



POLICY

A NATIONAL INFRASTRUCTURE STRATEGY FOR IRELAND

RESEARCHED AND PUBLISHED BY THE RIAI



A national infrastructure strategy for Ireland

Royal Institute of the Architects of Ireland

Introduction: Creating infrastructure

During the period when Ireland was a net recipient of EU Structural Funds, investment in economic and social infrastructure was planned and sequenced through a series of National Development Plans (NDP). Beginning in 2000 and lasting until 2010, at its peak the NDP oversaw the investment of Irish exchequer, PPP and EU funds of €70m per day.

As a result, Ireland's physical infrastructure was vastly modernised, and a range of public buildings and transport connections were completed. The NDPs invested money through operational programmes, each of which was overseen by an operational programme monitoring committee comprising of officials from departments, semi-state agencies and social partners. These committees scrutinised the requests for funding by delivery agencies, and assessed the rollout of construction against the department's spending profile. Areas of cost over-runs were spotted early, and the input of the construction industry meant that the sector had the skills, capacity and supply-chain in place to deliver the infrastructure works.

Importantly, the oversight committees had a strong role in determining whether to authorise the rollover of un-spent funding from one year to the next, and acted as a coordinating body to ensure that individual line departments were sequencing (often very disruptive) public building work and civil engineering projects in the most effective way.

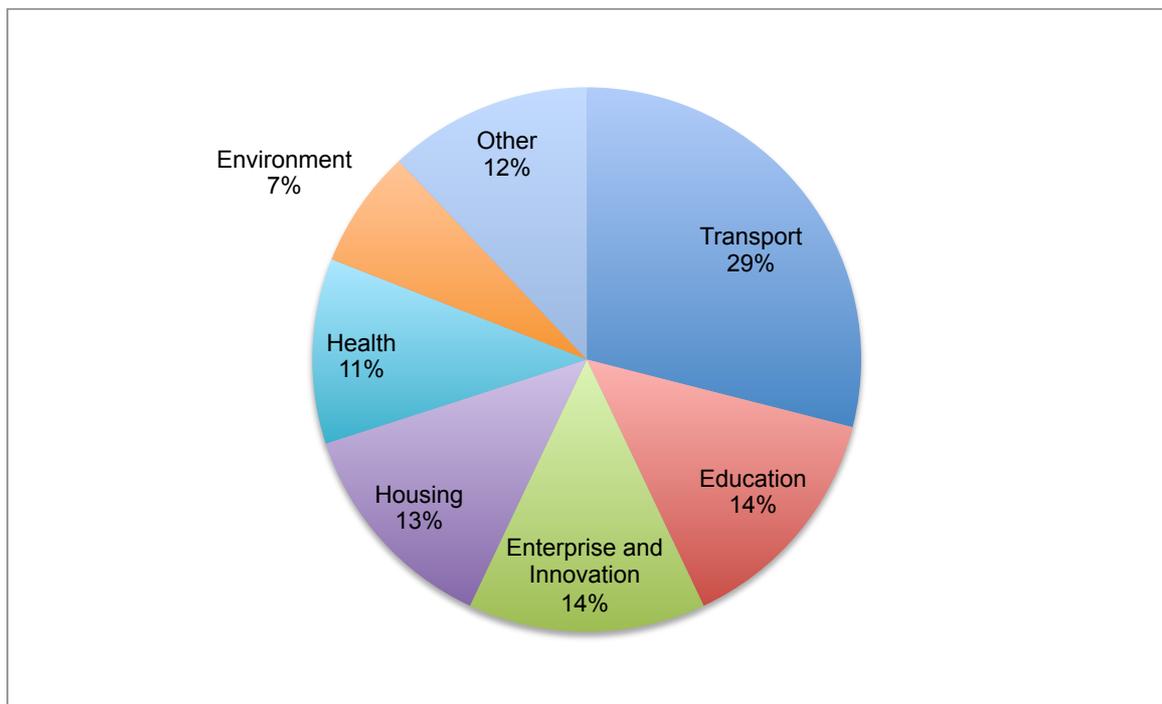
On the expiry of the last NDP in November 2011, the Irish Government announced that the National Development Plan was to be succeeded by a Capital Investment Plan. This scheme began on 1 January 2012 and is currently running until the end of 2016. A second Capital Investment Plan is to run from 2016 to 2022.¹

Exchequer Capital Envelope

¹ Details of the Capital Investment Plan are available at: <http://www.per.gov.ie/en/capital-investment-plan-2016-2021/>

Year	€ billions
2016	3.8
2017	4
2018	4.2
2019	4.6
2020	5
2021	5.4

Share of Capital Envelope



Recommendations

RIAI believes that the current Capital Investment Plan should have a national infrastructure strategy for Ireland at its heart, with public investment by line departments to be co-ordinated by a national infrastructure delivery agency. This will ensure that investment is scheduled in a way that infrastructure is delivered ahead of need and in locations where it can do the greatest public good.

