access Route on Figure 9. The main access to the Town Centre for cyclists seems to be via the Mountrath Road (R445).

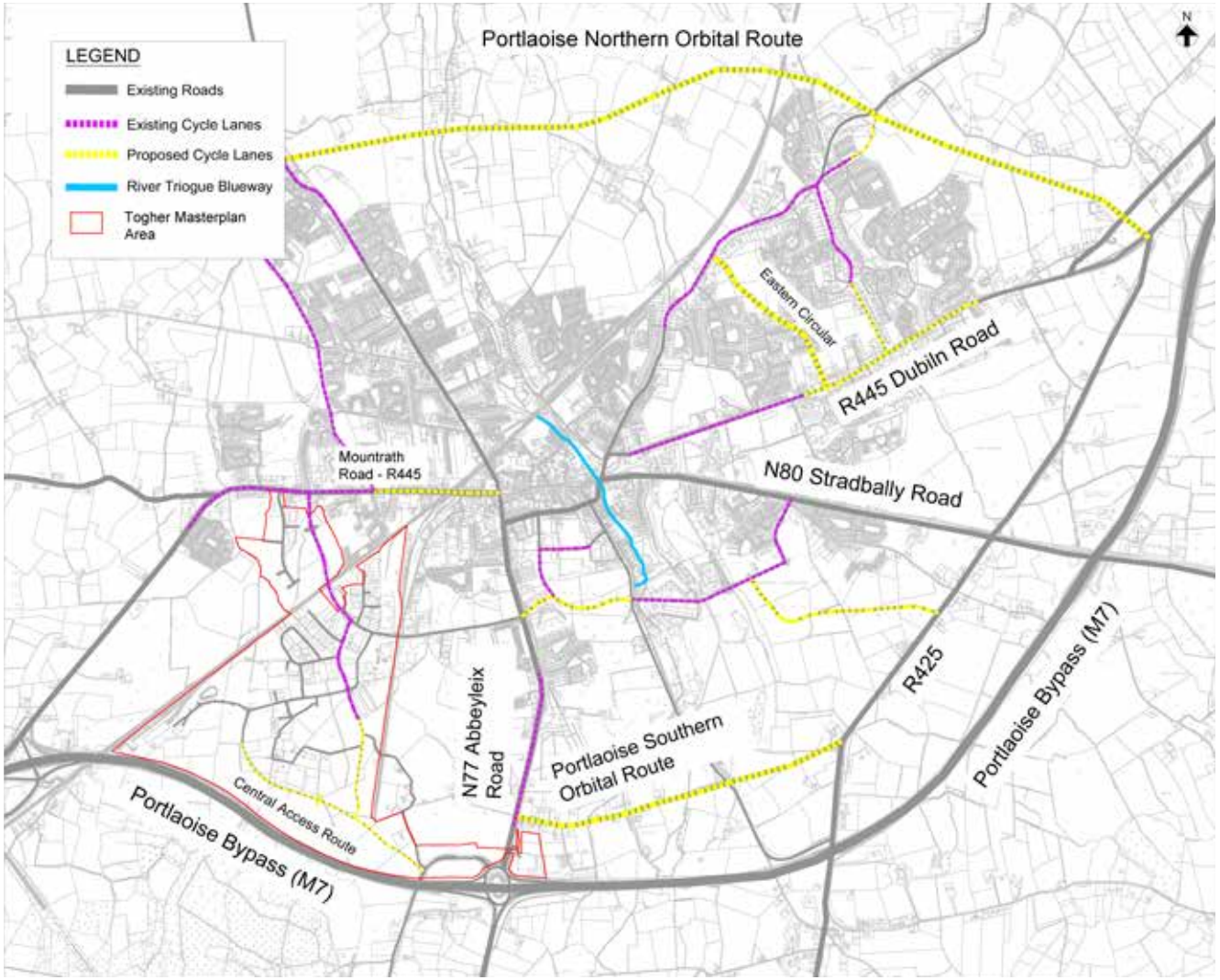


Figure 9: Existing and proposed strategic cycling infrastructure

3.3.5 | Provision for Pedestrians

The main roads in the Masterplan Area have footpath provision for pedestrians. Old Knockmay Road / Father Browne Avenue has a provision for pedestrians for the full length of the road, except for at the crossing of the rail link. At the crossing, pedestrians have to use the road. In most cases the minor roads do not have a provision for pedestrians.

There are a number of barriers for pedestrians in the Togher Area. The main body of the Area is surrounded by the M7 from the south, Railway line from the west, the disused railway line from the east and the train Depot from the north.

The quickest way for pedestrians to get from the Togher Area to the Town Centre is to take the Old Knockmay Road. The road is not very pedestrian friendly but it seems to be a better alternative to taking the Mountrath Road or the Abbeyleix Road.

These routes are indicatively shown in Figure 10.

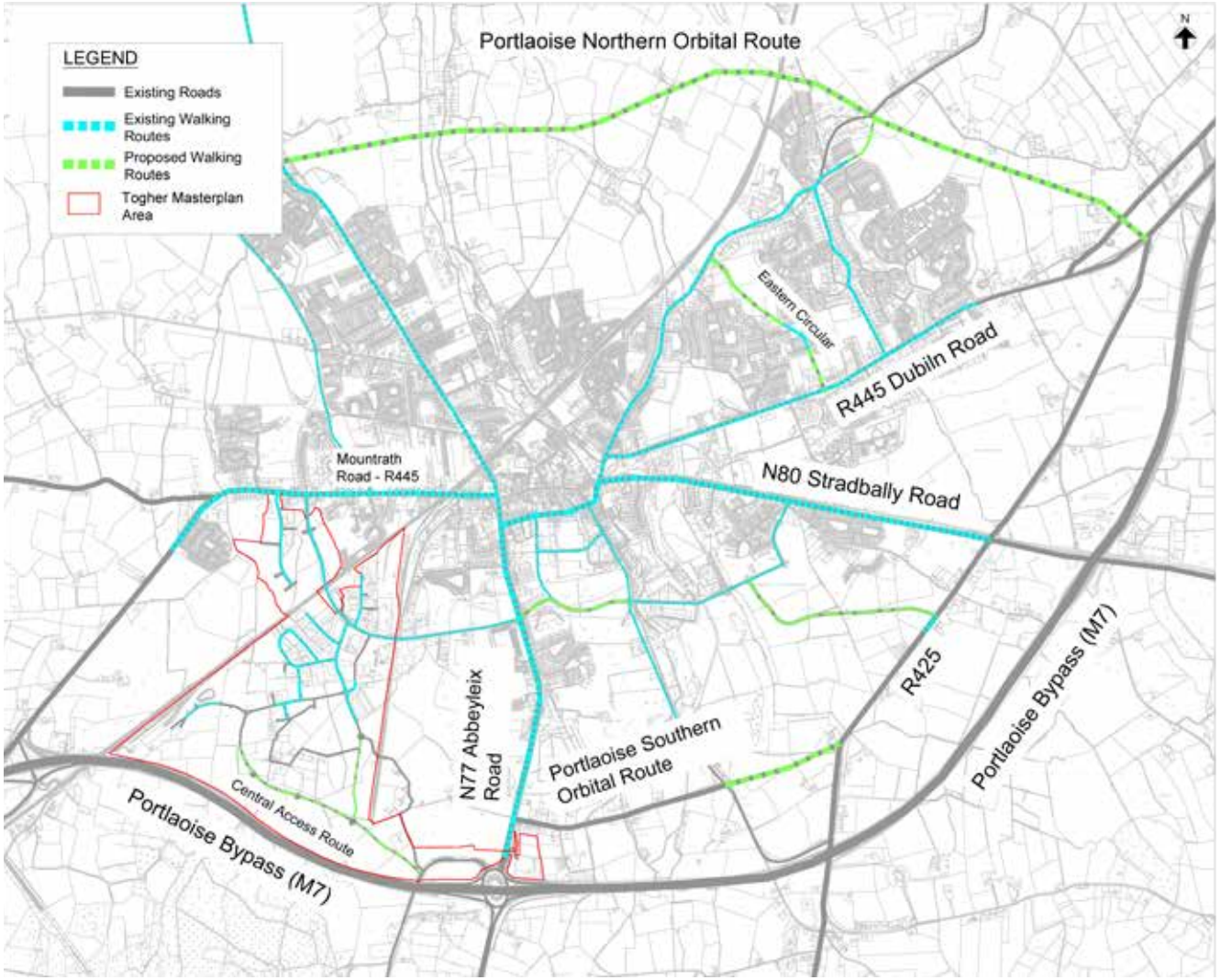


Figure 10: Existing and proposed footpaths

3.4 | Infrastructure and Services

3.4.1 | Water Supply

On a daily basis, Laois County Council manages on behalf of Irish Water (IW) the production of a total of 23,000 m^3 of potable water which serves a population of approximately 61,000 people throughout the wider Laois area.

Within Portlaoise 6,912 households are connected to the public mains water supply. The existing demands were estimated within the 2012 - 2018 LAP at approximately 10,475 m^3/day with demand expected. However, data collected shows a steady decrease in this figure in the 2016 to 2018 period, with consumption in Q1 of 2018 as low as 8,179m^3/day.

Laois is unique in that 98.5% of all public water supply comes from groundwater and the quality of groundwater is of good status. Following recent improvements, an analysis of the water supply carried out by Irish Water has confirmed that the water supply for Portlaoise is safe, secure and reliable which resulted in Portlaoise being removed from the EPA's Remedial Action List (RAL) in January 2018.

The existing developments within the Togher Masterplan Area are well served in terms of connections due to the extensive nature of the existing network within the public roads.

This existing network is shown in Figure 11.

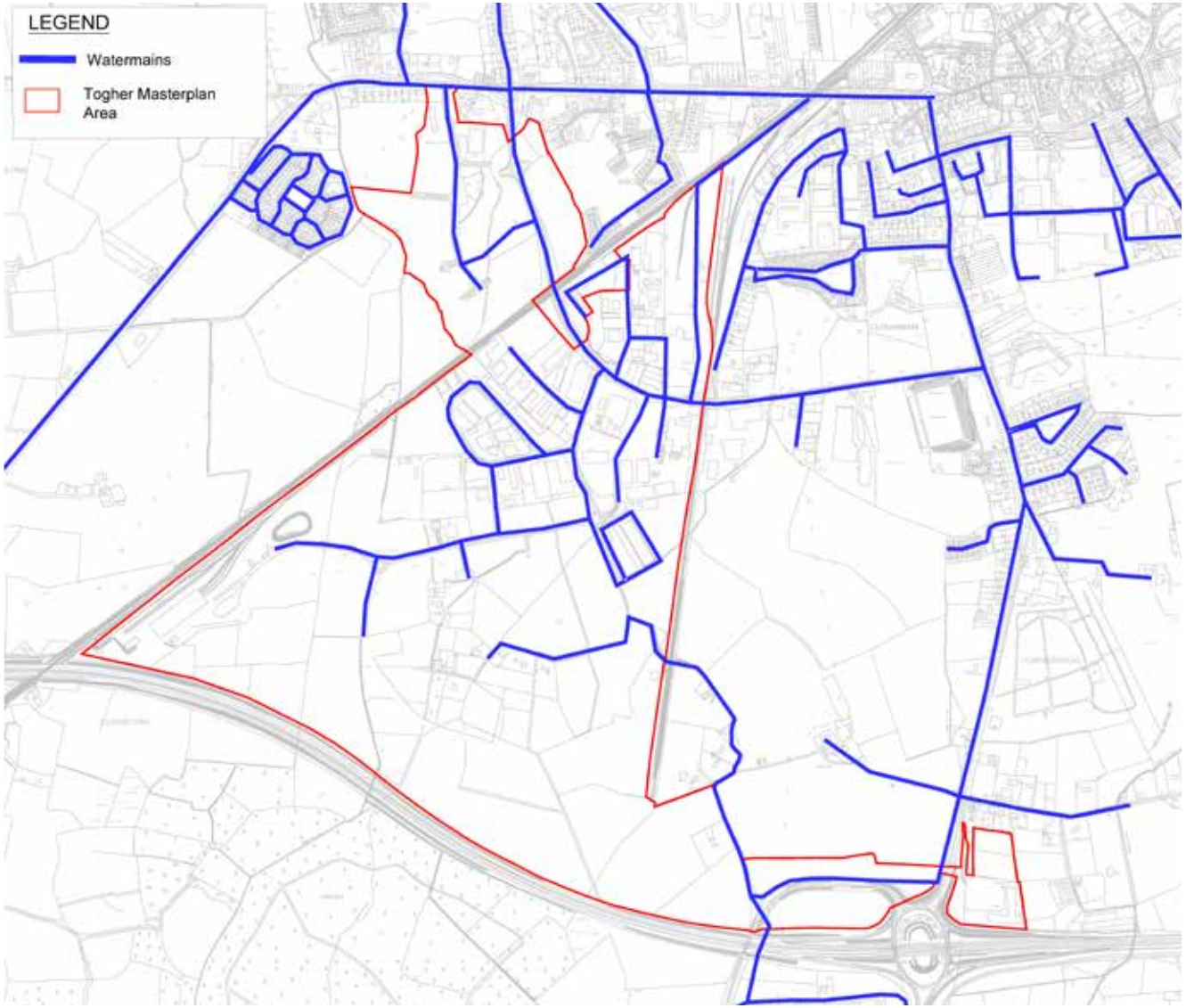


Figure 11 - Schematic of Existing Water Supply Network

3.4.2 | Wastewater Drainage

The Togher Area is currently serviced by the Western Interceptor Sewer. The Portlaoise LAP 2018-2024 states that Irish Water is responsible for the provision and operation of public water and wastewater services across the country. Laois County Council delivers water services in accordance with a Service Level Agreement. The Water Services Strategic Plan (WSSP) was published in 2015 by Irish Water, which sets out strategic objectives for the delivery of water services over a 25-year period and a context for investment and implementation plans.

Within the settlement of Portlaoise 6,887 households are connected to the public sewer system.

The Portlaoise Wastewater Treatment Plant has the capacity to cater for a population equivalent of 39,000, and is now approximately half-way through its design life. The River Triogue acts as the receiving waters for this plant. Currently there is capacity in the waste water treatment plant and public water supply.

This existing wastewater drainage network is shown in Figure 12.

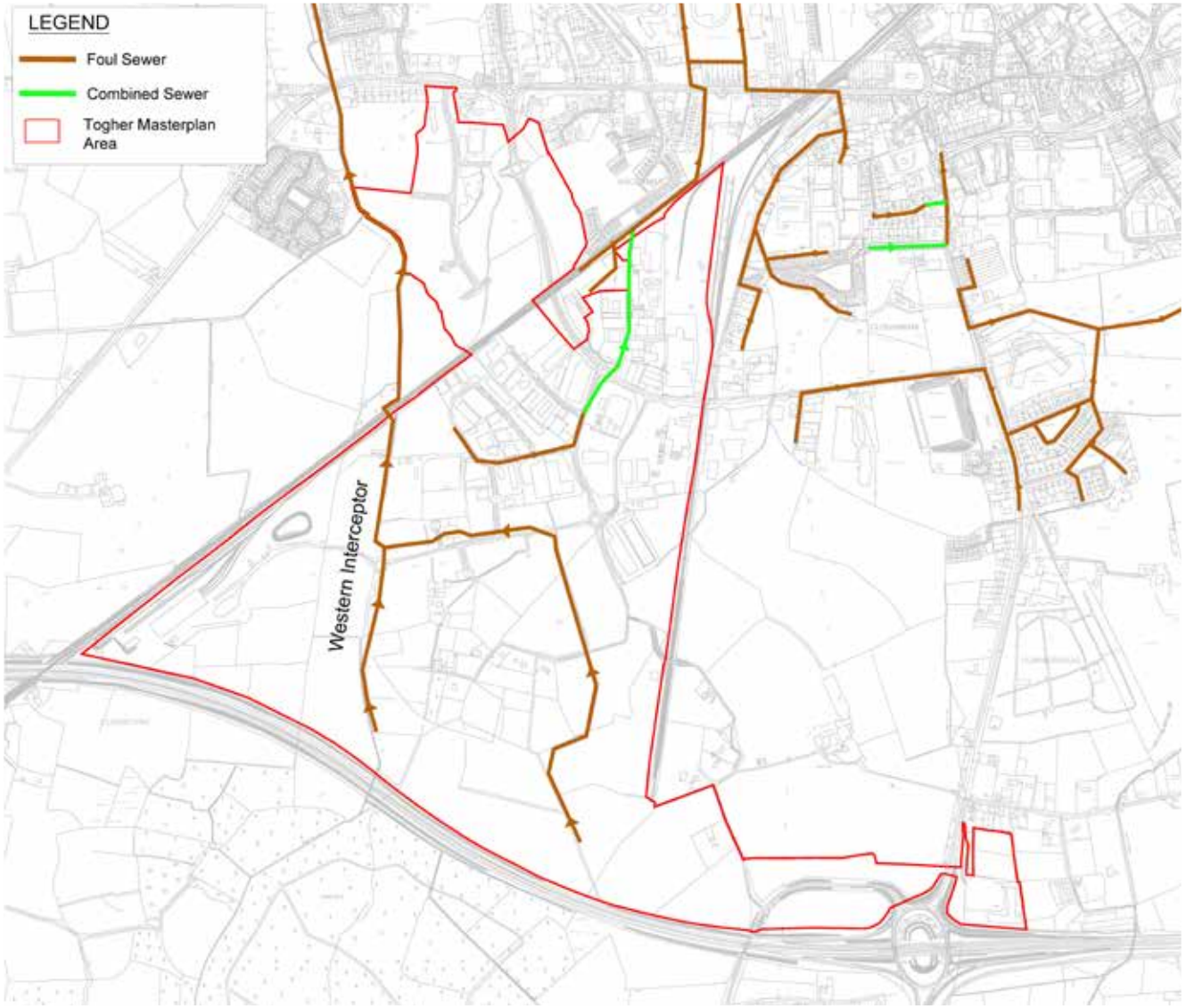


Figure 12 - Schematic of Existing Wastewater Drainage Network

3.4.3 | Stormwater Management

Aside from existing developments within the Clonminam Business Park, the majority of the lands within the Masterplan Area do not currently have access to the existing public stormwater drainage network. The lands have multiple natural and man-made water courses, with a number of these routes combining open flow and piped sections such as the Western Storm Water Sewer, forming part of the stormwater drainage network.

In terms of storm water management, it appears that much of the existing developments have on-site drainage networks and attenuation which then discharge to existing public storm water systems or local streams. The Traincare Depot lands include an existing attenuation pond.

This existing stormwater drainage network is shown in Figure 13.

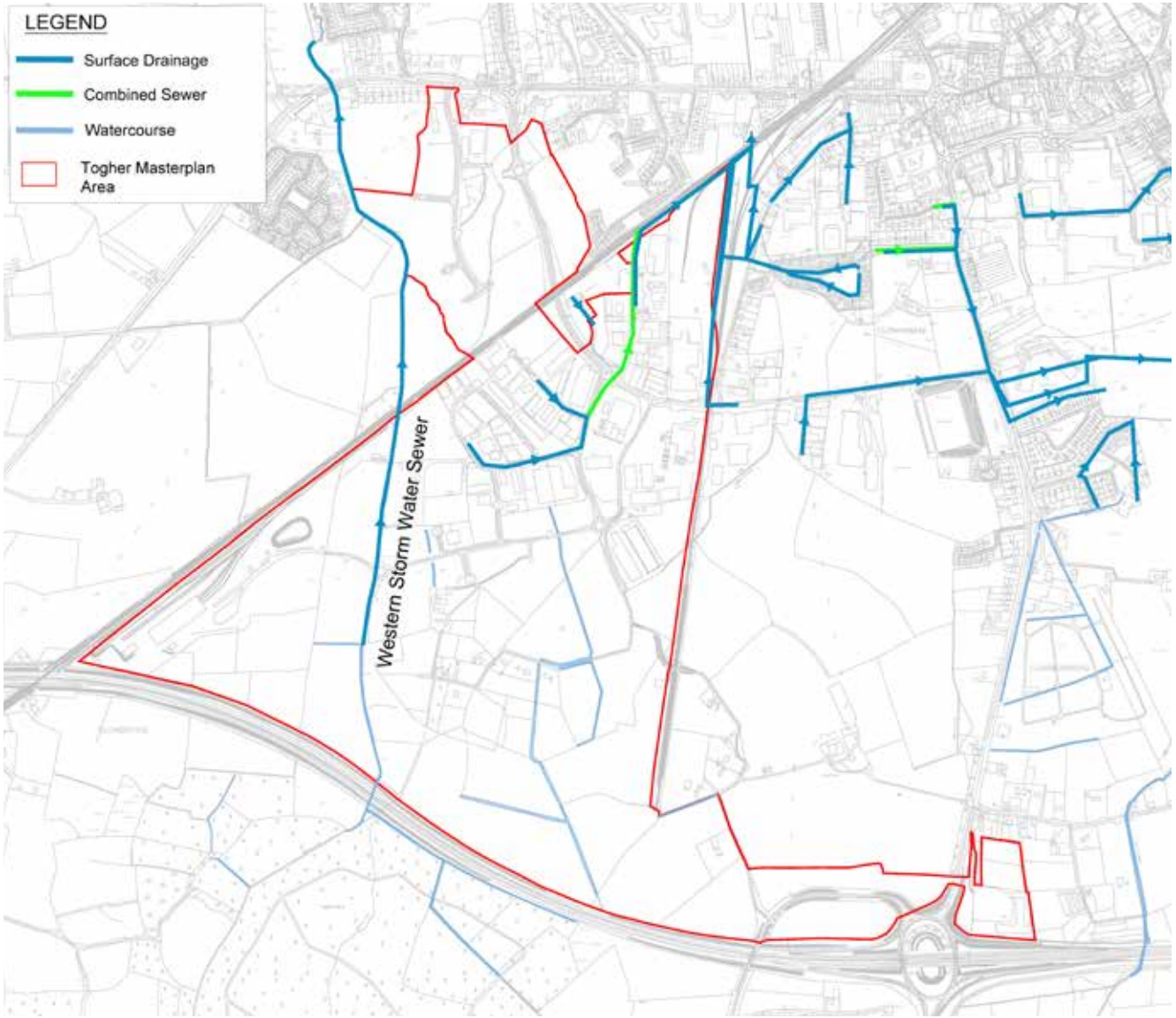


Figure 13 - Schematic of Existing Stormwater Drainage Network

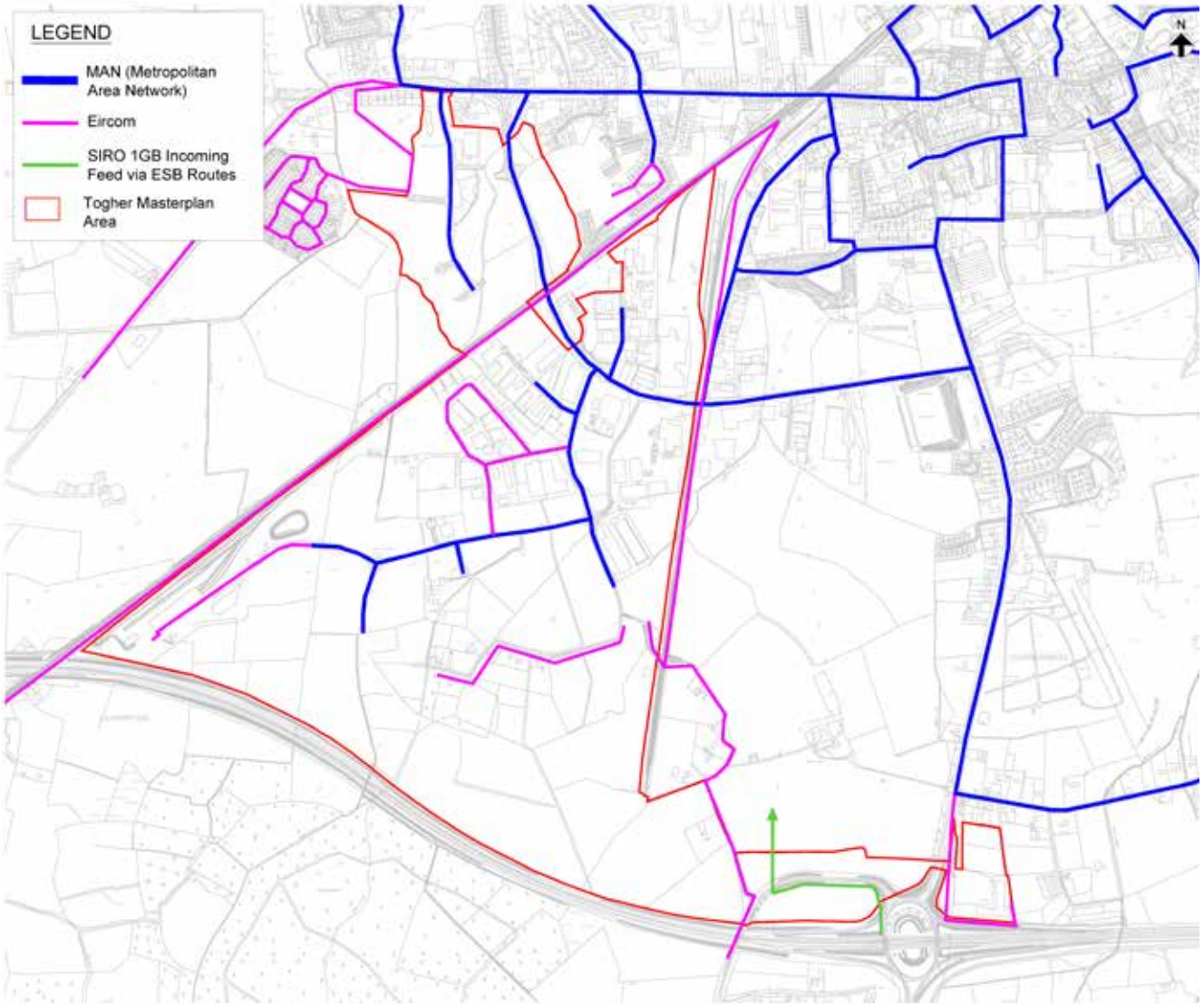


Figure 14: Schematic of Existing Telecoms Networks

3.4.4 | ICT

Portlaoise currently has a Metropolitan Area Network (MAN) running around the town which provides high capacity bandwidth over a fibre optic network. This MAN was constructed as a result of a submission from Laois County Council under the government led regional broadband programme. The Metropolitan Area Networks (MANs) are State-owned telecoms networks which consist of carrier-neutral telecoms duct and fibre optic cable rings linking the main commercial and public buildings to "co-location centres". Telecommunications operators locate their equipment in these co-location centres and access the MANs network. The MANs were co-financed by central Government, Local Authorities and the EU's European Regional Development Fund.

Figure 13 indicates the indicative route of the network. This MAN runs through the town in a main ring with a number of metro rings off it and terminates at the co-location centre in Kea Lew Business Park. The network comes close to the Togher Area in two locations, the first in Clonminam where it passes within 500m of the proposed northern entrance to the park and the second where the network joins the Abbeyleix Road from the Meelick Road which is again 500m from Junction 17.

Initial consultation with various telecommunications providers has indicated that there are also a number of Eir ducts within the Togher Masterplan lands.

Similarly, a high-speed 1GB broadband network has been implemented by SIRO (a collaboration between Vodafone and ESB), which will give significant economic and social advantages to Portlaoise as a place to set up internet based businesses. There is a connection opportunity available for the Togher Masterplan lands via an incoming feed from the M7 Junction 17. Following consultation with SIRO it has been confirmed that the SIRO cables are run in line with the existing ESB underground ducting and overhead lines in the area.

The existing telecommunications network within the Masterplan lands and surrounding area is shown in Figure 14.

3.4.5 | Power Supply

ESB Networks infrastructure in the Togher Area will continue to be planned in line with the commercial applications received to date and based on planning applications that are in progress.

Currently, a network of overhead lines and underground cables traverse the site. There is a 110KV overhead electricity line running through the north of the site. There is a 38KV line running the entire length of the site, south to north. The line begins overhead and goes underground half way through the site. Additionally, there is an underground medium voltage cable network covering the site from north-east to south-west. There is also a small network of medium voltage overhead lines in the south-west corner of the site.

The existing electricity supply network within the Masterplan lands are shown in Figure 15.

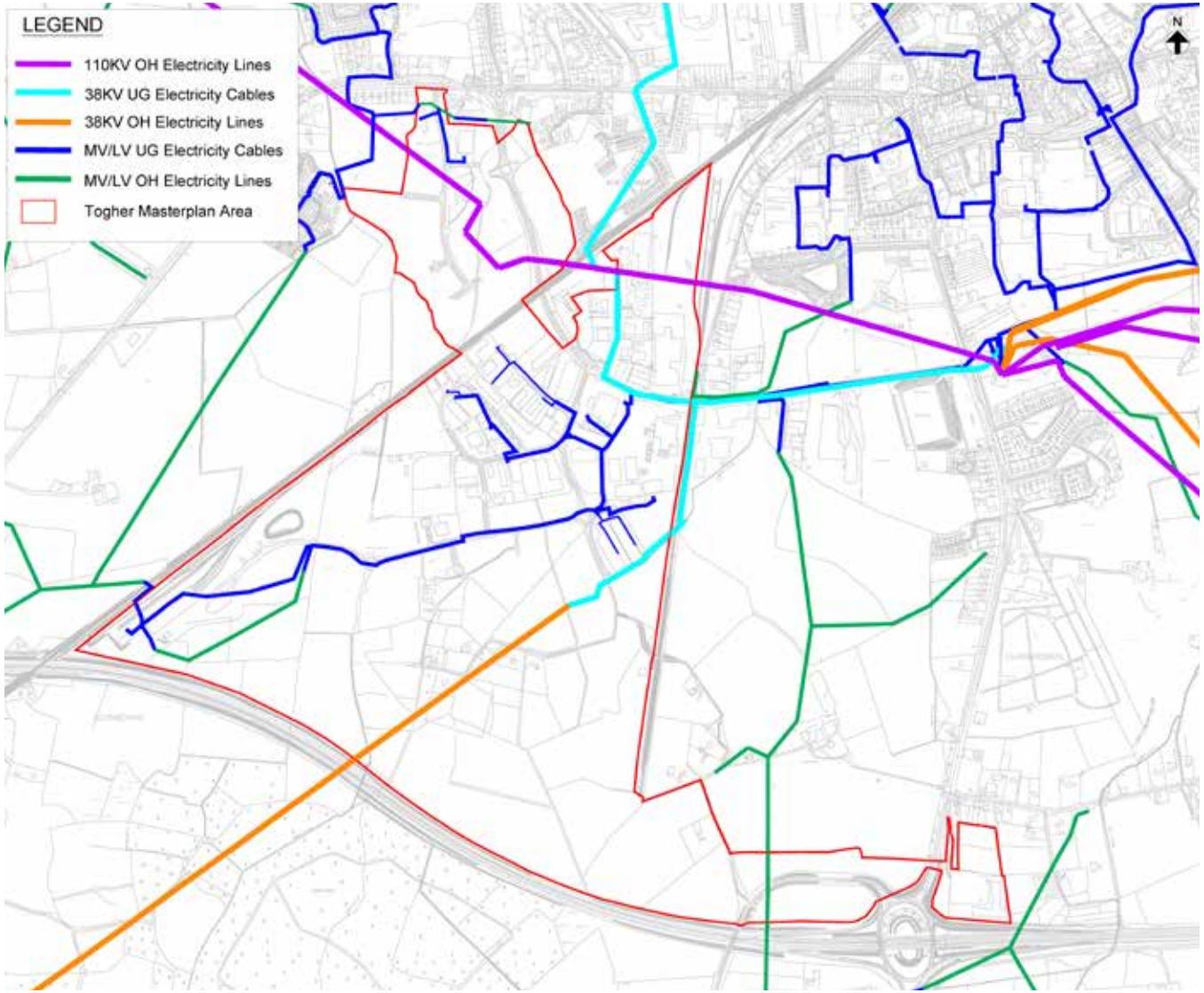


Figure 15: Schematic of Existing Electricity Supply Network

3.4.6 | Gas Supply

Togher Area is currently serviced with a network of medium pressure distribution pipes. The network, runs through a large part of the site, but some of the undeveloped land is not covered by it. There are also a number of low-pressure distribution pipe networks serving residential developments in the Togher Area.

The existing gas supply network within the Masterplan lands are shown in Figure 16.

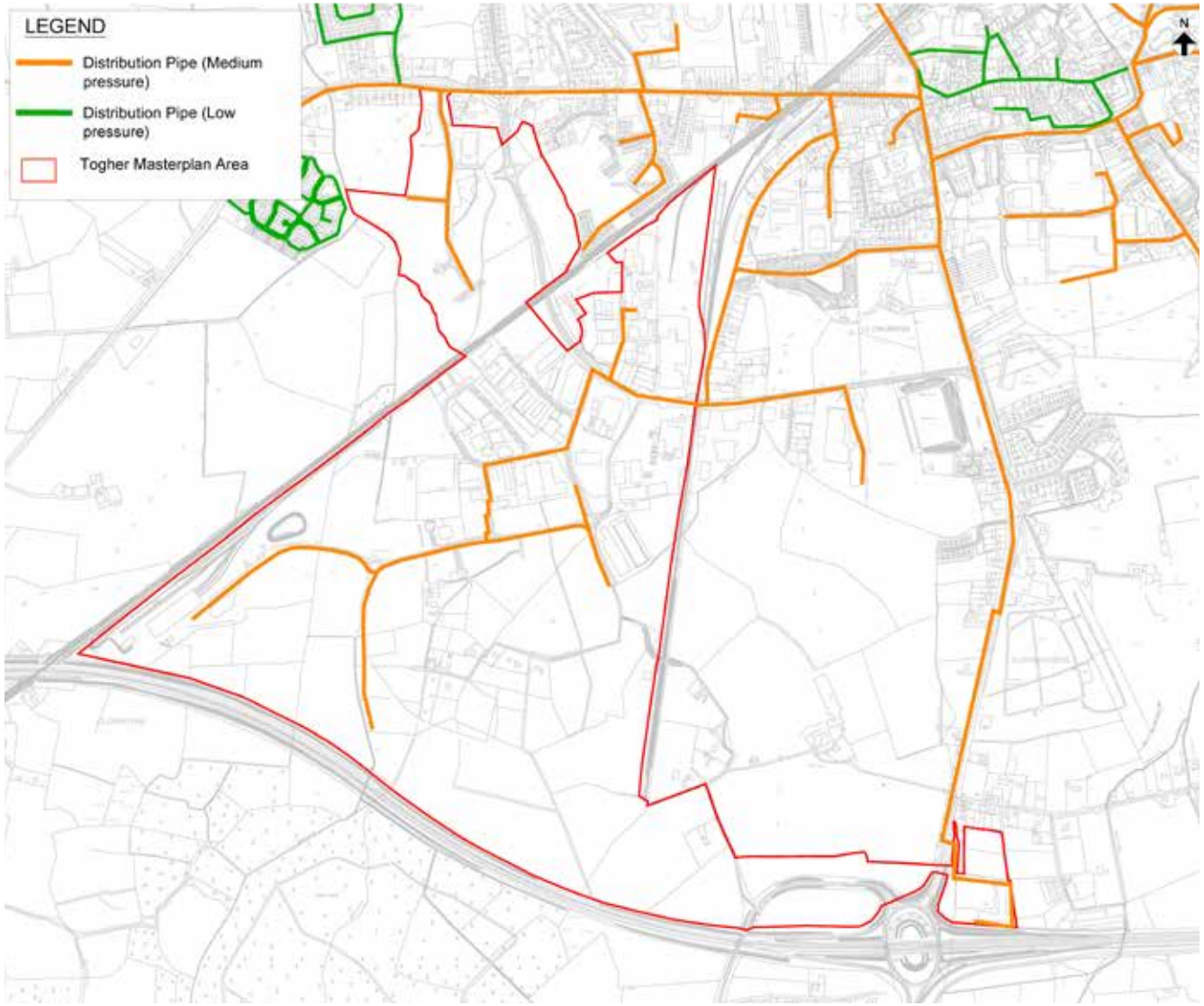


Figure 16: Existing Gas Supply Network

3.4.7 | Flooding

Flood risk maps obtained from the Office of Public Works' (OPW) Catchment Flood Risk Assessment and Management (CFRAM) study, adopted by Laois County Council, indicate that there is an area of land adjacent to the Clonminam Business Park which is potentially at risk of flooding. The 10 year (10%), 100 year (1%) and 1000 year (0.1%) flood events are mapped by the CFRAM study and the extents of these areas are presented in Figure 17. Development within the site must be cognisant of these flood risk zones, providing flood mitigation measures where required. The general strategy of the Masterplan will be to create strategic open spaces in areas most at risk and to create natural watercourses to manage the flooding.

All future development in the Togher Area needs to incorporate the principles of Sustainable Urban Drainage Systems (SUDS), with particular reference to the Laois County Council Storm Water Management Policy and other current best practice guidance. SUDS are considered more sustainable than conventional drainage methods because water is either infiltrated or conveyed more slowly to watercourses via ponds, swales, filter drains, porous landscaping or other installations to try and closely mimic natural catchment drainage behaviour.

