



# **ESSENTIAL AGGREGATES**

An Evidence-Based Assessment to Inform Ireland's Planning Policy





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# **EXECUTIVE SUMMARY**

RPS was appointed by the Irish Concrete Federation (ICF) to examine current replenishment rates of authorised aggregate reserves in Ireland, to determine the current timeframes for planning decisions and to make recommendations on appropriate measures within the planning system. This report presents the findings of the study along with the key recommendations to facilitate the long-term sustainable supply of essential aggregate materials within the State in order to deliver on housing and infrastructure needs.

#### Aggregate Demand – Key Findings

The successful delivery of national strategic plans such as 'Project Ireland 2040' and 'Housing for All' is highly dependent on a reliable supply of high-quality aggregates.

Ireland will need approximately one billion tonnes of aggregates to satisfy demand out to 2040.

#### **Aggregate Supply – Key Findings**

Over the past eight years (2017-2024) the 'replenishment' of aggregate reserves has been running behind annual consumption. On average, only 61% of the annual consumption has been replenished by means of new planning authorisations.

At current levels of land area authorisation, the replenishment rate of authorised aggregates will fall to 52% over the 2025 – 2040 period as demand for aggregates increases due to Ireland's growing population.

Planning permission has been refused for over half the volume (56%) of aggregate extraction for which authorisation was sought over the 2017 – 2024 period within the Greater Dublin Area (Dublin, Kildare, Meath and Wicklow).

At current levels of land area authorisation, the replenishment rate of authorised aggregates will be 24% over the 2025 – 2040 period in the Greater Dublin Area.

#### Planning Efficiency – Key Findings

From 2017-2024, the average total decision-making time for quarry planning applications which were appealed to An Bord Pleanála was 91 weeks (almost 23 months). By 2023, decision making timeframes for these cases had increased to 146 weeks.

#### **Recommendation 1**

There is an urgent need for a National Policy Statement by the Irish Government to facilitate the long-term sustainable supply of essential aggregate materials. The Policy Statement should explicitly recognise that:

- Aggregate materials (stone, sand and gravel) are a strategic national resource, essential for the future development of Ireland and fundamental to meeting societal needs.
- The targets and objectives of 'Housing for All', 'Project Ireland 2040' and the 'Climate Action Plan' will require an adequate and steady supply of aggregates over the long term.
- Access to aggregates is essential to reducing construction costs and transport carbon emissions.
- A proactive national approach to safeguarding access to aggregate reserves is required.
- The planning system needs to ensure that the replenishment rate of authorised aggregate reserves is sufficient to provide a stable supply of aggregates of the required quality.

This Policy Statement should be further implemented in regional and local planning policies to provide planning authorities and An Bord Pleanála (soon to be An Coimisiún Pleanála) with a clear government position on consenting sustainable development of long-term aggregate supply.

#### **Recommendation 2**

Additional resources should be provided to the planning authorities and An Bord Pleanála (soon to be An Coimisiún Pleanála) for training and education specifically related to the extraction of aggregates in order to assist timely and informed determinations on planning applications for aggregate supply. This will contribute to greater planning efficiency, consistency in assessment and decision-making and environmental protection.

The Irish Concrete Federation (ICF) will collaborate with the Office of the Planning Regulator, the Irish Planning Institute and other planning stakeholders in devising and implementing appropriate training and upskilling.

# 1 INTRODUCTION

Ireland has natural reserves of high-quality aggregates (stone, sand and gravel). These aggregates are the essential raw materials from which Ireland's future infrastructure will be built, including homes, offices, schools, hospitals and transport network.

RPS was appointed by the Irish Concrete Federation (ICF) to examine current replenishment rates of authorised aggregate reserves in Ireland, to determine the current timeframes for planning decisions for aggregate extraction and to make recommendations on appropriate policy framework measures.

In order to determine current replenishment rates of authorised aggregate reserves and planning decision timeframes, RPS carried out a detailed analysis of 217 quarry planning cases over the period 2017 to 2024.

This report is delivered under the following four pillars, each of which have been considered in the recommendations presented:

- Interdependency of Future Development and Aggregate Availability highlights the reliance of the State's future public infrastructure development on the sustainable supply of authorised aggregates.
- **Diminishing Strategic Reserves of Aggregates** examines the rate of replenishment of authorised aggregate reserves in Ireland based on planning system outcomes over an eight-year period.
- Geographical Pressures of Aggregate Supply focuses on the rate of replenishment of authorised
  aggregate reserves by the planning system in the Greater Dublin Area (Dublin, Wicklow, Kildare, Meath).
- **Planning System Efficiency** assesses the decision-making timeframes for local authorities and An Bord Pleanála (ABP) for quarry planning cases.

Each pillar was explored using available information from public databases as far as possible and drawing on information from the aggregates and concrete sector (ICF membership) where necessary. The research was carried out between September 2022 and February 2025.



## 2 INTERDEPENDENCY OF FUTURE DEVELOPMENT AND AGGREGATE AVAILABILITY

This pillar illustrates the extent to which the successful delivery of national strategic programmes relies on a sustainable supply of aggregates.



## 2.1 'Project Ireland 2040'

'Project Ireland 2040' is the government's long-term overarching strategy to make Ireland a better country for all and to build a more resilient and sustainable future (**Figure 2-1**). The strategy ensures the alignment of investment plans with the government's stated national strategic objectives for 2040 in a considered, cohesive and defined manner.

The National Planning Framework (NPF) and the National Development Plan (NDP) 2021-2030 combine to form 'Project Ireland 2040'. The NPF sets the vision and strategy for the development of our country to 2040 and the NDP provides the enabling investment to implement that strategy.



