



RENFREWSHIRE COUNCIL
Innovative Roads Design
HOMEZONE WITHOUT THE HEADACHE!

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1. INTRODUCTION

On the south bank of the Clyde between Braehead shopping centre and Renfrew town centre, lies a 75 hectare site which previously accommodated heavy industry. From Renfrewshire's land use and economic strategy, a masterplan was developed for this area to incorporate a mixed use of leisure, Class 4 business and housing. This paper outlines the design process with respect to transportation such that planning aspirations for high density development supported by a quality street environment could be realised.

The development would ideally comprise 2,500 houses occupying two thirds of the site and business/leisure on the remainder. The development concept proposed a boulevard with traditional Victorian street patterns on each side providing classical residential blocks with vistas to the river. 3-storey residential properties on either side of the boulevard would give a street feel to Kings Inch Road (boulevard) and elsewhere would provide a mix of housing.

A fundamental objective was to create streets prioritising space for people and safe routes linking to public transport, the river and Renfrew town centre. To address severance concerns, every connection to the boulevard was controlled by traffic signals, thus creating pedestrian facilities and restricting speeds on the through route.

A specific design guide was produced for this masterplan area in view of the degree of innovation on roads layouts and variations from the Council's adopted roads guidelines.

2. BACKGROUND

The Renfrew Riverside area offered a substantial development opportunity on the Clyde Waterfront between Braehead shopping centre and the confluence of the Clyde and White Cart. This 75 ha site of previously industrial land had the potential to be developed to become a key business, leisure and residential destination that will provide several thousand jobs and in doing so, regenerate one of the largest areas of derelict land in Renfrewshire.

The Braehead shopping development was opened in 1999. The Braehead site also incorporated a bus station and car parking provision for around 5000 vehicles, a retail park and a single site that was occupied by the Ikea superstore.

Thus, this site, in its entirety had the potential to enhance Renfrew town centre and encourage increased activity along the river front to bring life back to the riverside. In many ways this did not occur and it was considered that the development of the masterplan area would have to make up for the opportunities that had been missed in the development of the Braehead site.

As the masterplan area, Renfrew Riverside, had the opportunity to provide the missing linkages and increase activity along the Clyde it was agreed that a coherent approach was essential to ensure that the site was developed as a whole. Partnership working between the councils planning, transportation and economic development sections as well as the land owners and developers was essential to take this forward and it was agreed that a masterplan would be developed to guide the development.

3. THE MASTERPLAN

The masterplan sought to draw on the substantial body of research and design work already carried out. Its aim was to provide developers with a framework for development:

- Ensure that the new urban quarter integrates fully with the existing built up area of Renfrew and fosters integration rather than exclusion
- Create a new waterfront of high quality that would become a destination in its own right to reflect the national strategic importance of the Clyde Waterfront as a whole.
- Produce an urban quarter with a strong sense of place, with diverse identities that make the most of the location's relationship to the Clyde, to Braehead and to Renfrew.
- Be robust and flexible with capacity to adapt to changing demands over time.
- Reduce reliance on the use of the private car and encourage combined trips and short journeys.
- Have particular regard for human scale and link facilities via walking and cycle routes.

In order to achieve the objectives the Masterplan identified both a land use framework and a set of guidelines for the preparation of more detailed proposals. The key point is that it did not intend to prescribe rigid design standards however it aimed to emphasise design objectives and principles with the fundamental aim to ensure that development of the various sites was co-ordinated in order to create distinctive and vibrant urban quarters which complement the existing town of Renfrew and its facilities.

The Masterplan was also intended to act as a basis for the determination of planning applications within the area. (The Council later adopted the Masterplan as Supplementary Planning Guidance).

Development capacity and density

Capacity for each of the development areas was set as a maximum in order that the Masterplan could determine the character of each of the areas.