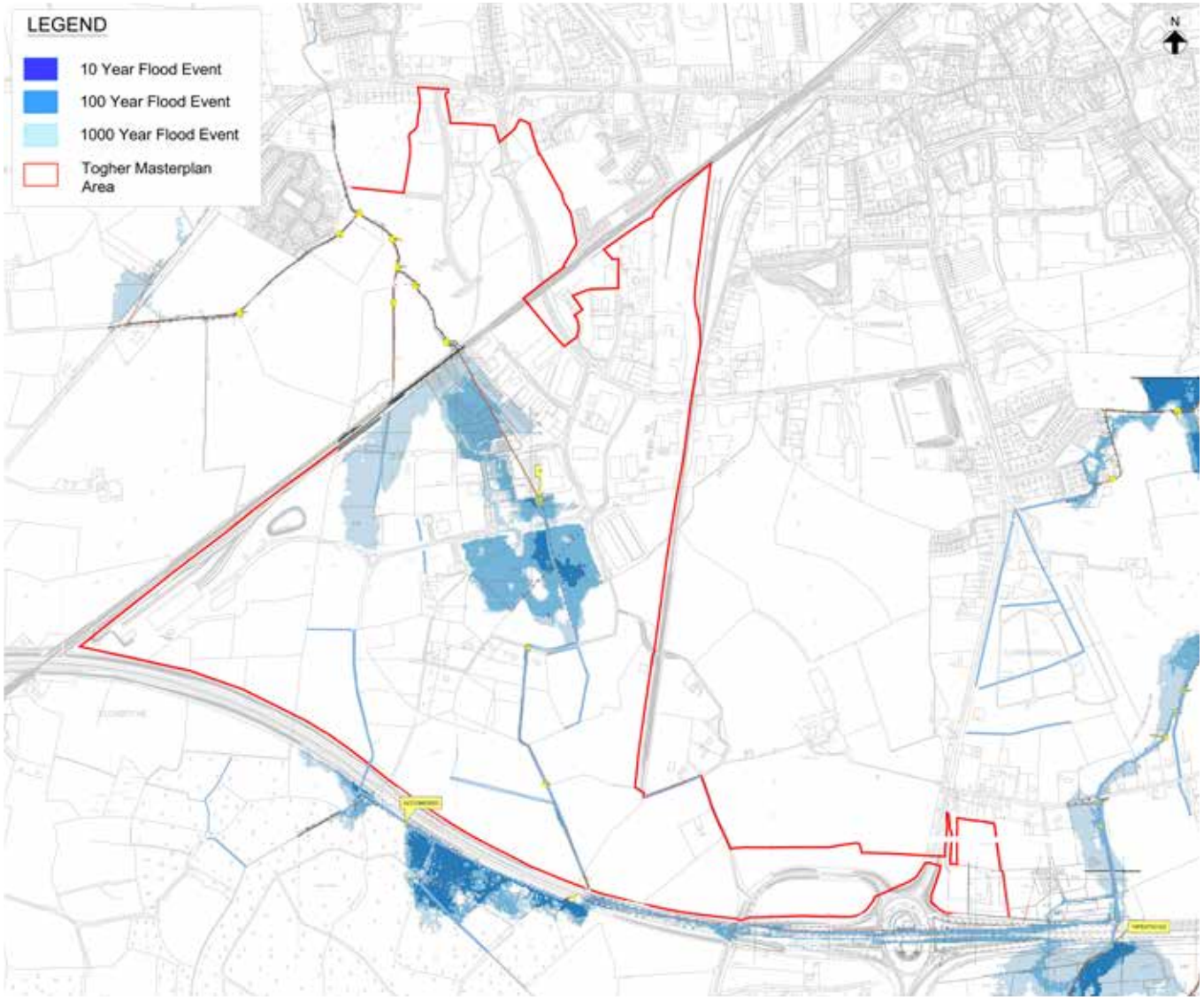


Figure 17: Extract from CFRAM Mapping showing Flood Risk within the Masterplan Area

3.5 | Environment Protection

The Togher Masterplan Area has been cleared of vegetation from past agricultural uses. However, some areas particularly along the motorway corridor remain undisturbed. It is a requirement to retain natural features where possible.

Development applications must have landscape plans and details of proposed treatments associated with the development. Landscaping areas should generally be planted with native species, preferably low maintenance water sensitive varieties. A list of suitable species is included in Section 9.4.

With regard to creating a buffer along the M7, the following minimum reserves are to be established within the Masterplan lands, measured from the road edge:

- A 25m wide vegetation strip in which no structures or roadways are to be constructed; and
- A further 25m wide zone into which roadways, car parking, and auxiliary installations may encroach but no structures are to be constructed.

Throughout the site, the height and density of vegetation within building setbacks must be adequate to provide effective screening of buildings and other structures and open hard stands located within the site.

All noise sensitive developments within the zone of influence of existing or planned new roads, where certain thresholds are exceeded, shall identify and implement, where appropriate, mitigation measures in relation to noise and other effects listed, at the cost of the developer.

3.6 | Archaeology

A desk based archaeological assessment of the Masterplan Area has been undertaken. It is noted that there are no recorded sites within the area. However, given the proximity of the lands to Portlaoise town, which is rich in archaeological heritage, it is considered that the area has the potential for unknown archaeological sites and artefacts.

Where required by Laois County Council on foot of grant of planning permission for development, further archaeological assessment in the form of monitoring of ground works (under licence) may be required to be undertaken by developers.

3.7 | Contamination

There are no known areas of contamination within the Togher Masterplan Area.

3.8 | Architectural Heritage

A desk based architectural heritage assessment of the Masterplan Area has been undertaken. On review of the National Inventory of Architectural Heritage Record of Protected Structures as set out under the Laois County Development Plan 2017-2023, it is noted that there are no recorded structures of architectural importance within the Masterplan lands. The nearby Rockview House (Reg. No. 12801306) is shown to be rated as Regionally important. As the house is in close proximity to the Masterplan lands at the northern boundary, any development in this area must take cognisance of potential development considerations associated with the structure and its curtilage.

4

Masterplan Description

4

Masterplan Description

4.1 | The Vision

The vision for this Masterplan is to deliver a viable economic zone, as a National Enterprise Park, focused in particular on heavy, light and ICT industry, distribution, logistics and other uses associated with the transport industry. The overarching goal for the Togher National Enterprise Park is to create an area which will capitalize on the existing assets of the area to unlock its full economic potential.

Nowadays we are within a new digital revolution we are witnessing a rapid change in the way we do business. Businesses are evolving by investing in R&D and innovation, it is the new era of the knowledge economy. This new revolution is in need of new spaces, new typologies that will host the e-commerce hubs and industry 4.0 (the current trend of automation and data exchange in manufacturing technologies) that the Togher area will attract.

With the existing presence of the IDA developments, the Togher lands have an opportunity to build on this attract new talent and becoming an exemplar in research.

This Masterplan will enable the creation of new opportunities for the local economy, it will foster innovation & research and it will stimulate the creation of new employment. The National Enterprise Park will actively contribute to the overall competitiveness of the region.

In order to fulfil this goal a number of challenges need to be addressed. Those challenges are:

- Minimising any adverse impact on the operation, efficiency and safety of Junction 17 and National Road Network;
- Ensuring a mix of uses that is compatible with the Transportation node and National Enterprise Park; and
- Building on the improvements to the existing built environment.

Within the overall Masterplan Area, a combination of uses is necessary to support the growth of the Enterprise Park concept. The National Enterprise Park vision has been created to promote employment, trade and commerce in a strategic location.

Similarly, it is intended to develop Portlaoise as a viable economic zone of national significance at road/ rail intersections with optimum opportunities for trade, commerce and supply chains. Owing to the fact that a large proportion of the area is zoned for enterprise and employment, a number of economic / commercial activities can be considered.

The following layouts are not prescriptive in the Masterplan and the end use will dictate the building form, design grain and layout.

4.2 | Description of the Masterplan Area

The Togher Masterplan Area is a strategic land bank which occupies approximately 192 hectares to the south-west of Portlaoise Town, occupying a wedge shaped landbank between the existing fabric of the town, the M7 motorway and the Cork to Dublin rail line.

Approximately two-thirds of the land is currently undeveloped and used primarily for agriculture. These lands are characterised by large open fields and hedgerows. To the north of the site, the Clonminam Business Park is accessed by the Old Knockmay Road. The park contains a mix of enterprises including retail, industrial, commercial, recreational, service and manufacturing. There are a small number of individual houses and farmsteads between the southern portion of the Masterplan Area and the south-western edge of Portlaoise. Finally, the Portlaoise IDA Business & Technology Park occupies an area of 18 hectares to the North of the Clonminam Business Park.

The Masterplan lands have developed infrastructure with respect to wastewater, water and roads. The lands also have gas mains, a Metropolitan Area Network (MAN) for high-speed broadband and substantial electricity capacity at the location with the ESB substation for the region within 1km of the site.

4.3 | Planning Context

The Portlaoise Local Area Plan (2018-2024) identifies the significance of the development of the Togher area as a diverse economic base, driving the sustainable growth of Portlaoise Town and the Midlands Region. A specific objective of this plan is to:

'Develop Togher, as a National Enterprise Park, focused in particular on trade warehousing, distribution, logistics and other uses associated with the transport industry.'

This objective is reflected in the zoning of the lands within the plan for primarily:

Enterprise and Employment	**116.78 Ha**
Industrial and Warehousing	**35.76 Ha**
Transport and Utilities	**25.86 Ha**
Other Minor Uses + roads	**13.6 Ha**

The zoning of the lands as per the LAP is indicated in Figure 18.

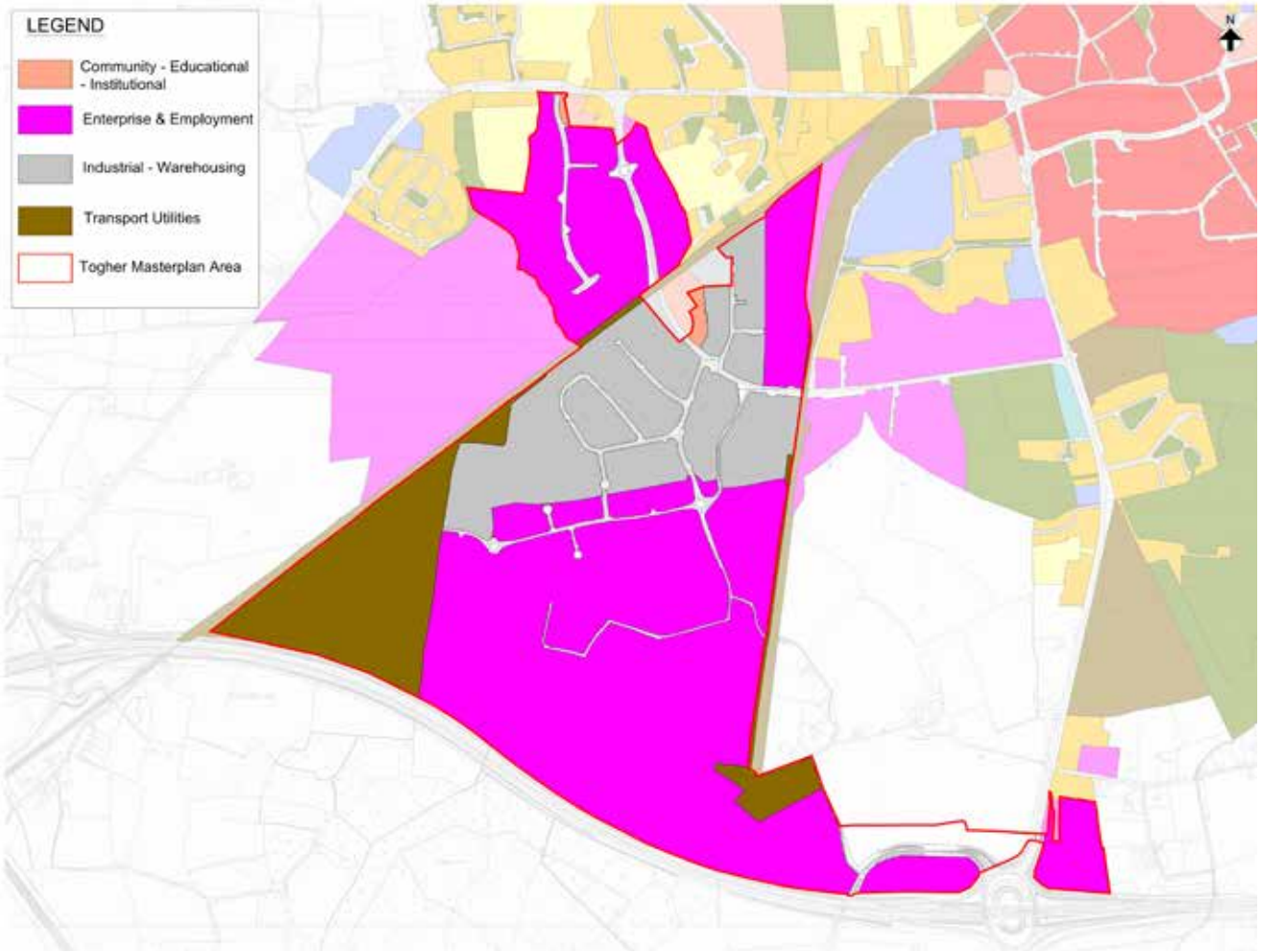


Figure 18: Portlaoise Local Area Plan 2018 – 2024 Land Use Zoning

4.4 | The Opportunity

Laois County Council has recently purchased a significant land-bank (32 Ha.) within the Togher Masterplan Area between the M7 motorway and the disused railway line.

This landbank makes up approximately 17% of the overall Masterplan Area, however more importantly it makes up 23% of the undeveloped lands. This is a significant portion of land which, through council intervention, could be developed as a catalyst for growth within the Togher Area. The remainder of the land is held within private ownership.

In order to capitalise the investment made by the public authority in acquiring this strategic land-bank, it is critical that a new access and spine road is provided. Laois County Council has already commenced the process of delivering the Togher Central Access Route via a Part VIII procedure. The layout of the spine road and extent of publicly owned land-bank is shown in Figure 19.

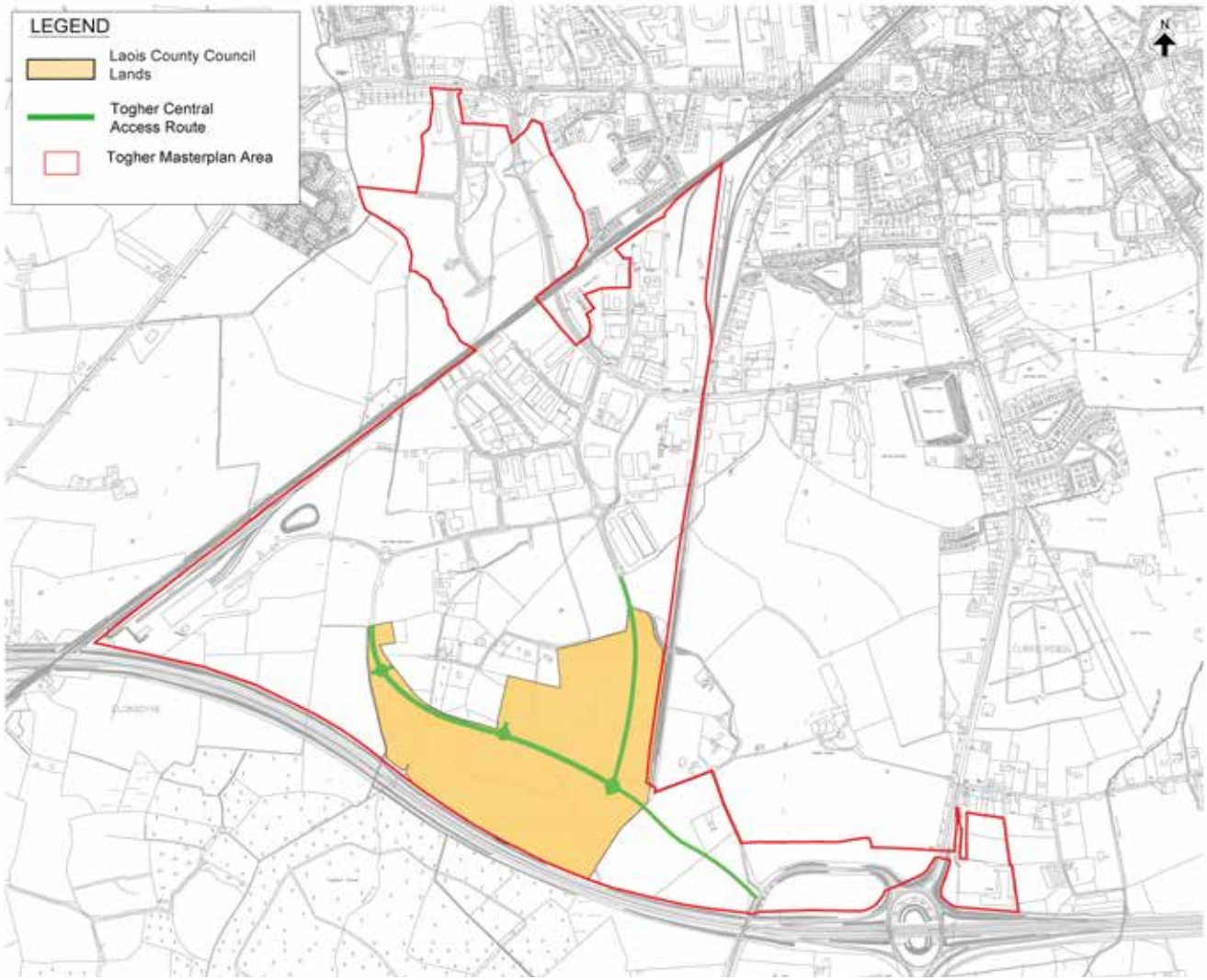


Figure 19: Togher Masterplan Area Indicative Ownership and Togher Central Access Road

Figure 20: Togher Area Masterplan Proposal Render

4.5 | The Masterplan Proposal

The Masterplan provides a 20-year vision and a development framework to achieve the objective of creating a National Enterprise Park by promoting sustainable developments that fit within the local context and regional context.

The Masterplan proposes larger scaled manufacturing, distribution and logistics uses located to the south of the study area, on large, open sites that can accommodate large building footprints and have good access to the motorway system. This zone, along the southern bounds of the Masterplan Area shown in Figure 20, is intended to accommodate industrial uses that will provide a wide range of local employment.

Uses are envisioned to include manufacturing, distribution, logistics, food processing, research and development. Industrial developments will project a clean appearance with service and manufacturing activities being conducted indoors and/or screened outdoor areas. Operations are envisioned to be relatively quiet and will limit impacts such as odour, noise and vibration. The Masterplan also provides the opportunity for industrial uses that complement Clonminam Business Park.

The portion of the Masterplan which links the area to the existing fabric of Portlaoise, Clonminam Business Park, is currently occupied by a mix of uses including retail, industrial, commercial, recreational, service and manufacturing sectors. The land-use zoning within this area is primarily for industrial and warehousing, with a small section designated for Community, Educational and Institutional uses.

The Northern portion of the Masterplan is separated from the rest of the lands by the Cork to Dublin railway line. The zone is intended to provide a significant source of employment for the Togher area and the wider region, creating opportunities for advanced manufacturing or office based activities which depend on highly skilled processes or are involved in high value-added activities e.g. ICT and knowledge based industries.

The area adjacent to Junction 17 of the M7 has been identified as a potential location for offline Motorway services while providing a sense of arrival to those entering the Togher lands from the M7 through a Gateway comprising buildings of significant architectural value.

The open space provision within the Masterplan is an important characteristic of this plan. It creates a framework for development organized around a centrally located park and greenways, unique to this masterplan. It includes a comprehensive system of trails and natural open spaces connected to the wider network of open spaces and back to the town centre.

The development of safe, sustainable and resilient Movement Networks within the Togher National Enterprise Park is one of the cornerstones of the Masterplan. The networks are designed to yield safe, comfortable personal mobility for people of all ages and abilities, as well as efficient vehicular circulation.

Figure 21: Togher Area Masterplan Proposal Render

Figure 22: Togher Area Masterplan Key Elements

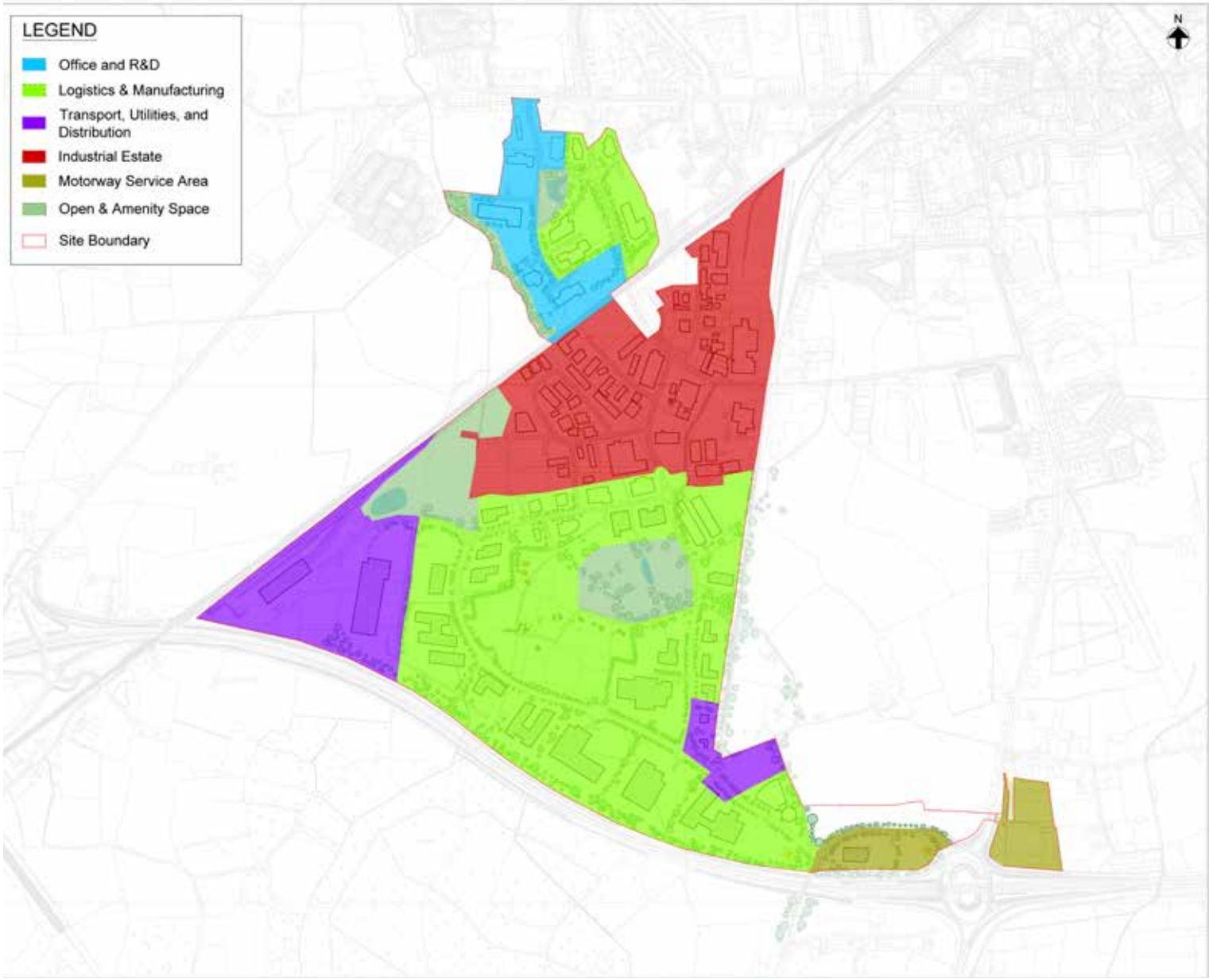


Figure 23: Proposed Masterplan Land Uses

4.6 | Land Use and Potential Quantum of Development

The overall development areas included in this Masterplan have been clustered in the following groups: Office & RD, Logistics & Manufacturing, Transport, Utilities & Distribution, Clonminam Business Park Uses, Motorway Service Area and Open Space and Amenity.

In terms of overall quantum of development, the generic quantum of Enterprise/Employment provision as provided for under the LAP, has been adjusted slightly to take into account possible flood risk impacts on site development.

An estimation of the net quantum of potential new development has been included in Table 3, relating to the areas shown in Figure 23.

Proposed Land Use	Gross Area (Ha)	% Completion	Estimated Net Quantum of Potential New Development (m^2)
Office and R&D	11.55	14%	21,423
Logistics and Manufacturing	86.21	6%	132,342
Transport, Utilities and Distribution	22.88	28%	56,240
Industrial Estate	43.81	85%	11,104
Motorway Service Area	9.62	31%	-
Open & Amenity Space	17.57	-	-
Total	192	28%	221,109

Table 3: Land Use and Potential Quantum of Development

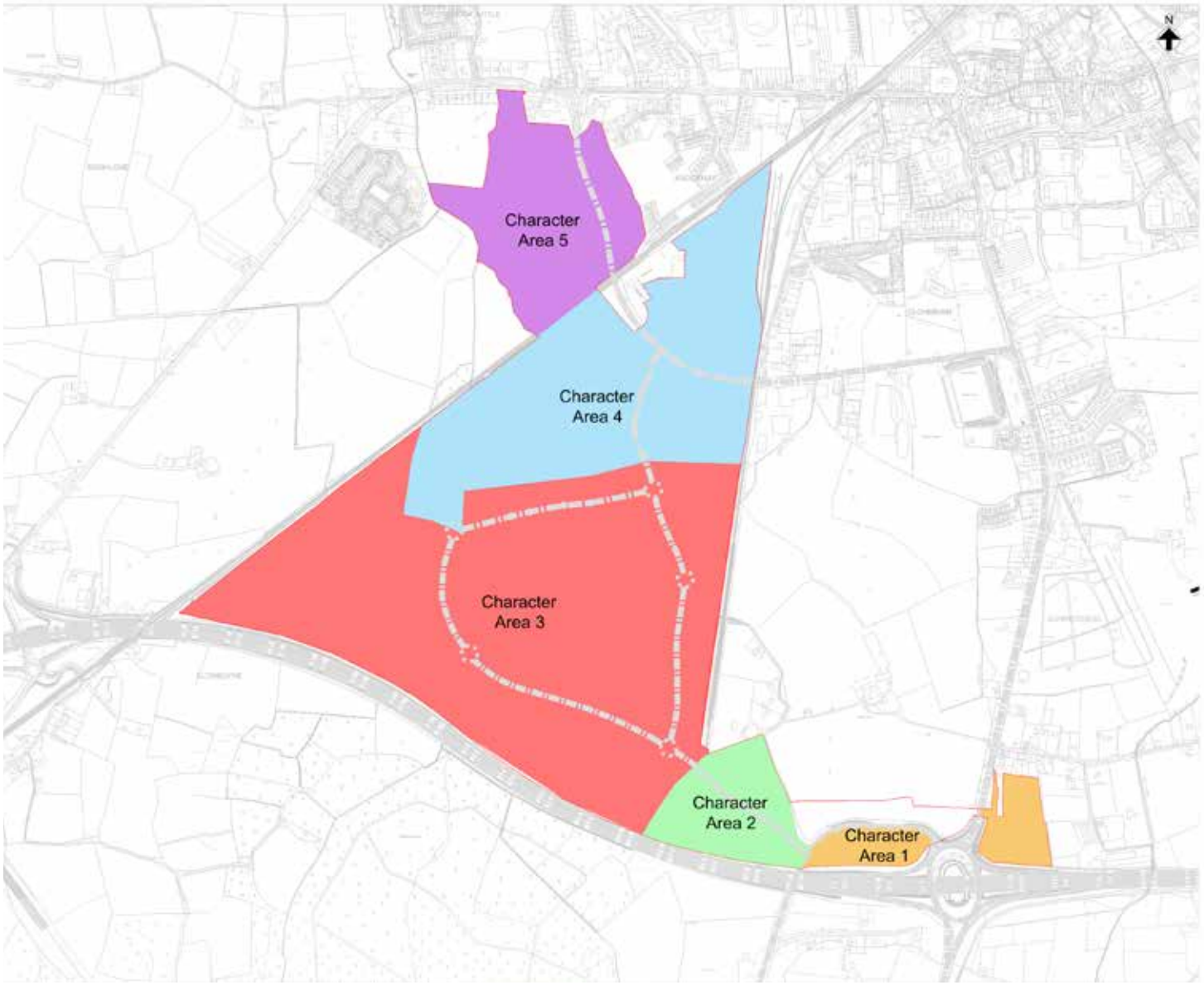


Figure 24: Masterplan Character Areas

4.7 | Proposed Character Areas

The attraction to the area of key players in terms of strategic employers and investors is critical to the success of the National Enterprise Park.

The IDA Business and Technology park provides a highly attractive setting for new foreign investment to establish in Portlaoise. However, the extent of the business and technology park is limited in size. Within the Clonminam area, plots have been continually developed and in parallel Laois County Council have been carrying out local improvements to the public space. This has greatly improved the pedestrian environments, through footpath upgrades, landscaping, and public lighting interventions. It is the intention of the Masterplan to continue with these positive interventions to further improve the existing pedestrian environment.

While the vision for the Togher area Masterplan is dependent on the efforts made by the IDA and the on-going efforts by LCC in incrementally providing environmental /landscaping improvements to the existing industrial park – Clonminam Business Park; the acquisition of the 32 Ha land bank has created the opportunity to establish a greatly improved visual and functional character to that area through the delivery of the objectives set out in this Masterplan document that will most certainly help in attracting new strategic companies to Portlaoise.

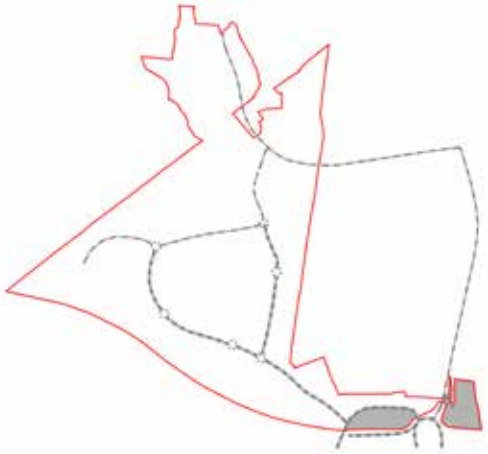
Due to the extent of the study area and the different degrees of development that the different sectors have enjoyed, a set of 5 Character Areas have been proposed. The details of these areas are included in the following section of this Masterplan.

The Masterplan area has been divided into five character areas as indicated in the overall conceptual Masterplan drawings and shown in Figure 24. Each has a different role to play in the Masterplan and in turn, how they relate to the overall urban hierarchy within the wider Portlaoise area.

The following layouts are not prescriptive in the masterplan and the end use will dictate the building form, design grain and layout.

Character Area 1 – The Motorway Service Zone

European and national policy dictates the need to provide areas where road users can park, rest and access facilities. There is a strong emphasis on servicing the needs of commercial road users indicating the need to treat roads as a workplace and provide road users a safe and suitable environment in which to work. Service areas should be of a type that avoids the attraction of short, local trips or the locations becoming destinations for local customers.



Description

This area is located adjacent to Junction 17 of the M7, and therefore the area will enable mobile business needs, while providing a sense of arrival to those entering the Togher lands from the M7. The Motorway Service Zone shall provide uses complementary to the movement function of the motorway. As per Transport for Infrastructure Ireland (TII) policy, the key needs of road users to be addressed by service areas include:

- Areas for commercial vehicles to park allowing drivers to take their mandatory break and rest periods (including overnight parking);
- Areas for all road users to park and rest in order to reduce fatigue;
- Access to facilities for road users including:

  - fuel stations;
  - toilets;
  - showers;
  - convenience shops;
  - restaurant/food outlets;
  - tourist information; and
  - play areas for children.

The area is intended to provide high-quality motorway service development, which will not only generate employment within the Togher area but will attract flexible working activities and passing trade.

This strategic zone serves to plug the lands into the national road network. The zone has an overall area of approximately 6.23 Ha of land currently entirely zoned for Enterprise and Employment.

The land which is currently zoned for Enterprise and Employment, includes: a 4.32 Ha plot consisting of the existing Midway Food Court development, the Maldron Hotel, and lands associated with a live planning application for a new filling station and ancillary uses (Reg. Ref. 17/538); and a 2.89 Ha plot which is subject to a live planning application for a motorway service area (Reg. Ref. 18/216).

Built-form

The basic built form for this area will consist of low rise, high quality pavilion/s within a landscaped setting. These structures will be arranged in a manner that will minimise their visual impact and will follow TII's *"The Location and Layout of Service Areas - DN-GEO-03028 - April 2017"* standards.

Connectivity / Movement

The proximity of this area to Junction 17 requires careful consideration of the impact of this zone on the interchange. Proposed uses will be assessed based on their predicted impact on Junction 17. The proposed Togher Central Access Route will form the main movement spine connecting this zone to the rest of the Togher lands through the Gateway development.

The access arrangement should be of a type that avoids the attraction of short, local trips or the locations becoming destinations for local customers.

Where an application for development within this character area is proposed, it is a requirement that the access arrangement to the lands shall be included as part of a detailed design excercise to ensure that it is fully satisfactory to both LCC and TII requirements.

Landscape and Open Spaces

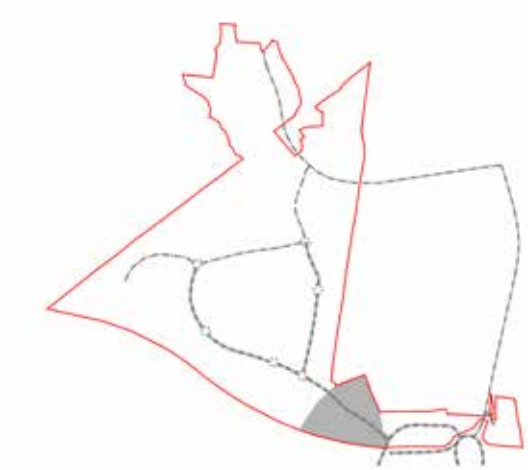
In 2006, the NRA (TII) published A Guide to Landscape Treatments for National Road Schemes in Ireland (National Roads Authority, 2006). This policy document outlines the philosophy adopted by TII in relation to the design of Irish roadside landscapes; in particular, it adopts the use of an 'ecological landscape design' approach to landscape design and the establishment of landscape treatments on national road schemes.

The document identifies various landscape functions and treatments and promotes a better synergy between the professions of ecology and landscape design to maximize the promotion of natural biodiversity in landscape treatments.

Character Area 2 – National Enterprise Park Gateway Zone

Description

The national Enterprise Park Gateway Zone will announce the arrival to the Togher National Enterprise Park for persons accessing the lands from Junction 17. This strategic zone serves to plug the lands into the national road network. The zone has an overall area of approximately 10.9 Ha, consisting of 8.64 Ha currently zoned for Enterprise and Employment and 2.26 Ha currently zoned for Transport and Utilities.



This area is located adjacent to Junction 17, and therefore the area will enable mobile business needs, while providing a sense of arrival to those entering the Togher lands from the M7. The area is intended to provide high-quality gateway development that will set up the architectural tone of the National Enterprise Park.

Built-Form

The basic built form for this area will consist of high quality, buildings within a landscaped setting. These structures will be arranged in a manner that will create an identifiable, ideally iconic, frontage along the new Togher Central Access Route. There is an existing plot with access from the local road and therefore any new developments in the area should endeavour to integrate with this plot.

The overall proposed building height for this character area is approximately 3-4 floors with potentially taller building landmark heights towards the southern side of the Togher Central Access Route.

All new developments should create a sense of place and be of such a scale that will announce the arrival into the Togher Masterplan area. In this manner, it is proposed that individual plots should have a max site coverage in the region of 20% and a max. plot ratio of 0.4:1. Any future developments on plots that are adjacent to existing will require careful considerations in their building heights.

Connectivity / Movement

The proximity of this area to Junction 17 requires careful consideration of the impact of this zone on the interchange. Proposed uses will be assessed based on their predicted impact on Junction 17. The proposed Togher Central Access Route will form the main movement spine through this zone.

In addition to this, the creation of a greenway traversing the site in an east-west orientation is proposed to connect into the existing rural roadway to the east of the lands currently leading to the M7/Abbeyleix Road Interchange. This greenway will provide a linkage from the proposed central employment areas to the Gateway area, and connecting with the soft modes corridor on the disused rail line, will connect the area to the Portlaoise town centre.