#### Figure 2-1: Project Ireland 2040

Ireland's growing population will require hundreds of thousands of new jobs, new homes, new cultural and social amenities, enhanced regional connectivity and improved environmental sustainability.

The achievement of the objectives of *'Project Ireland 2040'* will necessitate access to significant reserves of aggregates over the lifetime of the plan. It is not an exaggeration to state that many of the investment priorities within *'Project Ireland 2040'*, some of which are illustrated in **Figure 2-2**, will not be realised without a reliable supply of aggregates and aggregate based materials.



Figure 2-2: Selection of Sectors Dependent on Aggregates

The national demand for aggregates is currently estimated by ICF at approximately **60 million tonnes per annum** based on the current usage of aggregates in the production of ready mixed concrete, precast concrete and paving products as well as the use of aggregates as end-products themselves.

**Figure 2-3** shows how aggregates are used within the EU, with unbound aggregates (40%) and the manufacture of ready mix concrete (24%) and precast concrete (15%) the most common end uses.



Figure 2-3: EU Average Aggregate Intermediate Use

#### (Source: UEPG: Aggregates Europe)

In 2019, ICF estimated that 'Project Ireland 2040' would necessitate the production of approximately **1.5 billion tonnes** of aggregates over the 2020 - 2040 period.

**Table 2-1** lists some of the major projects included within 'Project Ireland 2040' across a variety of sectors and regions. For each project, an estimated requirement for aggregates has been calculated using the median cost value and a UK 'standard material intensity factor'<sup>1.</sup> This is defined as the average volume of

<sup>&</sup>lt;sup>1</sup> Long-term aggregates demand & supply scenarios, 2016-30, MPA

aggregate material used per €1,000 spent in construction. The total aggregate requirement estimated in **Table 2-1** at circa 20 million tonnes is representative only of the selection of projects presented.

Table 2-1: Pr	oject Ireland	2040 - Major	<b>Public Sector</b>	Projects	Examples

Project	Cost Range	Required Aggregates (tonnes)	Location	Sector
Cork City Docklands	€500m-€1billion	1,125,000	Cork City	Housing
Expansion and Upgrading of the Tyndall National Institute	€250m-€500m	487,500	Cork County	Education
UCD Future Campus Phase 1	€100m-€250m	262,500	Dun Laoghaire Rathdown	Education
North Runway Project at Dublin Airport	€250m-€500m	487,500	Fingal	Transport
Galway City Ring Road	€500m-€1billion	1,125,000	Galway City	Transport
Luas Cross City	€250m-€500m	487,500	Dublin City	Transport
MetroLink	€1 billion+	1,500,000	Dublin City	Transport
M20 Cork to Limerick	€1 billion+	1,500,000	Limerick	Transport
N5 Ballaghaderreen to Scramoge	€250m-€500m	487,500	Roscommon	Transport
N5 Westport to Turlough	€100m-€250m	262,500	Мауо	Transport
N56 Dungloe to Glenties	€100m-€250m	262,500	Donegal	Transport
PPP: M11 Gorey-Enniscorthy Motorway (Construction)	€500m-€1billion	1,125,000	Wexford	Transport
PPP: N17/N18 Gort-Tuam (Construction)	€1 billion+	1,500,000	Galway	Transport
Sligo Hospital Redevelopment Phase 1	€100m-€250m	262,500	Sligo	Medical
Cluden to Brighouse Bay Pipeline Project (Twinning)	€100m-€250m	262,500	National	Energy
Greater Dublin Drainage	€500m-€1billion	1,125,000	Dublin	Drainage
Lower Lee (Cork City) Flood Relief Scheme	€100m-€250m	262,500	Cork City	Drainage
Arklow Sewerage Scheme Wastewater Treatment Plant	€100m-€250m	262,500	Wicklow	Water
Athlone Sewerage Scheme	€100m-€250m	262,500	Westmeath	Water
Ringsend Wastewater Treatment Plant Project	€500m-€1billion	1,125,000	Dublin City	Water
Vartry Water Supply Scheme	€100m-€250m	262,500	Wicklow	Water
Water Supply Project - Eastern and Midlands Region	€1 billion+	1,500,000	EMR	Water
Dublin Port Masterplan 2040	€1 billion+	1,500,000	Dublin City	Industry
DART +	€1 billion+	1,500,000	Dublin	Transport
MetroLink	€1 billion+	1,500,000	Dublin	Transport
Total		20,400,000		

#### **Essential Aggregates**

**Figure 2-4** illustrates the quantity and distribution of major projects (>€20 million) across the country under 'Project Ireland 2040' according to the NDP Investment Projects and Programmes Tracker (Department of Public Expenditure, NDP Delivery and Reform).

In essence, national and regional investment priorities outlined within 'Project Ireland 2040' illustrates the strategic need for sustainable supplies of locally produced aggregates throughout the country.



Figure 2-4: 'Project Ireland 2040' - Number of Projects by Region

## 2.2 'Housing for All'

The government's '*Housing for All*' plan is a commitment to resolve Ireland's housing shortage by clearly setting out how the State plans to address the serious short, medium and long-term challenges ahead. The overall aim of the '*Housing for All*' plan is that:

'Everyone in the State should have access to a home to purchase or rent at an affordable price, built to a high standard and in the right place, offering a high quality of life.'

Increasing new housing supply is one of the key pathways to achieving the objectives of '*Housing for All*' and **Figure 2-5** provides an overview of the planned outputs. ICF estimates that a typical new 3-bed semidetached home requires approximately 300 tonnes of aggregates for the construction of foundations, floors, walls, window sills, lintels, roof tiles and footpaths with larger houses requiring substantially more. This highlights the dependence of the achievement of '*Housing for All*' commitments on a reliable supply of quality aggregates.



