Applying macro urban morphology to urban design and development planning: Valletta and Floriana

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Abstract. *The paper examines the macro urban morphology of Valletta and Floriana, and lessons that may be drawn to inform future urban design and development planning there. The macro-morphological regions are outlined, and this sets the context for an analysis of the ways they, and the topography, plan units and the fixation lines of the fortifications, interrelate to create distinctive urban forms and spaces. This provides the context for discussion of the ways the analysis of these complexes of urban form and space could contribute to urban design and development planning more widely in practice.*

Key Words: urban form, space, macro analysis, context, innovation, design, development planning

Urban design and development planning require method and creativity: appraisal of the existing urban form and its context are critical. The challenge is to capture the physical, social, environmental and economic conditions in ways that can be used to enable conflicts to be overcome and opportunities realized. The existing urban form of an area is often critical to decision-making, but can understanding of urban morphology more generally become a creative design tool? Valletta and Floriana in Malta have been chosen as the opportunity to explore this in practice, because they present some distinctive morphological characteristics and challenges, and they reveal how different morphological regions and features can result in some quite unplanned and unpredictable places. The area is also useful as the town plan of Floriana has been studied in some depth by Garret (1996) and the suburb is subject to contemporary urban design proposals.

Many of the seminal works of urban morphology and urban design can be traced to the early 1960s. M.R.G. Conzen's town-plan analysis of Alnwick (1960), Kevin Lynch's *The image of the city* (1960) and Gordon Cullen's *Townscape* (1961) are still influential. Synergies between their works are significant, and the paper seeks to build upon these.

As Conzen showed (1960, p. 4), it is possible 'to establish some basic concepts applicable to recurrent phenomena in urban morphology and to lead to an explanation of the arrangement and diversity of an urban area in terms of plan types and resulting geographical divisions'. Since his early work other scholars, including Whitehand, Moudon and Larkham, have explored the subject, and this study draws upon their work. The aim is to explore the potential for using macro urban morphological analysis to inform urban design and development planning. For, as Lynch remarked, 'understanding a locality demands time and effort [and] the site planner suffers a chronic anxiety about [the] spirit of place' (1960, p. 5).

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The relationship between urban morphology and townscape was identified by Smailes (1955, p. 101) who explained that 'urban morphology ... is not merely two-dimensional in scope. On the contrary, it is through the special importance which the third dimension assumes in the urban scene that much of its distinctiveness and variety arise'. He also identified the critical relationship between the natural context, built form and spatial qualities, pointing out that 'apart from such quality of tone and the character imparted by natural features of its site, the townscape depends for its distinctiveness and variety upon the balance between spaces and structures, and upon the varied textures these present' (Smailes, 1955, p. 104).

The importance of space in urban morphology is being recognized, but still deserves further exploration. Larkham (2002, p. 95), commenting upon a paper by Adolphe (2001, pp. 183-4), identifies this lacuna. While observing that 'the paper seems more correct when it explains that 'urban fabric is in fact made up of urban spaces'', Larkham goes on to note that 'although the author is explicitly referring to 'nonbuilt spaces', this seems rather an over-simplification'. The work of Krier (1979) in defining typologies of urban space is helpful in general terms but in practice it needs place-specific analysis.

The aims of analysis can vary greatly, as may the levels of depth or generalization required. Kevin Lynch (1960, p. 2) concentrated upon the 'clarity or 'legibility of the cityscape'', defining legibility as 'the ease with which parts can be recognized and can be organized into a coherent pattern'. The objectives, scale and resolution needed for analysis and prescription present a challenge, and it is important to find ways in which synergies can be achieved between depth of morphogenetic analysis, qualitative appraisal and development planning.

The issues of scale and resolution have been addressed by Moudon (2002, p. 38) who explored the grain and areal extent of analysis, from micro to macro. The differences between the scale and levels of resolution used by different disciplines is also discussed, for example by architects concerned with the plot and regional planners who use a level of resolution 'at yet a higher level of abstraction'. It is suggested that 'only architects and urban designers consider elements of urban form' with 'all other allied professions replacing these elements by abstract concepts such as density and land-use mix' (Moudon, 2002, p. 38). But, as will be considered later, would architects and urban designers be helped in their creative and prescriptive work of design by some clearer appreciation of urban morphology?

Hall (2000) has shown how morphology may inform development plans, and in earlier work he has suggested how analysis can define 'design areas' and contextual policies (1996). McGlynn and Samuels (2000) have offered the idea of the 'funnel', 'sieve' and 'template' as a means of linking analysis with prescription. Their approach is based on a hierarchy of elements from the macro to the micro (as the sieve), and employs the concept of the funnel developed from the work of Kropf (1993). These are used to create a 'template' that 'embodies the numerous elements and relationships which together characterize a locality' (McGlynn and Samuels, 2000, p. 85). It is this that they suggest can guide designs for individual sites and also wider design guides or codes. But can it be used to innovate? The concept is developed later in this paper to 'abstract' a macro analysis of Valletta and Floriana, which is then used to inform critical evaluation of a recent master plan for the development of Floriana.

Before exploring this application of urban morphological analysis to future urban design and development planning in Valletta and Floriana, it is important to sketch the development of Valletta and Floriana.

Valletta and Floriana

Malta consists of a small archipelago in the Mediterranean. Its two main islands are Malta and Gozo and inhabitation can be traced to 5000 years BC (Bonanno, 1991; Trump,

