7 LAND USE, FACILITIES AND DENSITY

7.1 Mixed Uses

In the planning of a town there should be a rough balance of homes, jobs and services.

In the case of Clonmagadden due to its size and context it is not possible or appropriate to provide a balance of uses as the area has neither the capacity to support such uses, nor would large scale or intensive district or town scale uses be appropriate within the area.

However, there is still a need to provide for a range of uses and range of intensity of development within and appropriate to the area.

7.1.1 Provision of Facilities

Local facilities proposed for the centre of Clonmagadden are those generally, which serve the SDZ area.

Based on the need to balance the protection of amenities of dwellings in this predominantly residential area and the need to provide facilities within the SDZ it is considered that the following uses table will apply within the SDZ zone.

7.1.2 Land Use Table

Land Use Table	
Community/ Commercial Centre	Adverts, Bring Banks, Bank, Religious Facility, Major Crèche/Childcare Facility(*), Community Facility/Centre, Hotel/Conference Centre(*), Cultural Facility/Use, Doctors/Dentists, Education, Enterprise Centre, Major Fitness Centre(*), Guest House (max. 20 bedrooms), Health Centre, Home Based Economic Activity, Major Leisure/Recreation(*), Library, Local Shops, Offices, Public House (*), Recycling Facility/Civic & Amenity, Public Services, Residential, Restaurants/Cafés, Sports Facilities, Take-Aways, Tourism Complex(*), Veterinary Surgery, Bank
Residential/ Gateway Building on Kingscourt Road	B & B/Guesthouse (Max. 5 guest bedrooms), Local Crèche/Childcare Facility (generally 1 per 75 dwellings and in accordance with the 'Children's Facilities, Guidelines for Planning Authorities'), Home Based Economic Activity, Open Space, Smallscale Residential Institution, Public Services, Recycling Facility/Civic & Amenity, Residential,
Primary School Site	Education, Public Services, Recreational Open Space
Open Space	Open Space and Recreational Facilities Public Services, Sports Facilities
Public Square/Civic Plaza	Temporary Retail Kiosks, Open Air Dining and Drinking Facilities Relating to Adjoining Uses in the Square, Temporary Displays for Public Information Purposes, Exhibitions of Crafts, Works of Art and other items of Artistic Content, Cultural, Social and Community Events

(*) – Only in buildings directly served by link to Distributor Road at north of site as indicated in the land use and overall plan, and subject to the construction of the multi-storey car park.

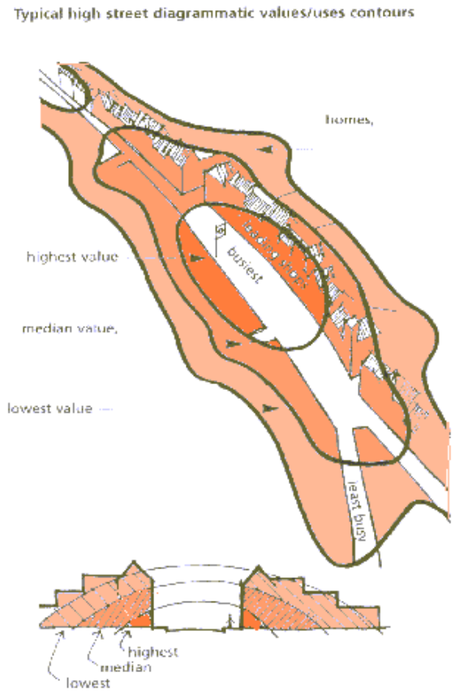
7.2 Facilities

7.2.1 Access to Facilities

Access to employment, shopping, education, health, leisure and social facilities are all important. However, modern lifestyles are not normally geared to one specific job/service centre, but to a wider range of choice. The increasing mobility of large sections of the population may mean that local people may not in any case choose to use local facilities.

Nevertheless, some sections of the population remain highly dependant on local facilities and sustainable development means trying to ensure that all people have the opportunity to use local facilities and preferably a choice of local facilities.

For this reason it is difficult to be prescriptive about access to facilities. Also the provision of a variety of local facilities within the Clonmagadden SDZ is no guarantee of short trips but does permit short trips.



7.2.2 Catchment Areas

Traditional approaches to catchment areas, as in the new towns, equated catchment areas with neighbourhoods, which were based on specific population levels. The problem with this approach is that it had limited regard to the needs of residents in that it did not specify the distance such facilities should be from residents. With low densities in particular, this approach resulted in a poor provision of services.

There is a gradation of access distances which are desirable, depending on the user, the use, and the catchments requirements. The diagram above suggests a range of standards, which may be adapted to local circumstances. The standards are based on the balancing of different criteria.

These 'ideal' standards have been applied to the Clonmagadden SDZ in relation to local facilities and are indicated on Community/Leisure/Recreational and Commercial Facilities Map.

7.2.3 Location of Facilities – The High Street

In general local facilities in Clonmagadden have been clustered together at locations served by bus, bike and pedestrian routes in a linear cluster similar to traditional high streets. This provides for variable catchments that can adapt to changing market conditions.

