An Chomhairle Náisiúnta Eacnamaíoch agus Shóisialta
National Economic & Social Council
NESC

Transport-Orientated Development: Assessing the Opportunity for Ireland

No.148 June 2019

An Oifig Náisiúnta um Fhorbairt Eacnamaíoch agus Shóisialta
National Economic & Social Development Office NESDO

National Economic and Social Council

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2. The Council may consider such matters either on its own initiative or at the request of the Government.

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Table of Contents

List of Figures

List of Tables

List of Boxes

Abbreviations

APOCC
All-Party Oireachtas Committee on the Constitution

BRT
Bus Rapid Transit

CASP
Cork Area Strategic Plan

CPO
Compulsory Purchase Order

DDDA
Dublin Docklands Development Authority

DHPLG
Department of Housing, Planning and Local Government

DTTAS
Department of Transport, Tourism and Sport

EIAH
European Investment Advisory Hub

EIB
European Investment Bank

EMRA
Eastern and Midland Regional Assembly

ETS
Emissions Trading System

GCD
Grand Canal Docks

GDA
Greater Dublin Area

GNI
Gross National Income

LAP
Local Area Plan

LDA
Land Development Agency

LIHAF
Local Infrastructure Housing Activation Fund

LUTS
Land Use and Transportation Study

LVC
Land Value Capture

MASP
Metropolitan Area Strategic Plan

NDP
National Development Plan

NECP
National Energy and Climate Plan

NPF
National Planning Framework

NSOs
National Strategic Outcomes

NTA
National Transport Agency

NZEB
Nearly-Zero-Energy Building

OPR
Office of the Planning Regulator

PDU
Plans de Déplacements Urbains

POS
Plan d'Occupation des Sols

PPP
Public-Private Partnership

RPG
Regional Planning Guidelines

RSES
Regional Spatial and Economic Strategy

SDCC
South Dublin County Council

SDG
Sustainable Development Goals

SDZ
Special Development Zone

SFILT
Strategic Framework for Investment in Land Transport

TOD
Transport-orientated development

URDF
Urban Regeneration and Development Fund

VT
Versement Transport

ZAC
Zone d'Aménagement Concerté

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Executive Summary

Urban development in Ireland, as in most modern societies, continues to be orientated around the car as the primary mode of mobility. This has enduring negative consequences for our environment, as well as for our day-to-day quality of life experiences. Urban sprawl, traffic congestion and long commutes are the inevitable outcomes of the sub-optimal approach to development taken to date. The Government has recognised this in the new National Planning Framework (NPF). This ambitious, high-level framework and the accompanying National Development Plan (NDP), with its substantial investment objectives, are aimed at delivering more compact and sustainable growth and ending the negative consequences of business-as-usual, car-orientated development.

An alternative approach—transport-orientated development (TOD)—is a form of urban development that seeks to maximise the provision of housing, employment, public services and leisure space in close proximity to frequent, high-quality transport services. It is a form of development that is friendlier to public transport users, cyclists and pedestrians, and seeks to convert car trips to public and active transport trips. This in turn improves mobility and environmental conditions, and delivers more efficient and sustainable urban development. Transport-orientated developments can also be designed to provide a higher proportion of social and affordable housing. This form of urban development can also contribute to Ireland's progress on the United Nation's Sustainable Development Goals, inform the ongoing development of Ireland's National Energy and Climate Plan, and the preparation of the recently signalled all-of-government plan to make Ireland a leader in responding to climate change. It also appears to be aligned with the stated objectives of the new Land Development Agency (i.e. strategic land assembly and development), and the new Office of the Planning Regulator.

The key elements of a transport-orientated approach to development are:

- integrated land-use and transport planning and investment;
- compact, mixed-use, mixed-income development and communities;
- moderate to higher housing density (related to proximity to transport nodes);
- short distances to transport nodes; and
- high quality and frequency of transport services.

The research presented here explains and explores the concept of transport orientated-development and—based on international case studies, in-depth analysis and a series of consultations—provides advice on how this more desirable form of development can be applied in Ireland. Central to this will be:

- Supplementing the ***vision*** for compact growth articulated in Project Ireland 2040 with a detailed ***decision*** to apply transport-orientated development in a specified location. That decision should set out clearly the density of residential housing to be delivered at the location, the desired mixed-use/tenure, social/affordable elements, and the high-frequent/service transport links that will connect the location.

- Establishing, even temporarily, a ***tailored institutional set-up*** (e.g. agency or project management body) to plan, oversee and deliver the transport-orientated development at the location. Such a body would have to possess the necessary planning and investment powers and responsibilities in terms of land-use and transport.

- Identifying/providing the necessary bespoke ***funding mechanism*** that enables the development to be built through a linkage between the transport infrastructure and the location it will serve. The funding mechanism should allow the necessary transport and other infrastructure to be delivered ahead of demand, and could facilitate land-value capture whereby the uplift in property value that arises from investment in transport and other infrastructure can contribute to the cost of that investment.

This research suggests that the vision articulated in the NPF is a necessary but insufficient first step. An analysis of the Project Ireland 2040 strategy and related documents suggests that the forthcoming Regional Spatial and Economic Strategies (RSESs) and the local plans that flow from them will be critical in shifting Ireland towards more transport-orientated development and away from the current, sub-optimal car-orientated approach, with all of the benefits that can be expected to accrue to the population in terms of our environment and day-to-day lives. These plans alone will not deliver transport-orientated development, and further action by public actors is required.

In the near term, guidelines prepared by government for local authorities to ensure that new or revised local plans are consistent with the NPF should contain strong guidance in support of transport-orientated development, and the next call under the Urban Regeneration and Development Fund should be used to specifically link transport-orientated development to the funding environment.

Other near-term actions worthy of consideration include an assessment of quantitative modelling techniques to bolster the case for more transport-orientated development, examination of policy and planning processes to better reveal specific barriers to more optimal development, and determining which additional policy levers could be used to encourage sustainable urban development. Again, however, these steps must be supplemented with further determined action by key public actors as regional, county, metropolitan and local plans are adopted to ensure that future urban development is sustainable.

The research here has identified the necessity for a vision, decision, institution and funding mechanism, and these in turn suggest the requirement for subsequent discrete strands of work to deliver transport-orientated development. The final chapter outlines examples of the issues those strands of work might consider and address. These issues include the need for disparate national and local actors to

examine existing and proposed transport corridors for parcels of land suitable for transport-orientated development. Further is the necessity for central government to ensure that a development institution with the necessary statutory mandate is in place to deliver transport-orientated development, with land-use/transport planning and investment responsibilities. Action and decisions will be necessary to ensure any new institution has the authority to prescribe the desired proportion of social and/or affordable housing at the location, and to see that any new institution has the ability to capture gains in land value from the development process, for investment in necessary infrastructure. If the full sustainability benefits of TOD are to be realised, then TOD should also be sustainable in regard to energy, waste and water, as well as transport. These are just examples of the challenges, set out in the concluding chapter, to be considered and addressed.

Overall, this research will inform discussions and co-ordinated action by key relevant actors about how to address any gaps. NESC offers to play a role in bringing those actors and international expertise together in the near term to consider and address the challenging steps set out in this report to ensure that transport-orientated development happens. In this way, the research and further activity by NESC can contribute to the adoption of a more developmental approach to transport, recognising the role of transport in contributing to the achievement of strategic national policy goals.

Chapter 1
Introduction

Transport-orientated development (TOD), or as it is more commonly called in the literature 'transit-oriented development', represents a form of urban development that seeks to maximise the provision of housing, employment, public services and leisure space in close proximity to transport nodes (e.g. rail and/or bus) that are serviced by frequent, high-quality services (Cervero and Murakami, 2009; Knowles, 2012; Suzuki *et al.*, 2015). Transport-orientated development is associated with increased public transport usage, reduced congestion and pollution, desirable housing provision, and healthier, more walkable communities. Additionally, facilitating high-density mixed-use urban development in close proximity to transport nodes can provide a mechanism for funding the increased provision of infrastructure and fostering sustainable high-quality urban development (McKinsey Global Institute, 2014; Suzuki *et al.*, 2015; Falk, 2017).

Transport-orientated development is a form of urban development that is well aligned with Ireland's international and national policy positions, and with recent institutional developments in relation to active land management by the State.

1.1 TOD and Ireland's International Commitments

First, in the international realm, Ireland has ongoing commitment to the United Nation's 2030 Agenda for Sustainable Development and to implement the Sustainable Development Goals (SDGs). The 17 SDGs are a global call to action to end poverty, protect the planet and ensure that everyone can enjoy peace and prosperity. Although countries are not bound legally by the goals, governments are expected to act in pursuit of their objectives. SDG No. 11—sustainable cities and communities—recognises increased urbanisation around the world, and is based on a recognition that 'sustainable development cannot be achieved without significantly transforming the way we build and manage our urban spaces' (UNDP, undated).

According to the UN SDGs, ensuring we have sustainable cities and communities means ensuring access to affordable housing, investing in public transport, creating green public spaces, and improving urban planning and management in a way that is both participatory and inclusive.

Furthermore, the Environmental Protection Agency estimates that Ireland's greenhouse-gas emissions will increase from current levels to 2020, underpinned by strong economic growth. Agriculture and transport dominate emissions outside the emissions trading system (ETS), accounting for 75 per cent of emissions in 2020. The Sustainable Energy Authority of Ireland reports that transport continues to dominate as the largest energy-consuming sector, with a share of 42 per cent of final consumption in 2016. It points out that transport energy use is increasing, with

strong growth in road freight on foot of the expanding economy. Recent analysis finds that the level of emissions from the transport sector has grown despite a decrease in the average emissions of new vehicles. Continued growth in transport activity will create 'increasingly challenging conditions in which to meet climate-related targets' (DTTAS, 2018: 3). Strategies and actions to maximise the provision of housing, employment and services close to transport can clearly assist in this area.

Ireland has prepared the *Sustainable Development Goals National Implementation Plan 2018–2020* as a whole-of-government approach to implement the SDGs. While lead responsibility for Ireland's progress on the SDGs has been assigned to the Minister for Communications, Climate Action and Environment, many government departments have been assigned leadership roles for individual goals. For example, the sustainable cities and communities SDG has actions assigned under it to be led by the Department of Housing, Planning and Local Government (DHPLG)—e.g. provide access for all to affordable housing, the Department of Transport, Tourism and Sport (DTTAS)—e.g. provide access to sustainable transport systems, notably by expanding public transport; as well as the Department of Communications, Climate Action and Environment (DCCAE)—e.g. reduce the adverse per capita environmental impact of cities).

Most relevant to TOD, perhaps, under SDG No. 11, the Government has assigned DHPLG lead responsibility for 'enhancing inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management…' (Government of Ireland, 2018d: 46). The overlap between progressing towards SDG objectives, lower emissions, and TOD (as defined above) is obvious.

Finally, in the international realm, European Union member states are required to prepare a National Energy and Climate Plan (NECP). The NECP requires countries to set out their objectives, targets and contributions to climate action. In Ireland's case the NECP is to replace over 50 different sectoral plans and reports with one comprehensive integrated plan and report. Ireland is currently preparing a draft NECP to be finalised by end-2019. The concepts of TOD outlined in the next chapter appear relevant to the objectives of this NECP process.

1.2 TOD and National Planning and Investment Policy

Second, in relation to national policy positions, the Government has published *Project Ireland 2040*, a new national planning framework (NPF). The NPF is Ireland's high-level strategic plan for shaping growth and development out to 2040.

The NPF is intended to guide investment (public and private) to 'promote opportunities for our people, and to protect and enhance our environment—from our villages to our cities, and everything around and in between' (Government of Ireland, 2018c: 10). The framework is built on overarching themes of wellbeing, equality and opportunity, and is predicated on the concept of a 'shared set goals for every community' (*ibid.*: 14). These are presented as 10 National Strategic Outcomes (NSOs), the first of which is *compact growth*.

The NPF is to pursue compact and smart urban growth to ensure sustainable growth of more compact urban and rural settlements, supported by jobs, houses, services and amenities, rather than continued sprawl and unplanned, uneconomic growth. Again, the alignment of this objective with the goal of TOD is self-evident.

In parallel, a new *National Development Plan* (NDP) sets out the level of investment (around €116bn) that the Government believes will underpin the NPF and drive its implementation over the next decade. The NDP notes that by 2040 Ireland's population is expected to reach almost six million, with a need for 550,000 more homes. The NDP thus commits to building an average of 25,000–30,000 new homes annually, to providing capital investment of over €4.2bn to deliver 40,000 new social housing homes by 2021, and to delivering 112,000 social housing homes by 2027. This ambition for investment and housing delivery is another prompt to examine how a TOD approach can optimise outcomes.

Under another NSO, sustainable mobility, the Government has committed to investing €8.6bn in public transport between 2018 and 2027. This investment will deliver a wide range of improved infrastructure across both public transport and active travel, and includes:

- BusConnects (including improved cycling infrastructure) in the major cities;
- MetroLink;
- Dart Expansion; and
- appraisal, planning and design of potential light-rail projects in both Dublin and Cork.

The NDP provides supporting programmes for rail and bus station improvement and development. The NDP states that, in line with the National Transport Authority's (NTA) *Transport Strategy for the Greater Dublin Area 2016–2035*, appraisal, planning and design will be undertaken of LUAS network expansion to Bray, Finglas, Lucan, Poolbeg, and of a light-rail corridor for Cork.

As well as continued investment in bus fleets, the NDP commits to delivering the full BusConnects programme for all cities (inclusive of ticketing systems, bus corridors, additional capacity, new bus stops and bus shelters, etc).

Further, the national plan includes a Park-and-Ride programme to invest in strategic park and ride sites, plus investment in parking facilities at rail, Luas and bus locations. Finally, the NDP provides for the delivery of a comprehensive cycling and walking network for Ireland's cities. There is to be traffic management investment, passenger information programmes, public bicycle share schemes, and accessibility enhancements. Again, this ambition for investment and public transport delivery makes it timely for policy-makers to examine how TOD can maximise impact. The MetroLink project alone will affect development along a 19km route between Swords and Charlemont (see Figure 1.1). MetroLink represents provision ahead of current demand as it is designed to meet expected future growth, including that arising from new development along the proposed route.

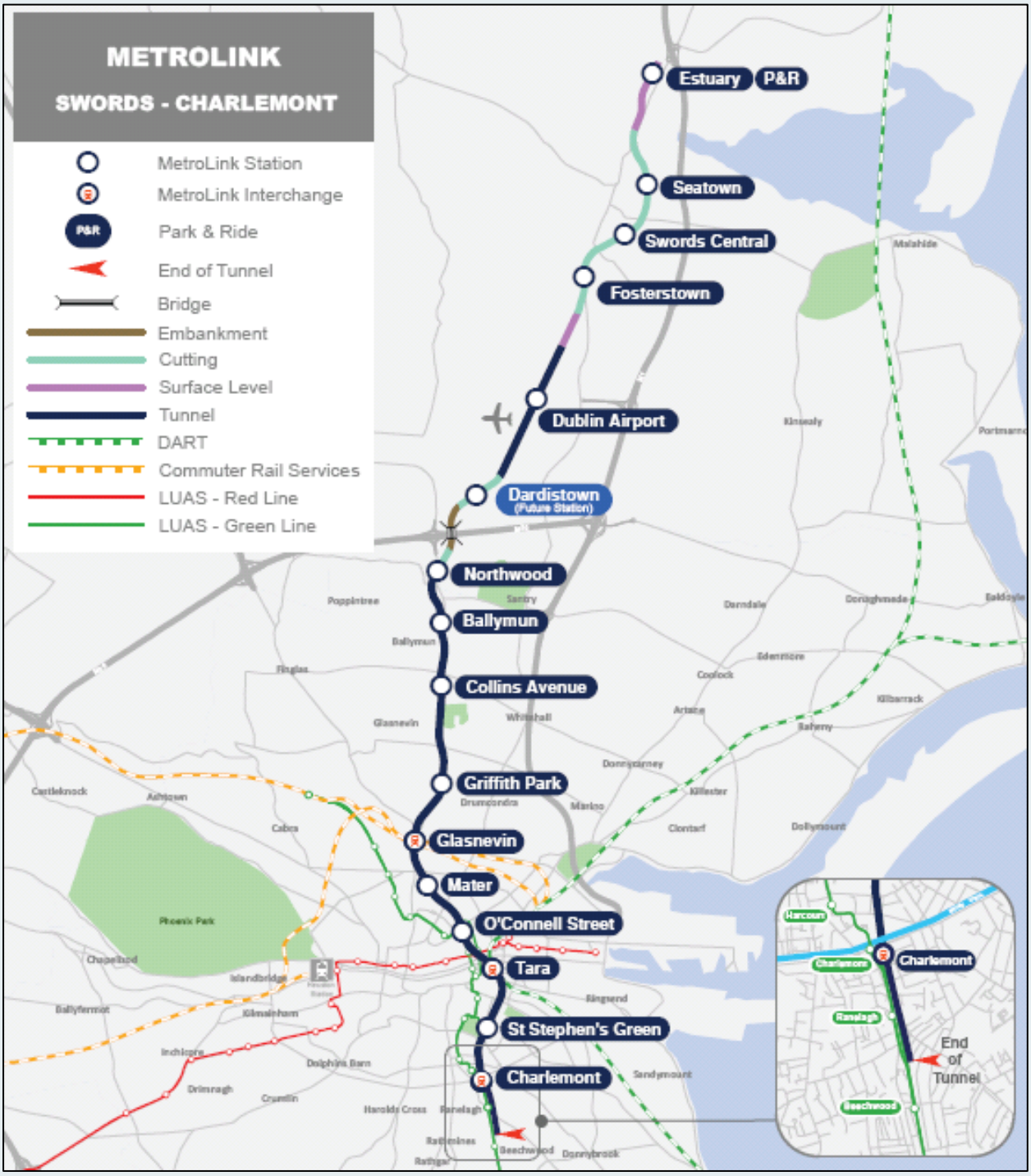
Other policy documents and work such as the DTTAS's *Smarter Travel—A Sustainable Transport Future* (2009), *Strategic Framework for Investment in Land Transport—SFILT* (2015), *Planning Land Use and Transport—Outlook 2040* (PLUTO 2040) (in progress; see O'Grady, 2018), and the NTA's *Planning and Development of Large-Scale, Rail Focussed Residential Areas in Dublin* (2013) and *Transport Strategy for the Greater Dublin Area 2016–2035* (2016), are also important here. According to an NTA report, the Smarter Travel national policy document finds that 'infrastructure development alone will not be enough to address the unsustainable trends in transport', adding that central to shifting travel behaviour 'is the need to improve the alignment of spatial and transport planning, stopping urban sprawl and urban-generated one-off housing in rural areas. It also identifies a need to introduce carefully targeted fiscal measures to discourage unnecessary use of the car' (NTA, 2013: 6). The SFILT states that it is 'timely to consider what role transport should play in the future development of the Irish economy, and identify a high-level strategic approach to the development and management of Ireland's land transport network over the coming decades' (DTTAS, 2015: 6).

Further, it is understood that DTTAS are currently undertaking analysis to inform the basis for a framework for investing in land transport. PLUTO 2040 is an element of the NPF as well as serving as an update to SFILT. PLUTO 2040 is to focus explicitly on how to ensure the realisation of the NSOs set out in the NPF, taking account of the investment plans in the NDP.

The NTA's work finds *inter alia* that public-sector intervention is required to 'show confidence' in the delivery of strategic residential locations, and that for Dublin to continue to grow, improve its economic status, and function as an economic driver for the country, a co-ordinated and integrated approach to land use and transport planning must continue to be implemented through national policy (NTA, 2013: II). The NTA's strategy for the Greater Dublin Area emphasises the importance of integrating transport policy and land-use policy and, for example, the need to link housing development with proximate public transport services (NTA, 2016). This is discussed in more detail in Chapter 4.

The core concepts of TOD, as set out in the next chapter, make clear this linkage between the NPF/NDP's objectives and investment, national transport strategy, and transport-orientated development.

Figure 1.1: Emerging MetroLink Route 2019



1.3 TOD and Recent Institutional Developments

Third, recent institutional developments linked to the NPF in the area of active land management by the State present both an ideal opportunity to consider TOD, and a potential mechanism to implement it strategically in Ireland. To help deliver on the compact growth NSO, the framework provides that

> a more effective strategic and centrally managed approach will be taken to realise the development potential of the overall portfolio of state owned and/or influenced lands in the five main cities, other major urban areas and in rural towns and villages as a priority, particularly through the establishment of a national regeneration and development agency (Government of Ireland, 2018c: 133).

In September 2018, the Government established the Land Development Agency (LDA). As set out in the official briefing material, the LDA has two main objectives:

- Co-ordinate appropriate state lands for regeneration and development, thereby opening up key sites not being optimally used, especially for housing delivery.
- Drive strategic land assembly by working with both public and private-sector land-owners.

In explaining the logic of the LDA, the Government cites NESC's analysis and the European models of active land management described in NESC report No.145, *Urban Development Land, Housing and Infrastructure: Fixing Ireland's Broken System* (NESC, 2018).

The LDA is proceeding rapidly on its first core objective, by preparing publicly owned sites for housing development and identifying other potential public lands. According to the LDA, from the initial trawl, they have secured access to a portfolio of eight state-owned sites, which will yield approximately 3,000 homes.

The analysis here builds on the Council's existing body of work on housing and infrastructure, and contributes to the LDA's second main objective by examining TOD and its role in underpinning affordable housing and sustainable urban development. According to the Department of Housing, Planning and Local Government, the Government has

> approved future capitalisation of the LDA through a combination of transfers from the Ireland Strategic Investment Fund in the form of subscription of share capital by the Minister for Finance and private finance of up to €1.25bn. Capital funding will be used to fund feasibility appraisal, master planning, infrastructure provision and, if required, development of sites, as well as strategic land acquisition as may be required in the circumstances (Cussen, 2018).

In summary, TOD appears to be a strategic approach to urban/housing development that fits well with Ireland's international goals (e.g. the UN SDGs), with national planning and investment policy set out in the NPF/NDP, and finally with the establishment and objectives of the LDA and the Office of the Planning Regulator.[1]

[1] A discussion of how the role of the newly established Office of the Planning Regulator is aligned with transport-orientated development can be found in Chapters four and five.

Chapter 2
Transport-Orientated Development

2.1 A Brief History of Transport-Orientated Development (TOD)

The history of the TOD concept is well set out by Carlton (2007) and that overview is summarised here. He suggests that perhaps the first antecedent of TOD may date back as far as 1811, when Blaise Hamlet in Bristol, England was planned by John Nash to ensure workers' housing was both compact and close to factories, 'with transportation in mind: in this case walking' (Carlton, 2007: 5). But it is the higher speeds and extended ranges (compared to horse-drawn vehicles) delivered by the development of the electric motor in the 1890s and exploited by the real-estate sector that provides the first true example.

Land on the periphery of cities but within reach of employment was opened up for development, and developers began to build and sell housing in new areas. Cervero (1993) notes that, between 1880 and 1920, when tram usage multiplied, the number of people in the US living in cities of 10,000 people or more jumped from 11m to over 45m. It was estimated by Smerk (1967) that as much as one-quarter of the US population still resides in urban and suburban areas whose spatial organisation was shaped by the streetcar (cited by Cervero, 1993). According to Cervero, many of the early railway and streetcar neighbourhoods had a distinctive pattern of streets focused on a civic space to instil a sense of community, and were designed as safe, secure and attractive places, and to facilitate convenient walking to transit. However, he also points out that this did not apply to all transport-orientated developments of this era. 'The lack of subdivision regulations combined with land speculators' drive to reap profits at the expense of environmental considerations meant many projects were devoid of basic urban provisions like street lights, plumbing and schools' (Cervero, 1993: 5).

It was often the case in the US that the tramlines and their associated residential communities were developed by the same owner. Dittmar and Ohland (2004) suggest that in such cases the phrase 'development-orientated transport' more aptly described these places than does 'transport-orientated development', since private developers built transport to serve their developments rather than *vice versa*.

Dublin also had an extensive tram network from the late 19th century. The first horse-drawn tram in Dublin began in 1872 and operated between College Green and Garville Avenue in Rathmines. Trams were initially provided mainly in the southern suburbs but in time routes were developed on the north side. Trams were a spur to development in areas such as Clontarf. The first electric tram in Dublin began operating in May 1896 from Haddington Road to Dalkey, and proved popular. All lines were electrified by 1901 (Barry, 2014).

This public transport-linked form of development was popular and common until the 1940s. The economic depression of the 1930s saw a fall-off in investment in rail infrastructure and, following the Second World War, the car began to dominate passenger transport. The cost of cars declined sharply and major road and motorway construction programmes were initiated in many countries.

This period of car-orientated transport continued unchallenged up to the 1970s. In that decade, transport companies responded to the decline in passenger numbers and revenue by leasing some of their property, becoming real-estate operators.

The concept of 'joint development' soon emerged, whereby transport companies partnered with private developers to minimise the cost of constructing and operating public transport systems, stations or improvements 'through creative arrangements' (Carlton, 2007: 3). Although this form of development was a financial measure, it soon became apparent that the higher-density property developments constructed near the new public transport infrastructure led to higher passenger numbers.

At the same time, the environmental and anti-sprawl movements began to emerge and, coupled with the work of academics such as Robert Cervero, urban planning and development became increasingly concerned (again) with links to bus and rail transport. Cervero 'pioneered the use of the now-ubiquitous "D" variables in explaining travel behaviour' (Ewing, 2016: 43):

> Built environments that are high on the D-variables—**development density, land use diversity, street connectivity, destination accessibility, and distance to transit** (which is low in compact developments)—are often described as compact (Ewing & Cervero, 2017: 19).

Ultimately, the TOD concept began to be codified by Peter Calthorpe in the late 1980s, and ultimately in his book *The Next American Metropolis* (Calthorpe, 1993). TOD came to mean the delivery of mixed-use community development that encouraged people to live near transport services and to decrease their car-dependence.

For Calthorpe, TOD was more than a definition of urban development, it was also a community design theory that 'promised to address a myriad of social issues' (Carlton, 2007: 1). TOD offers the potential to build communities with a diversity of incomes, family types and activities that can take on a positive sense of community, all based on sustainable modes of transport.

Over the last thirty years, the TOD concept has been developed, promoted and applied all across the globe. From Tokyo and Melbourne to Montreal, Copenhagen and Naples, urban development has been intrinsically combined with sustainable transportation (Thomas & Bertolini, 2017). Ørestad, a new town linked to Copenhagen, is considered to be a good contemporary example of planned, sustainable TOD that incorporates jobs, housing, retail, education and leisure facilities (Falk, 2017; Knowles, 2012).