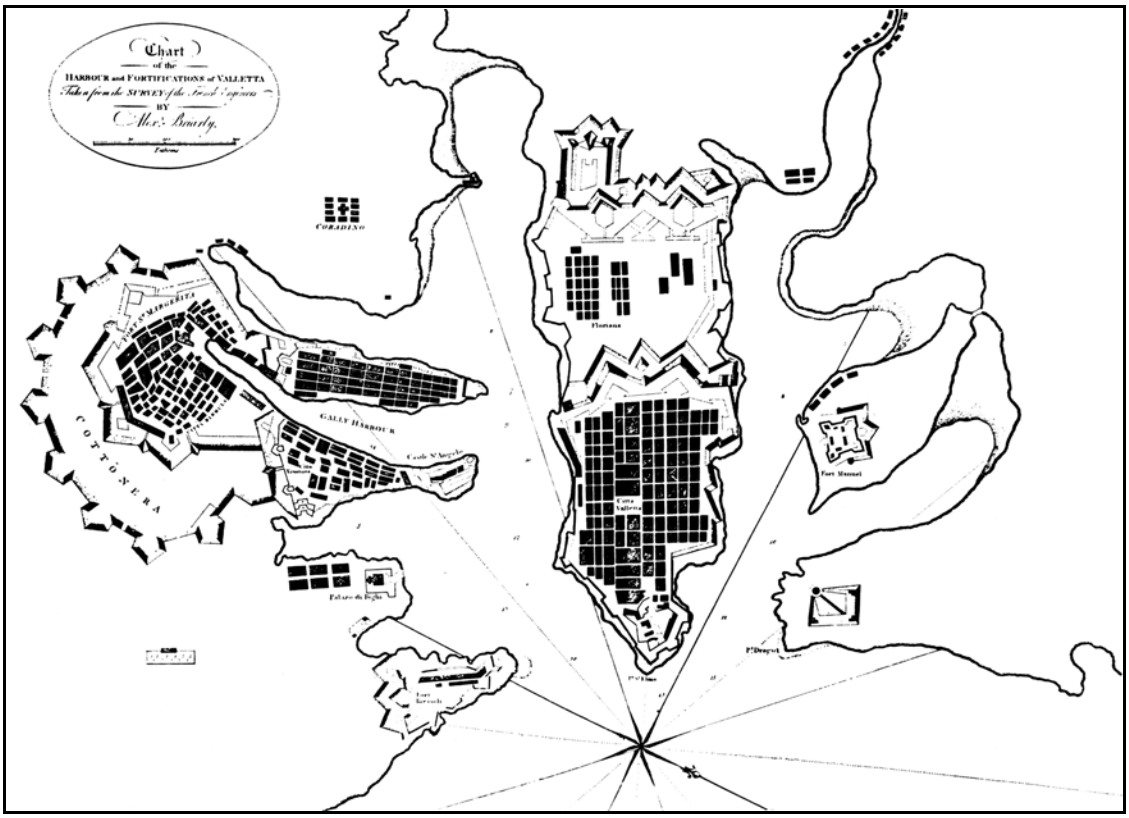


Figure 1. The Grand Harbour as shown by French engineers *c*. 1798-1800. Reproduced from Hughes (1969, p. 119).

2002). Until independence in 1964, they experienced successive occupation, including Phoenician, Carthaginian, Roman, Byzantine, Arab, Norman, Spanish, French and British.

Valletta was planned as the new fortified capital city of Malta following the protracted siege in 1565 of the Knights of St John's first stronghold at Birgu (just over the Grand Harbour in the 'Three Cities'). Later landward defences were reinforced with outer lines of fortification, and subsequently Floriana was set out between the lines. Figure 1 shows Valletta on the Sceberras peninsula, with Floriana between its landward defences, and the 'Three Cities' on the opposite side of the harbour.

Valletta and Floriana are inextricably linked physically and functionally and today they form the capital and administrative heart of Malta. Thake and Hall (1993) provided a city profile of Valletta, and the metropolitan region has been analysed by Chapman and Cassar (2004).

The three principal periods of development in the study area were the building of Valletta and its fortifications; the development of Floriana as a suburb between two lines of fortification; and the additions and adaptations carried out by the British colonial administration, including the reconstruction following the Second World War.

Building Valletta

Valletta was built on a peninsula that sits between two great natural harbours. After the Knights of St. John had repulsed their aggressors, the Grand Master, Jean de la Vallette, ordered that the hard, rocky limestone Sceberras peninsula had to be occupied. Francesco Laparelli was commissioned and began the work of design in 1565. Building went ahead rapidly with most of the planned

Figure 2. Drawing of the new city of Valletta by Lafrery (1566). Reproduced from Hughes (1969, p. 67).

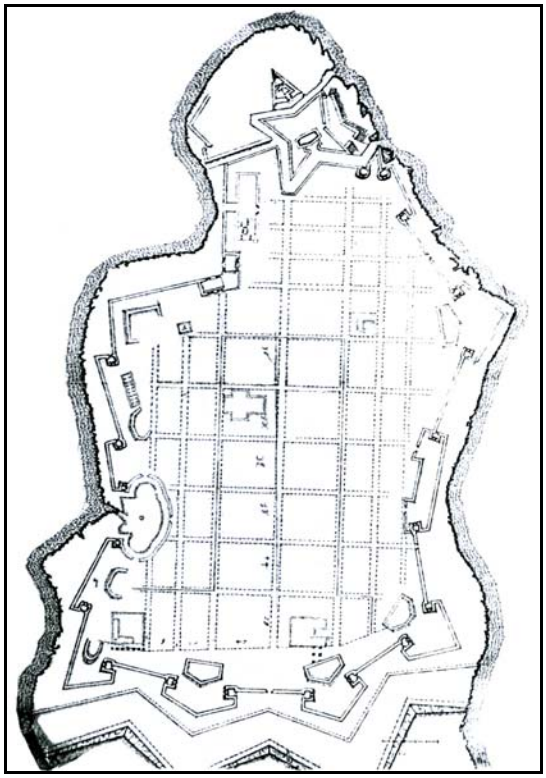


Figure 3. Laparelli's third drawing, developing the city layout. Reproduced from Ganado (2003, p. 498).

sites occupied by 1582 (Garret, 1996). The history of the building of Valletta has been traced by various authors including Blouet (1967), de Giorgio (1986) and Hughes (1956).

The geography and topography of Malta's Grand Harbour region had a critical influence upon the strategic planning but, ironically, the topography was wholly ignored in development planning. Laparelli's decision 'that the grid should be implemented regardless of terrain' (Garret, 1996) is critical to the spaces formed between the grid and the fixation line of the fortifications. Figures 2 and 3 show the planned fortifications and street layout, and Figure 4, from Harrison and Hubbard's reconstruction plan (1945), shows the topography over which they were laid. Figure 5 shows an attempt to represent the three-dimensional relationships, but it still understates the major variations of level that exist in reality.

Friedman (1992, pp. 105-6) has already showed that the 'relationship between the individual building and the town [had] altered in a fundamental way' during the late fourteenth century and in the Renaissance, when the annexation and private use of public space was controlled, and 'private builders adhered more strictly to property lines and accepted as part of the cost of construction the expenses of an elaborately articulated façade.' As shown by Figures 2-5, by the time Valletta was built, the urban form was being even more firmly controlled and regulated by the plan and development conditions.

Developing Floriana

The threat and fear of invasion continued long after the completion of the Valletta fortifications and proposals for a new land front to be built across the Sceberras peninsula were implemented. The Floriana Lines, named after the engineer Peitro Paulo Floriani, were completed in 1719. They enclosed an extensive landward hinterland, which had been

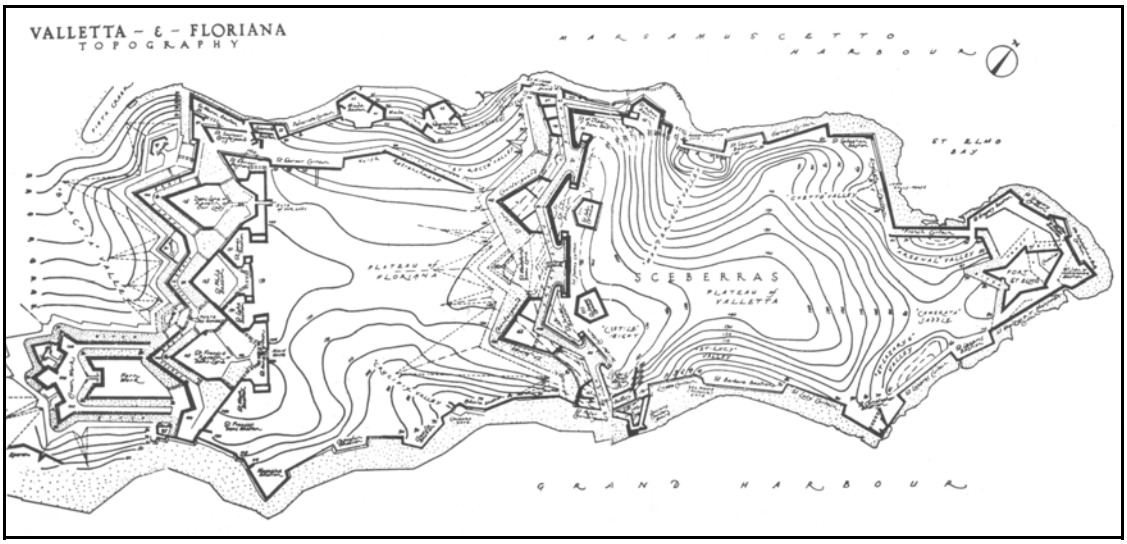


Figure 4. The topography of the Sceberras peninsula, as illustrated by Harrison and Hubbard (1945).