Figure 2-5: 'Housing for All' Plan Overview

## 2.3 Ireland's Climate Action Plans

Similar to other sectors, the aggregates manufacturing sector will need to reduce the carbon intensity of the construction materials it supplies to the marketplace in the future. ICF is taking a leadership role and has developed a sustainability plan for the organisation, built around the three pillars of carbon, the circular economy and biodiversity.

The Climate Action Plans have identified that Ireland will need to radically improve transport and energy systems and new housing supply to reduce national emissions, requiring significant investment in new and improved infrastructure, including public transport, renewable energy and low energy housing, all of which will not be possible without aggregates. **Figure 2-6** shows a typical concrete application to provide a secure

foundation for a wind turbine. A typical wind turbine base requires approximately 1,500 tonnes of aggregates.

Climate change will require adaptation to the challenges presented by extreme weather events and rising sea levels necessitating engineering solutions such as flood defences and coastal protection as well as increased resilience in the built environment, creating additional future demand for aggregates.



Figure 2-6: Typical Concrete Wind Turbine Foundation

## 2.4 Case Study Projects

The new National Children's Hospital project is the most significant capital investment project in the healthcare system undertaken in Ireland and is a core part of the State's transition to a new model of care for paediatric services. The design concept breaks with the institutional mould of traditional hospital designs to create an innovative environment – one that not only meets the highest clinical standards but is also uplifting, engaging and child and family-centred.

## New Children's Hospital



- The new children's hospital is the most significant single capital investment project in the healthcare system undertaken in Ireland.
- It will be equivalent in size to the Dundrum Town Centre, with an internal street the length of Grafton Street.
- It will be 7 storeys at its highest, comprising approx. 160,000m<sup>2</sup> with 1.6 hectares of outdoor areas & gardens.
- There will 6,150 rooms in total, including 380 individual inpatient rooms and 22 operating theatres and procedure rooms.

### Aggregate requirements

Estimated greater than 500,000 tonnes of aggregate\*

(\*based on industry estimate)

## **Dublin Port Masterplan**



- The Dublin Port Masterplan identified land uses and development projects on port lands which will allow the port to increase its capacity to 77.2 million gross tonnes by 2040.
- Construction of a new jetty for ferries up to 240m long.
- Consolidation of passenger terminal buildings.
- Widening, deepening, infilling and dredging of multiple berths.
- A 3.1km of new Greenway from Bond Road to Alexandra Road Extension.

Aggregate requirements

700,000 tonnes of aggregate\*

(\*estimate by RPS based on project scope)

## 2.5 Summary

The successful delivery of national strategic development plans such as *'Project Ireland 2040'* and *'Housing for All'* are highly dependent on a reliable supply of high-quality aggregates to support construction.

It is essential that:

- the importance of aggregates and aggregate based products to Ireland's future development is recognised by Government,
- that Ireland's strategic reserves of aggregates are identified and protected, and
- their application in the construction sector is enabled in a sustainable manner.

## 3 DIMINISHING STRATEGIC RESERVES OF AGGREGATES



Aggregates are a naturally occuring finite resource and can only be accessed where these resources occur. Given the widespread use of aggregates in the built environment, reserves will deplete over time.

The shortage of sand in particular has emerged as a major global challenge. In response to this, the 2022 United Nations Environment Programme (UNEP) 'Sand and Sustainability' report consolidates expertise in sand and sustainability from different sectors to bring attention to the impacts from the current state of extraction, use and (mis)management of sand resources. The report puts forward recommendations for actions to set the global sand agenda in addressing environmental sustainability needs.

This pillar examines the current rate of replenishment of authorised aggregate reserves nationally. The replenishment rate is the proportion of consumption of aggregates being authorised or 'replenished' by the planning system over a defined period.

### REPLENISHMENT RATE

Consumption of aggregates in a given year

versus

Volume of new aggregates authorised by the planning system in the same year

## 3.1 Population Growth and Aggregate Demand

The 'Census of Population 2022' reveals that Ireland's population now exceeds 5 million for the first time since 1851. There will be continued growth in the population to 2040 and beyond. Continued population growth will contribute to a need for greater investment in public infrastructure in areas such as housing, healthcare, education, energy and transport.

In its July 2024 report – '**Population projections, the flow of new households and structural housing demand',** the Economic and Social Research Institute (ESRI) stated that at a national level, the population is expected to increase to over 6 million people by 2040. The Central Statistics Office population figures from the 'Population and Labour Force Projections 2023 – 2057' were used within the report as it offers the most



up to date population figures for the 2040 period and these are shown in **Figure 3-1** showing the population reaching 7 million by 2057 (M1 scenario).

#### Figure 3-1: National Population Projections based on 2022 Census



Annual current consumption of aggregates in Ireland has been estimated by the ICF at 11 tonnes / person in 2024. This is marginally lower than the 12 tonnes / person reported in the 2019 publication '*Essential Aggregates, Providing for Ireland's Needs to 2040*'.

Ireland's consumption of aggregates in recent decades has been estimated at approximately twice the EU average level of consumption (refer **Figure 3-2**), due to several factors including Ireland's growing population, strong levels of economic growth, dispersed population and resulting extensive road network. In addition, demand for aggregates has been enhanced as Ireland 'catches up' with more mature European economies in the development of high-quality public infrastructure. Annual consumption of aggregates in Ireland is now estimated to be in the region of 60 million tonnes.

