# CONNECTIVITY

Networks operate on different levels: through traffic, vehicular traffic, public transport, pedestrian traffic, and cycling. They establish vital structural connections. The combined overlay of networks gives a reading of potential complexity of the area.

The combination of walkable neighbourhoods and a good vehicular and cycle network with a mix of relevant services in direct proximity reduces trips for everyday life necessities because distances are manageable without driving. This is the base for promoting more sustainable lifestyles.

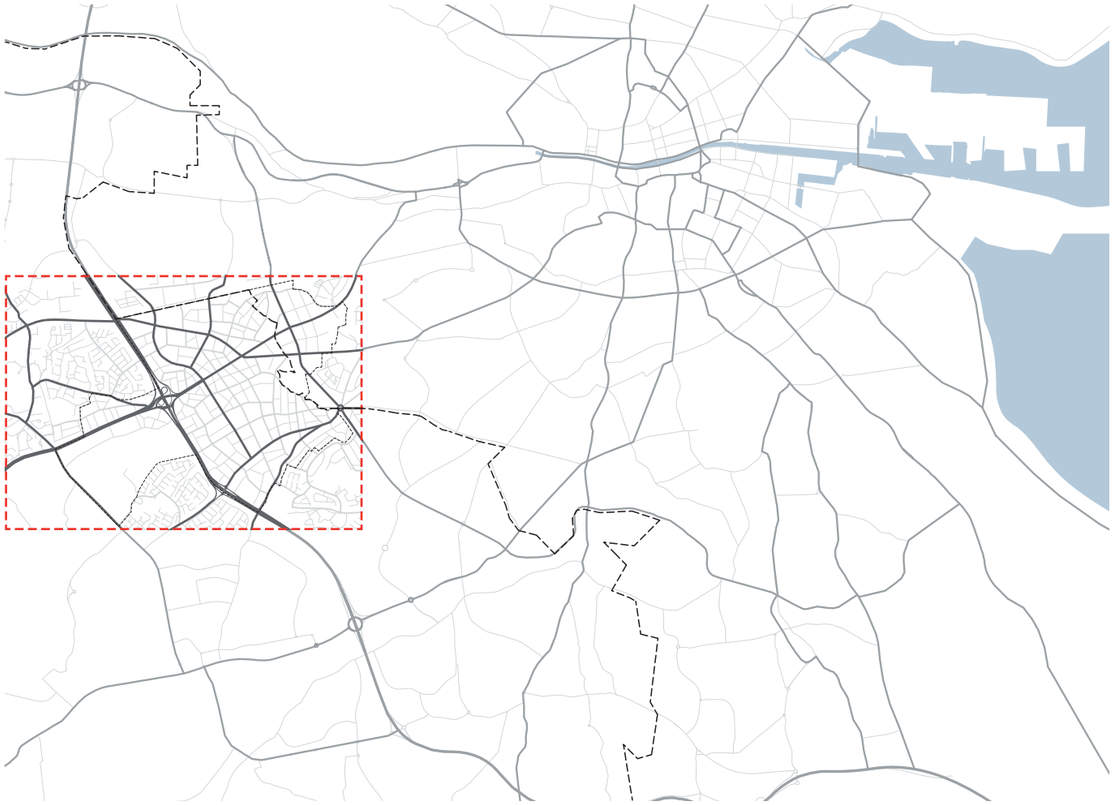
The incremental development of the area has resulted in a fragmented network of roads and public space. This condition is directly related to the problem of congestion as it generates movement and discourages the use of public transport and slow traffic.

The Development Framework proposes the repair of the existing road net into a network that distributes traffic more evenly and that allows for more varied moving patterns.

The vehicular network, slow traffic network and public transport system create a fabric for movement that reduces the the pressure onto the M50 by providing better alternatives connections and enhances internal connectivity by introducing more hierarchy in the street network.

By providing a better connection between public transport stops, nodes in the network and the concentration of density, the use of public transport and slow traffic is promoted.

This is the basis for transformation towards a future oriented mobility.



The critical required links that will establish a viable network structure are identified.
That network is essential to establish and provoke meaningful connections.

# Networks

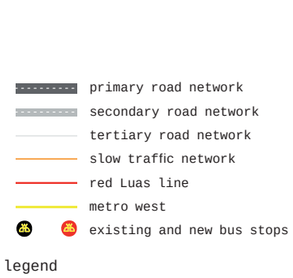
Vehicular connectivity is required within the study area independent of the National Primary road network.
The transformation of the existing streets into a vehicular network is as far as possible based on existing streets. Links needed to create the network can be new streets, prolongations of existing streets, crossings where there where cul-de-sac conditions or simply a change of profile.

A second element of the connectivity strategy is the transformation of the Naas Road into an urban boulevard. The existing vehicular traffic patterns means the Naas Road is simply a divisive element splitting north and south. Critical rerouting of traffic, insertion of crossings and downscaling of the profile, allow the reconfiguration of the road corridor to a scale that allows for a more urban and liveable environment.

A third element in the improvement of connectivity is the introduction of a new Luas stop on the existing line, together with new bus lines that make larger parts of the area sufficiently accessible for more dense urban development.

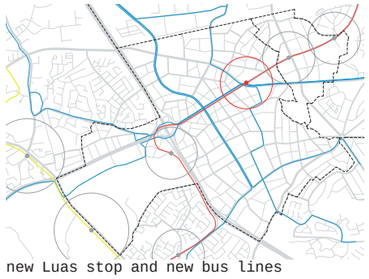
A sustainable pattern of mixed development focused on the Luas and the repair/completion of the networks (public transport, car, pedestrian, cycling), together allow for a radical change in the modal split. Walkable neighbourhoods are then possible.


A connected city

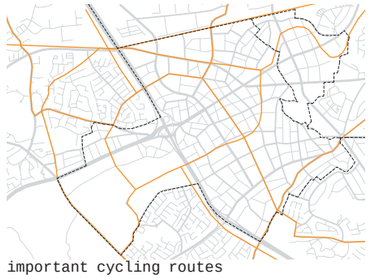



legend

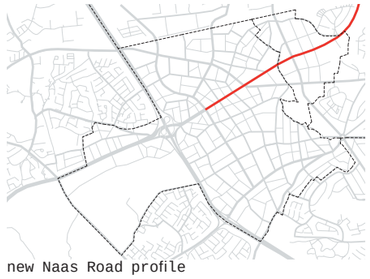
primary road network



new Luas stop and new bus lines



important cycling routes



new Naas Road profile

new junctions

## Vehicular network

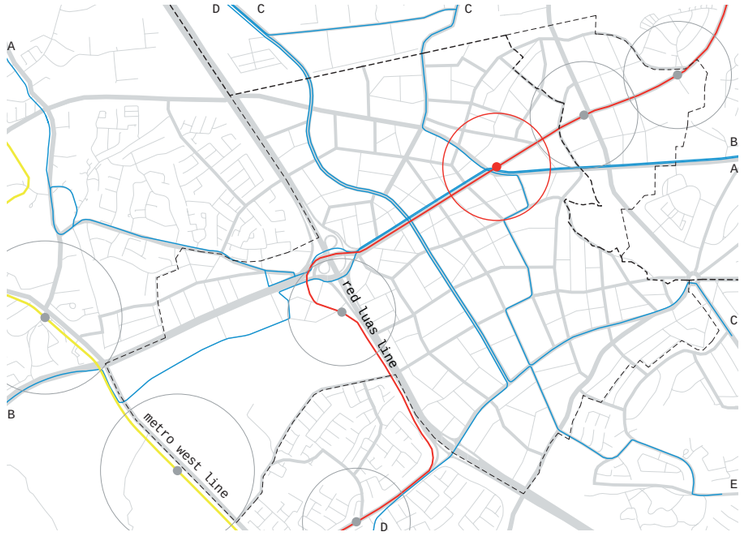
The network is based on two principles. Firstly it links over the major barriers, being the Naas Road, The M50 and the N7, to make movement between the 4'quadrants' possible. Secondly it improves permeability of each quadrant by introducing crucial linkages. New connections allow north south movement across the Naas Road and avoid the concentration of traffic at the Naas Road / Long Mile Road junction. The network has a clear hierarchy. A primary network ensures the connections from and to the area.
A secondary network ensures the linkages within the area and creates sufficient permeability for a cycle network. The position of streets on these two levels is fixed. The third level is the local network that creates the right plot sizes suitable for mixed use walkable neighbourhoods.

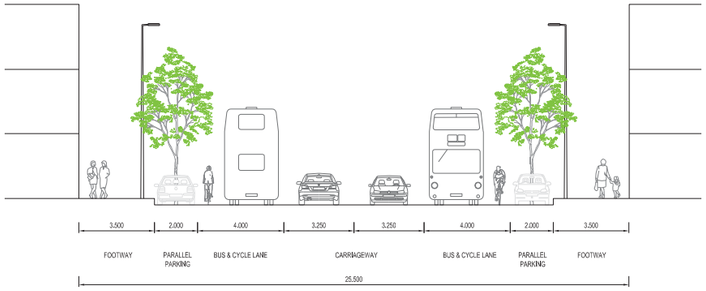
The Development Framework acknowledges planned, committed and constructed road infrastructure. Fine-tuning of the proposed vehicular network can be undertaken during the detailed analysis phase when developing the Area Briefs.

## Public transport

A new public transport node at Naas Road / Long Mile Road junction is proposed, combining a new Luas stop with 3 new bus connections. Line C connects directly to the new station on the Kildare Line and the planned new Lucan Luas line. The two other bus lines A and B link from here via Red Cow to Clondakin. Line D and E will cross Naas Road Beech Road connecting national rail via the site to Tallaght and the City Centre. Enhanced public transportation coupled with an excellent slow traffic network will affect a radical change of modal split.

A second Luas stop is a long term possibility at the crossing Oak Road and Naas Road. This would improve the possibilities of development of the first section of the Naas Road. Secondly the Metro West will improve accessibility of the Newlands Park area.

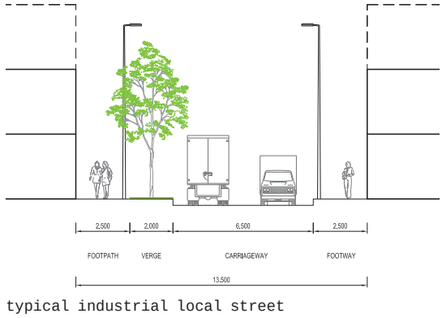



typical primary street

Friedrichstrasse Berlin DE

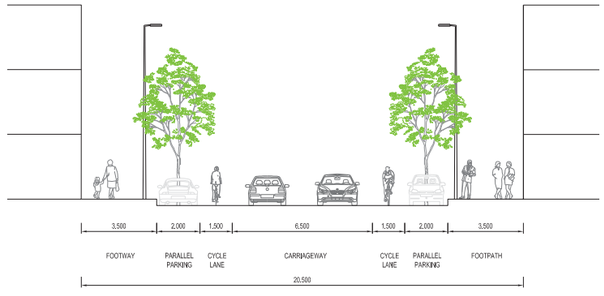
tramway Strasbourg FR




typical industrial local street

Theodor Heuss Strasse Stuttgart DE

Beethovenstraat Amsterdam NL




typical secondary street


buslane Antwerp BE

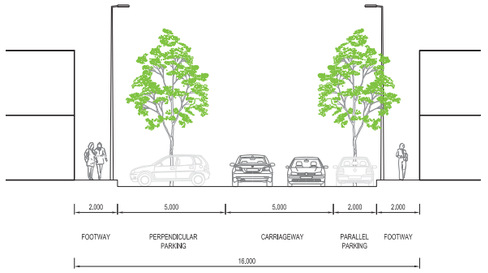
buslane Curitiba BR

# Slow traffic network

The slow traffic network establishes cycling routes that link otherwise separated areas within the site. Some routes are piggybacked on existing undervalued features (Canal, Camac, Robinhood Rivers), others are joining new connections on the primary and secondary network. Two critical connections over the M50 are suggested.

As well as facilitating internal movement this slow traffic network supports wider regional movement: west east from Clondalkin to the city centre along the canal, west east from the open space recreational lands into the strong Walkinstown residential districts, and north south connection existing residential areas to the employment centres north of the Canal.

The position of bicycle paths and laneways in the road profile is based on the hierarchy of the network. On primary roads bicycle paths are seperate from the vehicle lanes. On secondary roads bicycle paths are next to vehicle lanes. On local streets bicycle paths are part of the vehicle lanes and the last possibility is an autonomous path when the bicycle network is independent from car traffic. These positions are shown in the typical street profiles.

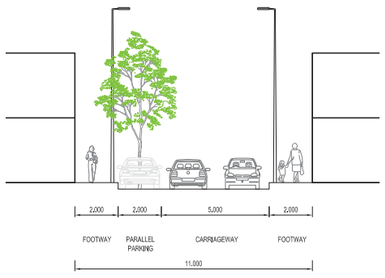



residential local street A

cycling lane Bloemendaal NL



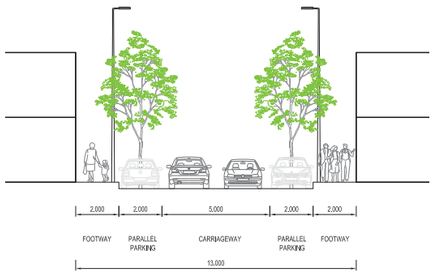

cycling lane Vondelpark, Amsterdam NL




residential local street C

residential street

residential street




residential local street B

Residential street Kaldenkirchen DE

Pedestrian street Paris FR

# Naas Road Transformation

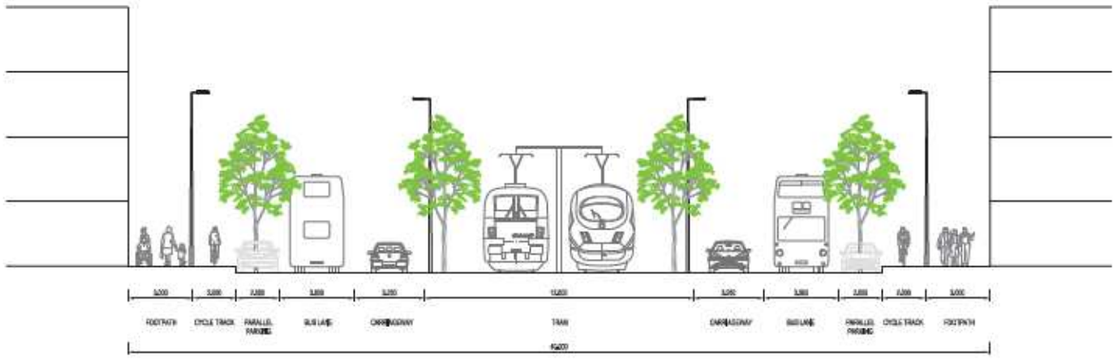
The transformation of the Naas Road into an urban boulevard will result in a significant reduction of traffic congestion and therefore allow a more welcoming urban environment. The actions to achieve this include reducing lanes, introducing cycle lanes, introducing a pedestrian sidewalk, introducing trees, increasing pedestrian crossings to reduce overall speed and transform two existing crossings.

Increasing urban activity along the Naas Road has a precedent in the very successful transformation of Stuttgart's inner city highway ring Theodor-Heuss Strasse into a vibrant urban boulevard attracting an interesting and publicly intensive programme since its transformation.

The positive impact on an inner city's flow with an enormous reduction of congestion is self-evident.

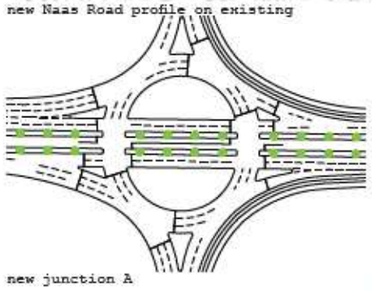
The Naas Road has the potential to transform step by step into an attractive gateway to the city centre of Dublin accompanied by interesting commercial, retail and leisure uses.

The details of this transformation and its relationship to the surrounding traffic situation can be found in the Transport & Traffic study that accompanies this Development Framework.

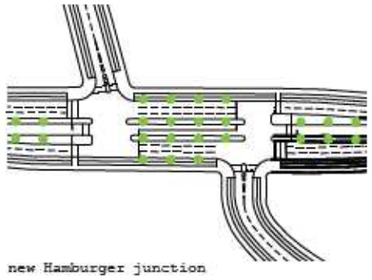


Naas Road street section

new Naas Road profile on existing



new junction A



new Hamburger junction


O'Connel Street Dublin IR


Broadway New York NY


Unter den Linden Berlin DE


Overlay network on existing

# OPEN SPACE

Amenity open space can radically alter identity and therefore public perception. It can act as a structuring element giving orientation and coherence in otherwise disparate environments particularly where the built form alone does not establish character.