Landscape and Open Spaces

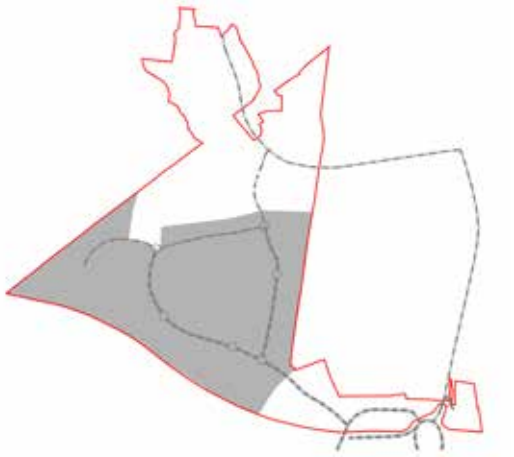
This character area will be articulated at its edges by the new roadway which should include a continual treeline providing an element of separation between the plots and the larger industrial units to the south. Centrally there will be a buffer of naturally designed landscaping between that will create the natural backdrop in which the buildings will be set, while providing some relief between the proposed plots and the existing plots. This will also enable the permeable pedestrian links between the plots, along with the proposed greenway.

Development within this character area shall take cognisance of existing streams and ditches in a manner that will help to incorporate these landscape items as part of a SUDS strategy for the area.

Character Area 3 – National Enterprise Park - Manufacturing and Logistics Zone

Description

The Manufacturing and Logistics Zone is the largest character area within the Togher Masterplan, with an overall area of approximately 98.24 Ha of land. 74.42 Ha of it is zoned for Enterprise and Employment and 21.32 Ha of land is zoned for transport and Utilities uses within the LAP. There are also small lands which are zoned as Industrial Warehousing. The zone currently consists primarily of gently undulating agricultural lands.



This area contains a number of existing properties which are to be taken into consideration, as described further under the 'Existing Character Area'. The development of these plots cannot be assumed, however in the case that they become available for development, the lands will form part of Character Area 3.

The area is bound by the abandoned railway line to the east and the M7 to the south. To the north, the Manufacturing and Logistics zone will interface with the existing Clonminam Business Park. The zone is bounded to the north-west by the Cork to Dublin railway line.

The zone is intended to provide a significant source of employment for the Togher area and the wider region, creating opportunities for advanced manufacturing or logistics based uses. This zone will also allow for the expansion of the existing traincare depot, or for additional complementary uses to be provided adjacent to it.

Built-Form

The basic built form for this area will consist of high quality manufacturing/logistics stand-alone buildings with significant roadway setback and landscaped setting. These structures will be arranged in a manner that will create a largely interrupted frontage both along the boundary roads and internally along the existing central road. Any new developments in the zone should be conscious of the existing developments and should endeavour to integrate with them via a continuous and coherent landscape design.

The maximum proposed building height for this character area is approximately 15 metres with taller structure height towards the southern edge of the area. Taller structures may be considered on individual merit.

All new developments should be of such a scale that would not have a negative impact on neighbouring properties. In this manner, it is proposed that individual plots should have a max site coverage in the region of 20% and a max. plot ratio in the region of 0.25:1 Any future developments on plots that are adjacent to existing will require careful considerations in their building heights.

There is an existing 38kV Overhead cable traversing the area in a south-west/north-east orientation. The interaction of new developments and this power supply will need to be carefully managed, both in terms of heights and in layout.

The built form of developments in the vicinity of the train depot will be largely influenced by the scale and massing of the existing depot building. The form of any expansion to this facility will need to take cognisance of the spatial requirements of the railway tracks which serve the facility.

Connectivity / Movement

The proposed Togher Central Access Route will extend from Junction 17 in a westerly direction, before extending to the north where it will connect with the local road network. The proposed Togher Central Access Route with traverse this character area as indicated in the Portlaoise Local Area Plan 2012-2018 and the Portlaoise Local Area Plan 2018-2024. It is understood that at the time of writing the project has commenced detailed design.

Once complete this road will form the main east-west spine of the character area, as well as including a portion of roadway traversing the site north-south, providing substantial opportunities for vehicular accesses. The existing roadway within this area will continue to act as local access to existing developments, and will also provide an opportunity for soft mode permeability through the area and to proposed new developments.

Access to the traincare depot will be from the existing link road which serves the Clonminam Business Park. This zone is also afforded the strategic opportunity of a direct link to the Cork to Dublin Railway line. This allows Iarnród Éireann to operate the existing depot at this location and provides the opportunity for expansion to this facility.

This Masterplan envisages a highly permeable environment in terms of pedestrian and cycle links throughout, including the creation of a greenway traversing the site in an east-west orientation, which is proposed to connect into the existing rural roadway to the east of the lands leading to the Junction 17.

This greenway will provide a linkage from the proposed central employment areas to the Hub area, and connecting with the soft modes corridor on the disused rail line, will connect the area to the Portlaoise town centre.

Landscape and Open Spaces

Character Area 3 will follow the same principles as those indicated for Area 2. This character area will be articulated at its edges by the new roadway which should include a continual treeline providing an element of separation between the plots and the larger industrial units to the south. Centrally, naturally designed landscaping will act as a buffer and backdrop for the buildings, while also providing some relief between the proposed plots and the existing plots. This will also enable the permeable pedestrian links between the plots, along with the proposed greenway.

Development within this character area shall take cognisance of existing streams and ditches in a manner that will help to incorporate these landscape items as part of a SUDS strategy for the area.

Existing Character Area

Description

The masterplan is largely based on the full development of the National Enterprise Park, however as outlined in the Character Area 3 description consideration must be given to the existing plots and farmsteads within the lands.

Therefore this Existing Character Area (entirely within Character Area 3) has been included in order to prescribe development controls for the lands within the area and for adjacent plots.

It is assumed that the lands within this area are available for development consistent with the zoning of the area and development control standards as set out in the Portlaoise LAP 2018-2024.

Built Form

All new developments in the vicinity should be sympathetic of the existing character and not have a negative impact on existing properties.

Any future developments on plots that are adjacent to existing plots will require careful considerations in their building heights.

Connectivity / Movement

The existing local access road will continue to function as normal, with no direct development access permitted from this road.

This Masterplan envisages the creation of a greenway traversing the site in an east-west orientation. As the route is through this area, if it is to be provided in the interim it must take cognisance of the existing plots and land division.

Landscape and Open Spaces

There will need to be a buffer of naturally designed landscaping which will surround this area creating a natural backdrop and provide some transition between the proposed built form and the existing plots.

Character Area 4 – Clonminam Industrial Zone

Description

This zone is the most developed area within the Masterplan lands, consisting of approximately 48 Ha of land. 34.7 Ha of it is zoned for Industrial Warehousing, 6.24 Ha for Enterprise and Employment, 0.6 Ha for Community – Educational – Institutional and 1.42 Ha for Transport Utilities. The rest is not zoned.

The industrial park is currently occupied by a mix of uses including retail, industrial, commercial, recreational, service and manufacturing sectors. This Zone is bounded to the north by the Cork to Dublin Railway line and to the east by the abandoned railway line. At its southern boundary, this zone will interface with the manufacturing and Logistics zone.

The land-use zoning within this area is primarily for industrial and warehousing, with a small section designated for Community, Educational and Institutional uses.

Built-form

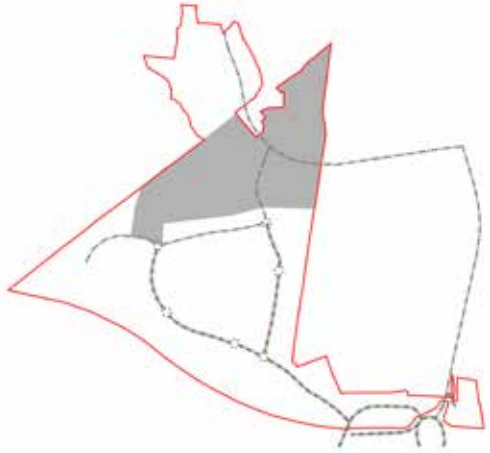
The majority of this zone has already been built out. New development will be sympathetic of the existing built-form. Due to the likelihood of heavier uses, there will be an approximately 10m setback from public roads.

Connectivity / Movement

The Old Knockmay Road currently provides the principal vehicular access to the site, with a number of secondary roads supporting this function. As described herein, LCC have been carrying out local road improvements and positive interventions in the pedestrian environment. These have improved the walkability of the area and the continuation of such interventions will make the area even more accessible for vulnerable road users.

Landscape and Open Spaces

The main objective for this area is to continue the on-going improvement of the area while properly maintaining the common areas.

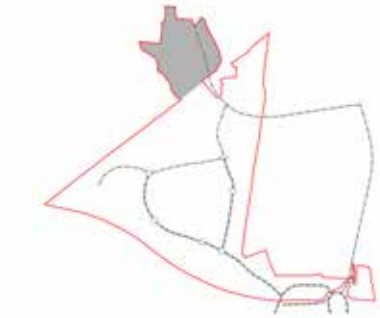


Character Area 5 – Northern IDA Zone

Description

This zone is separated from the rest of the Masterplan lands by the Cork to Dublin railway line. This land is 22.9 Ha and is entirely zoned for enterprise and employment uses in the LAP. The site is bounded to the east by a partially completed residential estate, and to the east by undeveloped lands which are zoned for Enterprise and Employment in the LAP.

The zone is intended to provide a significant source of employment for the Togher area and the wider region, creating opportunities for advanced manufacturing or office based activities which depend on highly skilled processes or are involved in high value-added activities e.g. ICT, knowledge based industries, and biotechnology.



Built-Form

The basic built form for this area will consist of medium density, high quality, commercial/office stand-alone buildings with substantial roadway setback and landscaped setting.

The overall proposed building height for this character area is approximately 2-3 floors. All new developments should create a sense of place and be of such a scale that would not have a negative impact on neighbouring properties. In this manner, it is proposed that individual plots should have a max site coverage in the region of 20% and a plot ratio in the region of 0.5:1. Any future developments on plots that are adjacent to existing will require careful considerations in their building heights.

Connectivity / Movement

The site is accessed from the Mountrath Road and a significant amount of road infrastructure has already been delivered within the lands. The northern IDA zone is linked back to the rest of the Masterplan lands by the Old Knockmay Road.

Landscape and Open Spaces

The landscaping of this area should be sympathetic of the established IDA style character.


Iarnród Éireann
LAOIS TRAINCARE DEPOT
Iosta Traeinchuraim Laoise

5

Movement Strategy

5

Movement Strategy

The following chapter presents the Movement Strategy for the Togher National Enterprise Park. The movement strategy is a central pillar of the Masterplan as it outlines the way in which people will access, interact with and permeate through the area. This strategy sets ambitious targets in terms of modal splits and advocates the promotion of sustainable modes of transport over private vehicular travel through the implementation, monitoring and control of supporting policy measures.

5.1 | Objectives

The key objectives of the Masterplan in terms of movement are to:

1. Enable businesses to take advantage of the strategic location of the lands;
2. Enable the workforce within Portlaoise and its environs to access employment close to their place of residence;
3. Minimise the impact of vehicular traffic on the national road network;
4. Minimise the impact of vehicular traffic at a local level;
5. Provide resilience in terms of movement;
6. Enable the provision of and use of Public Transport; and
7. Enable the provision of and use of Soft Transport modes, i.e. walking and cycling.

5.2 | Strategic Traffic Model

In line with the objectives of the movement strategy, an assessment of the traffic environment within the Masterplan Area has been conducted. Based on traffic counts carried out in 2018, a strategic traffic model has been created to represent the existing traffic environment.

Using this base model, car trips associated with the proposed quantum of development have been modelled in order to determine the impact of the proposed land uses on the road network in future development years. Finally, to ensure further confidence in the network, key junctions have been modelled using traffic modelling software. The method by which this traffic assessment has been undertaken, as well as the key findings of the assessment, is outlined in Appendix A of this document.

The strategic traffic model analyses both current and future road network capacity within the Togher Masterplan and surrounding areas. The model confirms the need to enforce Laois County Council´s ambition of spreading the peak hour to the shoulder peaks in order to increase the efficiency of both available and planned road capacity while supporting the key aim of maximising the use of alternative means of transport. The key principles of the movement strategy have been developed from this finding.

5.3 | Key Principles of the Movement Strategy

As outlined above, the movement strategy for the Togher Masterplan Area is based on the key findings of the strategic traffic model, as well as best practice in terms of sustainable transport planning. The pillars on which the movement strategy is based are:

1. Managing the peak time of travel;
2. Positively influencing the mode of travel; and
3. Providing resilience in terms of the route of travel.

5.3.1 |Managing the Peak Time of Travel

The strategic analysis of the road traffic network in Portlaoise has shown that the Market Square Roundabout junction within the town centre is currently at capacity without any development within the Masterplan Area.

However, further analysis shows that this junction is at capacity during the peak hours (8:00 – 9:00 and 17:00 – 18:00) only, while during off-peak times the junction has spare capacity available. From 07:00 to 08:00, the Market Square Roundabout caters for approximately 50% less traffic than during the morning peak hour, while the Father Brown Avenue Roundabout also caters for approximately 50% less traffic. The difference between the evening peak hour and the period between 16:00 and 17:00 at each of these junctions is in the order of 10-15%.

In order to mitigate against the production of more traffic during the peak hours, it is proposed to introduce an obligation for future developments to adopt a shift based schedule for working hours that limits the impact on the traffic network during the peak hours.

With a shift schedule, workers would be encouraged to use the network during the off-peak hours, thus flattening out the demand on key junctions, and safeguarding their carrying capacity. For example, a shift from 7:00 to 14:30 would have no impact on the peak hours. The exact times of the shifts may vary between the different developments, but can never coincide with the peak hours.

5.3.2 |Positively Influencing the Mode of Travel

At present, the transport environment within the Masterplan Area is primarily focussed on private vehicular transport, with little specific provision for other modes. As a result, motorised transport is currently the predominant mode within the Masterplan Area, accounting for more than 85% of all trips.

The development of the Togher Masterplan Area offers an opportunity to influence existing travel behaviour and realise the ambitions of the national transport policy document 'Smarter Travel – A new transport policy for Ireland 2009-2020' by reducing the reliance on motorised transport within the area and facilitating movement by more sustainable modes.

The current estimated modal split for the Masterplan Area, based on census data, is shown in Table 4.

Mode	2018 Share
Walking	5.7%
Cycling	1.2%
Public transport	4.0%
Motorised transport	87.1%
Working from home	2.0%

Table 4: Current Modal Split

The modal split targets for the National Enterprise Park will be in line with national policy and best practice. Smarter Travel sets out the following target:

"Work-related commuting by car will be reduced from a current modal share of 65% to 45%, which will mean that between 500,000 and 600,000 commuters will be encouraged to take means of transport other than car driver (of these 200,000 would be existing car drivers). Change in personal behaviour will also be necessary for other travel purposes as most travel relates to non-commuting."

Mode	2023 Share	2033 Share
Walking	7.8%	10.0%
Cycling	1.7%	10.0%
Public transport	10.0%	20.0%
Motorised transport	80.5%	65.0%**
Working from home	0.0%	0.0%

Table 5: Modal Split Targets

**Car occupancy is 1.2*
***Car occupancy is 1.5*

The target for motorised transport within the Smarter Travel document is set at 45%, or a reduction in share of 20% (from 65% to 45%). Table 5 shows the modal split targets for the Togher National Enterprise Park for the years 2023 and 2033.

It is an objective of the Portlaoise Local Area Plan (2018-2024) that bicycle use will increase by 40% by the year 2040. The Masterplan aims to achieve this target by 2023 by reaching a cycling modal split target of 1.7%. The targets for walking and public transport in 2023 are set at 7.8% and 10.0% respectively.
For motorised transport, a reduction in modal share combined with an increase in car sharing is predicted, with a car occupancy target of 1.2 persons per vehicle set for 2023.

The target modal share for motorised transport in 2033 is set at 65%, which represents a reduction in the modal share of motorised transport of approximately 22%. In addition to this, within the Masterplan Area a further increase in car sharing is predicted. The car occupancy target for 2033 is 1.5 persons per vehicle, which results in a share for motorised transport which is in line with targets outlined within Smarter Travel. Targets for walking, cycling and public transport are set at 10.0%, 5.0% and 20.0% respectively.

The targets set out herein aim to achieve a substantial reduction in motorised transport and a corresponding uptake of sustainable travel modes. The proposed measures that have been highlighted as critical to influencing the modal split are:

1. Designing the transport environment at destination; and
2. Promoting and Facilitating Sustainable Mode choices.

5.3.3 |Designing the Transport Environment at Destination

Car Parking

A critical measure required to reach the modal split targets is altering the transport environment at the destination. The nature of the facilities provided at the place of work will influence the mode choice. One of the relevant facilities is the amount of car parking spaces provided. The current relevant parking standards, as outlined in the Laois County Council Roads & Parking Standards (2007) are shown in Table 6.

Development	Unit
Offices	1 space per 20 sq m
Industry / Manufacturing	1 space per 50 sq m
Warehousing	1 space per 100 sq m

Table 6: Current Parking Standard

In order to discourage the use of the private car, it is proposed to reduce the provision of parking within the National Enterprise Park. Table 7 shows the proposed car parking standards.

These proposed car parking standards have been developed with reference to existing standards applied elsewhere in what are deemed to be similar environments. Reference has been made to the Dublin City Council Zone 3 parking standards. [Zone 3 is identified as the zones outside of the city centre and not alongside transport corridors] and the South Dublin County Council parking standards.

Development	Unit
Offices	1 space per 40 sq m
Industry / Manufacturing	1 space per 75 sq m
Warehousing	1 space per 200 sq m

Table 7: Proposed Parking Standards

Unless they form part of an integrated mobility management plan, parking spaces will also be located within the boundary of the development plots. No on-road parking spaces will be provided.

Parking supply cannot be treated in isolation, as it is a fundamental issue in support of a mobility management plan for reducing car dependency and providing transport choice. Reducing the car parking supply could restrict private car-use, however consideration would have to be given to the existing and proposed public transport supply to ensure that adequate alternative modes of travel are available.

Bicycle Parking

Secure cycle parking facilities shall also be provided in new office and employment generating developments. Bicycle racks shall be provided in all cases where bicycle parking is deemed necessary. Such facilities should be within 50 metres of the entrance to the facility for long term parking. The number of cycle parking spaces required will be approximately one third of the number of car spaces required for the development. Spatial reservations should be made to

expand these facilities in order to accommodate further future uptake in cycling.

All long-term (more than 3 hours) cycle racks shall be protected from the weather. From a security viewpoint cycle racks should not be located in out-of-the-way locations.

Cycle parking facilities shall be conveniently located, secure, easy to use, adequately lit and well posted. In addition, cycle parking should be placed within a populated, well-supervised area, and monitored by CCTV where possible. Finally, high-quality cyclist changing and showering facilities shall be provided within places of work.

5.3.4 |Promoting and Facilitating Sustainable Mode Choices

In order to achieve the ambitious modal split targets set out in this Masterplan, in tandem with reducing the attractiveness of using the private car through design at the trip destination, measures must also be put in place to make sustainable modes more attractive as a means of moving throughout the Masterplan Area. A number of such potential measures are outlined below for each of the sustainable modes.

Public Transport

The objective of reducing the reliance on private vehicular transport within the Togher Masterplan will be encouraged through attractive strategic public transport connections to the Town Centre, regionally, and to the railway network at Portlaoise Train Station.

The Masterplan aims to link the Town Centre and the plan area via a local bus service, making use of the existing link roads and providing bus stops along the proposed Togher Central Access Route. This will create a full bus loop through the central spine of the lands, with the potential to serve all development blocks. The provision of such a direct route is critical to the sustainability of the Togher Masterplan lands as an employment zone that is an integrated extension to the town.

The overall layout of the lands is such that a substantial level of public transport accessibility will be afforded to all parts of the development with the minimum number of stopping points and with short walking distances from within development blocks to the spine road.

The importance of a public transport connection to the residential areas to the northwest and northeast of the town centre has been identified by the NTA. The particular requirements and constraints of these connections are currently being developed, however it is envisaged that any planned route be fully integrated with public transport proposals for the Togher Masterplan lands.

Walking and Cycling

Portlaoise is a very compact and flat town, which makes it very suitable for cycling. However, in order to achieve the desired modal splits a high-quality pedestrian and cycle network needs to be provided, with routes throughout the plan's lands connecting to the town centre and community areas.

The pedestrian and cycle network will utilise the existing and proposed street networks, as well as new proposed green links, including the creation of a greenway traversing the site in an east-west orientation, which could in part make use of existing local access roads in the area. This greenway will provide a linkage from the proposed central employment areas, and connect with a proposed sustainable transport corridor on the disused rail line, which will connect the area to the Portlaoise town centre.

To emphasise this greenway as a viable route for commuters in the area, and to increase the degree of passive surveillance, well-lit car parking areas or other auxiliary uses should be positioned adjacent to the greenway where development blocks front on to the

greenway, with permeability between the two. The overlooking of pedestrian and cycle links is greatly encouraged to ensure their safe use. This will be of particular importance where the development blocks have large building setbacks.

The provision of safe and adequate facilities for road users other than motorised traffic is an important aspect of any road scheme. The Togher Central Access Route will include footpaths and segregated cycle tracks along the entire length of the scheme and will integrate with existing cycle track and footpaths. The hierarchy of proposed cycle facilities is indicated in Figure 2.

In order to achieve the modal split targets, it is vital to link the above-mentioned measures with the urban fibre of Portlaoise town. For this reason, the following connections external to the Masterplan Area need to be researched:

- A connection between the Town Centre and Masterplan Area along existing roads/streets; and
- Further connections with the eastern parts of the town.

Car Sharing

Increasing the number of people in each car will reduce the impact of the trip demand on the network. It is proposed to introduce benefits for workers that carpool. An example is reserving car parking spaces within each development for car sharing use only.

The employers within the Masterplan Area will be encouraged to set up a scheme together to promote car sharing, which will operate across all the different employers. The car sharing scheme will be promoted among staff members in order to reach a minimum goal of 10% utilisation.

5.3.5 |Providing Resilience in terms of Route Options

A fundamental component of the movement strategy is the creation of a resilient transport network, in which people are afforded options in terms of movement. Portlaoise currently has a limited number of route options to get from one side of the town to the other side. Most of these types of movements within the town are connected through the N80, using the Market Square Roundabout, the Abbeyleix Roundabout and the Timahoe Roundabout. However, the section of the N80 between the Market Square Roundabout and the Timahoe Roundabout is not only used by local traffic moving from one side to the other side of town, it is also used by through traffic, for instance traffic that travels on the N80 itself. Currently, there are no viable alternatives for this traffic.

To relieve the pressure on the town centre roundabouts it is proposed that, as part of the development of the Masterplan Area lands, reservations will be made for the possibility of developing a new orbital road. This new orbital road would be an extension of the existing plans for the Portlaoise Southern Orbital Route.

The new orbital road would give through traffic another option to pass through (or in this case around)

Portlaoise. It would also give local traffic an extra option to travel from one side to the other side of town, including access to the Masterplan Area. This redistribution of traffic would allow for a shift to more sustainable modes of transport within the town centre. This shift towards a more walkable town centre is an objective of the '2040 and Beyond – A Vision for Portlaoise' strategy, prepared by Laois County Council in 2017, and complements the objectives of the Togher Area Masterplan.

Furthermore, the Masterplan shall facilitate and encourage the development of multiple networks for different modes of transport including walking, cycling, public transport and by private vehicle. These networks will not only allow for choice and resilience in terms of mode of transport, but also in terms of route selection and access.

The development of these resilient networks will afford people working within the Togher National Enterprise Park the opportunity to access their jobs. It will allow businesses to supply the required materials and perform the logistics and distribution functions that are proposed within the National Enterprise Park. Finally, and fundamentally, it will support and facilitate the movement of people and goods in a sustainable manner to and through the National Enterprise Park.

5.4 | Monitoring and Control

The movement strategy will be continually monitored, to ensure that the objectives of the strategy are achieved and the targets are met.

A County Mobility team will be established to review the implementation of the Masterplan Area (see Section 10.5).

Each new development will be required to have a mobility management plan (MMP) in place. Each MMP will focus on:

- Facilitating choices for employees while incentivising and encouraging the use of more sustainable options where possible.
- Monitoring the effectiveness of the plan on a bi-annual basis.
- Report on the progress of achieving the modal split targets.

In general, these MMPs should not be 'anti-car', but instead focus on facilitating choice for employees, while incentivising and encouraging the use of more sustainable options where possible. Examples of such incentives include cycle to work schemes, which would promote the uptake of bicycle ownership among employees within the Togher Area as well as the provision of mileage reimbursement for those who travel by bicycle.

Each MMP monitors the effectiveness of the plan on a bi-annual basis. The effectiveness will be measured by carrying out a travel survey among employees within each specific development. All of the bi-annual reviews of the MMPs combined will inform the Area Wide Travel Plan for the Togher National Enterprise Park.

The Area Wide Travel Plan will report on the progress of achieving the modal split targets. It will also report on which of the initiatives and measures in the different MMPs have been most successful, and those that have not been as effective, thus allowing the identification of remedial actions to get the different MMPs back on track and help prioritize resources towards initiatives that are most likely to be successful in the future.

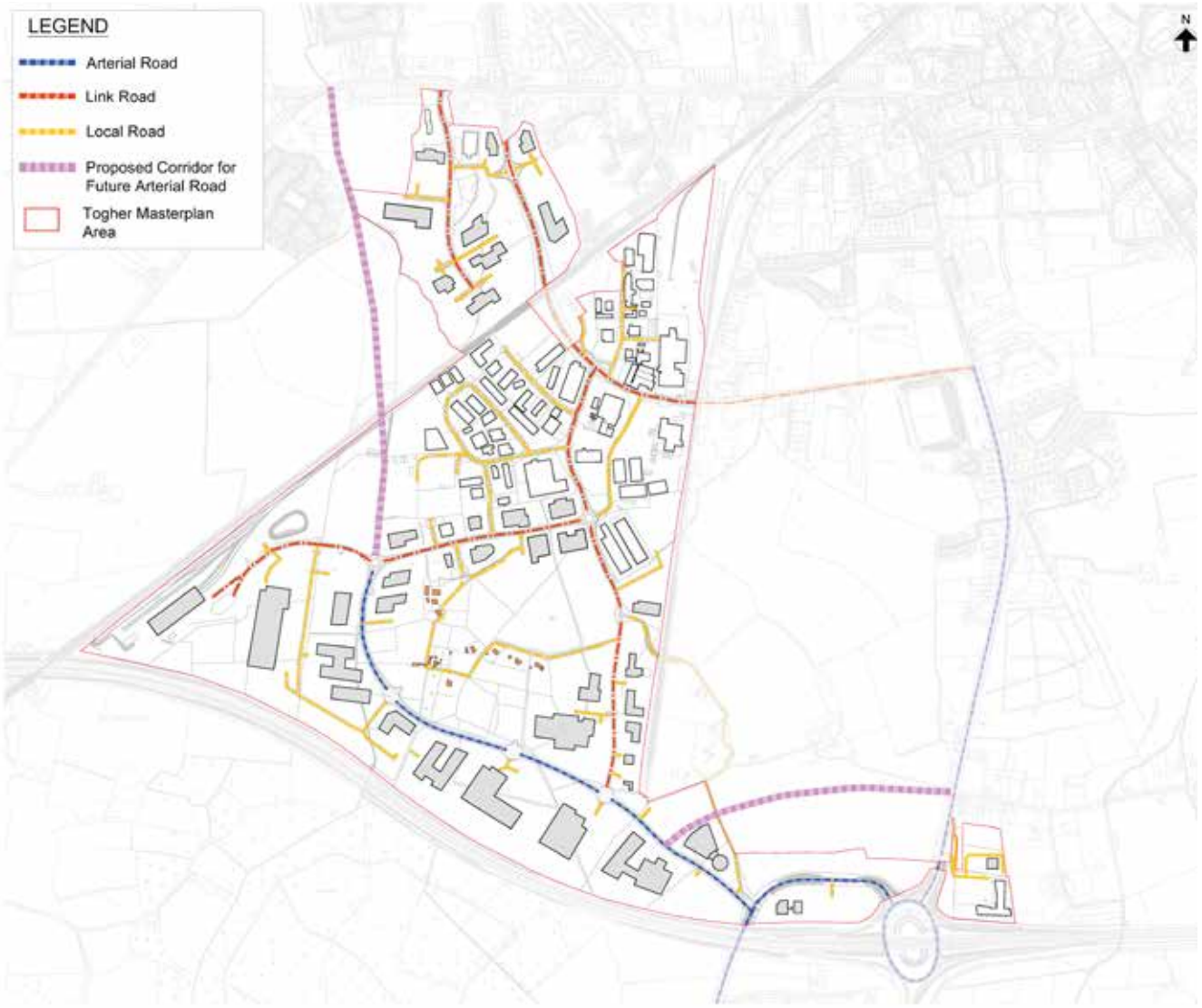


Figure 25: Hierarchy of Proposed Masterplan Street Network

5.5 | Movement Networks

The development of safe, sustainable and resilient Movement Networks within the Togher National Enterprise Park is one of the cornerstones of the Masterplan. The networks are designed to yield safe, comfortable personal mobility for people of all ages and abilities, as well as efficient vehicular circulation.

The Masterplan emphasises permeability for all modes of transport, however due to the industrial character of the lands, the movement network needs to ensure a clear distinction in street typologies based on the likely primary users. This stems from the requirement to accommodate heavy industrial traffic, while also encouraging the use of soft modes.

This concept is outlined in the Design Manual for Urban Roads and Streets (DMURS), in that such employment zones are areas that are primarily focused on (and often purpose built for) providing areas of commercial and industrial activity outside of Centres. Streets within these areas generally have a low place status as buildings have little street presence due to large setbacks and they are largely devoid of pedestrian activity for much of the day.

To address this, the vision for the Togher Masterplan development is in line with what is happening in many of these areas around the country, in that they are in a state of transition toward more business park style commercial and logistics uses replacing older industrial ones. As this transition occurs, the status of these places will rise. Place status in existing campus style Business Parks also tends to be higher and pedestrians can be highly active in these areas during business hours. Therefore, the role of the movement framework in the Masterplan is to enable this transition and increase the sense of place throughout the lands.

The immediate intervention in the proposed movement network envisages the Togher Central Access Route linking the Old Knockmay Road and the N77 through the plan lands.

Within the plan area the proposed Togher Central Access Route is required to form the backbone of access and provide orbital connectivity to the Regional and National Road networks, as it is envisaged that this element will, in the long-term, form part of a town-wide southern orbital route. This arterial route therefore aims to accommodate industrial traffic (local and through traffic) and public transport, but will not discard the concept of a pedestrian friendly environment.

A second network of link streets connecting from the arterial routes of the Togher Central Access Route and the N77 to the east will permeate through the Masterplan lands accommodating local traffic, pedestrians, and cyclists. As with the arterial network, much of this network has been developed already in the form of the circular road links and the Togher Link Road within the National Enterprise Park. There are a number of these roads which have been constructed with no provision for soft modes in the interim and therefore the retrofitting of such infrastructure is required to complete the network. This network in a wider context will include the continued development of the Southern Circular Road to the northeast of the Masterplan lands.

The local streets will act as the designated access routes to individual blocks, stemming from the arterial and link streets. Within the Clonminam Business Park for example much of the network is in place, with wayfinding signage outlining the block layout and defining industrial zones accessible via particular routes. This business park character will be reflected in the new areas to be developed where appropriate.

The separation of the heavy industrial traffic and the more local access and pedestrian routes will ensure that the sense of place within the Togher Masterplan will be improved and separate it from the traditional industrial estate environment. This will render the road network more suited towards active modes more often associated with urban environments.

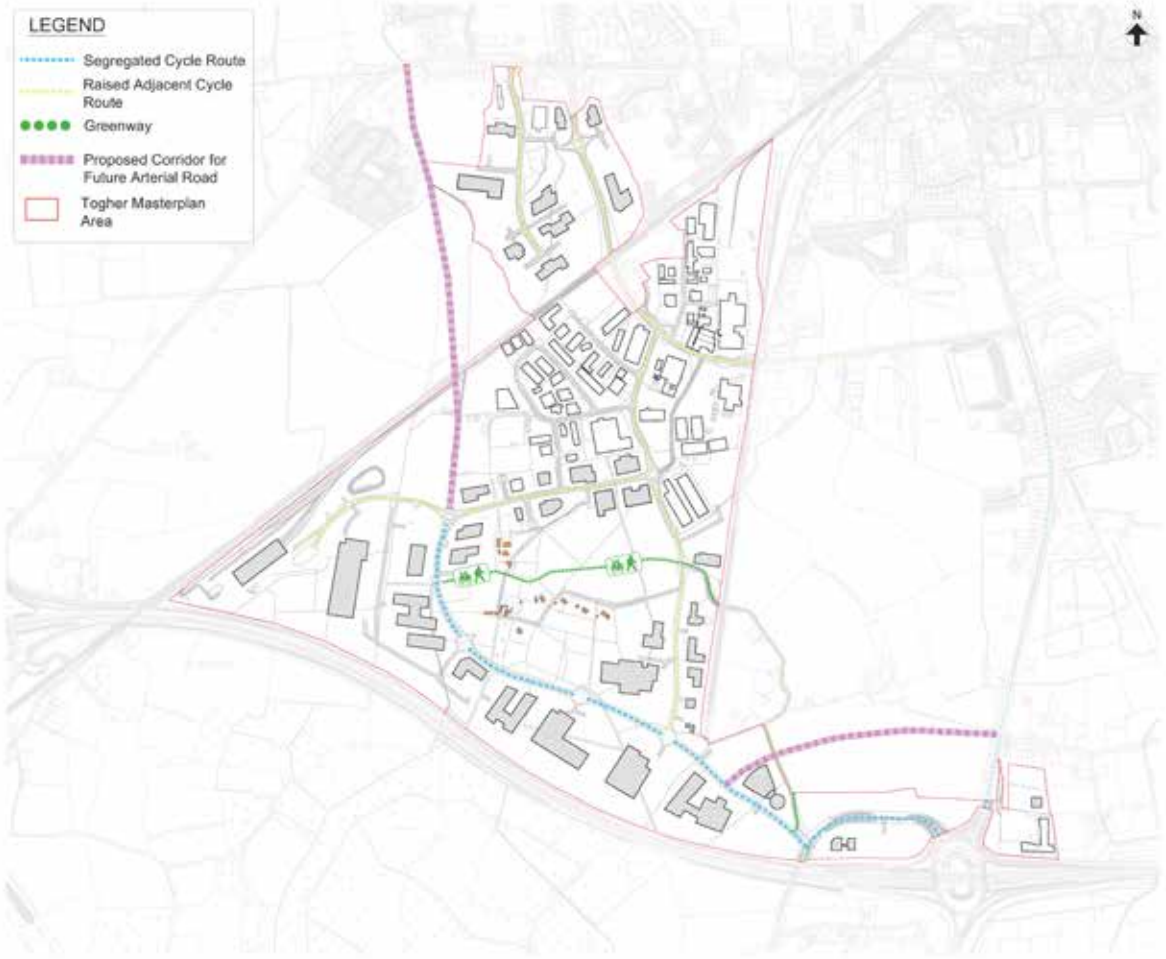


Figure 26: Hierarchy of Proposed Masterplan Cycling Facilities

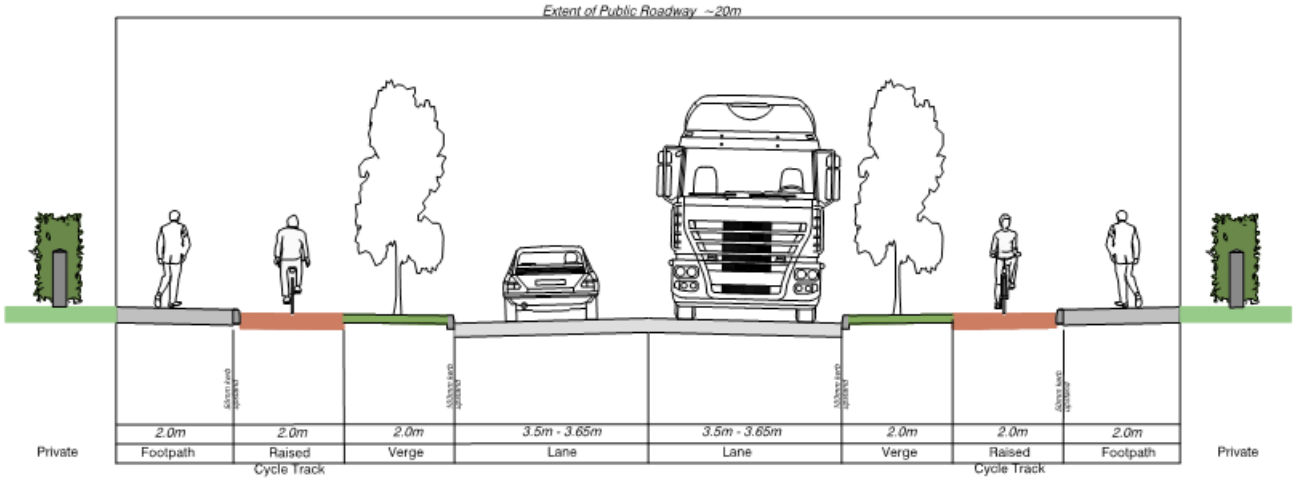
5.5.1 |Street Typologies

The street typology included in the Masterplan moves away from the conventional engineering-led approach based solely on vehicular capacity. A more traditional terminology has been used in order to describe the roles that streets will play in making successful places. The street hierarchy within the Masterplan is indicated in Figure 23. The classification of the street types included in the Masterplan is as follows:

Arterial Street

These form the primary distributor routes through, and serving the Togher Masterplan lands and wider Portlaoise area. Much of this network in Portlaoise is already in place in a radial manner such as the N77 and N80 on approach to the town centre.