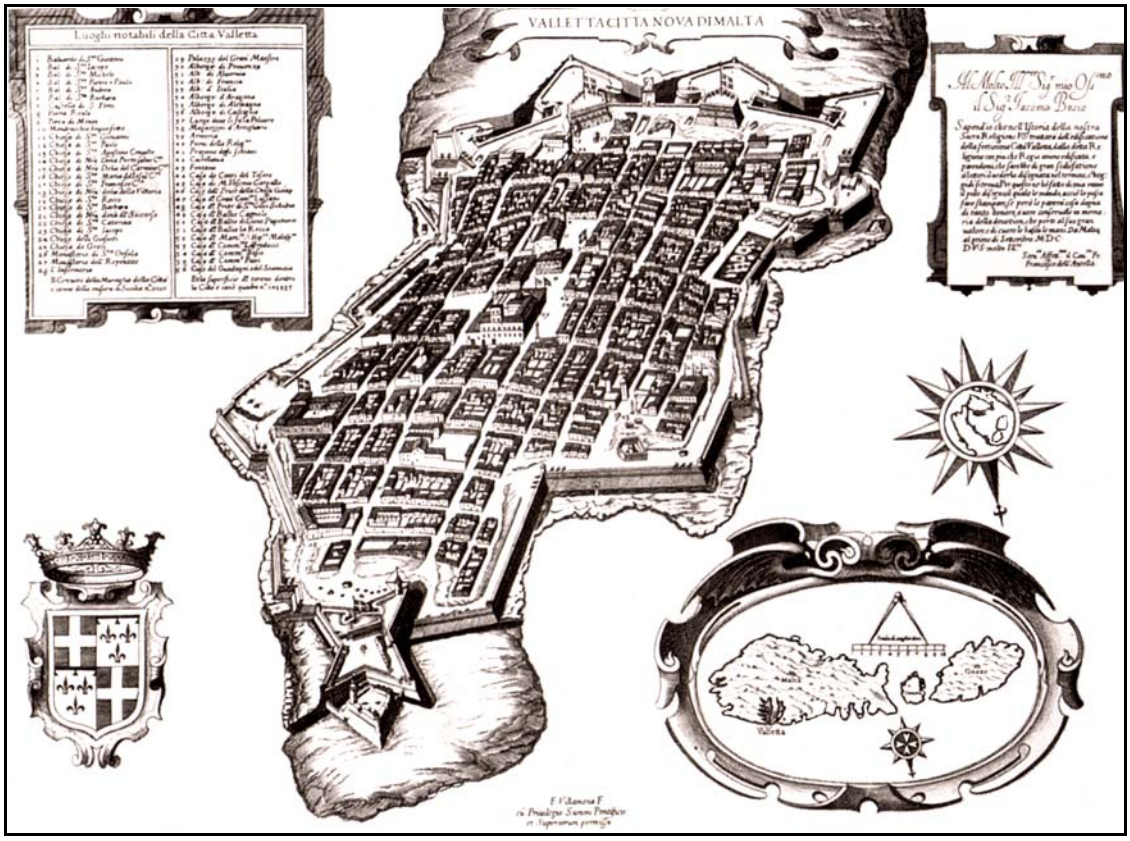


Figure 5. Giacomo Bosio's drawing of Valletta (Istoria della Sacra Religione di S. Giovanni Gerosolimitano, Rome 1594-1602). Reproduced from Hughes (1969, p. 77).

Figure 6. W.H. Smyth's Map of 1822. Reproduced from Bonnici and Cassar (1994).

kept open beyond the glacis to maintain open lines of defence, vision and fire. A few buildings existed in this fringe belt before the reconstruction of the Floriana Lines, but developments occurred later with the establishment of a new suburb, Floriana, between 1700 and 1800 and the continued development of Floriana as a base for British occupiers from 1800 (Garret, 1996). The glacis beyond the Floriana lines has remained open as a second 'outer' fringe belt despite inter-war Art Nouveau style proposals to develop it. Figure 6 shows Valletta at the end of the Sceberras peninsula, with the new land front created by the Floriana Lines, and the new suburb between them and the Valletta fortifications.

As can be seen, only part of the area was originally developed as the suburb, and a wide defensive strip was kept clear in front of Valletta itself. Garret (1996) has carried out an in-depth town-plan analysis of Floriana. Figure 7 is redrawn from her work and shows the main phases of development.

The importance of fringe belts has been increasingly realized by urban morphologists since their definition by Louis (1936). Whitehand and Morton (2003, 2004) have explored the ways they may influence urban development, and note that 'fringe belts were first identified as being associated with former fortification zones' (Whitehand and Morton, 2003, p. 819). This is particularly relevant to this study of Valletta and Floriana. They also show the importance of other 'features circumferential to the city' (Whitehand and Morton, 2003, p. 820) and show how recognizing the distinctive characteristics of these belts can be important to analysis and policy-making. Development in Floriana, as in many fringe belts, occurred slowly between the lines of fortifications, and it continues today. Some contemporary proposals are examined later.