In the UK, an entire new centre and community is being developed for west London on a 650-hectare site, taking advantage of investment in rail infrastructure (High Speed 2, and the Elizabeth Line formally known as Crossrail). Closer to home, the Adamstown development in west Dublin has been described as an example of TOD, inspired by the work of Cervero (PRP *et al.*, 2008). In 2017, the Nordic Prime Ministers group published a white paper, *Nordic Sustainable Cities*, as a 'flagship project' promoting TOD as a land-use policy measure for sustainable mobility to try to reduce distance travelled in general, as well as limit the use of cars:

> [TOD] offers more transportation choices (more alternatives to the use of private cars), fewer and shorter trips, lower personal transportation costs and easier access to daily needs. TOD is characterised by an efficient public transportation with supply of frequent travel opportunities, high quality public spaces with user-friendly environments for cyclists and pedestrians, a high density of development around public transport stations, a limited number of parking spaces, and a mix of residential, office and retail uses (Nordregio, 2017: 40).

An early inspiration for TOD was the idea of garden cities set out in the writing of Ebenzer Howard (1898, 1902). Howard created a movement centred on satellite cities enabled by rail access. The first such developments were undertaken in the UK (Letchworth Garden City and Welwyn Garden City in Hertfordshire, England) and the concept was adopted in the US (e.g. Chatham Village in Pittsburgh, and Jackson Heights in Queens, New York). From Howard to Calthorpe, TOD has had community, well-being, and the provision of adequate and suitable housing at its heart (see Section 2.3 also). Howard's garden cities were centred on housing of desirable densities for communities, featuring concentric patterns with open spaces, public parks and radial boulevards:

> Howard was focused on reducing the overcrowding experienced in industrialised cities, especially the British capital, London. Howard's garden city was circular in diagram and consisted of 32,000 inhabitants with dwelling density limits and proximity requirements to the central core. A combination of multiple garden cities separated by 'country' and connected by inter-municipal railways formed a metropolis with a central district of 58,000 people (Carlton, 2007: 6).

Calthorpe also emphasised housing in his ideas of sustainable communities and 'urbanism', which makes communities socially vibrant and alive through projects of varied scale and which provide affordable housing (Carlton, 2007). Cervero has used the TOD lens to examine 'accessibility', or the degree to which land use and transportation decisions help bring job opportunities closer to where workers live.

The analysis finds that residents of low-income, inner-city areas generally face the greatest challenges, though decisions in the urban transportation field can help 'to redress serious inequities in accessibility to jobs, medical facilities, and other important destinations' (Cervero *et al.*, 1999: 1259). More recently, the UK's National Infrastructure Commission has suggested that Crossrail 2, the new north-south rail link across London, provides an opportunity to rethink how housing is planned and delivered in London and the south-east of England.

With the establishment in Ireland of the LDA, whose mandate involves regeneration, development, housing delivery and land assembly, the concepts of TOD look relevant and helpful. Those concepts are set out in the next section.

Before closing this section, it is worth noting at this point that the TOD concept is not without its critics. For example, TOD has been accused of not providing a 'substantially differentiated experience from the sterile suburban master planned developments it was meant to replace' (Carlton, 2007: 22). This criticism is based on a view that master-planning developments and urban regeneration will not create character or community.

Some of the criticism is based on implementation rather than on the concept itself. First, although Calthorpe emphasised TOD as new housing and new transport development in parallel, TOD can become an infill solution around existing transport infrastructure. In these cases, transport companies tend not to develop the required real-estate expertise and budget, with low numbers of staff in land-use planning departments. Making the area around existing transport (rail) infrastructure sufficiently attractive to compete with other non-TOD housing developments requires specific skills. Transport services alone are insufficient to drive real-estate markets (Carlton, 2007).

Second, TOD projects can 'acquiesce to suburban-based parking requirements, disregard the call for mixed-income housing, and often ignore their relationship with transit altogether… Somewhere between the conceptualisation and opening day, many projects end up becoming fairly traditional suburban developments that are simply transit-adjacent' (*ibid.*: 21). Ultimately, if the necessary transport infrastructure/service is not delivered to the community, TOD differs little from other forms of urban development.

Finally, it is crucial that, when consideration is given to applying TOD, adequate attention is paid to the regular, short trips that make up the majority of residents' journeys. TOD has been criticised for emphasising and addressing long, often work-related commutes and rail-based solutions, at the expense of journeys of less than five kilometres, and associated alternative solutions. When the objective is fewer car trips, reduced congestion/emissions, and improved quality of life, public and active transport options to destinations providing retail, educational and healthcare services are perhaps more important than proximity to a rail connection to a nearby larger urban centre.

2.2 Key Concepts of TOD

The factors associated with the transport-orientated form of development have been described in many ways, but a number of concepts appear to be key: mixed-use/mixed-income development and communities, moderate to higher housing density, short distances to transport nodes, high quality and frequency of transport service, the discouragement of car-usage/ownership, and integrating land-use and transport planning.

Table 2.1: Example of Varying Urban Housing Densities in Selected Cities

Location	Density (Dwelling per hectare)
Dublin (outer suburbs)	27
Dublin (Ranelagh Rathmines)	45
Amsterdam eastern harbour	100
Malmo (Tango Housing)	158
Dublin (Georgian areas)	165
Copenhagen (Victoriagade)	170
Amsterdam (Java Island)	180

Source: Keogh Architects.

Adelfio and Hamiduddin (2014) provide a review of relevant TOD literature. In explaining TOD, they cite the California Department of Transportation's definition:

> moderate to higher-density development, located within an easy walk of a major transit stop, generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the auto (Adelfio & Hamiduddin, 2019: 2).

TOD can be developed on brownfield or vacant land, or may be also applied as 'suburban retrofit'. It is described as similar to other forms of urbanism but focusing more on transportation and reducing car dependency. TOD does not promote any one architectural style, though it does emphasise mixed-use developments. TODs require transport agencies/companies, the state/local authorities and developers to co-operate, reach agreements, and/or form types of partnerships.

Adelfio and Hamiduddin refer to bringing together environmentally rooted principles and inclusionary planning. TOD can incorporate environmental and social sustainability, social equity, social justice, inclusion and accessibility. It can lead to sustainability of community, defined by Dempsey as the 'ability of society itself, or its manifestation as local community, to sustain and reproduce itself at an acceptable level of functioning' (Adelfio and Hamiduddin, 2014: 2).

In an example of an integrated transport-planning approach, rather than following the German convention of providing one parking spot per dwelling, the Vauban area of Freiburg was designed to support car-free living—'parking cost and location were unbundled from housing, with parking spots provided at construction cost in garages on the periphery…' (Broaddus, 2010: 114).

Box 2.1: What is Transport-Orientated Development?

TOD is generally considered to be mixed-use development near, and/or orientated to, public transport facilities. Common TOD traits include urban compactness, pedestrian and cycle-friendly environments, public and civic spaces near stations, and stations as community hubs. Typically, a multimodal TOD neighbourhood is built around a public transport station or stop (e.g. train station, metro station, tram stop, Bus Rapid Transit (BRT) stop, bus stop, or even ferry stop), surrounded by relatively high-density development, with progressively lower-density development spreading outward from the centre.

TODs are generally located within a radius of 400 to 800 meters from the transit stop. This is considered to be an acceptable walking distance at the start or end of a journey by transit. In some parts of the world, the TOD approach reaches further than single locations towards a network or corridor approach, which aims at realigning entire urban regions around rail transport and away from the car. While these are the basic TOD tenets, the model has been revised to fit a variety of contexts (including low-density cities and regions) (Urban Europe, 2016).

Three different types of TOD have been suggested:

- Single node TOD. This type consists of a single neighbourhood based around heavy rail stations. Its location can be urban or suburban. The development takes place in a circular pattern centred on a train station. The radius varies from 0.5km in the US (to allow for pedestrian access) to 2-3km in the Netherlands (where bicycle access is more common).

- Multi-node TOD. This type is similar to the single-node TOD but it reaches further than a single location to create a regional network of nodes around heavy rail stations. The nodes can be circular or semi-circular. The location of TOD nodes follows a typical beads-in-a-string pattern. This type of TOD aims at realigning entire urban regions around rail transport and away from the car.

- Corridor TOD. This type is encountered in urban areas, and is based around light rail or Bus Rapid Transit (BRT) stops (which are more frequent than heavy-rail stops). The development pattern is linear or ribbon-like along the transit line(s) because the nodes (e.g. around tram stops) are near each other. TOD corridors are applicable to existing urban areas or planned urban extensions (Urban Europe, 2016: 2).

Having looked at how TOD emerged and developed over the decades, as well as at some of the elements that are key to it, the next section examines some of the reasons why it has been adopted in many countries around the world.

2.3 Benefits of a TOD Approach

Cervero (1993) outlines the primary and secondary benefits of pursuing and delivering a transport-orientated approach to urban development. The primary benefit of TOD—building places that are friendlier to public transport users, cyclists and pedestrians—is the conversion of more car trips to public and active transport trips. Such shifts would in turn likely produce a number of secondary benefits:

- **Improved mobility and environmental conditions**: Public and active transport growth—which can include providing more travel options for a wider array of people, including older people and disabled persons—can relieve traffic congestion and reduce air-pollution.

- **More efficient and sustainable urban development**: TOD generally promotes infilling and densification, thus helping to preserve natural resources, including open space and agricultural land. TOD can also be a tool for supporting urban regeneration. Physical and social infrastructure costs could also be contained to the extent that development is less sprawled.

- **Improved viability of transport companies**: Increased public transport use increases fare income, thus reducing the reliance of transport companies on outside support or subsidy. Income can also be generated from land or air rights leases, and other forms of value capture.

Cervero summarises the point thus:

> [Transport-orientated development] offers an opportunity to help redress some of the… most pressing urban problems including air-pollution, shortages of affordable housing, traffic congestion, inner-city decay, physical barriers to mobility, and costly sprawl. The secondary benefits will be limited, of course, by the degree to which resident workers and customers of [transport-orientated development] actually patronise transit (Cervero, 1993: 8 & 9).

Where TOD succeeds in shifting travel away from cars to other modes, it will also contribute to a reduction in greenhouse-gas emissions and can promote decarbonisation. A World Bank study pointed out that, if cities follow a TOD pattern of development, it becomes possible to decouple the growth of output per capita and transport emissions per capita. The report cites Stockholm, Copenhagen and Hong Kong as cities that have achieved this (Salat and Olliver, 2014). Where TOD is combined with other sustainable practices in regard to building, energy and waste, there is further scope to reduce emissions. A study by Cervero and Sullivan (2011) estimated that 'Green TOD' could reduce emissions and energy consumption by up to 30 per cent relative to conventional developments. Given that major infrastructure and development proposals typically go through environmental assessment processes, climate impacts should be quantified and reported, where possible (e.g. using traffic modelling and emissions data).

One key secondary benefit of a TOD strategy is the potential to **increase supplies of affordable housing.** However, it is not automatically the case that housing supply in TOD will be affordable. In its 2018 report, the Council emphasised the need to build affordability into policies that are designed to increase the supply of housing, starting with land and cost rental. The Council pointed out:

> While an increase in the supply of housing can have some effect in reducing its market price, the nature of housing markets, land markets, credit markets and urban development means that this is not in itself a reliable or sustainable means of achieving housing affordability. Ireland must now engineer affordability into the supply of housing through systems of land management, cost rental and social housing (NESC, 2018: ix).

Explicit measures are needed to achieve affordability in a TOD development as with housing generally. The Council has suggested that cost rental is the most effective and fiscally sustainable way of achieving permanent affordability, as explained in its 2014 report *Social Housing at the Crossroads: Possibilities for Investment, Provision and Cost Rental* (NESC, 2014). Cost rental uses modest supply-side supports, such as land and finance at favourable rates, to underpin affordability, and it makes this permanent by ensuring that rents cover costs and that the equity that accrues as loans are repaid creates a revolving fund, used in the service of further affordable housing.

Where TODs are led by public bodies, they can be designed and developed to provide a stated proportion of social and affordable housing. TOD developments are ideal locations for social and affordable housing. Residents can save on transport costs through lower reliance on cars while also benefiting from improved access to jobs and services.

Higher-density TOD development can support housing affordability through lower unit land costs and by boosting housing supply. However, there is not a simple relationship between housing density and affordability. Construction costs can be higher for high-rise developments (DHPLG, 2018). High rise is not equivalent to high density. Georgian Dublin achieves fairly high density without being high rise. From a viability perspective, the Department of Housing, Planning and Local Government suggests that six storeys are optimal for urban development (*ibid.*).

The new Land Development Agency (LDA) is to contribute to housing affordability in both direct and indirect ways. First, directly, all of the sites in its initial portfolio, being state lands, will require the delivery of at least 40 per cent social and affordable homes (10 per cent and 30 per cent respectively), in line with the Government's policy in respect of state lands. The LDA has stated that, in some cases, the level of social and affordable homes delivered from this portfolio will be even higher than 40 per cent—some of the landowners with a housing delivery mandate, such as the Housing Agency, may require higher levels of affordable housing provision on their sites (Coleman, 2018).

Second, more indirectly, the LDA intends to improve affordability by increasing the supply of land that is available for development, providing visibility and transparency in the land market. The intention is to counter the boom-bust cycle experienced in land prices in Ireland. That cycle determines housing affordability and rent-price levels.

Despite the benefits associated with a transport-orientated approach, TOD is not the norm, and barriers to its application are well rehearsed in the literature.

2.4 Obstacles and Critical Success Factors

A strategic policy framework is likely to be necessary to overcome common institutional obstacles, identified by Porter (1997) and recounted by Cervero, Ferrell, and Cervero *et al.* (2002). Several potential obstacles make public involvement necessary in spurring TOD:

- One obstacle is **locational liability**. Transit systems have rarely been set up to maximise development potential. Lines follow existing rights of way through unattractive industrial areas or terminate in suburban areas not slated for or conducive to high-intensity development.

- A second obstacle is the **property market cycle**, which may delay station-area development, inhibiting the transit agency's ability to attract ridership. Market conditions along specific corridors also affect station-area development and accordingly should inform governmental policy in promoting TOD.

- A third obstacle cited by Porter is **non-supportive government policies** such as exclusionary zoning, lot-size restrictions, and suburban-like building codes. Government strictures may disallow optimal mixes of uses, suppress densities, and impose inappropriate setback, height or parking standards.

- A fourth obstacle is **institutional barriers**. Cross-jurisdictional cooperation is often necessary but difficult to achieve. Also, in attempting joint developments, transit agencies are usually unaccustomed to assessing or taking the types of risks inherent in real-estate development.

- A fifth obstacle is what Porter calls a **fixation on car-oriented design**. In a survey of 19 rail systems in North America, Porter found that most prioritised park-and-ride lots over passenger-generating land uses near stations.

An American observer of TOD from a developer perspective identifies the inability to assemble an adequately large parcel of land as often the deal breaker that stops TOD (Utter, 2009). A certain minimum amount of land is needed to accommodate the interesting mix of uses, parking, street networks and plazas that constitute a TOD. Utter suggests that, outside the urban core, 4–6 hectares seem to be a *minimum* size, with many projects at 20 hectares or more. A complicating factor is the difficulty of assessing the value of land for TOD. According to Utter, landowners rarely understand the costs of place-making and TOD, and this leads to unreasonable land acquisition costs that make land assembly for TOD infeasible.

Sometimes public agencies in the US (Portland, Oregon) assist with land acquisition and may sell on the land at less than market value to developers in order to improve the economics of TOD for developers (Arrington, 2009). This is the opposite of land value capture (as discussed below) but is sometimes considered worthwhile if value is created in other ways, including increased public transport use and future increases in property tax revenue.

Other barriers include cultural and sectoral factors. For example, the cultural desire to own specific types of housing (e.g. three-bedroom semi-detached homes with one or two parking spaces) and local opposition to nearby high-density developments are factors that cannot be ignored. In addition, recent research points to the predominance of second-hand property purchases in the Irish housing market—€11.8bn out of €14.5bn or 80 per cent in 2017 (Howard, 2018).

Finally, construction-sector capacity represents a potential barrier to TOD at present in Ireland. Recent research highlights the shortage of relevant skills in the sector: at the end of 2017 the number of people at work in the Irish construction sector was 110,000—46 per cent lower than in 2007 (Conefry & Mcindoe-Calder, 2018).

These barriers are in addition to the funding challenges outlined in the next section. Given the desirability of all of the primary and secondary effects, TOD offers itself as a worthwhile strategic pursuit, and it is valuable to examine what it might take to make TOD a success. Curtis *et al.* (2009) present experiences of transport-orientated developments from America, Australia, Asia and Europe. They show that TOD can be done successfully in different settings and institutional contexts. However, according to Cervero, it is in Europe and in particular Scandinavia that TOD is most fully developed.

The first step in realising TOD for a metropolitan area is to formulate a vision of the future urban centre. Cervero cites the examples of Copenhagen's 'Finger Plan' and the 'Planetary Cluster Plan' of Stockholm. In both cases, corridors for channelling overspill infrastructure were built to steer growth along desired paths (Cervero, 2009).

Of course, a vision is just the starting point. In light of the common obstacles noted above, Newman's four strategic planning tools for making TOD a reality provide an important guide to policy-makers:

i. A strategic policy framework that asserts where centres need to occur and at what kind of density and mix.

ii. A strategic policy framework that links centres with a rapid-transit base, almost invariably electric rail.

iii. A statutory planning base that requires development to occur at the necessary density and design in each centre, preferably facilitated by a specialised development agency.

iv. A public-private funding mechanism that enables the transit and the TOD to be built or refurbished through a linkage between the transit and the centres it will service (Newman, 2009: 13).

Bertolini *et al.*'s assessment of the extent to which the successful TOD cases matched this framework finds that not all of these are always necessary (Curtis *et al.*, 2009: 258). Nevertheless, it is clear that such a framework will be helpful, if not essential, in addressing the problems of locational liability, real-estate market cycle, non-supportive government, institutional barriers, and a fixation on car-oriented design.

In another meta-analysis of 11 international TOD case studies, Thomas and Bertolini (2017) examined the relationship between critical success factors and performance in the achievement of TOD. This study identified 16 possible *critical success factors* (see Table 2.2). These were revealed by looking to the experiences of TOD in Tokyo, Perth, Melbourne, Montreal, Vancouver, Toronto, Naples, Copenhagen, Amsterdam-Utrecht, Rotterdam-Den Haag, and Arnhem-Nijmegen over at least two decades. The extent to which each critical success factor was present in each case study was ranked on a five-point scale, with (1) signifying that the factor is absent and (5) indicating a very significant presence. For example, a regional land-use transportation body was ranked as follows: (1) no regional land use-transportation body; (2) municipal land-use transportation body; (3) informal inter-municipal land use transportation co-ordination; (4) regional land use-transportation body with an advisory function; and (5) regional land use-transportation body with a regulatory function.

Table 2.2: Factors Critical to the Successful Implementation of TOD

Plans and Policies (5)	Actors (7)	Implementation (4)
Policy Consistency	Actor Relationships	Site-Specific Planning Tools
Vision Stability	Land Use-Transportation Body	Regional-Level TOD Planning
Government Support	Inter-Municipal Competition	Certainty for Developers
Political Stability (National)	Multidisciplinary Implementation Teams	Willingness to Experiment
Political Stability (Local)	Public Participation	
	Public Acceptance	
	Key Visionaries	

Source: Thomas & Bertolini, 2017.

The study also identified five performance measures of TOD:

- convenience and desirability of walking, cycling and public transport;
- modal split;
- scale of implementation;
- maximising efficiency of public transit infrastructure; and
- overall success, an aggregated decision attribute incorporating the first four attributes.

Each of the performance measures was also ranked on a five-point scale from not successful (1) to very successful (5). The rankings for both the critical success factors (CSFs) and the performance measures were an aggregate of the authors' judgements and those of local experts. Having assembled this data, the authors applied a procedure called 'rough set analysis'. This involved using software to find the association between the presence of combinations of CSFs and measures of TOD success.

The analysis revealed that there are generalisable patterns across the case studies. It found six factors with highest frequency in terms of successful TOD implementation. TOD is best pursued in the context of a very ***stable national political agenda*** which supports the strategy, and in the presence of ***a regional land use-transport planning body***.[2] TOD will have an increased chance of success where there are 'very ***good relationships between municipal actors*** at a regional scale; e.g. communication, overlap in goals and vision, roles' (Thomas & Bertolini, 2017: 145). Next, where the level of ***public participation in land use-transport planning processes*** is high, TOD can optimally deliver results.

Finally, the approach benefits from both the presence of ***multidisciplinary teams implementing TOD***, and a high degree of ***certainty for developers***; e.g. 'plans and policies supporting higher densities, tools to enable mixed uses at station areas, designation of areas for development/transit corridors', (*ibid.*: 145). It is encouraging that the LDA has already stated that, in terms of its strategy of removing blockages from the system of housing delivery, and more generally, co-ordination and collaboration with their local authority partners will be 'essential' (Coleman, 2018).

Thomas and Bertolini suggest that these findings should be directly applied by land-use and transportation planners in their own regions, to 'emulate the ideas behind the policies, practices, and governance models, or simply use them as inspiration to develop their own paths to success' (*ibid.*: 152). The advice from Newman and Thomas and Bertolini is coupled with the learnings from the case studies

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[2] The most frequently occurring value for a regional land use-transportation body was four (occurring four times), meaning the presence of a regional land use-transportation body with advisory powers. The next most frequently occurring value was three (occurring three times) which signified an informal inter-municipal land use-transportation body.

undertaken here (see next chapter and the background paper) to inform an initial assessment of Ireland's existing framework for a transport-orientated approach (Chapter 4), and to prompt the list of issues for further consideration set out in the final chapter.

In advance, one further topic is worthy of exposition: although not a critical success factor in its own right, how a transport-orientated development is funded is an issue that contributes to the critical nature of Thomas and Bertolini's 'government support' and 'inter-municipal competition' factors.

2.5 Funding TOD

A key early question for policy-makers considering a TOD strategy will be the adequacy (or otherwise) of financial resources available to undertake TOD:

> Resource… is necessary to cover the costs of providing for infrastructure, parking and public space. Many owners and users benefit from the added value of 'transit' while the costs for creating or improving transit are not shared by all beneficiaries. Or, in other words, the added value of transit offers potential to recover part of the costs of improving transit, but that potential is underused. This can be attributed to the general difficulties in capturing the potential increased value of transportation benefits (Lenferink & van der Stoep, 2013: 1).

2.5.1 Value Capture

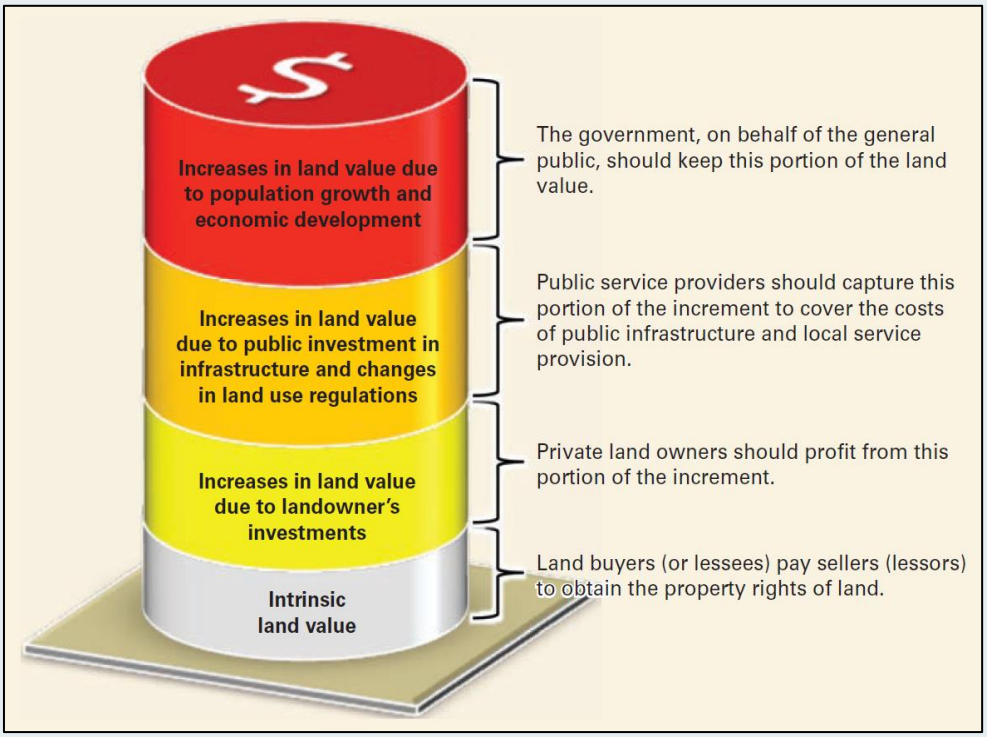
In his analysis for the World Bank, Peterson (2009) notes that population growth in cities will create huge demand for infrastructure investment to make cities efficient, provide basic services, and upgrade public services in line with incomes. In parallel, that population (and economic) growth drives up the cost of urban land. As a result, 'the ability of cities to finance the needed infrastructure will depend in large part on their ability to capture a portion of these gains and to channel them into infrastructure finance' (Peterson, 2009: 1).

According to Lenferink and van der Stoep, the primary rationale of value capture is that the beneficiaries of transport investment are not limited to direct users (e.g. commuters) but also include landowners and developers who benefit from enhanced location advantages. The analysis here is, *inter alia,* in the context of the establishment of the LDA.

One of the advantages of active public involvement in land development is that increases in the value of land as a result of a change in designation and/or by infrastructure provision can be used to finance public objectives (e.g. land for affordable housing, parks, schools, medical clinics, infrastructure, cycle lanes, playgrounds, etc)—'by improving transport, the accessibility of a location will increase, as will its value' (Lenferink and van der Stoep, 2013: 1). Research published in 2018 by Daft.ie reports that a residential property close to a DART or

LUAS stop commands an average premium of 26 per cent (€114,000) compared to the average asking price in Dublin.

Figure 2.1: Land Values and Attribution



Source: Suzuki *et al.* 2015.

Under value capture mechanisms, the state, transport agencies/companies, developers, and landowners 'jointly increase land values by exploring development opportunities of transit station areas and sharing increments in land values' (Suzuki *et al.,* 2015: 3). Previous NESC analysis has reported that a range of policy instruments have been developed to collect a proportion of the enhanced locational value associated with increased investment. These can be placed in two general categories: tax or fee-based instruments, and development-based value-capture mechanisms (Table 2.3).

> The increasing demand for quality urban transport, the enormous cost of major transport infrastructure and constraints on central public expenditure mean that such new sources of funding are needed. Locational value mechanisms have enabled national and sub-national governments to deliver new infrastructure which they would not otherwise be able to fund, or to bring forward planned infrastructure projects ahead of time.
>
> More generally, incorporating locational value mechanisms into public transport projects can also encourage greater discipline in project

> selection, the adoption of a stronger developmental ethos and can facilitate the integration of land use and transport planning. For example, the Australian Government argues that the need to focus on leveraging alternative funding sources tends to enhance the technical design, scope and policy ambition of projects.
>
> The use of locational value mechanisms can also facilitate the emergence of a more developmental approach to transport infrastructure. Rather than seeking to address narrowly-defined problems—such as alleviating congestion or improving travel times—the focus shifts to how investment in transport can contribute to economic growth, competitiveness and sustainable urban (re)development (NESC, 2018: 34).