In many places in the study area, open space is dealt with as a leftover space that is therefore underused, difficult to access and poorly maintained. This condition is directly related to lack of social control and safety. The ambition of the Framework is to integrate landscape as a meaningful part of the urban landscape. The different strategic elements should be powerful tools for generating a positive identity and they should be fronted by building to generate activation.

The key open space elements are the existing green belt zoning to the west, the existing concealed waterways in the eastern half of the site and the Grand Canal.

The existing green belt zoning is an opportunity that the Development Framework seeks to exploit.
The transformation into Newland Park is a confirmation of the zoning. Recreational outdoor uses and building uses that are compatible with park functions are welcomed.

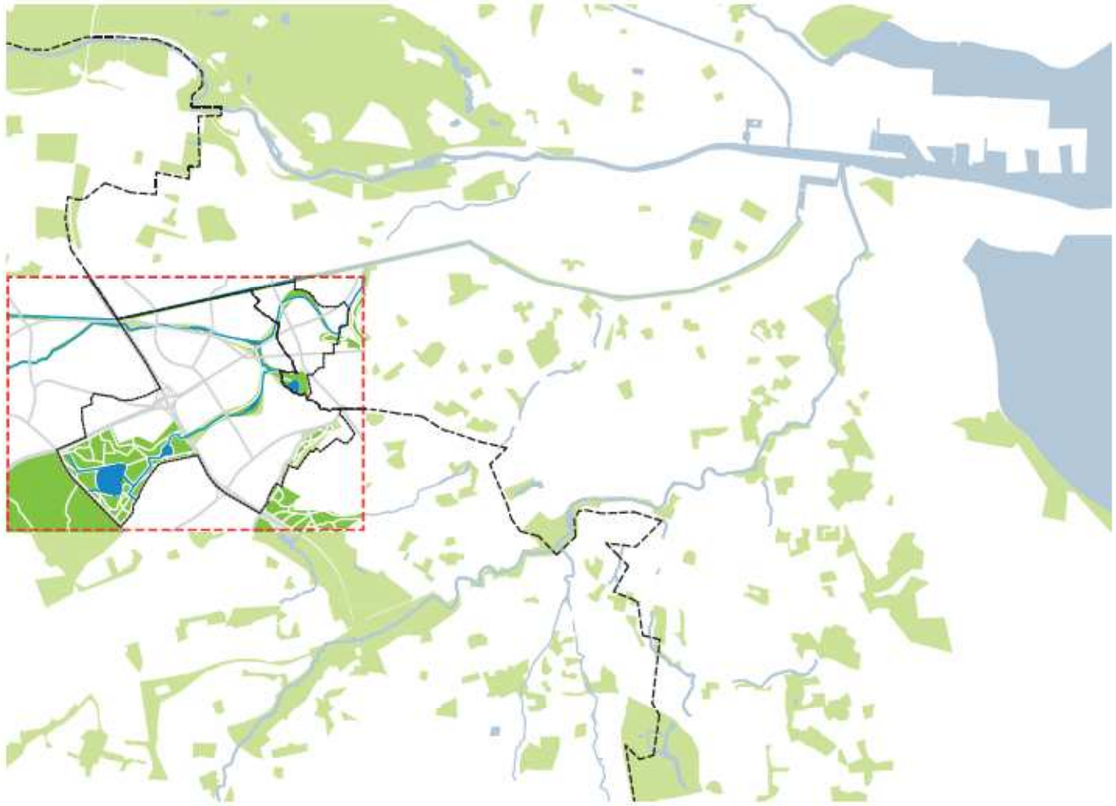
The green belt is being prolonged, at an adapted scale, as a linear park into the area east of the M50. The intention is to bring the green as far as possible into the city in a way similar to the Dodder Valley Park.

The linear park is positioned on the Robinhood River. By resurfacing the Robinhood River the existing geographical context gains importance.

A third crucial part of the open space strategy is the rediscovery of the Grand Canal. It is a powerful artefact with very significant neglected recreational potential. It offers a direct connection for slow traffic to Dublin centre and to Clondalkin.

Next to this linear quality the development of the open spaces bordering the Canal should be used for the creation of attractive working and living environments.

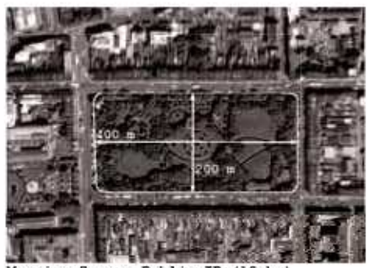
Last but not least an extension of Greenhills Park towards Walkinstown is proposed to make attractive residential development possible.



Amenity open space can radically alter identity and therefore public perception.

Hyde Park London UK (255 ha)

Vondelpark Amsterdam NL (47 ha)



Merrion Square Dublin IR (12 ha)





Parc André Citroen (9 ha)

Placa de Catalunya Barcelona ES (2 ha)

Smithfield Plaza Dublin IR (0.4 ha)

## Linear Park & Water

East of the M50 a linear park is introduced with a triple function of connecting, providing local amenities, and ameliorating the existing surface water problems.

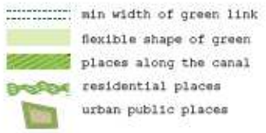
This park has two characteristics, that of a linear event and that of a serial sequence, overlaid in the existent river beds.

The linear element is the strip with a fixed width that is loosely positioned on the Robinhood and the Camac River. The sequential element is the park that is surrounding these rivers with a varying width creating varying possibilities for local uses and ambiances. The exact position of this park has to be defined depending on availability of ground.

Subject to further technical assessment, lengths along the riverbeds can be opened up to enhance flood plain capacity and attenuation.

The linear park extends eastwards to the existing parkland - Walkinstown and Landsdowne Parks. It crosses the administrative boundary with Dublin City Council. Dublin City Council planning policy documents for for this area indicates a similar approach to the Camac River, hence the continuity of linkages across the administrative boundary.

An active recreational programme is proposed on the existing green belt lands turning it into Newlands Park. A large water body is proposed here meeting a particular South Dublin amenity deficit and accommodating surface water from the Clondalkin and Kingswood lands.




legend

Linear park and open space

linear park

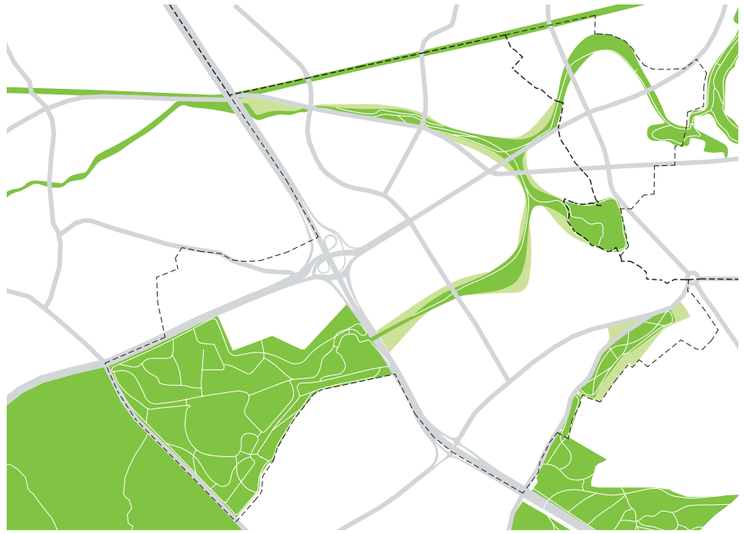
open space in character areas

Camac & Robinhood river rediscovered

## Landscape Characters

A diversity of landscape characters is proposed within one gesture of the linear park that is laid out through the former industrial area: formal park, recreational, sports, play, allotments, water based, wildlife, urban farm.
The park structures different parts of the area. It is an asset for uses located at its borders while at the same time isolating existing less desirable uses for particular locations that require the use of landscape as a buffer.

The dimensions of the linear park vary from an approximate minimum of 25 metre up to 225 metre maximum width. The final position of the profile can be adapted to ownership structures and has to be located in more detailed studies.



## Public Space Characters

New public spaces support the diversity of new mixed uses and establish local identities. These spaces meet local needs and act as a focus for phased development.

Three characters of local open space are envisaged at this stage:
The mixed use areas around Naas Road could have the most urban open space character - represented here with a series of small squares and places.

The residential area situated at the Canal should profit from this proximity by having open spaces that connect residential and mixed use clusters by docking on the canal.

The residential and mixed use developments between Walkinstown and Greenhills could profit from a fine grain greening network starting from Greenhills Park.

The final important level of open space improvement is the introduction of street profiles that bring hierarchy between and inside character areas.



Irish Sky Garden James Turrel IR

Highline New York USA

Beguinage Bruges BE

Allotments Zürich CH

Cemetary Park Oslo NO

Place Charles Hernu Lyon FR

Waterfront Barcelone ES

Outdoor market Barcelona ES

Idaplatz Zurich CH

# Water management

Analysis has established the ongoing surface water problems- recurring flooding events and a limit on new development due to lack of surface water capacity.

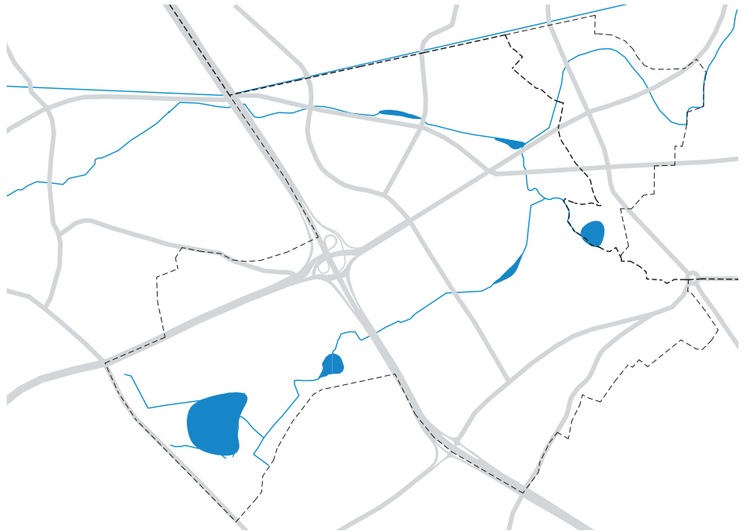
The key elements to deal with these issues are:

The creation of large water bodies at key locations relative to topography and flood plain. These act as flood water attenuation devices.

The opening up of piped lengths of the existing river beds - increasing capacity and providing flood relief.

The widening of existing exposed river beds - increasing capacity and providing flood relief

These needs are met in a proposal to re-use and develop the existing river as an asset within the linear park.



flooding landscape

Wipkinger park Zürich CH

swimming pond

Queens walk Bermondsey London UK

riverside

Akerselva river Oslo

riverside Kronach DE

Broken Circle Robert Smithson Emmen NL

rowing pond

existing green
new public spaces(canal area)
new public spaces (residential area)
new public spaces (Naas road area)

Overlay open space on existing

# USES & ACTIVITIES

The Development Framework proposes to radically change the concept of zoning. To date, zoning is based on mono functionality, residential, commercial or industrial, and often leading to unsustainable low suburban densities or to disproportionate high densities when mixed use is introduced.

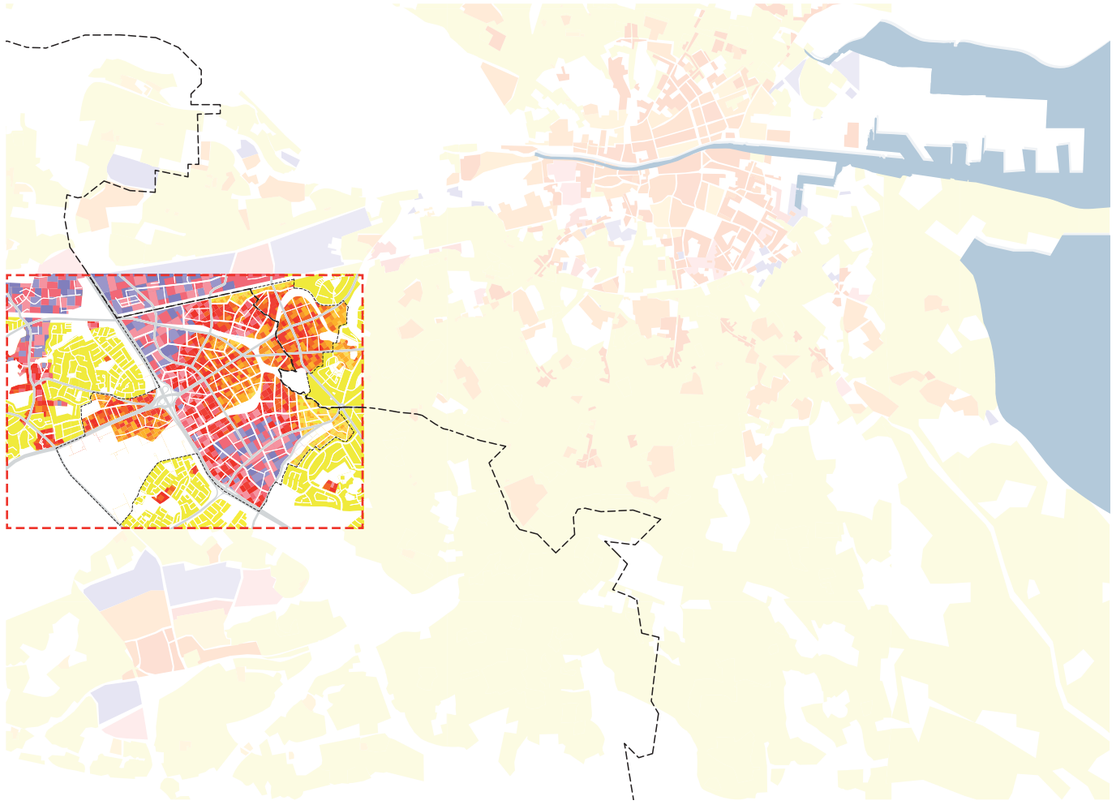
Mixed use is being proposed as a basic condition for urban development. As the status quo is industrial, the balance between uses is defined per area based on the intensity of transformation that should take place. The determination of the mix of uses is therefore an essential component of any process of urban transformation.

The balance between differentiation and overlap in a use matrix is critical. The proposal is to facilitate a gradual change of use from existing light industrial to a mixed use condition. The major warehousing and process based industrial uses are left in place and are separated from residential areas by mixed use areas or landscaped buffers.

The criteria is an assessment of compatibility - what uses can coexist without mutual detriment. The presumption should be one of inclusion subject to specific assessment for incompatibilities.

The definition of mixed use is independent from density in an area and it can and should happen on all levels of development. It can be defined per area, but it can as well happen in clusters, city blocks or in buildings.

Mix is related to both section and plan - key frontages will require animated ground floor uses. Predominately residential areas can accommodate other uses as points of reference and differentiation.



The balance between differentiation and overlap in any use matrix is critical.

# Zoning

In so far as is practical the methodology is one of gradual overlapping avoiding strong differentiating edge conditions.