Character area	Residential use	Employment use	Commercial / leisure	Community use
Kings Inch	436 units	44722msq	43952msq	1978msq
Ferry Village	1201 units		929msq	
Millburn	524 units			
Total	2161 units	44722msq	44881msq	1978msq

The capacities in the above Table have been used to calculate average residential densities for each character area. The density ranges reflect the aspirations of the Council for the built form of each character area. The purpose of the density ranges is to enable density profiles to be varied within character areas, reflecting the variations in net density of built form which occur naturally in settlements.

Character area	Average density	Density Range
Kings Inch	Average 40 units/ha Assuming 11ha residential	30 – 50 units/ha up to 110 units/ha on Kings Inch Rd
Ferry Village	Average 120 units/ha Assuming 10ha residential	90 - 150 units/ha
Millburn	Average 35 units/ha Assuming 15 ha residential	30 – 50 units/ha up to 110 units/ha on Station Rd & Kings Inch Rd

Proposals for development should promote diversity and mixed use. This will ensure that facilities in daily use are within walking distance and that activity is concentrated naturally at focal points or zones of convergence. Creating mixed use is not just about mixing uses within neighbourhoods, but also within blocks and buildings where possible. Where there are concentrations of activity, developers have been advised to consider small scale ground floor commercial uses serving the local neighbourhood with residential uses above. Block layout and building design should be sufficiently flexible to facilitate change over time.

4. ACCESS AND STREET LAYOUT

A number of key principles underpin the framework:

- Kings Inch Road as a central boulevard
- A grid pattern street layout
- The need to integrate new development with the surrounding built up area particularly Renfrew town centre
- Promotion of public transport, walking and cycling as modes of transport

As the urban framework of routes and spaces is as important as the buildings and land uses which it serves this is the key point to the development of the area. The framework of routes and spaces shape the overall character of the masterplan area.

The existing Kings Inch road provided severance to the masterplan area. In order to create a logic to this severance it was agreed that this road become a boulevard and the main spine to the whole development area. In order to minimise severance the boulevard was created with a build form for the development areas developed into traditional Victorian grid pattern that would open up vistas to the river and onto open squares within the development site. The roads design had to follow the build form of the grid pattern. Thus design standards had to be revisited and amended to suit the grid layout.

Departures from standards

Significant roads issues that had to be considered included:

- typical corner radii
- set back distance for sight lines at t-junctions
- road widths
- designation of service strips
- parking layouts

Addressing these issues allowed traditional street patterns to function with the building line unaffected by the need to provide visibility splays at junctions. Architectural features were introduced such as garden squares and focal point housing. The overall environment that was created encourages low speeds in the context of home zones.

Corner radii

Design radius for corners is typically 10.5m however, for frontage onto Kings Inch Road the typical corner radius accepted was 6m or less.

Sightlines

Internal junctions were permitted in the grid pattern format and to provide a built form in this layout this meant sightlines at the junctions being reduced substantially from a standard setback of 9m down to a setback of 2.5m at many locations and even down to as low as 1.5 m in some residential blocks. This was combined with short stretches of road interspersed by junctions (a feature of the block pattern Victorian squares layout). This had the knock-on effect of vehicle speeds reduced significantly within the site as there was no obvious defined street hierarchy within the blocks and in combination with very short sightlines, vehicles have to stop or slow to less than 5mph at each junction. Sightlines at the junctions onto Kings Inch Road were not so critical as each junction was traffic signal controlled.

Road widths

The layout for Kings Inch Road incorporates space for pedestrians, cyclists, LRT and vehicles. LRT is desired for this area to run on-road on the nearside carriageway. This is essential in order to fit in with the grid pattern layout desired for the development sites. Road widths along this route were accepted at 3.375m per lane instead of the traditional design standard of 3.65m per lane. (3.3m is the minimum permitted width of lane to incorporate LRT).

In addition, side roads were scaled down in width in order that the car did not dominate within the development sites.

Service strip

A co-ordinated approach was undertaken to ensure that services were located together. The service strips were incorporated within the shared surface area within the footways.