The function of the arterial network is intended to relieve the 'Link' and 'Local' Street network within the lands from the heavy industrial vehicular traffic and through traffic thereby placing emphasis on these streets for local connectivity and access by all travel modes. However, in this sense, road side landscaping will be vital along the arterial streets in separating soft modes visually and spatially from the industrial traffic on these routes.



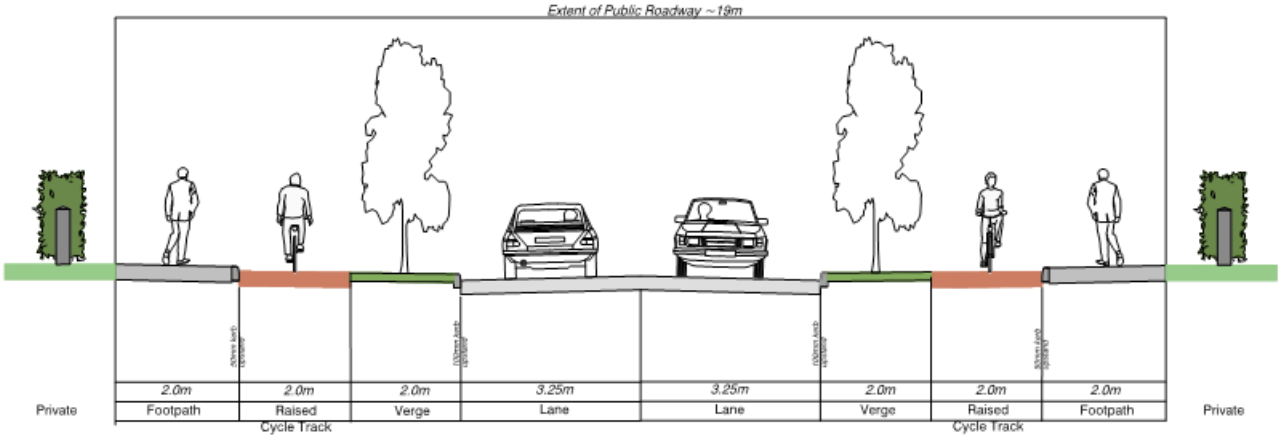
1 - Arterial Street

Speed Limit: 50 kph
Frontage: Limited Direct Frontage

Link Street

These streets will connect the arterial road network with, and will provide connectivity to the local areas within the Town Centre and wider Portlaoise area. The typical cross-section to be applied to Link streets within the Togher Masterplan Area is illustrated below which provides a raised cycle track to segregate cyclists from the trafficked street, and ample pedestrian footpath.

A limited amount of direct frontage and access only will be provided onto these streets due to their higher order function in terms of traffic movement. A speed limit of 50 kph will be applied to new link streets within the Togher Masterplan Lands.



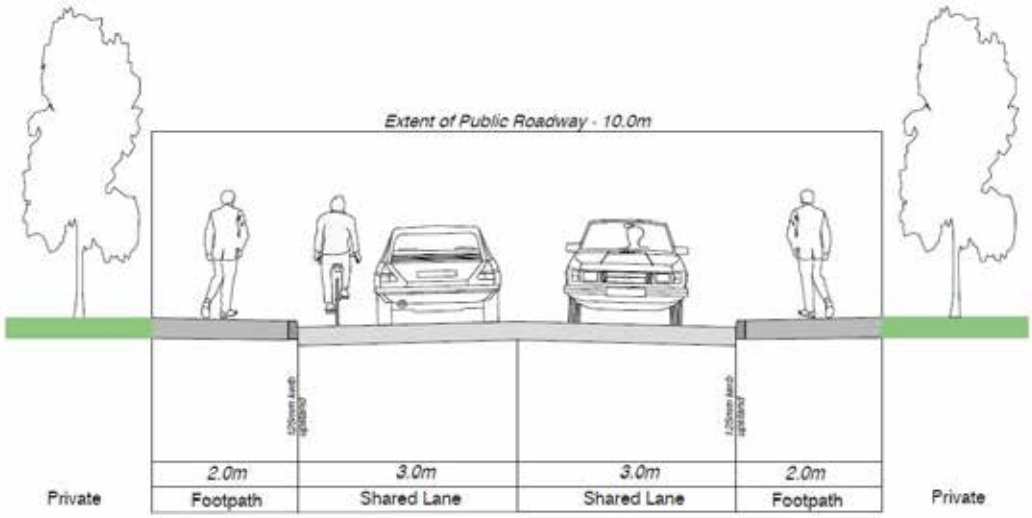
2 - Link Street

Speed Limit: 50 kph
Frontage: Direct Frontage

Local Street

These streets will provide access to and permeability within each industrial block. As such, the exact street layout will depend on the site layout of each specific area.

A typical cross-section to be applied to local streets within the Togher Masterplan is illustrated below. These streets will be permeable to vehicular traffic but the layout and character of the streets will be such that through traffic will be minimised. Narrow lane widths and tighter radii will serve as traffic calming measures. A speed limit of 30 kph will be applied to new local streets within the business park areas.



3 - Local Street

Speed Limit: 30 kph
Frontage: Direct Frontage

As indicated in the indicative cross sections, the width of the main streets in the Togher Masterplan will vary between 10 and 20 metres. These dimensions do not significantly differ from those found throughout the adjacent areas.

The mandatory Street Type specification for the Masterplan lands is included in Table 8.

Criteria	Arterial	Link	Local
Total width	20	19	10
Speed limit	50 km/h	50 km/h	30 km/h
Traffic calming	NO	NO	YES
One way/Two ways	TWO	TWO	TWO
Carriageway width	3.5 - 3.65m	3.25m	3m
Footpath width	2m on both sides	2m on both sides	2m on both sides
Cycle track	YES (2m on both sides)	YES (2.00 on both sides)	NO
Verge	YES (2m on both sides if space available)	YES (2m on both sides if space available)	NO
Tree planter	YES (verge)	YES	YES
Bus route	YES	NO	NO
Bus stops	YES	NO	NO
On-street parking	NO	NO	NO
Direct vehicular access to properties	Limited	YES	YES
Junction radii	9m (min)	6m (min) at junction with Arterial, 4m elsewhere	6m (min) at junction with Arterial, 3m elsewhere
Junction sightlines (x/y)	2.4m / 49m	2.4m / 45m	2.4m / 24m

Table 8: Street Type Specification

Sustainability

Sustainability

The development of the Togher National Enterprise Park presents an opportunity to develop an area that is pioneering in its approach to sustainability through the creation of an Eco-Industrial Park. An Eco-Industrial Park is an industrial park in which businesses co-operate with each other and with the local community in an attempt to reduce waste and pollution, efficiently share resources (such as information, materials, water, energy, infrastructure, and natural resources), and help achieve sustainable development, with the intention of increasing economic gains and improving environmental quality. An Eco-Industrial Park must be planned, designed, and built in such a way that it makes it easier for businesses to co-operate, and that results in a more financially sound, environmentally friendly project for the developer. The Togher Masterplan provides a framework which can facilitate the delivery of such an Eco-Industrial Park within Portlaoise as a leading national example of a sustainable industrial park.

The mix of uses proposed within the Togher Masterplan lands are conducive to the synergies associated with the sharing of resources. Such collaborative strategies could include a district energy/ heating system, shared parking, water reuse and conservation strategies, the reuse of waste products, sustainable planting and landscaping strategies and a combined and integrated mobility management plan.

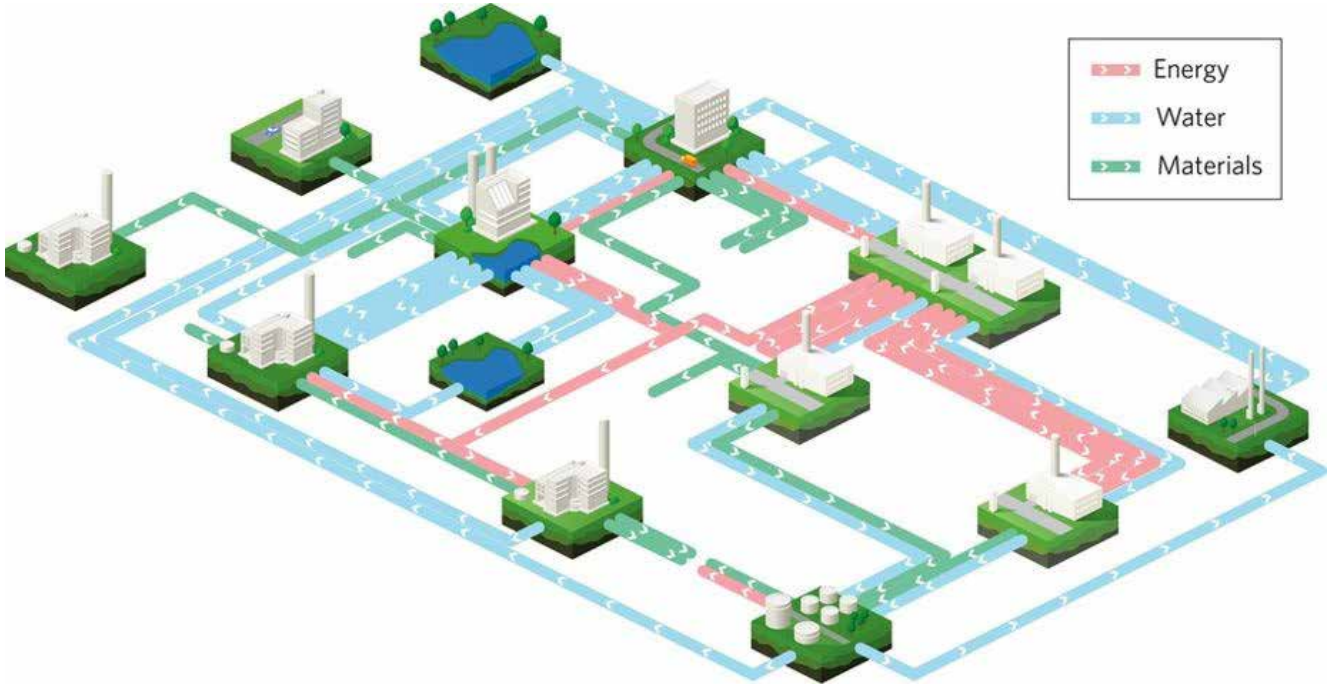


Figure 27: Eco-Industrial Park Schematic
Source: Kalundborg Eco Industrial Park

This principle of sustainability should be applied with cognisance of the following principles:

Park Management & Governance principles: The park management should instil a culture of high regulatory performance in its own functions and activities. In addition, it should promote and maintain a strong compliance culture across its resident businesses. Laois County Council must drive this culture through the application of sustainable planning principles and development management practices as outlined in this Masterplan.

Environmental performance: Eco-Industrial Parks and associated businesses are expected to comply with all local and national environmental regulations. The key environmental issues to consider are:

- Minimising Energy Use;
- Sustainable Use and Reuse of Water;
- Waste and Material use;
- Implementing sustainable transportation strategies; and
- Accounting for Climate change and the Natural environment.

Social Performance: Eco-Industrial Parks should ensure implementation of good social management practices, including decent work, social and community infrastructure, and maintaining good relationships with the local community. In this regard, the integration of the Togher National Enterprise Park within the social fabric of Portlaoise is critical to its success.

Economic Performance: The proposed park infrastructure needs to be designed to respond to market demand. It should seek to attract investors and businesses interested in establishing operations within the park. In addition, strategic Eco-Idustrial Park interventions can improve park and firm level competitiveness when they are included in the Eco-Industrial Park design and operational procedures.

It is recognised that the Togher National Enterprise Park will be developed over a number of years and it is important that sustainability strategies are sufficiently flexible and robust to be able to respond to emerging and future policy and legislation changes.


FARA

7

Services and Utilities

7

Services and Utilities

Providing network resilience is critical to the effective servicing of the Togher National Enterprise Park. Each plot will be serviced by multiple sources of each utility in order to ensure that the critical business operations that the National Enterprise Park will facilitate are safeguarded against potential issues within the utilities networks. Based on an analysis of the existing utility infrastructure within the area, outline servicing strategies have been developed in relation to each of the critical utilities, and these strategies are outlined herein.

7.1 | Water Supply

Within the development, it is proposed to construct new water mains in line with the construction of new roads in order to provide supply to adjacent development blocks. New watermains constructed along the length of the proposed Togher Central Access Route will create the backbone of the water supply network in the Masterplan Area and provide resilience to the lands.

Irish Water is responsible for the provision and operation of public water and wastewater services within the Masterplan lands. Connection enquiries for any new developments will therefore go to Irish Water, while Laois County Council will deliver water services in accordance with a Service Level Agreement. Irish Water and Laois County Council will work jointly to identify the water services required to support planned development in line with national and regional planning policies for inclusion in the Irish Water Capital Investment Plans.

New developments must take cognisance of the water pressure requirements for the site, not only for potable water but also for fire considerations. The required

pressures for fire fighting could range from 25 l/s for offices upwards towards 70 l/s for large scale warehousing, and these requirements will need to be confirmed with Laois County Council Fire Services for each development.

With regard to long term capacity considerations, Irish Water outline that the targeted available headroom capacity over current daily need should be 15% in regional gateway towns, with an aim of achieving this by 2021. This must be kept in mind as the Masterplan lands develop to ensure new developments do not hinder Irish Water's progress towards this target.

An indicative schematic of the future network is shown in Figure 28.

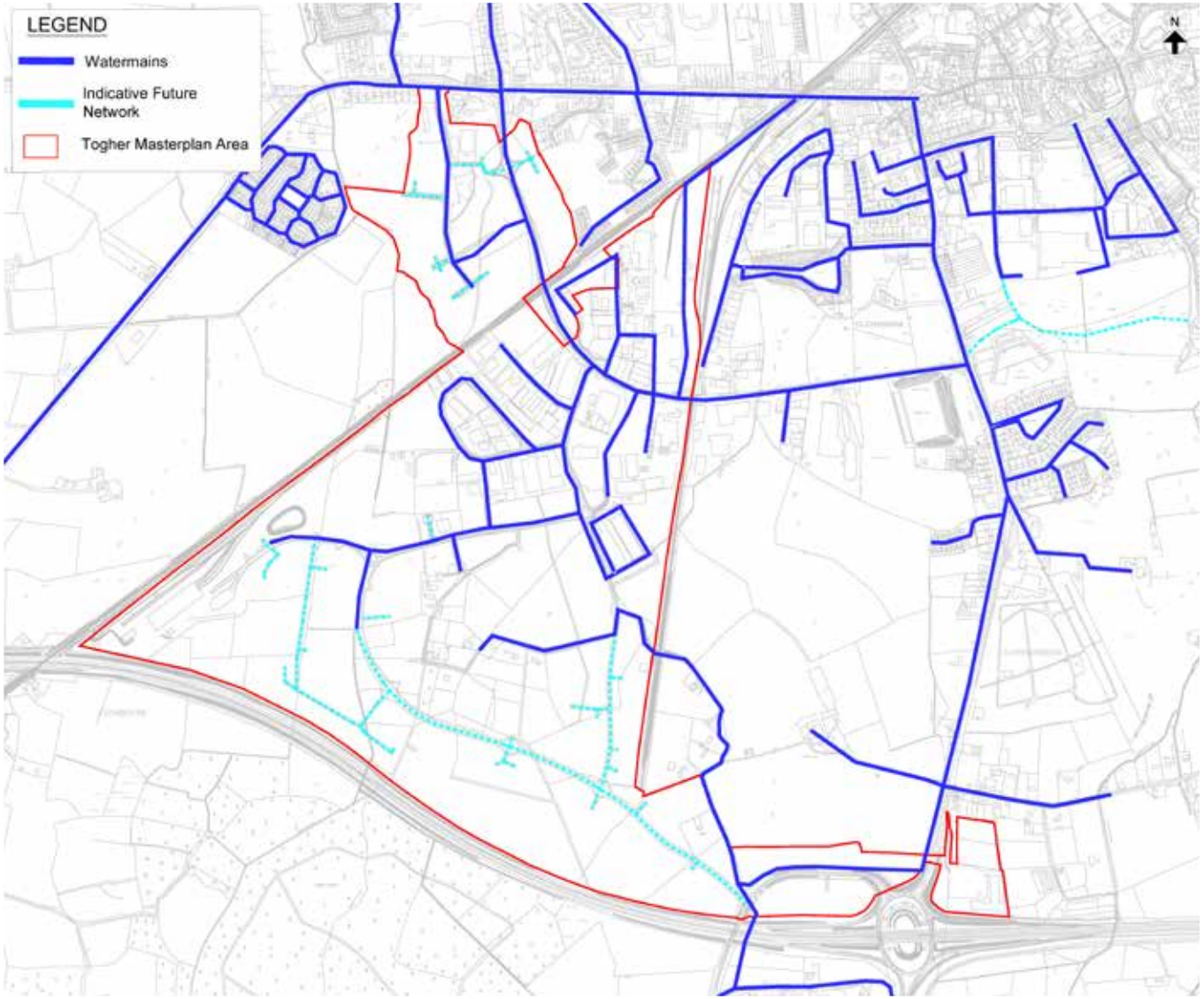


Figure 28: Indicative Schematic of Future Water Supply Network

7.2 | Wastewater

According to the LAP 2018-2024, extra capacity is required to implement the policies and objectives of the plan. It is anticipated however, that there is sufficient capacity within the existing sewer network to accommodate the level of development expected in this Masterplan, subject to the satisfactory provision by developers of the supporting infrastructure in close consultation and liaison with Laois County Council.

In this sense, the need for a new pumping station has however been identified to enable the development of the motorway services area and this will also serve the Togher Masterplan lands. A site has been identified for this within the lands zoned for Transport and Utilities.

As the lands are developed, on a plot by plot basis connection enquiries for new developments must go to Irish Water for consideration, while Laois County Council will deliver water services in accordance with a Service Level Agreement. Irish Water and Laois County Council will work jointly to identify the wastewater services required to support planned development in line with national and regional planning policies for inclusion in the Irish Water Capital Investment Plans.

An indicative schematic of the future network is shown in Figure 29. The routes and connections to existing systems are subject to further design development.

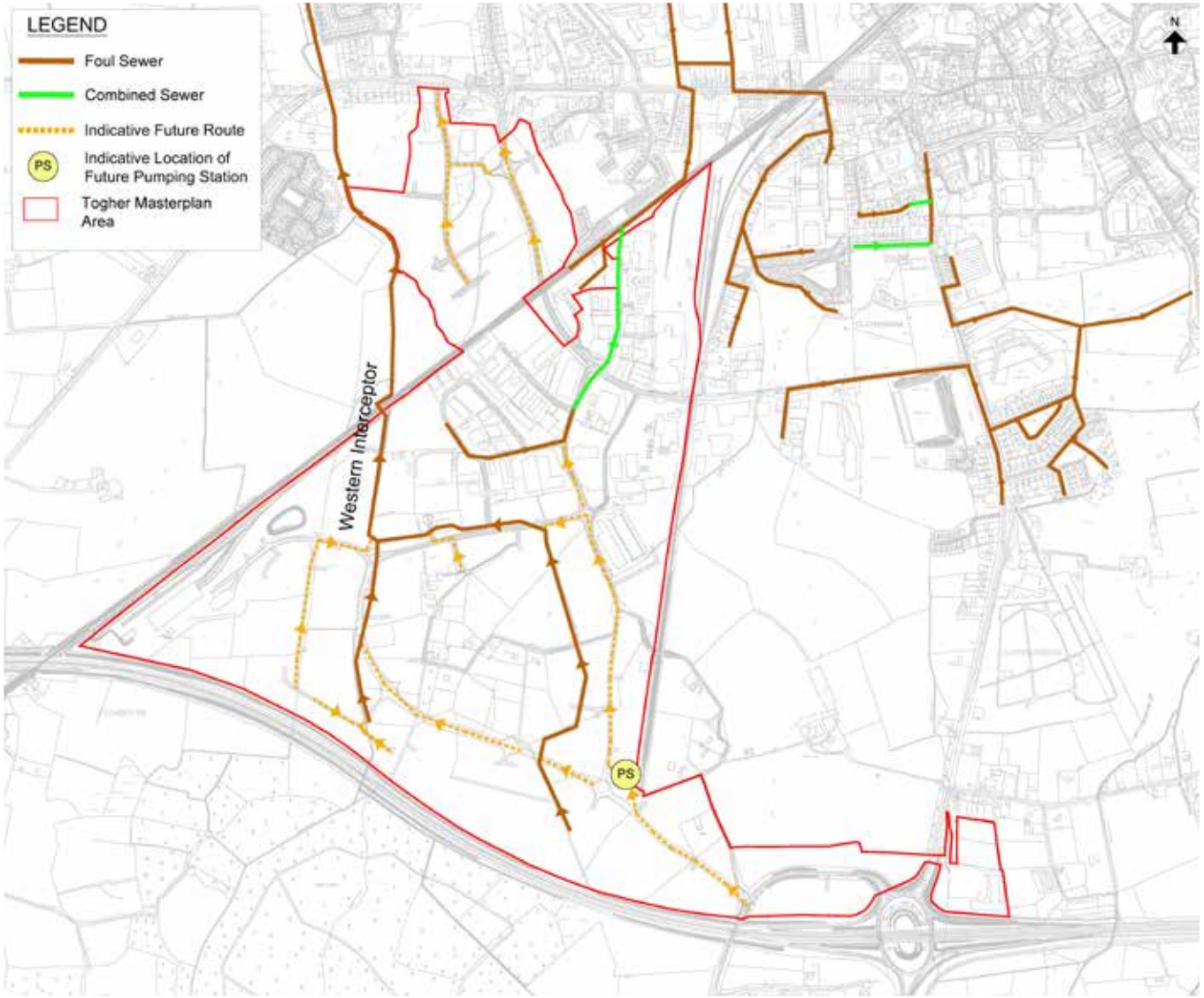


Figure 29: Indicative Schematic of Future Wastewater Drainage Network

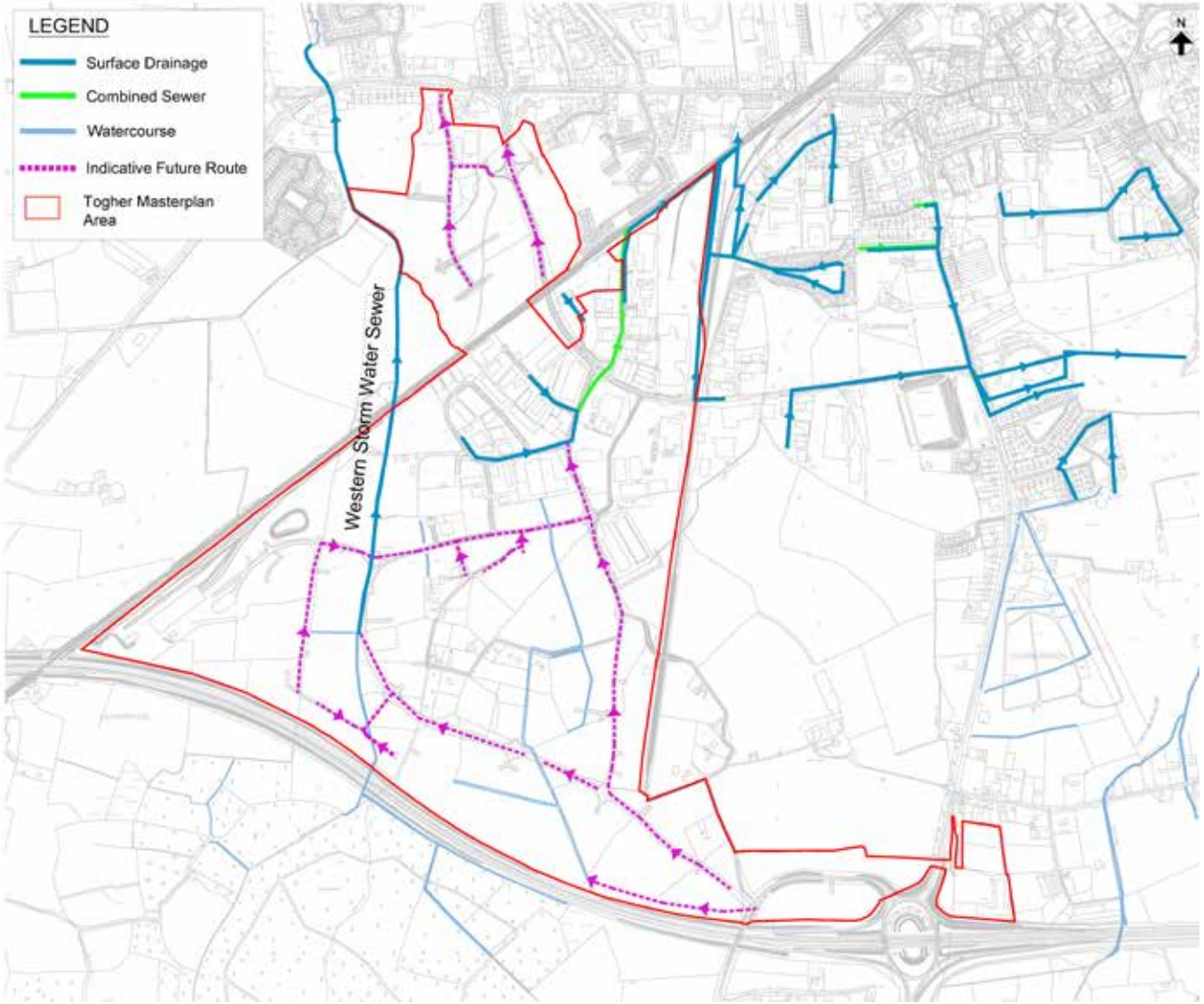


Figure 30: Indicative Schematic of Future Stormwater Network

7.3 | Stormwater Management

The Storm Water Management Policy published by Laois County Council (Feb 2007) sets out the Council policy in relation to the provision of stormwater systems. This policy is based in part on the Greater Dublin Strategic Drainage Study and Laois County Council's "Roads and Parking Standards", and sets out the minimum requirements and practices to achieve an acceptable design of stormwater management systems for developments to be taken in charge by Laois County Council.

The policy adopts principals of Sustainable Drainage Systems (SUDS), a concept that includes long term environmental and social factors in decisions about drainage. SUDS take account of the quantity and quality of runoff, and the amenity value of surface water in the urban environment, and aims to avoid problems of flooding, pollution or damage to the environment from inadequate or unsuitable drainage design.

The Storm Water Management Policy (2007) describes the policy to be applied in controlling the rate of storm water runoff from new developments within the Togher Masterplan. Laois County Council will approve only appropriately designed storm water management systems that will improve the sustainable management of water for a site through the measures outlined within the policy.

In general, the Masterplan lands tend to fall away from the M7 with multiple natural watercourses traversing the lands. However, the overall gradient is relatively flat, which could constrain the possibility of a single attenuation zone serving multiple developments.

Therefore, the likely stormwater management strategy will be that each new development is to attenuate stormwater discharges on site to appropriate levels, before discharging to existing water streams or public storm water networks, with all proposals to be agreed with Laois County Council and to be in line with the Storm Water Management Policy. New developments must protect both ground and surface water resources in line with Irish Water's Water Safety Plans to protect sources of public water supply and their contributing catchments.

An indicative schematic of the future network is shown in Figure 30. The routes and connections to existing systems shown are an indicative scenario, subject to further design development.

7.4 | ICT

Within lands the main ICT network will run in the main arterial and link roads, however there will also be a number of ducts provided within the secondary roads to accommodate local connections where required. Going forward, securing a highspeed broadband will be critical to the resilience and economic competitiveness of Togher lands and for attracting investment. The full network of service corridors will be designed to ensure that new commercial developments have connections available and ducting to existing or proposed optical fibres. The sharing of ducts by operators is encouraged.

In addition to this due to the vision of accommodating modern, data intensive enterprise, in order to provide sufficient bandwidth to all users in the Togher Area, it would be beneficial if the MAN were extended via an additional metro ring through the Togher Masterplan Area as part of the construction of the new road network. The completion of this ring will provide a significantly high level of resilience within the lands, due to the multiple incoming feeds.

It is however noted that further development of the network in Portlaoise is not currently planned in Phase 2 of the MAN national implementation.

An indicative schematic of the future network is shown in Figure 31.

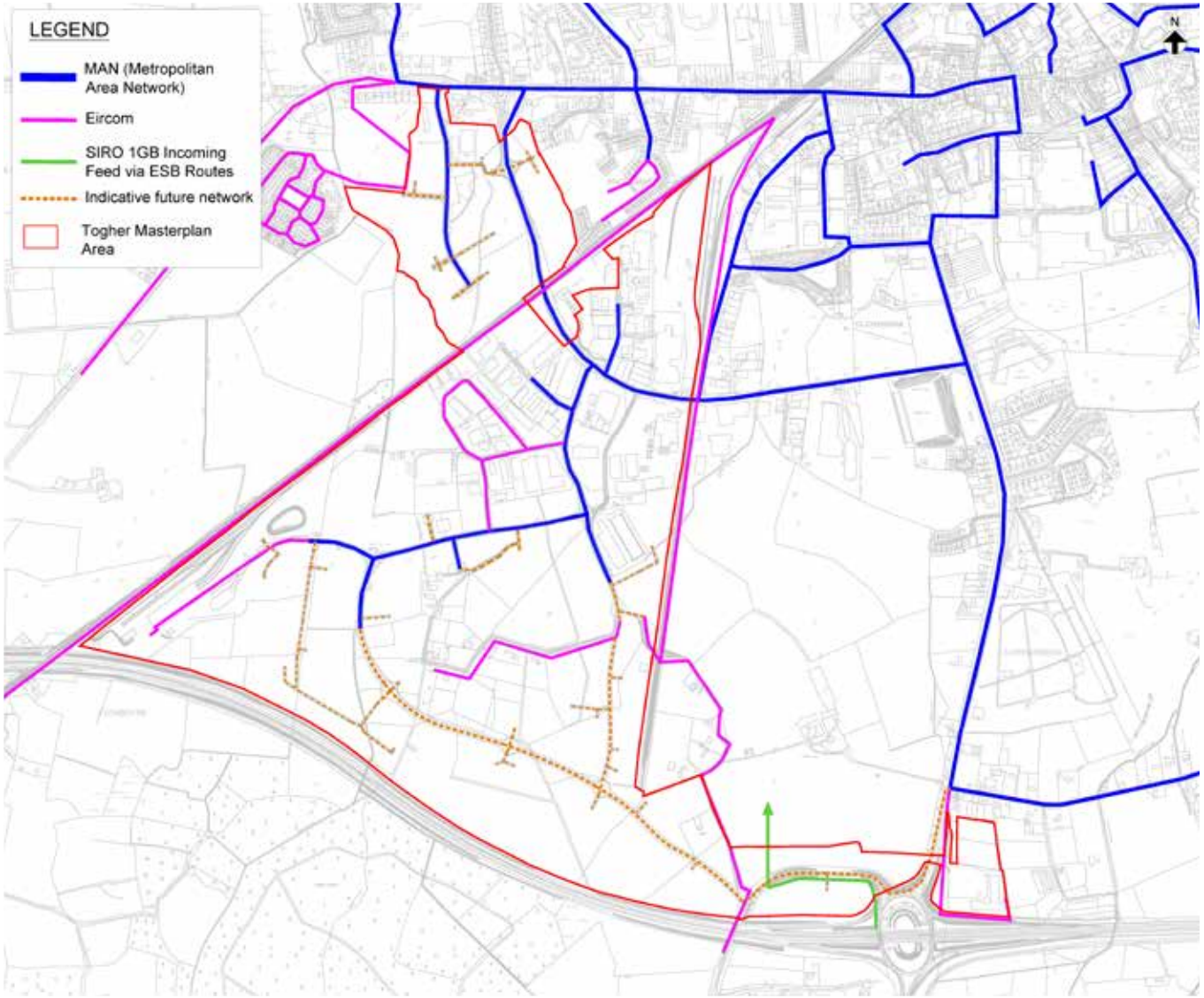


Figure 31: Indicative Schematic of Future Telecommunications Network

7.5 | Electricity Supply

Regarding electrical supply, if the lands develop as envisaged, to provide higher resilience to the lands it will likely be a requirement to install an underground ring of high voltage cable up the Clonminam Business Park road, through the National Enterprise Park, eventually through the proposed Togher Central Access Route and connecting back to the 110kv Substation.

Further analysis demand loadings will be required in order to determine whether a major new high voltage substation in the Togher area is required, and a site has been identified for this eventuality within the lands zoned for Transport and Utilities adjacent to the disused railway line. The individual developers will be responsible for constructing medium voltage substation rooms within each site and acquiring planning permission as necessary.

An indicative schematic of the future network is shown in Figure 32.

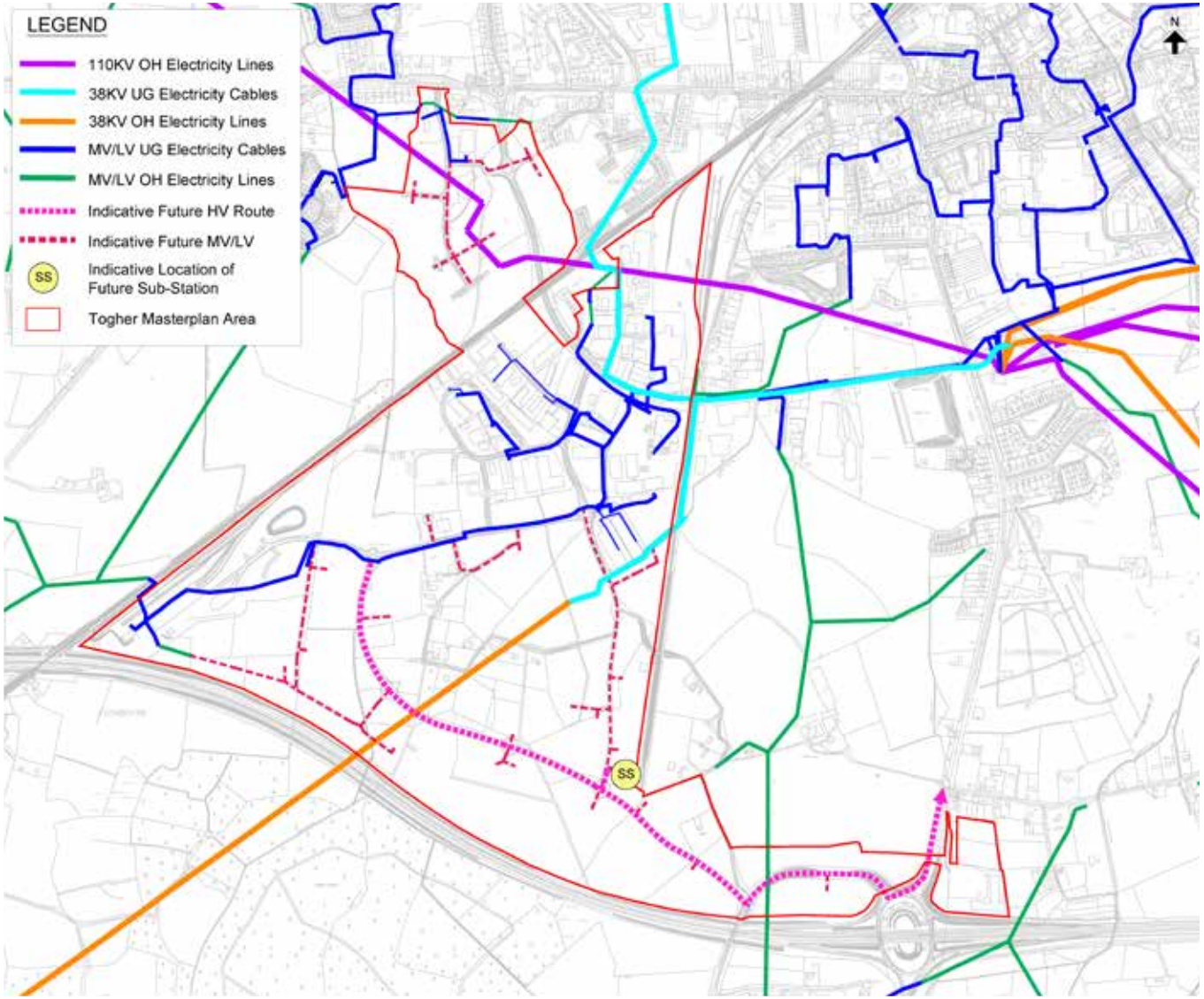


Figure 32: Indicative Schematic of Future Electricity Supply Network

7.6 | Gas Supply

Any extensions of the existing gas network into the Togher Area will be driven by the developer and the customer demand.

However, to create a resilient backbone within the lands, as part of the design development of the proposed Togher Central Access Route, a new high-pressure main will be included to traverse the Masterplan lands and provide significant connection opportunities for new developments. Distribution mains for individual plots will then be brought along the local and link roads as required.

An indicative schematic of the future network is shown in Figure 33.

