



chapter | 4

the capacity to accommodate growth

4. THE CAPACITY TO ACCOMMODATE GROWTH

Existing residentially zoned land in the Greater Dublin Area could accommodate a significant proportion of the anticipated future demand for housing, if all lands were released for development.

There are significant areas of land available for employment creation uses.

Water supply to the Liffey catchment area will require augmentation, but there will be adequate wastewater treatment facilities, provided that the planned provision is put in place. Some major trunk sewers will require upgrading. In overall terms, the environmental quality of the Greater Dublin Area should not be seriously threatened by the scale of expected growth.

The existing transportation system has serious problems, but significantly increased capacity can be realised through appropriate investment.

The construction industry should, with modest expansion, be able to meet the demand for additional houses, provided that adequate aggregate sources are available.

The capacity of the Greater Dublin Area, and of each local authority area, to accommodate future growth is dependent on a range of factors that particularly include:

- the amount of serviced and unserviced zoned land, including industrial, commercial and residential;
- the amount of other land suitable for development;
- constraints and limits in the provision of water supply and drainage;
- constraints and limits in the provision of other physical and social infrastructure;
- access, including public transport;
- topographical constraints; and
- areas of high amenity or nature conservation value.

LAND

Lands Zoned for Residential Use

An estimate of the capacity of the lands zoned for residential use in the Greater Dublin Area is given in Table 4.1. Not all of the zoned lands, on which the estimates are based, are serviced or immediately serviceable. Nevertheless, it is clear that the existing zoned lands can accommodate a substantial part of the anticipated growth in household numbers in the period up to 2011 (Table 4.2) and could accommodate over 90% of the natural growth estimate.



Table 4.1 Estimated Capacity of Residentially Zoned Lands*

	Capacity in Housing Units
Dublin County Borough	22,500
Dun Laoghaire-Rathdown	12,000
Fingal	40,000
South Dublin	21,250
Total Dublin Region	95,750
Kildare	18,000
Meath	19,500
Wicklow	11,250
Total Mid-East Region	48,750
Total GDA	144,500

*As at December 1998.

The estimates do not, however, allow for lands that may not be released for development in the period, or which might not be serviceable within that timescale. On the other hand, some of the 1996-2011 requirement for additional housing units will already have been met through developments since 1996.

Table 4.2 Comparison of Household Scenarios with Capacity of Residentially Zoned Lands

Scenario	Estimated Additional Households 1996-2011	Percentage Accomodated on Existing Zoned Lands
Assuming natural growth only	157,750	92%
Natural increase + low levels of in-migration	175,750	82%
Natural increase + medium levels of in-migration	193,750	75%
Natural increase + high levels of in-migration	214,750	67%

The estimates given in Tables 4.1 and 4.2 assume that development of residentially zoned lands would be at densities permitted in the appropriate development plans. If significant increases in development densities were to be achieved, even at limited locations such as public transport nodes, the existing zoned lands could accommodate greater numbers.

Lands Zoned for Employment Uses

Undeveloped lands zoned for industrial uses are summarised in Table 4.3. In addition to these lands, the creation of employment would be facilitated through various mixed use and town centre zonings.

Over the period of the Guidelines, Dublin city centre will continue to be the most significant focus of employment growth in the Greater Dublin Area. Within Dublin City, the Docklands area is projected to accommodate between 30,000 and 40,000 additional jobs over the next 15 years. Existing planned developments at East Point Business Park, the IFSC and the central business district confirm the continued attractiveness of these central locations.

There is limited zoned industrial land in both Dun Laoghaire-Rathdown and South Dublin. The majority of the land zoned in South Dublin is committed to two high

quality business parks. The remaining industrial land is scattered throughout the county in small parcels, usually less than 50 ha. In Dun Laoghaire-Rathdown, land has been zoned for a Science and Technology Park at Cherrywood. The main industrial estate at Sandyford is practically completed and the Council is hoping to identify a site for the development of another industrial estate.

Table 4.3 Lands Zoned for Industrial Uses

	Area (ha)
Dublin County Borough	10
Dun Laoghaire-Rathdown	148
Fingal	1,239*
South Dublin	414
Total Dublin Region	1801
Kildare	592
Meath	394
Wicklow	533
Total Mid-East Region	867
Total GDA	2,668

As at January 1999

* An Additional 400 ha of land in the MU1 zoning may be available to industry after the completion of appropriate studies and action plans

Major economic development can be accommodated in Fingal especially along the Dublin-Belfast Economic Corridor, at Dublin Airport and in the South Fingal Fringe. This development will build on the existing industrial areas in the county.