The linear concentration of varied retail, social, cultural and commercial activities, plus flats and town houses, along the Clonmagadden 'High Street' provides varied benefits by comparison with compact centres including:

- Better access from homes to local facilities
- Flexibility of hinterland size for facilities over time
- A wide range of property values, permitting marginal users frontage positions
- A common focus for main pedestrian, bus and bike routes

In general the Clonmagadden 'High Street' will:

- Combine office, retail, leisure, civic and high residential uses in close and overlapping patterns, knit together by the pedestrian/cycle network, particularly to increase the 'viability and vitality' of the centre.
- Facilitate multi-purpose trips, and increase the viability and service quality of public transport.
- Provide for functional linkages between activities within the site to be a key determinant of the planning of the area, so as to provide potential for dual use of space, trip purpose sharing and multi-functional design.
- A health centre shall be made available within the first phase of development and commissioned prior to occupation of any of the dwellings in the second phase of development.

7.2.4 School Provision

In addition to the provision of the above facilities the consideration of the provision of primary school is a particularly important element.

7.2.4.1 Primary School

It is proposed to reserve a 1.21 hectare (3 acre) primary school site to cater for the SDZ lands. This will include both the building site and recreational open space. This recreational open space will be made available to the local community.

The primary school site identified on the Clonmagadden Plan - Overall Scheme Map shall be reserved within the first phase of development. The school shall be constructed and operational prior to occupation of any of the houses in the second phase of the development.

The location of the primary school is within 400m of most homes, and 600m of all houses in Clonmagadden. Within 400 metres walking the children to school is the norm, but there is increasing resort to the car as distance increases beyond that,

7.2.4.2 Secondary School

A location for a secondary school site is currently being considered in the north of Navan other than on the Clonmagadden lands. This will cater for the pupils coming from the Clonmagadden lands.

7.2.5 Housing Mix

7.2.5.1 Planned Variety

The policy appropriate for any particular development area depends on its size and context.

In the case of Clonmagadden it is proposed to provide a range of residential units across the site generally in accordance with Table 7.2.5.1(a). While it is accepted that applications in areas designated for particular densities will vary from the specified housing mix, the overall site shall comprise the range of housing identified.

The proposed balance for Clonmagadden is in terms of

- Terraces/semis/detached dwellings,
- One/two/three/four/five + bedroom dwellings,
- Up market/mid-market/starter homes,
- Social and affordable houses including if possible co-operative/ housing trust housing associations houses,
- If required special needs/sheltered accommodation.

In general terms it is proposed that the appropriate approximate percentage of housing mix should be as follows:

Table 7.2.5.1(a)	
Terraced Dwellings	**not less than 50%**
Apartments and Duplex	**not more than 30%**
Semi detached dwellings	**not more than 20%**
Detached dwellings	**not more than 5%**

The range of bedroom numbers will correlate with the type of housing as follows:

Table 7.2.5.1(b)	
Dwelling Type	**Indicative number of bedrooms**
Apartments and Duplex	**1, 2 and possibly some 3 bed**
Terraces	**2, 3 and possibly some 4 bed**
Semi detached dwellings	**3 and 4 bed**
Detached Dwellings	**3, 4 and 5 + bed**

Residential developments must ensure a high standard of residential amenity and quality of life for future inhabitants, and as such should endeavour to exceed minimum apartment size standards. To this end, it is recommended that 1 bed apartments should exceed 45 sq.m, 2 beds should exceed 65 sq.m., 3 bed should exceed 90 sq.m. In addition all apartment, townhouse and semi-detached dwellings shall be provided with adequate storage space.

7.2.6 Social and Affordable Housing

Social and affordable housing shall be provided as follows:

- Affordable Housing – 17% of total residential units
- Social Housing – 3% of total residential units

unless Meath County Council require otherwise, as may be outlined in the review of the County Housing Strategy as applicable to Navan.

7.3 Density

7.3.1 The Role of Density

Density is one of the most important elements in locational policy particularly at local level.

It is also one of the most fundamental urban form variables. Research has shown that it is a major factor influencing the level of car ownership and car reliance independent of income variations.

Higher densities foster walking, cycling and public transport and make for shorter journeys. Higher densities are also associated with energy-efficient building forms (e.g. terraces) and economies in the provision of infrastructure. A close knit preferably mixed use pattern of building is seen by some as essential to create a vibrant and enriching urban environment.

However, very high densities are seen as threatening the quality of life, particularly if they involve loss of open spaces and ‘the urban green’.

7.3.1.1 The Best of Both Worlds

Achieving the benefits of higher density – especially good accessibility – without the problem of ‘town cramming’ means a rise in the average new-build net densities, while gross densities

are kept low enough to encompass the open space networks, parks, shelterbelts and wildlife refuges that sustainable development demands.

7.3.2 Average Net Density

Hence for the purposes of the Clonmagadden SDZ **average net density** will be used.

Average Net Density = Net Site Area/No. of Dwellings

Net Site Area includes:

- Access roads within the site
- Private garden space
- Car parking areas
- Incidental open space and landscaping
- Children's play areas where these are to be provided

It excludes:

- Major and local distributor roads
- Primary schools, churches, local shopping, etc
- Open spaces serving a wider area
- Significant landscape buffer strips and open space spines along hedgerows

7.3.3 Appropriate Net Density

The lands contained within the Clonmagadden SDZ are 'open lands on the periphery of Navan, whose development will require the provision of new infrastructure, roads, services and ancillary social and commercial facilities'.