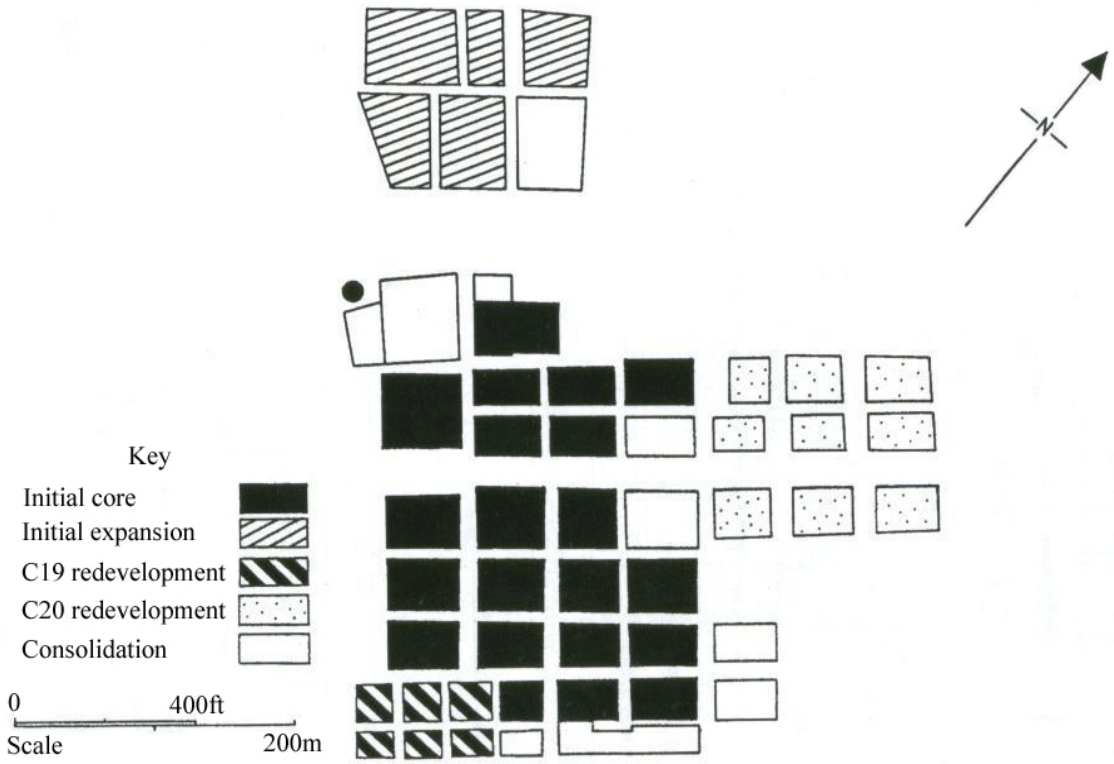


Figure 7. The main phases of development in Floriana. Redrawn from Garret (1996).

Figure 8. The Floriana lines, with gardens above and vegetation below. Photograph by the author, 2000.

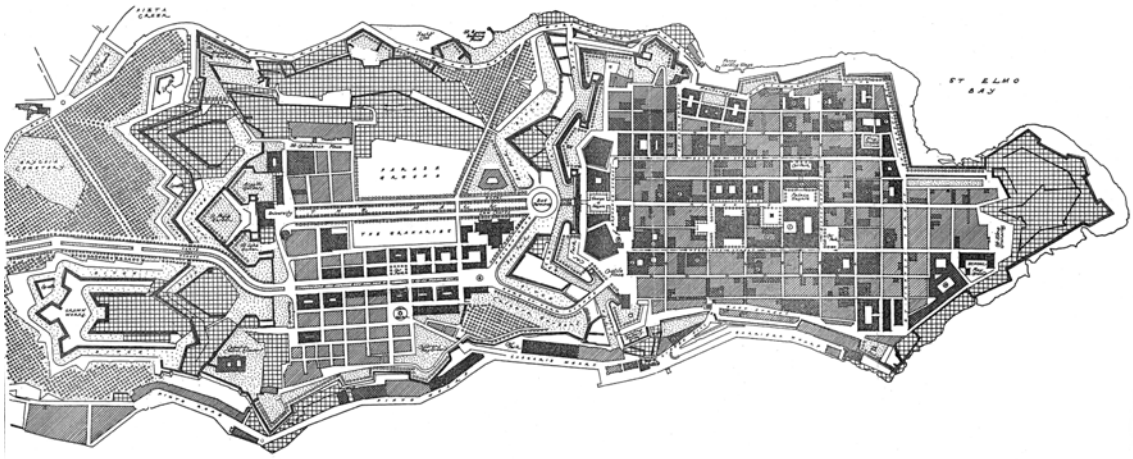


Figure 9. Harrison and Hubbard's reconstruction plan for Valletta and Floriana (1945).

British development, adaptation and conurbation

The British colonial period from 1800 was strongly influenced by the tripartite nature of governance of the military, naval and civil functions (Borg, 2001). These city, port and fort roles affected administrative relations and physical development. British public health standards had a significant influence upon the urban development patterns during the nineteenth and early-twentieth centuries. Damp-proofing and ventilation standards were improved, and a significant change to the form of development occurred in the new suburbs outside Valletta and Floriana where a 'geometric territoriality based on long rectangular plots with varying back-garden space … soon led to the emergence of more regular streetscapes more in line with the row houses of England than the traditional vernacular idiom of the older village cores' (De Lucca, 1988, p. 319). Within Valletta and Floriana there was the incremental addition of the new service property and defences, but the most significant impact resulted from reconstructing the city after the Second World War.

Malta's airfields, and especially the Grand Harbour, were critical for the British, and the main target for the German and Italian powers. Sustained bombardment between 1940 and 1942 caused extensive damage and loss of life in Valletta and Floriana, and the Three Cities of Birgu, Bormla and L'Isla. The events are graphically painted by Ritchie (undated *c*. 1943) and in Monserrat's novel (1973).

The work of rebuilding was immediate. In 1943, before the cessation of hostilities, consultants Harrison and Hubbard were commissioned to prepare a reconstruction plan for Valletta and the wider area around it. Their final report was published in January 1945, and Chapman (2005) has examined the implementation in practice. Figure 9 shows the proposals, including the reconstruction of bomb-damaged street blocks and slum areas; the opening-up of a broad new boulevard through Floriana; a new bus terminus at City Gate; a broad access road to Valletta; and the opening-up of new squares and arcades.

The proposals for Valletta itself were concerned largely with rebuilding, especially of housing, but they also involved opening up new civic squares where bomb damage created the opportunity. Inside Town Gate, Freedom Square was formed, and in front of St John's Co-cathedral a new square was created by the cutting back of the corners of two bomb-damaged blocks. The squares adopted the strictly rectangular form used historically, but with the innovation of a surrounding arcade.

For Floriana the much-widened access road had two very early subways, a series of new building blocks and arcaded shops and cafés, and an expansive circus provided a new bus station in front of Valletta. Their proposals for extension of the gardens were not realized, which was a pity for, as Ganado (1977) says, 'the 'town planners' were the lovers' friends, and wanted Floriana to be surrounded by gardens'.

Abstracting form and space

Having traced the key periods of development it is now possible to consider a macro analysis of the urban form and space. To represent this simply and spatially, an analytical grid and abstract diagram have been used. The grid draws upon the concept of the funnel, sieve and template from McGlynn and Samuels (2000) and is based upon micro-analysis of patterns of form and content. The funnel helps to identify levels of variety at different spatial scales. The sieve entails 'vigorous sifting of a large amount of data in order to isolate the significant … [findings]' (McGlynn and Samuels, 2000, p. 84). These are employed to give an elemental analysis of the main morphological characteristics and regions, including distinctive patterns of urban space, which can be used to help to evaluate new development proposals. It is not seen here so much as a 'template', but as a potential design tool.

From this analysis some quite distinctive characteristics of urban form and space can be found. These are abstracted in Figure 10, and they are briefly summarized below.

Fortifications, both seaward, harbour edge and landward

These are characterized by the scale of the masonry, and powerful fixation lines and 'edges' they produce. The seaward fortifications closely follow the peninsula, creating a high defensive wall with few gateways into the city, and steep level changes between sea level and the city. The two major belts of the landward defences, with deep ditches and earthworks, accentuate level changes and operate as strong fixation lines.

Grids and street blocks

In Valletta these overlay the 'hog-backed' topography of the peninsula, creating dynamic changes in form and space despite the simple layout. The close grain of the grid of narrow, sloping streets creates a distinctive character. The large tall street blocks sometimes comprise single buildings, for example the Auberges of the Knights. Others contain many buildings with a mixture of uses within blocks both horizontally and vertically.