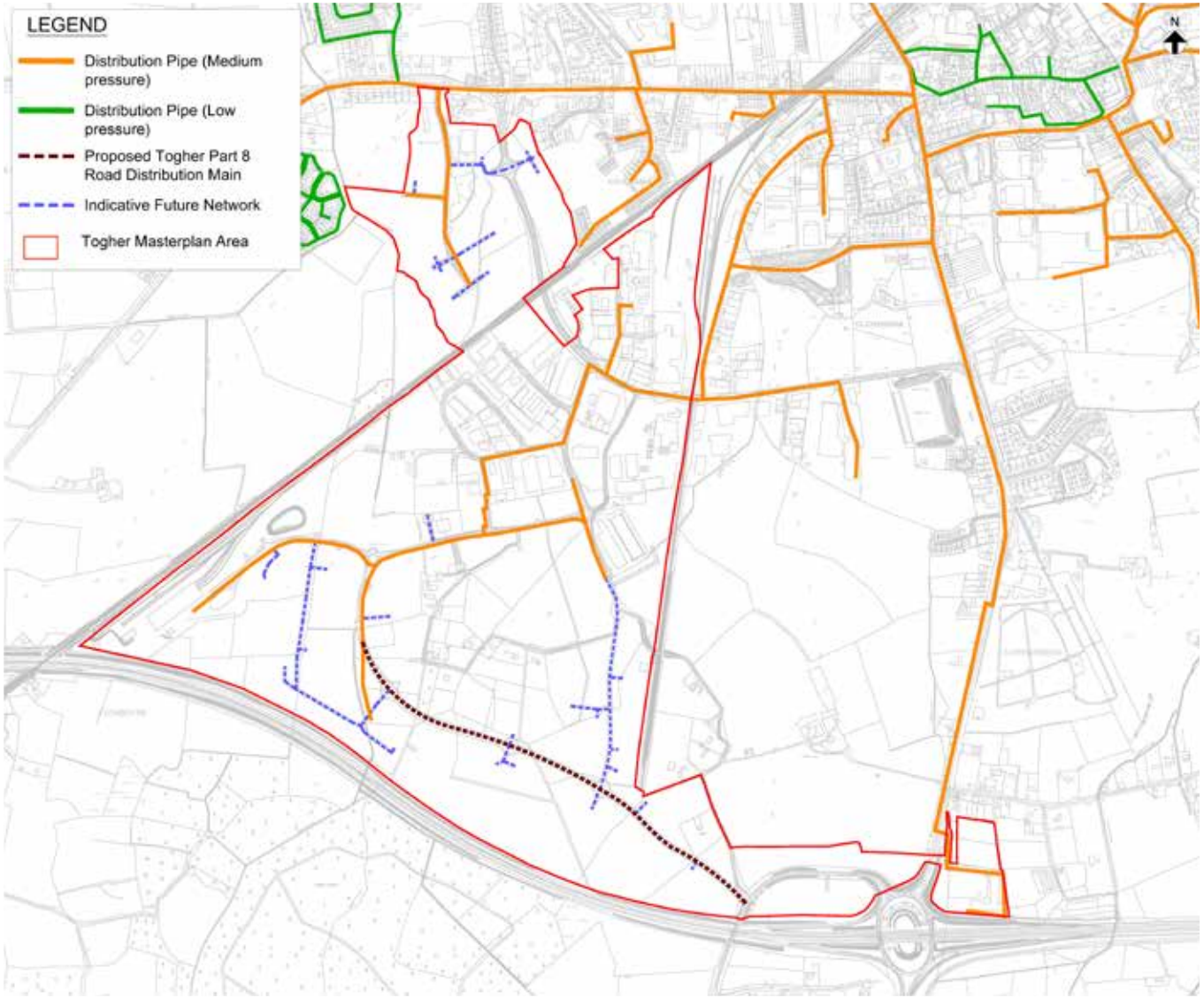


Figure 33: Indicative Schematic of Future Gas Supply Network

7.7 | Energy Sources

EU Directive 2009/29/EC on the Promotion of Renewable Energy Sources, establishes a binding target of 20% of overall EU energy production from renewable resources by 2020, as well as a binding 10% minimum target for energy from renewable resources to account for 16% of total energy consumption by 2020. In line with these commitments, Ireland's target for electricity from renewable energy sources is 40% by 2020. Low carbon technologies present an economic opportunity and green technology development is emerging as a major field of innovation and growth.

Development within the lands must recognize the importance of developing renewable energy resources, such as solar energy and biomass in the interest of delivering the National Climate Change Adaptation Framework.

The energy regimes for individual blocks must also take cognisance of the sustainability policies outlined herein in order to form part of the Eco-Industrial Park community.

8

Built Form Design Guide

8

Built Form Design Guide

8.1 | Overview

The following design guidelines are a set of illustrated design rules and requirements that have been prepared as a development control tool to implement the Togher Masterplan.

The purpose of the design guidelines is to create a commonly understood set of expectations for the character and quality of development within the Togher National Enterprise Park. They are an expression of the intentions of the Masterplan and will instruct and advise on the physical development of the site.

The Guidelines comprise a set of mandatory and discretionary design requirements which will guide individual developments in the creation of a high quality, functional and aesthetically unified business and industrial park while encouraging excellence and innovation in design. These guidelines are intended to be used as a key point of reference in the development control process.

8.2 | General Masterplan Arrangement

The Masterplan Area has been subdivided into a series of sub-plots, broadly following land ownership boundaries, in order to illustrate the overall intended character of the Masterplan. It is not the intention of this Masterplan to be totally prescriptive in the way the area is subdivided. Variations of the proposed arrangements shall be considered.

The purpose of this Masterplan arrangement is to consider the organization of the business and industrial park and its relationship with the movement framework, adjacent properties and future projects.

The proposed arrangement should provide direction for each individual development and the articulating elements of the National Enterprise Park. The overall objective is to achieve a built environment that fits with the natural setting and provides a distinctive and stimulating environment for both employees and visitors alike.

The conceptual Masterplan arrangement is shown in Figure 22 in Section 4.5.

8.3 | Individual Plot Arrangement

The general arrangement of buildings, parking areas, roads, pathways and open spaces are all key elements in site planning and design. The sitting and orientation of each building shall be carefully considered as it relates to its specific parcel and its effect on adjacent plots.

In general, the following principles should be applied when designing the general arrangement of each plot:

- Buildings should relate to the setting and each other in their massing and forms. Larger masses should be located at the centres of building compositions, with smaller forms stepping outwards and down. Large volumes should be subdivided into modules or sub-parts to reduce perceived scale.
- The siting and orientation of the buildings should take advantage of the site's microclimate, solar, daylighting, natural ventilation and energy flows.
- Parking areas should ideally be located behind primary buildings to encourage continuity of building uses that contribute to a pedestrian friendly environment, however it is acknowledged that due to the scale of some of the larger buildings that some parking may be located to the front of buildings.
- Building entrances should address and front the street/road. Site and building design shall accommodate pedestrian circulation onsite from parking areas to open space through dedicated pedestrian pathways with connectivity to adjoining buildings. Existing and proposed pedestrian and/or bicycle circulation systems and easements shall be integrated into site design.

8.4 | Architectural Diversity and Quality

In the course of the development of the Togher Masterplan it will be ensured that all buildings relate to each other in terms of scale, materials and orientation. All developments will be of a high architectural quality and particular attention will be paid to landmark buildings.

Buildings and structures should have a clear architectural concept. A single, large, dominant building mass should be avoided. Where large structures are required, mass should be broken up through the use of appropriate setbacks, projecting and recessed elements, and similar architectural techniques. Building forms should reinforce the perception of the natural topography in order to minimize visual impacts and reduce the apparent height.

The important relationship between the road/street width and building height will be taken account of in the design of all the buildings in the area.

It is vital that architectural diversity is encouraged in the area. The architectural design of buildings can be varied while consistency in the area can be achieved through scale, proportion and spatial connection. Buildings will not be designed in isolation and the treatment of the surrounding area will reflect what building form will suit the particular area.

Architectural details and features should be architecturally valid, not just decorative. Features should be related to the buildings structure, function and/or engineering, rather than tacked on or arbitrary.

The location of mandatory Landmarks and Marker buildings is identified on the Masterplan.

- Landmark Building: A landmark is a building that is visible from a wide area and helps orientation. A landmark should be distinct from its surroundings visible at a distance of >100m. A landmark may be constituted by, but not limited to, a single additional storey on a building over and above the maximum allowed in other codes. Other elements such as the roof form must be part of the landmark.
- Marker Buildings: A marker building serves to articulate or terminate a medium distance vista of view and aids in orientation from street to street. A marker building must be noticeably distinct from the buildings either side.
- Background Architecture: The rest of the buildings can be considered background architecture. This group of buildings play an important role by setting up the basic character of the area and by indirectly forming the setting where singular architecture can shine without competing for attention.

8.5 | Building Lines

The siting, massing, orientation and a building's overall design character affect the way a building relates to and "fits" within its natural and manmade context. Buildings must be considered as a constituent part of a continuous street elevation where a well-proportioned streetscape will be achieved.

Building frontages will embody the continuity and rhythm essential to keep street edges alive. A comprehensive proportioning system will be employed to ensure individual buildings relate coherently with their neighbourhoods and public realm.

Building line refers to the position of the building along a street/road edge. The building line defines both visual continuity and enclosure of the street. The aim of this control is to ensure a clearly defined edge to the street by avoiding an excessive variation in the position of the buildings relative to each other and the street.

In order to achieve a balanced and proportioned street, in general buildings should set back a distance approximately equal to the height of the building from the property boundary. This condition is to ensure that an appropriate street cross-section is achieved and that the scale of the buildings is appropriately acknowledged. It should be noted here that the traditional Irish streetscape tends to have continuous but not rigidly straight building lines. They tended to stagger and deflect at intervals and this added to the character of the street. Therefore, a slight flexibility in relation to the building line has the potential to result in the creation of a visually interesting and enticing streetscape, and therefore it will be permitted.

In addition, building lines may be relaxed in the following circumstances:

- For innovative design solutions where it can be demonstrated that the design will positively enhance the streetscape;
- Where important areas of public or civic space is to be provided; and
- To accentuate an important building.

8.6 | Building Mass, Proportion and Articulation

The use of different architectural elements can enhance a building's visual appeal and even diminish the perceived size of a large structure, thereby helping it fit into the proposed development pattern. Regularly spaced entrances, windows and different rooflines provide visual relief to large buildings by dividing their total mass into smaller, identifiable sections with a more human scale.

The facade and visual structure of buildings may include elements of both horizontal and vertical orientation. Facades and external surfaces should include physical and visual articulation at a range of scales to be visible at different distances. Articulation should relate to the repetition of openings and structural elements though other forms of articulation are not excluded.

The proportion of openings will relate to the overall composition of the façade. Designers should aim to create rich and interesting façade relief that is sufficiently refined and subtle so that buildings can be appreciated from close up and afar.

A building's roofline can also facilitate compatibility with adjacent structures and reinforce the architectural character of a street.

Buildings with varied roof lines, window details, façade articulation, entry details, and different but complementary materials contribute to the interest of a streetscape. Consequently, a building's design, its shape, form, articulation and exterior materials can have a significant impact on how the structure is perceived and how it performs.

The Togher Masterplan contains a large proportion of buildings with large footprints (1,500 sqm or higher) and/or large elevations (150 sqm or higher). These buildings should be articulated in such a way as to break up the apparent scale of the building into smaller areas.

8.7 | Active Frontage and Access

The boundary at the front of each plot of property along the street is known as the frontage. One of the principle functions of the frontage is to clearly define what is public and what is private. This avoids the creation of ambiguous spaces that undermine the character and quality of the public realm.

For streets to be safe, attractive and easy to navigate, it is crucial to orient and concentrate principal building entrances and windows along the public road/street. The frontage thus serves as a point of reference for the orientation of buildings in an effort to achieve that aim.

Building entries shall be designed and located to provide the primary building access oriented to the public street. Therefore, buildings should have entries directly accessible and visible from the main road and/or access.

8.8 | Building Height

In general, the maximum building height in the Masterplan Area will be double.

However, buildings and sites at prominent locations such as corner sites, end points of streets, and the termination of vistas, have the potential to act as important landmarks and should address the importance of the site.

In such instances, it may be more appropriate to increase building heights so as to provide greater emphasis on the building, but there will also be a greater expectation of design quality and architectural treatment. Therefore, taller building heights up to 20 metres will be allowed in targeted locations as described above that are designed for such use and isolated from populated residential areas.

8.9 | Roofline

The difference in height between adjoining buildings and their relative width have a direct influence on roofline typology. Height regulations tend to prevent rooflines from becoming dynamic and attention-grabbing. In many modern buildings rooftops have tended to be flat and where this feature extends over a considerable distance it can result in monotony.

Roofs and architectural elements should have functional integrity and should not be used primarily to create a style or image. Flat roofs with parapets are strongly encouraged. Gabled and hip roofs are also allowable, in particular when used for solar energy production. Parapets should be provided to articulate flat roofs and hide roof mounted equipment. Secondary use of roof space is encouraged, in particular the concepts of green and blue roofs.

8.10 | Building Language and Finishes

Good architecture and design should prevail throughout the development. Architectural diversity will be encouraged. Within the character areas contained in each of the sectors consistency in materials, colour, proportions, roof styles, building detail, street/route surfaces, planting and street furniture will be applied.

Certain principles will apply in relation to materials and finishes for the scheme as follows:

- In general, finishes and materials should be of a good quality nature and should be used in a consistent and restrained manner;
- Whilst a variety of such finishes will be required across the whole scheme, there will be a presumption against the use of too much variety of finishes on the one hand and the lack of variety of finishes on the other hand;
- Exterior building material and finishes should convey a sense of integrity, permanence and durability. The selection of appropriate materials and finishes has a powerful impact on the perception of quality;
- In cases where it can be demonstrated that the design of a building is of an exceptional nature and particularly in the case of marker and landmark buildings, consideration will be given to the use of a different palette of materials;
- In general, the design of schemes should focus on having a commonality of approach in terms of particular areas with a clearly different approach between character areas; and
- In additional, there should also be an overall and consistent design paradigm for the entire scheme.

8.11 | Parking and Circulation

A key objective for the Masterplan is the safe and efficient movement of vehicles and pedestrians with a minimum impact to the surrounding areas. The National Enterprise Park must balance the need for HGV and large vehicle circulation with the requirements of walking and cycling.

Adequate parking provision need not produce a dead realm of surface parking lots. Where parking will be opened to public view, adequate landscaping and tree planting must be provided to counteract the appearance of parking areas. It is an objective of the Masterplan that the layout of the development is designed to accommodate but not be dominated by the car. Car parking provision shall be carefully integrated in terms of layout, surface treatment and screen planting.

Where on-street parking is proposed, properly marked car parking spaces shall be provided. On-street parking shall be combined with regular tree planting and a high standard of kerbing and paving.

The following principles should be followed when designing new developments in this area:

- Vehicular access along arterial streets with a predominant movement function shall be kept to a minimum in order to safeguard traffic circulation.

- Parking facilities should be designed to minimise conflicts between vehicles and pedestrians. Pedestrian circulation shall be separated from vehicular circulation both vertically and horizontally in order to ensure a safe and comfortable environment for pedestrians which is safer, more efficient, and visually appealing. Vulnerable Road Users should be given priority wherever such conflicts occur.
- The provision of shared parking facilities, in particular in conjunction with staggering of peak parking demands, is highly desirable in order to reduce the requirement for overall parking spaces in line with the sustainability strategy for the Togher National Enterprise Park.
- Surface parking areas should be suitably landscaped with trees, shrubs and planting. Perimeter landscape planting and grading should be used to screen the parking from off-site views and to provide attractive streetscapes. Internal landscape planting should be used to break up parking lots, provide shade, and provide opportunities to capture storm-water runoff in a sustainable manner.
- A maximum of 15 contiguous parking stalls are permitted before providing a landscape island of 30 sqm in area.
- Design interior landscape islands to be at least two metres wide and plant with a minimum of one shade tree and full groundcover of native plants for storm-water infiltration and uptake.
- At least one footpath connection between the building and the main road/street is required. Such connections should be suitably integrated into the landscaping of the plot. In addition to this, each parking area shall have pedestrian connections to the building entries.
- Bicycle parking and/or carpool parking spaces should be provided at an amount equivalent to one third of the total car parking on site. Appropriate changing facilities should also be provided.
- Bicycle parking should be located close to the building entrance.

9

Public Realm Design Standards

9

Public Realm Design Standards

Successful business and enterprise parks are in part shaped by the relationship of built form to setting, and to the man-made landscape. Consideration of the valuable role played by the public realm will be a key development principle in this Masterplan.

The external environment within an area is the first and last impression for those who live and work in that area and those who visit. It should convey a strong and positive message to its citizens and to potential investors and visitors. Outwardly, the quality of the public realm should provide an aesthetically inviting image, but fundamentally should both prime and support economic and social development.

Through the proposals set out in this document, Laois County Council aims to maximise the potential of the Masterplan lands in order to position Portlaoise as a premier national destination for enterprise, distribution and employment activities in Ireland.

There are a number of underlying principles which should be adhered to in the development of this strategic site. These general principles are a starting point for design and are a means to an end, not an end in themselves.

It is a primary objective of the Togher Area Masterplan to achieve a network of high quality and to deliver an attractive new environment. The character will undoubtedly be drawn from the existing setting and the new building forms and styles, however, a key part of this will also be the public realm – the spaces between and around buildings. The streetscape will be characterised by quality buildings and a high standard of quality finishes and treatments such as paving, landscaping and lighting, therefore creating a high-quality environment with a define identity.

Public realm includes all the spaces between buildings that can be freely accessed, it encompasses all outdoor areas including roads, parks, squares, pedestrian routes and cycleways.

The following criteria underpin these development principles and should also underpin any planning applications for the key sites in the area as identified:

- Maintain light industry and service related uses with incremental improvement of the urban images, particularly within the established Clonminam Business Park. The main objectives to be applied within this area is to build upon the improvements to the amenity of the area by way of signage, roads improvements, the quality of materials used within the perimeter boundary treatments, and building of units.
- Form attractive streetscapes that will be recognised as an address for business activity

9.1 | Public Art

The appropriate use of public art is supported in Togher. Innovative public art in new or existing schemes can enhance a building and its environs by promoting local character and identity and can help make a development more user friendly, thereby increasing its prestige.

The art must be linked to local features, landmarks or folklore. The locations of any such art work installation or strategy should most appropriately be centred around the key public spaces. Integration of artwork into development proposals shall be considered at the earliest opportunity.

Proposals that provide artistic/creative qualities, but also has a practical application e.g. consider feature lighting that could have a security benefit or sculptural murals that help to mitigate changes in level should be considered.

9.2 | Detailing and Materials

Street furniture, lighting, trees, landscaping and surface materials can greatly add to the character and charm of an area. It should be ensured that there is a high quality of streetscape design in the provision of the public realm.

Street furniture should be located sensitively in relation to vistas, elevations of buildings and it should avoid becoming street clutter. Ground surfaces are also important as they form half of what pedestrians see and therefore quality in the design and construction of footways and street surfaces is vital to the character of an area.

Continuity of the pedestrian experience should be provided as well as the articulation of the street in human-sized segments which shall be signalled by changes in paving. Paved surfaces are intended to achieve coherence through integral and permanent distinctions rather than temporary designations. Paved surfaces should be distinct from each other through the careful use of colour and texture and incorporated into the following areas:

- Accessible ramps at intersections;
- Defined paths across street traffic lanes, extending onto the pavement to the building property line;
- Street segments between intersections;
- The safe zone, or the outer edge of on-street parallel parking;
- Bicycle lanes, or lanes defined for bicycle use on some streets;
- Curbs and edges, or the standard curb between pavement and street, as well as flat curbs that hold and define paved areas.

Focal public civic features should be treated as special and prominent components of the street scene, whilst standard street furniture should be treated as high quality utilitarian neutral elements. Materials and finishes should be neutral and unassuming but elegant.

Street lighting will form an important element of the streetscape design. Installing lighting along the street is essential to ensure that the safest and most user-friendly environments are created where possible. In addition to the lighting requirements of the light pole system, light poles are also designed to accommodate a myriad of accessories, including banners, decorations, street signs, transit signs, and other items. Excessive lighting and light pollution should be avoided, and a variety of lighting techniques will be considered to best emphasise distinctive and landmark features.

9.3 | Signage

Signage is particularly important within the area. A full signage plan is to be undertaken for each road/street. The signage plan shall be uniform with an agreed logo and design not only to provide wayfinding but also to establish the charater of the area. Each business name shall be on the specific signs within each character area.

The signage shall be made of stainless steel, with new logos on each of the signs. Signs are to be erected at Park points of entry and at junctions.

Motorway signs for Portlaoise shall be subject to compliance with Policy on the Provision of Tourist & Leisure Signage on National Roads. Hoardings and large Advertising Signs will be prohibited within this area. All motorway signage proposals are required to be progressed in accordance with TII's traffic signs approval procedure.

9.4 | Planting and Landscaping

Street trees have both aesthetic and functional uses. Aesthetically, they provide much needed colour, vertical height, and an edge. Functionally, street trees provide shade, shelter during rain, and a logical buffer between moving traffic and pedestrians. Studies have shown that trees exert an influence on the micro-climate of the surrounding area contributing to cleaner air and a healthier environment. With growing concern about pollution and climate change, trees are an excellent producer of Oxygen and act to lock away Carbon during their growth cycle.

Whilst it is true that trees act to mitigate the effects of pollution one of the primary reasons for planting trees in the city remain aesthetic, otherwise ugly areas can be transformed by the introduction of several species of tree. Trees provide a general softening of the urban environment and also provide a counterbalance for the larger elements of the built environment. The aesthetic of tree lined streets and green spaces have been shown to have positive psychological benefits including lower rates of violence and crime. In addition to this, trees have tremendous symbolic value, they humanise the city, acknowledge our affinity for the natural world and provide a focus for community participation in landscaping the urban environment.

The species set out below all exhibit characteristics associated with urban suitability, good form and tolerance of harsh conditions.

The list of trees and shrubs outlined below are all native to Ireland. These varieties shall be encouraged as part of landscaping schemes along roadsides, in parks or on public amenity spaces.

Large Trees

- Ash (Fraxinus excelsior)
- Sessile Oak /Irish Oak (Quercus petraea)
- Pedunculate Oak/English Oak (Quercus robur)
- Scots Pine (Pinus sylvestris)

Medium Tree

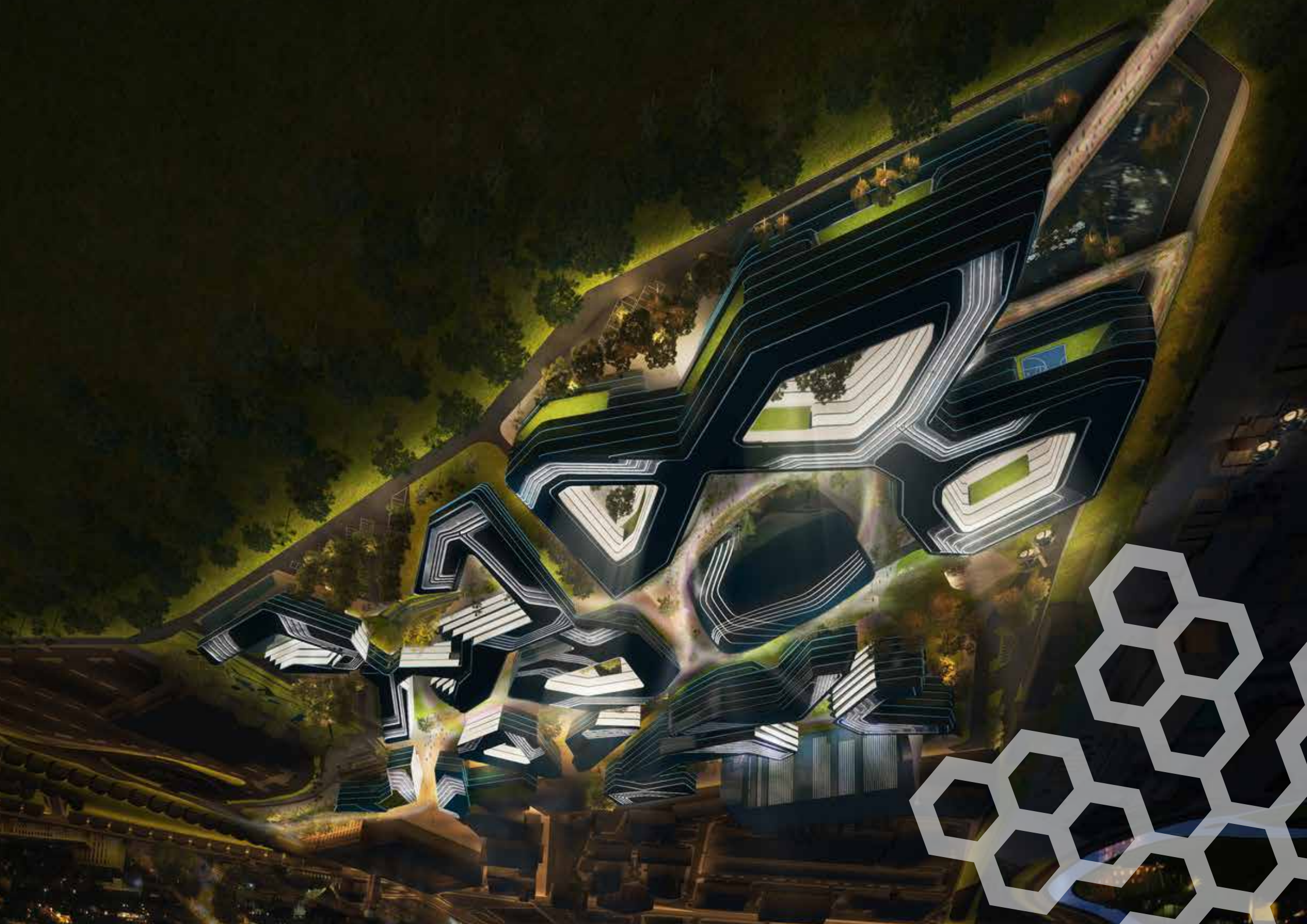
- Alder (Alnus glutinosa)
- Birch (Betula pubescens)(Betula pendula)
- Crab apple (Malus sylvestris)
- Rowan/Mountain Ash (Sorbus aucuparia)
- Wild Cherry (Prunus avium)
- Whitebeam (Sorbus spp)
- Yew (Taxus baccata)

Small Trees

- Blackthorn (Prunus spinosa)
- Elder (Sambucus nigra)
- Hawthorn (Crataegus monogyna)
- Hazel (Corylus avellana)
- Holly (Ilex aquifolium)
- Willow (Salix spp.)

Shrubs

- Dog Rose (Rosa canina)
- Gorse (Ulex europaeus)
- Guilder Rose (Viburnum opulus)
- Honeysuckle (Lonicera periclymenum)
- Ivy (Hedera helix)
- Spindle (Euonymous europaeus)



10

Delivering the Masterplan Vision

10

Delivering the Masterplan Vision

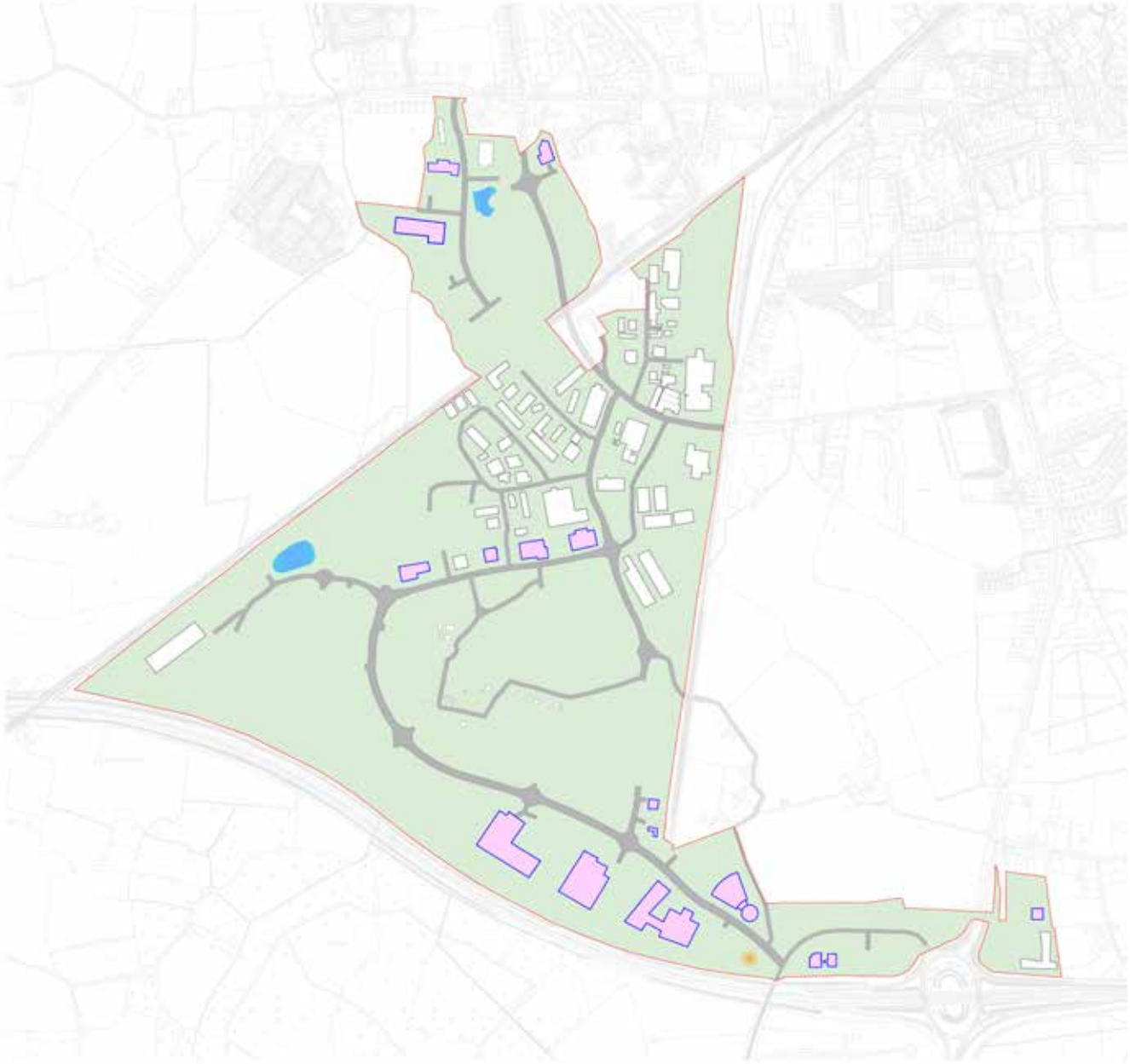
This Masterplan has been developed on behalf of Laois County Council in order to inform and guide the development of the Togher National Enterprise Park. However, the delivery of this landbank is predicated on a collaborative approach between multiple stakeholders, utilising the statutory powers and project management skills of the public sector as well as the commercial insight and innovation of the private sector. This chapter outlines the proposed delivery mechanism of the Masterplan which will ensure that the goals, objectives and vision of the Masterplan are translated into actions, policies and tangible outcomes.

Crucial to the success of the National Enterprise Park at Togher will be the sustainable implementation of the principles established within this Masterplan document. The phasing of development outlined herein aims to build upon the existing uses in the area including employment, industry and transport related uses, integrating the fabric of new development with those existing. Market demand and the availability of fully serviced, zoned lands will also ultimately influence the delivery scheduling of the lands and a level of flexibility has been incorporated into the proposed phasing in order to reflect this somewhat unknown factor.

10.1 | Phasing

In order to ensure the robust and sustainable development of the lands, the build-out of the Togher National Enterprise Park has been divided into four phases: an enabling phase, an embryonic development phase, a consolidation phase, and a completion phase. These phases reflect the need for structured development, aligning with the zoning and policy objectives of Laois County Council as well as the availability of serviced lands, while also recognising the requirement for the Masterplan to react to the ever-changing landscape of industry, commerce and enterprise. What may make commercial sense today may not be viable in 10 or 20 years' time. The Masterplan reflects the evolving nature of such development.

The proposed phasing of development reflects an edge to core approach, with the creation of a Gateway entrance to Togher and Portlaoise in Phase 1, which will be linked back to the existing fabric of Portlaoise and the Clonminam Business Park as the built-form of the Masterplan lands develops. Although over time opportunities may arise for plots to develop in a different manner as described herein, the phasing shown is an indicative scenario which would achieve the objectives of the Masterplan's phasing strategy.



Phase 1 – Enabling Phase – 2018 to 2023

Phase 1 is the critical phase in terms of unlocking the development potential of the Togher Masterplan lands through the delivery of critical facilitating infrastructure, and capitalising on the opportunity described in Section 4.4 herein. This includes the delivery of Phase 1 and Phase 2 of the fully serviced Togher Masterplan Road by means of a Togher Central Access Route scheme. This will create a strategic connection through the Masterplan lands, linking the existing development within the Clonminam area to the National Road network.

It will be an objective at this stage to direct development traffic along this route rather than use the existing local access roads within the lands. The detailed design of Phase 1 of this Togher Central Access Route scheme is currently underway at the time of writing, and the delivery of which will provide a direct access to the Togher Masterplan lands from Junction 17 of the M7 motorway.

Certain critical facilitating utilities will also be provided as part of this road scheme. In addition, this phase will include the provision of the required enabling utility installations such as the proposed pumping station in the lands zoned for Transport and Utilities. This is proposed to be provided as part of the development of the motorway service station, and will also service the overall Masterplan lands as required. As discussed, an assessment of demand loadings at this stage will determine whether a new sub-station is also to be provided at this phase, with an area designated within the lands zoned for Transport and Utilities.

It is likely that this phase will focus development largely within the LCC owned lands, however the delivery of this section of the Togher Masterplan Road will also unlock development potential within the Motorway Service and Gateway Zones, as well as a number of key development plots within the Manufacturing & Logistics zone. This will consolidate existing and proposed uses in the vicinity of Junction 17 and within the National Enterprise Park. Key plots may begin to develop within the Northern IDA Zone.

The driving agent of this phase will need to be the Public Sector, through the delivery of Phase 1 of the Togher Central Access Route scheme and facilitating key anchor developments to occur. The anticipated delivery schedule for this Phase is between 2018-2023.

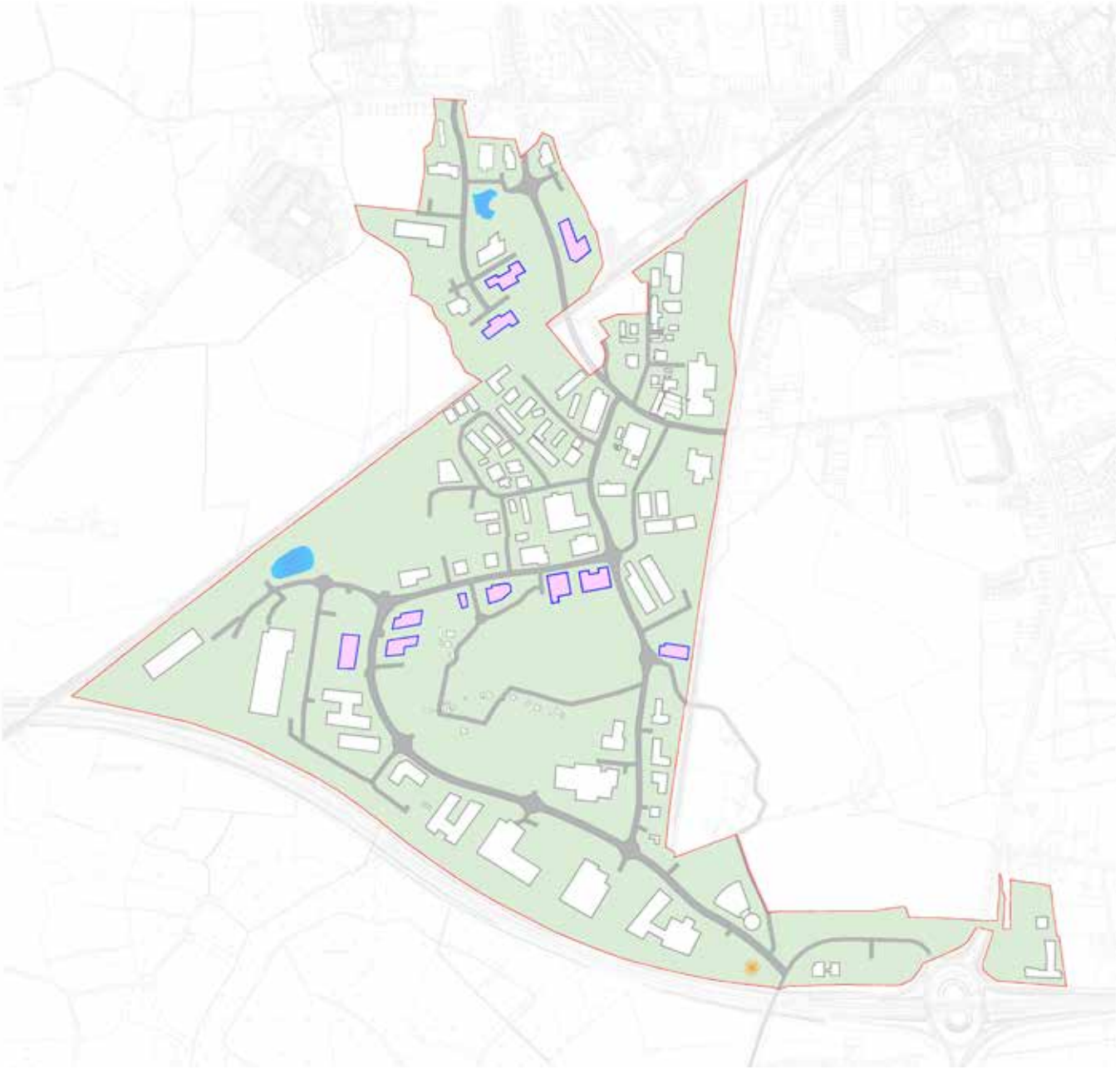
Phase 2 – Embryonic Development Phase – 2023 to 2028

Phase 2 of the Masterplan will build on the deliverables of Phase 1. This phase will provide robustness in terms of infrastructure with the final link being provided between the Togher Masterplan Road and the existing road infrastructure within the Togher Area.