The Residential Density – Guidelines for Planning Authorities define such areas as 'Outer Suburban/Greenfield Sites'.

In relation to such sites the guidelines state that 'the greatest efficiency in land usage on such lands will be achieved by providing net residential densities in the general range of 35-50 dwellings per hectare (14-20 per acre).

In addition the guidelines also indicate that higher densities may be provided at public transport nodes. In this regard, higher densities at up to 60 dwellings per hectare (24 dwellings per acre) will be permitted along the proposed busway and within 100 metres of bus stops.

In relation the Clonmagadden SDZ the average net density range for the various areas is as follows:

- **Medium Density Housing Area (indicated on Built Form and Density Plan) – Density 37-45 dwellings per hectare (15-18 per acre)**
- **Higher Density Housing Area (indicated on Built Form and Density Plan) – Density 45-60 dwellings per hectare (18-24 per acre)**
- **Mixed Use Area (indicated on Built Form and Density Plan) – Plot Ratio 1.0 – 2.0**

  Plot Ratio – Total Floor Area/Total Site Area

The maximum number of dwellings on site shall be 1,400 units, the construction of which shall be carried out over three phases comprising 500 units in Phase 1, 500 units in Phase 2 and 400 units in Phase 3.

7.3.3.1 Density Patterns

The differing density patterns combined with a significant level of net density proposed for the Clonmagadden SDZ will provide for a number of sustainable objectives including:

- To minimise average trip lengths and maximise the level of accessibility.
- To safeguard the viability of local shops, services and public transport.
- To permit diversity of density and character in every neighbourhood, and thus encourage diversity of household types.
- To facilitate creation of the open space network and of pedestrian access to open country.

In general density levels and use intensity, in the Clonmagadden SDZ vary in relation to the level of public transport accessibility and proximity to prime pedestrian routes.

- High density/high intensity near local high streets and bus stops, and along the distributor road.
- Lower density adjoining existing dwellings to reflect the pattern of development in adjoining areas.
- Linear bands of higher density/intensity may be provided along green corridors.

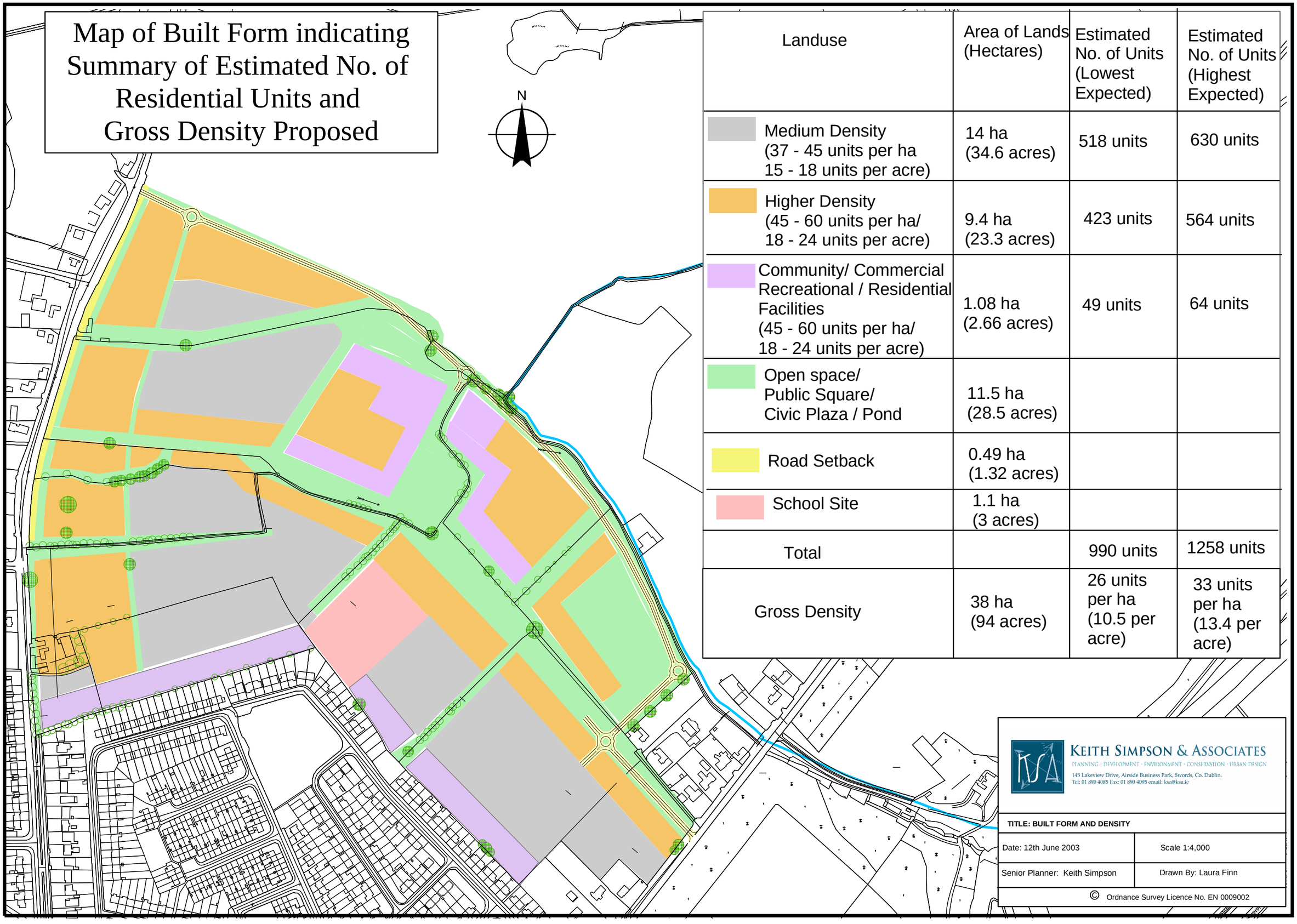
7.4 Application of Density Principles to the Area

The application of the foregoing principles to Clonmagadden are indicated on the Built Form and Density Map.