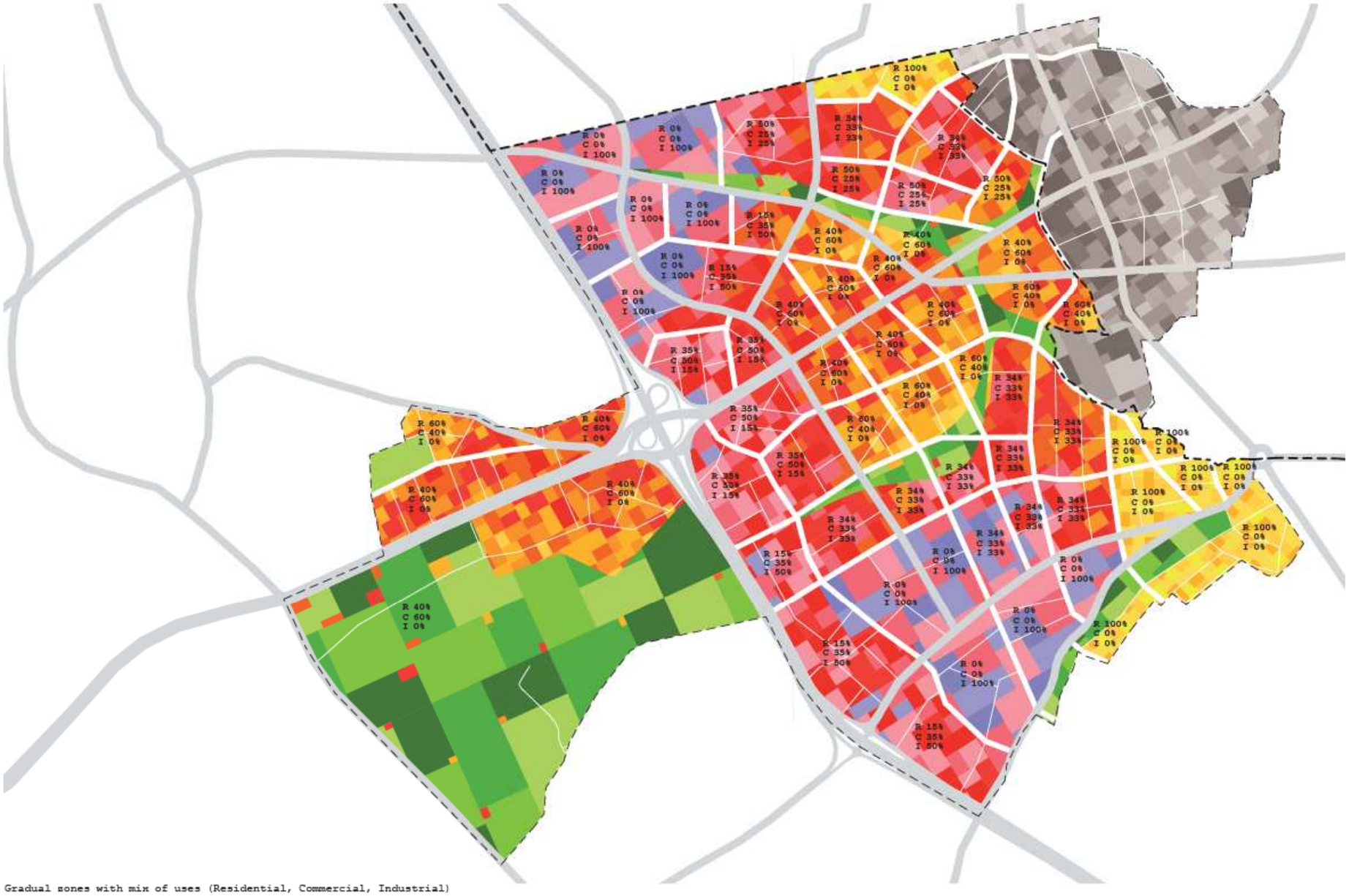
The predominantly industrial/ warehousing uses close to the M50 are being kept because of traffic movements and their dependence on the M50

Industry led mixed use areas can accommodate both light industries and residential uses and have been key vehicles of transformation in other cities. Compatibility is a key issue here. This zoning is used for industrial areas where a slow transformation process is being welcomed.

Mixed use is introduced for areas that should undergo an intensive transformation because current uses are below the local potential.

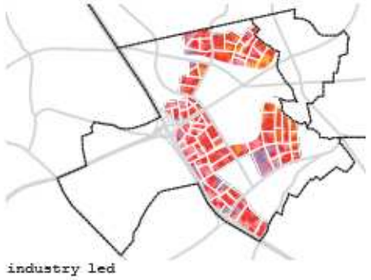
Residential uses with some degree of mix are proposed at perimeters in order to allow a gradual change from the existing residential zoning that are currently adjoin incompatible and conflicting industrial uses.

West of M50 the green belt zoning is being confirmed in an 'activated green' zoning that allows uses that are park related and support the intended public character and use of this area.

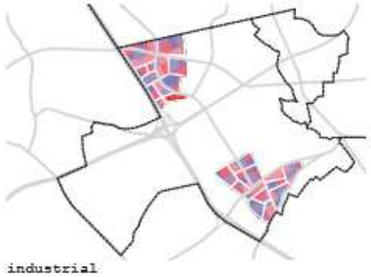


Gradual zones with mix of uses (Residential, Commercial, Industrial)

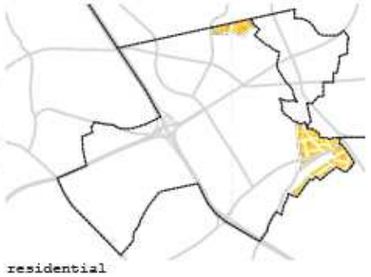
non industrial



industry led



industrial



residential

activated green

## Mixed use

## Non industrial

Mixed use developments are placed in areas with best accessibility levels by public transport

After residential and commercial uses, mixed use non-industrial zoning can accommodate a wide range of functions that are compatible with residential use. Clearly, warehousing and heavy industry uses are inadmissible in this zoning.

The mix of uses can happen at several scales; at the scale of the area, at the scale of the bloc and within buildings. This diversity is welcomed.

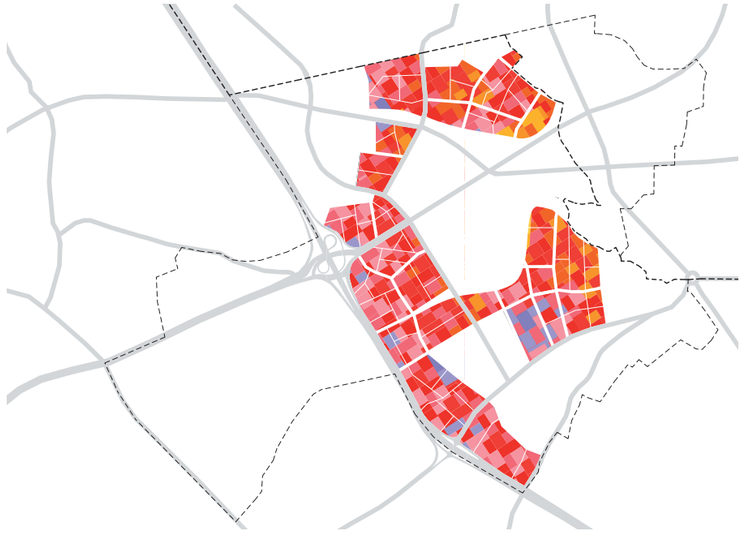
Density can very throughout the mixed use areas, depending on accessibility levels and gradual built up from neighbour zoning.

## Mixed use

## Industry led

The strict separation of land uses has previously led to negative urban developments results. Retaining productive non-residential uses alongside the creation of a good living environment is a potential way to deal with the limitations resulting from zoning. As traditional development patterns are unsustainable, new approaches to the physical accommodation of industrial activity are required.

By creating an enriched urban mix through new combinations with industry, industrial areas which are currently presented on city maps as uninviting grey districts should become colourful living parts of the city.
The success of these neighbourhoods depends on their relationship and proximity to community facilities - open spaces, schools, local shops, services and public transport.



Kennedy business center KCAP Eindhoven NL

Sulzerareal Winterthur CH

De Landtong CIE Rotterdam NL

Sihlcity Zurich CH

Mixed urban block Brussels BE

Zurich West CH

Westergasfabriek Amsterdam NL

22@district Barcelona ES

Groothandelsgebouw Rotterdam NL

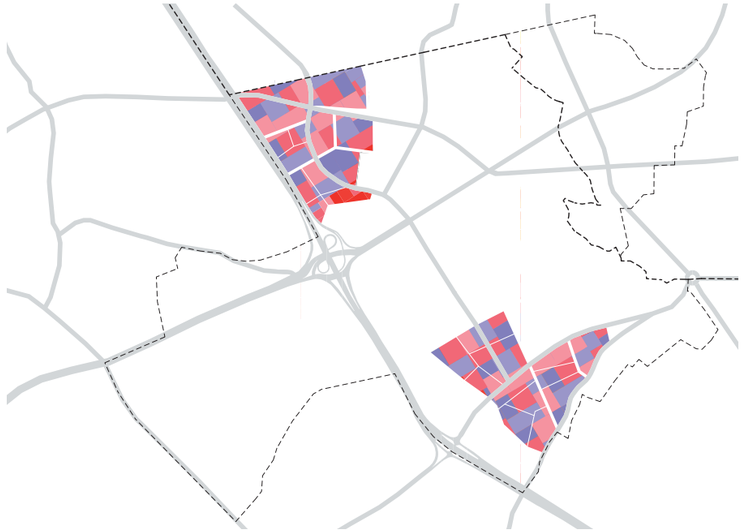
## Mixed use

## Industrial

Mixed Use Industrial is associated with those areas with best accessibility from M50 and the best potential to remain mainly industrial.

Transformation here is to a more efficient use of the available lands by adapting plot sizes to scales that are better adapted to deal with current market standards.

The examples that are shown here prove that architectural quality or careful positioning in an urban context are not contradictory to the program of industrial uses and have positive impact on the visibility and identity of individual companies.



Mansel Containercity London UK

WOS8 NL Architects Leidsche Rijn NL

Research Building RUG UN studio Groningen NL

Pharmacological research laboratories Sauerbruch Hutton Biberach DE

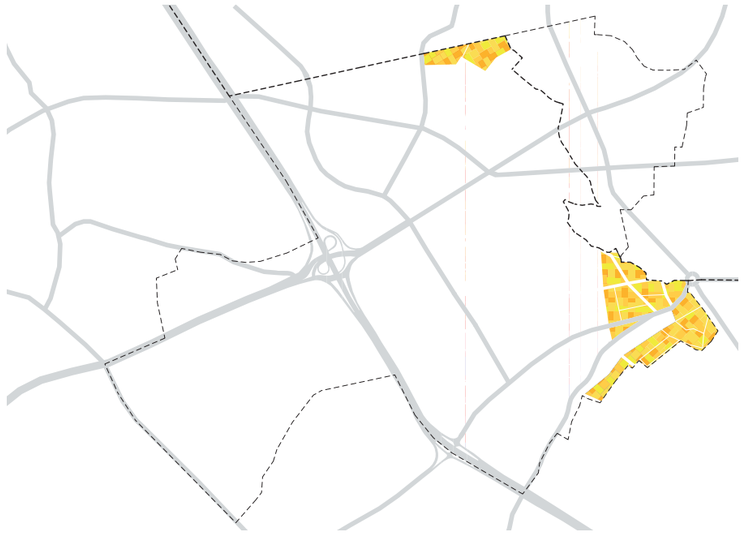
Ricola factory Herzog&Demeuron Basel CH

## Mixed use

## Residential

Predominately residential mixed uses areas are suggested to interface with the existing Walkinstown district and to avail of the remarkable amenity that the Canal represents.

Mixed use in these areas means the inclusion of the necessary attendant uses. Taking 6,000 units as a baseline the following services and approximate spaces would be needed for a 'walkable neighbourhood':
-4 primary school from entries at one or two locations.
-Secondary school
-Community centre with library and IT facilities. 1000 m2
-Health centre. 400m2
-Leisure centre. 2000 m2
-Places of Worship. 500m2
-7-20 local shops convenience including e retail, newsagent, post, hairdresser, chemist, takeaways. c. 90m2 each
-2 Pubs. 120 m2
-Cafe, restaurants. 100 m2



These built space suggestions pass a 'sanity check' of falling within a range of 7-10% of the total residential floorspace.

Urban space needs to include green aminity space, sport pitches and productive space in a maximum of 400m distance.

Breevaarthoek KCAP Gouda NL

Borneo Sporenburg various Amsterdam NL

GWL terrein KCAP Amsterdam NL

Ilot St Maurice XDGA Lille FR

## Mixed use
## Activated green

The Newlands Park and the linear park can accommodate a wide range of recreational uses. These spaces both function as a linkage for areas, as a buffer to uses that are difficult to combine with residential use, and most of all as a high quality open space that adds to the identity of the area.  Integrating any outdoor uses and built uses corresponding to the area it crosses.

Some modifications of existing zonings, from current industrial zoning back to green belt zoning, are being proposed in the context of an incentivised approach to planning approval.

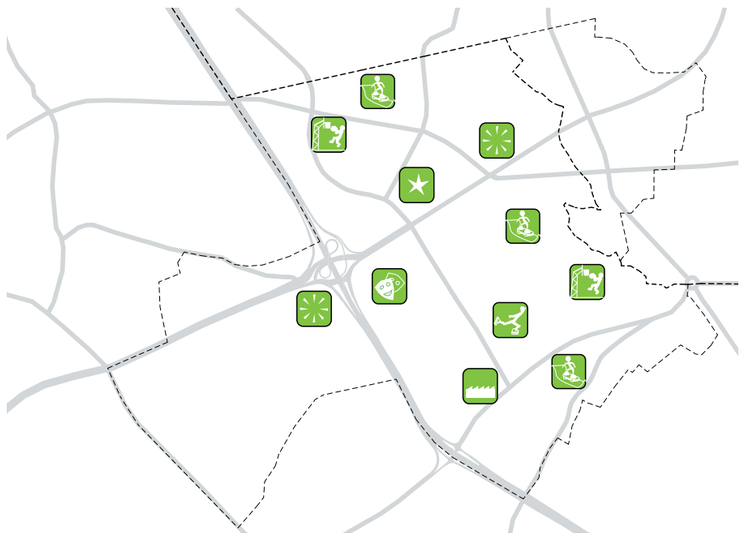
## Temporary Use
## Urban pioneers

Allowing, encouraging and stimulating temporary uses is an important urban design and planning tool as it sets into motion transformation in a bottom-up process.

It recognises a primary function of a development framework - to release latencies - often where eventual outcomes are unknown.

The origin of Temple Bar's rejuvenation was in the temporary uses through the 1980's, which by their presence and success suggest a potential for the area which would otherwise have been unrealised

Temporary uses can be small scale, non-commercial and informal but these are not imperatives. Large scale, commercial events can as well be very successful because of the big crowds they attract and their wide exposure.






Royal Crescent Bath UK


Grips schoolgarden Berlin DE


Vondelpark Amsterdam NL


Skatebowl Kortrijk BE


Parc de la Villette Paris FR


open air cinema  Northheim DE


Parasite dwelling  Rotterdam NL


Kitchenmonument Raumlabor Berlin DE

freestyle event  Zürich CH

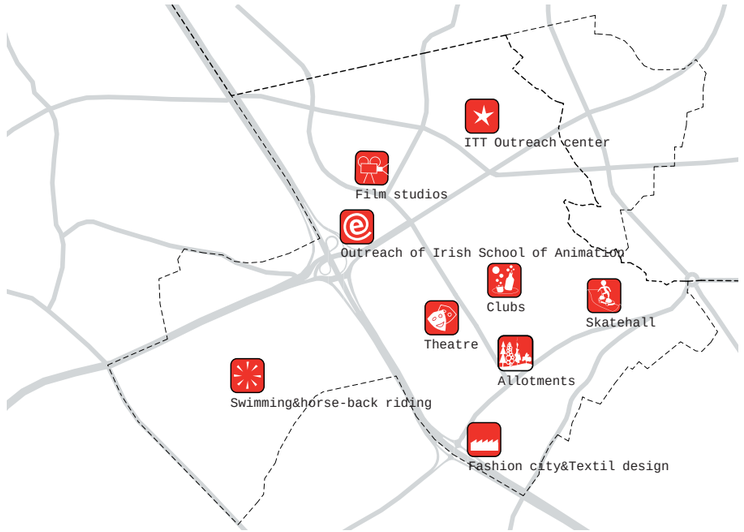
# Urban Catalyst

Pilot or flagship uses provoke a change of perception that allows a wider vision as to possibilities. Often they attract other uses that profit from their presence and that set into motion an upward spiral of uses.

Film studio facilities, fashion centre or educational functions are possible potentials identified in the area.

Large public functions such as hospital uses that are currently under discussion can be a powerful motor to start upward development.

A positive example of transformation generated by the presence of a public building is the extreme upgrading of T Zuid in Antwerp after the Muhka, Museum of Modern Art was built in the early nineties.

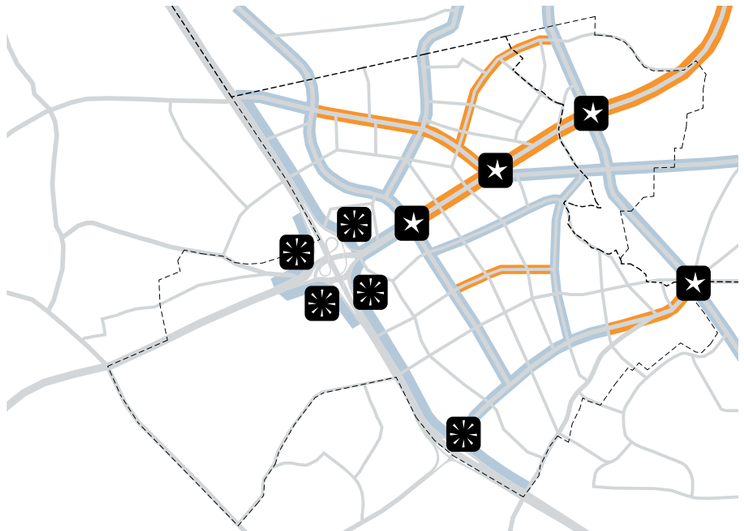



# Ground Floor Uses & Prime Locations

Blue locations are attractive for maximising market value to Commercial or industrial uses because of their visibility and their location on the primary network.