Further critical facilitating utilities will also be provided as part of this road scheme. If not required in the previous phase, an assessment of demand loadings at this stage will determine whether a new sub-station is also to be provided at this phase, with an area designated within the lands zoned for Transport and Utilities.

Facilitated by the completion of the Togher Masterplan Road, this phase will focus on the completion of the development of the lands within the ownership of Laois County Council, as well as continued development of key plots within the Clonminam Business Park and the Northern IDA zone.

In that sense, this phase will require collaboration between the public and private sectors in order to deliver, however the fact that a large portion of lands are within the ownership of Laois County Council should provide comfort and surety to the council as to the ability to deliver much of this phase of development. The anticipated delivery schedule for this Phase is between 2023-2028.



Phase 3 – Consolidation Phase – 2028 to 2033

Phase 3 will consolidate the uses within the Clonminam Business Park and the National Enterprise Park developments completed within Phases 1 and 2. It is envisaged that through this phase the infill development of plots within the Northern IDA zone and Clonminam Business Park will be completed. However, due to the relatively short timeframe, it must be assumed that the lands in the vicinity of existing residential and agricultural plots within the National Enterprise Park will remain free from new development through this phase [as discussed under the Temporary Character Area in Section 4.7 herein], and the provision of access and services to the plots developed in this phase should be carried out under this assumption.

Further critical facilitating utilities will also be provided as part of any new roads required to service development plots. If not required in the previous phase, an assessment of demand loadings at this stage will determine whether a new sub-station is also to be provided at this phase, with an area designated within the lands zoned for Transport and Utilities.

The driving agent of this phase will be private sector investment. It is expected that by this time, the Togher National Enterprise Park brand of quality and excellence will attract a significant level of private sector attention. Building on the momentum generated by public sector investment in the early phases, this will allow the Togher area to grow organically. Due to the level of elasticity and the market forces at play within this phase, a level of flexibility can be afforded to the phasing strategy. The anticipated delivery schedule for this Phase is between 2028-2033.

Phase 4 – Completion Phase – 2033 onwards

Phase 4 will consist of the completion of any plots as of yet undeveloped which become available for development, and well as ongoing refurbishment and improvement interventions to the built form and infrastructure completed to date.

A key element of this phase will be the area of existing developments within the National Enterprise Park. A timeline for the future of these existing plots cannot be assumed and the sites must be respected. Similarly, a phasing for when the individual plots may begin to become available for development cannot be assumed. Therefore, the final phase of the Masterplan will be considered as the development of the remaining National Enterprise lands if and when the entirety of the area becomes available for development.

Under this assumption the phase will continue the consolidation of the uses within the Manufacturing and Logistics zone, and in doing so create a new internal road structure more conducive to providing access to the development plots.

Further critical facilitating utilities will also be provided as part of these new roads required to service development plots. If not required in the previous phase, an assessment of demand loadings at this stage will determine whether a new sub-station is also to be provided at this phase, with an area designated within the lands zoned for Transport and Utilities.

The driving agent of this phase will initially be the private landowners followed by private sector investment. As emphasised in Phase 3, the Togher National Enterprise Park will by this stage attract a significant level of private sector attention which will be necessary to complete the Masterplan development across the entirety of the lands. Once again, due to the level of elasticity and the market forces at play within this phase, a level of flexibility can be afforded to the phasing strategy. The anticipated delivery schedule for this Phase is from 2033 onwards.

Phase	Anticipated Delivery Timeframe	Key Facilitating Infrastructure	Focus of Development	Driving Stakeholders	Cumulative GFA (m2) in Traffic Assessment*
Phase 1	2018-2023	Togher Central Access Route Phase 1 & 2 Foul Pumping Station	New Access and Spine Road (Togher Central Access Route scheme) Laois County Council owned Lands Manufacturing & Logistics and Gateway Zones	Private Sector	-
Phase 2	2023-2028	Togher Central Access Route Phase 3 Sub-station if required	Laois County Council owned Lands (completion) Manufacturing & Logistics Zone Clonminam Business Park Northern IDA Zone	Public Sector & Private Sector	82,440
Phase 3	2028-2033	Sub-station if required	Manufacturing & Logistics Zone Clonminam Business Park (completion) Northern IDA Zone (completion)	Private Sector	-
Phase 4	2033 onwards	Sub-station if required	Manufacturing & Logistics Zone (completion)	Private Sector	221,109

Table 9: Phasing Strategy

*Indicatively related to Table 5.1 of the 'Togher Masterplan Transport Assessment'

10.2 | Outcomes

The outcomes of the Masterplan will be benchmarked against the objectives, as outlined within Chapter 1 of this Masterplan. These outcomes also link back to local, regional and national strategic policy objectives. Table 10 relates the Masterplan objectives to deliverable outcomes.

Masterplan Objectives		Masterplan Outcomes	
OB1	To secure the town's role as the regional location for economic growth in the Midlands Area.	**OC1**	The delivery of a National Enterprise Park at Togher will ensure that Portlaoise emerges as a key economic location within the Midlands Area.
OB2	To contribute to the prosperity of Portlaoise by facilitating the provision of adequate land for enterprise, including sites at suitable locations for industrial, enterprise, commercial and where appropriate small business uses having regard to spatial planning, infrastructural, environmental and transportation requirements and compatibility with adjoining land uses.	**OC2**	The masterplanning of the Togher lands has outlined a roadmap to the delivery of a consolidated landbank of complementary uses, with cognisance of spatial planning, infrastructural, environmental and transportation requirements. The delivery of this landbank will contribute significantly to the prosperity of Portlaoise.
OB3	To support and protect the existing economic base and seek to diversify the economy through inward investments at key growth areas within the town and the environs.	**OC3**	The development of a National Enterprise Park at Togher will complement the existing economic uses. A strategic assessment of the viability of such a development at this location has been undertaken as part of previous feasibility studies. The range of uses proposed within the National Enterprise Park are seen as complementary to the existing offering within Portlaoise while diversifying the local economy.
OB4	To support the provision of complementary facilities and land uses to support the sustainable development potential of the Togher Area.	**OC4**	The principles of sustainability are central to the vision of the Togher Masterplan and all proposals and strategies within the Masterplan have been developed under this sustainability framework.
OB5	To promote developments of high-quality that incorporates a sensitive approach to design while protecting and enhancing the surroundings.	**OC5**	The production of detailed design guides both for built form and public realm will guide the development of a high-quality environment, which is sensitive of their surroundings.
OB6	To ensure that the area is developed in an orderly and sustainable manner.	**OC6**	The production of this Masterplan will guide the sustainable and logical development of the Togher National Enterprise Park.

Table 10: Masterplan Objectives and linked Outcomes

Masterplan Objectives		Masterplan Outcomes	
OB7	To promote energy efficient and sustainable development patterns, land uses and buildings that incorporate LEED standards.	**OC7**	The principles of sustainability are central to the vision of the Togher Masterplan and all proposals and strategies within the Masterplan have been developed under this sustainability framework. Energy efficiency is a strategic outcome of the Masterplan.
OB8	To facilitate potential synergies in terms of energy, materials and logistics between the present and future uses in the area with a long-term aspiration to become an Eco Enterprise Park.	**OC8**	A sustainability vision has been developed as part of the Masterplan. A core pillar of this strategy is the vision to deliver an Eco-Industrial Park at Togher in order to capitalise on the synergies between the various land uses within the Masterplan Area. The delivery and maintenance of an Eco-Industrial Park will require governance and leadership but will result in a sustainable and environmentally sound industrial park.
OB9	To maximise the beneficial return of public investment in the National road network by protecting the safety, carrying capacity and efficiency of such routes.	**OC9**	A strategic traffic capacity analysis has been carried out as part of the current Masterplan. At individual planning application level, there will be a requirement for more detailed Traffic Impact Assessments. This will ensure that the capacity and operation of the national road network is protected.
OB10	To seek an integrated transport approach linked to land use objectives which encourages a reduction in the need for travel, tackling traffic congestion and promoting public transport, cycling, walking as alternative means of travel to the use of car. To provide for and promotes multi-modal transportation for the delivery of goods, services and overall access to the area.	**OC10**	The transport strategy and movement framework outlined in this Masterplan sets ambitious targets for the use of alternative transport modes, the reduction of private vehicle use and for sustainable transport planning. The realisation of this strategy will result in an environment that encourages walking and cycling and public transport use.

Table 10: Masterplan Objectives and linked Outcomes

Masterplan Objectives		Masterplan Outcomes	
OB11	To provide a positive gateway into the National Enterprise Park.	**OC11**	The delivery of the Gateway Area will provide a sense of arrival to the National Enterprise Park at Togher. This area has been identified as appropriate for development within Phase 1 of the development, ensuring that the Gateway is delivered in advance of the majority of the Enterprise Park.
OB12	Finally, the MasterPlan is structured to provide direction and a framework for future development patterns on each area but flexible enough to allow Laois County Council to respond to market conditions and developer interest.	**OC12**	The phasing strategy outlined above acknowledges the need for logical and structured development. Indicative timelines have been outlined for the delivery of certain phases. The phasing is also cognisant of the flexibility required to adapt to market conditions and private investment, particularly in the later phases.

Table 10: Masterplan Objectives and linked Outcomes

10.3 | Funding

As previously alluded to, the delivery of a Masterplan of this scale and ambition will depend on multiple sources of funding, from both the public and private sector sources. The phasing of development is such that public-sector investment is required within the initial phases (i.e. the delivery of the Togher Masterplan Road and the prior acquisition of lands within the Togher area). This investment will be balanced with the disposal of development plots of within later phases as well as the significant private-sector investment within Phases 2 and 3.

10.4 | Requirements for Planning Applications

Planning Applications for any one of the key development sites will require a range of documentation and supporting information to enable the Council to determine the proposals and comply with the Laois County Development Plan 2017-2023, Portlaoise Local Area Plan 2018-2024 (currently at Draft stage) and the Togher Masterplan 2018 (this document).

The checklist outlined herein is non-exhaustive but outlines the key supporting documentation to be supplied as part of a planning application within the Togher Masterplan Area.

Planning Application Checklist

- The protection of features of natural heritage value;
- The protection of ground water resources;
- The protection of any features of geological or geomorphological interest;
- The protection of any features of archaeological interest;
- Alignment with the Masterplan's principles and development controls;
- The need for all developments to contribute in an integrated manner to the overall development layout for the area including the provision and layout for all infrastructural services;
- The design and qualitative aspects of any proposed development.
- Transport Infrastructure Ireland recommends that planning applications for significant development proposals should be accompanied with a
    - Transport and Traffic Assessment and
    - Road Safety Audits to be carried out by suitably competent consultants, which are assessed in association with their cumulative impact with neighbouring developments on the road network.

Guidance is given in this respect in the NRA Traffic and Transport Assessment Guidelines and "NRA Design Manual for Roads and Bridges:(HD 19/01Road Safety Audits) (HA 42/01Road Safety Audit Guidelines).

10.5 | Monitoring

A County Mobility Team will be established to review the implementation of the Masterplan Area. This team will be made up of the following stakeholders - Laois County Council (Planning and Roads Section), Transport Infrastructure Ireland (TII), the National Transport Authority (NTA), Irish Rail and other relevant stakeholders.

It will be their function to carry out a review on the management and implementation of the Modal Split/ Modal Share within Portlaoise and in particular with respect to the transport management of the Togher Area.

The terms of reference for this group will be set against the backdrop of achieving the objectives of the masterplan. Progress will be reported on annually to the Transport SPC and the Planning and Economic Development SPC.

10.6 | Environmental Considerations

While the Togher Masterplan has sought to provide a template for the sustainable development of the Masterplan Area, a number of Policy and Objectives from the Portlaoise LAP 2018-2024 are presented below which are of particular relevance in relation to providing appropriate plan and project level environmental protection and mitigation. These are as follows:

10.5.1 |Key Plan Objectives:

- **7.** *To require the preparation and assessment of all planning applications in the plan area to have regard to the information, data and requirements of the Appropriate Assessment Natura Impact Report, SEA Environmental Report and Strategic Flood Risk Assessment Report that accompany this Draft LAP*
- **8.** *To require projects to be fully informed by ecological and environmental constraints at the earliest stage of project planning and any necessary assessment to be undertaken, including assessments of disturbance to habitats and species, where required.*

10.5.2 |Key Infrastructure

It is the Objective of the Council to:

KI O6: *Seek compliance with the standards and requirements of Irish Water in relation to water and wastewater infrastructure.*

KI O7: *Protect both ground and surface water resources and to work with Irish Water to develop and implement Water Safety Plans to protect sources of public water supply and their contributing catchments.*

KI O8: *Require all new developments to include proposals for Sustainable Drainage Systems*

KI 09: *Maintain, improve and enhance the environmental and ecological quality of surface waters and groundwater in accordance with the National River Basin Management Plan for Ireland 2018-2021 (DHPLG) and associated Programme of Measures.*

KI O10: *Ensure developments will not adversely impact on the status of waterbodies in accordance with the Water Framework Directive and; National River Basin Management Plan for Ireland 2018-2021 (DHPLG)*

It is a Policy of the Council to

KI P1: *Protect both ground and surface water resources and to work with Irish Water to develop and implement Water Safety Plans to protect sources of public water supply and their contributing catchment,*

KI P2: *Work with Irish Water on developing and upgrading the water supply schemes so as to ensure an adequate, resilient, sustainable and economic supply of piped water,*

KI P3: *Work with Irish Water on upgrading the wastewater treatment plant in line with the projected future growth of the settlement of Portlaoise,*

KI P4: *Promote and support the implementation of Irish Water's Eastern and Midlands Region Water Supply Project.*

10.5.3 |Natural Heritage:

Strategic Aim:

"To protect, enhance, create and connect natural heritage, green spaces and high quality amenity areas throughout Portlaoise for biodiversity and recreation."

It is the Objective of the Council to:

NH O1: *Identify, protect and conserve natural heritage sites, nationally designated conservation sites and non designated sites in co-operation and consultation with the relevant statutory authorities,*

NH O2: *Seek integration of all elements of existing green infrastructure into new developments, prevent fragmentation and mitigate potential impacts on the existing green infrastructure network,*

NH O3: *Require the preservation and maintenance of suitable mature trees, hedgerows and natural heritage features in new developments,*

NH O4: *Seek to preserve, protect and maintain trees of special amenity, conservation or landscape value,*

NH O5: *Carry out and require the planting of native trees, hedgerows and vegetation in all new developments,*

NH O8: *Identify, protect, conserve and enhance wherever possible, wildlife habitats, stepping stones, corridors and features,*

NH O10: *Protect environmental quality and implement site appropriate mitigation measures with respect to air quality, greenhouse gases, climate change, light pollution, noise pollution and waste management,*

NH O11: *Maintain riverbank vegetation along watercourses and ensure protection of a 20m riparian buffer zone on Greenfield sites and maintain free from development,*

NH O12: *Facilitate the work of agencies redressing the issue of terrestrial and aquatic invasive species.*

It is a Policy of the Council to:

NH P5: *Protect environmental quality in Portlaoise through the implementation of European, National and Regional policy and legislation relating to air quality, greenhouse gases, climate change, light pollution, noise pollution and waste management.*

ARUP

Appendix A - Transport Assessment

Laois County Council

Togher Masterplan

Togher Masterplan Transport Assessment

Issue | 13 July 2018

Job number 261556-00

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1 Introduction

Arup has been appointed by Laois County Council to prepare a Transport Assessment (TA) to accompany an updated Masterplan for the Togher/ Clonminam lands. The objective of the Masterplan is to develop and deliver the most suitable layout and design, within the context of the Portlaoise Local Area Plan 2018 – 2024 (which is currently at draft stage).

The site is located in the southwestern quadrant of Portlaoise. Its northern edge is approximately 500 metres from the town centre and train station, while the southern edge is approximately 2,500 metres from the town centre and train station. The site borders the motorway M7 to the south, which connects Dublin with Limerick/Cork (via the M8). To the north the site is bordered by the railway line connecting Dublin with Limerick/Cork and to the east most of the site is bordered by a disused railway line.

The site location of the Togher Masterplan Lands (indicated with the red boundary) is presented in **Figure 1.1**.

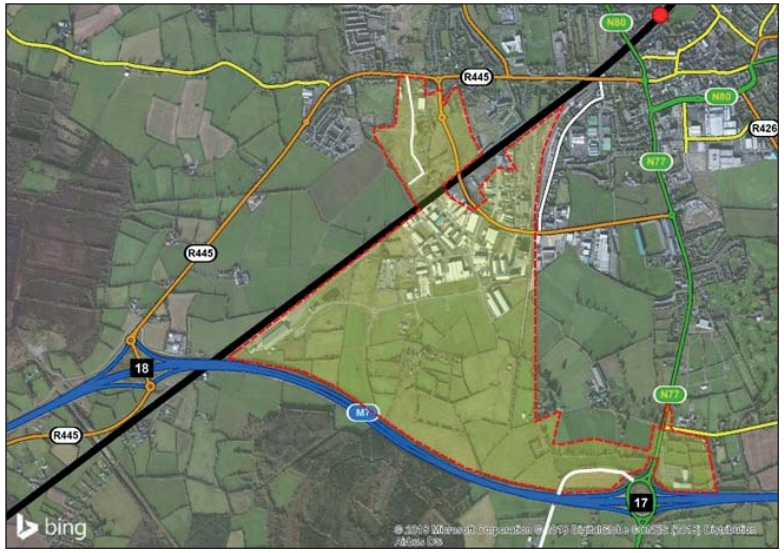

Figure 1.1: Site Location

1.1 Scope and Report Structure

This Transport Assessment presents the impact the proposed Masterplan development will have on the existing traffic and transportation environment.

The report is structured as follows:

- Assessment Methodology;
- Receiving Environment;
- Future Infrastructure Provision;
- Proposed Development;
- Impact Assessment; and
- Summary and findings.

2 Guiding Principles and Assessment Methodology

2.1 General

One of the main objectives in the delivery of the Togher Masterplan is –

- To optimise accessibility considering all modes of transport;
- To maximise connectivity and ease of movement for pedestrians and cyclists;
- To improve levels of safety for all users; and
- To enhance the legibility, coherence and attractiveness of the overall area.

The above objectives are supported by a traffic modelling exercise, which will assist in ascertaining whether or not the proposed Togher Masterplan land use will have any significant traffic impacts locally and on the wider network.

The assessment methodology is in accordance with standard practice for transport assessments based on the Transport Infrastructure Ireland 'Traffic and Transportation Assessment Guidelines' (2014).

The focus of the assessment is mainly on the operational stage of the proposed Masterplan, which is expected to have a greater impact on the prevailing environment compared to the construction phase of the project.

2.2 Key Tasks

The key tasks undertaken as part of the assessment comprised the following:

- Assessment of the receiving transportation network surrounding the proposed development site;
- Review and analysis of available traffic survey data for the area;
- Developing an understanding of the nature of the proposed development, including estimated peak hour development trips, establishing likely future travel modal splits and directional distribution of trips;
- Road network assessment of the adjoining local and regional road network and identification of any additional mitigation measures as necessary; and
- Outlying a range of sustainable travel initiatives to be implemented to accommodate the proposed Masterplan development.

2.3 Impact Assessment Criteria

For the scenarios assessed, impacts were rated as being material if established performance thresholds were exceeded as a direct result of the proposed development. The following criteria were adopted in accordance with the Traffic Management Guidelines, TII's Traffic and Transportation Assessment Guidelines (TII, 2014) and other relevant transport assessment standard practices:

- **Traffic Flow Impact –** Increase in link or junction flow greater than 5%. Values above this have the potential to cause changes to road/street link or junction performance and should therefore be considered in greater detail. Where increases in traffic flow during peak AM and PM periods exceed 5%, a capacity assessment of relevant junctions was undertaken to determine impacts and recommend mitigation where necessary.
- **Junction Operational Capacity –** The junction operational performances were assessed using the Junction 9 (developed by JCT Consultancy Ltd.) with different junction configurations priority/ roundabouts. This junction assessment is based on observations of existing traffic volumes and junction layout.
- **Masterplan Development Trips –** The assessment also interrogated the TRICS (v7.5.1) database along with recent planning applications, for the trip generation values from the proposed land use mix in the masterplan.

2.4 Assessment Years

Three assessment years have been appraised as part of this TA, the base year, an opening year and a future design year. For the purpose of this assessment the base year is 2018, with 2023 being the opening year considered and 2033 the design year.

2.5 Background Traffic Growth

Background traffic has been increased based on 'central' growth rates using the TII Project Appraisal Guidelines (PAG) for link-based traffic growth forecasting (presented in **Table 2.1**).

This table provides growth factors for the Midland region of Ireland.

Table 2.1: TII Annual Growth Rate Factors

Region	Central Growth			
	2018-2023		2018-2033	
Midland	Light Vehicle (LV)	Heavy Vehicle (HV)	Light Vehicle (LV)	Heavy Vehicle (HV)
	1.0615	1.1243	1.1135	1.3546

A background growth of 6.15% and 12.43% for light and heavy vehicles respectively was applied to the 2018 base year flows to forecast the 2023 assessment year flows.

Similarly, background growth of 11.35% and 35.46% for light and heavy vehicles respectively was applied to the 2018 base year flows to forecast the 2033 assessment year flows. The growth figures were applied apply to both the AM and PM peak traffic volumes in preparing the future demands.

3 Receiving Environment

3.1 Site Location

The Togher Masterplan site is located in the southwestern quadrant of Portlaoise. The location benefits from good accessibility, because of its location close to major national roads like the motorway M7 and the national road N77. Other roads in the vicinity of the site are the national road N77 and regional road R445.

Currently part of the Masterplan lands is developed with a large part is still undeveloped. The developed parts of the Masterplan contain a mix of enterprises including retail, industrial, commercial, recreational, service and manufacturing. The undeveloped parts are mostly consisting of agricultural lands.

There are a small number of individual houses and farmsteads between the southern portion of the masterplan area and the south-western edge of Portlaoise. Finally, the Portlaoise IDA Business & Technology Park occupies an area of 18 hectares to the North of the Clonminam Business Park.

The most important road currently traversing through the site is Old Knockmay Road, which connects the R445 to the north of the site with the N77 to the east of the site.

The surrounding road network is show in **Figure 3.1**.

Figure 3.1: Existing Road Network

3.2 Local Road Network and Junctions

3.2.1 Road Network

- **M7 Motorway –** The M7 Motorway is a national primary route, which provides a connection between Dublin and the western and south-western parts of Ireland, such as Waterford, Cork, Limerick and Tralee. In the vicinity of the proposed development the M7 is a 2-lane dual carriageway, there are plans to upgrade this section of the motorway to a 3-lane dual carriageway in the short to medium term.

  Access to the proposed Masterplan site from the M7 is currently from three interchanges located to the east, west and south of the site, namely Clonkeen Interchange (Junction 18), M7 Togher Interchange (Junction 17) and an interchange to the east of Portlaoise (Junction 16). It is envisaged that the M7 Togher Interchange will be the primary interchange to facilitate trips to and from the motorway.

  R445 Regional Road – The R445 is a regional route, which provides a connection between Naas and Limerick. The regional road is a single-lane carriageway and currently provides access to the northern parts of the Masterplan site and it also ties in with the Old Knockmay Road to the north of the site. In Portlaoise town centre the road joins the National Road N80.
- **N77 National Road –** The N77 national secondary road connects Kilkenny with Portlaoise. It is a single-lane carriageway to the east of the site, with a connection to Old Knockmay Road and M7 Togher Interchange (Junction 17).
- **N80 National Road –** The N80 national secondary road currently traverses through Portlaoise Town Centre, connecting Tullamore with Enniscorthy. It is a single-lane carriageway, with some height restrictions in Portlaoise. The height restrictions mean some HGVs are diverted around Portlaoise, using the R425, R426, N77 and eventually Old Knockmay Road / Father Brown Avenue. As part of the '2040 and Beyond – A Vision for Portlaoise' the section of N80 between the Abbeyleix Roundabout and Well Road will be modified.

At a local scale, one strategic road (Old Knockmay Road / Father Brown Avenue) currently traverses the Togher Masterplan Area near its north-eastern boundary. This strategic road currently operates as a part of a bypass of the Town Centre for heavy traffic, avoiding height restrictions on the N80.

In addition to this link, several secondary roads of a lower hierarchy provide access to the existing businesses and residences within the site.

The character of secondary roads varies significantly as illustrated **Figure 3.2**. Most of the secondary roads are access roads to houses, which are mostly narrow.

These roads are not suitable for use by HGVs. Some of the secondary roads are built with the purpose to provide access to businesses in the existing built up area of the Masterplan lands. These are wider and suitable for HGVs.

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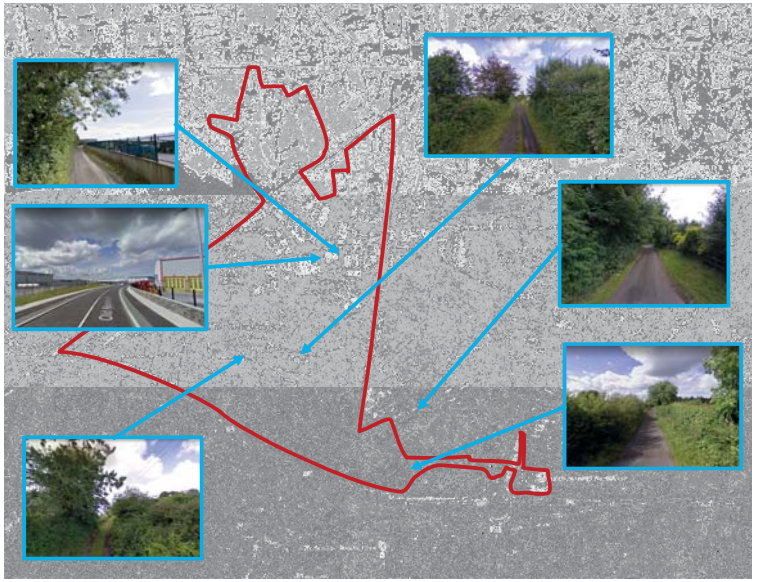

Figure 3.2: Character of Existing Secondary Roads

The existing local road network within the masterplan lands is primarily located near the north-eastern corner of the Masterplan lands (bounded by red colour), within the Clonminam Business Park. Towards the southern end of the Masterplan lands, the lands are much more rural in nature and the level of road infrastructure provided is significantly less.

To the east of the Togher Masterplan Area, the N77 is a main route to the town centre, providing access to Junction 17. The Masterplan Area is partially bounded by the R445 in the north, providing access to the M7 Clonkeen Interchange (Junction 18).

3.2.2 Key Junctions

The principal junctions located at the cordon of the masterplan lands are summarised below and shown in **Figure 3.3**.

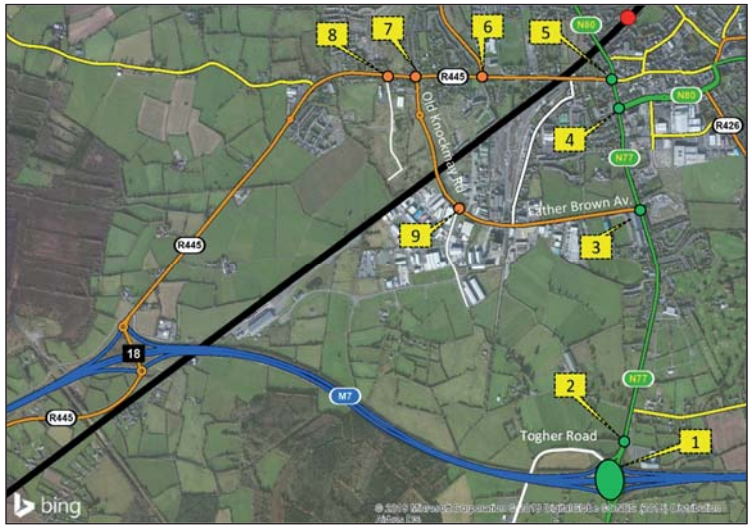

Figure 3.3: Location of Key Junctions

1. **M7 Togher Interchange Roundabout (Junction 17)** – this is a five arm elevated roundabout on the M7 Motorway and connects the N77 National Secondary Road. The interchange above the M7 motorway has the form of a roundabout via two bridge crossings with two lanes on the gyratory. The traffic to/ from the eastbound and westbound direction of the M7 Motorway enters the interchange via slip roads. There is no provision for pedestrians crossing on the roundabout. The primary access from this interchange to the Togher Lands is via the Togher Road towards the northwest.
2. **N77 Midway Food Court Junction** – this is a three arm priority junction providing access to Midway Food Court from the N77. A right turn lane is provided to access the Midway Food Court when approaching from the M7 Togher Interchange. The egress from the Midway Food Court is a left only egress and located approximately 70m south of this junction. To drive towards the Portlaoise Town Centre from the Midway, one has to take a U-turn at the M7 Togher Interchange.
3. **N77/ Father Brown Avenue Roundabout** – this is four arm roundabout with a single wide lane on the gyratory. It connects the M7 Togher Interchange via the southern arm and Portlaoise Town via the northern arm. The western arm connects the Father Brown Avenue and acts a southern circular bypass of Portlaoise Town. The eastern approach leads to the electricity supply station.
4. **N80/ N77 Abbeyleix Roundabout** – this is a four arm roundabout with a single wide lane on the gyratory. It connects the N77 with the N80. The eastern arm of the roundabout is a minor arm serving the car parking associated with the Government Offices Portlaoise. All arms have two lanes on approach.
5. **N80/ Market Square Roundabout –** this is four arm single lane roundabout and is one of the busiest junctions in Portlaoise Town. The roundabout connects the national roads N80 towards the north, the N77 towards the south and regional road R445 towards the west. The eastern arm serves the market shops and becomes a one-way eastbound approximately 50m away from this junction. The junction experiences congestion during both the AM and PM peak.
6. **R445/ Rockview Roundabout** – this is a three arm mini roundabout combined with a priority controlled junction. The east-west approach is the R445 and the northern arm eventually connects with the N80. The southern arm, which is part of the priority controlled junction, provides access to the Rockview residential developments.
7. **R445/ Rockdale Roundabout** – this is a four arm single lane roundabout on the R445. The northern arm serves the Rockdale residential developments towards the north. The east-west approach is the R445 and experiences higher traffic movements. The southern arm connects to the Togher Masterplan Lands via the Knockmay Road. There are off road cycle lanes present on all the approaches except along the southbound approach.
8. **R445/ IDA Ireland Priority Junction** – this is a three arm priority junction west of the R445/ Rockdale Roundabout. The southern approach (minor arm) serves the IDA Business Park and the R445 acts as a major arm. All the approaches to the priority junction are single lanes with footpaths on all arms and on road cycle lanes along the R445.
9. **Old Knockmay Road Priority Junction (main access junction)** – this is a three arm priority controlled junction. This is currently the main access junction to the majority of the Masterplan lands. It has a right turn pocket to serve southbound turning traffic.

3.3 Existing Traffic Levels

Traffic counts were carried out by IDASO in the study area to assist in the preparation of the transport assessment.

The locations of the existing junctions in the study area where the traffic surveys were carried out are presented in **Figure 3.4**.

Figure 3.4: Traffic Survey Locations

The above junctions were assessed based on the recorded turning movement counts and were carried out for both the AM and PM peak periods to reflect the peak hour traffic conditions on the surrounding road network.

The 15-minute traffic count data provided by IDASO was analysed to determine the network peak hour. The peak hour traffic flow through the network of junctions in the morning is seen to occur between 08:15 – 09:15, with the evening peak hour occurring between 16:45 – 17:45, as illustrated in **Figure 3.5**.

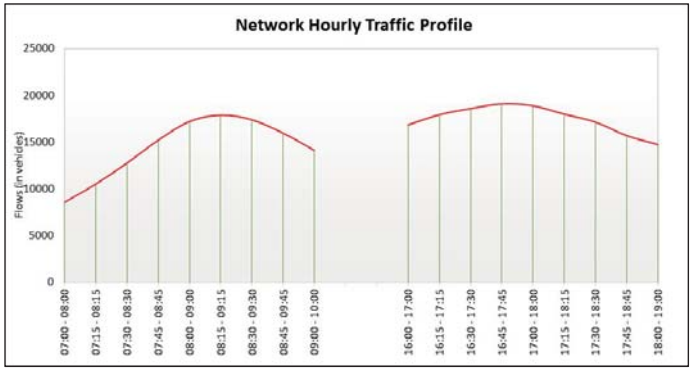

Figure 3.5: Network Hourly Traffic Profile

Table 3.1 shows the total junction flows based on the 2018 observed traffic surveys and the network with the junction flows is presented in **Appendix A**.

Table 3.1: 2018 Observed Junction Flows

No.	Junction	AM Peak	PM Peak
1	M7 Togher Interchange (Junction 17)	2,264	2,161
2	Old Knockmay Rd. Roundabout	116	123
3	Old Knockmay Rd. Priority Junction (main entrance)	638	624
4	Old Knockmay Rd. Priority Junction (secondary entrance)	684	822
5	Old Knockmay Rd./ Father Brown Ave. Priority Junction	909	1,045
6	N77/ Father Brown Avenue Roundabout	2,021	2,179
7	N77/ N80 Abbeyleix Roundabout	2,605	2,899
8	N80/ Market Square Roundabout	2,336	2,496
9	R445/ Tea Lane Priority Junction	1,155	1,132
10	R445/ Rockview Roundabout	1,660	1,548
11	R445/ Rockdale Roundabout	1,449	1,492
12	R445/ IDA Ireland Priority Junction	1,076	1,078
14	Togher Road Priority Junction	76	63
15	N77/ Midway Junction	1,988	1,910
	Total	**18,974**	**19,571**

The N77/ N80 Roundabout, located on the strategic road network is the busiest junction both during the AM and PM peak hours, followed by the N80/ Market Square Roundabout. These two junctions are the key junctions in Portlaoise Town and cater for both local traffic, as well as N80/ N77 through traffic. Other junctions along the R445 west of the Market Square Roundabout are also busy during the peak hours. It should be noted that the traffic at the M7 Togher Interchange is slightly lower compared to the Portlaoise Town Centre junctions.

3.4 Sustainable Transport Modes

The Masterplan lands not only benefit from good accessibility by car, but also by sustainable transport modes. Portlaoise train station is within approximately 500 metres of the northern edge of the Masterplan lands, as well as bus stops with several (regional) services by different operators. Portlaoise also is a compact and flat town, which makes walking and cycling a viable alternative to car use. A detailed description of the provisions for walking, cycling and public is captured in the main Togher Masterplan Report.

4 Future Infrastructure Provision

The receiving environment as described in the previous chapter will change in the future. Laois County Council has, as part of their Draft Portlaoise Local Area Plan, identified the need for the improvement of the transport infrastructure of the town as a key element to support the sustainable development of the town. In the Draft Portlaoise Local Area infrastructure improvements have been identified. The proposed road improvements have to be taken into account in the Transport Assessment, as they will have an impact on the future traffic movements within the town and through the town. This section of the report describes these improvements.

4.1 Draft Portlaoise Local Area Plan

The Draft Portlaoise Local Area Plan outlines key infrastructure (**Figure 4.1**) to be delivered including:

- The Togher Masterplan Road, services and infrastructure which has received Part 8 planning permission. Detailed Design of Phase 1 of this road link began in Q2 2018;
- The Portlaoise Northern Orbital Route (PNOR);
- The Southern Circular (Kylekiproe), the construction of which is due to begin in Q3 2018;
- The Eastern Circular Route to link the Dublin Road (R445) and Borris Road;
- The completion of the Southern Orbital Route to link Rathleague and Meelick;
- A relief road to link the Stradbally Road and the Dublin Road through St. Fintan's land; and
- A road linking the R425 at Rathleague to the Southern Circular at Summerhill.

