

DESCRIBING TRENDS IN URBAN DESIGN

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Urban design, in common with all other design disciplines, is a constantly evolving phenomenon. Developments in the discipline, regulatory and market change all impact on the design of places. Urban design can, however, take a long time to come to fruition. Large scale projects commonly take 20 years or more from design to completion. In this time, new thinking and regulatory change is likely and the market can go through as many as three cycles. As changes in the discipline occur they are often unacknowledged and even unrecognised. Consequently, a methodology for tracking developments in the discipline as they emerge would be beneficial.

This research project was originally intended to discover these recent and emerging trends. It soon became apparent that a descriptive methodology would be required in order to make meaningful comparisons. As un-built or incomplete urban design could not be realistically assessed on a qualitative basis, it would be necessary to describe and compare designs using only quantitative factors. In reviewing the literature, however, it was surprising to discover that there was no such common methodology. This research project had, therefore, to begin with an attempt to develop a vocabulary and descriptive methodology.

It became apparent that a common descriptive vocabulary would not only allow quantitative trends in plans under development to be detected but could act as a base for the qualitative assessment and comparison of existing successful and unsuccessful places. Indeed, without such a vocabulary it would not be possible to identify with any clarity factors which have an impact on quality. For example, if one place is successful and the other is not and they both share an orthogonal grid, the orthogonal grid on its own will not be a critical factor in the success or failure of these places.

The descriptive methodology has, therefore, the capacity to be a stand-alone study that could have wider applications across the master planning and urban design disciplines.

As one of the primary objectives was to understand current trends in urban design, the research concentrated on recent plans. In order to develop a physical description it was necessary to identify a representative sample of up-and-coming master plans. It is hard to know if available plans represent a reliable sample so the research relied on quantity. As current plans are almost always published on the internet, a sample of 350 plans from 1990 to 2010 was taken largely from an internet search. Figures 1 and 2 indicate the geographical spread of the origins of the plans and the date range. While it has not been established whether this sample is proportionally representative of current practice, if the descriptive method could be applied satisfactorily to all examples, it should be valid.