Of course, Ireland has existing mechanisms that are similar in terms of the objective a value capture approach seeks to achieve (e.g. development levies, stamp duty, VAT). Section 49 of the Planning and Development Acts (as amended) provides for supplementary development contribution schemes that are directly linked to both infrastructure investment (typically, specific public transport infrastructure projects) and specific locations (any such scheme specifies the area to which it relates). However, the extent to which these mechanisms would address the difficult funding issues presented by TOD or offer a neat solution to the timing mismatch problem is questionable. As the NESC research stated, the additional revenue generated by the policy mechanisms listed below is often reinvested in public infrastructure, as opposed to being consumed within the general tax-take.

In general, these instruments tend to be used as part of a package of measures designed to contribute to infrastructure investment, rather than just one policy instrument being chosen. The finance associated with these instruments can provide a new funding source for capital investment.

A high share of the value uplift from the provision of transport infrastructure arises from increases in the value of existing property. For commercial property, some of this value increase is captured when property revaluations occur. The residential property tax (RPT) also would capture a modest share of the value added by public transport investment. The current valuation for the RPT has been frozen since 2013, thus limiting the contribution of this to value capture. There is concern that the increase in property values since this tax was first established would lead to a large increase in tax bills, so this increase in property value may be offset to prevent a proportionate rise in the yield from this tax. Regular RPT revaluations and allowing the increase in property values to be reflected in tax liabilities would make a modest contribution to value capture. However, this would not be an earmarked contribution for transport investment; if the share of this tax revenue that could be attributed to transport investment were identified, it may be too low to be worthwhile separately allocating for transport.

Table 2.3: Location Value Capture Policy Instruments

Tax or Fee-Based	Development-Based Value Capture
Tax Increment Financing: This mechanism allocates any increases in total property tax revenues, above an agreed baseline, towards public transport investment within a designated zone.	Direct Public or Joint Development: Government/public body owns or acquires land and either undertakes development or partners with the private sector to do so. Revenue from the real-estate development contributes to the funding of transport infrastructure.
Land Value Tax/Location Benefit Levy: Tax on the (rental) value of land/commercial buildings in the vicinity of a public transport amenity. This tax/levy is distinct from a conventional property tax.	Sale or Lease of Land: Government/public body sells or leases to developers land whose value has increased relative to the initial public acquisition price as a result of public investment and/or regulatory change, in return for an upfront payment, leasehold charge or annual land rent payment.
Income or Payroll Tax: Income earners or employers in the region served by the new transport infrastructure pay an extra increment of income or payroll tax that is allocated to the public transport body.	Sale or Lease of Development or Air Rights: Similar to Sale or Lease of Land, but in this instance it is air or development rights that are sold or leased. The added value from the new public transport system is capitalised into the sale or lease price.
Special Assessment Districts: Areas benefiting from improvements in public transport self-impose an additional tax to help finance the said infrastructure improvements. Common in the US, special assessment districts are generally subject to a vote by the group who will pay the tax.	Land Readjustment: Landowners pool their land and contribute a portion of their land for sale to raise funds and partially defray public infrastructure development costs that will have raised the value of the land in question.
Sales Tax Levy: Increases to existing or new retail sales taxes are allocated to the funding of a particular transport project.	Transport Company Business Diversification: The transport agency diversifies its business model to generate additional revenue to fund the core business of transport provision.
Transport-focused Development Fees: Developers in the vicinity of a new public transport investment pay extra fees for new building projects	Rezoning: Changes are made in land-use policy to allow commercial and/or residential development. This will often include enabling higher-density housing development.
User Fees: The users of public transport services pay an additional fee for the new and/or improved services.	Leasing of Commercial Space: The public transport agency retains ownership of the commercial space in and around stations and leases it out to businesses at market prices.

Source: NESC, 2018: 33.

Transport for London (TfL) has proposed a new land-value capture charge which would be a focused tax on residential property in areas benefiting from new transport facilities. It would be based on the increase in property value in the area concerned relative to property values in a wider control area. It was also proposed to apply a similar charge on tenants, though only to new residents (purchasers or tenants). The scope for value capture from existing property merits further examination.

The case studies presented in Chapter 3 illustrate how public land can be used to contribute significantly to the funding of TOD. This involves a public body master-planning an area in such a way as to make housing highly accessible to public transport. The public entity undertakes the initial site development work, such as investment in roads, parks, cycle paths and water infrastructure. Sites are then sold or leased for development. This recovers the cost of preparing the site for development and also contributes to the cost of the transport infrastructure. The ability to adopt this approach with privately owned land depends on the ability to acquire sites adjacent to public transport at a cost that does not undermine the viability of undertaking a quality TOD development. There could be scope in some situations for the LDA to assemble land for the purposes of TOD.

One common question is how to get disparate private landowners to pool and develop land. Tokyo is said to provide one of the best examples of applying a value capture mechanism (land readjustment) to fund rail investment using the revenues from property development (Suzuki *et al.,* 2015).

Under legislation, the state can designate property along future railway lines as 'special land readjustment areas'. Under this process, landowners in these special areas give up or reserve portions of their land for public use (e.g. transport facilities or land for sale to generate funds for public investment).

Although these landowners later receive smaller parcels of land, the value of these parcels has increased by virtue of the new transport facility, other local infrastructure, and new services. Transport agencies/companies 'can smoothly acquire the rights of way for their transit investment and promote transit-supportive housing developments through the land readjustment practices' (*ibid.*: 9).

In terms of development-based value-capture mechanisms to fund TOD, Lenferink and van der Stoep (2013) outline a number of difficulties. First, there are different perceptions of TOD and the value for money it can deliver. Sites identified for TOD can be difficult to sell on the real-estate market, and if located near existing rail station areas, for example, can involve higher development costs (e.g. be difficult to access; there is higher probability that grounds are contaminated).

Second, the governance of TOD can introduce difficulties. These include a general pattern in public transport policy and investment not matching rhetoric, a tendency to favour greenfield expansions, and obstruction from multiple roles and scattered responsibilities. Lenferink and van der Stoep note that 'mobility and land use planning are separated worlds, with different dynamics, different planning instruments and different actors involved' (*ibid.*, 2009: 2).

Third, there is no guarantee that the land-use efficiency envisaged by TOD will appeal to residents or commuters. For example, compact urban development may produce greater congestion. Residents may find a TOD location unappealing as it involves living near public transport nodes that can have 'lower air quality and higher nuisance' (*ibid.*: 2)

In respect of land sale-based financing of infrastructure, Peterson highlights four particular risks and limitations. First, urban land markets are volatile, and recent transactions may reflect a land asset bubble. Second, land sales often lack transparency and accountability. Most land sales are conducted off budget and there is little public accountability as to how revenues are used. Third, land sales cannot continue indefinitely, and are not a permanently recurring source of capital revenue. Finally, land-financing techniques are instruments of capital finance, and their ultimate value depends on the quality of planning that underlies public investment (Peterson, 2009).

There may, however, be potential for TOD—or elements of it—to be supported by international finance mechanisms. For example, the European Investment Bank (EIB) provides financing through loans, guarantees, microfinance and equity investment to projects that contribute to European Union policy objectives.

According to the EIB's *Climate Strategy* (2015), the bank has a target of a minimum of 25 per cent of their lending to support specific climate-action projects. The associated list of eligible projects includes 'transport oriented urban development including integration of transport and urban development planning leading to a reduction in use of passenger cars' (EIB, 2017: 2). In the EIB's view, TOD projects are projects that contribute towards the EIB's COP climate-action indicator, and also EIB lending to those projects will be counted towards the achievement of the bank's 25 per cent lending target for climate action.

Any institution seeking to deliver a TOD in Ireland could examine the potential for EIB involvement. Given the centrality of sustainability to the TOD approach, this could include the EIB's role in supporting housing development with nearly-zero-energy-building (NZEB) standards (e.g. EIB investment of €100m in 2018 for two NZEB complexes in Copenhagen, comprising six buildings and 660 new apartments). In addition to providing project finance to 'unlock' funding from other sources, the EIB offers administrative and project management assistance and advice to facilitate investment (see Box 2.2).

An overarching issue with value capture approaches is the tension or trade-off between efforts to maximise value to fund investment, and the valid objective of more affordable housing (see Section 2.3).

Box 2.2: Transport Project Types Supported by the EIB

Transport is the largest sector in which the European Investment Bank (EIB) has been active since its foundation. According to the EIB, there were 735m additional passengers on EIB-financed transport in 2017. Transport project types supported by the EIB include:

- **Urban mobility: Construction and extension/rehabilitation of public transport networks such as metro and tramway lines, and rapid-transit bus systems; acquisition of rolling stock and buses; promotion of cycling and pedestrian networks; development of intelligent traffic management and information systems to improve public transport, such as electronic ticketing, traffic management and communication systems.**

- **Rail: Rehabilitation, upgrading or electrification of lines; construction of new lines, signaling systems and intermodal terminals; financing of rolling stock for freight and passenger services, both conventional and high-speed.**

The EIB describes four particular lending products, which may contribute to the delivery of TOD:

- **Project loans to finance a transport project or programme with a total investment cost in excess of €25m. The bank does not cover more than 50 per cent of the total project cost. Recent examples include the development of Dublin port.**

- **Intermediated loans enable the EIB to provide loans to local banks and other intermediaries which then lend on to the final beneficiaries. For example, the EIB financed a loan that enabled the Baden-Württemberg region to buy trains and lease them to service operators who otherwise would have been excluded from the project tender.**

- **Framework loans allow the EIB to finance transport schemes with a total investment cost of less than €25m by combining several projects under one loan. The renewal and upgrade of Madrid's metro network was financed via a framework loan.**

- **Infrastructure equity funds catalyse investment in transport by making capital-intensive investments.**

The EIB also provides 'blending' finance such as through the Project Bond Initiative to help project promoters attract additional private finance from institutional investors such as insurance companies and pension funds. It also provides a loan guarantee instrument to cover revenue risks in the early stages of public-private partnership (PPP) transport projects to facilitate more private-sector involvement in the financing of the Trans European Transport Network (TEN-T). Finally, the EIB assists bodies to prepare, evaluate and support the implementation of transport projects (e.g. Warsaw Metro), and provides support for public-private partnerships, while its European Investment Advisory Hub (EIAH) offers a single access point for advisory and technical assistance services.

Source: www.eib.org/en/projects/sectors/transport/index.htm, accessed 23 January 2019.

Further, in an Irish context, policy-makers must be mindful of fiscal and expenditure rules[3] and how these can shape decisions around 'who borrows' and 'who spends', what TOD-related activity is off balance sheet, and whether market-corporation tests apply, for example. TOD also poses questions about how investment projects are appraised and managed: should they be appraised and managed on a case-by-case basis (e.g. in terms of value for money, cost/benefit), or (in the context of value capture) would a 'portfolio' approach be preferable? Can one project generate funds for another?

Finally, discussions of value capture can emphasise the adequacy of capital expenditure, when experience informs us that the operational costs (e.g. day-to-day running of a rail service) are an important consideration for policy-makers. The Luas system in Ireland demonstrates that there is a variety of operating models.

2.5.2 Affordable Housing

Another form of value capture is a requirement for developers to include a proportion of social and affordable housing in their developments. Internationally the term 'inclusionary zoning' is used to describe this practice. It is adopted in many countries, including the US, UK, France and the Netherlands. There are differences in the approaches adopted internationally and varying degrees of effectiveness. In Ireland, it is applied through the current Part V requirement that 10 per cent of the housing units in the vast majority of new housing developments consist of social housing, with the land paid for at its existing use value.

In England, the provision of affordable/social housing is negotiated with developers through Section 106 agreements. The Greater London Council has adopted a new threshold of 35 per cent affordable homes for any new private-sector planning application in the London area. Applications that meet this minimum threshold will be subject to a fast-track route in terms of planning permission, and no viability

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[3] Ireland's *Fiscal Responsibility Act 2012* codifies the core elements of the EU Fiscal Compact into law and includes the following Fiscal Rules:

- **Budget Balance Rule (BBR) (from 1992):** The Maastricht criteria include a limit of 3 per cent of GDP for the fiscal deficit. If the deficit exceeds that limit, an excessive deficit procedure is normally opened, commonly known as the 'corrective arm', as experienced by Ireland during the recession. Ireland graduated from the excessive deficit procedure at the end of 2015 and is subject to the 'preventive arm' of the Stability and Growth Pact since 2016.
- **Debt Rule (DR) (from 1992**): The Maastricht criteria include a limit of 60 per cent of GDP for general government debt. A required annual pace of debt reduction was introduced in 2011 based on a benchmark of 1/20th of the distance between the actual debt ratio and the 60 per cent threshold on average over three years, starting three years after a country has left the current excessive deficit procedure.
- **Expenditure Rule (ER) (from 2012):** Following governance reform in 2011, the ER requires that the annual growth of primary expenditure—excluding unemployment benefits and subtracting revenue discretionary increases—should not exceed long-term nominal GDP growth. This benchmark applies only when a country is not in the excessive deficit procedure and is thus part of assessing adequate progress toward the structural budget balance target. No excessive deficit procedure can be opened when the rule is violated, but sanctions can be applied to euro area members (an interest-bearing deposit of 0.2 per cent of GDP).

Source: LLedó *et al.*, (2017).

reviews.[4] Vienna has recently adopted a new zoning category called 'subsidised housing'. In these zones, two-thirds of all floor space in developments with more than 50 units must be used for subsidised housing. This reduces the market price of this land by excluding competition from other potential buyers of the land.

Consideration should be given to a requirement in Ireland for affordable housing on private land in addition to the Part V provision for 10 per cent social housing. While this existed in the past for affordable housing for purchase, it would have new relevance as a contribution to government policy in developing an affordable rental sector. In a situation in which a major transport investment was leading to an increase in land value, an affordable housing requirement would partly offset this increase in land value. The Ninth Progress Report of the All-Party Oireachtas Committee on the Constitution recommended that local authorities identify lands in their development plans that would be reserved for social and affordable housing (APOCC, 2004).

2.5.3 Conclusion

Despite the challenges, value capture has become a regularly used funding mechanism for transport-orientated developments, and this point is examined more closely in a series of the case studies used to inform the research for this report. These case studies show how it is possible to invest in the infrastructure required for TOD on public land and then to recover a substantial share of the costs through the sale of developed sites. This approach was also used for the development of new towns in Britain in previous decades and for the development of Dublin's Docklands.

[4] In England, negotiations on affordable housing requirements between developers and councils are often subject to protracted discussion as to what level of affordable housing is viable.

Box2.3: UK Parliamentary Committee on Land Value Capture

Land value capture was examined in a recent report by a UK parliamentary committee, the Housing, Community and Local Government Committee of the House of Commons (2018). This report was prepared in the context of the current housing crisis and growing interest in this issue. The primary focus of the report was on the increases in land value arising from the granting of planning permission and public investment in infrastructure.

The report examined the existing mechanisms that have the effect of capturing increases in land value even if not explicitly designed for this purpose. One significant measure is Section 106 agreements. These are negotiated between planning authorities and developers, and require developers to contribute to the cost of new infrastructure that becomes necessary as the result of a development. These agreements can cover a wide range of infrastructure, including roads, public transport and affordable housing.

There are advantages and disadvantages to Section 106 agreements. Significant value is captured for local benefit and their negotiated nature means they can take account of different situations. However, considerable concerns have also been raised about this measure. Developers may overpay for land and then seek to negotiate lower contributions; these agreements are frequently subject to renegotiation, most commonly involving a reduction in the affordable housing contribution. The ability to achieve satisfactory contributions depends on the skills of the planning authorities and some are more effective than others in this respect. The Greater London Authority has had considerable success in establishing a requirement that 35 per cent of housing on private land be affordable.

Another measure is the Community Infrastructure Levy, a locally determined fixed charge designed to help finance the infrastructure needed to deliver infrastructure to support the development of the affected area.

The report acknowledged that significant value was captured by existing measures, and proposed reforms to improve their effectiveness. However, it concluded that the mechanisms were insufficient to deliver affordable housing and infrastructure to the degree needed and that there was scope for central and local government to capture a greater proportion of land value increases, both through reform of existing measures and new measures.

The subject of compulsory purchase was addressed in the report. While this is not in itself a form of value capture, the committee noted that compulsory purchase order (CPO) powers:

> **can be important in enabling the development and provision of necessary infrastructure on large sites, particularly where ownership is fragmented. This could facilitate completely new developments, extensions to existing communities, or the build out of large schemes within urban areas (House of Commons, 2018: 33).**

The committee made several significant recommendations regarding compulsory purchase. First, it recommended that ways of simplifying the process be explored to make it faster and less expensive for local authorities, while maintaining necessary safeguards. Second, it proposed legislative change to give local authorities the power to buy land at a fairer price that would not include 'hope value':

> **The present right of landowners to receive 'hope value'—a value reflective of speculative future planning permissions—serves to distort land prices, encourage land speculation, and reduce revenues for affordable housing, infrastructure and local services. We do not believe that such an approach would be incompatible with human rights legislation, as there would be a clear public interest and proportionality case to make this change (*ibid.*: 49).**

Third, it recommended that the compensation paid to landowners 'reflect the costs of providing the affordable housing, infrastructure and services that would make a development viable, as well as capturing a proportion of the profit the landowner will have made' (*ibid.*: 49).

It also recommended that the value paid to landowners be determined by an independent expert panel and be binding on all parties. In cases where local authorities were acquiring land, this would allow them to capture the remaining value to provide the infrastructure and services made necessary by development, as well as additional revenue for other local priorities.

Finally, the committee was concerned that the compensation offered to landowners in low-value areas may not be sufficient to allow the owners to purchase an equivalent replacement elsewhere. It recommended that consideration be given to providing an equivalent replacement to what has been acquired in some circumstances.

The committee argued that its proposed reforms would contribute to the creation of new settlements and extensions to existing settlements:

> **Reform of the Land Compensation Act 1961, alongside the enhanced CPO and land assembly powers that we recommend, will provide a powerful tool for local authorities to build a new generation of New Towns, as well as extensions to, or significant developments within, existing settlements. This is a model that has worked well in the past and would lead to a significant, and much-needed, catalyst for housebuilding (*ibid.*: 41).**

Despite the committee's focus on new development, it was also conscious of the increases in value to existing property that arise from development, and especially investment in infrastructure. It recommended that a cross-departmental project be established to consider how the goal of an efficient and equitable system of land value capture that would address both new developments and existing property could be achieved.

The recommendations of the committee not to include hope value in the valuation of land for CPOs could have far-reaching effects. Hope value is defined by the Royal Institute of Chartered Surveyors as 'Any element of the open market value of a property in excess of the current use value, reflecting the prospect of some more valuable future use or development' (RICS, 2012: Appendix F Glossary Terms: 43). Hope value in Ireland is somewhat different since Ireland unlike the UK has a zoning system. When land is rezoned, it normally acquires a value above existing use value that is not then dependent on hope, although the concept of hope value is relevant in advance of rezoning in Ireland. The recommendation that compensation for landowners in CPO cases reflect the cost of providing infrastructure and affordable housing would be significant if applied in Ireland and be supportive of TOD. This issue for Ireland is further discussed in Section 3.8.

Chapter 3
Case Study Summaries and Lessons

As part of this work, the key elements of seven urban developments (six real-life, one fictional) were examined to reveal transferable lessons for Ireland. *These detailed case studies are set out in full in the separate background paper,*[5] but a brief summary and key learnings are provided here.

3.1 Freiburg[6]

Freiburg is a German university city with a population of 230,000, located beside the Black Forest. The strategic plan for the city aims to keep the city compact—'a city of short distances'—by developing brownfield rather than greenfield land. A strategic decision was made in the 1950s to retain the tram network, and today 70 per cent of the population lives within 500m of a tram stop. In the early 1990s, two brownfield sites became available on the urban periphery. One of these was an old sewage works (Rieselfeld) and the other was an old French army barracks (Vauban). Both of these have been developed as new urban districts. The population of Rieselfeld is around 10,500 while around 5,500 people are living in Vauban. Rieselfeld covers an area of approximately 70 hectares and has 4,500 homes. The smaller Vauban area is 41 hectares, with 2,470 homes. These imply gross densities of 64 (Rieselfeld) and 60 (Vauban) dwellings per hectare.

The vision for both Rieselfeld and Vauban was to create low-energy developments with a low level of car dependence, which would be attractive to families. The maximum height for buildings is 12.5 metres, which means buildings of four to five storeys, with the top storey used for storage. The height limit was designed so that parents would be able to call to their children from the highest occupied floor. The housing consists predominantly of apartments. These are residential areas, with some other uses including shops, sport facilities, churches and other community facilities. Development is restricted outside the built-up areas.

Before the first housing was occupied, Rieselfeld was connected to the tram, while in Vauban the tram replaced buses after a few years. In each case the central street is a tram corridor. It's a 15-minute ride to the centre of Freiburg and most of the housing is within half a kilometre of a tram stop. There is a frequent tram and bus service. The areas are designed to facilitate walking and cycling. There are limitations on through traffic and that, together with lots of varied places for playing, makes them very child-friendly areas.

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5 The full background case study paper is available at www.nesc.ie.
6 This section is based partly on Hall (2014).

Car parking is mostly in underground garages. In the case of Vauban, there is a distinctive approach to parking: those residents who do not own a car and commit to not buying one are not required to pay for the construction cost of a car space. Such residents are still required to pay for the cost of the land where the carpark would be if it is ever built, and land is set aside for this purpose.

The focus on sustainability is not limited to transport. Other dimensions include widespread use of solar energy and district heating systems in both districts.

The city council of Freiburg played a central role in the development of these new districts. The institutional model involved the establishment of separate project groups for Rieselfeld and Vauban; the project groups were part of the city administration but operated outside the normal administrative hierarchy. They worked with a municipal development company from Stuttgart. Design competitions for master plans for the two areas were organised. There was intensive public consultation and participation.

In regard to land, in Rieselfeld the city had land available from an old sewage works. In the case of Vauban, the land was a former military barracks; the city bought the land from the federal government at a reasonable cost. The federal government had wanted to sell the land to large developers. However, the city wished to pursue an alternative strategy involving a socially and environmentally progressive development that would include sale of plots to cooperatives, individuals and groups of self-builders. The city indicated that it would not give planning permission to a developer. The federal government had no choice but to sell the land to the city (Hamiduddin and Daesking, 2014).

The funding model for the area was to use a loan to invest in infrastructure and then to repay it from the proceeds of the sale of land plots. As well, the project benefited from limited state subsidies. Trusts (one for Rieselfeld and one for Vauban) were established to manage the finances for the development of these areas separate from the main city budget. The project infrastructure included building the streets and parks as well as schools and kindergartens.

Land for housing was sold in small lots; some of the housing development was undertaken by co-ops of future residents who would buy a plot and commission a block of building, plus semi-public space. This made it possible to reduce costs by up to 25 per cent compared to commercial development. One-quarter of the housing is social housing.

These new extensions are now complete. They have attracted a huge level of international attention. They show the possibility of creating new transport-orientated developments (TODs) that are highly sustainable and attractive to families. Strong leadership from the city council was one of the essential conditions for success.

3.2 Adamstown

The case of Adamstown in west Co Dublin is also instructive when considering if and how TOD could be applied in the future in Ireland. It was transport-orientated from the start, with a master plan designed to provide alternatives to private car use, via the new rail station, additional rail capacity, and dedicated bus routes. Indeed, Adamstown was conceived with an expectation of even further rail development; electrification of the line and a new interconnector tunnel (DART Underground).

The development was to include two high-service bus corridors, 20km of new main roads, a dual-carriageway orbital road with Quality Bus Corridor (QBC), pedestrian and bicycle facilities, and a continuous network of walking and cycling links.

The expected population of up to 30,000 over 10 to 15 years were to reside in a walkable development, with three boulevards to the station from lower-density homes, further away. The plan provided five- and ten-minute walking distances (400m/800m) between local centres and public transport. The vision for this particular development was for a transport-orientated urban extension, a vision that was set in the local plan in 1998, the designation as a Strategic Development Zone (SDZ), and the masterplan in 2003.

As with many—if not all—transport-orientated plans, in Adamstown development areas (11 in total) were earmarked for varying density. Five areas provided for low-density housing, three for medium density, and three for high density (up to 54, 78 and 90 homes per hectare respectively). A density of 25 to 30 homes per hectare might be more typical of suburban Dublin today. The highest-density housing was located nearest the station site. With maximum heights set at 12 storeys, the goal was to deliver the 10,000 dwellings in medium to high density overall.

As a potential TOD, Adamstown's plan was for a mixed-income, mixed-use development. Along with residential development, the plan included four schools, four public parks and a downtown shopping district with a cinema, public library and community centre, etc. Some 15 per cent of all new housing units were to be social or affordable units. There were very specific infrastructure requirements and detailed phasing plans. For example, when the number of dwellings reached 2,600, a leisure centre, swimming pool and all-weather sports pitch were to be delivered.

From an institutional perspective, Adamstown became a designated SDZ under Part IX of the *Planning and Development Act, 2000*. This made the local authority—South Dublin County Council (SDCC)—the specified development agency. Planning permissions were received and decided by SDCC. No party could appeal to An Bord Pleanála, which reduced the chance of vexatious action by rival interests. It also conferred some compulsory purchase rights within SDZ boundaries. The Adamstown Steering Group monitored overall implementation. It comprised local representatives, Irish Rail, the Dublin Transport Office, and the Health Board, etc. The Adamstown Project Team monitored implementation and compliance on a day-to-day basis. This was the dedicated institutional framework for this TOD. Nevertheless, land-use planning, development and transport functions were not unified in Adamstown as in other TOD examples, and SDCC did not include the substantial adjacent land it owned in the SDZ area.

In terms of funding, Adamstown was to a large extent private sector-led for investment and delivery. Three private developers worked as a consortium to deliver the development. In return they received concessions (e.g. exemption from contributing to the upgrade of the nearby railway, though other landowners had to), as well as benefiting from working within an SDZ. It was a market or market-dependent approach, and the State/SDCC as the development agency did not support the development of the actual Adamstown site directly with investment. There was substantial Exchequer investment in the Kildare Route Project, which upgraded the rail infrastructure serving Adamstown, thereby increasing potential service frequency and capacity, and there has been Exchequer investment in the Phoenix Park Tunnel which improved further the rail infrastructure serving residents of Adamstown. Further, there is continued and recurring Exchequer subvention to both rail and bus services that serve Adamstown. The Exchequer investment in the Kildare Route Project was supported by a supplementary development contribution scheme under the Planning and Development Acts.

However, the private consortium paid for all of the housing and a key piece of transport infrastructure (€6.2m for the rail station), and it was continued house-price growth that became the driver of delivery. Equity release from rising land value in the Celtic Tiger era funded the Adamstown development. Thus, the financing model for this TOD was a form of market-dependent value capture.