Floriana sits on a flatter plateau and enjoys more convenient gradients for the pedestrian and for building. While the scale of the blocks is similar to that in Valletta, they are set in more expansive spaces and only really come into close relationship with the fortifications on the land front. Thus the character of the place is quite different from that of Valletta. Here it is the open space that predominates in the users experience and, unlike the tighter enclosures of Valletta, there are many more open prospects.

Adaptive reconstruction after the Second World War

This adaptive redevelopment represents a significant change in urban form even though the scale and form of the street blocks were not unlike those of the predecessors: the opening up of space, and the roadways engineered for the motor vehicle, produced a new form and character of space – the boulevard and the 'highway'.

Floriana fringe belt and government property

Within the fringe belt, between the Valletta fortifications and the Floriana suburb, there is a broad area characterized by expansive spaces and relatively low-density independent

Table 1. Summary analysis of the study area at various scales of resolution

<table>
<tr><td>City-Settlement</td><td colspan="6">Collectively the diverse characters of the parts of Valletta and Floriana are subsumed into a powerful form and image. The rugged topography and the ‘build-up’ in the massing of the urban form produce a memorable identity, especially when seen from a distance across the surrounding harbours. The distinct relationships between the built forms and enclosure of public space creates a similar sense of identity within.</td></tr>
<tr><td>Districts</td><td colspan="3">Valletta: dense stone character
The sub-areas in the Valletta core are strongly unified into an identifiable whole.</td><td colspan="3">Floriana: open green character
The sub-areas in Floriana core are characterized by strong contrasts between the large defined street blocks and the expansive spaces around them.</td></tr>
<tr><td>Quarters</td><td>Valletta harbour edges
Powerful stone bastions, harbour edges and accretions.</td><td>Valletta land front and City Gate- Areas forming an identifiable ‘belt’.</td><td>Valletta core
Dense urban form of blocks enclosing tight streets and squares.</td><td>Floriana core
Large scale street blocks enclosing and within expansive space.</td><td>Floriana land front
The glacis, fortifications and the gardens.</td><td>Floriana harbour edges
The bastions have visual character from outside, but not within.</td></tr>
<tr><td>Landmarks and monuments</td><td>The Siege Bell and gun emplacements</td><td>City Gate, and the Cavaliers</td><td>The Carmelite Church and St Paul’s</td><td>St Publius Church</td><td>Porte des Bombes</td><td>N/A</td></tr>
<tr><td>Character-sub-areas</td><td>Fort St Elmo

Marsamxett harbour edges

Grand Harbour edges</td><td>Civic squares within fortifications.
Gardens and spaces on the fortifications.
Ditches and spaces outside fortifications.</td><td>Republic Street – ‘spine’ and linked civic spaces.
Historic street blocks – original form.
Reconstructed areas</td><td>The Floriana ‘suburb’

The Mall and open fringe belt ‘in front’ of Valletta

The ‘government’ property</td><td>Argotti Gardens

The Hornworks

The glacis</td><td>Sa Maison Gardens

The cemetery

The old prison</td></tr>
<tr><td>Green Space</td><td>Upper and Lower Barracca ‘ceremonial’ gardens and linear gardens along streets.</td><td>Hastings Gardens on top of the fortifications.</td><td>None</td><td>The Mall: a promenade garden on the site of the Knights’ exercise area.</td><td>Extensive gardens on and beneath the fortifications, and natural colonization in places.</td><td>‘Hidden’ gardens, the cemetery and the colonized ditches.</td></tr>
<tr><td>Forms of space</td><td>Complex geometries of ‘unplanned’ spaces between core and edge.</td><td>Combination of planned squares and ‘unplanned’ spaces defined by the fortifications.</td><td>Tightly enclosed streets and planned public squares, over dramatic topography.</td><td>Broader streets and larger open squares. Still enclosed and on a flatter plateau.</td><td>Combination of planned squares and ‘unplanned’ spaces defined by the fortifications.</td><td>Open and expansive spaces around core and extending to the edge.</td></tr>
<tr><td>Street patterns</td><td colspan="2" rowspan="2">N/A</td><td>Strict grid within the peninsular edge.</td><td>Strict grid within blocks. New form approach roads.</td><td colspan="2" rowspan="2">N/A</td></tr>
<tr><td>Blocks</td><td rowspan="3">Large, tall and solid rectangular blocks set at the back edge of pavement.

Arcades in some reconstruction blocks.</td><td rowspan="3">Large, tall and solid rectangular blocks set at the back edge of pavement.

Arcades along new approach road to Valletta.</td></tr>
<tr><td>Built forms</td><td>Relatively simple geometries of long curtain walls forming the fortifications.</td><td>Complex geometries of the bastions, cavaliers, and ditches.</td><td>Complex geometries of the bastions, cavaliers, and ditches.</td><td>Relatively simple geometries of long curtain walls forming the fortifications.</td></tr>
<tr><td>Plots</td><td colspan="2">N/A</td><td colspan="2">N/A</td></tr>
<tr><td>Building elements</td><td></td><td>Raking walls, ‘slit’ openings and ditches.
Gandjola (or watch towers).</td><td colspan="2">Stone walls, cantilevered balconies, metal window grills at ground floor.
Arcades introduced to edges of public realm in reconstruction areas.</td><td>Raking walls, enlarged openings, ceremonial gate.</td><td>Raking walls and ‘slit’ openings.</td></tr>
<tr><td>Materials</td><td colspan="6">Predominance of Globigerina (Franka) limestone for fortifications and the buildings.
Harder coralline limestones used for paving and exposed areas.
Numerous timber balconies give distinctive character, but modern materials are intruding in places.</td></tr>
</table>

buildings. Unlike the dense and tight-knit grids and blocks elsewhere, the buildings generally 'sit' in space rather than defining it. And these buildings and spaces date from various periods from the Knights up until today. It is this area that presents the major opportunities for development in the future, and it offers the opportunity to explore the application of urban morphology to inform design thinking later.

Four typologies of space

In addition to the broad morphological regions 'abstracted' above, there are also four typologies of space.

1. The planned and formal spaces within the grids.

The main streets and squares in Valletta and Floriana follow a formal rectangular plan set within the grid, and open spaces are generally formed by a set back of one of the street blocks. With relatively few open spaces, only the main central spine street (now known as Republic Street) has significant width and open space, though a hierarchy of street width and block size can also be identified.

2. The 'coincidental' spaces formed between the grids and the fortifications.

In contrast to the planned spaces there is a wealth of more varied spaces and places. Some were used by the Knights for assembling troops, while others have been adopted as settings for monuments. Where the grid meets the fixation line of the fortifications, some fascinating spaces and relationships are found, with strong enclosure, complex geometries and considerable changes in level.

3. The expansive spaces of Floriana.

Within Floriana space is always more open and expansive than in Valletta. There are similar formal squares, the largest being in the Granaries, and there is also an important linear garden, the Mall, which is on the site of the Knights' early exercise ground. It follows an axis that continues from Argotti Gardens to Fort St Elmo. Together these form a powerful 'spine' that unites Floriana with Valletta along an important processional route.