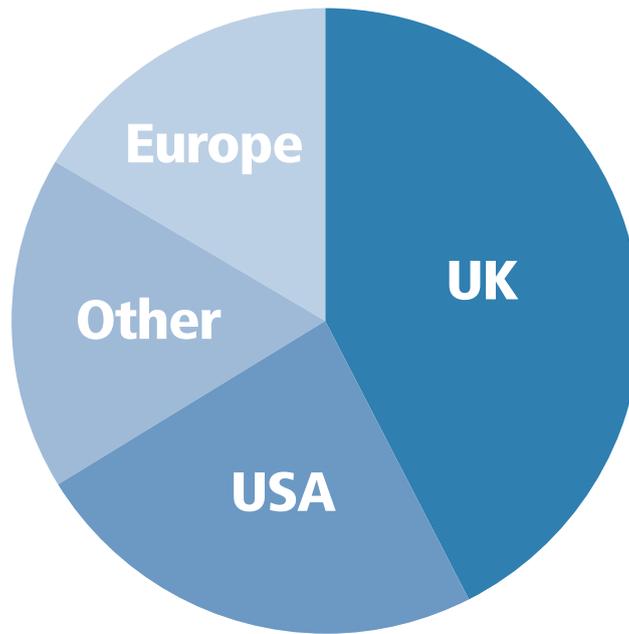


Figure 1 - Location of examples

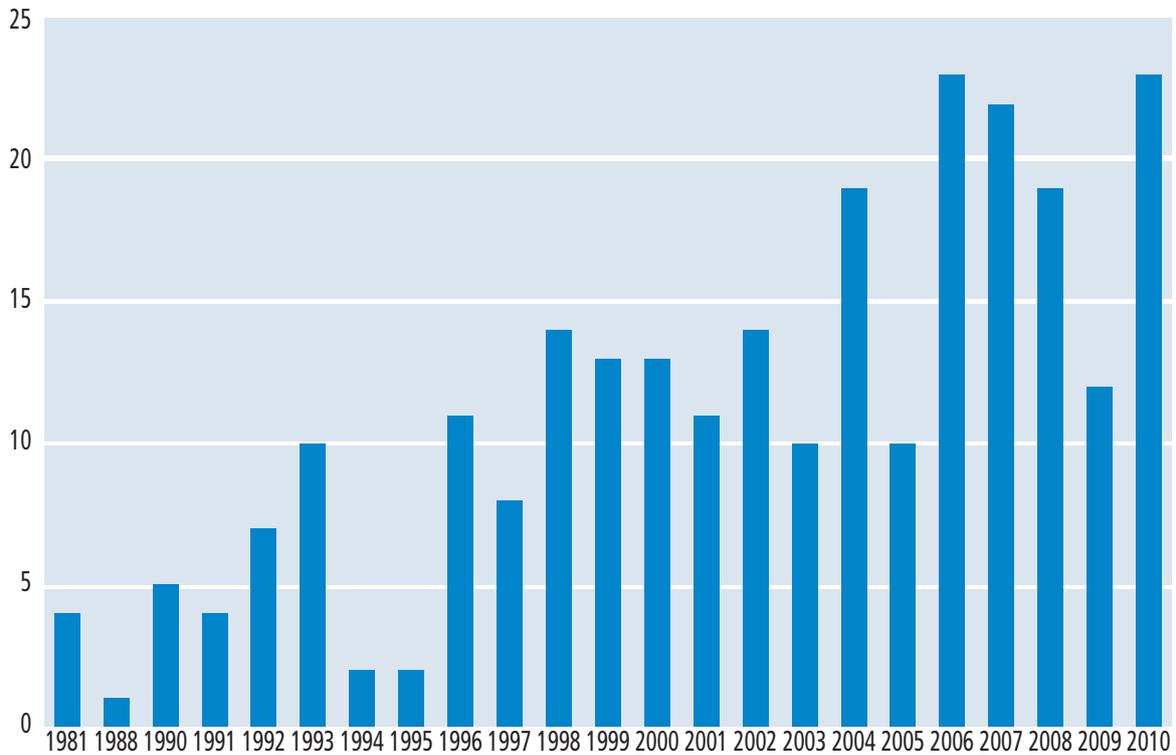


Figure 2 - Date of examples

First of all, a master plan had to be defined and limited. It was decided that a master plan should be a minimum of 5 hectares, have some mixed use and have more than one final developer or phased development.

Following discussion between the research group and peer-group review, specific descriptive attributes were reduced to 39, grouped in 9 categories. These attributes were tested for their descriptive efficacy but the methodology is open ended and if the descriptive vocabulary is inadequate for particular comparisons further attributes can be added. The categories and attributes are listed in figure 3.

Plan Type	Permeability	Density	Network Articulation
1. Orthogonal Grid 2. Radial Grid 3. Clashing Grids 4. Distorted Grids 5. Grid with Diagonals 6. Townscape 7. Townscape Organic 8. Unbounded 9. Olmstedian Grid 10. Olmstedian Suburb 11. Stem Pattern 12. Multiple Plan Type	1. Intersections per hectare 2. Connectedness	1. Height 2. Built Form per hectare	1. Street Pattern 2. Central axis/feature 3. Boulevard 4. Avenue
Block Articulation	Building Articulation	Use	Context
1. Irregular Block 2. Rectilinear Block 3. Curved Block 4. Partially Closed Block 5. Perimeter Block 6. Super-block 7. Circular Block	1. Row 2. Detached Dwelling 3. Solitaire 4. Ribbon	1. Residential 2. Mixed Use 3. Zoned	1. Contained 2. Extension 3. Greenfield 4. Infill 5. Size Relative to Whole

Figure 3 - Attribute Categories

The descriptive attributes were wherever possible given numerical or measurable values.

The **Permeability** category is measured by the *Intensity of Intersections* from high (more than 10 per hectare), through moderate (more than 2 but less than 10), to low (less than 2).

The **Connectedness** category measures the average distance between intersections and has five types from very low (an average of more than 200 metres between intersections) to very high (less than 50 metres between intersections).

The **Density** category is given two forms of measurement. Heights are measured with four average height bands across a plan from 3 storeys or less to more than 8, with a mixed storey height of at least three categories. This is read alongside the average quantity of square metres per hectare to give a measure of *Built Form per Hectare*.

In other categories there is no comparative measurement but there are unambiguous descriptive attributes.

The **Use** category is divided into *Residential* (more than 80%), *Mixed-Use* and *Zoned*. Further attributes could be added but all the master plans examined had some and often mostly residential uses.

The **Context** category is similarly divided into clearly-observed attributes, although there could be some ambiguity at the margins. These are plans that are *Contained* within an existing settlement, *Extensions* to settlements, *Greenfield*, and *Infill* which are insertions with no overarching new plan type. To these are added a measurable percentage of new built area to existing, with *Greenfield* registering as 100%.

Finally, some categories require more judgement in their categorisation. These were refined to ensure that they were as clear as possible to minimise choice while retaining sufficient range to make meaningful comparisons.

The **Plan Type** category has five grid types, three more organic types that cannot be described as grids and a final *Multiple Plan Type* where different types have been combined in a single plan. It was found that Plan Types required a further level of description under a **Network Articulation** category, which describes the attributes of the street layouts. These start with the *Street Pattern* measured by a mix of widths and go on to include other distinctive street types such as *Boulevards* and *Central Features*.