Orange locations with good visibility should have activated ground floor uses sustaining viable urban life. Smaller scale activated ground floor uses should be possible throughout all mixed use and more residential areas by developing new building typologies.

Prime locations have orientation and structuring roles. They are visible locations on a bigger scale without being necessarily particularly accessible from the street level.






Infobox Potzdammer Platz Berlin DE


Badeschiff summer Berlin DE


Wimby Hoogvliet Rotterdam NL


Blauw huis Florentijn Hofman Rotterdam NL

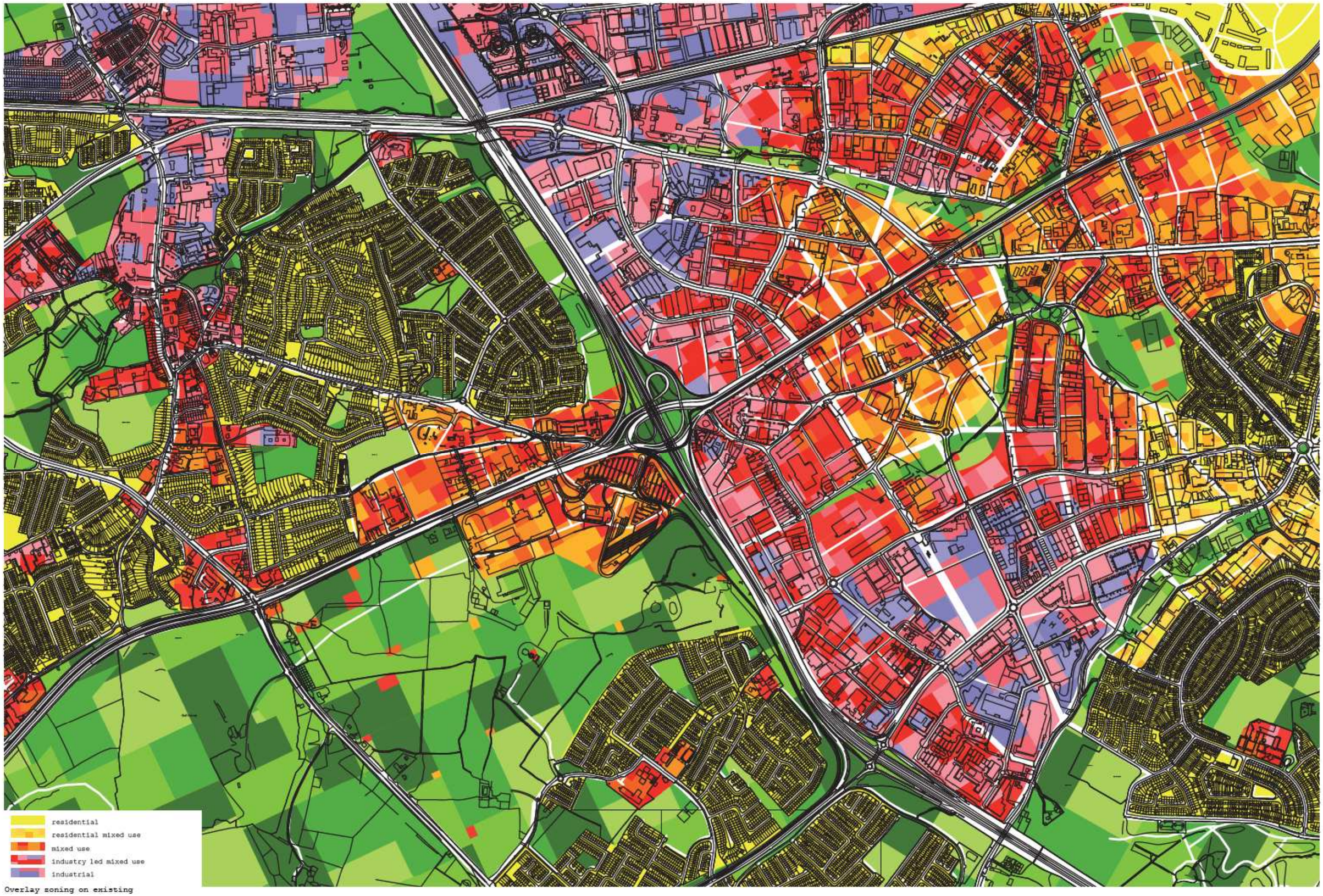

Freitag flagship store Zurich CH


Kennedy business center KCAP Eindhoven NL


De Landtong CIE Rotterdam NL


Stadstuinen KCAP Rotterdam NL


Witte Keizer KCAP Rotterdam NL




Overlay zoning on existing

# DENSITY

Density and accessibility to public transport are fundamentally interconnected. This connection is the base for a sustainable approach to urban planning.

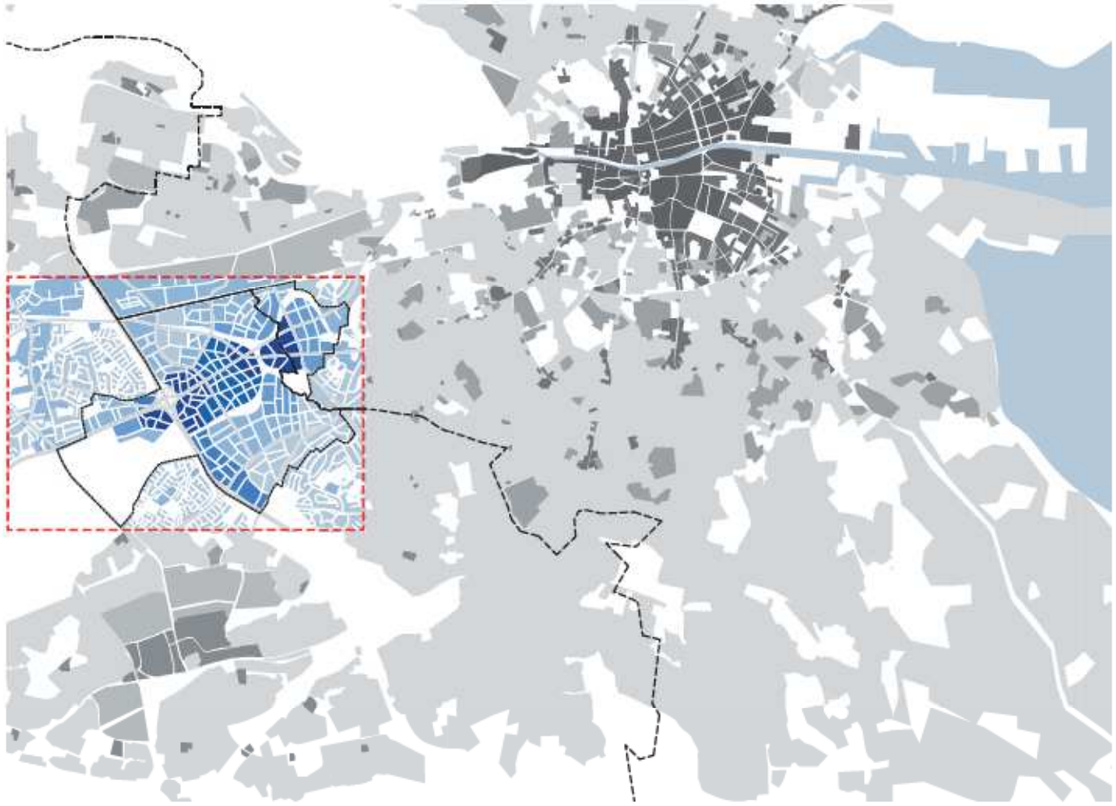
The determination of an average floor area ratio follows from; the comparative analysis with other marginal locations, an assessment of likely regional demand, the relative importance of the area, and an understanding of future infrastructural capacities.

A floor area ratio of 2.0 is considered as an appropriate maximum density in this area with this higher figure applied locally at key locations within the M50 ring coinciding with public transport nodes.

Overall the density will increase because current uses and related densities are not matching the sites potential. This applies more to areas directly at the Naas Road then areas close to the perimeters that have a gradual increase from existing density.

At this stage of the Development Framework building height is not being indicated, although implicitly it is there, as the result of plot ratio per site.
Building height together with potential typologies should be the subject of Masterplans for each character area.

The Development Framework uses 'Floor Area Ratio' (FAR) to express density. This definition is similar to Plot Ratio.



Density and accessibility to public transport are fundamentally interconnected.

Hafen City Hamburg DE

Zuid As Amsterdam NL



Naas Road Development Framework

London Legacy London UK

# Plot ratio

The average floor area ratio indicates potential future density. This number is directly related to the accessibility level as was defined in the transport & traffic study.

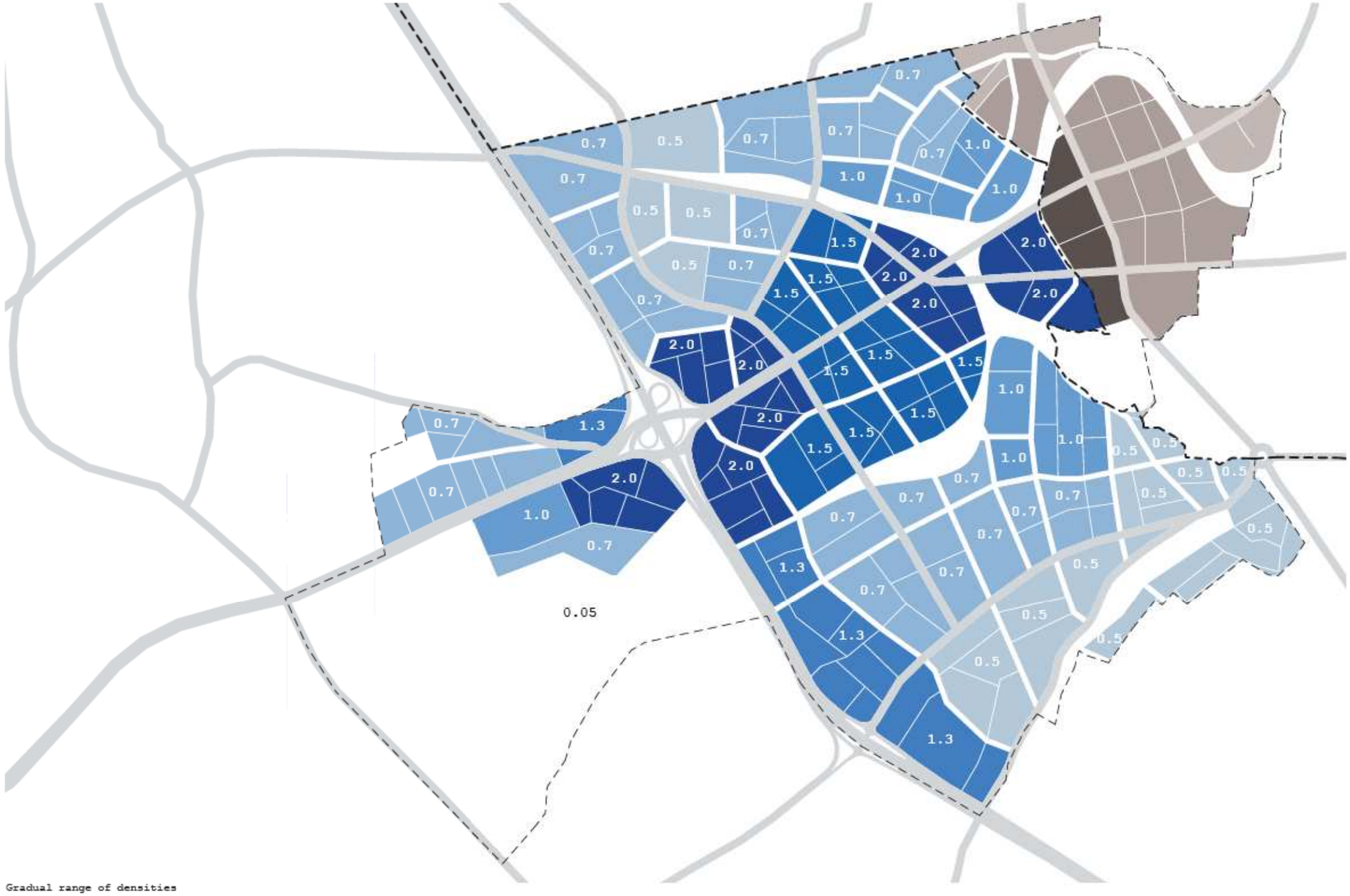
This principle of accessibility was amended in respect of the residential areas at the Canal and adjacent to Walkinstown – excessively low densities would continue undesirable suburban types of development. Because proposed densities do not exceed the existing, it is assumed additional trips are not being generated.

Two locations at the inside of the M50 at the Naas Road are defined as having a density of 2.0. The new centre area 'Rivers Crossing' that is in proximity to Dublin City Council's planned Prime Urban Centre and the area close to the Red Cow because of its visibility and accessibility level.

North West of The Red Cow an optimisation of existing uses is proposed.

South west of the Red Cow a high density is possible at the grounds in proximity of the Red Cow because of the accessibility to public transport.

Further along the N7 densities are being gradually restricted because of the limited accessibility and the positioning in the Green Belt that allows public oriented uses. Over the long term Metro West will improve access from Belgard Road.




Gradual range of densities


far 2.0
far 1.5
far 1.3
far 1.0
far 0.7
far > 0.5

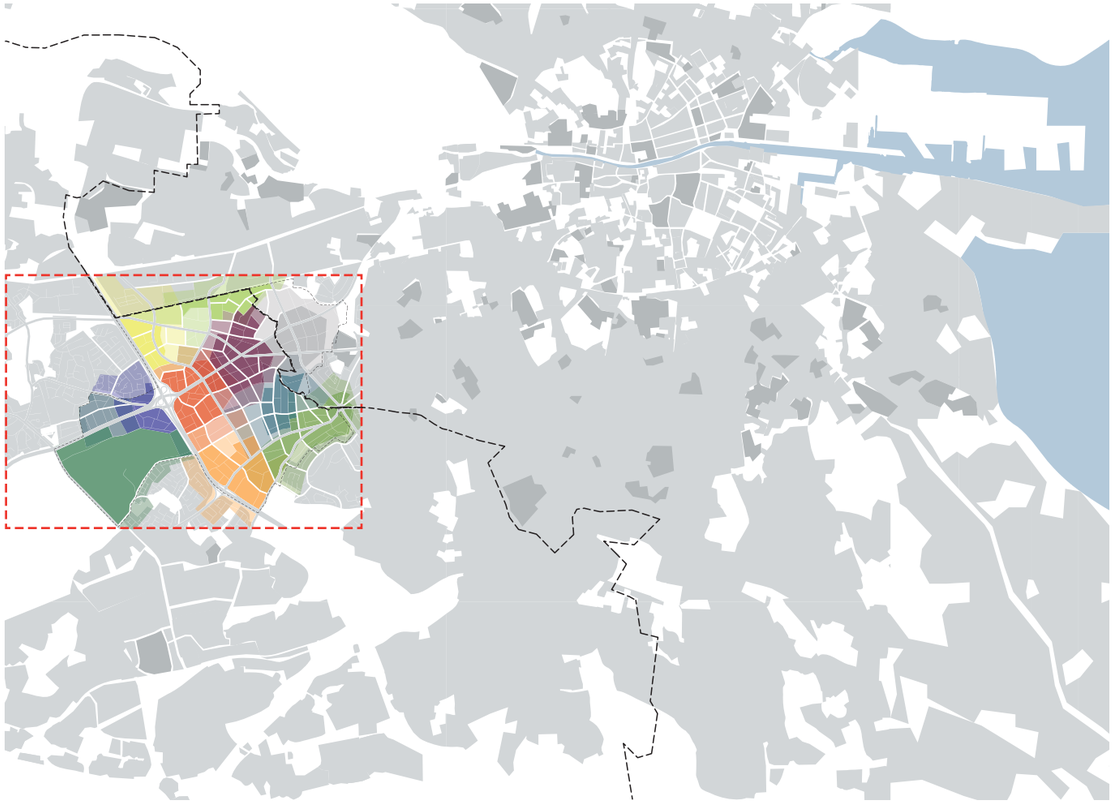
Overlay density on existing

# CHARACTER AREAS

Place making is a key outcome of successful planning - it is predicated on the individual characterisation of locations.

This Framework can only deal with the identification of the character areas and the main aspects defining them.

Each area should be the subject of a masterplan in which general character and potential, traffic and transport, implementation strategies for network and open space, landownership, phasing, development quantums, building height and typology are examined in much greater detail.



Placemaking is a key outcome of successful planning - it is predicated on the individual characterisation of locations.