This provides for:

- Public transport providing the spine and structure for the settlement – two very efficient routes serves the whole population of Clonmagadden.
- Facilities and higher intensity housing are concentrated along the public transport spine.
- Higher density within 100 metres of at bus stops.
- Linear bands of higher density/intensity may also be provided along major elements of the pedestrian/cycleway networks.
- Everyone living within 400m of the public transport service and walking distance of some local facilities.
- Wider choice of facilities is available one or two stops away.
- Densities grade down away from the core thus giving varied living environments and a range of housing, while maximising accessibility.
- The main distributor road is kept peripheral to the development, so as to attract car traffic away from the high street.
- The multi-function open space network threads through the development. All dwellings are within 400 metres of significant open space.

Map of Built Form indicating Summary of Estimated No. of Residential Units and Gross Density Proposed



Landuse	Area of Lands (Hectares)	Estimated No. of Units (Lowest Expected)	Estimated No. of Units (Highest Expected)
Medium Density (37 - 45 units per ha 15 - 18 units per acre)	14 ha (34.6 acres)	518 units	630 units
Higher Density (45 - 60 units per ha/ 18 - 24 units per acre)	9.4 ha (23.3 acres)	423 units	564 units
Community/ Commercial Recreational / Residential Facilities (45 - 60 units per ha/ 18 - 24 units per acre)	1.08 ha (2.66 acres)	49 units	64 units
Open space/ Public Square/ Civic Plaza / Pond	11.5 ha (28.5 acres)		
Road Setback	0.49 ha (1.32 acres)		
School Site	1.1 ha (3 acres)		
Total		990 units	1258 units
Gross Density	38 ha (94 acres)	26 units per ha (10.5 per acre)	33 units per ha (13.4 per acre)

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TITLE: BUILT FORM AND DENSITY

Date: 12th June 2003	Scale 1:4,000
Senior Planner: Keith Simpson	Drawn By: Laura Finn

8 DESIGN OF BUILT FORM

8.1 Built Form

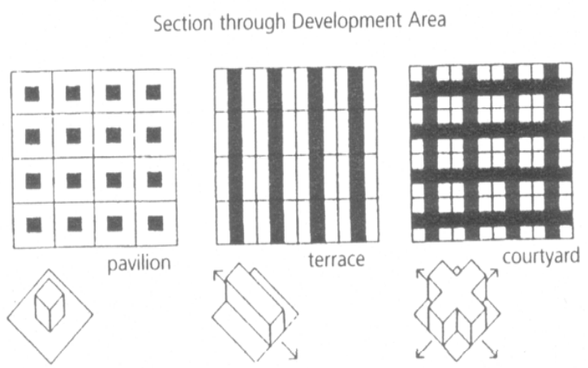
The overall form of the Clonmagadden SDZ is essentially linear in nature. It is based on the provision of a pedestrian/cycle and bus spine through the centre of the lands and the provision of the High Street along the centre of this spine.

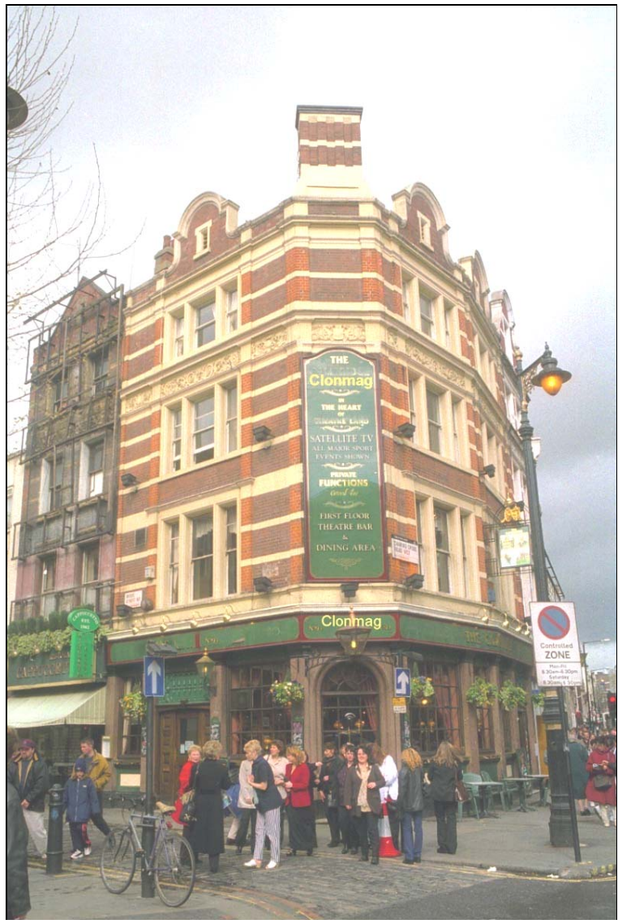
In general as the site slopes significantly downwards in a northerly direction from 56 metres O.D. at Blackcastle to 46 metres O.D. at the northern edge of the site, a drop of 10 metres. Advantage has been taken of this to provide higher buildings in the northern area generally below the 52 metre O.D. level and lower buildings on the higher ground adjoining Blackcastle.