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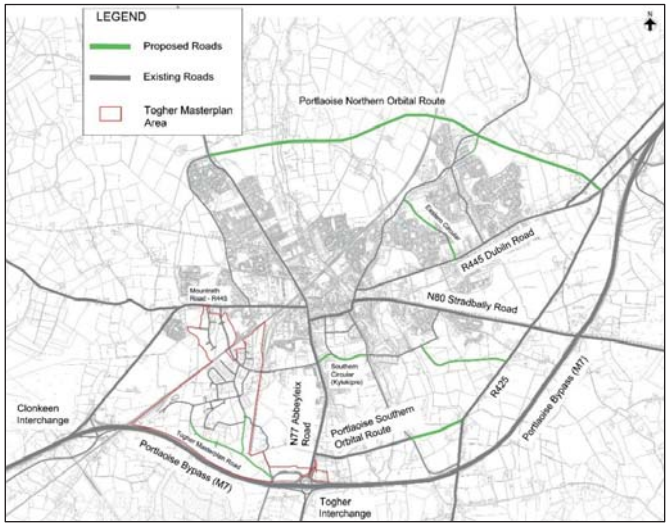

Figure 4.1: Key Road Infrastructure (Reference - Draft Portlaoise LAP)

5 Togher Masterplan Development

5.1 Introduction

The Togher Masterplan Area is a strategic land bank which occupies approximately 191 hectares to the south-west of Portlaoise Town, occupying a wedge shaped landbank between the existing fabric of the town, the M7 motorway and the Cork-Dublin rail line.

The vision for this Masterplan is to deliver a viable economic zone, as a National Enterprise Park, focused in particular on heavy, light and ICT industry, trade warehousing, distribution, logistics and other uses associated with the transport industry.

In order to ensure the robust and sustainable development of the Masterplan lands, the build-out of the Togher National Enterprise Park is envisaged to be developed in a phased manner and as such the Masterplan Lands is divided up into several plots, which are shown in **Figure 5.1**.

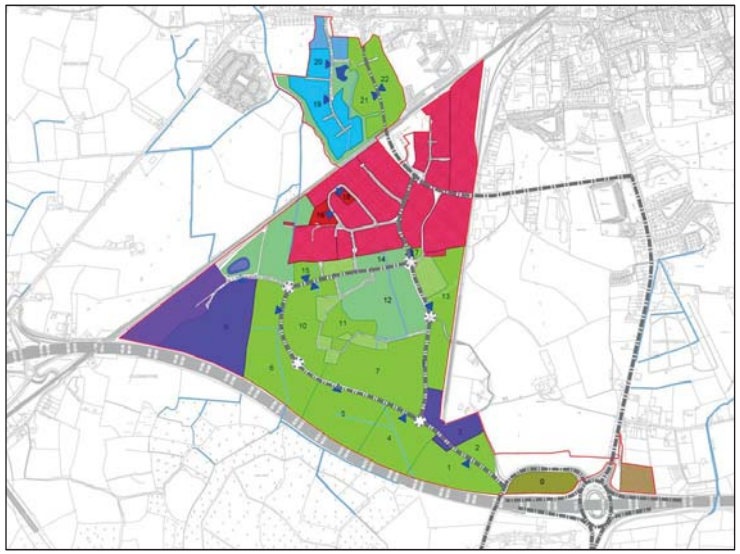

Figure 5.1: Proposed Plots in the Togher Masterplan

The phased development of the Masterplan Lands reflects the need for structured development, aligning with the zoning and policy objectives of Laois County Council as well as the availability of serviced lands.

The phasing and the quantum of development for each plots and assessment years is summarised in **Table 5.1**.

Table 5.1: Proposed Masterplan Development Quantum

Plot No	Development Type	GFA	2023	2033
0	Service Area		Yes	Yes
1	Logistics and Manufacturing	11,500	Yes	Yes
2	Logistics and Manufacturing	3,300	Yes	Yes
3	Transport/Utilities/Distribution	13,280	Yes	Yes
4	Logistics and Manufacturing	12,840	Yes	Yes
5	Logistics and Manufacturing	14,740	Yes	Yes
6	Logistics and Manufacturing	21,140	No	Yes
7	Logistics and Manufacturing	21,580	Yes	Yes
8	Logistics and Manufacturing	5,200	Yes	Yes
9	Transport/Utilities/Distribution	42,960	No	Yes
10	Logistics and Manufacturing	12,420	No	Yes
11	Logistics and Manufacturing	5,120	No	Yes
12	Amenity Area	-		
13	Logistics and Manufacturing	7,120	No	Yes
14	Amenity Area	-		
15	Logistics and Manufacturing	2,100	No	Yes
16	Industrial Estate	7,999	No	Yes
17	Logistics and Manufacturing	482	No	Yes
18	Industrial Estate	3,105	No	Yes
19	Office & R&D	17,298	No	Yes
20	Office & R&D	4,125	No	Yes
21	Logistics and Manufacturing	7,216	No	Yes
22	Logistics and Manufacturing	7,584	No	Yes

Due to the extent of the study area and the different degrees of development, the above plots within the Masterplan have been aggregated into five different zones for the purpose of this Transport Assessment.

The zones have been chosen based on how the zones are linked to the existing road network and how that influences the distribution or route choices for traffic arriving and departing from the different development plots.

The character of these five difference zones is described in detail in the Togher Masterplan Report.

The development zones are presented in **Figure 5.2**

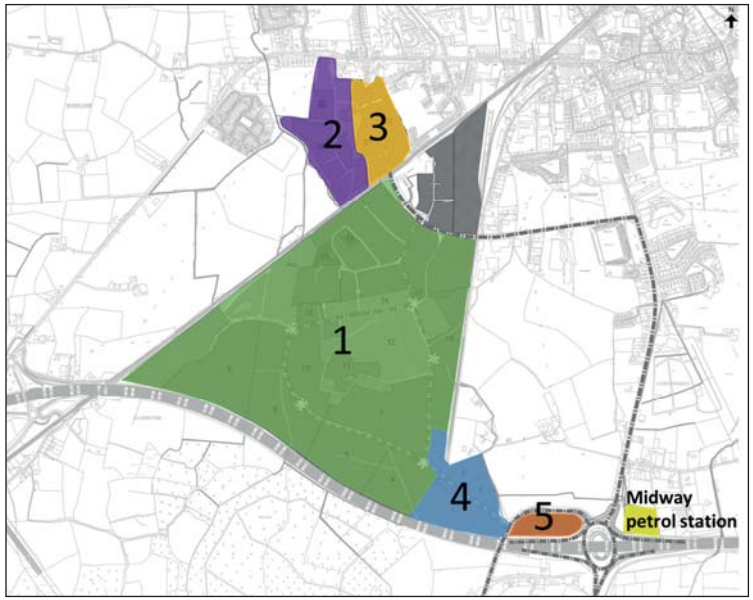

Figure 5.2: Development Zones in the Togher Masterplan

Currently there is an active planning application for zone 5 (service area). The reference for this planning application is: 18216 Laois County Council.

5.2 Masterplan Development Traffic

Trip generation calculations have been obtained through an interrogation of the TRICS database of similar developments at other locations in Ireland. The TRICS database contains trip generation rates relating to a variety of land uses from sites in the UK and Ireland.

Through careful selection of input parameters relating to a variety of criteria such as land use, location and public transport provision the TRICS database allows an estimate to be made of the probable level of trip generation for a proposed development.

5.2.1 Trip Generation

Person trip rates for the following uses were derived from the TRICS database:

- Large Manufacturing;

- Distribution and Warehousing;
- Office & R&D;
- Industrial Estate.

The person trip generation used for each of the development components are presented in **Table 5.2**. The person trip rates include HGV activity associated with the different development components. The full trip rates are appended in **Appendix B** *(Trip Generation Sheets).*

Table 5.2: Proposed Development Person Trip Rates

Development Component	Trip Rate Unit	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
Large Manufacturing	per 100 m^2 GFA	0.409	0.082	0.055	0.491
Distribution and Warehousing	per 100 m^2 GFA	0.432	0.077	0.17	0.633
Office & R&D	per 100 m^2 GFA	1.47	0.189	0.34	1.795
Industrial Estate	per 100 m^2 GFA	0.468	0.121	0.13	0.459

To convert the person trip rates to vehicle trip rates a mode split was assumed. The mode split for the current situation and the modal share targets for the future years are shown in **Table 5.3**. The car occupancy for the existing share is assumed to be 1.

Table 5.3: Existing Modal Split and Predicted Modal Share Targets

Mode	Existing Share	2023 Share	2033 Share
Walking	5.7%	7.8%	10.0%
Cycling	1.2%	1.7%	5.0%
Public Transport	4.0%	10.0%	20.0%
Motorised transport	87.1%	80.5%*	65.0%**
Working from home	2.0%	0.0%	0.0%
Total	**100%**	**100%**	**100%**

**Car occupancy is 1.2, **Car occupancy is 1.5*

The Local Area Plan 2018-2024 has an objective for bicycle use. The objective is that bicycle use will increase by 40% by 2040. For the Masterplan Area this target is set for 2023. The targets for walking and public transport in 2023 are set at 7.8% and 10.0% respectively. For motorised transport, an increase in car sharing is predicted. The car occupancy target is set at 1.2 for 2023.

The target modal share for motorised transport in 2033 is set at 65%, which is higher than the national policy prescribes. However, for the Masterplan Area a further increase in car sharing is predicted. The car occupancy target for 2033 is 1.5, which results in a share for motorised transport which is in line with the 45% national policy targets. Targets for walking, cycling and public transport are set at 10.0%, 5.0% and 20.0% respectively.

Applying the trip rates plus the mode split to the quantum of development results in the total number of trips by car for the masterplan development years 2023 and 2033.

Table 5.4 shows the breakdown of the total trips per zone, for the development years 2023 and 2033.

Table 5.4: Masterplan Zone Trip Generation (in vehicles)

Zones	2023 Total Trips				2033 Total Trips			
	AM Peak		PM Peak		AM Peak		PM Peak	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	149	30	20	178	285	57	62	358
2	-	-	-	-	205	61	47	250
3	-	-	-	-	59	27	8	71
4	41	8	5	49	26	12	4	31
5*	242	242	212	212	242	242	212	212
Total	**432**	**280**	**237**	**439**	**817**	**333**	**333**	**922**

*Note: *includes Midway Food Court Petrol Station*

As mentioned in chapter 5 there is an active planning application for zone 5. For this zone the trip generation figures from the planning application were used.

In addition, it is also assumed that at the current location of Midway Food Court on the N77, a petrol station is envisaged to be developed by 2023. This development is also included in the trip generation, using the same trip rates as the aforementioned active planning application.

Table 5.5 summarises the total trip generation for the masterplan development years 2023 and 2033.

Table 5.5: Masterplan Trip Generation Summary (in vehicles)

Year	Total Trips (AM Peak)		Total Trips (PM Peak)	
	IN	OUT	IN	OUT
2023	431	280	237	439
2033	817	399	333	922

5.2.1.1 Sensitivity Scenario Trip Generation

The mode split targets described in the section above are considered ambitious, even though they are in line with the national policy. Therefore, it has been requested following consultation with Transport Infrastructure Ireland (TII) to carry out a sensitivity test with higher car mode share.

As Portlaoise currently is a car orientated town and has been for a number of years the uptake of sustainable modes might be slower than expected. To simulate this, it is assumed the changes in the modal split will take longer than presented in **Table 5.3**. The sensitivity test mode share targets are shown in **Table 5.6**. Also it is assumed there is no change in car occupancy between 2018 and 2023.

Table 5.6: Existing and Higher Car Mode Share Targets (Sensitivity Scenario)

Mode	Existing Mode Share	Higher Mode Share Targets	
		2023	2033
Walking	5.7%	5.7%	7.8%
Cycling	1.2%	1.2%	1.7%
Public Transport	4.0%	4.0%	10.0%
Motorised Transport	87.1%	87.1%	80.5%*
Working from home	2.0%	2.0%	0.0%
Total	**100%**	**100%**	**100%**

**Car occupancy is 1.2*

Applying these new modal shares results in the total trips for the whole Masterplan area as shown in **Table 5.7**.

Table 5.7: Trip Generation Summary with Higher Car Mode Share (in vehicles)

Year	Total Trips (AM Peak)		Total Trips (PM Peak)	
	IN	OUT	IN	OUT
2023	488	291	245	507
2033	1,309	447	437	1,532

5.2.2 Trip Distribution and Assignment

The distribution profile has been based on the current daytime population from census data. The data derived from the census was adjusted to suit the Masterplan Area. The result is a cordon distribution of trips as shown in **Table 5.8**.

Table 5.8: Masterplan Cordon Trip Distribution

Direction	Distribution (%)
N80 north / Rockview north	23.5%
N80 south	5.2%
M7 west	15.4%
M7 east	10.7%
N77 south	13.6%
Portlaoise west	1.3%
Portlaoise internal	0.7%
Portlaoise east	29.6%
Total	**100.0%**

The Masterplan development area is large, with different trip assignments on the local network corresponding to each zones of the Masterplan Lands and these trips are distributed through each junction in the study area using the spreadsheet assignment model.

However, the overall distribution stays consistent with the cordon distribution in **Figure 5.3**.

For the aforementioned zone 5 the distribution in the active planning application (reference: 18216 LCC) is assumed. For the possible petrol station at Midway it is assumed that 90% of the associated traffic comes from the motorway M7 and 10% has an origin or destination in Portlaoise Town itself. The rationale is that the location of the petrol station which is likely to partly serve the local public as well.

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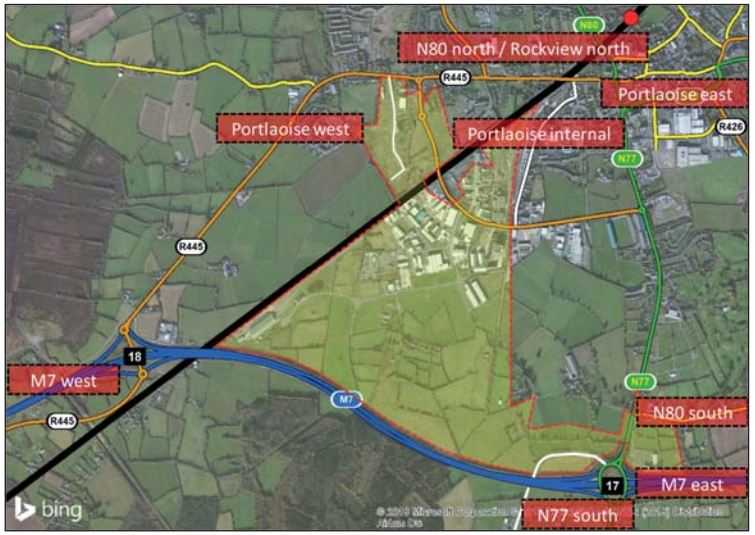


Figure 5.3: Masterplan Cordon Locations

Applying the cordon distribution to the total number of trips results in the additional trips as shown in **Table 5.9** and **Table 5.10**.

Table 5.9: 2023 Cordon Trip Distribution

Direction	Distribution	Trips (AM Peak)		Trips (PM Peak)	
		IN	OUT	IN	OUT
N80 north / Rockview north	23.5%	101	66	56	103
N80 south	5.2%	22	15	12	23
M7 west	15.4%	66	43	37	68
M7 east	10.7%	46	30	25	47
N77 south	13.6%	59	38	32	60
Portlaoise west	1.3%	6	4	3	6
Portlaoise internal	0.7%	3	2	2	3
Portlaoise east	29.6%	128	83	70	130
Total	**100.0%**	**431**	**280**	**237**	**439**

Table 5.10: 2033 Cordon Trip Distribution

Direction	Distribution	Trips (AM Peak)		Trips (PM Peak)	
		IN	OUT	IN	OUT
N80 north / Rockview north	23.5%	192	94	78	217
N80 south	5.2%	42	21	17	48
M7 west	15.4%	126	61	51	142
M7 east	10.7%	87	43	36	99
N77 south	13.6%	111	54	45	125
Portlaoise west	1.3%	11	5	4	12
Portlaoise internal	0.7%	6	3	2	6
Portlaoise east	29.6%	242	118	99	273
Total	**100.0%**	**817**	**399**	**333**	**922**

6 Traffic Assessment

6.1 Assessment Scenarios

In terms of traffic impact, detailed junction analysis has been undertaken for the base year 2018 the opening year 2023 both 'with' and 'without development' and the future year of 2033.

During the discussions with Laois County Council, it was noted that the Southern Circular Road is likely to be built by early 2019. Therefore, the 2023 'without development' scenario is based on the provision of this infrastructure.

Looking beyond 2023, it is assumed that the Portlaoise Southern Orbital Route, will be to be constructed and operational by 2033. The 2033 'without' scenario is based on the change in traffic levels as a result of the Southern Orbital Route on the local road network.

The junction operational performances were assessed using the Junction 9 (developed by JCT Consultancy Ltd.) with different junction configurations priority/ roundabouts. This junction assessment is based on observations of existing traffic volumes and junction layout.

The junction modelling results are presented in terms of RFC (ratio of flow to capacity) and queue lengths to understand the operational performance of the local junctions. The queue is defined as the mean maximum queue value for each junction approach. The RFC value indicates the extent to which traffic flows on a junction arm approach capacity. Typically, a junction is said to be operating within capacity if all arms of the junction operate with RFC values below 0.85.

The predicted traffic impact associated with the proposed masterplan has been determined by comparing traffic conditions between the two scenarios, the 'base' and 'base plus masterplan' conditions.

The following scenarios are assessed as part of the traffic assessment for appraisal of the proposed Togher Masterplan development.

2018 Existing Assessment (AM and PM peak)

The 2018 assessment was carried out to understand the existing operational capacity of the junction's.

2023 Assessment (AM and PM peak)

- **Base Scenario** – The 'base' scenarios include no future development within Togher Masterplan Lands, but the re-assigned traffic flows associated with Southern Circular Road have been included. The 'base' scenario traffic flows correspond to the background traffic growth to the year 2023.

- **Base plus Masterplan Scenario –** The 'base plus masterplan' scenarios includes for the scale of development envisaged for the proposed Masterplan in the year 2023 (as presented in **Table 5.5**).
- **Base plus Masterplan Sensitivity Scenario** – A sensitivity test with higher car mode share (as presented in **Table 5.7**)

2033 Assessment (AM and PM peak)

- **Base Scenario** – The 'base' scenarios include no future development within Togher Masterplan Lands, but the re-assigned traffic flows associated with Portlaoise Southern Orbital Route have been included. The 'base' scenario traffic flows correspond to the background traffic growth to the year 2033
- **Base plus Masterplan Scenario –** The 'base plus masterplan' scenario includes the complete delivery of the proposed Togher Masterplan (as presented in **Table 5.5**).
- **Base plus Masterplan Sensitivity Scenario –** sensitivity test with higher car mode share (as presented in **Table 5.7**).

The findings of the junction operational assessment are presented in the following sections.

6.2 Traffic Capacity Analysis

6.2.1 2018 Junction Operational Performance

Table 6.11 presents the existing operational capacity results for the ten key junctions in the study area to understand the residual capacity to accommodate the future increase in the traffic demand.

Table 6.11: Junction Operational Capacity Results (2018 scenario)

Junctions	AM Peak		PM Peak	
	RFC	MMQ	RFC	MMQ
M7 Togher Interchange (Site-1)				
N77 SB	0.28	<1	0.44	<1
M7 WB Off Slip	0.22	<1	0.26	<1
N77 NB	0.44	<1	0.24	<1
M7 EB Off Slip	0.20	<1	0.06	<1
Togher Road	0.03	<1	0.02	<1
Midway Food Court Priority Jn (Site-15)				
Midway Access	0.18	<1	0.34	<1
N77 NB	0.24	<1	0.22	<1
N77/ Father Brown Avenue Roundabout (Site-6)				
N77 SB	0.36	<1	0.57	1
Father Brown Avenue EB	0.00	<1	0.00	<1
N77 NB	0.62	3	0.44	<1
Father Brown Avenue WB	0.55	1	0.68	2
N77/ N80 Abbeyleix Roundabout (Site-7)				
N80 SB	0.66	2	0.57	1
N80 WB	0.69	2	0.96	16
N77 NB	0.87	7	0.91	8
Local Access Road	0.04	<1	0.23	<1
N80/ Market Square Roundabout (Site-8)				
N80 SB	0.89	8	0.88	7
Market Square WB	0.01	<1	0.04	<1
N80 NB	0.65	2	0.84	5
R445 EB	0.86	6	0.78	4
R445/ Tea Lane (Site-9)				
Tea Lane	0.17	<1	0.53	<1
R445 WB	0.18	<1	0.10	<1
R445/ Rockview Roundabout (Site-10)				
Rockview SB	0.84	5	0.48	1
R445 WB	0.41	<1	0.62	2
R445 EB	0.70	3	0.60	2
R445/ Rockale Roundabout (Site-11)				
Rockale SB	0.07	<1	0.03	<1
R445 WB	0.42	<1	0.50	1
Old Knockmay Road NB	0.15	<1	0.40	<1
R445 EB	0.73	3	0.47	1
R445/ IDA Business Park Priority Jn (Site-12)				
IDA Access	0.05	<1	0.09	<1
R445 EB	0.02	<1	0.00	<1
Old Knockmay Rd. Priority Jn (main entrance), (Site-3)				
Old Knockmay Rd. NB	0.21	<1	0.21	<1
Old Knockmay Rd. WB	0.10	<1	0.06	<1

Note: Ratio of demand flow to capacity (RFC) = Demand /Capacity, Mean Max Queue (MMQ) in vehicles

The above table shows that the junctions in the study area are presently operating within capacity except the N77/ N80 Abbeyleix Roundabout and N80/ Market Square Roundabout. These two roundabouts experience delays and queuing both during the morning and evening peak hours and carry a mix of local and the N77 and N80 through traffic. The R445/ Rock view Roundabout along the R445 west of the N80/ Market Square Roundabout also experiences some queuing and is approaching capacity in the AM peak.

The modelling results conclude that the M7 Togher Interchange (Junction 17) is operating within capacity and can accommodate future growth in traffic.

The other minor junctions 4 and 5 along the Old Knockmay Road serving the existing developments in the masterplan lands are operating within capacity.

6.2.2 2023 Junction Operational Performance

It should be noted that in the year 2023, there will be changes to the background traffic flows due to the completion of the Southern Circular Route in 2019. It is envisaged that with the Southern Circular Route in place, the primary benefit will be to the N77/ N80 Abbeyleix Roundabout as the traffic will re-route via the N77/ Father Brown Avenue Roundabout.

It should be noted that for the purpose of the modelling the N77/ Father Brown Avenue Roundabout, the layout of this junction is based on the available general layout of the proposed scheme as shown in **Figure 6.4**.

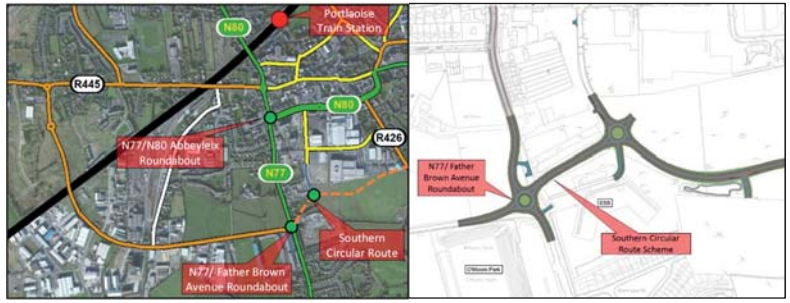


Figure 6.4: Proposed Portlaoise Southern Circular Route

In terms of re-assignment of traffic, left turning traffic from the eastern approach to the N77/ N80 Roundabout travelling towards the M7 Togher Interchange is likely to re-route to the Southern Circular Route. Likewise, right turning traffic from the southern arm to the N77/ N80 Roundabout is likely to take a right turn at the N77/ Father Brown Avenue Roundabout onto the new road.

For the purpose of robustness, it is assumed that there will be no re-routing of traffic from the existing N80/ Market Square Roundabout with the Southern Circular Route in place.

The junction operation capacity results 'with' and 'without masterplan' are summarised in **Table 6.12**.

Table 6.12: 2023 Junction Operational Capacity Results (with & without masterplan)

Junctions	AM Peak				PM Peak			
	Base Scenario		Base + Masterplan		Base Scenario		Base + Masterplan	
	RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
M7 Togher Interchange (Site-1)								
N77 SB	0.29	<1	0.39	<1	0.48	1	0.57	1
M7 WB Off Slip	0.24	<1	0.35	<1	0.30	<1	0.44	<1
N77 NB	0.47	1	0.58	2	0.26	<1	0.31	<1
M7 EB Off Slip	0.24	<1	0.45	<1	0.07	<1	0.12	<1
Togher Road	0.04	<1	0.25	<1	0.02	<1	0.20	<1
Midway Food Court Priority Junction (Site-15)								
Midway Access	0.20	<1	0.45	1	0.39	<1	0.65	3
N77 NB	0.27	<1	0.55	2	0.25	<1	0.57	2
N77/ Father Brown Avenue Roundabout (Site-6)								
N77 SB	0.42	<1	0.45	1	0.74	3	0.77	4
Father Brown Ave. EB	0.19	<1	0.24	<1	0.26	<1	0.27	<1
N77 NB	0.78	4	0.80	4	0.53	1	0.58	2
Father Brown Ave. WB	0.56	2	0.57	2	0.68	2	0.73	3
N77/ N80 Abbeyleix Roundabout (Site-7)								
N80 SB	0.67	2	0.68	2	0.57	1	0.58	2
N80 WB	0.66	2	0.68	2	0.95	15	0.95	16
N77 NB	0.77	4	0.79	4	0.79	4	0.84	5
Local Access Road	0.04	<1	0.04	<1	0.22	<1	0.23	<1
N80/ Market Square Roundabout (Site-8)								
N80 SB	0.99	20	1.02	28	0.97	16	0.98	18
Market Square WB	0.01	<1	0.02	<1	0.05	<1	0.05	<1
N80 NB	0.70	3	0.71	3	0.91	9	0.92	10
R445 EB	0.96	13	0.98	16	0.89	7	0.95	11
R445/ Tea Lane (Site-9)								
Tea Lane	0.19	<1	0.20	<1	0.59	2	0.19	<1
R445 WB	0.19	<1	0.19	<1	0.11	<1	0.00	<1
R445/ Rockview Roundabout (Site-10)								

Junctions	AM Peak				PM Peak			
	Base Scenario		Base + Masterplan		Base Scenario		Base + Masterplan	
	RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
Rockview SB	0.93	10	0.97	15	0.52	1	0.53	1
R445 WB	0.44	<1	0.46	<1	0.68	2	0.68	2
R445 EB	0.75	3	0.76	4	0.65	2	0.69	3
R445/ Rockale Roundabout (Site-11)								
Rockale SB	0.08	<1	0.08	<1	0.03	<1	0.03	<1
R445 WB	0.46	1	0.49	1	0.54	1	0.55	1
Old Knockmay Road NB	0.16	<1	0.17	<1	0.44	<1	0.48	1
R445 EB	0.79	4	0.80	4	0.51	1	0.53	1
R445/ IDA Business Park Priority Junction (Site-12)								
IDA Access (Left Turn)	0.01	<1	0.01	<1	0.03	<1	0.03	<1
IDA Access (Right Turn)	0.06	<1	0.06	<1	0.10	<1	0.10	<1
R445 EB	0.02	<1	0.02	<1	0.00	<1	0.00	<1
Old Knockmay Rd. Priority Junction (main entrance), (Site-3)								
Old Knockmay Rd. NB (Left Turn)	0.1	<1	0.12	<1	0.14	<1	0.22	<1
Old Knockmay Rd. NB (Right Turn)	0.24	<1	0.26	<1	0.23	<1	0.3	<1
Old Knockmay Rd. WB	0.11	<1	0.18	<1	0.06	<1	0.07	<1

Note: Ratio of demand flow to capacity (RFC) = Demand /Capacity, Mean Max Queue (MMQ) in vehicles, Base Scenario – represents the re-distributed background traffic.

The 2023 year modelling exercise is based on the re-assigned of traffic associated with Southern Circular Route plus growth in background traffic. The modelling results shows that the majority of junctions are likely to continue to perform within capacity, except the Town Centre roundabouts (junction sites 7 and 8). In addition, the R445/ Rockview Roundabout (junction site 10).

With re-distribution of traffic, the N77/ N80 Abbeyleix Roundabout experiences an overall decrease in junction traffic flows by around 10% (both during the AM and PM peak) and is likely to operate within capacity during the AM peak. However, during the PM peak, the junction is likely to continue to operate at similar levels compared to the 2018 operational capacity.

The junctions 4 and 5 along the Old Knockmay Road serving the existing masterplan lands will continue to operate within capacity with the proposed masterplan development quantum for the year 2023.

The M7 Togher Interchange (Junction 17) is likely to continue to operate within capacity and can accommodate the projected increase in traffic including the proposed service area.

Overall, with the proposed Masterplan development quantum, the analysis shows that there will be no significant increase in queuing within the surrounding road.

The percentage increase on the M7 Motorway with the proposed Masterplan development quantum east and west of the M7 Togher Interchange is presented in **Table 6.13**.

Table 6.13: 2023 Percentage Increase in M7 Motorway Flows (2-way)

M7 Motorway Link	AM Peak		PM Peak	
	Base Scenario	Base + Masterplan	Base Scenario	Base + Masterplan
East of M7 Togher Interchange	3,063	3,088 (<0.84%)	3,069	3,096 (<0.88%)
West of M7 Togher Interchange	4,030	4,068 (<0.94%)	3,956	3,995 (<0.99%)

The motorway link analysis shows that with the proposed scale of masterplan development for the year 2023, the increase in flows along the M7 Motorway is around 1%.

6.2.2.1 2023 Scenario Sensitivity Test Scenario

A sensitivity test was carried out to understand the operation of the surrounding junctions based on a higher car mode share it as presented in **Table 5.6**.

Table 6.14 compares the junction's operational capacity results of the 'base plus masterplan' scenario with the 'with' and 'without' higher car mode share.

Table 6.14: 2023 Junction Operational Capacity Results (higher car mode share)

Junctions	AM Peak				PM Peak			
	Without		With		Without		With	
	RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
M7 Togher Interchange (Site-1)								
N77 SB	0.39	<1	0.40	<1	0.57	1	0.58	2
M7 WB Off Slip	0.35	<1	0.36	<1	0.44	<1	0.45	<1
N77 NB	0.58	2	0.59	2	0.31	<1	0.31	<1
M7 EB Off Slip	0.45	<1	0.48	1	0.12	<1	0.13	<1
Togher Road	0.25	<1	0.24	<1	0.20	<1	0.22	<1
Midway Food Court Priority Junction (Site-15)								
Midway Access	0.45	1.30	0.46	1	0.65	3	0.65	3
N77 NB	0.55	1.90	0.56	2	0.57	2	0.57	2
N77/ Father Brown Avenue Roundabout (Site-6)								
N77 SB	0.45	1	0.46	1	0.77	4	0.78	4
Father Brown Ave. EB	0.24	<1	0.25	<1	0.27	<1	0.27	<1
N77 NB	0.80	4	0.80	4	0.58	2	0.59	2
Father Brown Ave. WB	0.57	2	0.57	2	0.73	3	0.74	3
N77/ N80 Abbeyleix Roundabout (Site-7)								
N80 SB	0.68	2	0.68	2	0.58	2	0.58	2
N80 WB	0.68	2	0.68	2	0.95	16	0.95	16
N77 NB	0.79	4	0.79	4	0.84	5	0.85	6
Local Access Road	0.04	<1	0.04	<1	0.23	<1	0.24	<1
N80/ Market Square Roundabout (Site-8)								
N80 SB	1.02	28	1.03	30	0.98	18	0.98	18
Market Square WB	0.02	<1	0.02	<1	0.05	<1	0.05	<1
N80 NB	0.71	3	0.71	3	0.92	10	0.92	11
R445 EB	0.98	16	0.98	15	0.95	11	0.96	12
R445/ Tea Lane (Site-9)								
Tea Lane	0.20	<1	0.20	<1	0.19	<1	0.19	<1
R445 WB	0.19	<1	0.19	<1	0.00	<1	0.00	<1
R445/ Rockview Roundabout (Site-10)								
Rockview SB	0.97	15	0.98	16	0.53	1	0.53	1
R445 WB	0.46	<1	0.47	1	0.68	2	0.68	2
R445 EB	0.76	4	0.76	4	0.69	3	0.70	3

Junctions	AM Peak				PM Peak			
	Without		With		Without		With	
	RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
R445/ Rockale Roundabout (Site-11)								
Rockale SB	0.08	<1	0.08	<1	0.03	<1	0.03	<1
R445 WB	0.49	1	0.50	1	0.55	1	0.55	1
Old Knockmay Road NB	0.17	<1	0.17	<1	0.48	1	0.49	1
R445 EB	0.80	4	0.80	4	0.53	1	0.53	1
R445/ IDA Business Park Priority Junction (Site-12)								
IDA Access (Left Turn)	0.01	<1	0.01	<1	0.03	<1	0.03	<1
IDA Access (Right Turn)	0.06	<1	0.06	<1	0.10	<1	0.10	<1
R445 EB	0.02	<1	0.02	<1	0.00	<1	0.00	<1
Old Knockmay Rd. Priority Junction (main entrance), (Site-3)								
Old Knockmay Rd. NB (LT)	0.12	<1	0.12	<1	0.22	<1	0.25	<1
Old Knockmay Rd. NB (RT)	0.26	<1	0.26	<1	0.30	<1	0.32	<1
Old Knockmay Rd. WB	0.18	<1	0.20	<1	0.07	<1	0.08	<1

Note: Ratio of demand flow to capacity (RFC) = Demand /Capacity, Mean Max Queue (MMQ) in vehicles, Base Scenario – represents the re-distributed background traffic.

The 2023 year sensitivity analysis demonstrates that considering the higher car mode share for the year 2023, there is likely to be a minimum impact at the junctions in the study area with an increase of 1-2 vehicles in queuing. However, the junctions within the core of the Town Centre reaches at capacity.

The percentage increase on the M7 Motorway considering the higher car mode share is presented in **Table 6.15**.

Table 6.15: 2023 Percentage Increase in M7 Motorway Flows (2-way)

M7 Motorway Link	AM Peak		PM Peak	
	Base Scenario	Base + Masterplan	Base Scenario	Base + Masterplan
East of M7 Togher Interchange	3,063	3,094 (1.03%)	3,069	3,104 (1.38%)
West of M7 Togher Interchange	4,030	4,076 (1.15%)	3,956	4,008 (1.29%)

The motorway link analysis shows that considering the higher car mode share target set for year 2023, the maximum increase in flows along the M7 Motorway is approximately 1.4%.

6.2.3 2033 Scenario Junction Operational Performance

For the year 2033, the Town Centre junctions along the N77 are likely to be over capacity with further queuing with the continued background growth in traffic. Therefore, before any further masterplan development can take place, it is essential to alleviate the Town Centre junctions.

The impact of the full delivery of the proposed Togher Masterplan has been accessed with the Portlaoise Southern Orbital Route fully constructed and operational by 2033 as shown in **Figure 6.5**

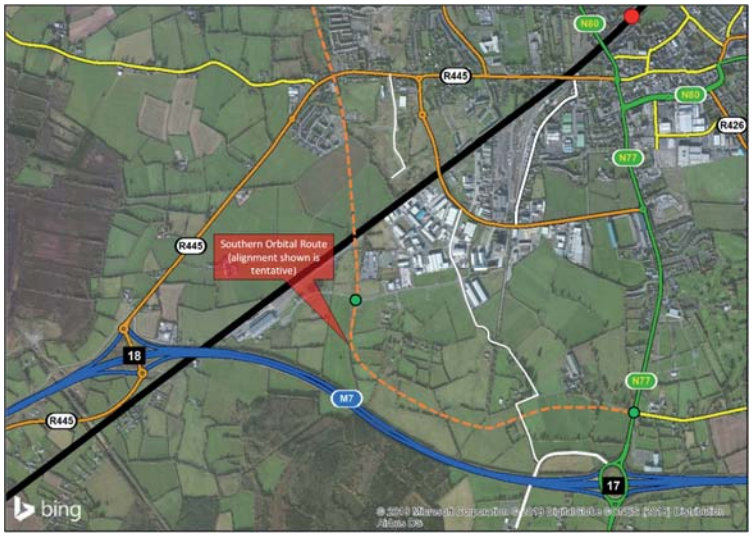


Figure 6.5: Proposed Portlaoise Southern Orbital Route

In addition, it is assumed that the Portlaoise Southern Orbital Route will directly connect with the N80 north of R445. This orbital route will result in lower traffic flows in and around the junctions in Portlaoise Town, particularly the junctions along the N77 and N80.

It should be noted that the traffic model predicts that the construction of the Southern Orbital Route will generally reduce traffic levels along sections of the N77, N80, R445 and Old Knockmay Road in Portlaoise Town as traffic diverts from these roads to the new Southern Orbital Route. Ultimately, the extended Southern Orbital Route allows local and some through traffic to avoid the main junctions within the core of the Town.

Table 6.16 summarises the change in the 2033 base and re-assigned junction flows based on the Portlaoise Southern Orbital Route.