### Average Aggregate Consumption





## 3.2 Replenishment Rate of Authorised Aggregate Reserves

RPS examined a series of 217 quarry planning cases over the eight-year period 2017- 2024, covering the vast majority of cases nationally for which authorisation for new aggregate reserves was sought.

Of the 217 quarry planning cases analysed, only 14 (6.5%) were in greenfield areas. This low figure can be derived from the high frequency of extensions to existing quarries and sites with previously disturbed ground making up the significant majority of applications lodged.

The total aggregate reserve for which permission is being sought is not indicated in all planning applications. In these cases, the volume of aggregate in the planning application was calculated based on the site area for extraction and the average projected output for a typical planning application.

The average yield of aggregate per hectare for a quarry application was estimated at 281,504 tonnes (using data from 68 quarry cases examined, where both quarry area and yield (in tonnes) was stated). The average excavation area of a planning application was 8.5 hectares. This dataset includes a combination of rock quarries and sand and gravel pits. The majority of applications were for extensions of existing sites or deepening of the extraction area. A greenfield quarry or pit would be expected to yield a higher quantity of rock per hectare.

The aggregate reserve authorised by a grant of planning permission represents a 'replenishment' of authorised aggregate reserves.

**Figure 3-3** illustrates the annual rate of replenishment of authorised reserves for the 2017 to 2024 period. The results show that in each year except 2019, consumption outpaced replenishment facilitating a gradual diminishing of consented and regulated reserves. On average over the period, the rate of replenishment is circa 61% of consumption.







#### 'Section 37L' Quarry Planning Cases

Amendments to the Planning and Development Act in 2015 in relation to quarry developments provided for direct application for permission to An Bord Pleanála for future development on a quarry site that was subject to requirement for a substitute consent application. These 'Section 37L' cases were largely completed by 2019 and will not play a significant role in the future.

For the sake of completeness, **Figure 3-4** illustrates the annual replenishment of authorised aggregate reserves, including 'Section 37L' cases, which increased the rate of replenishment for the period 2017 – 2019 but will have no impact post 2019. With these cases included, the average replenishment rate over the period increases to 72% of consumption.





## 3.3 **Replenishment of Permitted Land Area Reserves.**

An alternative method of expressing the replenishment rate for aggregate reserves is by establishing the land area required to produce the volume of aggregates necessary to satisfy national demand over a period and comparing it to the land area authorised by the planning system over the same period. Table 3-1 shows that a continuation of the current level of authorisation of land area for extraction of aggregates will result in approximately half of the land required to meet the demand for aggregates being authorised by the planning system in the period to 2040. In effect, at current levels of land area authorisation, the replenishment rate of authorised aggregates will fall to 52% over the 2025 – 2040 period.

The projected gap of 48% (1,728 hectares) is illustrated in **Figure 3-5** – representing the projected shortfall in land area available if we are to maintain current levels of reserves.

Criteria	National
Projected population in 2040 (CSO)	6,048,300
Current aggregates consumption (tonnes per capita per year)	11
Projected total aggregates demand 2025-2040 (tonnes)	1,014,360,336
Average yield (tonnes aggregates / hectare)	281,504
Land area requirement (hectares)	3,603
Land area authorised by 2040 based on current authorisation rates (hectares)	1,876
Projected Replenishment Rate to 2040	52%

Table 3-1: Projected Replenishment	Rate of Authorised Aggregate Reser	ves Nationally (2025-2040)
		()



#### Figure 3-5: Impact of Replenishment Rate on Aggregate Reserves to 2040

## 3.4 Summary

The key findings of the analysis on replenishment rates are as follows:

- Over the past eight years (2017-2024) the 'replenishment' of aggregate reserves has been running behind annual consumption.
- On average, only 61% of the annual consumption has been replenished by means of new planning authorisations. If this pattern continues, the authorised reserves of aggregate will diminish substantially.
- The majority of quarry planning applications have been for extensions of existing facilities (in area, in depth or in duration), and relatively few greenfield sites quarries have been permitted.
- Projecting current patterns forward in terms of land area, the replenishment rate of authorised aggregate reserves will fall to 52% over the 2025-2040 period. This equates to a depletion of 1,728 hectares of land authorised for aggregate extraction nationally.

## 4 GEOGRAPHICAL PRESSURES OF AGGREGATE SUPPLY – GREATER DUBLIN AREA



The highest demand for aggregates in the State is in the Greater Dublin Area (GDA). In this analysis, the GDA encompasses Dublin and the surrounding counties of Kildare, Meath and Wicklow. A more detailed review of the replenishment rate of aggregate reserves in this region is presented under this pillar.

## 4.1 Demand in Greater Dublin Area (GDA)

**Figure 4-1** illustrates the Central Statistics Office (CSO) projected population growth for the GDA. Population will grow to over 2.6 million people by 2040. This equates to a 12% increase on the 2024 population figures. This graph was developed by taking the ESRI 50:50 GDA figures and applying the percentage increase to the more up to date CSO Population and Labour Force Projections 2023 - 2057. This growth will drive the substantial need for the development of new housing and public infrastructure in the region over this period.



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#### Figure 4-1: Greater Dublin Area Population Projections

**Figure 4-2** illustrates a selection of large-scale public projects planned for the GDA under '*Project Ireland 2040*'. These projects are dependent on a supply of locally sourced aggregates for completion.