RIAI believes that the needs assessment model undertaken annually by the Department of Education should be replicated across government departments, co-ordinated centrally and harnessing the best, and most up to date data.

RIAI is concerned that, without this proper oversight of the planning, procuring, design and delivery of projects on a sequenced basis, the Plan will not achieve full value for money. RIAI believes that design teams should be assembled now so that public building projects, once approved, can properly designed and planned.

Further, RIAI believes that investment in this Plan should be front-loaded as far as possible to ensure there is funding to support much of the design of new buildings undertaken now, harnessing the capacity in the construction sector to deliver designs in a cost effective way. It is vital, both in terms of securing efficiencies in the management and running of the buildings and for enhancing quality of life, that public buildings are of the highest quality of design. Design teams need adequate resources to properly research the brief and identify and adopt international best practice to guarantee the longevity of publicly funded projects.

While it is inevitable that the engineering profession will be central to the delivery of civil infrastructure, procurement agencies should be alert to the need for good design, an understanding of the needs of users and the impact of infrastructure on the wider public space. In that regard, early and on-going engagement with architectural professionals is vital.

RIAI recommends that government departments consider “dual use buildings” whereby public buildings such as local authority offices and schools can be leased to private tenants until such time as they are required. This will provide a cash flow to the exchequer and ensure that the completed building is available for occupation by its intended tenants when needed following minor retrofitting.

It is vital that the life cycle of new and existing buildings is extended as far as possible. Therefore, funding should be put in place to secure the improvement of existing building stock and bring derelict or under-used buildings into full occupation. A failure to undertake a national retrofitting programme will ultimately mean Ireland paying fines and charges for a failure to meet its international climate change treaty obligations.

2016 – 2022 Capital Investment Plan

The 2016 to 2022 Capital Plan, which was officially launched in September 2015 is a €42 billion framework for infrastructure investment in Ireland. Exchequer investment will consist of €27 billion, a new group of PPP will invest about €500 million and State-owned sector investment will account for around €14.5 billion. Unlike previous NDPs, this capital investment plan will be without any EU funding.

As with previous investment programmes, the funding will be used to repair, maintain and upgrade existing infrastructure, and to create new public buildings and economic infrastructure such as roads, railways and broadband.

In its strategy, Government announced that there would be a Mid-Term Review, which will take stock of progress to date and provide the Government with an opportunity to reaffirm priority projects. This Review will also provide the Government with an opportunity to consider the scope for increased levels of investment, should Ireland's economic growth and fiscal progress exceed the present forecasts and make this possible.

As the 2016-2021 Plan notes:

Identifying the capital needs of an economy is a complex process, and it includes an examination of the existing level and composition of public capital stock and the social-economic value of infrastructure. Geography, population densities, economic growth, and the scale of any infrastructural deficit are important variables in determining what level of investment is optimal for a country in any given period. What matters too

are the type of projects the investments are being made in, not just the overall scale of the investment, and that the investment is efficient.

RIAI recommends the creation of a national infrastructure delivery agency, to monitor data to inform changes to population density, economic growth and the stock of existing infrastructure and thereby provide an optimal level of investment and ensure that investment is efficiently delivered.

Predicted population of Ireland

2020	4.8 m
2025	5 m
2046	5.6 m

Investment in past NDPs and in the future infrastructure investment programmes will inevitably be focused on areas which deliver the greatest economic and social returns. Within each capital programme, funding will focus on (a) civil engineering works and (b) construction of public buildings. This section analyses where this investment should be focused to maximise its impact.

Transport infrastructure

Previous NDPs focused heavily on creating and expanding Ireland's motorway and national road network. There is a clear correlation between population growth and economic activity, and the pressure placed on economic infrastructure such as roads. While investment during the NDP era kept pace with the growing economy and population, more investment is needed to repair the larger infrastructure stock and provide new transport infrastructure ahead of need. Already transport in Dublin is becoming congested, and economic growth in regional cities will undoubtedly be limited if there is not the public transport needed to move people and goods. In the area of transport infrastructure, it is vital to consider the impact of the multiplier effect, whereby while each piece of infrastructure provides a return on investment, that return increases by a multiple when individual pieces are connected to each other.

The proposed central infrastructure delivery agency can have a very strong role in analysing demographic data and economic activity data to predict where the greatest pressure points will emerge and ensure that capacity is increased ahead of predicted demand.