8.2 The High Street, Clonmagadden

The High Street in Clonmagadden is proposed as a series of limited generators of activity. These generators being bus stops, local shop, clusters of civic/community buildings, café and so on. The High Street should not necessarily be uniform in activity levels and uses.

Within the high street there will be zones of prime locations, secondary and tertiary locations. These relate to distance from the main activity generators both in horizontal distance - length





along the high street and in depth to the rear of the plots - and in vertical distance, the upper floors. Housing can be infilled in less valuable locations along the axis, on upper floors and in the rear of plots in courtyard arrangements.

In form, compared with 'Main Street' USA, the High Street will not be geometrically straight, but slightly irregular, changing direction gradually and opening out to places of congregation. This more organic form takes cues from the topography to give shelter and can take advantage of sunny settings for central locations.

The Clonmagadden High Street will be generally 3 storeys high. However at particular locations along the High Street, particularly to emphasis a change in direction or to indicate the importance of a space or nodal point of pedestrian, cycle and if relevant bus route, landmark buildings up to 5 storeys in height will be considered. Such buildings, if permitted will in any event be limited in number and must demonstrate a high quality of design and must not seriously impinge on the amenities of the area. The locations of these landmark buildings are indicated on the Clonmagadden Plan – Overall Scheme Map.

Nodal point in High Street

8.3 Patterns of Density and Built Form

The maximum number of dwellings on site shall be 1,400 units, the construction of which shall be carried out over three phases comprising 500 units in Phase 1, 500 units in Phase 2 and 400 units in Phase 3. The density and layout of residential

development within the Strategic Development Zone lands shall be as per the Clonmagadden Plan – Overall Scheme Map.

A variety of densities and built forms are appropriate, to accord with the density patterns which have been identified previously.

Schematic Progression of Built Forms in an Urban Linear Band

There is no simple prescription for determining appropriate built form, although a thorough understanding of context and the potential within the detailed development of a design may narrow the options. The purpose of looking at simple generic forms, is to encourage a systematic approach and ensure that appropriate alternative concepts are considered in the design process.

8.3.1 Aspect of Housing

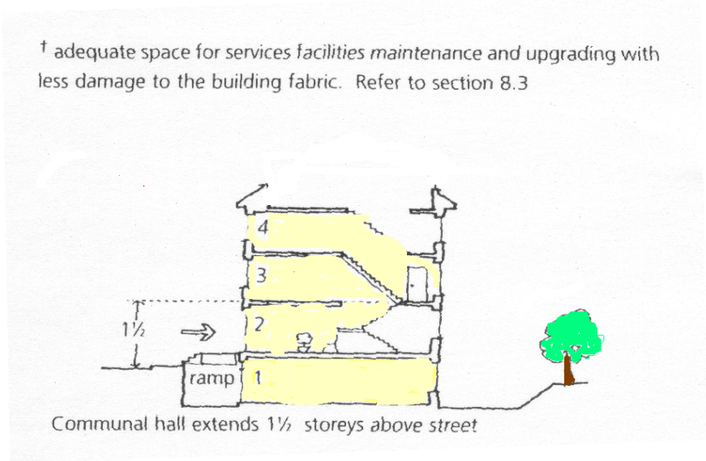
All housing shall at minimum be dual aspect and designed so that greatest advantage is taken of southwest orientations.

8.4 Build Potential

Build potential is defined as the ratio of the floor area (of the built form) to the site area. The graph shows that in comparison to the detached form, the built potential of the terraced form at its upper limits has twice the value, and the courtyard form has no less than three times as much potential. Plan geometry directly affects the potential density, assuming that height is an important factor.

8.4.1 Building Height

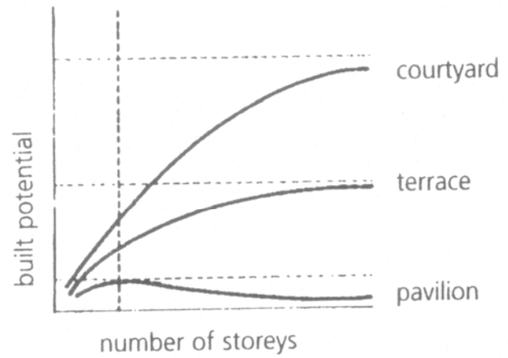
In general, houses of two or three storeys best meet human need with the minimum expenditure of resources. Two reasons for their success are that there is a reasonable level of access to and from external spaces, and satisfactory natural lighting at high densities. The purpose of this section is to highlight these issues particularly in relation to both higher and lower buildings.