Despite its transport-orientated approach, Adamstown was in many ways an example of the standard development model in practice; i.e. private developers developing rezoned agricultural land on the edge of the city. The rate, scale and nature of development depended on private actors' market performance. Adamstown was vulnerable to the downturns and busts intrinsic to the property market. It also suffered from the chicken-and-egg conundrum which is common with infrastructure provision: wait for the population to rise before building, or 'build it and they will come'.

Overall, Adamstown is a local example of a strategic effort to apply TOD, and reads as an instructive and somewhat cautionary tale. While it might be considered a TOD in that it promoted mixed-use development near a heavy-rail public transport node (i.e. the Kildare rail line), it did not have all four of the elements that this research suggests are necessary for a TOD. It did have a *vision* and *decision* for TOD, but lacked the necessary *institutional* and *funding* framework. It won numerous prestigious awards for planning and, by the time the market crashed, 860 homes were occupied, 460 social or affordable units had been provided (13 per cent of total permissions), the railway station and 300 car parking spaces had been provided, a bus service was running to/from the city centre, and the first primary school was open. But as a market-led TOD it was severely affected by the downturn. Adamstown has a population of less than 4,000 today, and fewer than 1,500 of its 1,700 homes and apartments are occupied. The master plan revised in 2014 provides for lower densities, and Adamstown demonstrates the frailties of a market-led approach to transport-orientated urban development, rather than the frailties of TOD itself.

3.3 The Hague (Ypenburg)

Ypenburg is another example of TOD in practice, being a transport-centred urban development on the southeast outskirts of The Hague. Residential construction commenced in 1997 on approximately 600 hectares of public land which had served as Ypenburg military airfield from 1936 to 1992.

Ypenburg has been described as a good example of a VINEX project. VINEX is the Dutch national spatial planning strategy launched in 1991. The strategy included a 10-year housing plan to manage a rising population and increasing car-usage, and moved the Netherlands away from the 'clustered dispersal' approach which had been applied up to the 1980s. In contrast, VINEX provided a new vision to guide construction close to existing urban centres in an application of 'compact urbanisation' to protect the Netherlands 'green heart'. This provides the overarching vision for Ypenburg as a TOD.

Over 70 per cent of total public funding under the VINEX programme was allocated to infrastructure and public transport (€3.15bn out of €4.4bn), including 19 new railway stations, new tram and light-rail connections, the RandstadRail link between The Hague and Rotterdam, and the high-speed rail link between Schiphol Airport in Amsterdam and the French and Belgian rail networks. The vision was to minimise distances and car usage/ownership, and maximise public and active transport use.

As a TOD, Ypenburg was close to the existing, busy Gouda–Den Haag rail link, and its own Den Haag Ypenburg station opened in 2005. Two new tramlines were constructed to intersect at Ypenburg Centrum, which provided one central hub for trams and buses, a 25-minute cycle to The Hague's city centre. A new central boulevard was constructed along the former runway, and strict regulations for limited car parking were instituted. The noise from the nearby motorway system was 'blocked' by bunding the earth, while dykes were converted to waterways.

The goal was to construct 10,000 to 12,000 homes on 340 hectares of the site, to be complete by 2010. As an example of 'compact urbanisation', Ypenburg was to have a density of over 30 dwellings per hectare on average. The site was divided into five districts of around 2,000 dwellings each, with varying house sizes and densities as is typical of a TOD. Houses of between 140m^2 and 180m^2, and apartments of 110m^2 on average were developed, with densities of 14–48 units per hectare, achieving 37 dwellings per hectare on average overall. The target was for 30,000 residents and 10,000+ dwellings, with 30 per cent of those classed as affordable. Low car-dependence was promoted via public and active transport options and parking regulation.

Ypenburg is a mixed-use TOD, with two secondary schools, 10 primary schools, a shopping centre, childcare services and business parks. The site was wholly owned by the state across three municipalities, and a new consortium combined municipalities and private actors in a publicly-led consortium. This was the dedicated institutional model.

A Europe-wide competition for development was held using a 'quality over cost' selection process. The tailored funding model for this TOD was a combined land-value capture (LVC) and concession model where part of the value uplift was

invested in infrastructure provision while private elements recovered costs through property sales.

Ypenburg was slightly behind schedule, but only slightly. Over 10,000 homes were delivered, the estimated population is 27,000, and there is a good mix of tenure. The goal of 30 per cent affordable housing was achieved. As a successful TOD, the number of cars by surface area at Ypenburg is a fraction of the Dutch national average.

3.4 Montpellier

During the late 1970s the French Government identified Montpellier as a national 'urban laboratory' where many large-scale 'pilot' initiatives were tested for potential adaptation by other French cities (Academy of Urbanism, 2017). These initiatives resulted in the redevelopment of substantial military landholdings, the reintroduction of trams and pedestrianisation of the city centre (one of the first European cities to do both) in the 1980s (*ibid.*).

Montpellier also provides an example of TOD where the vision for the new transport system and the strategic development of the city was designed to promote an overall and highly radical strategic planning framework. This framework sought to develop an east-west linear city in place of the traditional concentric form. Among the objectives of the TOD aligned with the city's spatial strategy was to stop urban sprawl, increase population density, and combine population growth with activities that are recognised as a source of wealth and the protection of quality of life.

In 1960 a number of French cities benefited from a government decision to provide funds to boost them as independent counterweights to Paris. This decision is considered the catalyst for the development and regeneration of many cities in France, including Montpellier. In 1979, the Antigone district to the east of the city's historical centre was designated a new urban centre of Montpellier.

This was in accordance with the planned extensions of the city to the east of the historic centre, which aimed to reduce a long historical asymmetry in the city's development, while renewing some existing neighbourhoods.

The designated area comprised a 36-hectare site with existing public/private landholdings, including a military installation, factories, people's park, cultural centre, and a technical high school. The Antigone project is a mixed-use and mixed-income development comprising apartments, shops, offices, the regional government HQ, hotel, Olympic swimming pool, city library, park and landscaped riverbed.

The project also has a high level of social housing; 50 per cent of the 700+ dwellings are designated for social housing and the remainder are privately owned. Both social and private houses share the same design: two-storey residences, 9m and 12m deep and four to seven storeys high. Housing densities in Antigone vary between 20/30/50 housing units/ha depending on their proximity to transport. The higher densities are located closest to transport stops.

Line 1, the first of four tramway lines, opened in Montpellier in 2000. This line services the Antigone district in which there are three tram stops. The line is deliberately routed to serve 'traffic generators' including another development, La Paillade, with 26,000 residents and a high proportion of social housing, football stadium, science park, hospital/university zone comprising 10,000 jobs and 30,000 students, concert hall/congress centre, Montpellier's historical centre and links with the main train station, providing inter-urban rail and rural bus connections. Line 1 has 27 stations along a 15.7km route and 75,000 people live within a five-minute walk of a tram stop. The average number of passengers per day is 130,000, far exceeding initial projections of 75,000.

The dedicated institutional framework for this TOD is characterised by strong interaction among public and private stakeholders; e.g. the *Montpellier Agglomération* which was established during the late 1990s/early 2000s and comprises 31 of 93 local authorities and other stakeholders, including farmers. The Agglomération is responsible for producing strategic spatial development plans (SCOT—*Schéma de Cohérence Territoriale)* for the city of Montpellier and its surrounding areas.

A single development agency, SERM-SA3M, was contracted by the Agglomération for the development of the Antigone site as well as many other strategic development sites in the city. The agency's approach is characterised by public-private partnerships, public consultation and engagement. The specific financing model for the development of the Antigone district is a public-private mix. The transport development was largely funded by a transport tax (*Versement transport)*, which was introduced in Paris in 1979 and later extended to other cities including Montpellier. This tax is designed to support transport capital spending and operating costs.

The development agency ensures—through public involvement—that initiatives reflect local community aspirations. The agency also has the financial capacity to sell land below market prices and to subsidise housing for low-income households.

During the lifetime of the Antigone project, a number of initiatives at national level influenced the success of the Antigone project and other developments in Montpellier, for example:

- 1982—decision to decentralise fiscal arrangements, which diverted funds and powers from the central administration to newly restructured councils;
- 1989—implementation of a new law that facilitated the development of major urban projects; and
- 2000s—targeted investment; e.g. in 2009, 30 per cent of rail development subsidies granted by the government were for regeneration initiatives, in social housing areas located alongside tramway services.

Montpellier is described as one of France's dynamic cities. It has one of the fastest population growth rates and has steadily risen in the league of French cities. Between 1954 and 2008, the population of Montpellier city increased by 156,000, resulting in a rise in the league table of French cities from 25th to 8th place (Hall, 2014).

The Antigone project provides an example that is highly aligned with TOD objectives where regeneration and development plans combine both transport and housing, resulting in increased population density in close proximity to frequent, high-quality transport services.

3.5 Stockholm (Hammarby)[7]

Taking advantage of the fact that its urban growth began relatively late, Stockholm planned its development almost from the start. The city began to buy land from early in the 20th century to ensure well-planned development. Stockholm has much experience in effectively integrating the expansion of its public transport system with housing and other forms of development. It built its metro system (the Tunnelbana) in the 1950s and 1960s. The metro was designed to serve the new satellite towns proposed in a 1952 plan for the Stockholm area. The housing in the new satellite towns was built on land owned by Stockholm city.

Hammarby Sjöstad was part of the port of Stockholm. There was a plan to redevelop the area as an Olympic Village for the 2004 Olympic Games. While the bid was unsuccessful, it was decided to proceed with redeveloping the area. The vision for Hammarby was to create a new, attractive urban quarter connected to public transport, with a high standard of environmental sustainability. A new 'Hammarby model' has been piloted, involving a holistic approach to managing energy, water and waste. Hammarby was informed by the theory of transport-orientated development (Gaffney *et al.*, 2007).

Hammarby covers a large land area of 160 hectares and eventually will include 11,000 apartments. The density is relatively high at 100 units per hectare in the residential areas. It was envisaged that the area would attract younger people and empty-nesters but far more families with children chose to live here than expected. Hammarby is a mixed-used area with commercial spaces on the ground floor of the buildings. It is located along a lake, and a network of parks, green spaces and walkways runs through the district.

In 2002, a new orbital tramline in the Stockholm area was completed that connects some suburbs and links to the underground and commuter rail systems. This tramline runs through the main axis of Hammarby Sjöstad. There are four tram stops in the heart of Hammarby and the tram brings people within five minutes to the metro system. According to Hall (2014), the tram service has been central to the entire development. There are also new bus routes and the area is bicycle-friendly.

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7 This section is based in part on Hall (2014).

Stockholm City Council played a central role in redeveloping Hammarby Sjöstad. The institutional model used was to establish a dedicated project team in 1997. Team members include representatives from planning, real estate, traffic, water and sewage, waste and energy. The project team has wide-ranging responsibilities including the finance, design and implementation of the area. In addition it is responsible for soil decontamination and the construction of bridges, utility services, streets and parks within the area.

The Hammarby project is large and complex so would not have happened without co-ordination across and between agencies at all levels of government or without public/private cooperation (Gaffney *et al.*, 2007). The city had already acquired most of the land. It acquired the land in private ownership at above market prices in order to expedite the process. Compulsory purchase was used in a limited number of cases. However, the planners benefited from the fact that the buildings were not very valuable and contamination led to low land values (Faller *et al.*, 2010). The city's ownership of the land enabled the city planning department to co-ordinate transportation, land use and development for Hammarby Sjöstad in a very efficient manner (Gaffney *et al.*, 2007).

The funding model for Hammarby involved a number of different mechanisms. The city government prepared the land for development, constructed the streets and parks and put in some of the infrastructure. Decontamination of land was a major challenge and city made a large upfront investment in this. It covered these costs by selling land to developers. The county government was responsible for building the metro, which was financed by tax and fare revenue.

The installation of electricity, water and district heating infrastructure was financed by the fees paid by developers. Some of the major infrastructure, such as the ring road, was funded by central government (Hammarby Sjöstad, undated). According to PRP *et al.* (2008), long and difficult negotiations took place between local authorities and central government over funding of the infrastructure.

The housing has been developed by commercial developers who bought plots from the city council; some land was leased for development. One concern is that it is expensive to buy and to rent in Hammarby, and management charges are also high. As with the development of new towns surrounding Stockholm in the 1960s, Hammarby was developed on public land. However, it is different from the development of the new towns of the 1960s in that at that time the larger share of housing was provided by public housing companies and other non-profit developers.

Residents report that they are very satisfied with living in Hammarby Sjöstad. It is a high-quality development; the water and natural parks allow the inhabitants to live close to nature while at the same enjoying good access to transport, education, health and retail services (Faller *et al.*, 2010). The vast majority of trips by Hammarby residents are made by public transport, walking or cycling.

3.6 'Uxcester'

This case study is different from the others in that 'Uxcester' is an imaginary city. It's based on British cities with a population in the region of 200,000; for example, York and Oxford. A model for the development of cities like these was proposed in an essay that won first prize in the 2014 Wolfson Economics Prize essay competition; that competition had invited proposals for new garden cites (Rudlin & Falk, 2014). The model is informed by best-practice experiences in Europe, including places like Freiburg. The authors proposed a model for a new garden city based on extending an existing city rather than creating an entirely new one.

The authors present a vision of how Uxcester could double in size over 30 to 35 years by adding three new urban extensions with a population of 50,000 each. The urban extensions would be within 10km of the city centre and be served by rapid, frequent trams or bus rapid transport. Each urban extension would have five neighbourhoods.

The tram stops would be within 20 minutes of the city centre and each neighbourhood would be within 10 minutes' walk of a tram stop. Each neighbourhood would have a secondary school and primary schools, along with local health facilities.

The neighbourhoods would include walking and cycling routes. For every hectare of land used for development, one hectare would be allocated for green space. This would create the 'garden' in the garden city. The garden city would have the strategic objective of being carbon-neutral.

A new dedicated institutional model is proposed to create garden cities. A Garden City Act would establish a process for designating new garden cities and give statutory powers to Garden City Foundations. The Garden City Foundation would be an alliance between the city council and neighbouring local authorities. The foundation would commission a master plan identifying the infrastructure requirements.

Under proposed legislation, the garden city would be able to buy land at 'existing use value' plus compensation. It would also pay 'hope value'. However, the plan would be to acquire greenfield land mostly lacking in hope value; i.e. land with no prospect of being developed in the absence of the creation of the garden city. The basis of valuing the land would be frozen at the time of designation. Some land would be bought outright initially, but the deferred purchase mechanisms (for example, purchase of options) would be used for the larger part of the land. Land would be acquired by the garden city using compulsory purchase powers if necessary.

Three-quarters of the land for development would be used for housing, with the rest allocated for commercial, retail and community purposes. New employment would be located in and around the existing city centre and on a smaller scale in the neighbourhoods in mixed-use buildings and homeworking offices/workshops.

The basic funding model for the garden city is to use the difference between the original land value and the value of serviced land to invest in an ambitious

programme of infrastructure investment. This would include land preparation and investing in the tram, roads and schools.

There would be an initial equity investment (£50m) by a council or other patient investor to get the process started. The garden city would have the benefit of a government guarantee to raise additional finance. The finance would be repaid by selling housing plots, as well as some land for commercial and retail development.

The sale of land would be managed to facilitate diversity of housing provision. There would be opportunities for both large and small housebuilders and for the development of private rental accommodation. In addition, housing plots would be sold for self-build and custom-build. One-fifth of the housing would be social housing.

It is proposed that most of the housing would be built at suburban densities of 30 to 45 units per hectare. Some homes (20 per cent) would be at lower densities; these would be detached homes on the periphery of the neighbourhoods, while 10 per cent would be much higher densities of 65 units per hectare in central areas consisting of terraces and apartments.

The vision outlined by Rudlin and Falk is attractive: new planned urban settlements of walkable neighbourhoods served by public transport and provided without public subsidy. The approach they propose is of interest as illustrating a possible way of organising development in a situation where there are multiple landowners, including private landowners. Critical to the realisation of this vision is the creation of an entity with the ability to acquire land, raise low-cost finance and invest in infrastructure.

3.7 Cork

There is a long history in Cork of strategic planning at a sub-regional level. In 2016 NESC commissioned a research paper on Cork's approach to strategic planning from the UCC Centre for Planning Education and Research (O'Sullivan & Brady, 2017). This case study considers Cork's strategic planning approach and the achievement of and potential for transport-oriented development in the Cork area. It draws extensively on the NESC-commissioned research paper.

In 1976 a Land Use and Transportation Study (LUTS) was commissioned by the South West Regional Development Organisation on behalf of Cork County Council, Cork Corporation, the Department of Local Government and other public bodies. A new plan, the *Cork Area Strategic Plan 2001-2020* (CASP), was published by Cork County and City Council in 2001. A central concept in the new vison was 'metropolitan Cork', incorporating the city and the closest settlements as a single highly interconnected area. Outside the metropolitan area, growth was to be concentrated in a series of six ring towns. Other main elements of the vision were the regeneration of the city and docklands areas and creation of an integrated transport system.

A major part of the CASP vision was the development of a rail corridor in the metropolitan Cork area. The idea was to provide a high-frequency rail service and to

use this as a means of shaping development along the corridor. At the same time, the study pointed out that the viability of a high-frequency rail service was critically dependent on appropriate residential development along the corridor. The proposed corridor was to go from Blarney through the city centre and docklands to Midleton and to Cobh. The strategy involved reopening the rail line to Midleton. Government commitment to do this was secured in 2004, and the new service commenced in 2009, with new stations at Midleton and Carrigtwohill. However, other aspects of the rail corridor strategy have not been implemented, including other new stations, park-and-ride facilities and provision of a frequent commuter service.

Figure 3.1: Cork Rail Corridor

Following government commitment to invest in the Cork rail service, the county and city development plans and the local area plans for the areas concerned were revised to increase the share of new housing investment located in the hinterlands of rail stations on the network. In the county, the post-rail zoning was changed to include an additional 23,310 housing units in the period to 2020. The new local area plans had left it to multiple landowners to prepare the detailed master plans necessary to provide infrastructure. However, in the absence of the owners producing master plans for key sites at Midleton and Carrigtwohill, the council produced framework master plans for these sites in 2015.

All of the local authorities along the route agreed on introducing a special development levy on new developments, with the intention that these contributions would cover around 50 per cent of the cost of the rail project. Progress on appropriate rail-linked development has been slow despite these decisions. There was substantial population growth along the East Cork rail corridor, an area which was opened up with the reopening of the rail line to Midleton. However, O'Sullivan and Brady found that lack of progress on key sites near the rail

stations meant that much of this growth occurred in locations unlikely to support the rail service.

There are several reasons for the slow progress. Lack of funding limited investment in the rail service, and recession resulted in a collapse of development activity. In addition, some planning decisions ran counter to promoting rail-linked, transport-orientated development. O'Sullivan and Brady point out that the availability of large volumes of greenfield development sites in locations that were almost solely car-dependent was a disincentive for development along the rail corridor. The rail corridor locations also have the disadvantage of higher development contributions and challenging local infrastructure issues. Finally, fragmented land ownership of some major development sites along the rail corridor has also been an obstacle. Cork County Council had initially left the task of preparing master plans for key sites along the rail corridor to multiple landowners, but subsequently produced a number of master plans.

The 2014 County Development Plan (CDP) indicated some movement away from promoting higher density along the rail corridor. It considered that, despite the investment in rail, the current service was not sufficiently frequent for the locations along the rail corridor to meet the requirements for locations described as 'generally suitable for higher density' (Cork County Council, 2014: 45) and that the best locations for high densities were in the city.

There was also concern that the application of higher-density policies was restricting the range of housing types available and encouraging many households to locate in rural areas to secure their desired housing type. The CDP proposed facilitating a range of housing types in the towns along public transport corridors. However, it still supported higher densities at the locations closest to future high-quality public transport.

Some recent institutional and funding changes could help to make possible the realisation of transport-oriented development. First, in recent years, Cork County Council has designated a number of major development sites as 'urban expansion areas'. Taken together, these sites have the potential to deliver 11,000 housing units. The council has established a specialist housing delivery and infrastructure team to expedite this work. In view of the multiple land ownership in the urban expansion areas, the council intends to proceed with start-up infrastructure investment to unlock development potential. This is focused on internal infrastructure that would normally be undertaken by the developer (Cork County Council, 2017: 18). The ability of the local authority to initiate infrastructure investment on these sites has been improved by the Government decision to establish the Local Infrastructure Housing Activation Fund (LIHAF) and the follow-on Urban Regeneration and Development Fund (see Chapter 4). Some of the urban expansion areas are ideally suited to TOD. The plans for two of these are examined in the Cork case study in the accompanying background report, covering Water Rock and Monard (a planned new town).

From their examination of the experience of almost 40 years since Cork adopted the Land Use and Transportation Study (LUTS) strategy, O'Sullivan and Brady conclude that Cork has performed reasonably well in terms of spatial planning and that 'there has been a surprising level of consistency in the way key ideas and principles have

endured' (O'Sullivan & Brady, 2017: 151). However, they also find evidence of a weakening of this consistency following the publication of the update to the CASP in 2008.

There remains huge potential for TOD in the Cork area. Under the NPF, the preparation of a metropolitan area plan will now be on a statutory basis. There is substantial zoned land suitable for TOD along the rail corridor, while the commitment in the NDP to the BusConnects project should open up further possibilities. A new transport strategy for the Cork Metropolitan Area is being finalised by the local authorities in partnership with the NTA.

3.8 Lessons from International and National Experience

As mentioned earlier, the advice from Newman (2009) and Thomas and Bertolini (2017) is coupled with the learnings from seven case studies to inform an initial assessment of Ireland's existing framework for a transport-orientated approach (Chapter 4), and prompt the list of issues for further consideration (set out in Chapter 5). Based on the literature review, the case studies completed to date and consultation with stakeholders, it appears that four factors are particularly important in transport-orientated development.

First, there is the need to articulate *a vision*. TOD begins when policy-makers clearly articulate what it is their actions are intended to achieve. Whether it is 'compact urbanisation' in the Dutch case, or Freiburg's 'city of short distances', the high-level vision spurs the second important factor: *a decision*. State-level or local authorities take a formal decision to deliver a transport-orientated development. Without this, a business-as-usual scenario can be expected. Such a key decision was taken, for example, in Adamstown in 1998 and 2003.

Because successful TODs have specific qualities that do not feature in standard (often car-orientated) developments, a legitimate decision-making entity must take a bespoke decision to pursue TOD, for it to happen. As Newman (2009) advises, policy-makers must assert where TOD needs to occur and at what kind of density and mix.

One of these qualities, and the third important TOD element, is *a tailored institutional set-up*. Experience suggests that successful TOD projects might be aided by the presence of a publicly led body or team at the helm, one that does the land-use and transport planning for the site, and then prepares the site for development in accordance with a master plan. The set-up described in the Montpellier case provides a guide, while the experience in Adamstown provides a warning.

Newman states that, for a TOD development to occur, it should preferably be facilitated by a specialised development agency. Another important characteristic of the tailored institutional set-up element of TOD is the alignment of other public development policies across the system; for example, health, enterprise and education. This is also evident in the Montpellier case.

Based on extensive study of successful urban developments in European countries, Hall emphasises the central role of a public entity leading the process:

> Whether the precise agent is the city planning department (as in Stockholm or Freiburg) or a dedicated public agency (as in Hamburg, Leipzig or the Dutch VINEX developments), the key to success is a well-staffed and well-led planning office with a dedication to the task and the professional competence to draw up master plans and engage in complex arrangements for implementation with the private sector and with community groups. In every successful case, the detailed case studies show that from the start the public agency took the lead: it drew up a master plan, usually in considerable detail as to the layout of streets and buildings and open spaces—even down to the detailed height and massing of individual blocks—before inviting private or communal agencies to make their proposals for detailed development of individual elements (Hall, 2014: 305).

In considering an institution to deliver TOD and hence operationalise the objectives outlined in the NPF, it is worth reflecting on the UK's experience of major infrastructure projects. The UK Infrastructure and Projects Authority (IPA, 2016) found that the new public management model approach of 'eyes on, hands off' had proven to be inadequate, and that more not less public-sector involvement is necessary to ensure that infrastructure is delivered effectively and efficiently. The paper notes that the largest public-sector capital programmes face a number of challenges: they are 'too big to fail'; they are very expensive, even in the context of public finances, and they have high levels of inherent uncertainty and risk.

In a review of their experience of major projects, the IPA outlined four key insights:

i. **Significant public-sector involvement is needed to enable private-sector delivery:** In recent major capital programmes, the role of the public sector has been substantial, as sponsor, client and sometimes partner in the delivery organisation. Indeed, the public sector has been required to take on some of the roles that, under previous arrangements, it had attempted to transfer to the supply chain. The scale, risk, complexity and danger of supply-side power and the national importance of many projects has meant that deeper public-sector involvement was necessary to create the conditions under which the private sector will deliver effectively.

ii. **Major capital programmes require new ways of working in the centre of government**: A more collaborative approach to managing the government's role as sponsor has been developed, which has included the Treasury taking a more active approach to project management. This allows the public sector to manage financial risk differently, including assuming ultimate financial liability in a number of projects. There is also evidence of the need for greater flexibility in terms of how decisions are sequenced.

iii. **Collaborative contracting methods help mitigate risk and improve efficiency**: Enabling and incentivising successful private-sector delivery has required the public sector to create and manage a sophisticated commercial and project control environment. This includes more collaborative, alliance-orientated and disaggregated approaches to commercial arrangements, the

design of more sophisticated programme control architectures, and the involvement of the public sector in ensuring that private-sector capability and skills are in place. This has helped address some inefficient practices within the supply chain and reduce the costs associated with litigation that arises in traditional approaches.

iv. **Projects and new ways of working require significantly enhanced public-sector capability, in particular, but not only, in the client function**: The projects used different combinations of in-house skill development, external support and the tactical or strategic use of delivery partners, in order to develop the required public-sector capability. New bespoke entities and amendments to existing organisations have been used. An additional product of the increased collaboration is increased investment in the private-sector skill base.

These insights suggest the need for an active and enabling state with the capacity to collaborate with the private sector in seeking to deliver the strategic objectives outlined in the NPF, including TOD.

Although many of the strategic elements required for a TOD are present to varying degrees, the forging of deep and sustained collaborative relationships between public and private actors will be required to harness them in a manner that can contribute to the design, funding, management and delivery of what would be an ambitious and complex project.

In an Irish context, the Dublin Docklands Development Authority's (DDDA) development of the Grand Canal Docks (GCD) is a notable case. In 1998 the DDDA acquired the lands at GCD from Bord Gáis, decontaminated the lands, and completed its master planning before the lands were released to the market for development. The success of the GCD has been down to the fact that the DDDA was a tailored institution that was set up to plan, oversee and deliver development at this location. This has resulted in the delivery of substantial apartment and commercial office space development as well as the Bord Gáis Energy Theatre. As the DDDA did not have a transportation function, it does not align exactly with the TOD model as outlined in much of the literature. However, given the DDDA's city-centre location, this may be a moot point given its highly accessible location, which benefited from existing bus, heavy-rail and light-rail infrastructure. The DDDA had a land acquisition function that allowed it to buy and sell land. The DDDA processes operated at a faster pace than those of the more politicised local government sphere. The successful elements of the DDDA functions and structures present useful lessons for any future model.