IDA Ireland sees a favourable outlook for the location of foreign firms in the Mid-East Region and the market is also dictating this to a certain degree, with road improvements allowing better access to the ports and airport, lower land values and lower costs associated directly and indirectly with congestion. No fundamental threat is felt to exist to the development of IDA assisted employment in the outer towns due to the proximity of proposed 'Objective 1' areas. With the corporation tax advantage of any Irish location expected to remain in place, factors such as suitable labour availability, serviced and appropriate sites and land, and relative proximity to Dublin and international access points, will dominate location choices in this context.

In the Mid-East Region, the undeveloped industrial land is located near the main towns. Within Meath the majority of the zoned undeveloped industrial land is located in Navan and its environs and also in the environs of Drogheda. In Wicklow industrial land is provided at the primary growth centres. In Kildare the majority of the industrial zoned land is located in the North Kildare Towns area and in central Kildare (Naas, Newbridge, Kilcullen area).

WATER SUPPLY

Current water consumption (including all sources) for the Greater Dublin Area is approximately 510 megalitres per day (Ml/d). However, within this area, the total design volume of the significant sources of the Liffey, Vartry and Dodder is currently 448 Ml/d but with an actual abstraction of 453.4 Ml/d, in order to meet the current demand.



As the treatment plants are at virtually peak capacity, a study was carried out in 1995 in order to highlight means of water conservation in the Greater Dublin Area and also to identify a possible new source. The main recommendation of the study was that a major leakage reduction programme be implemented in order to reduce the 1995 leakage levels from the distribution mains from an estimated 44% of overall production capacity to a level of 20% in 2001 and to 18% by 2016. The current leakage protection programme is due to be completed at the end of 1999 followed by a 24 month maintenance period, but it is recognised that control measures should not cease then and should be continued to ensure the maximum level of conservation possible.

Of the four existing abstractions serving the immediate Dublin area, those on the Vartry and Dodder rivers are considered to be at their maximum hydrological yield. The Liffey catchment does have the potential for additional abstractions. In this regard, there is a current proposal to increase abstraction at the Ballymore Eustace plant from a current volume of 244 Ml/d to 320 Ml/d. This has now become urgent.

The Leixlip treatment plant is currently undergoing expansion, which will increase its capacity from approx. 120Ml/d to 170 M/d. It is considered that with these available abstraction volumes there would be sufficient raw water to meet the foreseeable demands of the immediate Dublin area well into the period covered by the Guidelines. However, to meet the projected demands these resources need to be fully mobilised.

Meath's largest water catchment is the River Boyne. There is a proposal in place to abstract water from the Boyne at Ballinter and develop a new water treatment plant for the abstraction. The proposed volume of abstraction of 44 Ml/d is based on 32% of low river flow. There is a current abstraction point on the Boyne at Staleen, which produces 11Ml/d.

Kildare County Council has appointed consultants to examine options for future water supplies, with the aim of reducing the county's dependence on supplies from the Liffey which also serve the built-up area of Dublin.

The longer-term water supplies for the Greater Dublin Area also require consideration. As a considerable time frame is required to bring on-line a new water source, it is recommended that a catchment study for a new source for the Greater Dublin Area be carried out as the current resources will reach capacity by 2011.

WASTEWATER COLLECTION AND TREATMENT

Unlike water supply, the Greater Dublin Area will have sufficient capacity in its wastewater treatment works to meet the demands of the next twenty years.

The largest project currently being undertaken is the Dublin Bay Project, which includes the upgrading of the Ringsend wastewater treatment works. The expanded works will have a design capacity of 1.6 million population equivalent (p.e.) with 500,000 p.e. allocated to industry. The new works will serve Dublin County Borough, South Dublin, Dun Laoghaire-Rathdown, the southern part of Fingal and also those parts of southern Meath which are serviced or will be serviced by the northern interceptor sewer.

There is also a proposal in place to upgrade the works at Shanganagh to include primary and secondary treatment to a population equivalent of between 150,000 and 200,000. The upgraded works would accept waste from Bray, Shankill and the Shanganagh catchment. There are also plans in place to extend the treatment works at Swords and Balbriggan/Skerries in order to meet anticipated development in their catchments.

Meath County Council operates a large wastewater treatment works in Navan, which has a design capacity of 40,000 p.e. There is a proposal to upgrade this works to 60,000 p.e. in order to meet anticipated future growth, which has been assessed at 50,000 p.e. There is also a proposal to develop a new works at Dunshaughlin, which is very poorly served at the present time. The new works would discharge into the River Boyne. Meath has other plans to upgrade smaller works around the county.