Parking layout

Unique parking layouts were developed within the housing blocks in order to create space for people and reduce dominance of the car. Instead of parking areas with a pedestrian footway skirting around the parking bay area, it was agreed that in order to set down priorities within the residential areas that the pedestrian footway would run in parallel to the parking bay. i.e. would continue thus vehicles would have to cross the footway to reach the parking bay. This improved the urban design in the residential area, re-inforced the idea of shared surfaces and reduced dominance of the car. It also simplified the design layout to fit in with the simple Victorian grid block pattern.

KINGS INCH ROAD – FOCAL AXIS

Kings Inch Road is the focal axis for this area and performs a number of complementary roles:

- Showcase for a new urban quarter
- Main corridor for movement
- Destination in itself

Most people will arrive at the masterplan area via Kings Inch Road and this is where they will form their initial perceptions of the whole area. Therefore, it was agreed that it should be considered as an urban street which will become the focus for activity rather than just a functional road.

The solution proposed in the Masterplan is to build on Renfrew's boulevard tradition with special emphasis on the creation of a human-scale environment which becomes a focus for activity. This involves developing:

- Higher densities fronting onto the street to provide levels of pedestrian activity

- An attractive comfortable and secure public realm which will become a place for people to meet, with appropriate high quality landscaping and building design
- A sensitively designed transport infrastructure, including state of the art provision to encourage walking, cycling and public transport and to manage vehicular flows.

Junctions on Kings Inch Road are to be controlled by traffic signals set to promote steady speed of 30mph along the entire length. The junctions incorporate priority measures to enable rapid movement of buses, cyclists and pedestrians.

GRID PATTERN LAYOUT

The grid layout for the masterplan area as a whole is based on the orthogonal grid. The foundations of the grid are the parallel alignments of Kings Inch Road and the river Clyde and link into a continuation of Andrew Avenue in Renfrew towards the Clyde. Away from Kings Inch Road a conventional street pattern will predominate within the grid. This will be urban in character and demonstrate an emphasis on promoting sustainable modes of transport and reducing traffic speeds. Its design therefore takes account of the following:

- Pedestrian environment should be convenient, convivial, comfortable and conspicuous.
- Easy pedestrian access to public transport stops including convenient road crossings on busier routes.
- Appropriate priority measures for public transport, pedestrians and cyclists at junctions.
- Parallel and perpendicular on-street parking where possible.
- Traffic calming built into layouts i.e. tighter kerb radii.
- Buildings aligned close to footways.
- High-quality pedestrian links within blocks to provide more direct, segregated routes.
- Cycle storage, particularly at public transport nodes and community / retail facilities.

5. KEY PRINCIPLES OF URBAN DESIGN

The following urban design principles flow through the masterplan:

- Ease of movement
- The area must be easy to understand and easy to navigate. Building frontages and the public realm must be designed to complement the permeability of the grid by creating a network of paths and nodes.

- **Adaptability**
The design of blocks and individual buildings should accommodate change over time. Design must promote diversity and allow individual buildings and uses to come and go.
- **Character and identity**
- The masterplan aims to create a range of different characters and identities within the new urban quarter, from vibrant mixed use neighbourhoods to quieter open areas.
- **Safety and comfort**
- The new urban quarter must be universally safe and secure, as well as interesting and enjoyable. This can be achieved through fronting accesses and windows directly on the street
- **Quality**
The development should be an exemplar of the highest standards of both urban design and build quality.

Design of the public realm in the area has an important role in promoting sustainable transport. Although the main street pattern will be a grid, designers are expected to develop pedestrian and cycle routes within the blocks and apply the following:

- Direct pedestrian and cycle routes between key facilities.
- Avoid dead ends
- Minimise barriers to walking and cycling
- Create interesting routes
- Routes should have natural surveillance i.e. be overlooked

In terms of heights and massing of buildings the strategy is to create prominent built frontages along Kings Inch Road and the Clyde waterfront with higher density around the node at Ferry Village. Height massing will reduce to the rear of prominent built frontages and particularly in the parts of Kings Inch and Millburn character areas.