# Definition

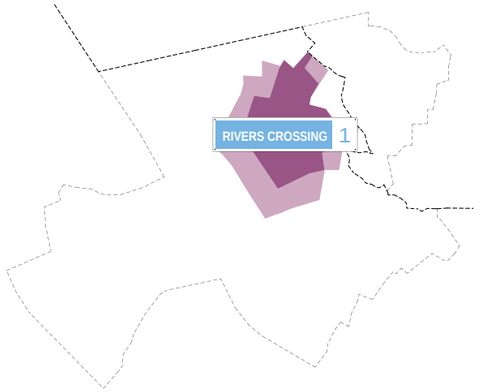
The character areas are defined through an overlay of various criteria such as available assets, key urban or landscape elements, zoning and density. These criteria generated areas as proposed are built on the existent assets of the individual locations.

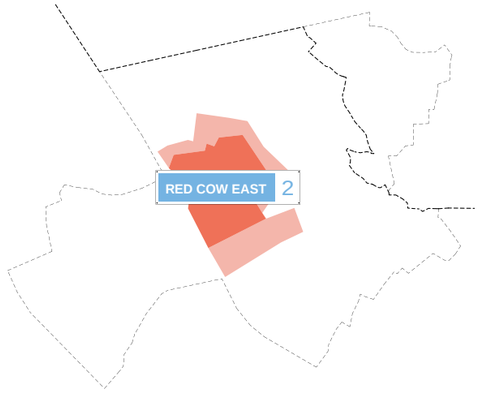
Nine areas result - each with a distinctive core character and a graduated interface with its neighbouring areas.

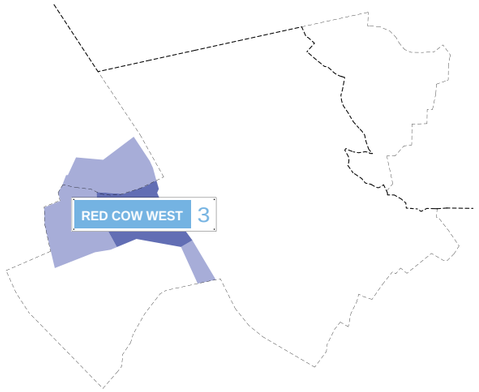
These zones were given the following names; Rivers Crossing, Red Cow East, Red Cow West, Greenhills, Canal Site, Robin Hood, Ballymount, Oak Road and Newlands Park.

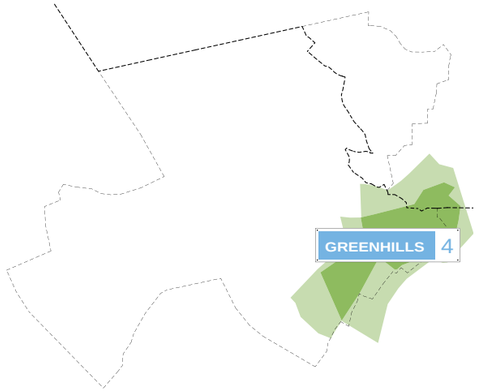
The character area Rivers Crossing has been identified as having the strongest potential for transformation and as the central area in the Naas Road framework perimeter has the highest priority to be developed. The crossing of the Naas Road, transformed into an urban boulevard, with the linear park in combination with the proximity to Dublin City Council's prime urban centre, sets a powerful condition for transformation of the areas identity.

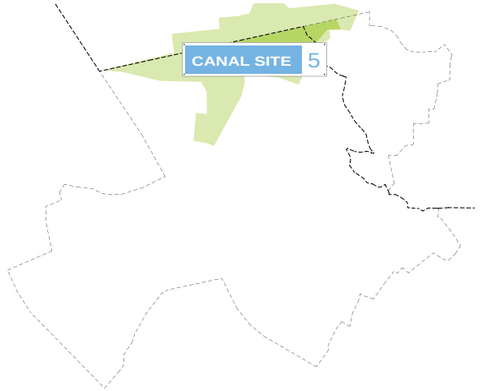
Second comes the areas Canal Side and Greenhills located at the edges of the study area. Currently these areas show the strongest conflicts between uses and therefore are most in need of urgent amelioration. Other character areas identified can transform gradually or continue as mainly industrial.

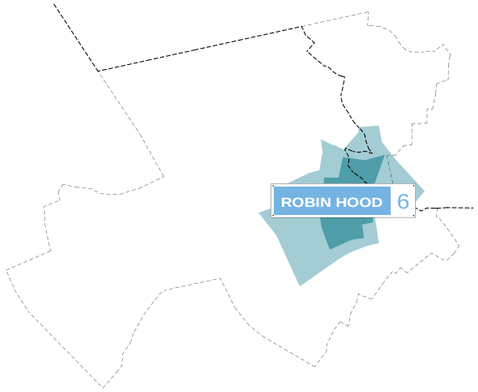


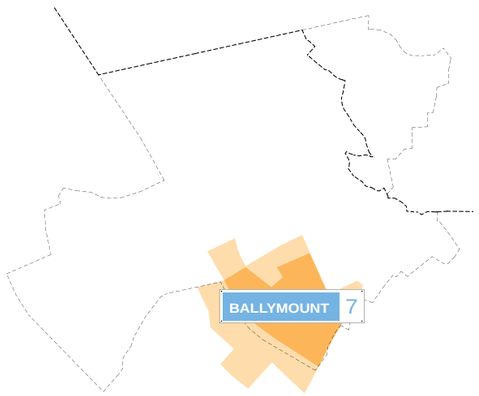



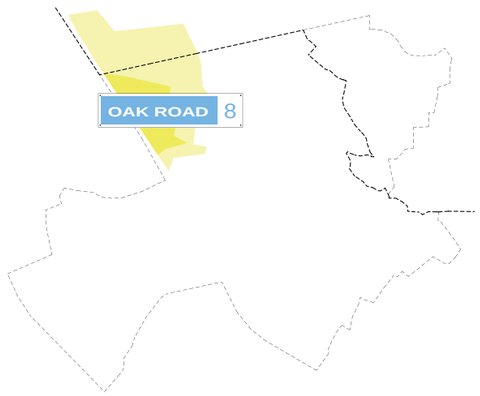



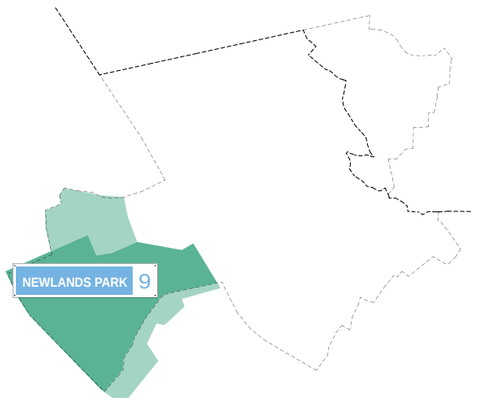



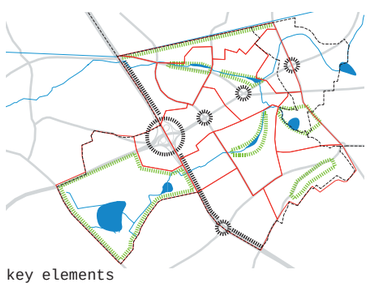



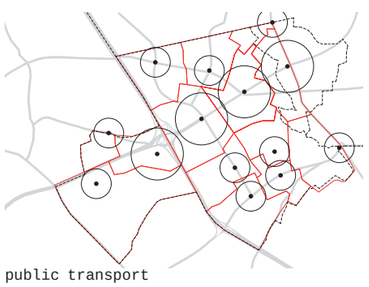



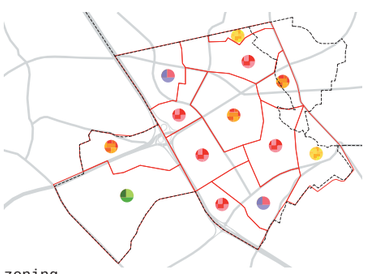



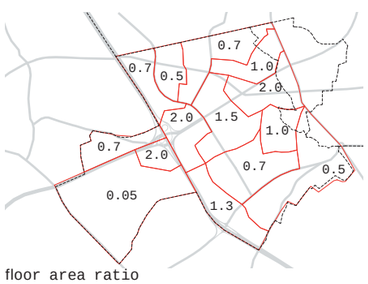
key elements



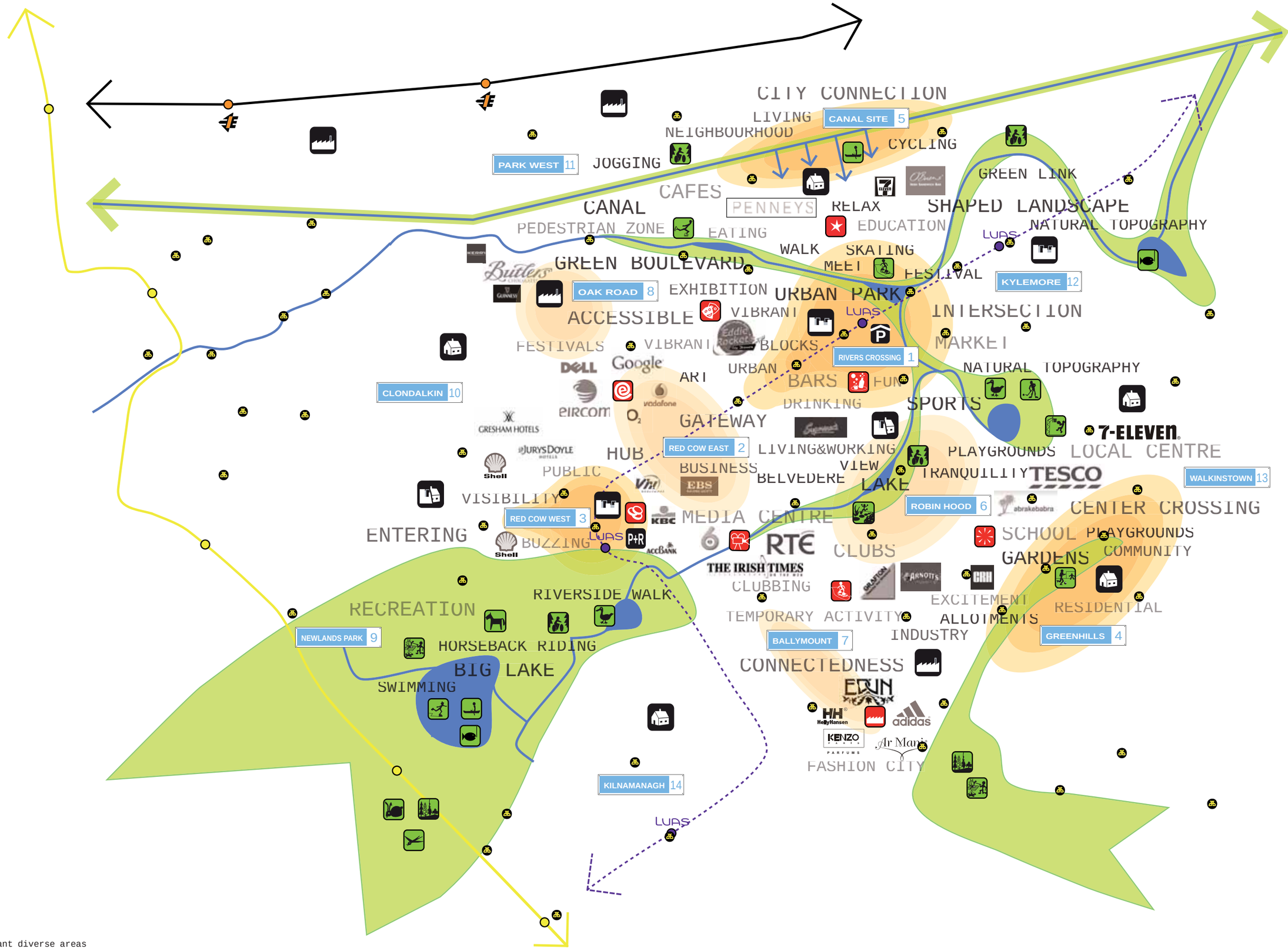
public transport



zoning




floor area ratio




Vibrant diverse areas

# TRANSFORMATION

This study addresses a shorter-term need to identify worthy and achievable goals for the area in the context of the exiting infrastructural realties and the Development Plan cycle. That reality is based on the acceptance that the national primary highway system is at or near capacity and that additional development can only happen if there is a paradigm shift in respect of the nature of any such future development. That shift requires a truly sustainable development framework to release capacity.

East of the M50 the proposition is that development is achievable providing the following are put in place:

- Structural changes to the movement network so to establish a level of connectedness throughout the study area and to the surrounding districts.
- Improvements in public transport – specifically additional Luas stops and bus routes.
- Mixed use development avoiding single use zoning and the creation of walkable neighbourhoods
- A radical alteration in the perception of the area.

West of the M50 capacity is also constrained and the propositions either side of the N7 differ. North of the N7 the assumption is that the existing slip lane access arrangements continue and the anomalous undeveloped lands space is now marked for limited development but with density severely prescribed given the national primary highway capacity issues. Consideration was given to what key elements of infrastructure might alter this equation – none appeared to produce a viable balance between coherent planning, expenditure, released values, and the highway capacity issues.

South of N7 priority is given to the preservation of the Green Belt. The lands that are in close proximity to the Red Cow have sufficient accessibility to accommodate a development consistent with their visibility from the M50. Further along the N7 it is proposed to facilitate a limited amount of development on sites already zoned for industrial uses.
Here the proposal is to rationalise the anomalous interface of built and open space zonings and allow limited development on those currently zoned lands along on the N7, accessed from the Monastery Road interchange but conditional on the removal of the existing left in left out arrangements on the N7. The lands along the N7, direction Newlands Crossing, are part of a green zoning which implies that a low density is allowed for uses that have a public character and do not generate significant vehicular movements.

The development framework is not prescriptive but there are critical sequences.


# Phasing 2010-2016

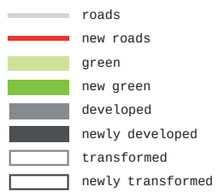
Phasing for a development of this extent and timeframe and in a context that is mainly market driven cannot be fixed. The scheme represented here should therefore be understood as a scenario, showing an order that is closest to the logic of the development framework.

For the first phase 2010-2016 initial development is encouraged at the Naas Road Luas hub in proximity to Dublin City Council prime urban centre. Secondly the edge areas towards the Canal and towards Walkinstown should be developed. These three areas will see the most radical change of character and development should therefore be managed in a more controlled process. The parallel development of infrastructure and open space and therefore the interaction between public and private parties is crucial to the success of this transformation.

start phase one

The industrial areas and industry led areas can have a more loose type of development, closer to the current zoning regime, as they are more to do with optimisation and future compatibility than about radical change.

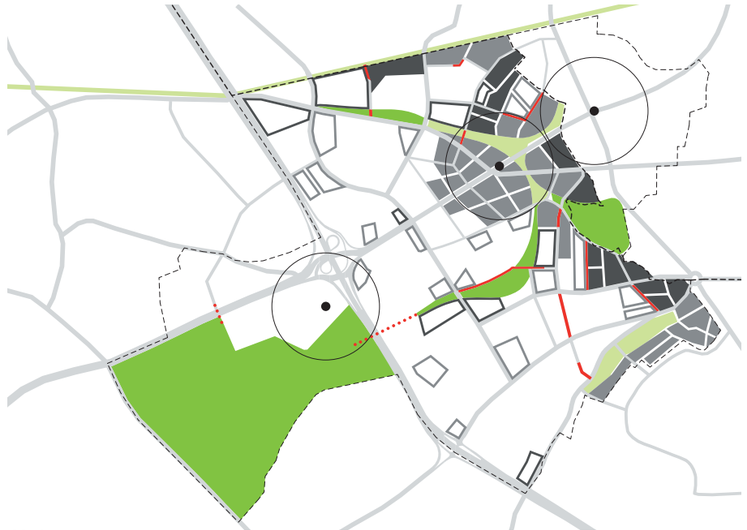
halfway phase one




legend

Altghough precise planning cannot be fixed, there are critical sequences to be incorporated.
Phase one should start with Naas Road's profile change and with the transformation of the two crossings on it. These actions are crucial for both changes to the identity of the area and for improving mobility. Secondly some key linkages to the primary network should be put in place.

Public amenity space, the delivery of the further key linkages and an ongoing rolling out of environmental improvements to street profiles should happen in a in parallel process of development.



2016 end phase one

# Plot transformation

The primary network defines big plots with dimensions suitable for industrial/warehousing uses, based as it is on today's layout. Any change of use requires a downscaling of these plot sizes.
A fine grain of plots allows more easily for permeability. It generates slow traffic movement and ground floor activation, all important for the quality of urban environment.