A decision to deliver TOD needs support to overcome potential resistance (e.g. factors such as local interests, institutional barriers, ideological positions, or irrationality (FitzGerald, 2016). An American observer of TOD argues that leadership from three sources is needed for TOD: the public sector, including elected officials and staff, the private sector, and the non-profit sector. The non-profit sector here would include business associations, neighbourhood groups, housing bodies, environmental groups and others. The role of the non-profit sector is often overlooked but is significant:

> These non-profit groups are important because they put the project on the table, convene and educate the public, lobby for good design and provide critical support to elected officials making tough decisions (Utter, 2009: 213).

Several of the case studies show a straightforward model for TOD on public land. A public entity prepares a plan for TOD, installs infrastructure and then sells or leases serviced sites to a range of different types of developers, including non-profit and co-operative developers. Revenue from selling sites allows some or all of the costs to be recovered. The finance is usually provided by state investment banks who provide low-cost finance to European municipalities. Undertaking TOD on private land is more complicated, especially with a large number of landowners. In its report on urban development land, the Council identified the need to create the conditions for more active land management and new kinds of relationships between public authorities, private holders of development land and development actors (NESC, 2018). The Council welcomes the establishment of the LDA as an important step. In its previous report, the Council noted that whether further institutional reform or creation is necessary at municipal level is a question for later consideration (NESC, 2018). There is a need for further reforms to enable the LDA or other public bodies to guide the development of TOD/major developments on private land. This could include reforms to ensure the implementation of planned development in Strategic Development Zones (SDZs), including measures to avoid holdouts. A recent report commissioned by the Greater London Authority proposed the introduction of a new planning designation of 'land assembly zones'. In these zones there would be approval in principle to use compulsory purchase powers to support housing delivery and this would create an incentive for private land assembly (Falk, 2018). Something along these lines has sometimes happened in Ireland; for example, private land assembly took place in Smithfield in Dublin in the shadow of a threat of compulsory purchase by Dublin City Council.

Even if rarely used, an effective system of compulsory purchase of land can be an important backup to ensure that land is developed in a timely way in accordance with local plans, including planned TODs. The Law Reform Commission is involved in a project to consolidate, clarify and reform the rules and principles on compulsory acquisition of land. It notes that the current process can be considered unnecessarily complex, lengthy and costly, and the purpose of the project would be to put in place a fair, effective and efficient system (Law Reform Commission, undated). The experience of the Netherlands and Germany was discussed by NESC (2018).

In the Netherlands, compulsory purchase is allowed for spatial planning and housing. If the owners can show they are able and willing to develop the land in accordance with the land-use plan for the area, compulsory purchase is not permitted. The starting point in valuing land for compulsory purchase is the average value of the land within the designated plan area plus allowance for disturbance. Three points worth noting in relation to this are as follows. First, it is the *average* value in the plan area as a whole that is paid, taking account of the mix of uses, not the value of the individual plot. Thus, land that is to be used for a house or office receives the same value as land to be used as a park. Second, the land value is reduced to take account of the cost of providing infrastructure and servicing the land. Third, account is taken of how soon development is due to start. If

development is not imminent, a lower price is paid. In practice, the value of land for commercial use to a developer is usually higher than its compensation under compulsory purchase (Needham, 2014).

In Germany, an area may be designated an 'urban development zone' and made subject to an 'urban development measure' in defined circumstances. The municipality is required to buy all of the land (either voluntarily or by compulsory purchase) in the project area. The land is bought at its existing value. The municipality provides the public infrastructure, including social infrastructure such as schools, and then sells building plots. This measure can only be used if the area cannot be developed through other means and is not typical of the way in which land is developed in Germany. However, it does act as an incentive for landowners to bring land forward for development (Davies *et al.*, 2016). According to Falk (2014), this instrument was important for the development of Freiburg and its urban extensions.

In addition, land readjustment is a widely used technique in Germany; guided by a legislative framework, the land of multiple owners is pooled and reorganised for development while a plot suited to development is returned to the original landowner. This will be smaller than the original landholding but should be of equal or greater value.

In its 2018 report, NESC also pointed out that in some cases where land is being rezoned, including rezoning of industrial land for residential use, it would be desirable for a public body to purchase the land in advance of rezoning. This land can then be prepared for urban development (NESC, 2018:). This is relevant to the development of TOD on former industrial land served by high-frequency public transport. Further work is required in Ireland to identify what additional reforms would best support TOD and other large-scale development on private land.

Fourth, and finally, TODs require *an appropriate funding model*. TOD means investing in large transport and other infrastructure, ahead of demand. The previous chapter illustrated the importance of capturing the value of that investment, the uplift in the price of property in the area. Newman calls for a public-private funding mechanism that enables the TOD to be built by closely linking the transport infrastructure to the development of the location it serves. Again, standard Exchequer/PPP funding models do not have value capture at their core and, as shown in the literature and case studies, policy-makers must actively install a funding model appropriate for TOD—one that applies value capture to supports and encourages building ahead of population increases.

Falk (2008) identified the ability of European municipalities to use low-cost finance from state investment banks to invest in infrastructure, with the loans repaid from land sales being a key factor in the success of eco-towns such as the Freiburg extensions. He contrasts this type of funding to the 'lottery of grants' (Falk, 2008: 22).

To summarise, the delivery of a TOD appears to depend on the presence of a vision and decision to undertake a TOD, a tailored institutional set-up, and an appropriate funding model. One obvious question that arises is the extent to which the current framework for planning, development and investment in Ireland adequately provides these elements. That framework is described and discussed in the next chapter.

Box 3.1: Nantes

To supplement the literature review and case-study analysis, a research visit was made to Nantes, France (see background paper for full analysis). The purpose of this exploration of Nantes was to better understand the extent to which the factors of vision, decision, institution and funding assist in explaining the positive experience of transport-orientated development there. From that analysis, a few points appear clear and important. First, the vision to pursue TOD emerged from the approach adopted in designing and constructing the tramline in the 1980s. The vision to employ the tram to steer urban growth was crucial.

Second, regarding a decision to undertake TOD, the vision manifested itself in Nantes' Plan d'Occupation des Sols (POS) based on an analysis of the corridor along the potential route, and which broadened out the planning area for the tram. The POS combined with use of Zones d'Aménagement Concerté (ZACs), were the main mechanism for delivering TOD, as they detailed the nature and density of residential development close to the transport system. Those areas closest to tram stops were placed in different categories, with highest-density housing situated within 600 meters of a tram stop. The decision taken in preparing the Plans de Déplacements Urbains (PDU) also carried the original vision through into project planning and delivery.

Third, in respect of the institution to deliver sustained TOD, the presence of a mayor with executive powers was an important feature in Nantes. However, perhaps the key institutional development was the establishment of a public-private institution led by Nantes Métropole in 1979. This institution, led by the local authority, operates and manages the public transport system, thus linking urban and transport development and investment.

Fourth and lastly, the funding of TOD in Nantes depended to a large extent on the existence of a hypothecated local tax: the *versement transport* (VT). The public transport financing system based on this specific local tax, combined with fare revenue, provides sufficient resources to finance transport investment and operation, reducing the need to borrow.

Chapter 4
The Framework for Transport-Orientated Development in Ireland

4.1 The New Planning System

Ireland's policy landscape for transport-orientated—or any form—of urban development is shaped by *Project Ireland 2040—the National Planning Framework* (NPF). The NPF is the Government's new high-level strategic plan for shaping the future growth and development of our country out to the year 2040. It is a framework with a stated objective to guide public and private investment, to create and promote opportunities for people, and to protect and enhance the environment. The NPF sits at the top of the planning hierarchy. A number of plans and strategies flow from it, namely the National Development Plan (NDP), Region Spatial and Economic Strategies (RSESs), Metropolitan Area Spatial Plans (MASPs), and Local Area Plans (LAPs). An overview of each of these is provided in the following five sections in order to outline the policy landscape for transport-orientated development (TOD). Following that, Chapter 5 discusses the system in terms of the extent to which it provides a supportive framework for TOD.

4.1.1 National Planning Framework

The National Planning Framework (NPF) was published together with a 10-year national development and investment plan (described below) as one vision—Project Ireland 2040. This means that implementation of the NPF is to be fully supported by the Government's investment strategy for public capital investment and investment by the state sector in general.

An important issue addressed in the NPF is where best to plan for Ireland's growing population and economy. The NPF recognises the importance of learning from past experiences and outlines a new way forward, designed to guide future growth, and that is aligned with and supported by new and improved investment governance arrangements. The NPF and NDP set the context for each of Ireland's three Regional Assemblies[8] to develop their RSESs. These strategies are required to take account of and co-ordinate local authority County and City Development Plans in a manner that will ensure that national, regional and local plans align.

[8] Southern Regional Assembly, the Eastern and Midland Regional Assembly, and the Northern and Western Regional Assembly. See details in footnote 10.

The objective of the NPF is to guide the future development of Ireland, taking into account a projected one million increase in our population, the need to create 660,000 additional jobs to achieve full employment, and a need for 550,000 more homes by 2040. From a TOD perspective, it is telling that 'compact growth' is presented as the number one (of 10) strategic outcomes for NPF and Ireland's planning and investment system. Of the one million increase in population, 25 per cent is planned for Dublin, recognised as our key international and global city of scale and principal economic driver. This NPF is to oversee:

- 50 per cent of future population and employment growth in five cities (Dublin, Cork, Limerick, Galway and Waterford) and their suburbs;
- the 25 per cent growth expected for Dublin;
- 25 per cent in population growth across the other four cities combined (Cork, Limerick, Galway and Waterford), enabling all four to grow their population and jobs by 50 to 60 per cent, and become cities of greater scale, i.e. growing by twice as much as they did over the previous 25 years to 2016;
- the remaining 50 per cent of growth to occur in key regional centres, towns, villages and rural areas, to be determined in the forthcoming regional plans—Regional Spatial and Economic Strategies (RSESs);
- infill targets to make better use of under-used, brownfield, vacant and public lands;
- performance-based standards to achieve higher housing and jobs densities, supported by better services and public transport;
- enabling people to live closer to where they work, moving away from the current unsustainable trends of increased commuting;
- regenerating rural Ireland by promoting environmentally sustainable growth patterns;
- planning for and implementing a better distribution of regional growth, in terms of jobs and prosperity;
- transforming settlements of all sizes through imaginative urban regeneration and bringing life and jobs back into cities, towns and villages; and
- co-ordinating delivery of infrastructure and services in tandem with growth, through joined-up NPF/NDP and consistent sectoral plans, which will help to manage this growth and tackle congestion and quality-of-life issues in Dublin and elsewhere.

The focus on infill targets, enabling people to live closer to their work, urban regeneration, co-ordination in delivering infrastructure and services, and addressing quality-of-life issues all resonate with the concept of TOD (set out in Chapter 1).

The Planning and Development (Amendment) Act 2018 provides a legislative basis for the NPF, a monitoring process in relation to its implementation and a statutory requirement for regular reviews and updates into the future, together with the establishment of an independent Office of the Planning Regulator (OPR). This new office is to have an independent monitoring role, advising the Minister, Government and the Oireachtas on implementation of the NPF under the statutory planning process, through new RSESs (see below), local authority statutory planning processes and the decisions of An Bord Pleanála, and using a new set of indicators to assist effective monitoring.

4.1.2 National Development Plan

The NDP sets out the investment priorities to underpin the successful implementation of the NPF. The purpose of the NDP is to guide national, regional and local planning and investment decisions in Ireland over the next two decades, to cater for the anticipated population increase set out above.

The NDP is intended to meet Ireland's infrastructure and investment needs over the next 10 years, through a total investment estimated at €116bn over the period. The plan involves a substantial commitment of resources and is intended to move Ireland close to the top of the international league table for public investment. This level of capital spending is to ensure ongoing employment maintenance and creation, with appropriate regional development. It is also intended to provide clarity to the construction sector, to allow it to provide the capacity and capability required to deliver the Government's long-term investment plans.

The NDP is also designed to illustrate a commitment to reforming how public investment is planned and delivered. This is to be achieved through a shift to integrated regional investment plans, stronger co-ordination of sectoral strategies and more rigorous selection and appraisal of projects to secure value for money. A new funding model for Exchequer-funded public investment is to be put in place to ensure that resources are allocated to projects and programmes that meet NDP priorities.

According to the NDP, a number of changes are being introduced, including:

- a long-term (10-year) strategic approach to investment, in support of the 10 National Strategic Objectives (NSOs) of the NPF;
- a sustained increase in investment share of national income to meet infrastructural needs;
- full funding of all government departments' capital programmes for a five-year period;
- funding of longer-term key Strategic Investment Priorities, to completion;
- the establishment of four new funds, amounting to €4bn in total, to be allocated on a competitive basis for projects that meet the criteria of the funds; and

- the establishment of a new national regeneration and development agency (now the Land Development Agency) to maximise the potential use of under-used land banks in cities and towns.

The relationship between the NDP and TOD is explored further in Section 4.2.3.

4.1.3 Regional Spatial and Economic Strategies (X3)

The NPF is a high-level, long-term framework which must be made real 'on the ground' via a myriad of planning decisions. The NPF thus places great responsibility on Ireland's three Regional Assemblies and their forthcoming Regional Spatial and Economic Strategies (RSESs).[9] The NPF refers to governance and regional development as essential cogs for translating and delivering national policy at a local scale. The Regional Assemblies are tasked to co-ordinate, promote and support the strategic planning and sustainable development of the regions.

Ireland's Regional Authorities have a range of powers in relation to spatial planning and economic development. They source European funding for Regional Programmes, promote co-ordinated public services, monitor proposals that may affect their areas, and advise public bodies on the regional implications of their policies and plans.

Crucially, for the success of the NPF and the effective delivery of its 10 NSOs, each of the three Regional Assemblies is now required to prepare its own RSES in accordance with the NPF. This is an important task for the assemblies, and the strategies are expected to be completed in 2019, to provide a long-term regional-level strategic planning and economic framework in support of the implementation of the NPF.

It is expected that each RSES will in turn shape the future spatial and economic plans (i.e. city and county development plans, and local area development/economic community plans) of each local authority.

Draft RSESs will be informed by local and regional needs, as well as the NPF, and the finalised strategies will become the vehicle for implementing the NPF via individual local authority plans and decisions.

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[9] Following enactment of the Local Government Reform Act 2014, a number of changes were made to the regional structures in Ireland. The eight previous regional authorities were dissolved. Three new Regional Assemblies came into effect from January 2015: namely the Southern Regional Assembly, the Eastern and Midland Regional Assembly, and the Northern and Western Regional Assembly.

4.1.4 Metropolitan Area Strategic Plans (X5)

The NPF also provides for the introduction of more strategic and co-ordinated planning for our cities and large towns across local authority boundaries, including statutorily backed Metropolitan Area Strategic Plans (MASPs). MASPS are to be developed for Dublin, Cork, Limerick, Galway and Waterford.[10] In the case of Dublin and Cork, the wider city region must also be addressed by the appropriate authorities in tandem with and as part of the relevant RSESs. MASPs are 12-year strategic planning and investment frameworks designed to:

- identify the key change parameters, i.e. population, employment, housing, retail, travel patterns and key renewal, development and amenity areas;
- identify the sequence of infrastructure prioritisation, delivery and co-ordination; and
- deliver compact regeneration and growth.

In line with the RSESs, MASPs will be provided with statutory underpinning and investment frameworks for the city metropolitan areas, to address high-level and long-term strategic development issues.

City and County Development Plan review cycles are expected to be arranged in line with their respective regional strategies, ensuring that the shared vision is carried through to the local planning level.

4.1.5 Development Plans (City, County)

Development Plans are required to set out a vision and an overall strategy for the proper planning and sustainable development of a city and/or county for a six-year period. They are also required to provide guiding policies and objectives for the development of the city or county in terms of physical growth and renewal, economic, social and cultural activity, and environmental protection and enhancement. The plans must reflect consultation with the general public and other interested bodies.

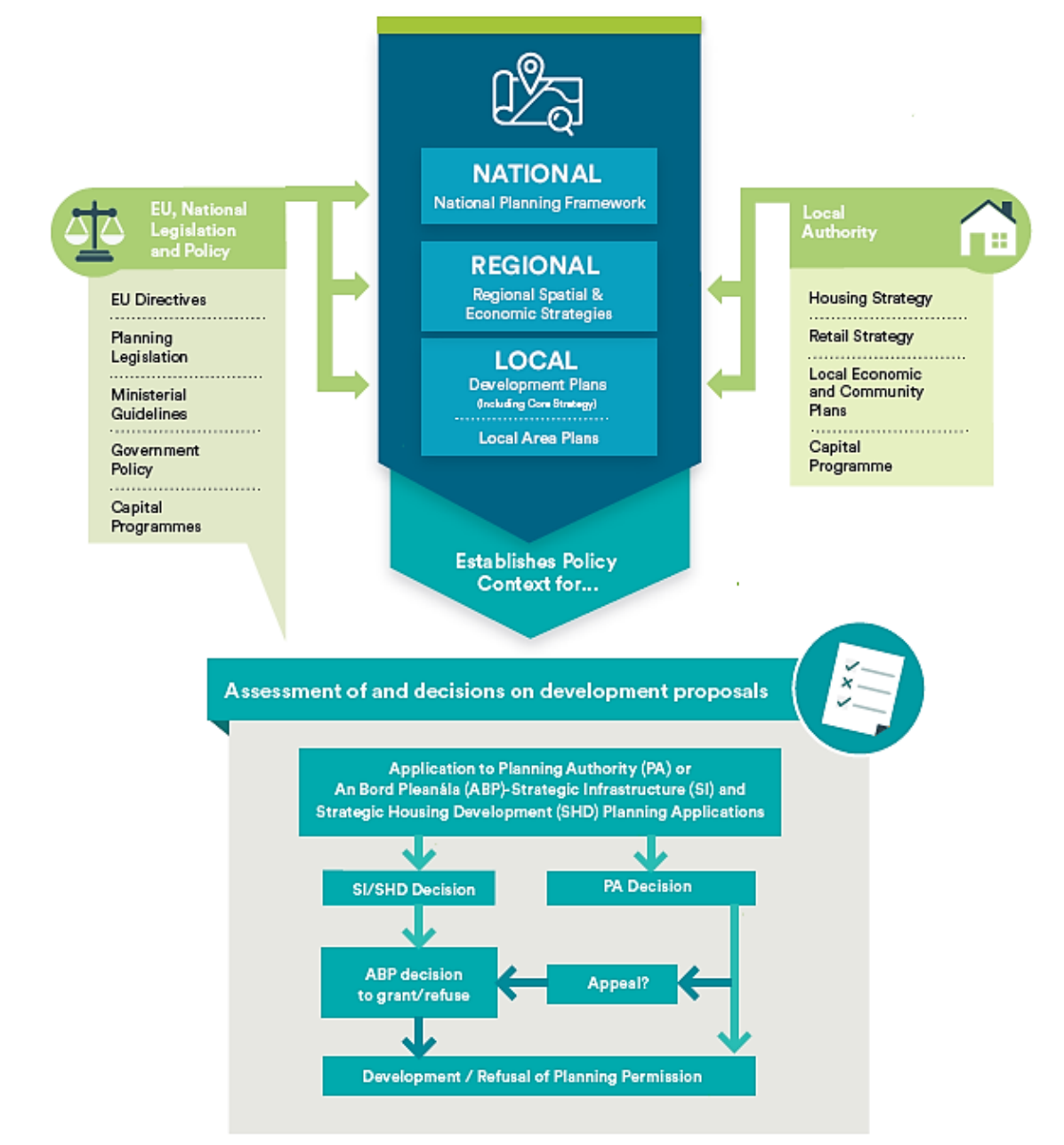
City and County Development Plans follow a six-year review cycle. However, due to varying review periods in the past, every local authority has different Development Plan cycles, which means that co-ordination can be difficult due to the different lifespans applying to different plans in each local authority area. Furthermore, with the ongoing preparation of the RSESs, with completion scheduled for 2019, mechanisms were put in place to ensure that:

[10] Metropolitan area boundaries are not specified for the five cities in the NPF. The issue is to be addressed in the context of ongoing Government consideration of establishing an appropriate level of political and administrative leadership for the governance of the five cities.

- local authority Development Plan review processes already under way within the RSES finalisation period could be paused until they can benefit from the latest data and policy contexts from the RSES; and

- recently adopted plans, which ordinarily last for six years, would be brought forward for review or variation.

Figure 4.1: Overview of the Irish Planning System



Source: Government of Ireland, 2018c.

Both of the above mechanisms are intended to ensure that there is an efficient and effective process of alignment between all the levels of spatial planning in the planning process, from national to regional and to local. Therefore, additional legislative provisions have been introduced under the *Planning and Development (Amendment) Act 2018*. These include provisions for the initiation of review of City/County Development Plans to be:

- deferred on a once-off basis, where due to commence prior to or within a period of three months after the initial making of the relevant RSES, until not later than a period of three months after the relevant RSES has been made;

- temporarily suspended, where commenced and ongoing and where a draft plan has not been submitted to the members of the Planning Authority under Section 11(5)(a) of the Act, prior to the initial making of the relevant RSES in each case, until not later than a period of three months after the relevant RSES has been made; and

- rendered consistent with the RSES, either through (a) a variation of the Development Plan or (b), if considered more appropriate, a full review, to commence within a maximum period of six months after the making of the relevant RSES, where due to be reviewed more than six months after the RSES is made.

The above provisions mean that most, if not all City/County Development Plans will be subject to review during 2019/21, and broadly aligned to address a six-year period to 2026/27 (Government of Ireland, 2018a).

4.1.6 Local Area Plans (Multiple)

Local Area Plans (LAPs) are required to set out a strategy for the proper planning and sustainable development of a specific area within a local authority, for a timescale specified by the authority. The plan must consist of a written statement and map or maps that set out the local authority's objectives for the plan area. Importantly, in terms of transport-orientated development, LAP objectives may relate to any or all of the following:

- land-use, zoning, and density;

- design and development standards;

- public and private open space;

- car-parking;

- provision of infrastructure; and

- conservation of built heritage and natural environment.

The plans may also deal with other important considerations such as community facilities and the provision of traveller accommodation. The policies or objectives contained in a LAP must be consistent with the objectives of the local Development Plan and must include information on the likely significant effects on the environment arising from the implementation of the plan. LAPs are legal documents and must be prepared and adopted in a particular manner and within a strict timescale, as set out in legislation. The Planning Authority must indicate the period for which the LAP is to remain in force and may at any time amend or revoke the plan.

When considering an application for permission within the boundary of a LAP, the Planning Authority or An Bord Pleanála shall have regard to the provisions set out in the LAP. The provisions of any relevant draft LAP may also be considered.

A LAP may be prepared by a local authority at any time and for any particular part of its functional area. Two or more planning authorities may co-operate in preparing a LAP where the area concerned crosses the boundaries of adjoining authorities. The preparation, amendment or revoking of a LAP includes periods of consultation during which the input of the public, interested bodies and service providers is invited and welcomed. The issues raised during the consultation are summarised for the members and inform the decision-making process.

The making of a LAP is a reserved function of elected members of the local authority. The members can adopt, amend or revoke the plan following consideration of any issues raised.[11]

Finally, Strategic Development Zones (SDZs) are an established feature of the Irish planning system, which may form the basis of a planning instrument that delivers TOD projects. Under the *Planning and Development Act 2000*, SDZs enable the Government to designate certain parcels of land for a fast-track planning process, where the residential and non-residential development of those lands is considered to be of strategic national importance.

The phasing of key infrastructure, including public transport, in tandem with the delivery of homes, subject to prescriptive design codes set out in an urban design framework, is the key mechanism that sets SDZ Planning Schemes apart from LAPs. SDZ Planning Schemes also benefit from the opportunity of an appeal to An Bord Pleanála. The advantage of this mechanism is that An Bord Pleanála has the option of conducting an oral hearing to allow all parties who made a submission on the draft Planning Scheme express their opinions in an open and transparent manner. It also allows An Bord Pleanála to review the Planning Scheme adopted by the elected members and remove any potential policy conflicts that would limit/hamper or constrain the delivery of the Planning Scheme. The absence of an appeal in relation to the planning authority's decision on foot of an application for development within the Planning Scheme also reduces delays and focuses all parties on implementation.

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11 https://www.sdcc.ie/en/services/planning/local-area-plans

4.2 TOD and the New Planning and Investment Regime

The research outlined in Chapters 2 and 3 suggests that a tailored policy and institutional set-up is important to make transport-orientated development happen. The delivery of TOD seems dependent on the presence of a vision and a decision to apply the approach, a tailored institutional set-up, and an appropriate funding model. The literature states that it is preferable for TOD to be facilitated by a specialised development agency, and notes the value of having a land use-transport planning body (Thomas & Bertolini, 2017; Newman, 2009). The importance of such an entity is also borne out in the cases of Freiburg, Montpellier and Ypenburg, for example. Experience suggests that successful TOD projects might be aided by the presence of a publicly led body or team at the helm, one that does the land-use and transport planning for the site, and then prepares the site for development in accordance with a master plan.

As it stands, any proposed TOD in Ireland would take place in the policy framework set out above (NPF/NDP/RSESs/MASPs/LAPs) and an institutional set-up comprising Department of Housing, Planning and Local Government (DHPLG), Department of Transport, Tourism and Sport (DTTAS), the National Transport Authority (NTA), Regional Assemblies, individual local authorities, and private actors. Though just newly established, the Land Development Agency (LDA) and the Office of the Planning Regulator (OPR) have the potential to radically alter this framework.

In general, the centre plays a role in ensuring that departments, agencies and others act in ways consistent with stated national objectives, using a range of powers, from convening the relevant actors to imposing sanctions for non-engagement or non-compliance. The OPR, formally established in January 2019, might also be considered in this context. The Government appointed Ireland's first Planning Regulator in December 2018 to head up the new office. That appointment was described by the Government as 'a vital step in ensuring a sound and sustainable approach to planning in Ireland in the years ahead. It comes at a significant time, when the implementation of the National Planning Framework is at a critical juncture, with regional assemblies and local authorities all due to make plans arising out of the framework over the coming year'. The appointment of an independent planning regulator with oversight of the planning system in Ireland was one of the key recommendations of the Mahon Tribunal and the establishment of the OPR was provided for under the *Planning and Development (Amendment) Act 2018*.

The OPR is to be responsible for assessment of all local authority and regional assembly forward-planning, including zoning decisions. The regulator will have the power to review the organisation, systems and procedures used by any planning authority or An Bord Pleanála. The regulator will also have the power to advise the Minister on whether a plan made by a local authority conflicts with national planning policy and to recommend that the Minister make directions where any plan is not in compliance with national policy. Additionally, the regulator is to drive national research, education and public information programmes to highlight the role and benefit of planning.