8.4.2 Storey Height

This is not a 'fixed dimensional unit', though the modern tendency to use minimum figures as a target has produced a great many habitable rooms with a floor to ceiling height around 2.3 metres. It may be advantageous to consider 2.4 – 2.5metres as a better standard, for living rooms. The expenditure of embodied energy required to increase the height of buildings by three brick courses (225mm) could be justified by:

- Improved natural lighting, using windows that are taller and therefore less obstructed in high-density developments (Georgian houses are an example of this approach).
- More satisfactory conditions of natural lighting in deep plans, or following construction of extensions and conservatories.
- More even efficient distribution of light from (centrally located) artificial lighting.
- Improved indoor air quality.
- Reduced requirements for extract ventilation to avoid condensation.
- And, with an increased dept of floor, better sound insulation, and space for services within floor voids.



Built potential in relation to number of storeys (Martin and March, 1972)

8.5 Multi-storey Development

It is good practice to ensure that the actual entrance door of a flat or maisonette is no more than 1.5 storeys above communal entrance or street level. This tends to set a limit at 4 storeys (see diagram). Then the communal hallway and stairs, reduced to approximately one and a half storeys in height, should be designed for maximum ease of use, taking into account a wide range of abilities, and activities associated with access. Ramps, and resting places on stair landings, serve the needs of everyone at some time or another (whether they are carrying shopping bags, moving house, or feeling unwell).

Buildings that have relied on sophisticated lifts in the recent past have often been taken to excessive heights in order to justify the large capital investment. The results have sometimes been disastrous, for well-publicised reasons. Where lifts are required, either because of height or occupancy, any design proposals should:

- Allow for satisfactory use of building in the event of prolonged lift failure.
- Discourage the habitual use of the lift, through the provision of circulation space that is enjoyable and safe to use.

8.6 Single Storey Development

Single storey dwellings, although not generally suitable for urban areas, can provide useful benefits in specific situations such as:

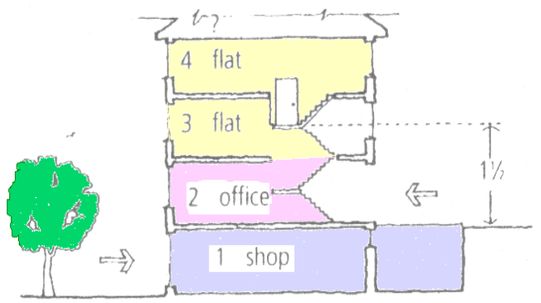
- Special Needs: homes for elderly and disabled people, and families with young children. Patio houses achieve much higher densities than bungalows, and can be integrated into a larger scheme to suit the desired mix and avoidance of overshadowing.
- On plots which are smaller than those normally acceptable for family sized houses.
- On sites which are awkward to develop with conventional houses because of the shape and/or relationship with adjoining dwellings.

8.7 Generic Built Forms

A layout can be developed from three basic forms, shown in the diagrams above (a) pavilion (b) linear or 'terraced' (c) enclosed or 'courtyard'. Each has particular characteristics, but they are essentially points of recognition in what may more properly be seen as a continuous transformation from one extreme to the other.

For an idealised density pattern for public transport, it might be suggested that progression from local centre to outskirts, using court, terraced and finally detached forms corresponding to the required density. A purely schematic progression is overlaid on to a sketch of an urban linear band, to illustrate the point (see below).

However, mixed uses and transport inevitably complicated the picture in the areas of highest intensity, i.e. the local centre.



As above, but with mixed use, and taking advantage of slope

Even if the courtyard form provides the same amount of floor space on the same site area with the same condition of building depth, in only one third the height of the pavilion form, it may still be desirable to locate higher buildings along the central spine with deep-plan pavilion forms. There remains the possibility of adapting the courtyard form to make fine urban squares, and the linear form to produce streets of vitality and civic quality.

8.7.1 Pavilion Forms

Providing that the quality of the local environment and internal comfort standards are satisfactory, detached blocks can contribute to sustainability whereby:

- A site with awkward shape, overshadowing, poor ground conditions can be utilised.
- A landmark is required, to reinforce local identity and sense of place, or to provide a focus along a public transport spine.

- A deep plan structure is envisaged, with the advantages of thermal insulation (an intermediate flat has the lowest heat loss of all conventional dwelling types).

- A range of uses and ancillary spaces can be accommodated.

8.7.2 Terrace Forms

8.7.2.1 Terraces

The terrace is the means by which much 'high density low rise' development is accomplished, and the urban areas of Ireland combine countless variations. As people have aspired to improve standards of living, it appears less attractive than more detached forms, owing to shortcomings that have been more a result of the past practices of development and construction than inherent defects. One such shortcoming is lack of sound insulation between properties, which is actually a surmountable problem provided sufficient attention is paid to it at both design and construction stages.

The advantages of terraces in general are:

- Low embodied energy in construction.

- Affordability.

- Good thermal insulation, hence low energy consumption.

- Durability, especially considering the relatively small area of external wall.

- Small plot size yielding high density and reduced travel distances.

- Urban design quality, as a form that encloses external spaces effectively (e.g. streets).

Since houses can be joined together in a variety of ways, including corners, cranked, and curved junctions they can contribute to urban design in a number of ways:

- The terrace addresses and defines the street, and public spaces.

- The rear gardens are protected from the street by a continuous barrier against sound pollution and visual intrusion.