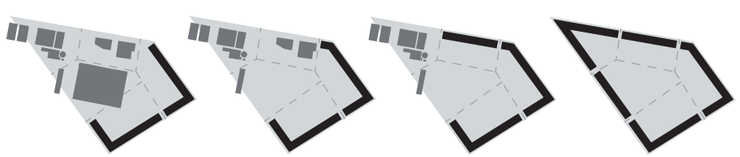
Appropriate plot sizes, that relate to use and typology, where defined for each mixed use area in the form of 'plot transformation rules'. Different ways of how to incorporate existing property and built form include:

1. No downscaling of plot. Permeability is achieved through privately owned access paths.

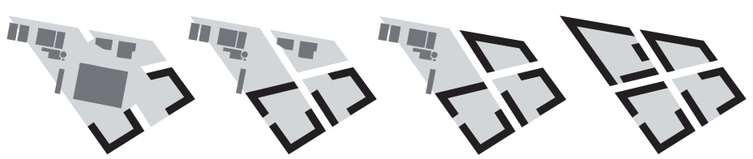
2. Downscaling plots by the introduction of streets on regular layout. This does not respect ownership lines but creates overall continuity in the small scale network

3. Downscaling plots by the introduction of streets that follow property lines to a maximum.  The integration of buildings is more easy but as a result the small scale network is more irregular.

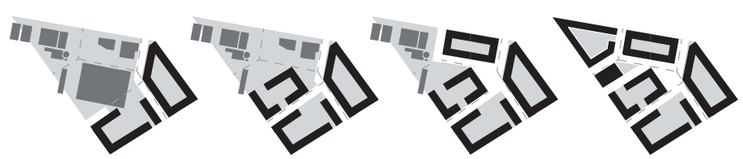

plots generated by main network



no subdivision of a block



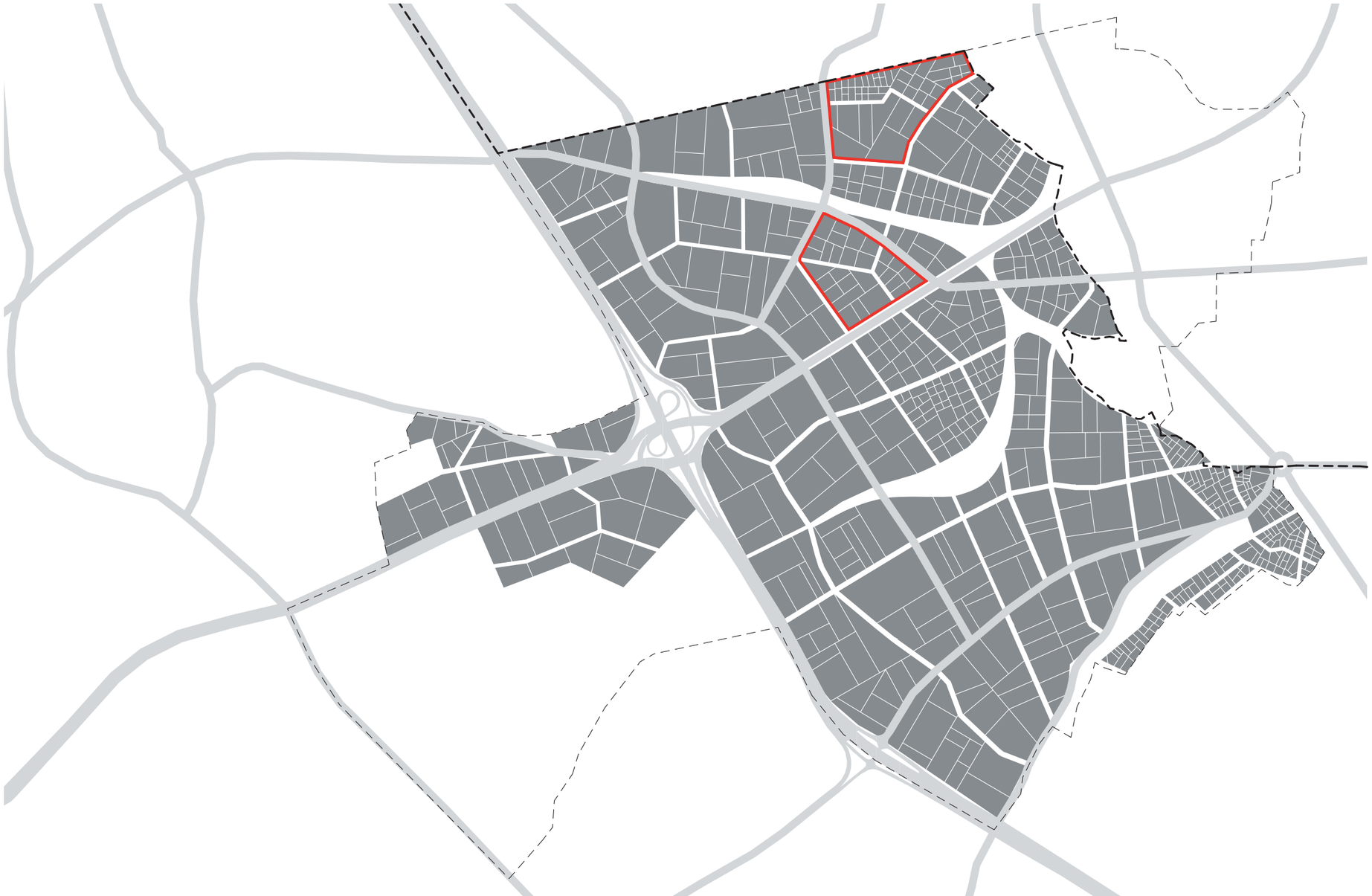
subdivision through regular streets



subdivision through regular streets adapting property lines

Shown here is an example of downscaling the plots using the plot transformation rules. It was carried out for the whole study area using the same geometric rules but with different scales in anticipation of future uses.

For two areas it is shown how plot division can be done with varying geometries accommodating to a varying degree the existing property lines and built form.

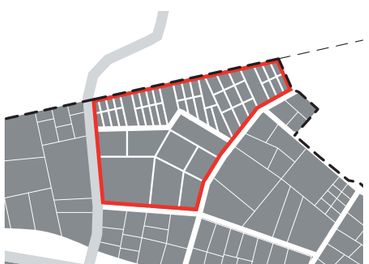


possibility for plot division based on transformation rules

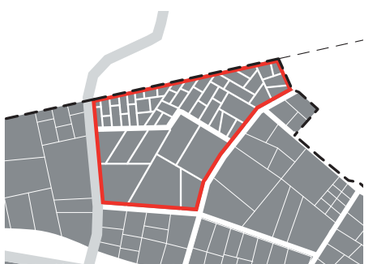
regular plot division

plot division based on property A

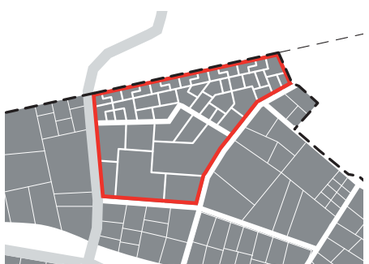
plot division based on property B



regular plot division



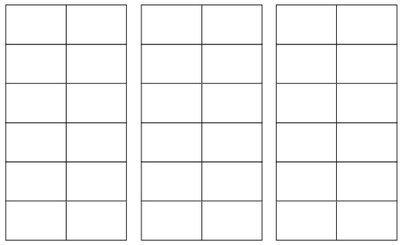
plot division based on property A



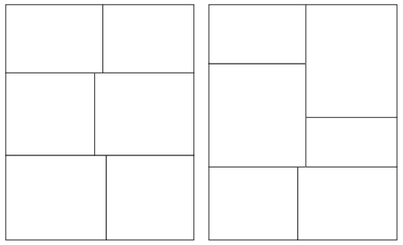
plot division based on property B

# Plot transformation rules

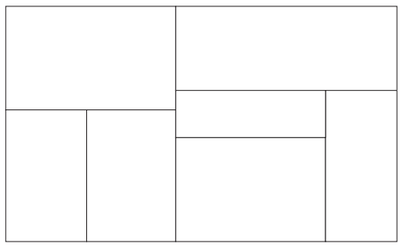
**Residential A**
Size: 400m² - 1,000m²
Proportion: 3:1
all plots access to street
right angles and very regular



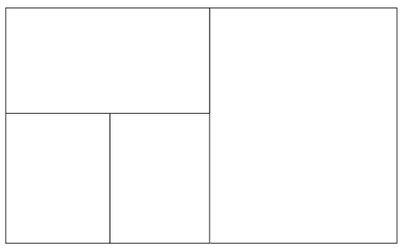
**Residential B**
Size: 2,000m² - 5,000m²
Proportion: 2:1
all plots access to street
angles follow development
(can be irregular)



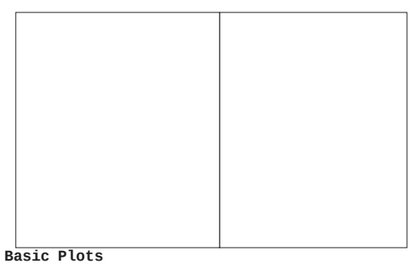
**Mixed use (non industrial)**
Size: 3,500m² - 7,500m²
Proportion: 4:1
internal fields might happen
(internal access must be
possible, differentiation of
public & semipublic on each
plot)
angles follow development
(can be irregular)



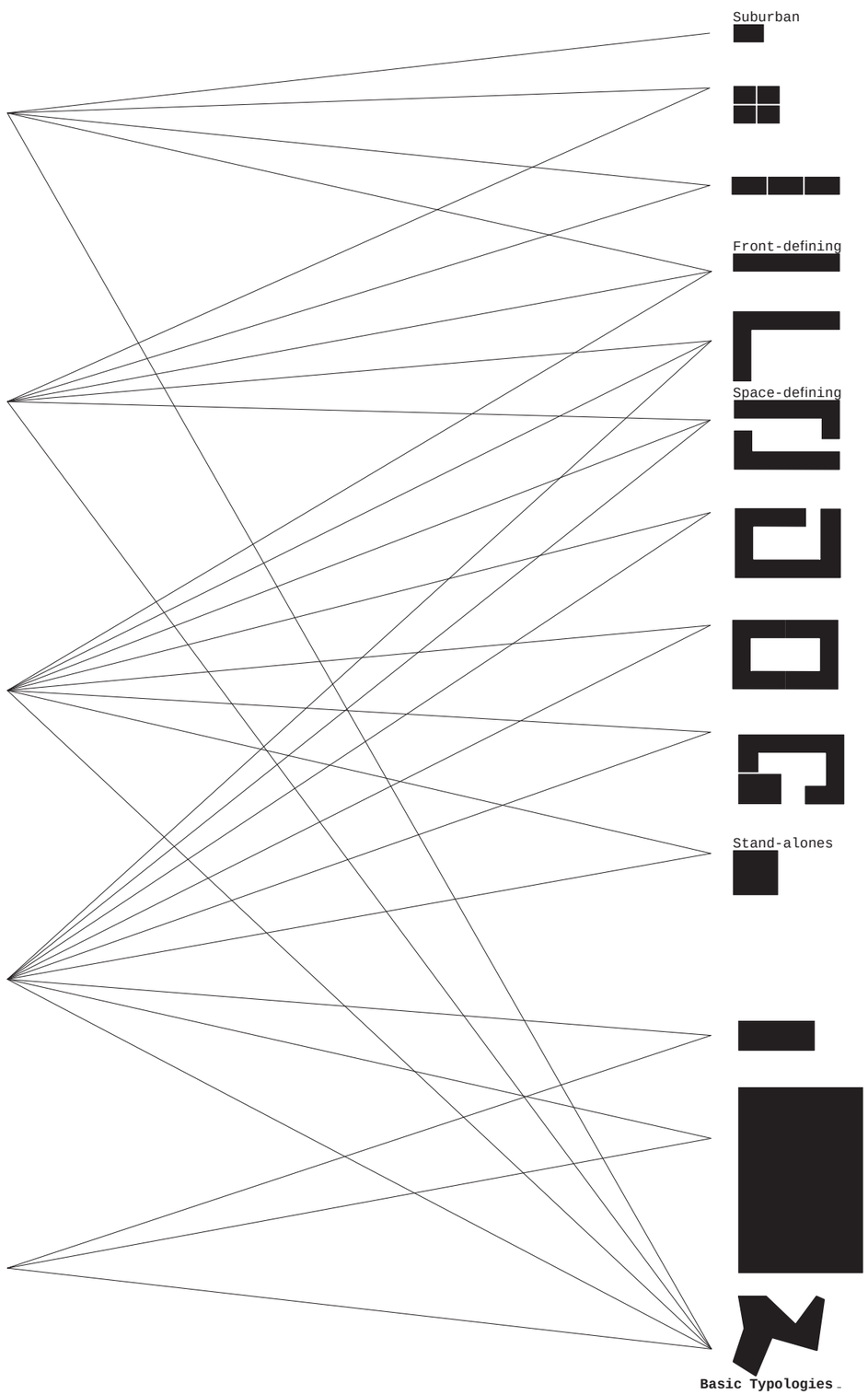
**Mixed use (with industry)**
Size: 5,000m² - 20,000m²
Proportion: 2:1
internal fields might happen
angles follow development
(can be irregular)



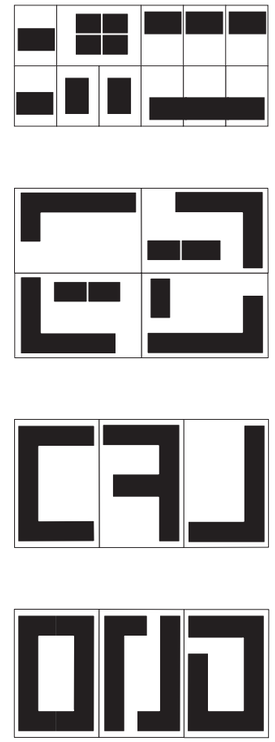
**Industrial**
Size: 15,000m² - 50,000m²
Proportion: 2:1
internal fields might happen
angles follow development
(can be irregular)



**Basic Plots**




**Basic Typologies**



**Variations & Combinations**

# IMPLEMENTATION

Development is a process, and in a market economy is incremental and not necessarily linear. On the other hand, critical mass is required in order to affect change or at least to provide the stepping stones for future development. Perception is critical – particularly given market forces – and is disproportionately influenced by the quality of the public realm.

Implementation of this Development Framework has three strands:

• An identification of key networks linkages to be achieved (some vehicular, some slow traffic).
• An identification of key public space improvements to be achieved
• Development of particular sites

The dovetailing of the delivery of the first two above with development is necessarily a loose fit but it is within a coherent robust logic that will withstand the vagaries of the market.

Key sites have been identified which by virtue of their location and single or limited ownership, could develop quickly. Overall, however a more developed methodology is required.

The area is characterised by a large number of individual owners. Larger sites may have within them the means of delivery of public space and linkages, but for the majority of sites different mechanisms will be required. Incentives to the consolidation of sites or joint venture arrangements are required.

Given the nature of the market economy and the general absence of lands in State ownership in the area, the essential mechanism must be one of incentive. The existing zoning matrices are restrictive in terms of use and as applied can be restrictive in terms of density. Changes in zoning are likely to increase values in overall area terms. Mechanisms of incentive might include the following:

• An allowance of increased density (by a set factor and relative to the existing established plot ratio) related to the provision of required linkages and/or public open space. A formula for this incentive might look like the scheme B on the following page.

• An allowance of increased density in respect of assembled sites relative to what might be considered allowable on individual sites. A formula for this incentive might look like the scheme C on the following page.

• A minimum site area below which increased density would not apply.

• Capital contributions as allowed for under the Planning Acts

• Land swop arrangements

Perception is critical – particularly given market forces – and is disproportionately influenced by the quality of the public realm.

# Incentives

This Development Framework identifies both a network and public space logic for the area. In terms of property impact, the network connections are generally discrete, fixed in dimension and therefore quantifiable. The total surface required for the connections within the Framework perimeter is approximately 150,000m2, or 2% of the study area.