The perimeter block structure enables a variety of treatments to be provided to the interior of blocks including:

- Car parking and service yards
- Private / communal gardens with play space
- Smaller mixed-use buildings containing houses, offices, workshops or live-work units.

INTEGRATION WITH EXISTING BUILT ENVIRONMENT

Design radius for corners is typically 10.5m however, for frontage onto Kings Inch Road the typical corner radius accepted was less than 6m. Thus, there had to be an acceptance that vehicles would have to slow to stop when turning and it was accepted that large vehicles would have to cross the centre line to turn into the development area.

The ethos of the masterplan area was to bring life back to the river Clyde through introduction of mixed use development. It was anticipated that this would link into Renfrew to increase activity both in Renfrew and in the development area, provide improved connectivity to the river through opening up access for pedestrians and cyclists as well as improving the connectivity to the north side of the river through the aspiration to encourage the use of riverboats and ferries. The introduction of simple jetties and creation of a boatyard / marina would be welcomed as it would greatly increase activity in the area. (eg Vancouver). The introduction of a dedicated cycle lane along the south bank of the Clyde running from Braehead to the Renfrew Ferry also assisted in linking the development sites and increasing activity.

Flooding

The masterplan area is adjacent to the river Clyde and in common with large parts of the existing built-up area of Renfrew, is flat, low-lying and therefore susceptible to flooding. Thus, substantial research has been undertaken and flood prevention measures have been developed as part of the council's flood prevention scheme for Renfrew as a whole. Any new development in the masterplan area has to continue and compliment flood prevention measures.

Phasing

The three character areas present an opportunity for sub-division into smaller development parcels for release to enable a number of developers to participate thus generating a more diverse mix of building types, tenures and uses. The timing of development of the masterplan area was market led with the first developments taking place in leisure (Xscape) at the eastern entrance and housing at the western end of the site. These developments created entrance features enable the public to envisage the sheer extents of the area that will eventually be redeveloped.

A design framework was developed for the Masterplan area in order that all developers would work to the same design principles and standards. However, rather than setting absolute standards the design framework allowed for a range of densities in order that each area could develop its individual character but be in-keeping with the character of the surrounding areas.

The council provided innovative street design ideas and the developers welcomed the departure from the standards that was permitted through provision of a range. The departure from standards for roads layout was essential to enable the development of the Victorian street pattern layout, an essential character feature of the masterplan area.

6. CONCLUSION

Partnership working between professions was the key factor in taking forward a masterplan for the successful development of this extensive area of derelict land within Renfrewshire. Planners and engineers within the council worked in harmony with developers and economists to put together a package that would increase the land values in the area, incorporate and enhance the redevelopment with the existing Braehead shopping centre as well as ensuring that any redevelopment added value to the existing Renfrew town centre that had been experiencing decline as a traditional centre.

The spine of the masterplan area, Kings Inch Road, was developed as a boulevard to ensure that it provided multi-functions without causing severance to the site. In addition, the regeneration strategy stressed the need for complimentary land uses adjacent to each other in order to lock-in sustainability through ensuring short trips between uses.

Standards for development of roads within the masterplan area were used as guidelines and departures from the standard were permitted in order to provide an adequate range of styles and characters throughout the site. The key to this was departures from standard on turning radii, road lane widths and provision of sight lines.

Professionalism between roads and planning throughout this process was indivisible as all were working towards a common goal. There was great value in having planning and transport working together as one department to develop a strategy for this area that would promote complementary land uses and tie this in with the surrounding area.

The project shows every sign of becoming a flagship development which married traditional 19th century streetscape to modern home zone concepts. Reduced speeds and shared surfaces are the norm within the residential areas thus creating pleasant residential environments. However, in addition, the promotion of mixed uses that are linked by sustainable transport infrastructure should further enhance the area making it a desirable place to live and visit and ensure that it is a model that will be replicated in other development areas in future.

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