Despite the above welcome developments, it seems that the current policy and institutional set-up remains somewhat fragmented. Of course, there is a statutorily based link between the individual policy pieces from the NPF through to the LAPs. In addition, it could be suggested that the individual mandates and strategies pursued by, and interaction between, the NTA, Regional Assemblies and individual local authorities—now in the context of the NPF and NDP—indicates that a policy, investment and institutional set-up conducive to TOD is in place. While day-to-day, informal, or *ad hoc* interactions can play a key role, these are difficult to reveal and examine. In any event, such interactions cannot be relied upon: it is important that public entities formally 'say what they do, and do what they say'. Therefore, it is the formal strategies and links that are examined in the following sections.

4.2.1 The Policy and Institutional Setting for TOD in Ireland

For TOD, it is the link between transport strategy and the planning system that is critical (see Chapter 2). Therefore, in the Irish context, it is the formal link between the work of the National Transport Authority and the planning regime for local authorities that is perhaps most crucial. Certainly, the consultations undertaken for this research suggest that the work of the NTA and local authorities can together deliver the environment to make development more transport-orientated, as defined in Chapter 2.

The NTA is a statutory body, operating under the aegis of DTTAS, established on foot of the Dublin Transport Authority Act 2008.

> While it was originally conceived as a transport authority for the Greater Dublin Area under the 2008 Act, it was renamed the National Transport Authority in the Public Transport Regulation Act 2009. The 2009 Act, the Taxi Regulation Act 2013, and various Statutory Instruments have greatly extended the Authority's functions and geographic remit. There remain some specific additional functions in respect of infrastructure and the integration of transport and land use planning in the Greater Dublin Area, reflecting the particular public transport and traffic management needs of the Eastern region of the country comprising approximately 40 per cent of the State's population and economic activity.[12]

The Greater Dublin Area (GDA) in this case refers to the counties of Dublin, Meath, Kildare and Wicklow. The distinction between the NTA's national role and the role it plays in the GDA only is important when considering TOD. For example, in the GDA the NTA undertakes the statutory, strategic planning of transport, invests in all public transport infrastructure, and develops the effective management of traffic and transport demand.

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12 https://www.nationaltransport.ie/

At a national level, the NTA procures public transport via services contracts, and develops an integrated public transport network. It does not directly invest in transport infrastructure (rail, stations, etc) nationally. The authority has responsibility for three public transport capital investment programmes:

- Greater Dublin Area Capital Programme (€187.2m in 2017);
- Regional Cities Sustainable Transport Programme (€9.5m in 2017); and
- Public Transport Accessibility Programme (€3.4m in 2017).

Further, at national level, the NTA is not a statutory planning body *per se*; rather, it prepares submissions to planning guidelines. Even within the GDA, the NTA does not act as a single land-use, transport planning and housing development entity.

The NTA's transport strategy for the GDA provides:

> … a transport planning policy around which other agencies involved in land use planning, environmental protection, and delivery of other infrastructure such as housing, water and power, can align their investment priorities. It is, therefore, an essential component, along with investment programmes in other sectors, for the orderly development of the Greater Dublin Area over the next 20 years (NTA, 2016: 1).

Though separate, there is a clear statutory link between the NTA's transport planning role in the GDA and land-use decisions by local authorities. The key actor and mechanism are the regional assembly (Eastern and Midland Regional Assembly, EMRA) and the new Strategies (RSESs).

The NPF describes the link between the national framework (and the national strategic objectives it contains such as 'compact growth') and planning decisions at regional and local level:

> Planning and development issues transcend local authority boundaries. To ensure better co-ordination in planning and development policy matters across boundaries, the local authorities are grouped into three regional assembly areas—Eastern and Midland, Northern and Western, and Southern. These regional groupings of local authorities will prepare Regional Spatial and Economic Strategies (also known as 'RSESs'), provided for under the Local Government Reform Act 2014, to take the high-level framework and principles of the NPF and work out more detail at regional and local authority levels (Government of Ireland, 2018c: 134).

It is envisaged that, once the RSESs are consistent with the NPF, this will in turn see the National Strategic Outcomes (NSOs) realised via more local planning decisions, given the hierarchical nature of the overall planning system (see section above). This 'trickle-down', hierarchical approach is evident also in transport strategy. For example, in the case of the NTA's strategy for the GDA and consistency with the EMRA's RSES:

> By ensuring consistency at the regional level, and in combination with the separate requirement of the seven local authorities to demonstrate consistency with the RSES, it is anticipated that all lower-level statutory plans made by each local authority will be fully consistent with this strategy. It is a requirement of the legislation that the local authorities deal directly with this issue and demonstrate that any concerns raised by the Authority in its submissions on draft plans are addressed (NTA, 2016: 97).

The area covered by the NTA's GDA strategy is a 'subset' of the EMRA region affected by the RSES; i.e. Dublin (Dublin City Council, Dún Laoghaire-Rathdown, Fingal, South Dublin), Meath, Kildare and Wicklow, plus Louth, Laois, Longford, Offaly and Westmeath.

The NPF notes the separate roles of the EMRA and the NTA. The NTA has responsibility for preparing the transport strategy (for the GDA), and the EMRA has responsibility for preparing the RSES for its larger region, but 'both must be consistent with each other' (*ibid.*: 136). Land-use plans within the GDA in the RSES are to demonstrate a consistency with the NTA's strategy for the GDA, while land-use plans in the five other counties are to be informed by the guiding principles expressed in the draft RSES (EMRA, 2018: 146). Thus, at a strategic level, **the unification of transport and land-use planning suggested by the literature and experience of TOD will first manifest itself in the consistency between the EMRA's RSES (and the guiding principles therein) and the NTA's transport strategy for the GDA** 2016-2035, at least for the wider Dublin region.

An important consideration is the extent to which that transport strategy for the GDA and the RSES's guiding principles set out a TOD approach. In other words:

- Do they assert where TOD needs to occur and at what kind of density and mix?
- Do they link development with a rapid transport service (almost invariably electric rail)?
- Do they require development to occur at the necessary density and design in each centre, preferably facilitated by a specialised development entity? (Newman, 2009).

Turning to the NTA's GDA strategy first, a cursory examination suggests that there is a strong recognition of TOD principles. The GDA transport strategy clearly recognises the importance of integrating transport policy and land-use policy. The strategy states:

> Land use and the manner in which it is developed is the primary influencing factor for travel demand. A closer relationship between how transport demand is created and how it can be catered for is provided for in the Dublin Transport Authority Act, 2008 and the Planning and Development Act, 2000, which state that the Regional Spatial and Economic Strategies (formerly Regional Planning Guidelines), Development Plans and Local Area Plans in the GDA must be consistent with the Authority's Transport Strategy (NTA, 2016: 96).

The difference may be presentational rather than material, but TOD emphasises that travel demand should be a primary influencing factor for land use and the manner in which it is developed, rather than *vice versa*. The statement above suggests that transport strategy should be concerned with catering for the transport demand created by land-use. This is true, but TOD argues for an additional stream of activity whereby transport planning shapes land-use, as well as responding to it.

The NTA strategy does go on to describe strategic principles that appear more closely aligned with TOD (see Box 4.1). The strategic and local planning principles described by the NTA in its strategy for the GDA out to 2035 resonate with some of the concepts associated with TOD. For example, they link development with proximate public transport services, although they refer to the *capacity* of the service rather than its *frequency* or *quality*. The NTA's principles also promote residential development on land that is, or will be, most accessible by walking, cycling and public transport (including infill and brownfield sites). The caveat 'to the extent practicable' is understandably entered, but does provide something of a loophole.

The statement that residential development should also 'be carried out sequentially' is worth closer examination with regard to whether continuous, sequential extension of development has implications for the suitability of rail over bus. The principles fall short of linking development with a rapid transport service (i.e. bus rapid transport (BRT) or rail).

It may be the case, or the NTA believes it to be the case, that their strategy is not the place for such an assertion. The strategy suggests (rather than asserts) a number of locations where residential development is most supportive of its principles (the North Fringe/Clongriffin, Hansfield, Adamstown, Clonburris, Stepaside, Cherrywood and all locations inside the M50), but does not explicitly state that TOD, and all that it entails, should occur here (e.g. public transport proximity/service/frequency, density, mixed use/income, institutional set-up, funding including value capture). The NTA's principles do not require residential development to occur at the necessary density and design in each centre for TOD, and make no reference to the need for a specialised development entity for a project.

The statement that, except in limited circumstances, trip-intensive developments or significant levels of development should not occur in locations not well served by existing or committed high-capacity public transport, could be misread as narrowing the opportunity for *new* TOD. That said, it would not rule out TOD being applied to the route chosen for the MetroLink project, for example.

More aligned to a TOD approach, the NTA strategy asserts that, in locations where the highest 'intensity' (not 'density') of development occurs, an approach that caps car parking on an area-wide basis should be applied. Also, the NTA states that planning at the local level should promote active and public transport by maximising the number of people living within walking and cycling distance of public transport and other services. Further, the NTA's principles call for fully permeable development for walking and cycling, and for competitive advantage to be given to these modes.

The hierarchical trickle-down approach is again evident in the principles: the NTA engages with local authorities, and the application of their local-level principles gives effect to strategic principles on the ground.

Box 4.1: NTA's Principles of Land-Use and Transport Integration in the GDA

In meeting the need to travel, the primary goals of land-use and transport integration may be summarised, in order, as follows:

- **reducing the need to travel;**
- **reducing the distance travelled;**
- **reducing the time taken to travel;**
- **promoting walking and cycling; and**
- **promoting public transport use.**

The following land-use principles should, therefore, guide development in the GDA. Local and regional authorities should demonstrate how these principles are being applied in their plans in order to ensure their consistency with this strategy.

Strategic Planning Principles

- **Residential development located proximate to high-capacity public transport should be prioritised over development in less accessible locations in the GDA.**
- **To the extent practicable, residential development should be carried out sequentially, whereby lands that are, or will be, most accessible by walking, cycling and public transport—including infill and brownfield sites—are prioritised.**
- **High-volume, trip-intensive developments, such as offices and retail, should primarily be focused into Dublin City Centre and the larger Regional Planning Guidelines (RPG) higher-order centres within the GDA.**
- **Except in limited circumstances, trip-intensive developments or significant levels of development should not occur in locations not well served by existing or committed high-capacity public transport.**
- **The strategic transport function of national roads, including motorways, will be protected by the full implementation of the 'Spatial Planning and National Roads—Guidelines for Planning Authorities'.**
- **All non-residential development proposals in the GDA should be subject to maximum parking standards and based on public transport accessibility.**
- **In locations where the highest intensity of development occurs, an approach that caps car parking on an area-wide basis should be applied.**
- **For all major employment developments and all schools, travel plans should be conditioned as part of planning permissions and be carried out in a manner consistent with existing NTA guidance.**

Local Planning Principles

- **Planning at the local level should promote walking, cycling and public transport by maximising the number of people living within walking and cycling distance of their neighbourhood or district centres, public transport services, and other services at the local level such as schools.**
- **New development areas should be fully permeable for walking and cycling and the retrospective implementation of walking and cycling facilities should be undertaken where practicable in existing neighbourhoods, in order to a give competitive advantage to these modes.**
- **Where possible, developments should provide for filtered permeability. This would provide for walking, cycling, public transport and private vehicle access but at the same time would restrict or discourage private car through trips.**
- **To the extent practicable, proposals for right-of-way extinguishments should only be considered where these do not result in more circuitous trips for local residents accessing public transport, or local destinations.**

At the most strategic level, the principles above support the development of areas such as the North Fringe/Clongriffin, Hansfield, Adamstown, Clonburris, Stepaside and Cherrywood, and all locations inside the M50, for residential development throughout the period of the strategy. In terms of employment growth, the city centre and Docklands will be most suitable for highest-intensity employment, while areas around transport interchanges would also be desirable for some large-scale development, for the period of the strategy. The Authority's interaction with the regional and strategic planning process in the GDA will be governed by these principles.

In terms of local planning, the Authority will engage with the local authorities in the GDA, through its statutory role in Development Plans, Local Area Plans and Planning Schemes, to ensure that the local planning principles above are implemented. It is through the application of these local-level principles that the strategic principles will be given effect on the ground

Source: NTA, 2016.

The NTA's strategy for the GDA notes that 'transport infrastructure and services must deal with a historical legacy which saw significant levels of growth and migration of land uses to suburban and peri-urban fringe locations, typically at lower densities and unconnected to existing and planned public transport services and facilities' (NTA, 2016: 27). It seeks to encourage 'land use policies which support the provision of development in locations and at densities which enable the efficient provision of public transport services' (*ibid.*: 83).

However, from the initial review undertaken here, it could not be said that this NTA document on its own creates a vision or policy and institutional framework for TOD, as understood from the literature. Even if this strategy were more assertive in terms of where TOD needs to occur and at what kind of density and mix, in linking development with a rapid transport service, or in calling for a specialised project-based development entity, it would not signal a national approach—it would only apply to the GDA. Of course, if a strong assertion of TOD principles by the NTA was

carried through to the EMRA's RSES, it would increase its geographic application to five more counties (Louth, Laois, Longford, Offaly, and Westmeath).

As alluded to above, it may be the case, or the NTA believes it to be the case, that the RSES is in fact the optimal place to articulate a TOD approach. The NPF only requires that the RSES and the NTA's strategy be consistent with each other. Is it possible that the RSES could 'go beyond' the NTA's principles in terms of TOD, and remain consistent?

It is worth examining briefly the draft RSES to ascertain the extent to which it includes key TOD concepts (public transport proximity/service/frequency, density, mixed use/income, institutional set-up, and funding including value capture).

In October 2018, the Eastern and Midland Regional Assembly (EMRA) prepared a draft RSES for the region for the period 2019 to 2031, and submissions were invited. Similar to the NTA strategy, the draft RSES states that transport demand is determined on the basis of the distribution of population, employment, education and all other socio-economic and cultural uses (EMRA, 2018: 142). The reverse approach—transport planning determining land-use and population—is not obvious. The draft RSES does, however, include guiding principles for the integration of land-use and transport in the EMRA region (see Box 4.2).

As is the case with the NTA strategy (and thus, consistent with it), the draft RSES mentions factors that resonate with a transport-orientated approach to development. These include the call for: residential development to be carried out on land that is, or will be, most accessible by active and public transport; an assessment of the impact of land-use and transport infrastructure on modal split and transport GHG emissions; car-parking caps in highest-intensity developments; the permeability of active and public transport; and, a '10-minute' settlement concept. The draft RSES supports the delivery of named rail projects (see Box 4.2), though these are not linked to specific residential development. The draft also states support for BusConnects in the metropolitan area, and investment focused on improving connectivity by bus between regional settlements, including Dublin, and enhancing the reliability and the level of service within key settlements.

Again, the principle that trip-intensive developments or significant levels of development should not occur in locations not well served by existing or proposed high-capacity public transport, could be misread as precluding *new* TODs. That said, the draft RSES does support the use of design solutions and innovative approaches to reduce car dependency, and TOD meets that criteria.

Box 4.2: Draft Guiding Principles for Integration of Land-Use and Transport (EMRA)

The draft RSES provides the basis for integrating land-use and transport planning in the region, informing the preparation and implementation of plans, programmes and projects at all levels. To achieve this the EMRA, in conjunction with local authorities, the NTA and other agencies, will seek to apply the following guiding principles in statutory land use plans, taking into consideration the requirements of both urban and rural areas across the region.

- **For urban-generated development, the development of lands within or contiguous with existing urban areas should be prioritised over development in less accessible locations. Residential development should be carried out sequentially, whereby lands which are, or will be, most accessible by walking, cycling and public transport—including infill and brownfield sites—are prioritised.**
- **The predicted impact of the potential land-use and transport infrastructure on modal split and transport greenhouse-gas emissions should be assessed to deliver on national and regional targets.**
- **Larger-scale, trip-intensive developments, such as high-employee dense offices and retail, should in the first instance be focused into central urban locations.**
- **Within the Dublin Metropolitan Area, except in limited planned circumstances, trip-intensive developments or significant levels of development should not occur in locations not well served by existing or proposed high-capacity public transport.**
- **The strategic transport function of national roads and associated junctions should be maintained and protected.**
- **All non-residential development proposals should be subject to maximum parking standards.**
- **In locations where the highest intensity of development occurs, an approach that caps car parking on an area-wide basis should be applied.**
- **Reverse commuting for those living in urban centres and commuting to work elsewhere should be supported.**
- **The management of space in town and village centres should deliver a high level of priority and permeability for walking, cycling and public transport modes to create accessible, attractive, vibrant and safe places to work, live, shop and engage in community life. Accessibility by car does need to be provided for, but in a manner that complements the alternative available modes. Local traffic management and the location/management of destination car parking should be carefully provided.**
- **Planning at the local level should prioritise walking, cycling and public transport by maximising the number of people living within walking and cycling distance of their neighbourhood or district centres, public transport services, and other services at the local level such as schools.**

- **The '10-minute' settlement concept should be supported, whereby a range of community facilities and services are accessible in short walking and cycling timeframes from homes or accessible by high-quality public transport to these services in larger settlements.**
- **New development areas, including peripheral areas, should be permeable for walking and cycling, and the retrospective implementation of walking and cycling facilities should be undertaken in existing neighbourhoods, in order to a give competitive advantage to these modes. Where possible, developments shall provide for filtered permeability.**
- **Proposals for right-of-way extinguishments should only be considered where these do not result in more circuitous trips for local residents accessing public transport, or local destinations.**
- **Cycle parking should be appropriately designed into the urban realm and new developments at an early stage to ensure that adequate cycle parking facilities are provided.**

Investment in infrastructure and behavioural change interventions should be supported to encourage a shift to sustainable modes of transport and the use of design solutions and innovative approaches to reduce car dependency.

Source: EMRA, 2018: 145.

The document states that certain locations in the region 'offer potential for increased residential densities at high quality public transport hubs and can accommodate average or above average growth to provide for natural increase, service and/or employment growth where appropriate, to be set out in the Core Strategies of County Development Plans' (*ibid.*: 61).

Perhaps most closely aligned with a TOD approach is the statement that the delivery of key infrastructure is 'a significant change parameter to drive increased metropolitan densities and this has been factored into the clustering and prioritisation of strategic development areas, based on their accessibility to high quality rail based public transport corridors', although the 'infrastructure driving density' approach might be examined more closely (*ibid.*: 68).

The draft RSES supports 'the consolidation and reintensification of infill/brownfield sites to provide high density and people intensive uses within the existing built up area of Dublin city and suburbs and ensure that the development of future development areas is co-ordinated with the delivery of… public transport projects' (EMRA, 2018: 44). The development of Swords in the context of the delivery of MetroLink is highlighted in this regard (*ibid.*: 54).

This approach is evident again in the draft's suggestion that the 'proposed DART Underground and LUAS extensions to Finglas and Lucan will support densification of sites subject to appraisal and delivery post 2027, unlocking the long-term capacity of strategic landbanks at Naas Road and Dunsink' (*ibid.*: 70). Elsewhere in the draft, the suggestion is to deliver higher residential densities 'in tandem with' or 'linked to' infrastructure provision, rather than following it (*ibid.*: 80). The forthcoming Metropolitan Area Strategic Plan (MASP) appears to be a key strategy in this regard.

Overall, the draft RSES is consistent with the NTA in that it refers to many factors associated with TOD without fully espousing a TOD strategy in a specific area, or more generally. Looking beyond the GDA for a moment, the NPF notes that the statutory requirement for mutual consistency between an RSES and transport strategy applies to the GDA only.

Although the consistency between the NTA and RSESs is not a statutory requirement beyond Dublin, Kildare, Meath and Wicklow, 'the NTA has worked successfully on an administrative, non-statutory basis to assist several local authorities across Ireland's cities in preparing transport related strategies or implementing transport related projects' (Government of Ireland, 2018c: 134).

The fact that the NTA's statutory transport strategy applies only to the GDA means that areas where the application of TOD might have greatest potential in Ireland (Cork, Limerick, Galway, and Waterford) would not benefit from inclusion in the NTA's policy. According to the NPF, the statutory arrangements already in place for transport planning in the GDA will be extended to all cities to strengthen integration between spatial and transport planning. When this happens, the opportunity might also arise to consider the gap between the NTA's current statutory prescriptions and those typically associated with TOD.

Notably, the NTA also produces research that is not on a statutory basis but is highly informative for policy and planning development. One important example, from the TOD perspective, is a report published in 2013, which is summarised in Section 4.2.2.

4.2.2 NTA Report on Large-Scale, Rail-focused Development in Dublin

In 2013, the NTA published a report 'to assess the future delivery of rail-based large and medium scale residential development areas in Dublin' (NTA, 2013). The report noted the economic circumstances of the time (lack of investment and lack of new residential development delivery of any scale). That context is important (in regard to a transport-orientated approach) as the NTA's work was in the context of 'pressure to deliver development at densities lower than those set out in the planning frameworks, largely driven by perceived market trends and funding issues'. As set out earlier, TOD emphasises the delivery of higher-density developments. Notably, for this research, *the NTA report does not have any statutory basis,* and thus does not formally sit within the policy framework for TOD in Ireland.

Box 4.3: Rail Projects for the EMRA Region in the Draft RSES

- **Delivery of DART Expansion Programme—delivery of priority elements including investment in new train fleet, new infrastructure and electrification of existing lines.**
- **Provision of fast, high-frequency electrified services to Drogheda on the Northern Line, Celbridge-Hazelhatch on the Kildare Line, Maynooth and M3 Parkway on the Maynooth/Sligo Line, while continuing to improve DART services on the South-Eastern Line as far south as Greystones.**
- **Provision of an appropriate level of commuter rail service in the Midlands and South-East.**
- **Completion of the construction of the National Train Control Centre.**
- **New stations to provide interchange with bus, LUAS and Metro network including at Kishoge, Heuston West, Cabra, Glasnevin, Pelletstown and Woodbrook.**
- **A feasibility study of high-speed rail between Dublin/Belfast, Dublin/Limerick Junction/Cork to be carried out.**
- **Reappraisal of the extension of the Dunboyne/M3 Parkway line to Dunshaughlin and Navan.**
- **Support construction of MetroLink (from Swords to Sandyford) [*sic*].**
- **LUAS Green Line capacity enhancement in advance of MetroLink.**
- **Undertaking of appraisal, planning and design of LUAS network expansion to Bray, Finglas, Lucan, and Poolbeg.**

Source: EMRA, 2018.

This NTA report examined the obstacles to the delivery of rail-based large residential developments in Dublin. The areas in question were ones planned to achieve net residential densities of 50 units per hectare in line with recommended densities for such areas as set out in 2009 guidance, 'Sustainable Residential Development in Urban Areas' (DEHLG, 2009). The report identified both supply and demand-side obstacles to sustainable, higher-density developments. It found:

> There is a significant quantum of land both within the four Dublin counties, and particularly in neighbouring counties, which are not well served by public transport, on which lower density residential units could be developed with relative ease and at substantially reduced cost. There is a real risk that those lands outside Dublin will be built out before development on sites earmarked for higher densities occurs within the Dublin area, therefore threatening the delivery of strategic residential development areas, and the delivery of government policy in relation to travel demand reduction and public transport usage (NTA, 2013: 14).

The approach to residential delivery, the prioritisation of strategic residential locations, and the delivery framework proposed in the NTA's report appear very closely aligned to the approach and framework associated with TOD. For example, the NTA report recommends:

- Government/public sector intervention to support the delivery of strategic residential development;
- a plan-led approach to intervention in housing delivery in strategic residential development areas;[13]
- the identification of a 'kickstart' location on designated lands;
- leveraging the use of existing infrastructure;
- investment in necessary early infrastructure while seeking to minimise early infrastructure costs;
- a phased and incremental development strategy linked to overall density target delivery;
- a continued and consistent approach to securing higher-density housing delivery and optimisation of valuable land banks and public investment in infrastructure;
- achieving an overall target density in a phased manner;
- the enhancement of the environs of each phase; and
- active public-sector co-ordination to ensure prioritisation of areas for housing development.

This requires:

- co-ordinated government/public strategy (i.e. direct action and investment) with departments cooperating to deliver required interventions in support;
- the delivery of the strategic residential development areas; and
- prioritisation of locations that are considered most appropriate for development delivery in the short term.

The NTA's report concludes that there is a need for identified public funding and critical infrastructure to achieve development in key locations. A legal/contractual agreement must be achieved between private (landholders/developers) and public

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[13] The NTA study is primarily aimed at planning schemes, such as LAPs and SDZs.

interests (local authority/government agencies) in respect of development delivery. The 2013 research recommends that a 'package of measures' or programme of targeted investment be effected by the public sector, coupled with management of the delivery process through the local authority in a similar manner to the delivery of an SDZ 'through a Development Agency'.

The NTA study went so far as to describe in detail a 'proof of concept' to apply the principles, ideas and concepts developed in the study to an actual location with the purpose of assessing their applicability and robustness. Crucially, the proof of concept assessed how higher-density residential development can be achieved on a given site. The location chosen to test the report's concepts was North Fringe-Stapolin in the Dublin City Council and Fingal County Council areas. It suggests a higher-density development (50 units per hectare or 250 bed spaces per hectare), a mixed-use/mixed-tenure urban district, based around high-quality public transport nodes (using rail-based public transport at Clongriffin station, supported by a Quality Bus Corridor). As is typical of a TOD, the site is divided into areas for development at varying densities (35/41/67/80 units per hectare), with the highest density closest to the rail station. The detailed examination of a proof of concept found that:

> … it is imperative that the public sector play a key role in supporting such an approach, particularly in relation to the provision of any key infrastructure required, or maintenance or taking in charge issues. In this manner, the physical intervention of the 'kickstart' incremental development model would require to be supported at a policy and public sector level, thereby achieving a concerted approach to residential delivery at locations deemed to be a priority in public policy terms (NTA, 2013: 57).

The NTA report outlines the need for a publicly led approach to this form of development, in this case management of 'the delivery process through the local authority in a similar manner to the delivery of an SDZ through a development agency. This would seek to co-ordinate funding from government agencies, ensure planning co-ordination and delivery of the agreed approach, and address on-going maintenance issues until such time as the area is more fully developed and/ or completed' (*ibid.*: 60).

The report notes that agreement must be reached between private (landholders/developers) and public interests (local authority/government agencies) on phasing, density, infrastructure and the public funding required. Such an agreement should, according to the NTA report, take the form of 'a contractual or legal agreement, which could be achieved through the development control process (i.e. condition of a planning permission), through a Section 47 agreement between the relevant parties, financial or other incentives, or other form of legal agreement' (*ibid.*: 60).

Overall, were the findings of the NTA's 2013 report statutorily based, and applied to the entire country (to lead to the development of identified strategic residential sites), it would certainly suggest that a policy and institutional set-up more conducive to TOD is in place in Ireland.