Osberstown and Leixlip wastewater treatment works are currently undergoing expansions, which will increase their design capacity to 60,000 p.e. and 90,000 p.e. respectively and there are proposals to further upgrade these plants. The rest of Kildare is adequately served except for the Monasterevin and Castledermott works, which are both currently overloaded.

Wicklow County Council has a new treatment works at Greystones with a design capacity of 30,000 p.e. which could be easily expanded to 40,000 p.e. There are also plans to upgrade the works at Wicklow Town to include secondary treatment and to construct new works south of Kilcoole and at Arklow.

In contrast to the improved developments in sewage treatment, the underground sewerage infrastructure has seen relatively little investment in recent years, especially in the urban precincts. The introduction of an Asset Management Plan would increase the capacity of the sewer network. Even a 3% increase would allow the servicing of a significant area of development land. Additionally there would be a reduction in the pollution of watercourses.

As part of the Dublin Bay project a new north fringe trunk main will be constructed to service the southern part of Fingal. The sewer will discharge to the new Sutton Pumping Station for eventual pumping across the bay to Ringsend. The northern interceptor sewer requires duplication in order to meet the future population demands of its catchment, which includes south-east Meath. Rehabilitation work is required on the two main sewers serving South Dublin in order to increase their capacity and meet future population growth.

ENVIRONMENTAL QUALITY

The Environmental Protection Agency (EPA) considers the overall quality of water in Ireland satisfactory. The overall quality of drinking water improved for the period 1994-1996 compared to its previous review period, 1991-1993. The gradual abatement of serious pollution in our rivers and lakes is largely attributed to the installation of sewage treatment works, while the upward trend in eutrophication is mainly due to diffuse agricultural and sewage effluent sources. Water quality surveys undertaken at intervals since 1971 have indicated a significant reduction in the extent of serious pollution. However, in contrast, there has also been a trend towards a progressive increase in the incidence of slight and moderate pollution/eutrophication.



The principal catchments within the Greater Dublin Area, namely the Rivers Liffey and Boyne, have been the subject of water quality management plans and are currently being studied with regard to developing monitoring and management systems for the catchments. The monitoring and management systems are part of an ongoing Department of the Environment and Local Government catchment based strategy aimed at more effective management of water resources in order to implement the measures necessary to ensure compliance with national objectives, in particular, recently introduced phosphorus standards.

The EPA prepares annual reports on the monitoring of drinking water supplies and an assessment of the results. In general the quality of drinking water in the Greater Dublin Area is satisfactory, with faecal coliforms virtually absent from all statutory authorities supply, but there were some odour and taste occurrences which were almost exclusively attributable to chlorine.

Air quality issues have assumed an important position in the considerations regarding the urban environment. Poor air quality is linked to a range of health problems and there is a statutory obligation to ensure that the concentration of air pollutants is lower than the limits specified in National and European legislation.

Air pollution associated with coal burning, which was a feature of air pollution in the Greater Dublin Area up to 1990, has been nearly eliminated by the switch to cleaner fuels and the Governments smoke-control legislation. Therefore, the potential for any serious impact on air quality from the residential sector has been largely removed. Developments in the power generation and industrial sectors, which have included switching to low sulphur fuels, the installation of nitrogen oxide (NO_x) control technology in power stations and the increasing impact of Integrated Pollution Control licensing measures, have all meant that progress has been made towards reducing emissions from these sectors.

The implementation of smoke control measures, the conversion to cleaner fuels by industry/power generation sectors, the introduction of unleaded petrol together with the increased remit of the EPA have all had a positive effect on the air quality in Dublin. Consequently the levels of atmospheric pollution in much of the urban area is lower than the specified limit values. However, as witnessed by the high levels of particulates (PM₁₀'s), volatile organic carbons (VOC's) and NO_x recorded close to major traffic routes, vehicle emissions remain a significant problem associated with the city and one which must be taken into account when considering the future development of the city.

TRANSPORTATION

The Greater Dublin Area is experiencing traffic problems that are more severe than were envisaged by the DTI, but without many of the DTI remedial measures. This is due to high levels of economic growth and faster growth in car usage than was predicted.

Investment needs have been identified for the national route network within the area, including the completion of the orbital motorway, the port access tunnel and improvements to the stretches of radial national primary routes. A Dublin Eastern Bypass remains a long-term possibility. It could provide a suitable route for goods vehicles from the south to access the Port and for through car traffic to bypass the city centre, thus partially relieving the C-ring.

All the rail services in the Greater Dublin Area, except the Kildare/Athy route, pass through Connolly station and the capacity of the section of the track immediately north of that station effectively constrains the whole system. The present signaling arrangements limit the number of trains to a maximum of 14 per hour in each direction.