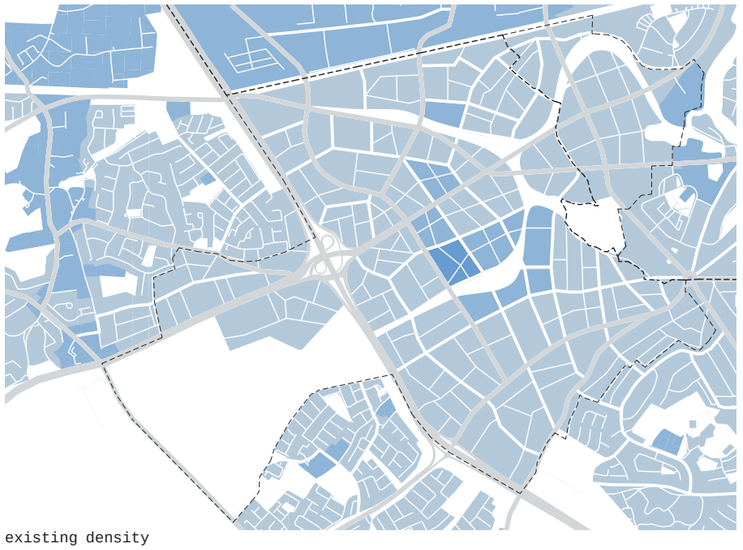
The public space proposals are invariably representations of a principle rather than being finite. Nevertheless those principles are imperatives and include:

• The establishment of green continuous linkages – specifically the east west green linkage along the line of the existing watercourses
• The spatial elaboration of these liner events in order to provide scale and identification
• The provision of green buffers at locations where adjacent uses are incompatible
• The provision of new or opened water bodies as part of a comprehensive surface water management regime
• The provision of characterising open spaces necessary to support local needs resulting from new adjoining land uses.

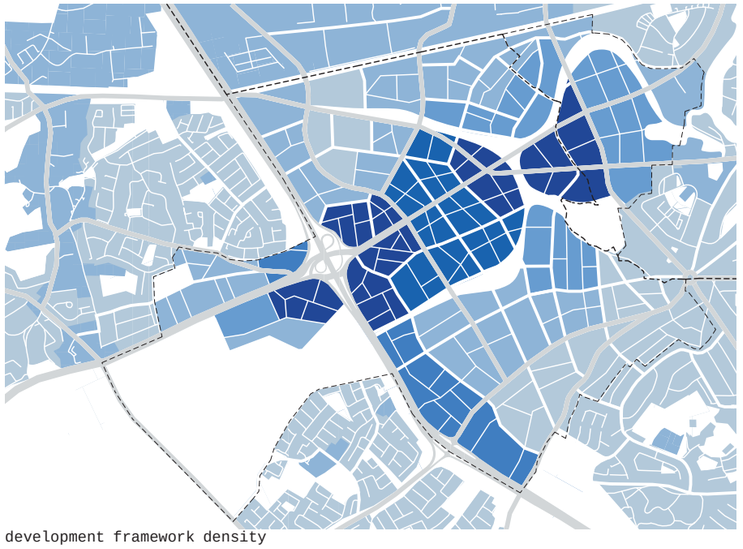
The total surface required for the public space proposals ranges between 500,000m2 and 850,000m2, or 8% to 13% of the land within the Framework perimeter. According to the County Development Plan a minimum of 10 % should be provided.

The total surface needed for the framework to take place ranges between 650,000m2 and 1,000,000m2 or 8.5 to 13.5% of the land within the Framework perimeter.

The average floor area ratio in the area today is 0.5. The development framework proposes floor area ratios ranging from 0.5 to 2.0 - essentialy a significant increase of density



existing density



development framework density

for sites in proximity to the Naas Road and Luas stops.

The effect of the implementation of the Development Framework has many different consequences, such as an improvement of the image of the area, improved accessibility and reduced congestion. This allied to the new mix of uses, allows for developments that are valuable and will have a positive effect on property values.

With this in mind the increase in density resulting from a mechanism for incentive, should be in relation to the surface needed for creating linkages and public space. Therefore an average of 10% increase of density compared to the Framework densities is desirable.

The proposals of allowances for higher densities to allow for linkages and public space or stimulate assembling of lands shown here are examples of a principle that need to be tested further and fine tuned.

It requires a Masterplan for each character area to define precise dimensions and positioning of the open space, to define the street profiles and their positioning, to define priorities, to find the swap mechanisms needed between private and public partners and to find the regrouping mechanisms between private landowners necessary to realise the Development Framework.

A system of incentives is proposed whereby development control can be used to facilitate and encourage particular form(s) of development consistent with the Development Framework. Those incentives take the form of an increase in nominal plot ratio in return for a specific public planning gain (meaning the achievement of specific objectives of the Development Framework). There is a finite limit to the extent to which such methods can be used.

Two immediate conditions are envisaged: Firstly where structural linkages are identified in the Development Framework (be they movement- and/or amenity-based), and secondly where the existing pattern of small plot renders meaningful and/or comprehensive redevelopment impossible.

The first condition is referred to as Atypical Condition A and is envisaged where a land take is sought and offered and the plot ratio on the residual site area is increased by way of commercial compensation. This form of compensation is envisaged in situations where the land take is up to a maximum of 40%.

The 2nd condition is referred to as Atypical Condition B is where the potential plot ratio of the larger assembled sites generates larger gross floor area than the sum of the individual site plot ratios would. This is predicated on the particular increased sites being advantageous in respect of shape, orientation, and their particular location necessary to facilitate configurations envisaged in the Development Framework.

In no circumstances is it envisaged that both conditions (B and C) above would apply to the same site.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site Area existing | SAe | | 2000 m2 | | SAe | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 |
| Plot Ratio existing | PRe | | 0.50 | | PRp | 0.50 | 0.70 | 1.00 | 1.30 | 1.50 | 2.00 |
| **Gross Floor Area existing** | GFAe | SAe*PRe | 1000 m2 | | GFAp | SAe*PRp | 1000 m2 | 1400 m2 | 2000 m2 | 2600 m2 | 3000 m2 | 4000 m2 |

Existing

A - sites are not subject to proposed land takes

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site Area existing | SAe | | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 | 2000 m2 |
| Percentage site loss | Psl | | 40% | 40% | 40% | 40% | 40% | 40% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Site Area reduced | SAr | SAe*(1-Psl) | 1200 m2 | 1200 m2 | 1200 m2 | 1200 m2 | 1200 m2 | 1200 m2 | 1800 m2 | 1800 m2 | 1800 m2 | 1800 m2 | 1800 m2 | 1800 m2 |
| Factor1 | Fa1 | SAe/(SAr+(SAe-SAr)/2) | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 |
| Plot Ratio proposed | PRp | | 0.50 | 0.70 | 1.00 | 1.30 | 1.50 | 2.00 | 0.50 | 0.70 | 1.00 | 1.30 | 1.50 | 2.00 |
| **Gross Floor Area factored** | GFAf | SAe*Fa*PRe | 1250 m2 | 1750 m2 | 2500 m2 | 3250 m2 | 3750 m2 | 5000 m2 | 1053 m2 | 1474 m2 | 2105 m2 | 2737 m2 | 3158 m2 | 4211 m2 |
| **Plot Ratio effective** | PRf | | 1.04 | 1.46 | 2.08 | 2.71 | 3.13 | 4.17 | 0.58 | 0.82 | 1.17 | 1.52 | 1.75 | 2.34 |
| Percentage increase in Gross Floor Area | | GFAf/GFAp% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 5.26% | 5.26% | 5.26% | 5.26% | 5.26% | 5.26% |

B - capacity factoring based on accommodating new linkages

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site Area existing | SAe | | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 | 10000 m2 |
| Base line site | Bls | | 5000 m2 | 5000 m2 | 5000 m2 | 5000 m2 | 5000 m2 | 5000 m2 | 500 m2 | 500 m2 | 500 m2 | 500 m2 | 500 m2 | 500 m2 |
| Factor2 | Fa2 | SAe/(Bls+(SAe-Bls)/1.2) | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.09 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 |
| Plot Ratio proposed | PRp | | 0.50 | 0.70 | 1.00 | 1.30 | 1.50 | 2.00 | 0.50 | 0.70 | 1.00 | 1.30 | 1.50 | 2.00 |
| **Gross Floor Area factored** | GFAf | SAe*Fa2*PRe | 5455 m2 | 7636 m2 | 10909 m2 | 14182 m2 | 16364 m2 | 21818 m2 | 5941 m2 | 8317 m2 | 11881 m2 | 15446 m2 | 17822 m2 | 23762 m2 |
| **Plot Ratio effective** | PRf | | 0.55 | 0.76 | 1.09 | 1.42 | 1.64 | 2.18 | 0.59 | 0.83 | 1.19 | 1.54 | 1.78 | 2.38 |
| Percentage increase in Gross Floor Area | | GFAf/GFAp% | 8.33% | 8.33% | 8.33% | 8.33% | 8.33% | 8.33% | 15.83% | 15.83% | 15.83% | 15.83% | 15.83% | 15.83% |

C - capacity factoring based on size of site

# Delivering sustainable development

**Example:**
**Copenhagen cycling culture**

**The Danish capital, Copenhagen, is the world's leading example of long-term transformation towards more sustainable modes of transport. In the early 1960s Copenhagen was on a similar trajectory of car-oriented growth to most other European cities. By 2005 however 36% of journeys to work within the city were by bike, a third by public transport and only 23% by car. Between 1995 and 2005 the number of journeys by bike doubled. However, change was a long time in the making, and was not primarily driven by 'transport' policy. It began in 1962 when, as part of an experiment led by the architect Jan Gehl, Copenhagen's main street, Stroget, was pedestrianised. A significant increase in pedestrian traffic and custom for shops and cafes was observed. Over the following decades, the amount of pedestrian space in the centre of Copenhagen was increased sevenfold. 18 public squares that had been parking lots were transformed. The number of people spending time in the city centre quadrupled, pavement cafes proliferated and both the day and the season for Copenhagen's active streetlife lengthened. Early success gave city leaders the confidence to implement complementary policies, including major investment in cycle lanes, reducing city centre car parking and developing 'shared surface' streets on secondary routes. The proliferation of bikes, many of them chained informally to fences, is now one of the signature features of Copenhagen city centre. By 2002, Copenhagen newspapers were reporting a new problem: congestion on the cycle lanes.**

As stated in the introduction, the role of a framework plan in achieving sustainability is to fix what is essential at this stage and be flexible about the rest. The armature for sustainable development on the Naas Road – predicated on enhanced access and movement, integrated walkable neighbourhoods and a robust urban form – is the focus of this plan.

Realising ambitions for sustainable development in practice is a complex process involving more detailed layering of landscape and architectural design, infrastructure planning and phasing, public and community involvement, commercial planning and market assessment, and ongoing governance and management – to name but a few of the disciplines involved. It is beyond the remit of this Framework to prescribe how this should be managed, but, to ensure that sustainability outcomes are secured, there are a number of key issues and principles that will need to be considered from the very beginning of implementation of the Framework.

**A long term vision for sustainable movement**

The current urban condition around the Naas Road makes encouraging sustainable movement extremely difficult. The area is already heavily congested and failing to address increasing levels of private car ownership and use will jeopardise the ability for the Framework plan to deliver meaningful, sustainable and transformational change.

The Naas Road is not alone in facing this constraint. As the Dublin Transportation Office's '2030 Vision' consultation document sets out, over the next three decades Greater Dublin's population is likely to exceed 5 million, car ownership could increase by over 40 per cent, average speeds are likely to drop further and congestion increase with attendant environmental and health effects, and transport-based emissions could more than triple. A city-wide strategy for modal shift towards more sustainable transport options – walking, cycling and public transport – is therefore essential to ensuring Greater Dublin can both respond to the 'environmental imperative' and avoid stifling opportunities for regeneration and development.

Those responsible for the planning and delivery of regeneration and development schemes also need to explore how to break the link between development levels and current measures of accessibility. Without this, the comprehensive redevelopment of areas such as the Naas Road will be severely compromised, potentially leading to increased sprawl as developers seek opportunities in less constrained but more car-dependent locations. While current accessibility criteria can be used to inform the first phase of development, the Framework Plan cannot be bound by them when setting the wider vision for the area. The broader question is not how do we define accessibility for the 10 years it will take to deliver the first phase but rather how will accessibility be defined in 10, 20, 30, 40 and 50 years time.

The Department for Transport has calculated that investment in public transport and associated infrastructure under Transport 21 is unlikely to have a significant impact on private car use. Instead a range of other interventions will be required to deliver the 40/60 modal split that begins to achieve a meaningful reduction in car use.

Given the limited options for increasing capacity and therefore use on public transport in and around the Framework area this level of modal shift will only be achieved following considerable efforts to increase levels of walking and, in particular, cycling. Tallaght and Dublin City Centre are both within cycling distance of the Naas Road and the aim should be that cycling becomes the main transport option for journeys under 6km. The Dublin Transport Office has set an ambitious timescale for increasing the proportion of trips made by bike from 4% to 30% by 2016 . Applying this target to the baseline average modal split for the Framework area would result in 55% of journeys being made by walking, cycling, bus and LUAS. This assumes no increase in public transport capacity or levels of walking. A modest increase in walking (likely given the increased levels of internalisation enabled by a good mixed-use plan) and public transport use should achieve at least a 60/40 modal split.

Achieving this level of modal shift will require a multi-agency approach working with Dublin City Council, the National Roads Authority and the Dublin Transportation Office to develop a range of site specific, borough and city wide initiatives and interventions including:

• Ensuring that a fundamental principle of local, regional and national planning, transport and design policy and guidance is to promote cycling as the primary mode of transport for journeys under 6km and walking as the primary mode for journeys under 1km.

• Implementing a city wide programme of advice and support on alternative travel options similar to the TravelSmart initiative run by Sustrans in the UK, which has led to relative reductions in car trips of between 9 and 14%.

• Improving the cycle network both within the Naas Road and on key routes to and from Tallaght and Dublin city centre, including widening and resurfacing of cycle lanes, improved signage and cycle priority at junctions. This should include identifying opportunities for improving existing (such as the Grand Canal towpath) or creating new traffic free commuting and leisure routes.

• Developing a strategy for the phased reduction in car parking spaces in Tallaght and Dublin City Centre with associated increases in cycle parking and facilities.

• Creating new bus routes, including express routes to Tallaght, Dublin City Centre and other key destinations, to serve those areas of the Naas Road that are more than 400m from a LUAS stop, improving services on existing bus routes and providing real time travel information on all routes.

• Removing the link between home ownership and parking provision by minimising private ownership of residential parking spaces within the Naas Road and developing a strategy for the phased reduction of residential parking over time, supported by access to a car club and car share schemes.

• Conducting a biannual survey of pedestrians and cyclists to inform future planning and identify priorities for improvement.

• Introducing peak time demand management such as congestion charging or road pricing, with income invested in public transport, cycle facilities and public realm improvements.

## Public and stakeholder involvement in the planning and delivery process

**Example:**
**Malmo Western Harbour**

**The Western Harbour area of Malmo, Sweden, is a 140 hectare former docks district which is being regenerated as a major new extension of the city. The area will house a growing population and economic base driven in part by the creation of the road and rail link across the Oresund to Copenhagen and a new rail tunnel under Malmo city centre to link to the development. The aim is that the area will be a "city of tomorrow", defined by the harmonious integration of social, economic and environmental sustainability principles. Planning began in 1997 and the first stage of development was an "Expo" of 1,300 homes and mixed uses in 2001 designed to demonstrate different elements of sustainable urban development, including the effect of more than 30 architects and 30 developers working at small scales within a larger framework and clear design codes. However, the full programme is scheduled to take until 2035 and the Western Harbour will eventually house X, 13,000 jobs and 11,000 students at a new university complex. A key principle of the evolution of Western Harbour over nearly 40 years is that, although the first phase of development was high-performing, each phase should improve on the previous one, both in terms of the outcomes it achieves and the process through which it is brought forward. Developers are encouraged to collaborate on a vision for development in advance of negotiating contracts, and the involvement of many different professionals and stakeholders from phase to phase alongside the community in reviewing progress and planning ahead makes for a process of continuous 'learning by doing'.**
**See www.malmo.se**

Achieving a culture of sustainability requires that, from the very outset of development, the principle is established that people will be asked to live in and use this place differently from the ways in which they currently would others. In turn, this makes demands on stakeholders and professionals – from public authorities to landscape designers to commercial agents – as well as the public to think differently about how places work and how different place-making disciplines can be integrated for the achievement of sustainable lifestyles.

There is an important idea in the practice of public and stakeholder engagement which says "tell me, I forget; show me, I remember; involve me, I understand". Often engagement practices are either too open, lacking in anchoring principles that govern what is within the scope of debate; or too closed, asking people to endorse a fait accompli.

A shared understanding both of the principles of sustainable development and of their practical application in place-making is essential to building and maintaining support for the vision for the Naas Road. Many of the ideas involved are necessarily complex and interdisciplinary. Therefore genuine community and stakeholder involvement, as well as 'deep collaboration' between professionals, should be at the heart of the implementation plan for the Framework.

One way of achieving this is through 'community enquiry', in which stakeholders and design professionals work together intensively over several consecutive days in public and semi-public forums to evolve a proposal from a framework plan and 'first principles' to a well-resolved design and accompanying strategies for place. This and similar approaches should be encouraged both for the Naas Road Framework and for the adjacent plans to the east in Dublin City. Such exercises should take place at a minimum scale of the neighbourhood and as such will be made easier if there is a partnership between stakeholders and landowners of the kind described above.