Educational buildings

The Department of Education undertakes regular projections of primary and secondary school enrolments. This is based on Census and other data, and applies models of immigration and natural demographic changes to predict likely enrolment at the start of the next school year. It also allows the Department to make longer-term predictions. This is hugely important for the obvious reason that it takes a number of years for new schools and classrooms to move through the procurement, design and construction processes.

The table below shows the success in this model, and highlights the potential benefit of harnessing good quality projections and providing accommodation to meet them.

Comparisons between projected and actual enrolment 2014

	Most likely scenario	Actual enrolment	Difference	Error Rate
Primary Level	544,762	544,696	66	0.012%
Second Level	338,046	339,210	-1,164	0.34%

Primary enrolments, which have already risen substantially in recent years, are projected to rise by an additional 25,000 pupils by 2017, and will continue to rise to a peak of over 574,000 in 2018 before beginning to reduce. This is based on projected patterns of household formation, immigration and natural increases. As the Department notes, this peak figure is reflective of primary enrolment levels last seen in Ireland in the early 1980s, where enrolments rose to a peak of 566,000 pupils in 1985 before beginning to reduce.

Post-primary enrolments are also projected to rise by approximately 15,000 by 2017 and will continue to rise until 2025, at which point enrolments at second level are expected to be in excess of 400,000 pupils for the first time in the history of the State.

In total therefore, for the three years ahead an additional 40,000 pupils are expected to enter the system across first and second level education, and continuing increases are expected up to close to the end of this decade at primary level, and until 2025 at post primary level.

The birth rate and migration are the key drivers for school and college places. It is expected that the demand for school places will peak in 2018 for primary school places and 2025 for secondary school places. Therefore government should recognise that there may be excess capacity in some schools into the future, and should consider dual-use buildings whereby classrooms can be leased to private tenants when not required, and retrofitted when capacity becomes an issue.

Importantly, however, demographic change and therefore demand for school places is not evenly spread across the country – population and household growth will continue to be concentrated in urban and commuting areas. As such, the Department of Education is clear that geographical distribution of projected pupil population increases must be matched against the existing profile of schools to inform the prioritisation of future capital investment.

Health care

An ageing population requires particular social infrastructure such as long-term residential care facilities for the elderly. Government predicts that the number of population aged 65 and over will increase from 530,000 to over 1.4 million by 2046. This will put significant pressure on the health system and have a profound impact on the types of health care and hospital buildings which are needed, as well as their location.

Elderly people have separate housing needs, in terms of the layout of individual homes and access to facilities, and these must be provided. Community-based healthcare is vital to an aging population, and co-ordinating the provision of such healthcare in the location where elderly people will live will create efficiencies in the delivery of medical support facilities.

Housing

Demand for housing will remain high over the medium term due to demographic factors and changes in household structures, particularly an increase in single person households. As noted earlier, the number of people aged over 65 will rapidly increase during the next three decades, and it is important that the stock of public

and private houses meets the need of this aging population. Further, Ireland will see an ever-growing cohort of tenants and young mobile workers, who will wish to remain living and working in urban areas. Providing a larger number of houses and apartments without increasing the physical footprint of the city will be a challenge,

The Housing Agency estimates indicate 21,000 new housing units will be required per annum for the next number of years, the bulk of which will be in urban areas. At the moment, the housing industry is supplying less than 50% of this anticipated need. Better data collection and dissemination is needed if the industry is to build the correct housing types in the right location, and ahead of time.

An ever-larger cohort will be long-term tenants, and latest housing data shows that the proportion of single-occupancy housing is increasing. Therefore, we need to build more apartments for one or two person households, in urban areas, where population growth is strongest. Greater effort is needed to ensure that there are sufficient housing for tenants, and the best way to protect tenants from increasing rental inflation is to improve the supply of high quality affordable housing.

It is not sufficient, however, to simply increase the volume of housing output. The state and the private sector must work together to ensure that public infrastructure is available for the community. Building housing without regard to the occupants' social, leisure and economic life is a mistake which we must strive to avoid making.

Rollout of public projects

Building and maintaining the Ireland's increasing stock of infrastructure is expensive and difficult. Planning, procurement and design can be very slow. During the procurement process, architects should be engaged early, to add their experience to overcome challenges, and apply their creativity.

While public investment in civil engineering and public building will always be about maximising return on investment, this should not mean that other issues are neglected, such as the importance of harnessing innovation in products and processes, adopting experience and knowledge from other sectors and embracing the economic, social and environmental benefits of good architecture.

RIAI is concerned that the rapid increase in construction activity, following a number of years of depression and stagnation, are resulting in difficulties in training, recruiting and retaining qualified professional architects. The potential for public projects to be shelved, postponed or downsized following approval makes it very difficult for architects to anticipate future work programmes and therefore predict future employment levels and business activity.