4. The 'hidden' gardens and green spaces.

While Valletta is generally 'hard', with a few important green spaces, Floriana by contrast has many 'hidden' gardens within it and on the surrounding fortifications. These provide great qualities of form and beauty. Some provide important space for local residents, and others, like Argotti Gardens, are tucked away as botanical gardens. Some are cemeteries and in other places they are simply spaces colonized by vegetation between the bastions. They all have a power of form that responds to, and resolves, the junctions between the complex geometries of the fortifications. In Valletta, the Upper and Lower Barracca Gardens are popular and accessible places for different users; another garden, the Hastings' garden, is a setting for an important memorial.

The hierarchy of landmarks and monuments

Overlying the broad morphological regions there is a pattern of landmarks and monuments, large and small. Principal among the landmarks are the two distinctive churches in Valletta which add dramatically to the form and skyline of the city from across Marsamxett harbour (Figure 4). The first to be constructed was St. Paul's Anglican Cathedral built in 1842, which has the slender spire found in many protestant churches. The second is the Carmelite Church, which replaced the much earlier war-damaged structure between 1958 and 1981. It is located just inland of St. Paul's and it has a massive dome rising high above the Valletta skyline. The ecclesiastical rivalry for visual prominence in the urban form, as a celebration of faith, is clear.

A series of smaller monuments also act as local landmarks, and they give structure and connection to the open spaces and gardens. Interestingly De Lucca (1988, p. 321) notes that the siting of Sir Alexander Ball's monument in the Lower Barracca in 1809 was designed 'exclusively to fit into an 'open' as

LEGEND

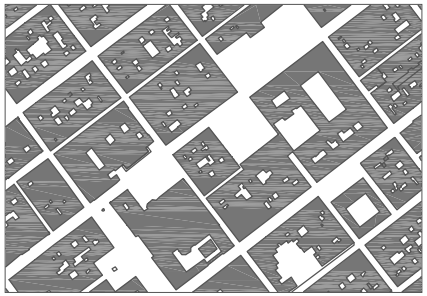
Main fortification lines

Building blocks

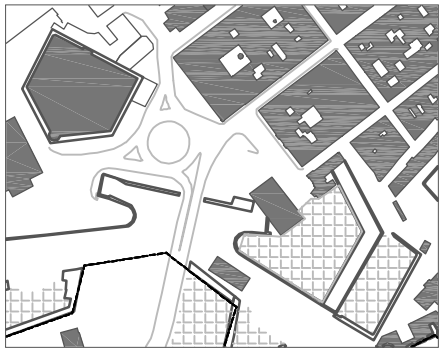
Main gardens and green space

Main access roads opened up by reconstruction

Open spaces



Examples of the formal spaces within the dense grid of Valletta's street blocks.



Examples of the coincidental and open spaces between the grid and the fortifications.

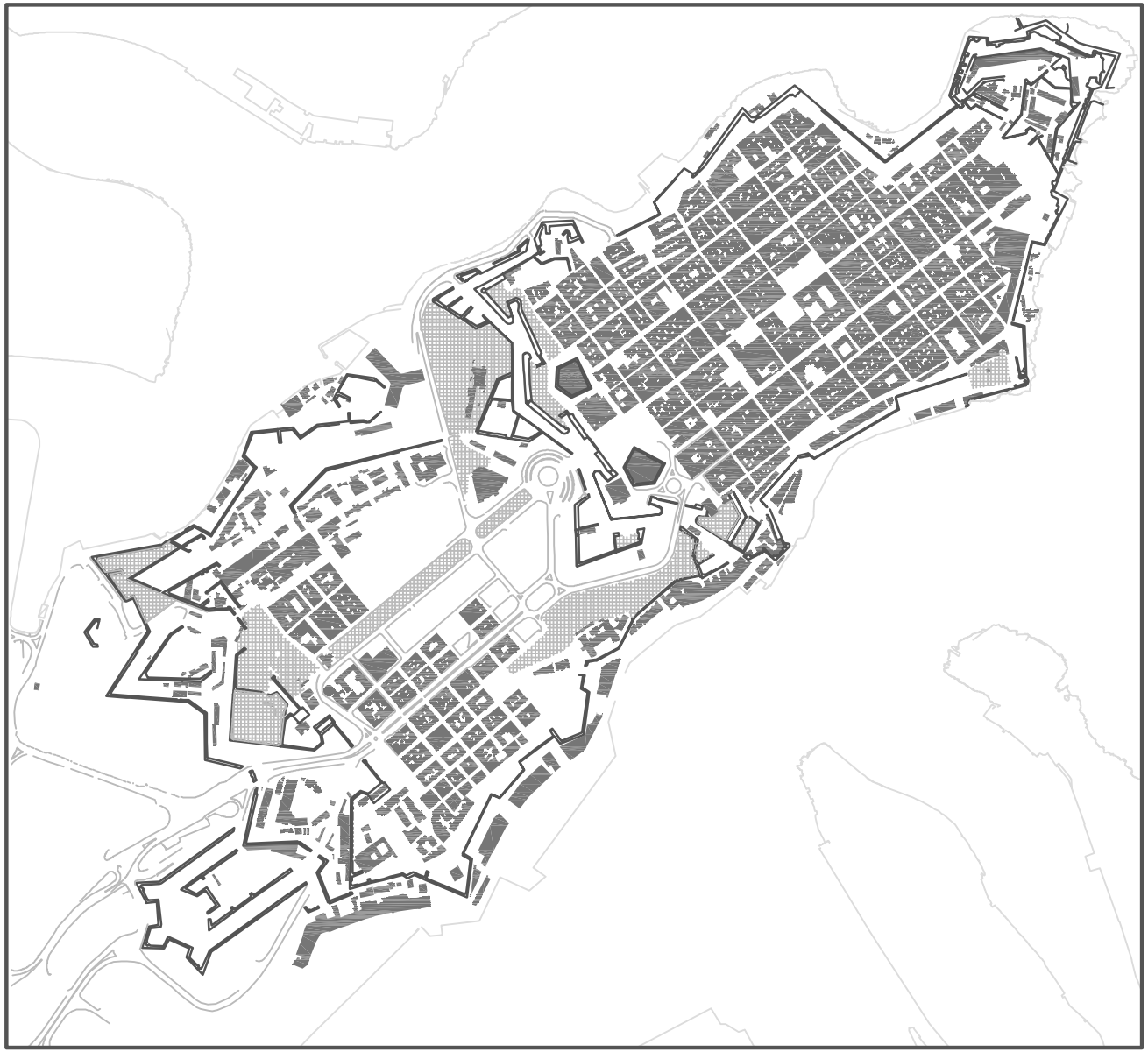


Figure 10. The main morphological complexes.

Figure 11. Valletta landmarks. Photograph by the author, 2005.

opposed to a 'closed' context, thus militating against the baroque ideal of integration between buildings and subservient surrounding space'. This example of the influence of English neo-classical ideas upon the nature of urban form and space reveals a lot about the origins of the contrasting morphological elements.

The significance of coincidence

Two 'coincidences' can be identified in the urban forms of this study area. First, there is the coincidence between the grid of development and the topography, and secondly there is the coincidence between the grid and the fixation line of the fortifications. The discovery of these coincidences is not new, and von Meiss (1990, p. 47) identified two 'types of contradiction in groupings of urban ... forms', one 'accidental' and the other 'dependent on the process of composition'.