- Planning can incorporate into the design and conserve features such as mature trees.

- Streets can 'meander' both for visual interest, and in relation to traffic calming.

- Streets can follow contours, to maintain minimum gradients suitable for energy-efficient movement (walking and cycling).

- Garages, studios, and other ancillary buildings can be incorporated with less risk of producing a chaotic appearance.

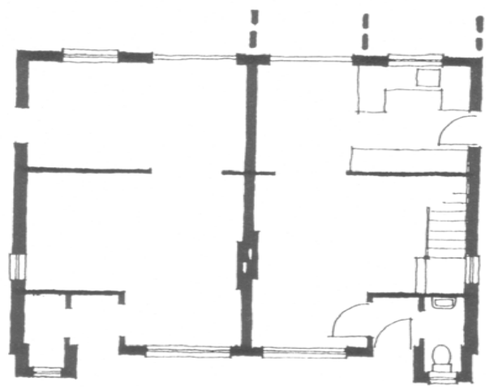
- Shared semi-public spaces (e.g. play and wildlife areas) can be partially enclosed to provide supervision and a sense of territory/community identity.

In the paragraphs below, it will be seen that to achieve a satisfactory 'quality of life' for residents, wide frontage may be superior to narrow frontage houses. However, the latter are still appropriate for a wide variety of uses and locations.

8.7.2.2 'Narrow Frontage' Houses (approx. 5-7 m)

The common approach to the provision of the terrace form is to provide narrow frontage deep houses.

Example of Narrow Frontage Terrace as described in text



Outline Plan of Narrow Fronted House

As a result of external criteria such as road requirements and the approach to the design of the narrow frontage terrace a substandard environment may result with long straight monotonous rows of similar houses dominated by car parking at front and with limited regard to the quality of the environment of the public realm. Also there may be poor natural lighting in the centre of the house.

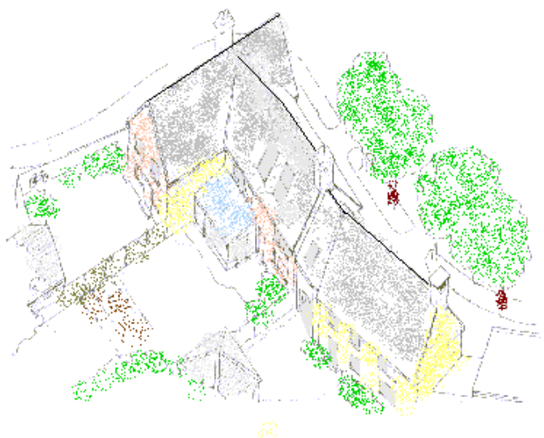
In order to mitigate some of these defects improvements to the basic terrace form as previously used should include:

- Excellent sound insulation standards: to party and external wall, internal floors, and taking into account the juxtaposition of rooms between houses (e.g. staircases/bedrooms) and buffer zones (e.g. storage cupboards).
- Glazed porches, draught lobbies and conservatories, provided the living space can be effectively enlarged without significant loss of natural light to the centre of the house.
- Better natural lighting, using tall well insulated windows with integral blinds as necessary (and with the option of locating living space on the first floor in three storey and higher dwellings).
- More imposing appearance: detailed articulation of the main façade, perhaps incorporating local vernacular building techniques.
- Increased frontage dimensions to improve standards of access.
- Greater mix of uses on the ground floor.
- Patio gardens, detached garage/workshops/studio at the rear.

8.7.2.3 ‘Wide Frontage’ Houses (8m)

The wide frontage terraced house may be regarded as having associations with more ‘rural’ forms of building, and as such it may offer an attractive and sustainable alternative to the semi-detached (and detached) house.

Example of Wide Front Housing Plan



Sketch of 3D Wide Frontage Houses

With many of the advantages of terraced construction, it achieves a balance between energy efficiency and long-terms flexibility, in terms of its:

- Suitability for passive solar heating (more than narrow frontage) and good natural lighting.
- Potential to be modified and extended without serious detriment to the natural lighting of the main body of the house - thereby retaining its quality over a long life span, and providing a ‘home for a life-time’.
- Range of living spaces that allows a family to accommodate dissimilar activities simultaneously.
- Quality of privacy and amenity especially in the rear garden.
- Provision of space for water butts, compost bins next to the house, reducing water consumption and waste disposal, and facilitating home food production.

In the context of overall site planning, this built form is also flexible in its use of site topography and layout. The internal layout lends itself to dual aspect, making use of sunlight at both front and rear of the house.

The disadvantage of the wide plot is that it may have insufficient length thereby introducing problems of overlooking and overshadowing between terraces arranged ‘back to back’. Among various options, it may be possible to:

- Increase some or all of the plot areas.
- Avoid parallel layouts and use ‘opposing crescents’ instead.
- Locate ancillary buildings and open spaces to the rear of the terraces.

- Orientate the building cluster at e diagonal to the direction of the sun.
- Plan the houses to contain utility rooms and circulation spaces with small windows on north sides.

8.7.3 Courtyard Forms

Because the buildings are joined together, the sustainability of the courtyard form is enhanced by:

- Reduced heat losses through thermal insulation and shelter from wind.
- Low embodied energy and affordability.
- Communal arrangements, with shared facilities, sense of identity and territory.
- Traffic calming (where access is from within the enclosed space).