Figure 4-2: Project Ireland 2040 - Selection of GDA Projects

## 4.2 Aggregate Supply in the Greater Dublin Area (GDA)

The Geological Survey Ireland *Aggregate Potential Mapping* (APM) programme maps the aggregate potential across Ireland for both sand and gravel and crushed rock resources. **Figure 4-3** shows the aggregate potential for the GDA. Some of key findings from the mapping programme are as follows:

- There is high crushed rock potential in northeast County Wicklow and along the Wicklow and Kildare border, and at the northern extremity of County Meath; and
- There are areas of high sand and gravel potential in County Kildare, but in general there is limited sand and gravel aggregates potential in the GDA.

Planning for Ireland's future physical investment needs to reflect the reality that aggregates can only be accessed where present and are capable of achieving planning authorisation, compatible with the local environment.

Industry operators are already reporting the emergence of scarcities in sand and gravel aggregates in the eastern and midland regions of the country as existing reserves continue to be diminished. In the absence of a local source of aggregates, demand can only be met by transporting large volumes of product over longer distances with the obvious negative economic and environmental consequences.

#### **Essential Aggregates**



#### Figure 4-3: Greater Dublin Area Aggregate Potential

(Above: crushed rock, Below: sand and gravel) (Source: Geological Survey or Ireland)



## 4.3 Planning Decision Outcomes in the Greater Dublin Area (GDA)

Quarry development requires planning consent, both in the case of greenfield quarries and extensions to existing quarries and sand and gravel pits. All planning permission applications are decided either by the local planning authority, or in the event of an appeal, by An Bord Pleanála.

There were planning decisions reached on 28 aggregate planning permission applications in the GDA over the 2017-2024 period. Of the 28 cases, 10 were ultimately refused permission (36%).

**Figure 4-4** illustrates the refusal rate for quarry planning permission applications, expressed in terms of *potential volume of output*. In effect, planning permission has been refused for over half the volume (56%) of aggregate extraction for which authorisation was sought over the 2017 – 2024 period within the GDA. This compared to a refusal rate of 27% over the same period for quarry planning applications outside the GDA.

These figures indicate the difficulty of achieving a successful planning outcome for aggregates in the GDA. If these high rejection rates persist within the GDA, there will be a significant lack of aggregate reserve for the area to call upon locally. This will result in aggregate being transported from outside the GDA, resulting in increased costs and carbon emissions.



Figure 4-4: National and Greater Dublin Area Planning Refusal Rates (Based on Volume of Aggregate)

# 4.4 Projected Aggregate Reserves Replenishment Rate in Greater Dublin Area (GDA) to 2040.

Similar to **Section 3.3**, an exercise was carried out to illustrate the replenishment rate of aggregate reserves in the GDA in terms of land area requirements, based on current levels of authorisation and these results are shown in **Table 4-1**.

It is estimated that there will be a requirement for approximately 0.5 billion tonnes of aggregates in the GDA between 2025 and 2040 to meet demand, generating a total land area requirement of 1,567 hectares.

At current levels of land area authorisation, the replenishment rate of authorised aggregates will be 24% over the 2025-2040 period in the GDA. Based on current planning approval rates, the GDA land area authorised by the planning system for aggregate production up to 2040 is projected to reach 379 hectares.

In effect, the gap between projected demand and projected authorisations in the GDA's will equate to 1,188 hectares (76%) if the current rate of authorisation of new reserves in the region remains unchanged to 2040 as shown in **Figure 4-5.** – This represents the projected shortfall in land area available if we are to maintain current levels of reserves.

Criteria	GDA
Projected population in 2040 (CSO)	2,611,778
Current aggregates consumption (tonnes per capita per year)	11
Projected total aggregates demand 2025-2040 (tonnes)	441,060,005
Average yield (tonnes aggregates / hectare)	281,504
Land area requirement (hectares)	1,567
Land area authorised by 2040 based on current authorisation rates (hectares)	379
Projected Replenishment Rate to 2040	24%





Figure 4-5: Impact of Replenishment Rate on Aggregate Reserves to 2040

# 4.5 Impacts of Shortages of Aggregate in the Greater Dublin Area (GDA)

A continued depletion of aggregate reserves in the GDA will eventually lead to increased haulage of large volumes of aggregates over longer distances from quarries located outside the region. This will bring inevitable negative economic and environmental consequences. An exercise was carried out on the likely economic and environmental impacts (greenhouse gas emissions) of such a development.

**Figure 4-6** contrasts the typical distances that aggregate will need to travel to a notional 'centre of gravity' within the GDA, depending on whether the aggregate is sourced from within the region (41km), or outside the GDA (87km). These distances indicate a one-way trip.

Based on standard industry payloads, fuel usage and vehicle standards and emissions, the impact of increased delivery distances is presented in **Table 4-2** for a standard load of aggregates.

The increased delivery distances from quarries located outside the GDA lead to a doubling of the travel times, fuel usage and associated fuel cost when compared to delivery from within the GDA. These increased operational costs will consequently lead to increased costs for materials needed for housing construction and infrastructure delivery.

The carbon emissions associated with transporting aggregates from outside the GDA are doubled when compared to those associated with transport from within the GDA as illustrated in **Table 4-2.** This highlights the importance of the availability of local supplies of aggregates for sustainable development.

The table does not include the additional environmental benefits (including air quality and reduced congestion) associated with shorter haulage distances.