Table 6.16: 2033 Comparison of Junction Flows (Base vs Re-Assignment)

No	Traffic Survey Count Junctions	AM Peak			PM Peak		
		Base	Re-Dist.	% Diff.	Base	Re-Dist.	% Diff.
1	M7 Togher Interchange	2,666	2,666	0.0%	2,512	2,512	0.0%
2	Old Knockmay Rd. Roundabout	139	176	26.9%	140	230	64.1%
3	Old Knockmay Rd. Priority Junction (main entrance)	788	709	-10.1%	731	692	-5.3%
4	Old Knockmay Rd. Priority Junction (secondary entrance)	810	656	-19.0%	964	745	-22.7%
5	Old Knockmay Rd./ Father Brown Ave. Priority Jn.	1,092	938	-14.1%	1,240	1,021	-17.6%
6	N77/ Father Brown Ave. Rbt.	2,398	1,978	-17.5%	2,569	2,089	-18.7%
7	N77/ N80 Abbeyleix Rbt.	2,695	2,085	-22.6%	2,911	2,313	-20.5%
8	N80/ Market Square Rbt.	2,708	2,006	-25.9%	2,887	2,232	-22.7%
9	R445/ Tea Lane Priority Jn.	1,338	1,098	-18.0%	1,309	1,162	-11.2%
10	R445/ Rock view Roundabout	1,935	1,210	-37.4%	1,807	1,321	-26.9%
11	R445/ Rockale Roundabout	1,704	1,152	-32.4%	1,750	1,317	-24.7%
12	R445/ IDA Ireland Priority Jn.	1,257	822	-34.6%	1,261	958	-24.1%
14	Togher Road Priority Junction	88	224	153.2%	75	275	267.9%
15	N77/ Midway Junction	2,344	2,246	-4.2%	2,227	2,116	-5.0%

As can be seen from the above table, the assignment model shows a reduction in the level of traffic demand at most of the junctions in the study area, as the traffic is re-routed through the Portlaoise Southern Orbital Route which was previously traversing through the key Town Centre roundabouts.

With the re-distribution of traffic, both for the AM and PM peak experiences a decrease in junction traffic flows by around 21% to 23% at the N77/ N80 Abbeyleix Roundabout and around 23%-26% at the N80/ Market Square Roundabout.

This represents a considerable improvement on the 2023 Year junction performance where traffic congestion is predicted to develop in both the morning and evening commuter peak traffic periods.

The junction operation capacity results ‘with’ and ‘without the masterplan’ are summarised in **Table 6.17**. The projected operational assessment includes for the full effect of the proposed Southern Orbital Route.

Table 6.17: 2033 Junction Operational Capacity Results (with & without masterplan)

Junctions	AM Peak				PM Peak			
	Base Scenario		Base + Masterplan		Base Scenario		Base + Masterplan	
	RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
M7 Togher Interchange (Site-1)								
N77 SB	0.29	<1	0.42	<1	0.48	1	0.63	2
M7 WB Off Slip	0.27	<1	0.41	<1	0.34	<1	0.55	1
N77 NB	0.52	1	0.70	3	0.29	<1	0.36	<1
M7 EB Off Slip	0.28	<1	0.61	2	0.07	<1	0.17	<1
Togher Road	0.23	<1	0.62	2	0.16	<1	0.43	1
Midway Food Court Priority Junction (Site-15)								
Midway Access	0.22	<1	0.47	1	0.41	<1	0.67	3
N77 NB	0.29	<1	0.58	2	0.27	<1	0.59	2
N77/ Father Brown Avenue Roundabout (Site-6)								
N77 SB	0.36	<1	0.42	<1	0.57	2	0.64	2
Father Brown Ave. EB	0.21	<1	0.34	<1	0.36	<1	0.40	<1
N77 NB	0.64	2	0.70	3	0.38	<1	0.45	1
Father Brown Ave. WB	0.54	2	0.59	2	0.63	2	0.76	4
N77/ N80 Abbeyleix Roundabout (Site-7)								
N80 SB	0.49	1	0.51	1	0.41	<1	0.43	<1
N80 WB	0.59	2	0.64	2	0.79	4	0.80	4
N77 NB	0.60	2	0.65	2	0.59	2	0.66	2
Local Access Road	0.04	<1	0.04	<1	0.19	<1	0.20	<1
N80/ Market Square Roundabout (Site-8)								
N80 SB	0.74	3	0.80	5	0.76	3	0.80	4
Market Square WB	0.01	<1	0.01	<1	0.05	<1	0.05	<1
N80 NB	0.55	1	0.60	2	0.76	3	0.79	4
R445 EB	0.70	3	0.74	3	0.67	2	0.82	5
R445/ Tea Lane (Site-9)								
Tea Lane	0.20	<1	0.22	<1	0.62	0	0.21	<1
R445 WB	0.21	<1	0.21	<1	0.12	<1	0.00	<1
R445/ Rockview Roundabout (Site-10)								
Rockview SB	0.63	2	0.80	5	0.39	<1	0.44	1
R445 WB	0.36	<1	0.45	1	0.65	2	0.68	2
R445 EB	0.40	<1	0.46	1	0.40	<1	0.59	2
R445/ Rockale Roundabout (Site-11)								
Rockale SB	0.06	<1	0.07	<1	0.03	<1	0.03	<1
R445 WB	0.40	<1	0.55	2	0.50	1	0.54	1
Old Knockmay Road NB	0.08	<1	0.16	<1	0.34	<1	0.48	2
R445 EB	0.52	1	0.59	2	0.33	<1	0.52	2
R445/ IDA Business Park Priority Junction (Site-12)								
IDA Access (Left Turn)	0.01	<1	0.05	<1	0.03	<1	0.34	<1
IDA Access (Right Turn)	0.06	<1	0.18	<1	0.09	<1	0.57	2
R445 EB	0.02	<1	0.20	<1	0.00	<1	0.05	<1
Old Knockmay Rd. Priority Junction (main entrance), (Site-3)								
Old Knockmay Rd. NB (Left Turn)	0.11	<1	0.18	<1	0.15	<1	0.31	<1
Old Knockmay Rd. NB (Right Turn)	0.26	<1	0.34	<1	0.24	<1	0.39	<1
Old Knockmay Rd. WB	0.12	<1	0.24	<1	0.07	<1	0.09	<1

Note: Ratio of demand flow to capacity (RFC) = Demand /Capacity, Mean Max Queue (MMQ) in vehicles, Base Scenario – represents the re-distributed background traffic.

The 2033 year modelling exercise is based on the re-assignment of traffic will reduce traffic levels along sections of the N77, N80, R145 and Old Knockmay Road in Portlaoise Town as traffic diverts from these roads to the new Southern Orbital Route.

The modelling results shows that all the junctions within the study area are likely to perform within capacity with no significant increase in queuing with the addition of the masterplan related traffic.

The M7 Togher Interchange (Junction 17) continues to operate within capacity and can accommodate future growth in traffic.

The percentage increase in flows on the M7 Motorway with the proposed full development of the Masterplan is presented in **Table 6.18**.

Table 6.18: 2033 Percentage Increase in M7 Motorway Flows (2-way)

M7 Motorway Link	AM Peak		PM Peak	
	Base Scenario	Base + Masterplan	Base Scenario	Base + Masterplan
East of M7 Togher Interchange	3,264	3,350 (2.63%)	4,295	4,384 (2.06%)
West of M7 Togher Interchange	4,295	4,068 (2.88%)	4,216	4,333 (2.77%)

The link analysis shows that with the full built out of proposed masterplan, the increase in flows along the M7 Motorway is less than 3.0%.

6.2.3.1 2033 Scenario Sensitivity Test Scenario

A sensitivity test was carried out based on the mode splits presented in **Table 5.7**

Table 6.19 compares the junction's operational capacity results of the 'base plus masterplan' scenario with the 'with' and 'without' higher car mode share.

Table 6.19: 2033 Junction Operational Capacity Results (higher car mode share)

Junctions	AM Peak				PM Peak			
	Without		With		Without		With	
	RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
M7 Togher Interchange (Site-1)								
N77 SB	0.42	<1	0.45	1	0.63	2	0.70	3
M7 WB Off Slip	0.41	<1	0.45	1	0.55	1	0.65	2
N77 NB	0.70	3	0.79	4	0.36	<1	0.39	<1
M7 EB Off Slip	0.61	2	0.80	4	0.17	<1	0.20	<1
Togher Road	0.62	2	0.59	2	0.43	1	0.59	2
Midway Food Court Priority Junction (Site-15)								
Midway Access	0.47	1	0.66	3	0.67	3	0.68	3
N77 NB	0.58	2	0.61	2	0.59	2	0.60	2
N77/ Father Brown Avenue Roundabout (Site-6)								
N77 SB	0.42	<1	0.45	1	0.64	2	0.71	3
Father Brown Ave. EB	0.34	<1	0.46	1	0.40	<1	0.43	<1
N77 NB	0.70	3	0.73	3	0.45	1	0.50	1
Father Brown Ave. WB	0.59	2	0.59	2	0.76	4	0.89	8
N77/ N80 Abbeyleix Roundabout (Site-7)								
N80 SB	0.51	1	0.52	1	0.43	<1	0.45	<1
N80 WB	0.64	2	0.68	2	0.80	4	0.81	5
N77 NB	0.65	2	0.66	2	0.66	2	0.71	3
Local Access Road	0.04	<1	0.04	<1	0.20	<1	0.21	<1
N80/ Market Square Roundabout (Site-8)								
N80 SB	0.80	5	0.84	6	0.80	4	0.83	5
Market Square WB	0.01	<1	0.01	<1	0.05	<1	0.05	<1
N80 NB	0.60	2	0.63	2	0.79	4	0.80	4
R445 EB	0.74	3	0.74	3	0.82	5	0.96	14
R445/ Tea Lane (Site-9)								
Tea Lane	0.22	<1	0.23	<1	0.21	<1	0.30	<1
R445 WB	0.21	<1	0.22	<1	0.00	<1	0.00	<1
R445/ Rockview Roundabout (Site-10)								
Rockview SB	0.80	5	0.93	11	0.44	1	0.50	1
R445 WB	0.45	1	0.54	2	0.68	2	0.70	3
R445 EB	0.46	1	0.46	1	0.59	2	0.76	4
R445/ Rockale Roundabout (Site-11)								
Rockale SB	0.07	<1	0.07	<1	0.03	<1	0.04	<1
R445 WB	0.55	2	0.67	3	0.54	1	0.58	2
Old Knockmay Road NB	0.16	<1	0.20	<1	0.48	2	0.60	2
R445 EB	0.59	2	0.61	2	0.52	2	0.70	3
R445/ IDA Business Park Priority Junction (Site-12)								
IDA Access (Left Turn)	0.05	<1	0.05	<1	0.34	<1	1.17	21
IDA Access (Right Turn)	0.18	<1	0.21	<1	0.57	2	1.17	32
R445 EB	0.20	<1	0.37	1	0.05	<1	0.09	<1
Old Knockmay Rd. Priority Junction (main entrance), (Site-3)								
Old Knockmay Rd. NB (Left Turn)	0.18	<1	0.18	<1	0.31	<1	0.49	1
Old Knockmay Rd. NB (Right Turn)	0.34	<1	0.36	<1	0.39	<1	0.55	2
Old Knockmay Rd. WB	0.24	<1	0.36	<1	0.09	<1	0.12	<1

Note: Ratio of demand flow to capacity (RFC) = Demand /Capacity, Mean Max Queue (MMQ) in vehicles, Base Scenario – represents the re-distributed background traffic.

The 2033 year sensitivity analysis demonstrates that considering the higher car mode share than the target set for the year 2033, there is likely to be some impact at the junctions in the study area with an increase of only 4-6 vehicles in queuing expect at the R445/ IDA Business Park junction which has a noticeable impact in terms of queuing.

The significant increase in queuing on the R445/ IDA Business Park junction relates to the proposed office development in Zone 2 of the Masterplan, where car based trips increase considering higher car mode share. This projected increase in car trips will have an adverse effect on the operational performance of the R445/ IDA Business Park priority junction in the PM peak.

The percentage increase on the M7 Motorway considering higher car mode share is presented in **Table 6.20**.

Table 6.20: 2033 Percentage Increase in M7 Motorway Flows (2-way)

M7 Motorway Link	AM Peak		PM Peak	
	Base Scenario	Base + Masterplan	Base Scenario	Base + Masterplan
East of M7 Togher Interchange	3,264	3,400 (4.15%)	4,295	4,460 (3.83%)
West of M7 Togher Interchange	4,295	4,491 (4.56%)	4,216	4,433 (5.14%)

The motorway link analysis shows that considering the higher car mode share for the year 2023, the maximum increase in flows along the M7 Motorway is around 5.0%.

7 Summary and Findings

As part of the Transport Assessment, the following are the key findings with regard to the impact of the Togher Masterplan development for the future years 2023 and 2033 will have on the M7 Togher Interchange and other key local junctions in Portlaoise Town.

7.1 2018 Assessment

The traffic modelling results show that currently there is some residual capacity in the local road network to accommodate additional traffic flows associated with the proposed masterplan. However, the Town Centre roundabouts i.e. the N77/ N80 Abbeyleix Roundabout and the N80/ Market Square Roundabout are operating at capacity during the morning and evening peak periods.

7.2 2023 Assessment

The 2023 year assessment is based on the delivery of the Southern Circular Route plus growth in background traffic. With the re-distribution of traffic, the N77/ N80 Abbeyleix Roundabout experiences an overall decrease in junction traffic flows by around 10% (both during the AM and PM peak).

The junction modelling exercise shows that there will be no significant increase in the queuing in the road network with proposed scale of Masterplan development for the year 2023.

The appropriate scale of development that can be accommodated is approximately 82,000m^2 with a mix of Logistics and Manufacturing and Transport/Utilities/ Distribution.

A sensitivity test with a higher mode share compared to the targets set for 2023 was carried out. The modelling results demonstrate that there is likely to be a minimum impact on the junctions in the study area with a maximum increase of 1-2 vehicles in queuing at the junctions.

7.3 2033 Assessment

For Year 2033, the junctions along the N77 in the Town Centre are likely to be over capacity with further queuing with an increase in growth of traffic. Therefore, before any further masterplan development can take place, it is essential to alleviate the Town Centre junctions from the anticipated increase in traffic flows.

The full delivery of the proposed Togher Masterplan is subject to the delivery of the Portlaoise Southern Orbital Route will be constructed and operational by 2033.

In addition, it is assumed that the Portlaoise Southern Orbital Route will directly connect the N80 north of R445. This orbital route is likely to have a significant reduction in forecasted traffic flows by around 21% to 23% at the N77/ N80 Abbeyleix Roundabout

and around 23%-26% at the N80/ Market Square Roundabout during the morning and evening peak hours and perform better than the 2023 assessment year in terms of operational capacity.

The junction modelling exercise shows that there will be no significant increase in queuing with the full delivery of the proposed Togher Masterplan related traffic for the year 2033 and will result in additional queuing of around 2-3 vehicles.

The appropriate scale of development that can be accommodated is approximately 250,320 m2 of mix of Logistics and Manufacturing and Transport/Utilities/Distribution, Industrial Estate, Office & R&D including Park and Ride.

A sensitivity test with a higher mode share compared to the targets set for 2033 was carried out and the modelling results show there is likely to be some impact at junctions along the R445, particularly the R445/ IDA Business Park junction in the PM peak.

The modelling exercise concludes that for the full delivery of the Togher Masterplan, the M7 Togher Interchange will have capacity to accommodate the future growth in the traffic flows beyond 2033.

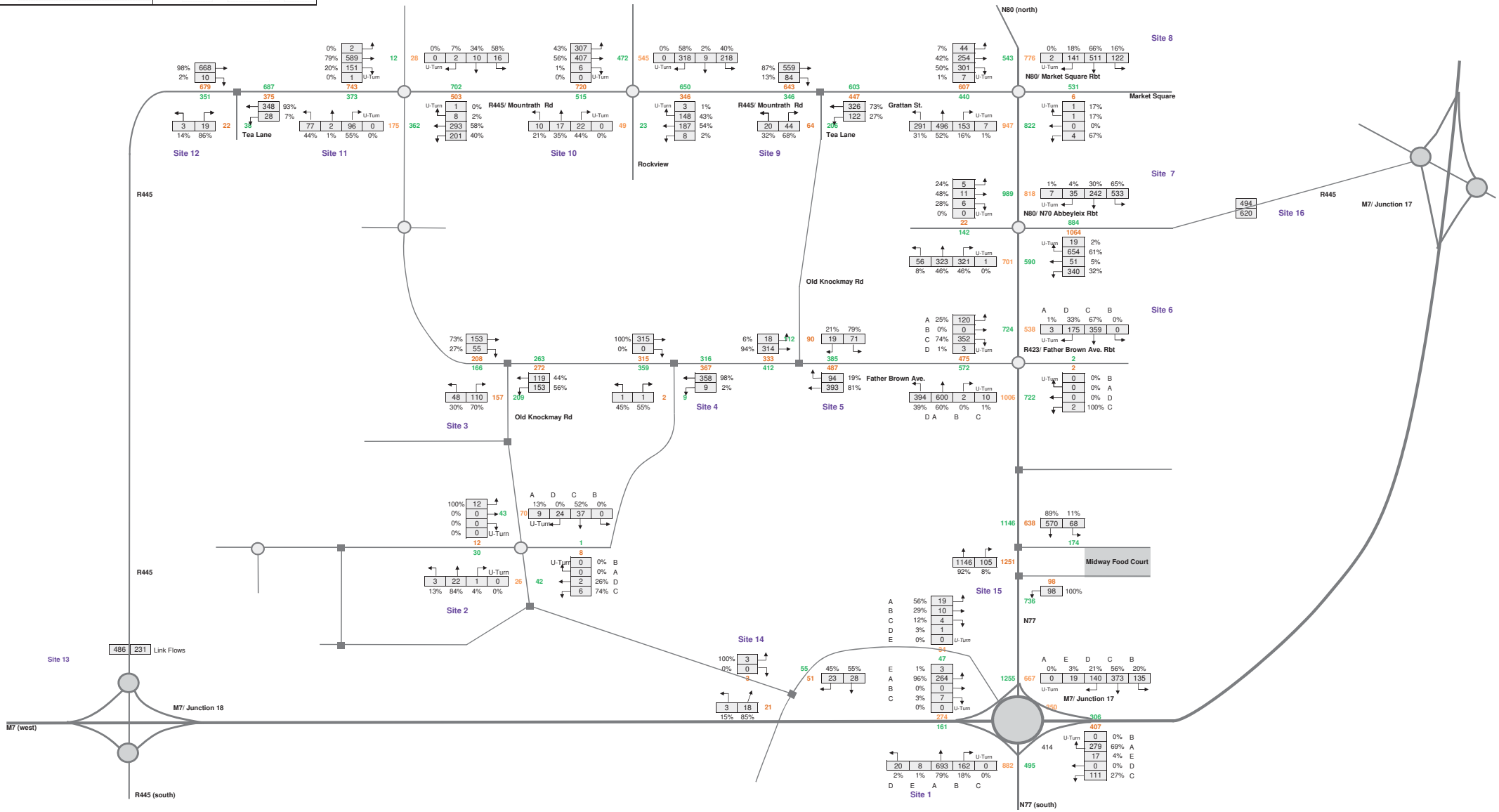
Laois County Council
Togher Masterplan
Togher Masterplan Transport Assessment

Appendix A

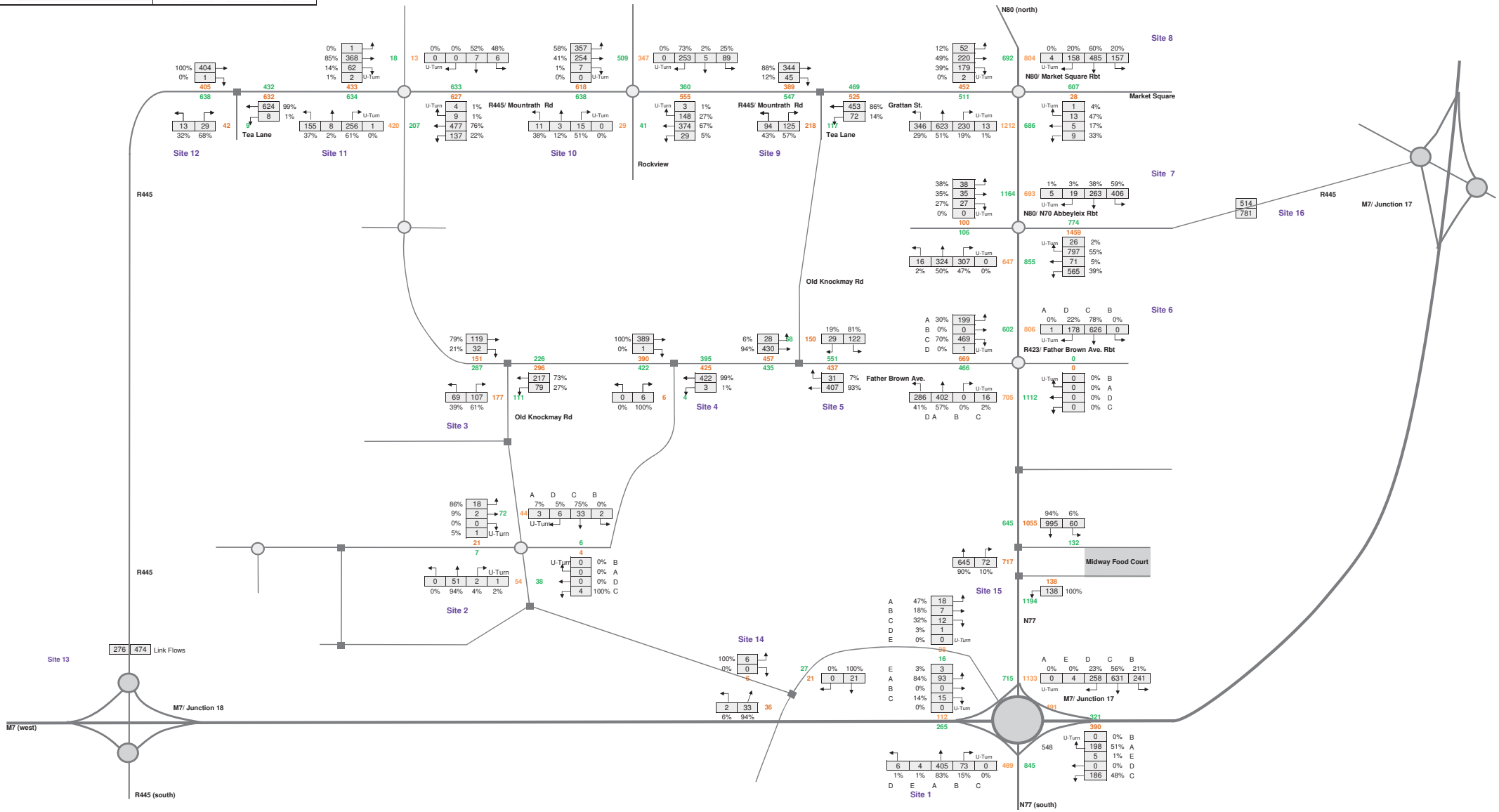
2018 Existing Network Traffic Flows AM & PM Peak

A1

ARUP	Job No. 261556	Sheet No.	Rev.
	Member/Location		
Job Title: Togher Masterplaning	Drg. Ref.		
Calculation: 2018 Flows AM Peak (08:15-09:15)	Made by: MM/ RI	Date: 18/04/2018	Chd.: SG



ARUP	Job No.	Sheet No.	Rev.
	261556		
	Member/Location		
Job Title: Togher Masterplaning	Drg. Ref.		
Calculation: 2018 Flows PM Peak (16:45-17:45)	Made by: MM/ RI	Date: 18/04/2018	Chd.: SG



Appendix B

Trip Generation Sheets

B1

TRIP RATE for Land Use 02 - EMPLOYMENT/G - PARCEL DISTRIBUTION CENTRES
Calculation Factor: 100 sqm Count
Type: TOTAL PEOPLE

	ARRIVALS			DEPARTURES			TOTALS			ARRIVALS	DEPARTURES
Time Rang	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	Trip Rate	Trip Rate
00:00-00:30											
00:30-01:00											
01:00-01:30											
01:30-02:00											
02:00-02:30											
02:30-03:00											
03:00-03:30											
03:30-04:00											
04:00-04:30											
04:30-05:00											
05:00-05:3	1	6482	0.015	1	6482	0.123	1	6482	0.138		
05:30-06:0	1	6482	0.031	1	6482	0.031	1	6482	0.062		
06:00-06:3	1	6482	0.046	1	6482	0.046	1	6482	0.092		
06:30-07:0	1	6482	0.093	1	6482	0.093	1	6482	0.186		
07:00-07:3	1	6482	0.062	1	6482	0.077	1	6482	0.139		
07:30-08:0	1	6482	0.185	1	6482	0.077	1	6482	0.262		
08:00-08:3	1	6482	0.154	1	6482	0	1	6482	0.154	08:00-09:00	0.432	0.077
08:30-09:0	1	6482	0.278	1	6482	0.077	1	6482	0.355	09:00-10:00	0.493	0.154
09:00-09:3	1	6482	0.339	1	6482	0.077	1	6482	0.416			
09:30-10:0	1	6482	0.154	1	6482	0.077	1	6482	0.231			
10:00-10:3	1	6482	0.062	1	6482	0.015	1	6482	0.077			
10:30-11:0	1	6482	0.031	1	6482	0.031	1	6482	0.062			
11:00-11:3	1	6482	0.062	1	6482	0.062	1	6482	0.124			
11:30-12:0	1	6482	0.015	1	6482	0.015	1	6482	0.03			
12:00-12:3	1	6482	0.093	1	6482	0.123	1	6482	0.216			
12:30-13:0	1	6482	0.062	1	6482	0.417	1	6482	0.479			
13:00-13:3	1	6482	0.17	1	6482	0.17	1	6482	0.34			
13:30-14:0	1	6482	0.185	1	6482	0.108	1	6482	0.293			
14:00-14:3	1	6482	0.139	1	6482	0.062	1	6482	0.201			
14:30-15:0	1	6482	0.139	1	6482	0.046	1	6482	0.185			
15:00-15:3	1	6482	0.046	1	6482	0.093	1	6482	0.139			
15:30-16:0	1	6482	0.17	1	6482	0.093	1	6482	0.263			
16:00-16:3	1	6482	0.031	1	6482	0.108	1	6482	0.139	16:00-17:00	0.031	0.247
16:30-17:0	1	6482	0	1	6482	0.139	1	6482	0.139	17:00-18:00	0.17	0.633
17:00-17:3	1	6482	0.108	1	6482	0.309	1	6482	0.417			
17:30-18:0	1	6482	0.062	1	6482	0.324	1	6482	0.386			
18:00-18:3	1	6482	0.031	1	6482	0.123	1	6482	0.154			
18:30-19:0	1	6482	0.093	1	6482	0.062	1	6482	0.155			
19:00-19:3	1	6482	0.216	1	6482	0.031	1	6482	0.247			
19:30-20:0	1	6482	0.617	1	6482	0.062	1	6482	0.679			
20:00-20:3	1	6482	0.062	1	6482	0.015	1	6482	0.077			
20:30-21:0	1	6482	0.108	1	6482	0.077	1	6482	0.185			
21:00-21:3	1	6482	0.123	1	6482	0.046	1	6482	0.169			
21:30-22:0	1	6482	0.031	1	6482	0.062	1	6482	0.093			
22:00-22:3	1	6482	0	1	6482	0	1	6482	0			
22:30-23:00											
23:00-23:30											
23:30-24:00											
Daily Trip Rates:			4.013			3.271			7.284		

TRICS 7.5.1
Trip Rate P Gross floor area

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Calculation Factor: 100 sqm Count
Type: TOTAL PEOPLE

	ARRIVALS			DEPARTURES			TOTALS			ARRIVALS	DEPARTURES
Time Rang	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	Trip Rate	Trip Rate
00:00-00:30											
00:30-01:00											
01:00-01:30											
01:30-02:00											
02:00-02:30											
02:30-03:00											
03:00-03:30											
03:30-04:00											
04:00-04:30											
04:30-05:00											
05:00-05:30											
05:30-06:00											
06:00-06:30											
06:30-07:00											
07:00-07:3	1	11548	0.139	1	11548	0.052	1	11548	0.191		
07:30-08:0	1	11548	0.035	1	11548	0.035	1	11548	0.07		
08:00-08:3	1	11548	0.286	1	11548	0.078	1	11548	0.364	08:00-09:00	0.468	0.121
08:30-09:0	1	11548	0.182	1	11548	0.043	1	11548	0.225	09:00-10:00	0.277	0.173
09:00-09:3	1	11548	0.104	1	11548	0.052	1	11548	0.156			
09:30-10:0	1	11548	0.173	1	11548	0.121	1	11548	0.294			
10:00-10:3	1	11548	0.069	1	11548	0.026	1	11548	0.095			
10:30-11:0	1	11548	0.061	1	11548	0.052	1	11548	0.113			
11:00-11:3	1	11548	0.078	1	11548	0.095	1	11548	0.173			
11:30-12:0	1	11548	0.078	1	11548	0.087	1	11548	0.165			
12:00-12:3	1	11548	0.061	1	11548	0.121	1	11548	0.182			
12:30-13:0	1	11548	0.087	1	11548	0.078	1	11548	0.165			
13:00-13:3	1	11548	0.061	1	11548	0.043	1	11548	0.104			
13:30-14:0	1	11548	0.121	1	11548	0.095	1	11548	0.216			
14:00-14:3	1	11548	0.147	1	11548	0.113	1	11548	0.26			
14:30-15:0	1	11548	0.13	1	11548	0.121	1	11548	0.251			
15:00-15:3	1	11548	0.087	1	11548	0.113	1	11548	0.2			
15:30-16:0	1	11548	0.104	1	11548	0.087	1	11548	0.191			
16:00-16:3	1	11548	0.078	1	11548	0.156	1	11548	0.234	16:00-17:00	0.13	0.295
16:30-17:0	1	11548	0.052	1	11548	0.139	1	11548	0.191	17:00-18:00	0.13	0.459
17:00-17:3	1	11548	0.061	1	11548	0.199	1	11548	0.26			
17:30-18:0	1	11548	0.069	1	11548	0.26	1	11548	0.329			
18:00-18:3	1	11548	0.061	1	11548	0.069	1	11548	0.13			
18:30-19:0	1	11548	0	1	11548	0.026	1	11548	0.026			
19:00-19:30											
19:30-20:00											
20:00-20:30											
20:30-21:00											
21:00-21:30											
21:30-22:00											
22:00-22:30											
22:30-23:00											
23:00-23:30											
23:30-24:00											
Daily Trip Rates:			2.324			2.261			4.585		

TRICS 7.5.1
Trip Rate P Gross floor area

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT
Calculation Factor: 100 sqm Count
Type: TOTAL PEOPLE

	ARRIVALS			DEPARTURES			TOTALS			ARRIVALS	DEPARTURES
Time Rang	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	Trip Rate	Trip Rate
00:00-00:30											
00:30-01:00											
01:00-01:30											
01:30-02:00											
02:00-02:30											
02:30-03:00											
03:00-03:30											
03:30-04:00											
04:00-04:30											
04:30-05:00											
05:00-05:30											
05:30-06:00											
06:00-06:30											
06:30-07:00											
07:00-07:3	3	2444	0.055	3	2444	0.014	3	2444	0.069		
07:30-08:0	3	2444	0.259	3	2444	0	3	2444	0.259		
08:00-08:3	3	2444	0.259	3	2444	0	3	2444	0.259	08:00-09:00	0.409	0.082
08:30-09:0	3	2444	0.15	3	2444	0.082	3	2444	0.232	09:00-10:00	0.164	0.137
09:00-09:3	3	2444	0.109	3	2444	0.055	3	2444	0.164			
09:30-10:0	3	2444	0.055	3	2444	0.082	3	2444	0.137			
10:00-10:3	3	2444	0	3	2444	0	3	2444	0			
10:30-11:0	3	2444	0	3	2444	0.041	3	2444	0.041			
11:00-11:3	3	2444	0.068	3	2444	0.055	3	2444	0.123			
11:30-12:0	3	2444	0.014	3	2444	0.095	3	2444	0.109			
12:00-12:3	3	2444	0.095	3	2444	0.068	3	2444	0.163			
12:30-13:0	3	2444	0.014	3	2444	0.068	3	2444	0.082			
13:00-13:3	3	2444	0.082	3	2444	0.164	3	2444	0.246			
13:30-14:0	3	2444	0.123	3	2444	0.055	3	2444	0.178			
14:00-14:3	3	2444	0.109	3	2444	0.041	3	2444	0.15			
14:30-15:0	3	2444	0.041	3	2444	0.055	3	2444	0.096			
15:00-15:3	3	2444	0.014	3	2444	0.041	3	2444	0.055			
15:30-16:0	3	2444	0	3	2444	0.041	3	2444	0.041			
16:00-16:3	3	2444	0.055	3	2444	0.095	3	2444	0.15	16:00-17:00	0.11	0.109
16:30-17:0	3	2444	0.055	3	2444	0.014	3	2444	0.069	17:00-18:00	0.055	0.491
17:00-17:3	3	2444	0.041	3	2444	0.232	3	2444	0.273			
17:30-18:0	3	2444	0.014	3	2444	0.259	3	2444	0.273			
18:00-18:3	3	2444	0	3	2444	0.041	3	2444	0.041			
18:30-19:0	3	2444	0	3	2444	0	3	2444	0			
19:00-19:30											
19:30-20:00											
20:00-20:30											
20:30-21:00											
21:00-21:30											
21:30-22:00											
22:00-22:30											
22:30-23:00											
23:00-23:30											
23:30-24:00											
Daily Trip Rates:			1.612			1.598			3.21		

TRICS 7.5.1
Trip Rate P Gross floor area

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
Calculation Factor: 100 sqm Count
Type: TOTAL PEOPLE

	ARRIVALS			DEPARTURES			TOTALS			ARRIVALS	DEPARTURES
Time Rang	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	Trip Rate	Trip Rate
00:00-00:30											
00:30-01:00											
01:00-01:30											
01:30-02:00											
02:00-02:30											
02:30-03:00											
03:00-03:30											
03:30-04:00											
04:00-04:30											
04:30-05:00											
05:00-05:30											
05:30-06:00											
06:00-06:30											
06:30-07:00											
07:00-07:3	3	11476	0.119	3	11476	0.017	3	11476	0.136		
07:30-08:0	3	11476	0.293	3	11476	0.046	3	11476	0.339		
08:00-08:3	3	11476	0.462	3	11476	0.052	3	11476	0.514	08:00-09:00	1.47	0.189
08:30-09:0	3	11476	1.008	3	11476	0.137	3	11476	1.145	09:00-10:00	1.676	0.404
09:00-09:3	3	11476	1.153	3	11476	0.241	3	11476	1.394			
09:30-10:0	3	11476	0.523	3	11476	0.163	3	11476	0.686			
10:00-10:3	3	11476	0.311	3	11476	0.148	3	11476	0.459			
10:30-11:0	3	11476	0.174	3	11476	0.116	3	11476	0.29			
11:00-11:3	3	11476	0.168	3	11476	0.073	3	11476	0.241			
11:30-12:0	3	11476	0.224	3	11476	0.212	3	11476	0.436			
12:00-12:3	3	11476	0.16	3	11476	0.52	3	11476	0.68			
12:30-13:0	3	11476	0.616	3	11476	0.581	3	11476	1.197			
13:00-13:3	3	11476	0.555	3	11476	0.625	3	11476	1.18			
13:30-14:0	3	11476	0.639	3	11476	0.232	3	11476	0.871			
14:00-14:3	3	11476	0.247	3	11476	0.157	3	11476	0.404			
14:30-15:0	3	11476	0.139	3	11476	0.134	3	11476	0.273			
15:00-15:3	3	11476	0.113	3	11476	0.151	3	11476	0.264			
15:30-16:0	3	11476	0.139	3	11476	0.093	3	11476	0.232			
16:00-16:3	3	11476	0.227	3	11476	0.293	3	11476	0.52	16:00-17:00	0.393	0.909
16:30-17:0	3	11476	0.166	3	11476	0.616	3	11476	0.782	17:00-18:00	0.34	1.795
17:00-17:3	3	11476	0.154	3	11476	1.031	3	11476	1.185			
17:30-18:0	3	11476	0.186	3	11476	0.764	3	11476	0.95			
18:00-18:3	3	11476	0.07	3	11476	0.322	3	11476	0.392			
18:30-19:0	3	11476	0.046	3	11476	0.203	3	11476	0.249			
19:00-19:3	1	4326	0.023	1	4326	0.092	1	4326	0.115			
19:30-20:0	1	4326	0.069	1	4326	0.069	1	4326	0.138			
20:00-20:3	1	4326	0.092	1	4326	0.116	1	4326	0.208			
20:30-21:0	1	4326	0.046	1	4326	0.092	1	4326	0.138			
21:00-21:3	1	4326	0.069	1	4326	0.647	1	4326	0.716			
21:30-22:0	1	4326	0	1	4326	0.925	1	4326	0.925			
22:00-22:3	1	4326	0	1	4326	0.069	1	4326	0.069			
22:30-23:00											
23:00-23:30											
23:30-24:00											
Daily Trip Rates:			8.191			8.937			17.128		