The capacity of the northern DART line and Dundalk line, in terms of the number of trains that can be accommodated, is fully utilised, and there is also regular overcrowding of trains in the peak period. The capacity of the Maynooth line is only about two-thirds utilised, but in any case the service of two trains per hour (less at most times) is unattractive. Capacity can be increased by lengthening the trains to 8 or even 12 cars with associated platform lengthening but this still fails to address the problem of limited frequency of service on all suburban lines except the DART.

A comprehensive investment programme for the Dublin Suburban rail network has been proposed by CIE. It identifies the main elements of expenditure required as:

- signaling alterations to increase the number of trains per hour that can use the critical section between Barrow Street and Howth Junction, up to the point where the Maynooth route diverges from the north coastal route;
- doubling of the track as far as Maynooth;
- purchase of new trains, partly to replace existing life-expired coaches, and partly to increase the number of coaches in most trains, thus increasing their passenger capacity; and
- upgrading of stations, including lengthening of platforms to accommodate 8 coach trains.

The result of this programme will be to approximately double the capacity of the suburban network from 10,000 to 20,000 passengers per hour. Such an increase is essential if the travel demand resulting from population growth in the Greater Dublin Area is to be accommodated by rail.

Bus route development is quicker and cheaper, and buses will continue to provide the bulk of public transport provision in the future. The Quality Bus Corridors, currently being implemented, will increase the level of service and, hence, attractiveness of the bus services and there will be scope to further develop these in the future. However, the internal layout of development can have a strong influence on bus operation and hence on bus usage. Low density residential areas arranged in long cul-de-sac's are difficult to serve by bus and force people to adopt private transport.

There will be some limited opportunities for new development at the extremities of the proposed LUAS routes particularly if they are extended beyond the currently proposed termini at Tallaght, Sandyford and the Airport. However, the use of LUAS as the main form of public transport to serve such new development has two disadvantages:

- the high cost of new route construction and additional rolling stock; and
- the long journey times to the city centre, because all the trams will have to serve all intermediate stops.



The bulk of sea borne freight traffic generated by the Greater Dublin Area uses Dublin Port, which is now experiencing serious land-side access problems, which will be alleviated in some measure by the port access tunnel. Dublin Airport can be developed on the air-side to meet demand well into the future, but has increasing access problems. Improved public transport would provide a sustainable solution.

Transportation Corridors

For the purpose of this study a transportation corridor is an area served by a road link, of dual carriageway or motorway standard, and a passenger rail link.

The following transportation corridors, combining both road and rail, can be identified within the Greater Dublin Area (see Map 5 - Main Transportation Corridors):

- M1, N1 and Dublin-Belfast railway serving Malahide (soon to be on the DART system), Rush, Lusk, Skerries, Balbriggan, the coastal area of east Meath and Drogheda. However, Swords, the largest town in the corridor within the GDA is not served by rail, nor is Dublin Airport, which lies in close proximity to the corridor.
- M4, N4 and Dublin-Mullingar railway, serving Leixlip, Maynooth and a number of smaller settlements.
- M7, N7 and Dublin-Cork railway, serving Newbridge and a number of smaller settlements. Naas, the largest town in this corridor, is not served directly by rail.
- M11, N11 and Dublin-Rosslare railway, serving Bray, Greystones, Wicklow and Arklow.

In addition, the N3 (Dublin-Navan) route is designated for improvement to dual carriageway standard, but this corridor is served by rail only indirectly, via a freight line through Drogheda. The N2 is to be improved to dual carriageway standard as far as Ashbourne, but again this corridor is not served by rail. Athy is served by rail but there are no plans to improve road access to dual carriageway standard. There are no major plans for the N81 (Dublin-Blessington-Baltinglass).

THE CONSTRUCTION INDUSTRY

In considering the capacity to meet the future requirements of the Greater Dublin Area regard needs to be had to the capacity of the construction industry to meet demand. The numbers of house completions in the Greater Dublin Area from 1994 to 1998 are given in Table 2.7 (Chapter 2). From this, it will be seen that the total number of completions in 1997 was 13,885, very similar to the figure for the previous year. The outturn for 1998 is also expected to be similar.

The Dublin Region's share of completions fell from 71% in 1995 to 67% in 1997. This probably reflects the relatively greater scarcity of development land in the Dublin Region, increased demand for housing in the Mid-East Region arising both from increased economic activity there and by relatively lower house prices and increasing difficulties in obtaining planning permission in the Dublin Region (due, at least in part, to large and complex planning applications).