Figure 4-6: Average Distance of Aggregate Transportation from within and outside the GDA

 Table 4-2: Financial and carbon impacts of transporting aggregates from outside the Greater Dublin Area

 (Figures generated using 18 tonne payload consuming 32.5 litres fuel per 100km)



## 4.6 Summary

The key findings of the regional analysis of supply and demand of aggregates in the GDA are as follows:

- Demand for aggregates is higher in the GDA when compared to the rest of the State.
- Planning permission has been refused for 56% of the volume of aggregate extraction for which authorisation was sought over the 2017 2024 period within the GDA (compared to a 27% refusal rate nationwide).
- The projected replenishment rate of authorised aggregate reserves in the Greater Dublin Area up to 2040, based on current patterns of planning approval, is 24%, pointing towards a future scarcity of supply.
- Industry operators are already reporting the emergence of scarcities in sand and gravel aggregates in the eastern and midland regions of the country as existing reserves continue to be diminished.
- A continued depletion of aggregate reserves in the GDA will eventually lead to increased haulage of large volumes of aggregates over longer distances from quarries located outside the region, significantly increasing fuel usage, costs and CO<sub>2</sub> emissions.
- Replenishment of authorised reserves is lowest where it is needed most, and this is increasing costs and carbon impacts.

# **5 PLANNING SYSTEM EFFICIENCY**



In order to review the current efficiency of the planning system for aggregate extraction, a dataset of quarry planning applications for the 2017 – 2024 period was developed. This draws on information available from local authority websites and the An Bord Pleanála<sup>2</sup> website. The list of planning applications was cross-checked with the ICF to ensure that the dataset was as complete as possible. A total of 217 planning cases were analysed which accounts for the vast majority of cases nationally for which authorisation for aggregate reserves were sought.

## 5.1 Quarries and the Planning System 2017 - 2024

An assessment of the decision-making timeframes in local authorities and An Bord Pleanála (ABP) for planning cases relating to quarries over the 2017 – 2024 period was carried out. Three types of quarry planning cases were assessed:

- 1. Local Authority Planning Decisions the decision of the local planning authority in respect of a planning application.
- 2. Planning Appeal Decisions decisions by An Bord Pleanála where the local authority's decision on a planning application is appealed. The appeal can be by either:
  - a. Third parties (usually contesting a grant of permission); or
  - b. First party appeals by the applicant (who might appeal a refusal of permission, or the terms of the planning conditions imposed by the local authority).
- 3. Section 37L Planning Decisions decisions by An Bord Pleanála arising from direct planning applications to An Bord Pleanála where the quarry site was subject to a substitute consent application. As mentioned in Section 3.2, these cases were largely completed by 2019.

**Figure 5.1** illustrates the breakdown of these 217 cases into the 3 types of planning cases analysed and gives context for the remainder of this pillar.

<sup>&</sup>lt;sup>2</sup> It is anticipated that An Bord Pleanála will be renamed to 'An Comisiún Pleanala' in 2025, under the provisions of the Planning and Development Act 2024.



Figure 5-1: Breakdown of Total Cases

### Planning System Decision Making Timeframes

There is a statutory objective for all local authority planning decisions to be made within an **eight-week** timeframe. Following this, there is a four-week period in which an appeal can be made to this decision to An Bord Pleanála.

An Bord Pleanála has a statutory objective to decide appeal cases within 18 weeks.

These statutory decision-making timeframe objectives for planning consent decisions in Ireland are illustrated in **Figure 5-2**.



Figure 5-2: Statutory Decision-Making Objectives for Planning Cases

## 5.2 Local Authority Decision Making Timeframes

Over the 2017 – 2024 period, local authorities decided on a total of 148 quarry planning applications for extraction of new aggregate reserves. The average decision-making timeframe for these decisions was 30 weeks (not including appeal window) over the 8-year period. However, it is noteworthy that this average decision-making timeframe increased from 22 weeks in 2020 to 33 weeks in 2024.

Year	No. of Quarry Planning Decisions by Local Authorities	Average Decision Timeframe (weeks) (Excluding appeal window)
2024	20	33
2023	17	39
2022	16	32
2021	17	31
2020	24	22
2019	16	27
2018	23	32
2017	15	27
Average	18.5	30

#### Table 5-1: Local Authority Quarry Planning Decisions & Decision Timeframes

Figure 5-3 compares the time taken for Local Authorities to make these decisions and the statutory objective / timeframe for decision making.



#### Figure 5-3: Local Authority Quarry Planning Decision Making Timeframes (2017-2024)

Normally, the period of a planning application will only extend beyond eight weeks if the local authority requests further information before concluding the assessment of the case. The speed with which the applicant (in this case the quarry operator) can respond is the main factor in determining the total duration when further information is requested. It is recognised that on occasion, an eight-week period is not sufficient to consider a quarry application, when a request for further information is appropriate to resolve matters.

## 5.3 An Bord Pleanála Appeals Decision Making Timeframes

An assessment was carried out of decisions by An Bord Pleanála in respect of appeals of local authority decisions on aggregate-related developments. Section 37L planning cases were excluded as these were largely completed by 2019 and will not play a significant role in the future.

Over the 2017-2024 period, the average decision-making timeframe for quarry planning appeals to An Bord Pleanála was 57 weeks, compared to the statutory objective timeframe for decision making of 18 weeks as shown in **Figure 5-4**. However, it was particularly noticeable that by 2023, decision making timeframes in An Bord Pleanála had extended to 103 weeks as shown in **Table 5-2** below.

			-				
Table 5-2: A	n Bord	Pleanála	Quarry	Planning	Decisions	& Decision	Timeframes
		. Ioanana					

Year	No. of Quarry Planning Decisions by An Bord Pleanála	Average Decision Timeframe (weeks) (Excluding appeal window)
2024	14	92
2023	7	103
2022	5	56
2021	8	41
2020	6	39
2019	9	45
2018	5	51
2017	3	29
Average	7	57



Figure 5-4: An Bord Pleanála Quarry Planning Decision Making Timeframes (2017-2024)

## 5.4 Overall Quarry Planning Decision Making Timeframes

The cumulative impact of delays in the decision-making process at local authority and An Bord Pleanála is that in 2024, quarry planning cases were spending on average 129 weeks in the planning process, over four times the statutory objective.