The study has also indicated the importance of the nature of open spaces in creating distinctive qualities of both urban form and place, and two typologies of space, the planned and the coincidental, are identified. The formal squares within the grids contrast sharply with the spaces created by the coincidences between the rigid grids of streets and blocks on the one hand with the complex geometries of the fortification lines on the other: here serendipity creates many happy accidents of space. Spaces that can be perceived and experienced as distinctive places in a coherent, although coincidental, belt that is formed between the two powerful morphological forms.

The three-dimensional coincidences are also significant, as the generally common building heights, when overlaid upon the distinctive and pronounced topographical form, produces almost continuously changing relationships of forms and spaces. The few powerful landmarks punctuate this undulating fabric, giving identity, legibility and distinctiveness.

'Complexes' of urban form: lessons for urban design and management

Having considered the macro urban morphology of Valletta and Floriana, it is instructive to examine the lessons for contemporary urban design. In doing so it is also useful to consider the lessons of the reconstruction work after the Second World War.

Lessons from the past

The implementation of the reconstruction plans produced by Harrison and Hubbard (1945) has been examined by Chapman (2005), who concluded that the consultants rapidly developed a scholarly appreciation of the Maltese culture and environment, and that much of their work drew directly upon the urban forms that they found there. This is clearly shown by Garret's analysis (Figure 7), where the new blocks adopt and extend the historic grid. But it was also evident that they introduced some significant innovations, including opening up new squares and introducing arcades along the primary active edges for streets and squares. This helped to retain the urban form relationships between blocks, while also opening up space at the ground level. The approach was popular in UK reconstruction plans of the same period, and the results in Malta were very successful. However, these innovations in Malta were always strongly contained within the historic grid of streets and blocks. The consultants did, however, introduce the completely new 'engineered' form for the primary vehicle routes.

Chapman (2005) also noted that where the consultants carried their plans through to implementation the results were generally very good, but when implemented later and by others, the results were generally far below the original design intentions. The difficulty of communicating the 'understanding' of design strategies from originators to implementers was seen as a major contributor to this problem.

From further analysis of the outcomes of their works it is also now concluded that, where reconstruction built upon established patterns of form, for example the faithful extension of the grid of the Floriana suburb, far more successful results were achieved than when new patterns were adopted. This was particularly so where new layouts were 'adjusted' to the fortifications, rather than to celebrate the character and diversity of the coincidental relationships that might be formed.

Lessons for the future

The fortifications of Valletta have been designated as a World Heritage Site and the power and distinctiveness of their form deserves to be maintained. The combination of powerful masonry and defensive geometries produce impressive forms and spaces, but some later accretions obscure the clarity of that form, and many of these deserve to be removed. With an analysis of morphological features and the assets of the World Heritage Site this should now only be a matter of time.

The main area of potential future change, and where the lessons of this study may usefully be applied, is along the north-west side of Floriana, where a strategy for development has been commissioned (Tibbalds Monro, with Gardner Stewart, 1995). The consultants' report offers many insights, and though they have clearly learned from the context, further research and analysis could enable the proposals to be refined even further. A copy of the proposed layout for the area is illustrated in Figure 12 and, as can be seen, the proposals do extend the grids of the street blocks in many ways. The proposals also utilize the arcade, square and courtyard as design tools that are very sensitive to the Malta context (Figure 13). But there are also features of the illustrative master plan that could be refined and developed further with reference to the existing com-plexes of urban form and space.

Two key areas could benefit from development at the strategic level, and both relate to the lessons that can be seen from the experience of reconstruction. The first is the impact on form and space of adopting curvilinear and engineered patterns for the principal vehicle routes. The second is the *ad hoc* accommodation of the building blocks to the lines of these roads and the geometries of the fortifications. With a more definite use of the form and grid of Floriana, and with relatively few changes to the road layouts, the coherence of the suburb and the variety of coincidental spaces around it could be enhanced.

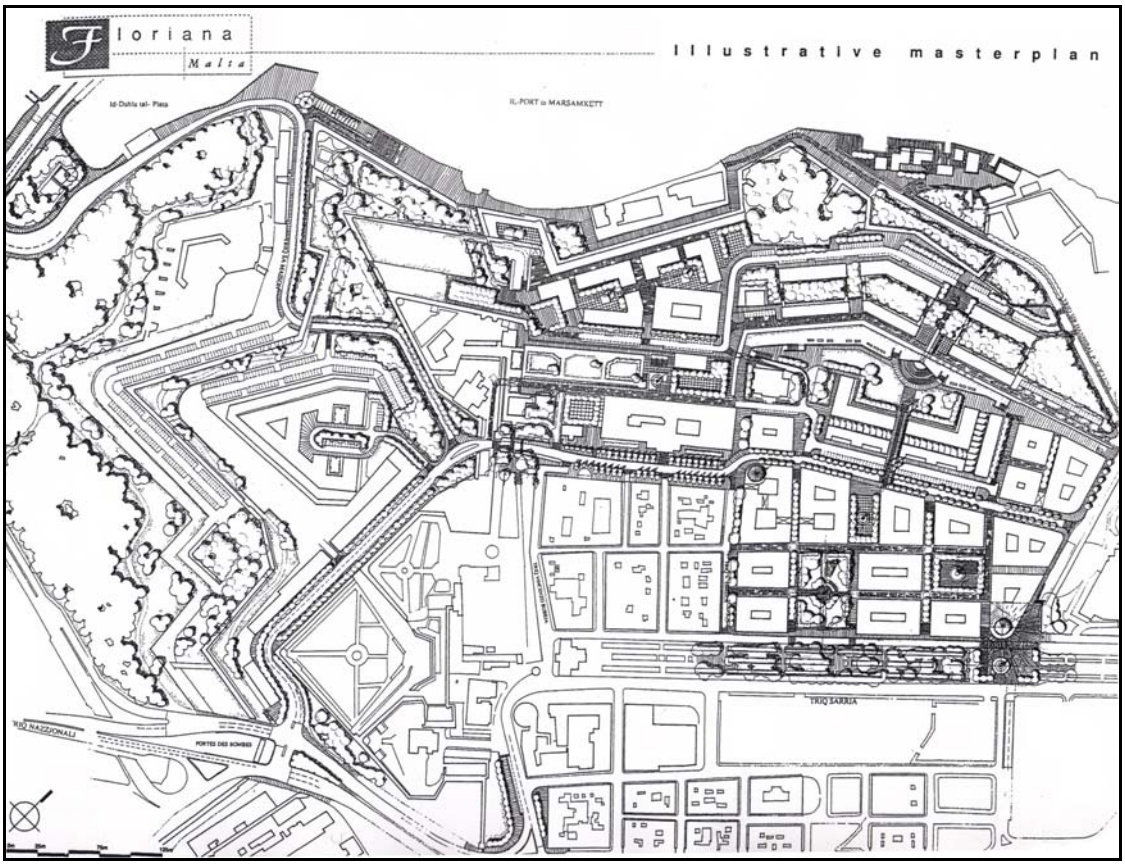


Figure 12. The illustrative masterplan for Floriana (Tibbalds Monro and Gardner Stewart, 1995).