Reduction in construction activity	Increase in construction activity
Shelving, postponement or cancellation of public building projects	Sudden demand from many project clients
Reduction in professional fees	Stretched capacity to deliver projects
Absence of new entrants into profession	Competition from overseas firms
Below-cost tendering	Increase wage expectations and shortages of qualified staff

The importance of design

There is growing evidence to suggest that the quality of our built environment has significant impact on the quality of our lives. Improving quality of life, social cohesion and the integration of communities is already part of government policy. These policy goals can be achieved through ensuring that our built environment is of the highest possible quality of design.

Government could combine key evidence and long-term strategic decision making to align housing growth with other areas of the public capital programme and work with local authorities, regional authorities and planners to ensure that projects are sequenced properly.

An architecture policy should sit alongside the public capital programme and infrastructure delivery programme to ensure that public buildings are well designed and that infrastructure and the public realm are aligned.

Architects are the only construction professionals whose training is focussed on incorporating design into every construction project, whether civil engineering or

public works, and their role in the delivery of a quality built environment cannot be understated. Architects must be kept at the heart of the decision-making process throughout all stages of the delivery of infrastructure, to ensure that good design is not overlooked in the rush to achieve short-term efficiencies

Good data and a commitment to improving the quality of public spaces means that infrastructure cannot be seen in isolation. It can be a driver of regional growth, improved economic competitiveness, city and urban regeneration and a supporter of small businesses.

Harnessing stakeholder knowledge

There is a need ensure that investment decisions are made, and investment is rolled out, through the input of government departments, agencies and non-State stakeholders. As noted earlier, one of the strengths of the National Development Plan was the operational programme monitoring committees.

These committees comprised of the bodies responsible for expenditure (Department of Finance, Department of Public Expenditure and Reform, government procurement agencies) as well as delivery agencies (e.g. government departments, OPW, NAMA, ISIF, Transport Infrastructure Ireland, Irish Water) and those with an interest in public infrastructure (including local authorities and regional assemblies). Further engagement should be harnessed by those with access to data (e.g. ESRI, CSO) and those who represent the sectors responsible for the delivery of infrastructure (e.g. construction firms, and architectural and engineering sectors).

Conclusion

The rollout of a new capital programme and a national planning framework provides Ireland with a unique opportunity to shape our built environment for the public good. It allows decision-makers to put design at the heart of investment decisions, and also provides a practical solution for Ireland to meet its international climate change obligations and meet social cohesion policy goals.

With a growing – and ageing – population, ensuring the flexibility and resilience of our stock of infrastructure and public space is vital. Ireland will become an older, more urban population, and it is a mistake to think that these international population trends can be avoided. Instead, these changes must be understood, measured and properly mapped. Investment decisions must be based on this data, with the human user put at its heart.

Good buildings and quality infrastructure undoubtedly improve economic efficiencies and protect international competitiveness. In an era when tax-payers' money is being invested directly, or through organisations such as NAMA, and the Ireland Strategic Investment Fund, achieving efficiencies is vital, but it should not be at the cost of securing long-term improvement of where we live and work.

Buildings should be viewed, not as a necessary and inevitable cost to the public purse, or simply as a way of attracting investment into Ireland (important though this is) but as an opportunity to signal Ireland's commitment to embracing international best practice and innovation in design and construction methods.

Government departments must not think in silos, but rather work collaboratively, recognising that each has a role in improving our built environment, and collectively have a powerful opportunity to embrace Ireland's strong track record as the home of good design.

Data

Below are the main datasets which are available to government to inform the rollout of public infrastructure.

Periodic Data

Data	Agency	Frequency	Most recent
Projections of full-time enrolment. Primary and Second Level, 2015 - 2033	Department of Education and Skills	Annual	July 2015
Projections of demand for full-time third-level education, 2015 - 2029	Department of Education and Skills	Annual	November 2015
Population and Labour Force Projections	Central Statistics Office	Post census	April 2013
Population and Migration Estimates	Central Statistics Office	Annual	August 2016
Regional Population Projections	Central Statistics Office	Annual	August 2016
Population (Census 2016)	Central Statistics Office	Five years	July 2016
Quarterly Economic Commentary	Economic and Social Research Institute	Quarterly	September 2016

Other recent datasets and commentary

- Irish Water – *Summary of Demographic Projections* (February 2014)
- Department of Finance – *Putting people first: Economic and fiscal policy for our democratic outlook* (July 2015)
- Housing Agency – *Housing Supply Requirements in Ireland's Urban Settlements 2014 – 2018* (April 2014)
- Brian Hughes – *Recent Demographic Growth in Ireland: Implications for Future Spatial Planning and Housing Provision* (February 2015)

International Data

- Eurostat population data for EU countries
 - OECD - Demographic references
 - WHO European Health For All database (HFA)
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