## Delivery partnerships for sustainable development

Overcoming the fragmentation of land ownership and differing aspirations on the part of different landowners and stakeholders is potentially a major hurdle to the realisation of the potential of the Naas Road. Helping to unite stakeholders behind a common vision and principles for urban transformation of the area is one of the key functions of this Framework. However, looking ahead, the long-term nature of the transformation and the uneven spread of potential change and likely rewards, geographically and between phases, challenges stakeholders in the Framework to work together across ownership boundaries to realise sustainability outcomes. Specifically:

- to embed many of the characteristics of sustainable place-making outlined in this Framework, the next stage of masterplanning will need to take place at a sufficient scale to embed area-wide principles of sustainable urbanism. Ideally, the minimum scale for this next stage should the whole neighbourhood rather than the block, site or plot; and

- as set out above, the optimal very-low-carbon energy strategy is likely to be one that works across multiple sites and ownerships. Financing the capital cost of the infrastructure involved and relating this to the overall energy load and phasing across the area is likely to require a formal agreement between landowners and an agreement to share the costs and returns of development across a whole neighbourhood or phase. This is likely to be a prerequisite for the possibility of involving an Energy or Multi-Utility Service Company (ESCo or MUSCo), which is an increasingly popular and often efficient route to securing the design, build and operation of community-scale sustainable infrastructure.

There are many potential vehicles for such partnership. Establishing the principle of collaboration and securing broad agreement to explore specifics is what matters at the outset.

# Fine urban grain and adaptability

**Example:**
**Vauban, Freiburg**

**Vauban is a planned sustainable urban extension of around 5,000 inhabitants to the German city of Freiburg. In addition to employing Passivhaus sustainable building technologies and 'car free' living for some households, Vauban has made good use of opportunities for integrated ecological design including green roofs, rainwater capture for use in buildings, green facades and the ecological design of green spaces.**

The implementation of the Framework should over time create a fine urban grain throughout the Naas Road that encourages vibrancy and diversity within and between neighbourhoods. The aim is to create a place that can easily adapt and evolve to meet the changing needs of its residents. To help achieve this, a number of basic rules should be applied to all future development (and, if appropriate, written into planning policy or design codes):

• All blocks will be kept short to create a legible layout and provide multiple direct connections.

• A wide range of plot sizes will be included in each neighbourhood to encourage a variety of architecture (including one-off buildings and self-commissioned homes) and uses within and between character areas.

• All buildings on primary streets will have active frontages and adaptable ground floors to encourage diverse visual experiences, provide overlooking, encourage street life and promote local vibrancy and public safety.

• Buildings will, wherever possible, be designed and constructed to be adaptable to enable change of use as the Naas Road matures and evolves (e.g. from light-industrial to residential use, or to accommodate active uses on the ground floor of residential buildings on key routes).

• Ensure all public spaces will be defined, enclosed and overlooked by the buildings that front them.



# Total urban ecology

The concept of 'total urban ecology' recognises that the role of urban environments as habitats for humans is as important as the role of natural and semi-natural habitats for wildlife, and that literally 'greening' city environments can soften urban spaces and make them more colourful, atmospheric and appealing. It embraces the incorporation into place-making and design of integrated, multifunctional solutions to:

• protection and enhancement of biodiversity and habitats;

• varieties of green amenity space for different kinds of recreation and leisure activities;

• implementation of a 'green grid' for access and movement on foot and by bike;

• creation, rehabilitation and use of waterways and wetlands;

• opportunities for local horticulture and agriculture; and

• measures to adapt the urban environment to already inevitable climate change (and the more extreme weather events it will bring) including sustainable urban drainage systems, living roofs and walls and large-canopy trees for shelter.

The Naas Road Framework provides for a significant upgrading of the quality and quantity of managed open space, wetlands, 'green' routes and a new edge to the canal. This alone will help to achieve a significant ecological enhancement. However, to increase the potential for a 'total urban ecology' to emerge in the Naas Road Gateway and contribute to the creation of a softer, greener environment, consideration should also be given to:

• encouraging widespread use of living roofs and walls (planting along building frontages in strategic locations to create continuous habitat) for habitat creation, water retention and food production;

• incorporating into design codes or development briefs a minimum permeable surface area requirement for development;

• design of homes to allow direct connection with private and public outdoor spaces;

• integration of bird and bat boxes into design of buildings at appropriate locations;

• balcony planting and window boxes;

• extensive street tree planting to allow species movement at canopy level and provide shade and shelter against the effects of inevitable climate change;

• private gardens to be used for food and wildlife gardening through provision of information, education and materials via community growing projects. In some cases, restrictions on private garden uses and landscaping may be applied (for example, extensive hard surfacing);

• encouraging a 'continuous productive urban landscape' through the planting of food crops such as fruit trees and herb plants in the public realm as well as the incorporation of more formal productive land such as allotments;

• encouraging opportunities for wildlife and gardening education through local community centres and schools; and

• through the waste strategy that will need to be developed for the area, encouraging the separation of food and other wastes for composting and local use as part of a 'closed loop' food and waste plan.

# Planning for very-low-carbon energy

Depending on the definition applied, energy use in the built environment accounts for up to half of the average person's carbon footprint. Given the relative ease and cost-efficiency of achieving deep reductions in built environment carbon emissions in new development, it is a prerequisite for development in the Naas Road Gateway to be considered sufficiently sustainable that it supports very-low-carbon energy transformation.
The basis for this is the familiar energy hierarchy:

• reducing demand – by encouraging responsible and conservative energy use on the part of the residents and users of buildings;

• improving efficiency – by designing well-insulated, efficient buildings with good thermal mass and low u-values, and installing low-energy appliances as standard;

• greening the energy supply – by supplying development with renewable energy or, as a last resort, non-sustainable energy using very-low-carbon technologies.

At the stage of framework planning it is not possible to prescribe specific solutions for very-low-carbon energy transformation. However, the Naas Road Gateway plan supports the implementation of low-carbon energy through an intense land-use plan, a localised mix of uses, and the phased redevelopment of the area which should ensure a steady and predictable energy load through transformation. Given these conditions, it should be possible to ensure that development at Naas Road supports a range of sustainable energy supply options

As set out before, development in the Naas Road Gateway should aim to reduce carbon emissions from energy use in the built environment to a minimum. An important element in this, alongside energy efficiency and demand management measures, will be supplying developments with very low carbon, ideally renewable, sources of energy. A detailed energy strategy is not part of the Framework; however, in order to illustrate the issues involved in planning for energy a 'Carbon Mixer' tool has been used to consider, based on the development quantums and land-use mixes proposed for Phase 1 2010-2016, possible options for supplying the development with very-low carbon energy. NB this analysis is not based on technical studies of the area and disregards any existing energy services that may be available; it is not to be considered a guide to or substitute for the outcomes of full technical study.

Based on the development quantum and mix for 2010-2016, the chart 0 below shows the assumptions of energy load for the development across the calendar year. This indicates that based on the envisaged mix of uses, demand for heating will be uneven across the year and that therefore, depending on the energy mix chosen, there will either be a need for additional heat supply in winter or an opportunity to supply excess heat offsite or to adjacent development (e.g. industry) in summer.

The analysis also assumes that new development in the Naas Road will be built to high standards of insulation, without being super-insulated; and that the baseline energy supply (which serves as a counterfactual to the carbon reduction and energy use comparisons below) is electricity from the grid combined with modern, standalone gas boilers of relative efficiency.

Five scenarios for energy mix have been considered. These are summarised in the table i.

The charts i, ii and iii summarise the five options above compared with a "Naas Road Phase 1" baseline for (i) carbon emissions (ii) non-renewable energy consumption and (iii) capital costs (in sterling).

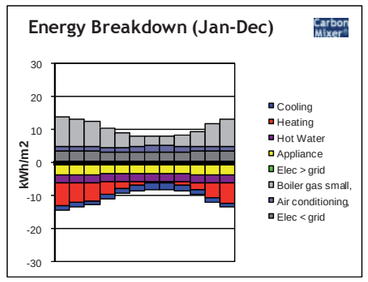



chart 0





On the basis of this analysis, there are several issues that need to be given early consideration in planning the implementation of the Framework. In particular:

• the need to consider the relationship to the planned mix of uses, possible demand from existing development, development off-site and later phases of redevelopment in working out a low-carbon energy mix;

• the need to plan energy infrastructure across multiple site ownerships;

• the additional capital costs of low-carbon technologies compared with simply 'plugging in' to the grid and these need to finance and spread these effectively (recognising that low-carbon energy is nonetheless one of the most efficient and cost-effective ways of achieving carbon reductions in development); and

• the early need for appropriate technical studies to inform implementation planning.

| Option | Carbon reduction | Non-renewable energy demand reduction | Issues |
|---|---|---|---|
| Large-scale gas-fired combined heat and power (CHP) | 50% | -23% | Sized to meet peak development heat load and 50% of the electrical load. Generates a significant heat surplus in summer and would need to find an off-site customer for this so as to be generating sufficient electricity to provide a return on costs. Note non-renewable energy use increase (natural gas for the CHP engine). |
| Baseload gas-fired CHP | 22% | -10% | Sized to run at near 100% of capacity year-round by meeting the base load of heat demand i.e. additional winter heat demand would need to be met from other sources. |
| 50,000m2 photovoltaics | 12% | 6% | Photovoltaics are unlikely to be an attractive solution but the option is illustrated, based on estimated available roof space, to give an idea of relative cost and impact. Currently the payback period on PV is around 35 years, which makes them unattractive despite the low maintenance and zero running costs. Availability of feed-in tariffs may make PV more attractive. |
| Off or near-site large-scale wind | 61% | 30% | 8 x 2Mw wind turbines would meet 95% of net electricity demand over the year. Obviously dependent on suitable site, good wind and planning acceptability. |
| Large scale woodchip CHP with solar hot water | 77% | 83% | Same heat distribution issues as gas CHP; also chip delivery, storage and sourcing issues over time. Probable price stability over gas but sourcing needs to be guaranteed over 20 years to ensure realistic viability. Solar thermal should be included wherever possible, even where it appears to be at odds with the higher heat load required by the CHP systems, particularly when wood chip CHP is in use because of the environmental pressures placed on agricultural land due to biomass production. |

The charts below summarise the five options above compared with a "Naas Road Phase 1" baseline for (i) carbon emissions (ii) non-renewable energy consumption and (iii) capital costs (in sterling).

table i

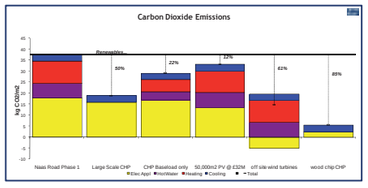



chart i

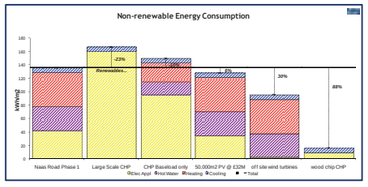



chart ii

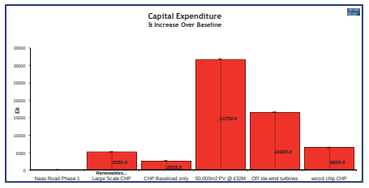
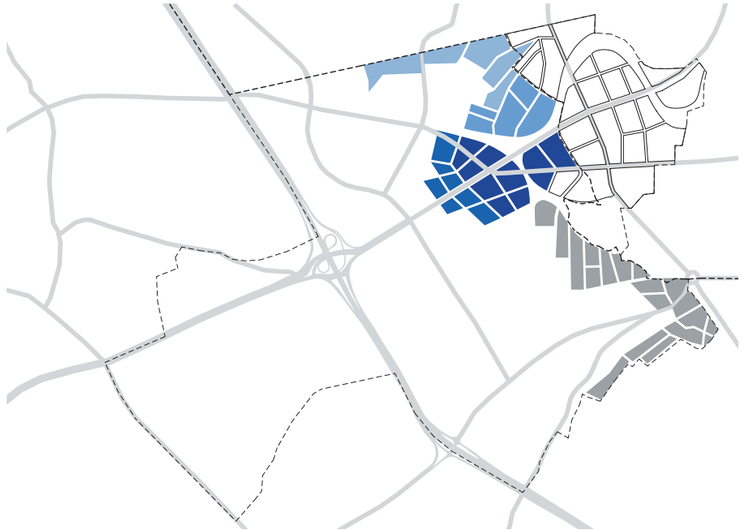



chart iii

# DEVELOPMENT FRAMEWORK

## First Phase 2010-2016

In the short term, possibilities for development are very restricted due to the enormous congestion and the limitations to the network capacity. Secondly the current market demands (other than industrial uses) are at the present time limited. Therefore the positioning of first developments in the timeframe 2010-2016 is crucial. Development needs to be initiated by infrastructural and open space changes that radically alter the character of the area and reveal its potential.
The transformation of the Naas Road area should start around the crossing of Long Mile Road. Not only is this area closest to the currently planned prime urban centre of Dublin City Council, it is also at the intersection of the transformed Naas Road and the newly planned linear park. These three conditions offer a strong potential for a vibrant mixed use area that will be at the heart of the larger surrounding area.
Secondly more residential areas are proposed at the edges of the study area. They would use the potential of existing underused assets such as the Canal and repair conflicting conditions between current uses.



**FAR: 0.7**
**Footprint: 158,000 m2**
**Floorspace: 110,000 m2**
**Mix R/C: 90/10**
**99,000 m2 residential**
**11,000 m2 commercial**

**Plot Ratio: 1.5**
**Footprint: 81,000 m2**
**Floorspace: 126,000 m2**
**Mix R/C: 73/27**
**92.000 m2 residential**
**34.000 m2 commercial**

**Plot Ratio: 1.0**
**Footprint: 118,000 m2**
**Floorspace: 118,000 m2**
**Mix R/C: 73/27**
**86,000 m2 residential**
**32,000 m2 commercial**

**Plot Ratio: 2.0**
**Footprint: 173,000 m2**
**Floorspace: 346,000 m2**
**Mix R/C2: 73/27**
**253.000 m2 residential**
**93.000 m2 commercial**

**Black outlined plots are not included in calculation!**

**TOTAL**
**Σ 700,000 m2**
**5.300 units**
**6.800 jobs**

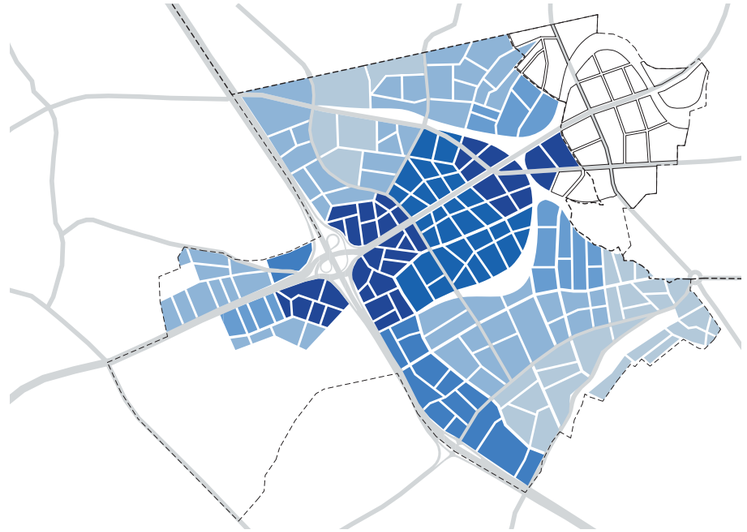
far 2.0
far 1.5
far 1.3
far 1.0
far 0.7
far > 0.5

legend

## Second Phase beyond 2016

Starting at the centre of the Naas Road and coming from the edges, the transformation stretches out over the whole area in a timeframe that can not be defined today. Furthermore this process is not linear; a certain unpredictability in both progress and direction of development has to be calculated in.

Areas are to be transformed following different logics that meet the future desirable uses. For industrial areas this means gradual transformation and optimization while transformation in mixed use areas and residential areas is much more radical.
This Development Framework delivers the key ingredients that can transform the Naas Road and its surrounding area into an attractive place to life, work and enjoy.



2010-2016

PARK WEST 11

CANAL SITE 5

KYLEMORE 12

RIVERS CROSSING 1

CLONDALKIN 10

P+R

GREENHILLS 4

KILNAMANAGH 14

WALKINSTOWN 13

BEYOND 2016

PARK WEST 11

CANAL SITE 5

KYLEMORE 12

RIVERS CROSSING 1

OAK ROAD 8

CLONDALKIN 10

RED COW WEST 3

RED COW EAST 2

ROBIN HOOD 6

GREENHILLS 4

WALKINSTOWN 13

NEWLANDS PARK 9

BALLYMOUNT 7

KILNAMANAGH 14

P+R