As noted earlier, the day-to-day, informal or *ad hoc* interactions that play a key role may be informed by the approach outlined in the 2013 report, but such informal interactions cannot be relied upon.

4.2.3 The Funding Framework for TOD in Ireland

The overall investment framework for TOD in Ireland is the NDP (see overview in section 4.1.2). As noted earlier, this public investment plan for the period 2018 to 2027 is designed to support the achievement of the vision set out in the NPF. The total planned level of public investment for this 10-year period is €116bn, of which €91bn is to be funded by the Exchequer.

The Exchequer-funded component is based on this investment rising to reach four per cent of gross national income (GNI*) by 2024 and then being sustained at that level for the rest of the plan period (to 2027). The NDP projects that GNI* grows at a nominal rate of four per cent (i.e. two per cent real growth plus two per cent inflation). The non-Exchequer public capital investment is mainly that undertaken by the commercial state enterprises. The largest single element of the non-Exchequer investment comprises energy-related investments of €13.7bn by the ESB, EirGrid, Bord na Móna, Coillte and Gas Networks Ireland. Other significant non-Exchequer investments relate to investment in aviation infrastructure (€3.8bn), ports (€1bn), Irish Water (€1.7bn)[14] and universities (€2bn).

The NDP sets out how the planned level of investment is to be allocated across the 10 National Strategic Outcomes (NSOs) over the 10-year period (see Table 4.1). These are the NSOs that the NPF seeks to achieve. The motivation for setting out the 10-year allocation of investment across NSOs is to encourage government departments 'to develop investment proposals directly targeted at the achievement of NPF priorities and which contribute to the clear articulation of a strategic 10-year vision for Ireland's public capital infrastructure' (Government of Ireland, 2018b: 20). In addition, the five-year planned allocation of Exchequer investment across departments is outlined in the NDP, representing a total investment of €38.5bn. This will be updated in the estimates process, with a new fifth year added annually.

Several major investment projects are set out in the NDP. The inclusion of a project does not mean that it has been approved. Projects in the NDP are subject to approval under the normal procedures. The identification of a project in the NDP does mean that the intention is that funds will be available for the project, subject to it meeting the required conditions for approval.

[14] There is further Exchequer-funded investment by Irish Water of €6.8bn.

Table 4.1: Indicative Resource Allocations for Delivering NSOs, and for named Strategic Investment Priorities under each NSO, 2018–2027

€billion	Exchequer	Non-Exchequer	Total Allocation
Compact Growth (Lead Department: DHPLG: Related Departments, DTTAS, DRCD)			14.5
Of which: Social Housing Provision	11.6		
Urban Regeneration and Development Fund	2.0		
Enhanced Regional Accessibility (Lead Department: DTTAS)			7.3
Of which: M20 Cork to Limerick	0.9		
National Roads	5.7		
Strengthened Rural Economies and Communities (Lead Departments: DRCD, DAFM, Related Departments: DBEI, DTTAS, DCHG, DCCAE)			8.8
Of which: Regional and Local Roads	4.5		
Rural Regeneration and Development Fund	1.0		
National Broadband Plan	Confidential		
Agriculture	0.8		
Tourism	0.3		
State-Owned Enterprises (for example, Coillte, Bord na Móna)		0.8	
Sustainable Mobility (Lead Department: DTTAS)			8.6
Of which: Dart Expansion	2.0		
Metro Link	3.0		
BusConnects Programme	2.4		
A Strong Economy, supported by Enterprise, Innovation and Skills (Lead Departments: DBEI, DES)			9.4
Of which: Higher/Further Education	3.1		
University Investment		2.0	
BEI Programmes	3.0		
Challenge-Based Disruptive Innovation Fund	0.5		
Enterprise Agencies		0.8	
High-Quality International Connectivity (Lead Departments: commercial SOEs, DTTAS)			4.8
Of which: Airports		3.8	
Ports		1.0	
Enhanced Amenity and Heritage (Lead Departments: DCHG, DHPLG, DTTAS)			1.4
Of which: Cultural Infrastructure	0.7		
Heritage	0.3		
Sport	0.3		
Transition to a Low-Carbon and Climate-Resilient Society (Lead Departments: DCCAE, DDTAS, DAFM, OPW, commercial SOEs)			21.8
Of which: Energy Efficiency—housing retrofit	3.0		
Energy Efficiency in Public Buildings	0.8		
Boiler Replacement	0.7		
Support Scheme for Renewal Heat	0.3		
Climate Action Fund		0.5	
Electric Vehicles	0.2		
Flood Defences	1.0		
Energy Investment (renewables, interconnection, etc)		13.7	

Sustainable Management of Water and other Environmental Resources (Lead Departments: HPLG, DCCAE)			**8.8**
Of which: Irish Water	**6.8**	**1.7**	
Access to Quality Childcare, Education and Health Services (Lead Departments: DCYA, DES, DH)			**20.1**
Of which: Childcare	**0.4**		
Education (Schools)	**8.8**		
Health	**10.9**		
Other Sectors (including DD, DHE, DFAT, D Finance, DPER, etc)			**3.0**
Of which: Justice	**1.3**		
Defence	**0.5**		
Contingency/Reserve			**7.4**

Source: Government of Ireland, 2018b.
Note: The Strategic Investment Priorities listed above do not represent an exhaustive list of capital funding allocated under the relevant NSOs.
Acronyms: Department of Agriculture, Food and the Marine (DAFM); Department of Business, Enterprise and Innovation (DBEI); Department of Communications, Climate Action and Environment (DCCAE); Department of Education and Skills (DES), Department of Culture, Heritage and the Gaeltacht (DCHG); Department of Finance (DF); Department of Foreign Affairs and Trade (DFAT); Department of Defence (DD); Department of Health (DH); Department of Housing, Planning and Local Government (DHPLG); Department of Justice and Equality (DJE); Department of Rural Community and Development (DRCD); Department of Public Expenditure and Reform (DEPR); Department of Transport Tourism and Sport (DTTAS); Office of Public Works (OPW); State-Owned Enterprise (SOE).

An innovation in the NDP is the creation of four funds to promote core priorities of the NPF. A total of €4bn is being allocated to these funds for the 10-year period. These are as follows:

- **Rural Regeneration and Development Fund**: €1bn, under the Department of Rural and Community Development, will promote rural renewal to enable towns, villages and outlying rural areas to grow sustainably and to support delivery of the strategic objectives of the NPF.

- **Urban Regeneration and Development Fund**: €2bn, under the Department of Housing, Planning and Local Government (DHPLG), will support the co-development of the NPF's growth enablers for the five cities and other large urban centres. Examples of projects that have the potential to receive support under the fund include the development of the Cork Docklands (City Docks and Tivoli and associated mobility and bridge access), the Limerick 2030 initiative, the Waterford North Quays SDZ regeneration project, the plans for Galway City Centre regeneration, and the Portlaoise urban design and renewal initiative.

- **Disruptive Technologies Innovation Fund**: €500m, under the Department of Business Enterprise and Innovation.

- **Climate Action Fund**: €500m, under the Department of Communications Climate Action and Environment (DCCAE) (Government of Ireland, 2018b: 23).

The achievement of transport-orientated development will be affected by investment across a wide range of areas. However, three of the NSOs are of particular relevance. These are now examined in more detail:

- compact growth;
- enhanced regional accessibility; and
- sustainable mobility.

Compact Growth

The allocation of investment of €14.5bn to compact growth is the largest single allocation of the NDP. Of this, 80 per cent is for investment in providing social housing (€13.6bn). The NDP states that the new social housing homes are to be primarily located in compact urban locations in cities and towns, which reflects where most of the social housing need arises. NDP investment is also to facilitate the delivery of more affordable homes, although the only explicitly identified allocation of resources for affordable housing in the NDP is €25m for serviced sites.

A second element of investment towards the compact growth objective is the €2bn for the Urban Regeneration and Development Fund (URDF). The aim of this fund is to:

> … achieve sustainable growth in Ireland's five cities and other large urban centres by putting in place a centrally managed mechanism to drive collaborative, co-ordinated and complementary packages of investment between Departments, agencies, Local Authorities and other public bodies in pooling their assets and working with local communities and the private sector to transform our cities and towns (Government of Ireland, 2018b: 36).

The experience gained with the competitive-bid process under the existing Local Infrastructure and Housing Activation Fund (LIHAF) will help inform the design of the new URDF. The new fund will supersede LIHAF 'to encompass wider urban regeneration and development across both residential and commercial developments' (*ibid.:* 35). The areas for renewal and investment are to be identified in the new regional and local planning processes.

This URDF fund is potentially significant for the goal of transport-orientated development. The replacement of LIHAF with the URDF could reflect a difficulty in securing agreement with private developers to provide housing on foot of the State's investment. It could be used to encourage development in areas that benefit from the major transport investments set out in the NDP. The experience to date with LIHAF is of relevance to seeing how it might be used (this experience is discussed later). The type of projects eligible for funding from the URDF include:

- active land management, including the acquisition, planning, design, enabling through servicing, decontamination or otherwise, of areas, sites and buildings;
- measures to address building vacancy;

- building refurbishment, redevelopment and/or demolition;
- the development of areas, sites and buildings and the strategic relocation of uses or activities;
- public amenity, planting, streetscape/public realm, parks, recreational facilities, safety, security and/or crime prevention works;
- infrastructure related to housing, economic or skills development (including enterprise and tourism), transport and services infrastructure;
- infrastructure that enables improved accessibility, in particular sustainable modes such as walking and cycling, public transport and multi-modal interchange, but also including roads, bridges and car parking; and
- Transition to a low-carbon and climate-resilient society, in an urban context.

The allocations made to successful applications from the first round of proposals were announced in November 2018. An allocation of €100m is being made to 84 projects. The largest single allocation identified is €6m for infrastructure investment in the rejuvenation of Waterford City. Other substantial allocations are for the Abbey Quarter in Kilkenny (€4.76m), a public transport bridge in Wicklow (€3.45m), Ballina Innovation Quarter (€3.22m), a civic plaza and link roads for Tallaght Town Centre, and cycling and walking infrastructure by Galway City Council (€2.9m). Funding was also awarded for the Cork City Docklands.

The next call under the URDF offers the potential to specifically link the TOD concepts discussed in Chapter 2 to the funding environment in Ireland.

Enhanced regional accessibility

There is an allocation of €7.3bn for this NSO and of this 78 per cent (€5.7bn) is for investment in national roads. The major objectives here are to make substantial progress in linking regions and urban areas both to Dublin and to each other. The importance of investment to protect the value of past investment through maintenance and renewal is emphasised. For inter-urban rail this protective investment is the main priority in order to maintain safety and service levels in railway operations. The role that the inter-urban rail network could play in enhancing regional connectivity is to be examined over the period of the NDP. There will be examination of the benefits of higher speeds on the Dublin–Galway and Dublin–Limerick Junction/Cork rail lines. There is also to be an evaluation of the economic benefits of high-speed rail between Dublin and Belfast, Dublin and Limerick Junction, and Dublin and Cork.

A cost-benefit analysis of a rail extension to Navan and Dunboyne was undertaken in 2016. This project is to be considered in the next review by the NTA of its strategy for the Greater Dublin Area (due before the end of 2021), taking account of new and planned development along the route. This is a potential opportunity for TOD. The NDP also states that an independent review of extending the Western Rail Corridor is to be undertaken immediately.

Sustainable mobility

The NDP makes provision for a total investment of €8.6bn in sustainable transport in the period to 2027, and 86 per cent of this is for three major projects: MetroLink (€3bn), the BusConnects programme (€2.4bn) and Dart expansion (€2bn).

Large-scale capital investment will be complemented by a range of other sustainable transport measures to be delivered in the period to 2027 across Ireland's five cities. These will include traffic management, bus priority and other smarter-travel projects along with new urban cycling and walking routes to allow transport infrastructure to function more effectively and relieve congestion. The major sustainability mobility investments are summarised in Box 4.4.

Box 4.4: Sustainable Mobility Investments in the NDP

Investment will be continued in bus and train fleets, as well as infrastructure, to maintain safety and service levels including further expansion where required.

- **Delivery of the full BusConnects programme for all of Ireland's cities (inclusive of ticketing systems, bus corridors, additional capacity, new bus stops and bus shelters, etc).**
- **Transition to low-emission buses, including electric buses, for the urban public bus fleet, with no diesel-only buses purchased from July 2019, while promoting commercial bus services and small public service vehicle industry to pursue low-emission fleet.**
- **Complete construction of Metro Link.**
- **Delivery of priority elements of the DART Expansion Programme, including investment in new train fleet, new infrastructure and electrification of existing lines.**
- **Park-and-Ride Programme: strategic park-and-ride sites plus investment in parking facilities at rail, Luas and bus locations, for example, Swords, Finglas, Dunboyne, Liffey Valley, Naas Road, Carrickmines, Woodbrook and Greystones, and with national development of BusConnects, for example, Galway, Cork, Limerick and Waterford.**
- **Complete construction of the National Train Control Centre.**
- **Delivery of comprehensive cycling and walking networks in Ireland's cities.**
- **Supporting programmes of rail and bus station improvement/development, traffic management investment, passenger information programmes, public bicycle share schemes, accessibility enhancements and similar.**
- **In line with the National Transport Authority's Transport Strategy for the Greater Dublin Area 2016–2035, undertaking of appraisal, planning and design of LUAS network expansion to Bray, Finglas, Lucan, Poolbeg and a light-rail corridor for Cork in the later stages of the period of the Cork Transport Strategy, which is being finalised.**

Providing additional charging infrastructure for targeted growth in electric vehicles.

If this public transport investment is to lead to TOD, further investment in the surrounding area is needed to create the appropriate environment. In the NDP, the URDF is a potential source of support for such investment.

Local Infrastructure Housing Activation Fund (LIHAF)

The introduction of the LIHAF fund was one of the commitments made in *Rebuilding Ireland*. The LIHAF instrument suggests an acceptance that intervention is necessary to deliver certain key infrastructure required for housing. LIHAF was introduced in order to accelerate housing delivery in major urban centres by providing funding for off-site infrastructure where lack of this was an obstacle to housing investment. This type of investment is normally funded by local authorities, using revenue from development contributions. However, according to the DHPLG, the decline in development and budgetary cuts since 2008 meant that local authorities did not have sufficient resources to fund the provision of the necessary local public infrastructure to enable housing development on land for which there is planning permission.

Box 4.5: Example: Funding of the Rieselfeld district in Freiburg

The development of two new districts in the city of Freiburg, Rieselfeld and Vauban is described above and in the background paper. Both are examples of successful transport-orientated developments.

In the case of Rieselfeld, the city council had the land available for its development. The city council borrowed money through a trust to finance the project. The development of the area (excluding the housing itself) was funded through a combination of land sales (€115m), development fees (€22.5m) and public subsidies (€7.5m), representing a total of €145m. There are 4,200 dwellings, so this project cost amounts to approximately €34,500 per home, but public subsidies amount to only five per cent of the costs. Most of the cost was covered by land sales. In the absence of this source, the funding of high-quality TODs is more challenging.

The establishment of a €200m government fund was announced in June 2016, with a matching contribution of €50m by local authorities. Local authorities were then invited to apply for funding towards cost of infrastructure that would secure the early delivery of additional affordable housing at considerable scale, with developments of more than 500 units in the Dublin area and more than 200 units in areas outside Dublin. There was a lot of interest in this from local authorities and bids were received for total funding of €800m. Approval has been granted for 34 proposals, amounting to total funding of €226m. A list of the projects approved is given in Box 4.2. It can be seen that most of the projects concern roads: road upgrades, access and distributors roads. At first glance then, the LIHAF fund might be seen as reinforcing the pattern of car-dependent development rather than encouraging the type of transport-orientated development that is the focus of this study.

However, the investment through LIHAF is meant to complement other investment for the proposed developments, so may be a component of TOD. Some of the investments are of particular relevance to TOD. One of the LIHAF investments was for the Adamstown Strategic Development Zone (SDZ) (€20m). Adamstown is a major transport-focused development (see Section 3.2), so in this case LIHAF is helping the advancement of a TOD that is lacking some infrastructure. Likewise, Clonburris is a large-scale SDZ with rail connections, so the investment here is likely to support TOD although the €3m allocated was less than the €38m sought. A substantial allocation of €15.75m was made for a public transport bridge over the River Dodder. This is to improve accessibility to the Poolbeg peninsula where there is scope for large-scale housing development. This investment is co-funded by the NTA. Investment in road improvements in Drogheda and Dundalk are to open up land near the town centres and railways in each case.

The LIHAF allocation for Midleton in Co Cork is to mainly fund the first phase of infrastructure at Water Rock, a development along the rail line for which Cork County Council has prepared a master plan. It has features of a TOD, as discussed in the background paper. Later phases of infrastructure investment are to be mainly covered by development contributions. LIHAF is not funding a planned railway station; other funding is to be investigated for this. Investment in Baldoyle Stapolin, Co Dublin, a major urban housing development site on the north DART line, includes a ramp for pedestrian and cyclist access to Clongriffin train station.

Table 4.2: List of Approved Projects—Local Infrastructure Housing Activation Fund (LIHAF)

Local Authority	Project Name	Detail of infrastructure	No of housing units to be provided by 2021	Total potential for housing long-term	Total Allocation (€m)
Clare	Claureen Ennis	Link road	200	800	3.66
Cork City	Old Whitechurch Road	Roads, drainage, relocation of powerlines	600	600	9.89
	South Docks	Road upgrades	700	830	15.5
Cork County	Ballincollig	Link road, road upgrade	520	3500	7.4
	Carrigaline	Road upgrade	400	1200	0.6
	Glanmire	Access road, road upgrades	300	1200	5.9
	Midleton	Road upgrade, link road	520	2500	6.5
Dublin City	Belmayne and Clongriffin	Distributor road, road upgrades	1380	1380	3.0
	Dodder Bridge	Bridge	1500	3000	15.75

Dun Laoghaire Rathdown	Cherrywood	Road upgrades, bridge	2000	8000	15.19
	Clay Farm	Loop distributor road and bridge	1000	2500	10.15
	Kiltiernan Glenamuck	Distributor road, relocation of ESB lines	1000	2000	10.5
	Woodbrook Shanganagh	Distributor road, junction upgrade	1000	2300	4.16
Fingal	Baldoyle Stapolin	Road upgrades, wetlands, park	800	1500	6.18
	Donabate Distributor Road	Distributor road	1200	2200	15.5
	Oldtown Mooretown	Road upgrade	800	3200	4.9
South Dublin	Adamstown SDZ	Roads, park	1000	2500	20.0
	Clonburris SDZ	Surface water upgrade works	1000	8000	3.0
	Corkagh Grange	Access road, pumping station	1000	1000	4.39
Kildare	Naas	Inner relief road	800	2400	6.0
	Maynooth	Eastern relief road and bridge	800	1700	14.5
	Sallins	Community amenity	250	750	0.93
Kilkenny	Ferrybank	Ferrybank Park	200	390	0.62
	Western Environs	Distributor road, park	800	3690	6.76
Limerick	Greenpark	Distributor road	400	700	4.93
	Mungret	Distributor road	450	2700	10.5
Louth	Mount Avenue, Dundalk	Access road	200	1200	3.33
	Newtown, Drogheda	Access road	260	760	1.22
Meath	Farganstown, Navan	Distributor road	400	1800	5.68
	Ratoath	Outer relief road	300	370	2.5
Tipperary	Ardgeeha Lower, Clonmel	Distributor road and roundabout	200	200	0.78
Waterford	Gracedieu	Access road with roundabouts	200	2200	1.32
	Kilbarry	Distributor road	450	1500	3.39
Westmeath	Brawny Road, Athlone	Access road	200	670	1.83
TOTALS			22,830	69,240	226.46

Source: DHPCLG, 2017.

Chapter 5
Realising the Potential for Transport-Orientated Development in Ireland

5.1 Introduction

This chapter summarises the key findings from the literature review and policy framework analysis outlined in the preceding sections, and suggests some areas for further action. The chapter focuses on how the potential associated with transport-orientated development (TOD) can be realised in Ireland. It looks at the Irish transport and land context through the analytical framework developed in the report, namely the degree to which there is a clear *vision*, a specific form of *decision*, a tailored *institution*, and appropriate *funding*. However, identifying and accepting the need for these four factors is just a first step in precipitating TOD. In Ireland, there are difficult issues in each of these areas that must be addressed. Unless this is done, the potential promised by TOD, and articulated at a high-level in the National Planning Framework (NPF), will not be realised.

The previous four chapters have set out the degree to which TOD is aligned with national policy, including *Project Ireland 2040* and Ireland's relevant international objectives, as well as with recent institutional developments, most especially in relation to the establishment of the Land Development Agency (LDA). They recount a brief history of this particular form of urban development, the key concepts of TOD, and the benefits of the approach. The preceding chapters also describe some of the obstacles and critical success factors regularly associated with TOD. Arising from the case studies, four key factors are proposed in the third chapter that are necessary to make TOD, rather than car-orientated development, more likely to happen in Ireland. Identifying and accepting the need for these four factors is just a first step in precipitating TOD.

Having assessed the current planning and investment context, this chapter presents some of the challenges that remain to be addressed in the short to medium term. While the NPF has articulated a high-level vision supportive of TOD in Ireland, ensuring that the necessary decision, institution and funding are in place means addressing a number of difficult issues in each of the three areas. This challenge and ways to address it are expanded on in the remaining sections.

5.2 TOD: the Four Key Elements

Car-orientated development has been and continues to be the norm in Ireland, and the NPF and NDP are designed to help address this. Based on the literature review, case studies and consultations completed to date, TOD offers strategic assistance to national, regional and local planning in making sustainable TOD happen, and thus arresting undesirable car-orientated urban development and associated sprawl.

TOD can also contribute to Ireland's achievement of the specific UN Sustainable Development Goal on sustainable and resilient urban development. It could inform the ongoing development of Ireland's National Energy and Climate Plan and preparation of the recently signalled all-of-government plan to make Ireland a leader in responding to climate change. It also appears aligned with the stated objectives of the new LDA (i.e. strategic land assembly and development), and the Office of the Planning Regulator (OPR).

The case studies illustrate the application and importance of the four factors in making TOD happen. To summarise, first, whether it is 'compact urbanisation' in The Hague, or Freiburg's 'city of short distances', the *high-level vision* spurs the second important factor: a *decision* to undertake a transport-orientated development. An optimum TOD decision contains very specific details: it states where TOD needs to occur and at what kind of overall density and mix; links development with a high-frequency, high-quality transport service; requires development to occur at the necessary varying densities/affordability, and design in each centre; outlines how the development will be facilitated by a specialised entity, and describes the funding mechanism. Without this, a business-as-usual scenario can be expected. Such a key decision was taken, for example, in Adamstown in 1998 and 2003, although that development was hindered by other TOD-related factors (i.e. the institutional and funding arrangements).

Another important element of a decision to apply a TOD approach is the scale of the development. The case studies illustrate the size of areas that have been used for TOD. Ypenburg is the largest of the case-study areas, with a total land area of 600 hectares, while Adamstown is 214 hectares, and Hammarby 160. The two urban extensions in Freiburg were smaller, at 70 hectares (Rieselfeld) and 40 hectares (Vauban). The literature suggests that a functional minimum outside the urban core is 4–6 hectares, with many projects at 20 hectares or more.

Third, regarding a tailored *institutional set-up* to deliver a TOD project, the Montpellier case provides a guide, while the experience in Adamstown provides a warning. The State in some form must be actively and deeply involved in the planning, funding, and development of the proposed site. Ideally, a bespoke entity would be established for the development that would have integrated land-use and transport planning and investment, and development responsibilities.

Fourth and finally, in terms of an appropriate *funding* model, the Freiburg case illustrates how a loan can be used to invest in infrastructure and then be repaid from the proceeds of the sale of land plots. The case studies suggest that only limited state subsidies may be needed, and that value-capture mechanisms can help fund upfront investment in infrastructure.

TOD requires co-ordinated and deliberate additional actions at both national and local level. At national level, the state can and must set out the vision and, in most cases, make the investment decisions for the transport infrastructure around which sustainable urban development takes place.

That said, a recurring theme in the literature on TOD is that 'planning' alone will not deliver more TOD. For example, from the experience of Western Australia, Mouritz and Ainsworth conclude:

> While co-ordination of the policy, planning and research players is critical to making TOD happen, alone they are not enough. A government land development agency such as LandCorp must be included as a critical player if the gap between plans and actions is to be properly bridged (Mouritz & Ainsworth, 2009: 137).

In Western Australia, a policy was adopted in 1999, 'Planning to enhance public transport', which required that all planning applications on land adjacent to metropolitan railways support rail use and access by providing for higher-density residential development. Curtis comments on this as follows:

> Clearly this is a pioneering policy for TOD but its implementation has been slow to take effect, especially through conventional private sector led development processes. The most successful examples have been products of a redevelopment authority approach. Implementation outside of the redevelopment authority approach has been quite limited (Curtis, 2009: 42).

The critical work of reorganising an area for a TOD is done by different entities in different contexts. Redevelopment authorities in Australia are government-created entities based on legislation that undertake redevelopment of a specific area; they would have some similarities to the Dublin Docklands Development Authority in Ireland.

TOD is not a common form of development in the US but is significant in the Portland region. In addition to planning for TOD, there has also been active support for TOD from public bodies in this region:

> Planning is necessary but not sufficient. Getting the plans and development standards in place is not enough. Urban transformation takes times, requires patience and perseverance and partnerships. The region has developed skilled professionals, redirected funding and a blend of targeted incentives to complement the plans in order to get more than the market would otherwise do on its own (Arrington, 2009: 123).

National planning and co-ordination, therefore, are just the beginning. The examination of TOD as applied in other countries highlights the value of a local approach, albeit in the context of a higher-level vision: a local actor seeks to develop an area or large parcel of land, and a decision is taken to make the urban development transport-orientated rather than car-orientated. Further, as the experience in Cork shows us, each local plan must deal appropriately and specifically with large volumes of greenfield development sites not earmarked for

TOD; they must not be available for development or be developed in a manner that disincentivises desirable development along a transport corridor in the same locality.

Identifying and accepting the need for a vision, decision, institution and the funding for TOD is but a first step on what will be a challenging but necessary journey towards more transport-orientated development. Moving from business-as-usual development to TOD is not straightforward. It requires government and public bodies to be proactive at many stages of the planning and development process.

5.3 Evidence of TOD-Supportive Factors in Ireland

Given the centrality of these four factors (vision, decision, institutions and funding) in making transport-orientated development a reality, it is valuable to assess the extent to which each is present in the new planning and investment regime following the publication of *Project Ireland 2040*, and to identify the further work required on delivering the vision, the detail of the relevant decision, the precise nature of the institution, and the detail of the funding mechanism. It is important to note that this assessment is based on very specific criteria, informed by the case studies and consultations undertaken for this research. There are of course a number of alternative and valid criteria by which the new planning and investment regime might be assessed. However, the objective of the assessment here is to reveal the extent to which that regime is likely to see more transport-orientated development in the future.