Conclusions

Although the conclusions here are specific to Valletta and Floriana, the value of urban morphology for conservation and reinforcement of urban form more generally is clear. The work of Kropf, McGlynn and Samuels, Hall and others has shown that urban morphology can support character appraisal as well as design, conservation and contextual policies. But it is important to note that urban morphology can potentially, just like Cullen's approaches to analysis developed in *Townscape* (1961) and *notation* (1968), be used as an innovative design tool – a tool that builds upon deep appreciation of existing urban forms to create exciting new 'chance relationships' in urban form and space. Thus the findings here do suggest practical ways that analysis of urban form can contribute to future urban design and development planning more significantly and widely.

In practice, such appraisal is still in no way the norm and, as Rouse (2004) claims, there are too many 'plans where the model seems to have dropped from the sky'. Much more needs to be done to engage in more scholarly analysis and understanding of urban form and qualities of place. It is only with this understanding that it is possible to intervene, even if the designer, as Lynch (1971) observes, eventually decides to cut across the grain of the place.

It is not possible to fully elaborate the analytical methodology within the scope of this paper, but it is clear that the scale of analysis selected to identify the macro components, and their interaction, is critical because it can help in defining the qualities of both planned and unplanned places. The importance of abstraction of this analysis for application to design has also been demon-

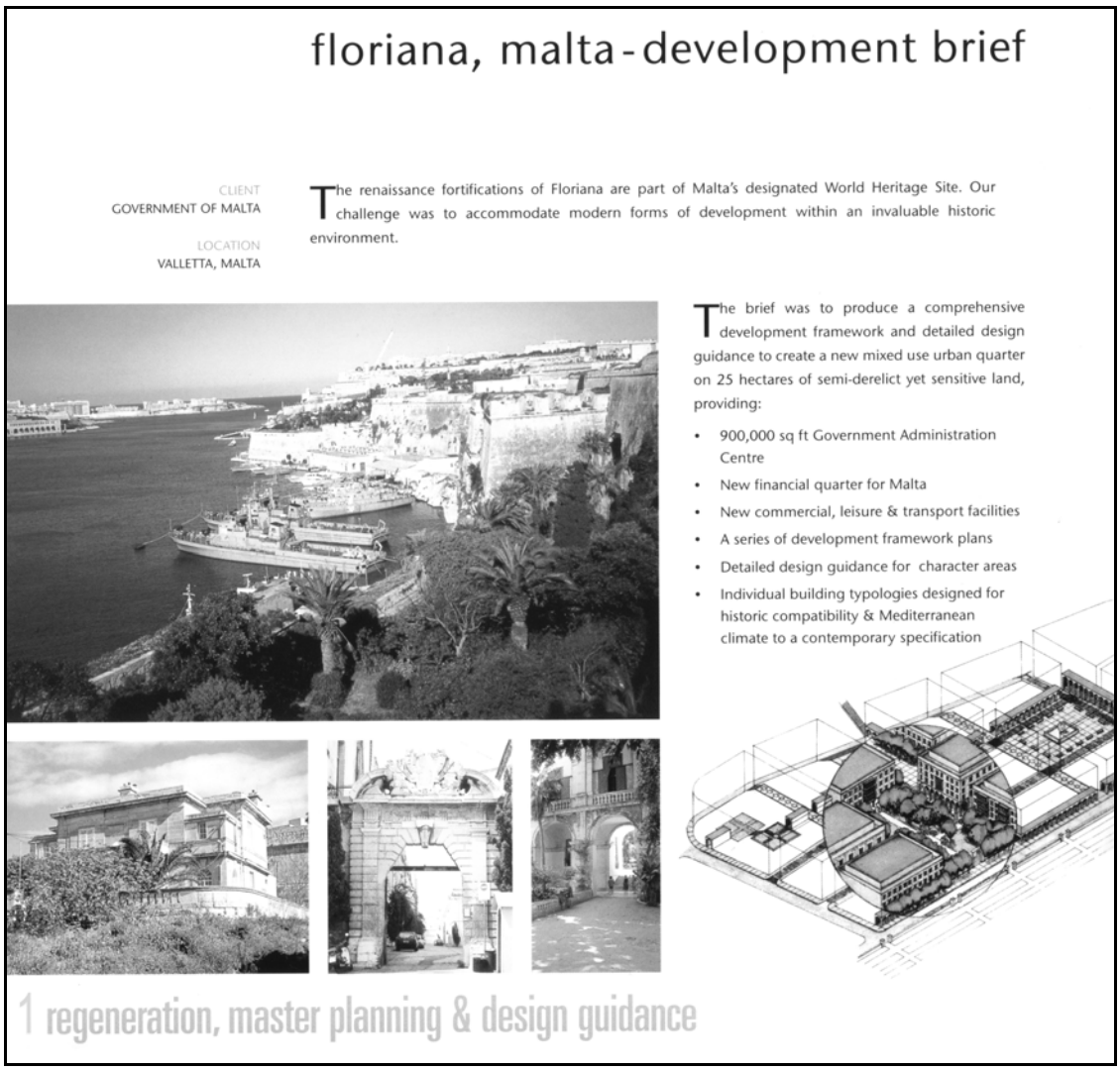


Figure 13. An extract from a promotional brochure illustrating the Floriana Development Brief (Gardner Stewart Architects and Masterplanners, undated *c*. 2003).

strated, but it is the potential of utilizing the results of analysis as an innovative design tool that is most significant. A key conclusion is that relationships between different morphological components, existing and proposed, can be utilized in achieving quality in coherence and variety in urban form and space, and critically the creative power of coincidence has much to offer in producing new and diverse urban forms. More work and individual design creativity will be needed to translate the potential into reality through the exploration of design method and decision-making, but it will be worth the effort. And it is important, for as Sitte (1898, p. 52) said, 'modern town planning has … not had much luck with irregular design'.

Acknowledgements

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M.W. Beresford

The death has occurred of Professor Maurice Beresford at the age of 85. He was primarily an economic historian, occupying the first Chair in that subject in the University of Leeds, in 1960. However, he was always interested in the evidence provided by the landscape, whether urban or rural.

He became well known to historians of settlement form for his pioneering work on the deserted medieval village of Wharram Percy (Yorkshire), together with the archaeologist John Hurst. Over some 40 years they jointly directed annual archaeological seasons which, in addition to valuable insights into the form and history of the village, trained several generations of UK archaeologists.

The development of the medieval urban network was an early research interest. Using documentary sources he was able to chart the 'plantation' of new towns in the high-medieval period, noting their relationships to phases of conquest (for example in Wales and Gascony) and remarking on their regularities of form – 'straightness as the mark of the town-planner', as he later said (1985, p. 13).

However, of more direct relevance to urban morphologists, Beresford had a long-standing interest in changing urban form. Work on documentary sources led to significant work on the back-to-back housing types of Leeds, and to a major monograph on the outward expansion of Leeds in the Georgian period. Together this work demonstrates processes of piecemeal, incremental changes from agricultural to urban landscapes, and how the industrial-era residential townscape was shaped by field and property boundaries: a 'morphological frame'. He was also deeply aware of the processes of incremental growth of institutions such as universities and, in studying his own, he made some interesting observations on the colonization of formerly public and residential places. In his work on Leeds he related economic processes of booms and slumps to the development of the urban landscape.

Like others of his generation his published output was less than is currently fashionable: he had a habit of 'making bricks only when I detect abundance of available straw' (1985, p. xii).

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