As with the terrace form, natural lighting and the definition of private and public spaces are very important, but the planning of the corners is particularly constrained, and whatever orientation is chosen, adjacent sides face in different directions. Whether access is from the outside, in the case of much perimeter development, or from the inside, in the case of the residential square or cul-de-sac, often determines how to address such issues.

8.7.4 Orientation

If the sides of the court are orientated towards the points of the compass, those dwellings on a north-south axis will not be suitable for passive solar design. While of those on the east-west axis, half may face 'in' and half 'out' of the court. A more equitable arrangement is one in which the corners are orientated towards the points of the compass, so that all dwellings can face approx 45˚ of south, and the overshadowing of the midday sun is minimised (through being across the diagonal)

To overcome overshadowing (and window are limited by overlooking) at the east and west corners, they may be left open as access ways, or used as non-residential space.

'As a rule of thumb, if the length of a square courtyard is more than 6 times the height above the 2 metre mark, ground floor windows facing the courtyard will receive enough daylight'.

To appear as an enclosed space, a courtyard should have spacing to height ratio of 4:1 or less - but there will be problems of corners.

8.7.5 Public/Private Space

The external spaces may be defined by the configuration of buildings, perhaps creating a place with great architectural character, but here is a danger that the dominant effect of the whole composition detracts from an individual sense of ownership. It can become poorly maintained 'no-man's land'. It is recommended that designs should be checked as follows:

- All spaces should have clear ownership and function.
- Management and legal agreements should ensure satisfactory maintenance.
- A strict hierarchy of spaces should be apparent, with private gardens adjacent to a dwelling entrance at ground level.
- Garage courts should be limited in size, possibly a maximum of 5 garages.
- Traffic calming should be an intrinsic element of the design.
- Pedestrian (and cycle) movements has priority, the paths having a good microclimate and high amenity.
- The courtyard entrances(s) should be well-lit and overlooked, with the potential for adding further security measures should they be found necessary.

8.8 Gateway Building

The purpose of gateway buildings is to provide indication of a significant entrance into Navan. One gateway building is proposed for the SDZ lands situated on the Kingscourt Road at its junction with the Ring Road.

An exceptional standard of design and finishes will be required in order to distinguish the building from its surrounding context. In addition, it is intended that such buildings should 'stand out' in relation to adjoining buildings.

It is recognised that ancillary and associated surface facilities will be required in the case of some or all of the uses proposed for the gateway building. However, such ancillary uses shall be designed so as not to detract from the gateway building.

In addition, non-residential uses will be considered for all or part of these buildings if this assists in achieving a high standard of design and finish. These uses are indicated in the zoning table for the Clonmagadden SDZ in Chapter 7 on Landuse, Facilities and Density.

8.8.1 Landmark Buildings

The landmark buildings relate to the internal urban form of the lands. Their purpose is to provide a signal of a significant place whether in terms of movement or use. These buildings are located in the Clonmagadden SDZ at points where:

- Pedestrians and cycle routes intersect and meet the busway and spine road.
- Adjacent to bus stops where appropriate.
- Where a change in direction in building form occurs along the high street.
- Adjoining and within the centre community/commercial facilities area.
- Generally along the high street.

The height of the buildings is such as to provide increasing intensity of scale (and use) moving along the spine road towards the High Street. Within the central area increased height is also provided for to emphasis the importance of this area.

In addition to increased height landmark buildings of exceptional stand of design and finishes will be required in order that such buildings fulfil their role as landmarks within the SDZ area.

8.9 Materials and Finishes

It is neither possible nor desirable to specify in detail particular materials, which will be acceptable or otherwise for particular areas as this is part of the detailed design process for such areas.

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

- In general, finishes and materials should be of a high quality nature and should be used in a consistent and restrained manner.
- Where possible natural materials should be used including wood, stone, slate etc.
- The use of native Irish material should be maximised.
- Materials and finishes should as far as possible reflect an Irish vernacular and, where appropriate and feasible, a Meath vernacular.
- Use of non-natural materials such as clay pantiles will be permitted in limited circumstances where it is considered that such use contributes to the overall design quality of the scheme.
- Use of uPVC window frames and doors etc. shall in general be avoided unless a particular and specific case can be made for their use. However, there will in general be a presumption against such materials. This is in the interests of sustainable development and to help to promote the use of natural and native materials and more environmentally friendly materials.
- In cases where it can be demonstrated that the design of a building is of an exceptional nature and particularly in the case of gateway and landmark buildings, consideration will be given to the use of modern materials in the context of a modern design approach to such buildings.
- A variety of external wall finishes will be permitted including timber cladding, render, dash and brick. In the case of brick, it will be required that these are clay bricks.
- Whilst a variety of such finishes will be required across the whole scheme, there will be a presumption against the use of too much variety of finishes on the one hand and the lack of variety of finishes on the other hand.
- The use of porches of somewhat different design and of brick detailing should be considered.
- The use of colour should form part of any design proposal, however this should have regard to the traditional use of colour in the Irish context.
- In general, the design of schemes should focus on having a commonality of approach in terms of particular housing areas with a clearly different approach between housing areas.
- In additional, there should also be an overall and consistent design paradigm for the entire scheme.