Over the eight-year period 2017-2024, the average decision timeframe was 91 weeks. These timeframes are presented in **Figure 5-5** and **Table 5.3 below**.

Year Decision Reached by An Bord Pleanála	Average Timeframe at LA (weeks)	Appeal Window (weeks)	Average Timeframe at ABP (weeks)	Average Total Timeframe (weeks)
2024	33	4	92	129
2023	39	4	103	146
2022	32	4	56	92
2021	31	4	41	76
2020	22	4	39	65
2019	27	4	45	76
2018	32	4	51	87
2017	27	4	29	60
Eight Year Average	30	4	57	91

Table 5-3: Quarry Development Planning Decision Making Timeframe 2017-2024



Figure 5-5: Quarry Planning Decision Making Timeframes

#### **Essential Aggregates**

It is worth noting that these timeframes do not account for any time spent at the pre-planning application preparatory stage, including the preparation of an Environmental Impact Assessment Report (EIAR), which in the case of quarry planning applications can take approximately a year to complete.

The analysis of timeframes for An Bord Pleanála and Local Authority decisions for quarry planning cases over the 2017-2024 period reveals the key trends as follows:

- The average timeframe for decision making by Local Authorities, has increased from 27 weeks in 2017 to 33 weeks in 2024.
- The timeframe for decision making by An Bord Pleanála has varied significantly. The average over 8 years was more than 13 months (57 weeks). During 2023, the quarry related decisions took on average 103 weeks (almost two years) at ABP.
- The 8-year average for total time period (when subject to appeal) is 91 weeks, or almost 21 months. During 2023, planning cases for aggregates (when subject to an appeal) were spending on average 146 weeks (33 months) in the planning process, almost five times the statutory objective period.

## 5.5 Summary

In summary, decision making timeframes in the planning approval process for quarry planning applications greatly exceed statutory objectives. From year to year the average decision period has varied greatly, which results in uncertainty for the applicant and all parties involved.

- Over the 2017 2024 period, the average timeframe for planning decisions on aggregate extraction by local authorities was 30 weeks (excluding the 4-week appeal window), exceeding the statutory objective of eight weeks.
- Over the same period, the average decision-making timeframe for aggregate extraction planning appeals to An Bord Pleanála was 57 weeks, compared to the statutory objective of 18 weeks. In 2023, decision timeframes in An Bord Pleanála for quarry planning cases had increased to 103 weeks and remained high in 2024 at 92 weeks.
- The 8-year average for total time period (when subject to appeal) is 91 weeks, or almost 21 months.
- During 2023, planning cases for aggregates (when subject to an appeal) were spending on average 146 weeks (33 months) in the planning process, almost five times the statutory objective period.

Delays in the planning process have the potential to create great uncertainty within the supply chain at individual enterprise level, impacting on investment in plant, machinery and people.

# 6 CONCLUSIONS AND RECOMMENDATIONS

Ireland has natural reserves of high-quality aggregates, which form essential raw materials for Ireland's future infrastructure requirements. Project Ireland 2040 will necessitate the production of approximately one billion tonnes of aggregates in Ireland in the coming years.

However, scarcities are emerging both in Ireland and worldwide for particular aggregate products – the future supply of aggregates therefore needs to be planned, monitored and managed in a sustainable method.

RPS was appointed by the ICF to examine current replenishment rates of authorised aggregate reserves in Ireland, to determine the current timeframes for planning decisions for aggregate extraction within the planning system and to make recommendations on appropriate policy framework measures.

## 6.1 Conclusions

The evidence-based findings of this study may be summarised as follows:

#### Aggregate Demand

- The successful delivery of national strategic plans such as 'Project Ireland 2040' and 'Housing for All' is highly dependent on a reliable supply of high-quality aggregates to support construction.
- Continued increases in the population to 2040 will underpin a significant need for aggregates, conservatively estimated at in excess of one billion tonnes between 2025 - 2040. Given this growing demand for aggregates the pressure to supply regulated aggregate reserves can be expected to increase.

#### Aggregate Supply

- Over the past eight years (2017-2024) the 'replenishment' of aggregate reserves has been running behind annual consumption. On average, only 61% of the annual consumption has been replenished by means of new planning authorisations.
- At current levels of land area authorisation, the replenishment rate of authorised aggregates will fall to 52% over the 2025 – 2040 period as demand for aggregates increases due to Ireland's growing population.
- Planning permission has been refused for over half the volume (56%) of aggregate extraction for which authorisation was sought over the 2017 – 2024 period within the Greater Dublin Area (Dublin, Kildare, Meath and Wicklow).
- At current levels of land area authorisation, the replenishment rate of authorised aggregates will be 24% over the 2025 2040 period in the Greater Dublin Area where the need for aggregate reserves to support construction is significantly higher than in the rest of the State.
- A continued depletion of aggregate reserves in the Greater Dublin Area will eventually lead to increased haulage of large volumes of aggregates over longer distances from quarries located outside the region, thereby increasing fuel consumption, costs and greenhouse gas emissions.
- The future supply of essential aggregates cannot be assumed. Continued failure to replenish rock, sand and gravel reserves at anywhere near the same rate as the construction sector demands will diminish the aggregate reserve base upon which the delivery of public infrastructure and new homes is dependent.