5.3.1 The Vision for TOD in Ireland

In terms of a vision for TOD (and as discussed in Chapter 4), the NPF holds 'compact growth' as Ireland's number one strategic objective: 'achieving effective density and consolidation, rather than more sprawl of urban development, is a top priority' (Government of Ireland, 2018c: 14). This is a welcome and necessary first step. Delivering TOD and reducing car-orientated development are important tasks, and the new NPF-driven system certainly moves Ireland in the right direction. The new framework and process set out by the Government means that the TOD-supportive vision in the NPF is expected to be realised by each strategy and plan that flows from it, becoming more detailed than the one 'above it' until the most local plan spells out where a specific TOD will happen, along with the remaining necessary detail (e.g. the relative densities/mix, the proximity to high-frequency/quality transport services etc). The role of the new OPR will be key in making this happen.

However, the international experience summarised in preceding chapters suggests that this largely hierarchical or trickle-down approach needs to be supplemented. Developments that are truly transport-orientated arise from interactions and decisions taken by a mixture of actors at both national and local level, and by actors beyond those preparing the regional, municipal and local plans that flow from a national framework.

For example, a local authority responsible for local planning and land-use decisions must engage with a national transport operator regarding a piece of transport

infrastructure that, in turn, is of such a scale that national, central government is necessarily involved in its funding and delivery. While a regional assembly will prepare an Regional Spatial and Economic Strategy (RSES) and a local authority will prepare a metropolitan or local plan, they are unlikely to be in a position alone to make the necessary decisions on how land-use and transport planning will be integrated, what body will 'do the development', and decide on the funding mechanism that will allow investment and construction ahead of demand, a mechanism that at least offers the potential for value capture.

Thus, the vision expressed via the national strategic objectives in the NPF is welcome but should be understood as setting the context for deliberation that will drive the many decisions and actions that must follow to deliver transport-orientated development, and which should not be assumed will arise easily or automatically. Consequently, our analysis suggests that action be taken in the near term to facilitate and deliver the necessary interactions and decisions.

5.3.2 A Decision to Pursue TOD in Ireland

The policy framework described in Chapter 4 certainly allows, and does not inhibit, the fulfilment of the high-level vision outlined in the NPF, and it does not in itself present a barrier to a decision to undertake a transport-orientated development. Indeed, previous planning and land-use policy frameworks have seen seven Strategic Development Zones (SDZ) designated within Dublin alone, all located along existing public transport corridors or corridors that were or are the subject of improved investment. This is positive and can be built upon.

To ensure that opportunities for TOD are actually devised and taken, the decisions that deliver TOD must have very specific qualities. One key decision must state where the TOD needs to occur and at what kind of density and mix; link development with a high-frequency, high-quality transport service, and require development to occur at the necessary density and design in each centre. If the full sustainability benefits of TOD are to be realised, then TOD should also be sustainable in regard to energy, waste and water, as well as transport. Another critical decision, perhaps taken by a different actor, must outline how the development will be facilitated by a specialised development entity. A further decision must detail the funding mechanism. Designating the site for TOD as a zone for special development or planning rules will be a decision for central government.

An example of what, to a large extent, such an approach might look like in an Irish context can be found in the NTA's 2013 study, *Planning and Development of Large-Scale, Rail Focussed Residential Areas in Dublin* (see Section 4.2.2), although that study has no statutory basis or standing.

In terms of a decision to apply TOD, two very different contexts arise. In the first case, a local or national actor might seek to deliver a TOD in an area where there has yet to be a decision to invest in and construct the associated transport (e.g. rail or bus corridor). It is unlikely that such an approach would result in a new TOD in Ireland in the near to medium term. Central government is one of the key actors in driving TOD via national bodies, and its involvement would be missed where there has yet to be a decision to build the associated transport. More promising would be a plan by a local or national actor to deliver a TOD in a location where a decision has

already been taken to invest in and construct the associated transport (e.g. MetroLink, BusConnects). In such a case, the task for a regional or local actor is to ensure that development crowds around the node(s) in a transport-orientated fashion. There are also situations where transport infrastructure exists and there is scope for new nodes and improved transport service to create TOD opportunities; this applies to the Cork rail corridor. It is true that the opportunities for TOD are likely to arise in a relatively small number of locations in a national context, but opportunities do and will arise.

Again, identifying specific locations for the application of the TOD approach is merely an important starting point. For example, the State is committed to constructing MetroLink between Swords and Charlemont, a potentially 19km high-frequency, high-quality transport line, with 15 new stations. If one assumes a TOD corridor 2.5km 'either side' of the emerging route, MetroLink creates a potential 9,500-hectare zone in which to consider TOD. Such a 'corridor' approach to planning is undertaken internationally, for example in France where so-called corridor contracts take the route of a new transport project, the corridor's area is divided into zones for desired use and—importantly—the contract states the desired density of housing in each zone, with highest density most proximate to the transport line. Within the transport corridor, a form of Special Development Zone (a *Zone d'Aménagement Concerté* or ZAC) is also used, and is applied to land proximate to the proposed transport routes to avoid land speculation and to make land development inseparable from the construction of the transport line. A similar approach and level of detail may be needed in the relevant local area plan for the local authorities across which the MetroLink traverses.

This is but one example of where the vision set out in the NPF can be developed to deliver TOD. The same is true along the much more extensive BusConnects network of next-generation bus corridors proposed for the busiest bus routes. As bus rapid transport systems (BRT) have become central to transport-orientated developments internationally, national and local roads authorities as well as public transport authorities are important actors. As part of BusConnects, the core bus corridor project aims to deliver 230km of dedicated bus lanes along 16 of the busiest corridors in Dublin. The intention is to develop these bus corridors so that each will have continuous bus priority—in other words, a continuous bus lane in each direction along with maintaining two general traffic lanes. These may also present an opportunity for a corridor contract, TOD approach, and other locations such as Clonburris, Pelletstown and Clongriffin-Belmayne also offer potential to be developed in a more transport-orientated fashion. Finally, on this point, this research suggests that there remains huge potential for TOD in the Cork area. There is substantial zoned land suitable for TOD along the rail corridor, while the commitment in the NDP to the BusConnects project should open up further possibilities. A new transport strategy for the Cork Metropolitan Area is being finalised by the local authorities in partnership with the NTA, and such plans offer the opportunity to deliver transport-orientated development.

Overall, despite the vision set out in the new planning and investment regime, it cannot be taken for granted that decisions, with the necessary level of detail, to undertake TOD in suitable locations will in fact be taken. Indeed, it is not clear who has the authority to take such a decision, as the State will likely be the relevant infrastructure provider, whereas the local authority will be the relevant planning

authority. Yet another body will be responsible for public transport operations. While it is vital that the State remain actively involved in preparing and implementing the regional, county, metropolitan and local plans that flow from the NPF, TOD requires that many actors work in concert and make decisions regarding a particular location and associated transport node(s). Following that, the State may need to establish a bespoke institution (beyond the LDA/OPR) to see that the vision and decision for TOD are actually delivered on, at a specific location proximate to infrastructure it is providing or has provided.

5.3.3 An Institution to Deliver TOD in Ireland

The research suggests that, where a vision and decision to undertake transport-orientated development is in place, a new institution, agency or project management entity is required on a project basis. The NPF did identify a specific institutional lacuna in the planning system and, based to a significant extent on NESC analysis, proposed the establishment of a new national regeneration and development agency 'to work with local authorities, public bodies and the business community, harnessing public lands as catalysts to stimulate regeneration and wider investment' (Government of Ireland, 2018c: 12). As described in Section 1.3, that institution—the LDA—is now in place and has set out an ambitious programme. While it remains too early to determine the extent to which the LDA will address any or all of the points raised in this analysis, it does at least offer the potential to do so.

The establishment of the new OPR may also prove significant in this context. The OPR will be critical in ensuring that decisions made at local government level through reserved functions in relation to development plans and local area plans are compliant with the NPF and relevant RSES.

The Planning Regulator will ultimately advise the Minister on the necessity or otherwise of issuing a Direction under Section 31 of the Planning and Development Act to take specific measures in relation to a development plan, variation to a development plan or a local area plan.

At a minimum, regional, county, metropolitan and local plans must contain the minutiae of a TOD approach (or in the case of RSESs, include a requirement for lower-order plans to contain such detail). Otherwise, there is the potential for such plans, despite being prepared under the new planning regime, to include language or provisions that, on the face of it only, support desirable forms of urban development such as TOD. This may make it difficult for the OPR to conclude that any particular plan complies (or does not comply) with the NPF and its national strategic objectives of compact growth, sustainable mobility, and the transition to a low-carbon society. The new OPR should devise and apply criteria that will allow it to confirm that plans are a true expression of the NPF at local level, and ensure that plans and the actions that flow from them are deemed to comply with the NPF, result in more transport-orientated development, and prevent business-as-usual, car-orientated development where it is not suitable.

Despite these developments, the processes that flow from the statutorily based NPF do not in and of themselves position a publicly led institution at the helm in terms of making TOD happen, one that does the land-use and transport planning for a site, and prepares the site for development. It does not create a specialised entity or a land use-transport planning body for a project. Further, it does not, on the face of it, provide a functional equivalent.

There are extra costs involved in creating an attractive mixed-use destination in the vicinity of a transport node that facilitates walking and cycling compared to conventional car-dependent development. Private developers will require these costs to be offset. Developing a new district depends on having a sufficiently large area of land in order to accommodate an interesting mix of uses, parking, street networks, plazas and open spaces. This may require the assembly of land in fragmented ownership in advance of undertaking a TOD development. Effective institutional arrangements need to include ways of assembling land for TOD where necessary, and planning, investing and then developing the site.

As reported in Section 3.8, analysis by the Infrastructure and Projects Authority (2016) located within the UK Treasury noted the inadequacy of the 'eyes on, hands off' model, adding that more, not less, public-sector involvement is necessary to ensure that infrastructure and related developments are delivered effectively and efficiently. They drew on experience to show that a reliance on contract-based outsourcing with state oversight proved ineffective. Public actors may be required to take on some of the roles that it might previously have attempted to transfer to the private sector, to manage the financial risk, to devise more collaborative commercial arrangements, to design more sophisticated project-control arrangements, and to help ensure that private-sector capability and skills are in place and in-house skills are developed.

An institution capable of ensuring that a TOD approach is taken to a site will be necessary to create the conditions under which the private sector will contribute to effective delivery. A tailored institution for TOD should instigate and manage the sophisticated commercial and project environment for the development, and collaborate with the private sector in seeking to deliver the strategic objectives outlined in the NPF, including TOD. If it is publicly led, it can consider assuming ultimate financial liability for the project.

The case studies presented above illustrate a straightforward model for TOD on public land involving sale or leasing of land to different types of developers, including non-profit and voluntary developers. A number of guiding principles for the development of public land were outlined by NESC (2018). These include using public land to create permanent housing affordability. This can be achieved through social housing, cost rental and affordable housing for purchase, subject to conditions that ensure permanence. The report explained the potential of long-term leasing of land to ensure permanent affordability and to remove the land element of housing from long-term speculative pressure.

Undertaking TOD on private land is more complicated, especially with a large number of landowners. Thus, TOD further highlights the need for more active land management and new kinds of relationships between public authorities, private holders of development land, and development actors.

The establishment of the LDA is an important step, and further institutional reform (e.g. a municipal-level institution) is worthy of consideration. As noted earlier, further reforms are required to enable the LDA or other public bodies to guide the development of TOD/major developments on private land. This could include reforms to ensure the implementation of planned development in Strategic Development Zones, including measures to avoid holdouts.

Finally, even if rarely used, an effective system of compulsory purchase of land can be important in making TOD happen. In a situation in which a planned TOD cannot otherwise be developed, an effective CPO system needs to be in place so that a public body can assemble and reorganise the land. In practice, compulsory purchase may be seldom be used, but it remains a factor in the background when local authorities are negotiating with private landowners. This is referred to by Needham as 'negotiating in the shadow of the law' (Needham, 2018; NESC, 2018). The German policy instrument of an 'urban development measure' that allows for swift acquisition of land in a designated area at its existing value in certain circumstances merits consideration as a way of supporting TOD. The ability to establish pre-emption rights is a policy instrument used in the Netherlands to limit land speculation. The establishment of pre-emption rights by a municipality (or other level of government) in an area means that sellers first have to offer the land for sale to the municipality. Another approach would be to put in place a framework for land adjustment where the land with multiple owners is pooled and reorganised for development while a plot suited to development is returned to the original landowner. This could initially be on a voluntary basis, supported through the production of a number of guidelines, followed by a statutory mechanism (Falk, 2018). In addition, in some situations it may be desirable for a public body to purchase a site (or an option) for TOD in advance of rezoning, and then prepare the site for development (NESC, 2018). These issues can inform the further work required to identify what additional reforms would best support TOD and other large-scale development on private land in Ireland.

Overall, central government must establish, and perhaps legislate for, a development institution. Such a tailored institution may require a statutory mandate to deliver a transport-orientated development, with land-use/transport planning responsibilities, and the authority to acquire, hold, and manage land in the area for TOD. Central government may need to provide consent for the institution to borrow money for current or capital purposes (e.g. to prepare a site).

The institution may need the authority to prescribe the desired proportion of social and/or affordable housing at the location. As it stands, the welcome vision of the NPF and the substantial investment provided under the NDP are just a kicking-off point for further detailed and challenging work to ensure that Ireland is ready, from an institutional perspective, to deliver transport-orientated development.

5.3.4 Funding TOD in Ireland

The cost of a quality transport-orientated development does not necessarily require additional Exchequer expenditure. The case studies presented here show the possibility of developing or redeveloping attractive new areas with limited public subsidies. For example, the Freiburg case study describes how a public entity had land, invested in infrastructure and amenities for the area, and recovered costs by selling land plots for development. This model was also adopted for the redevelopment of the docklands area in Dublin. The transport-centred Adamstown development provides an instructive and cautionary example of dependence on a more market-led approach.

Falk (2008) identified the ability of European municipalities to use low-cost finance from state investment banks to invest in infrastructure, with the loans repaid from land sales as a key factor in the success of eco-towns such as the Freiburg extensions. He considers this to be a more reliable funding source than grants (Falk, 2008).

It is clear that the NDP includes a substantial level of funding over the next decade for investment that is of relevance to the pursuit of TOD. This includes the investment in social housing, the Urban Regeneration and Development Fund (URDF), major public transport investments, and cycling and walking networks. The major investment in new public transport infrastructure and improvements creates new opportunities for TOD.

The question arises as to whether there are funding arrangements supportive of the accompanying investment needed to create TODs. In recent years, the Local Infrastructure Housing Activation Fund (LIHAF) and now the URDF have provided funding to support infrastructure development in a manner that aligns with findings from other jurisdictions. In the NDP, probably the most relevant aspect to this is the URDF. This is to supersede the LIHAF fund for off-site infrastructure investment.

The experience of LIHAF shows that it can support TOD, although this is not its explicit focus and most of the investment to date has been in supporting road access to developments. The provision of funding in the NDP has the potential to support a considerable level of TOD. However, under current arrangements the development may often be *transport-adjacent* rather than reflecting the principles of *transport-orientated* development (as described in Chapter 2).

This is an example of how the identification of the four factors important to TOD (vision, decision, institution, funding) is just a beginning. If the transport infrastructure and associated site are identified, the decisions described above taken, and the tailored institution established, a great deal of work will be required to ensure that the funding required for a TOD is available, without sizeable Exchequer expenditure and within fiscal rules.

In that context, it is notable that the NDP refers to the ability to capture the uplift in land value arising from the development process, for investment in necessary infrastructure (Government of Ireland, 2018b). Again, MetroLink provides an interesting example. Data from the real-estate sector suggest that a home proximate to a DART or Luas stop commands an average price premium of 26 per cent or €114,000, and commands a rent premium of over €3,000 per year. This

gives us a sense of potential value to be legitimately captured by the State from MetroLink to invest in a related TOD. For example, if 1,000 homes at each of the proposed new 15 MetroLink stations commanded a premium of €114,000, that's an uplift of approximately €1.7bn, representing around half of the estimated cost of building the MetroLink, or a substantial contribution to the cost of constructing hubs for connection to other modes/park-and-ride, or a contribution to the MetroLink's operating costs.

As high-level strategic documents, it is perhaps unsurprising that neither the NPF nor NDP details what mechanism will be deployed to ensure that the State captures all appropriate value-uplift from its investments under MetroLink, BusConnects, etc, specifically in a manner that would facilitate TOD. The portion of increases in land value due to population growth and economic development should be kept by government on behalf of the general public (Suzuki *et al.*, 2015). At present there is a risk that private-sector actors will seek to acquire land along transport routes (such as MetroLink) in order to capture much of the value of the State's significant investment, value that should accrue to the State and society.

At the same time, a current concern is the provision of more social and affordable housing, and transport-orientated urban development must contribute to a solution. In its 2018 report, *Urban Development Land, Housing and Infrastructure: Fixing Ireland's Broken System*, the Council argued that a balance must be struck between using land value capture to fund infrastructure and providing land on favourable terms to underpin housing affordability (NESC, 2018).

The third chapter highlighted a form of value capture whereby developers are required to include a proportion of social and affordable housing in their developments, and summarises international practices. This suggests that consideration be given to a requirement in Ireland for affordable housing on private land in addition to the Part V provision for 10 per cent social housing. While Part V used to cover both social housing and affordable purchase, it would have new relevance as a contribution to government policy in developing an affordable rental sector. An alternative to extending Part V would be to introduce a new zoning category for affordable housing. Vienna has recently adopted a new zoning category called 'subsidised housing': in these zones two-thirds of all floor space in developments with more than 50 units must be used for subsidised housing. The Ninth Progress Report of the All-Party Oireachtas Committee on the Constitution recommended that local authorities identify lands in their development plans that would be reserved for social and affordable housing (APOCC, 2004).

In a situation in which a major transport investment was leading to an increase in land value, an affordable housing requirement would partly offset this increase. Likewise, it would moderate an increase in land value from rezoning, including rezoning of industrial land. A requirement for affordable housing would need to be supported by a credible threat of compulsory purchase at a price that takes into account the price-lowering effect on land of affordable housing (Needham, personal communication).

Overall, the NDP, the urban regeneration fund, the LIHAF and use of development contributions for investment in infrastructure have the potential to go some way in supporting a TOD approach in Ireland. Further, the State's planning and co-ordination powers can be used to crowd in funding from other sources, if well directed. However, in terms of the critical elements identified in the literature and the cases—substantial investment ahead of demand, linking the transport infrastructure to the development of the location it serves, and the importance of capturing the value of that transport investment and the uplift in the price of property in the area—there appears to be a gap in the current funding framework.

5.4 Making TOD Happen in Ireland

The research in the preceding chapters gives rise to a number of questions, such as:

- In what strategic plan, and by whom, should a decision for transport-orientated development in Ireland be articulated?
- What entity or institutional resource is required for specific transport-orientated developments, and what would that look like in the Irish context?
- What steps are required to ensure there is a mechanism available for cost/value recovery to supplement Exchequer expenditure, where a public entity invests in infrastructure and amenities?
- What can Ireland learn from (TOD-like) developments attempted here in the past?

Previous attempts have pursued more desirable and sustainable development by ensuring the required elements were in place. For example, the Dublin Docklands was developed in line with a vision that was followed up with a discrete decision and tailored institution. Adamstown had a vision for TOD and made the necessary decision, but lacked the institutional and funding elements—a reflection of the national policy context of the time.

The Cork case displays the necessary vision and some of the funding elements, but suffered from inconsistent decisions, and the absence of an institutional driver and adequate funding. Cork County Council now has in place a housing and infrastructure team that is seeking to expedite the development of major sites, some of which are along the rail corridor.

Delivering the national strategic objectives set out in the NPF and, specifically, delivering transport-orientated development means, first of all, getting four specific pieces in place: *vision, decision, institution* and *funding*. These in turn generate a number of challenging work streams to be tackled by a variety of actors. The NPF sets out a vision that is supportive of transport orientated development but this must be seen as only a necessary first step. The experiences of the urban developments recounted in previous chapters, coupled with the lessons of the reviewed literature, suggest that, if TOD is to contribute to Ireland meeting the NPF's 'top priority', its vision must be supplemented with very specific decisions,

tailored institutional set-ups, and bespoke funding mechanisms. As the NPF is delivered via regional, county, metropolitan and local plans, its vision and strategic objectives will interact with the local democratic system.

The assessment here of the current policy, institutional arrangements and funding framework suggests that some gaps remain between these and an optimal framework for TOD. This research suggests that the necessary shift towards more TOD and less business-as-usual, car-orientated urban development will not emerge without determined action by government departments, agencies and local authorities in the near and medium term. In the near term:

- Any guidelines prepared by government for local authorities to ensure that new or revised local plans are consistent with the NPF should contain strong guidance in support of transport-orientated development.

- The next call under the URDF should be used to specifically link the TOD concepts discussed in Chapter 2 to the funding environment in Ireland.

Other actions worthy of consideration include:

- assessment of whether the use of quantitative modelling techniques can bolster the case for more transport-orientated development in Ireland;

- examination of the Irish policy and planning process to better reveal specific barriers to more optimal development; and

- determining which additional policy levers could be used to encourage sustainable urban development.

However, such action alone will not be sufficient to make transport-orientated development more common in Ireland. The research here looked to international experience to reveal the most important elements that contribute to more sustainable urban developments. Identifying the necessity for a vision, decision, institution and funding mechanism has been instructive. It has helped parse out the subsequent discrete strands of work that are equally necessary to deliver TOD in the current context in Ireland. Despite some of the important pieces now in place, further action is crucial.

At a minimum, further leadership and action by key public actors will be needed as the regional, county, metropolitan and local plans are devised, agreed and adopted. The Government and relevant departments, the LDA, OPR and local government must actively engage and appropriately shape their development plans to ensure that their contents install the elements to deliver TOD, recognise the link between housing affordability and sprawl, set out an effective approach to affordable housing provision, and preclude undesirable, unsustainable business-as-usual, car-orientated development.

That will increase the likelihood that the vision stated in the NPF will be sustained down through the new planning hierarchy: from the statutorily based NPF down to the three RSESs, through 31 local authority development plans, to five Metropolitan Area Strategic Plans (LDPs), and into the many local area plans (MASPs) prepared by local authorities. That said, even if the RSES/MASP/LAP process results in highly prescriptive plans that contain some of the detail required for TOD, further work will be required by a mixture of actors at both national and local level, beyond those who have prepared and assessed regional, municipal and local plans.

Table 5.1 sets out examples of further issues to be considered, in the context of the vision articulated in the NPF, under the headings *decision*, *institution* and *funding*, to progress transport-orientated development. These actions do not represent a comprehensive recipe for TOD in Ireland; rather they exemplify the policy challenges yet to be overcome to make TOD happen, even though the vision of the NPF is in place. Such activity by key actors will be in the context of good evidence. The likely locations for a new or initial TOD approach are reasonably obvious (including but not limited to the corridors created by MetroLink, BusConnects, and the Cork rail network), and the detail necessary for inclusion in local plans is also reasonably obvious from the case studies here, the 2013 NTA study, and the corridor approach used in France, for example. That NTA study goes so far as to describe in detail a 'proof of concept' to apply the principles, ideas and concepts to an actual location with the purpose of assessing their applicability and robustness. Crucially, the 'proof of concept' assessed how higher-density residential development can be achieved on a given site.

Addressing some of these challenges will require prior government action. Equally, others will be resolved by the relevant stakeholders in the context of a major project to deliver TOD. In major development projects, there is a meshing of the ends (urban development, affordable housing and transport investment) and the means (financing, funding, active land management) (Sabel & Jordan, 2015). In other words, the doing of significant projects will be a catalyst and context for the policy innovation and systemic change that is required to deliver Ireland's strategic policy goals (NESC, 2018).

Overall, the research presented here should inform discussions and co-ordinated action by key relevant stakeholders about how to further develop a comprehensive and accurate understanding of the policy, institutional arrangements, how to ensure the funding context for TOD is understood, developed and articulated, and how to devise ways to address any gaps.

NESC offers to play a role in bringing the relevant actors and international expertise together in the near term to consider and address the challenging steps set out above, and any others, to ensure that transport-orientated development happens. In this way, the research and further activity by NESC can contribute to the development of a truly transport-orientated approach to urban development in Ireland, and to the attainment of shared national goals.

Table 5.1: Further Issues to be Considered to Progress TOD

Vision Articulated in the National Planning Framework		
Decision	**Institution**	**Funding**
• Disparate national and local actors examining existing and proposed transport corridors (both rail and road/BRT) for parcels of land suitable for TOD • Local and national actors deciding to deliver a TOD in a location where a decision has been taken to invest in and construct the associated transport (e.g. MetroLink, BusConnects, roads for BRT, Cork Rail Corridor, etc) • Responsible local authorities preparing and taking local planning and land-use decisions in cooperation with transport providers and operators • Facilitating a public body to purchase in advance of rezoning and preparing this site for TOD • Central government designating the site for the TOD as a zone for special development or planning rules • Key actors agreeing the necessary density and mix for the TOD location, linking development with a high-frequency, high-quality transport service, requiring the development to occur at the necessary density and design, and maximising sustainability in regard to energy, waste and water as well as transport • Considering a requirement for affordable housing (in addition to the Part V provision for 10 per cent social housing) on private land, which would moderate the increase in land value from transport investment and rezoning of land.	• Driving a TOD approach by moving from an 'eyes on, hands off' model by the State, to instigating and managing the necessary project environment, and potentially assuming ultimate financial liability for the project • Central government outlining how the development will be facilitated by a specialised development entity, and detailing the funding mechanism • Central government ensuring (perhaps via legislation) that a development institution with the necessary statutory mandate is in place to deliver a TOD, with land-use/transport planning and investment responsibilities • The new institution acquiring, holding and managing land in the area for TOD • The tailored institution planning and preparing the site for development • The institution having the authority to prescribe the desired proportion of social and/or affordable housing at the location • The new entity devising and pursuing an approach which delivers a suitable balance between the valid objectives of social/affordable housing and maximising value uplift • Co-coordinating, where necessary, private developers and landowners to ensure the TOD is delivered • Designing and implementing any further institutional reform required to enable the LDA or other public bodies to guide the development of TOD/major developments on private land • Putting in place an effective CPO system so that a public body can assemble and reorganise the land in situations in which a planned TOD cannot otherwise be developed • Putting in place a framework (voluntary or statutory) for land adjustment where the TOD site has multiple owners.	• Where the transport infrastructure is of a large scale, central government ensuring that its funding and delivery supports a proximate TOD • Central government enabling substantial (though not necessarily Exchequer) investment ahead of demand, linking the transport infrastructure to the development of the TOD location • Ensuring the new institution has the ability to capture gains in land value from the development process, for investment in necessary infrastructure • Central government providing consent for the institution to borrow money for current or capital purposes (e.g. to prepare a site). Access to low-cost finance is important for this purpose. • Finding ways of capturing more of the value uplift from the provision of transport infrastructure arising from increases in the value of existing property.

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