#### Planning Efficiency for Aggregate Projects

- Over the 2017 2024 period, the average timeframe for planning decisions on aggregate extraction by local authorities was 30 weeks (excluding the 4-week appeal window), greatly exceeding the statutory objective of eight weeks.
- Over the 2017 2024 period, the average decision-making timeframe for aggregate extraction planning appeals to An Bord Pleanála was 57 weeks, compared to the statutory objective of 18 weeks. In 2023, decision timeframes in An Bord Pleanála for quarry planning cases had increased to 103 weeks and remained high in 2024 at 92 weeks.

- The 8-year average for total decision-making time period for quarry planning applications (when subject to appeal) is 91 weeks, or almost 21 months.
- During 2023, planning cases for aggregates (when subject to an appeal) were spending on average 146 weeks (33 months) in the planning process, almost five times the statutory objective period.

## 6.2 **Recommendations**

In order to remedy the shortfall between demand and supply of aggregates to facilitate the delivery of national policy on housing and infrastructure, the following recommendations are made:

#### **Recommendation 1**

There is an urgent need for a national Policy Statement by the Irish Government to facilitate the long-term sustainable supply of essential aggregate materials within the State to support Ireland's national housing, environmental, social and economic infrastructural delivery targets.

Similar Policy Statements have been produced recently such as the 'Policy Statement on the facilitation of Offshore Renewable Energy by Commercial Ports in Ireland' December 2021.

The background and context for the Policy Statement on aggregates is:

- i. 'Housing for All' (the national housing plan to 2030).
- ii. 'Project Ireland 2040' (encompassing transport, health, education, urban renewal etc.).
- iii. Ireland's 'Climate Action Plans'.
- iv. Identified significant infrastructure deficits in the areas of housing, health, transport, and electricity see Irish Fiscal Advisory Council Report, Oct 2024.
- v. Programme for Government 2025 which 'recognises that delivery of essential infrastructure is a key driver in attracting and retaining investment in Ireland, growing our economy, fostering regional development, delivering on our housing targets and achieving our ambitious climate goals.' It also seeks to accelerate the delivery of housing supply 'ramp up construction capacity to build over 300,000 new homes by the end of 2030 in line with the revised Housing Targets to meet both existing and future demands.'
- vi. The Updated Draft Revised National Planning Framework which states that 'the planning process will play a key role in realising the potential of the extractive industries sector by identifying and protecting important reserves of aggregates and minerals from development that might prejudice their utilisation'. It also states that 'Aggregates and minerals extraction will continue to be enabled where this is compatible with the protection of the environment in terms of noise, air and water quality, natural and cultural heritage, the quality of life of residents in the vicinity, and provides for appropriate site rehabilitation particularly with respect to opportunities that may be provided for enhancement or restoration of nature in line with EU policies, such as the Nature Restoration Law, the EU Green Deal and EU Biodiversity Strategy 2020, and legislative instruments'.

The Policy Statement should explicitly recognise that:

- i. Aggregate materials (stone, sand and gravel) are a strategic national resource, essential for the future development of Ireland and fundamental to meeting societal needs.
- ii. The targets and objectives of 'Housing for All', 'Project Ireland 2040' and the 'Climate Action Plan' will require an adequate and steady supply of aggregates over the long term.
- iii. Addressing Ireland's significant infrastructure deficits in the areas of housing, health, transport, and electricity will depend on the provision of a stable supply of aggregates of the required quality.
- iv. Aggregates being natural products derived from stone, sand and gravel, by their nature can only be accessed where they occur and that the location of an aggregates deposit, together with its size and quality, is fundamentally determined by geology - if there are no workable resources there can clearly be no production.

- v. Access to a steady and dependable supply of local, high-quality aggregates is essential to reducing construction costs and carbon transport emissions.
- vi. Securing supplies of raw materials will necessitate a proactive national approach to safeguarding access to aggregate reserves as competing pressures on land use will make it increasingly difficult to find suitable extraction locations.
- vii. Important reserves of aggregates must be identified and protected from development that might prejudice their utilisation.
- viii. Increasing the levels of secondary (recycled) aggregates used in Ireland will eventually help to reduce demand for virgin aggregates, but this will take time and is unlikely to meet a significant proportion of demand in the short term.
- ix. Our island status, without multiple neighbours sharing a common network of roads, railways, rivers and canals, limits cross-border flows and makes security of supply a critical issue.
- x. The planning system needs to ensure that the replenishment rate of authorised aggregate reserves is sufficient to provide a stable supply of aggregates of the required quality.
- xi. Aggregates should be extracted in a sustainable manner, compatible with the protection of the environment, heritage and the quality of life of residents.

This Policy Statement should be further implemented at regional and local planning level to provide planning authorities and An Bord Pleanála (soon to be An Coimisiún Pleanála) with a clear government position on consenting sustainable development of long-term aggregate supply as follows:

- i. The policy statement must be mandated within regional spatial and economic planning strategies to facilitate the provision of a regional supply of authorised aggregates sufficient to meet local and regional needs.
- ii. County Development Plans must include specific provisions to ensure that replenishment of authorised aggregate reserves is sufficient to meet local and regional needs.

#### **Recommendation 2**

Additional resources should be provided to the planning authorities and An Bord Pleanála (soon to be An Coimisiún Pleanála) for training and education specifically related to the extraction of aggregates in order to assist timely and informed determinations on planning applications for aggregate supply. This will contribute to greater planning efficiency, consistency in assessment and decision-making and environmental protection.

The ICF will collaborate with the Office of the Planning Regulator and the Irish Planning Institute and other planning stakeholders in devising and implementing appropriate training and upskilling.