A similar descriptive series of attributes go down to the scale of urban block under the **Block Articulation** category. Eight block types were identified based on their geometry and the organisation of buildings within them. Beyond this, the **Building Articulation** category goes down to the smallest scale used in this methodology and distinguishes between collective building groupings such as *Rows* or terraces and the *Solitaire* or isolated building.

Further levels of detail such as building design or materials were felt to be too site-specific, complex or subjective to be useful in comparisons between master plan types. It is acknowledged that these finer details often make a significant positive or negative impression.

After refining the descriptive methodology such that it could describe and distinguish between the master plan samples, it had to be tested to see if it could yield useful results.

In order to make meaningful comparisons between sets of masterplans the sample has to be representative in range and quantity. To establish the correct sample range to accurately detect trends and differences would require further research beyond simple currency. The tests undertaken do not have the benefit of such research, with one possible exception, and are meant only to test the methodology with relatively small samples.

The first sample had an expected outcome based on empirical observation. In comparing masterplans from the USA and Europe it was anticipated that there would be more orthogonal grids in the USA, this being the established type. A comparison of 40 plans did indeed reveal this difference and, in addition, indicated a greater number of Olmstedian types in the USA and Townscape plans in Europe, also likely outcomes based on observation of US and European urban development. See figure 4.

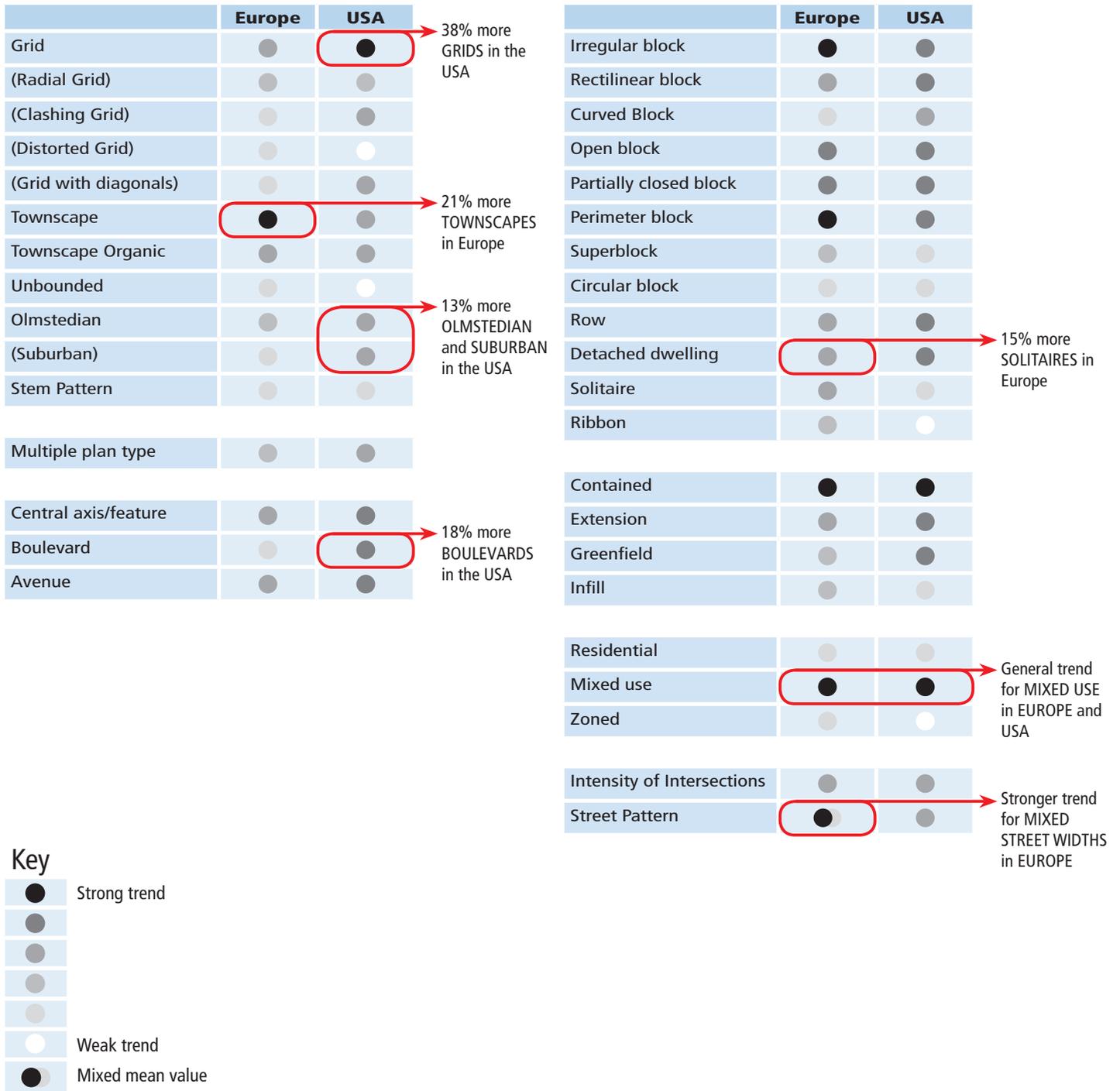


Figure 4 Masterplans from Europe and USA compared

An analysis of plans by architects identified in the media as 'starchitects' was expected to reveal more Unbounded plan types associated with the display of Solitaire buildings. Examination of 20 examples did produce this outcome but there was no other clear bias in Plan Type attributes. See figure 5.

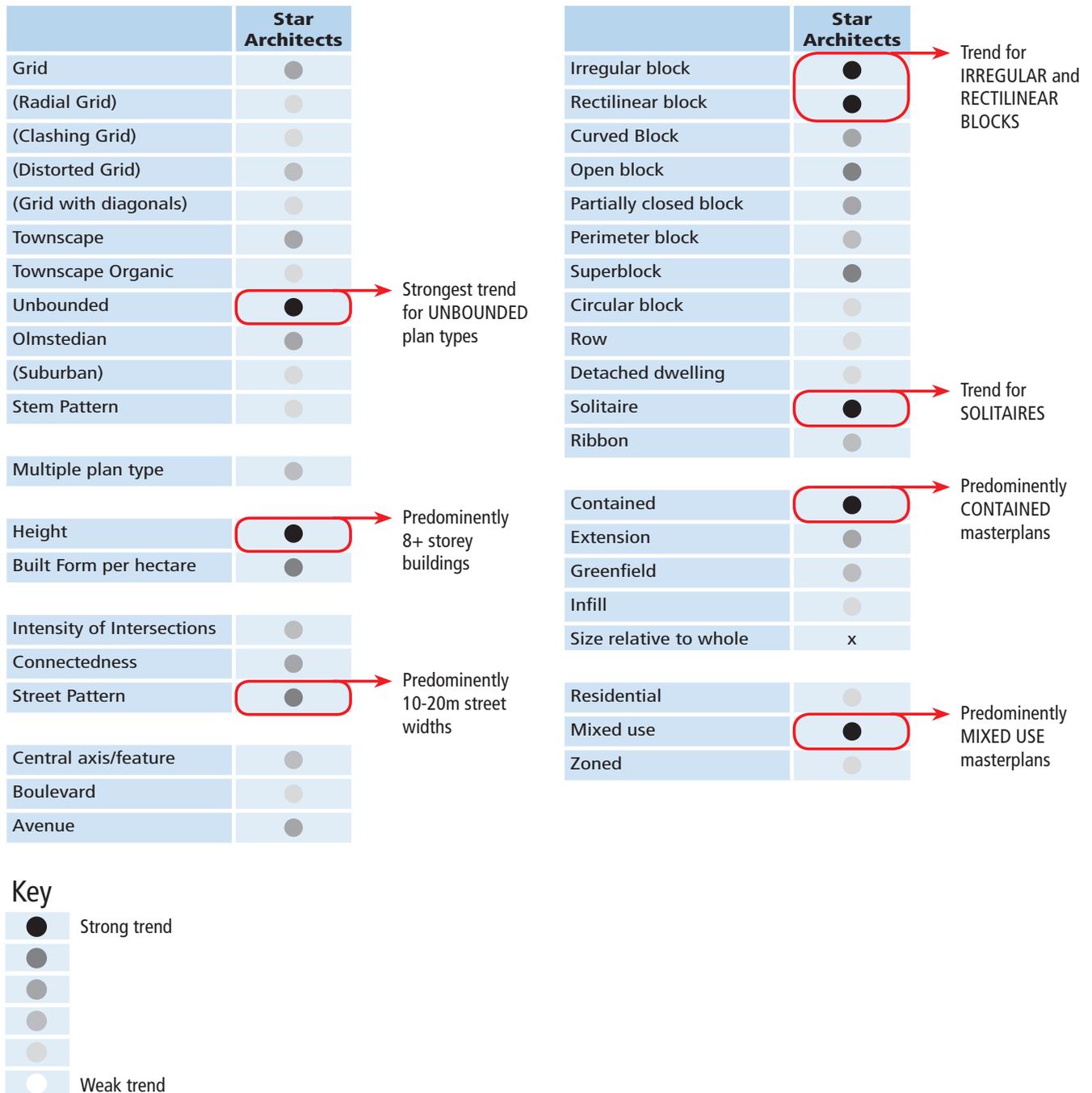


Figure 5 Masterplans by starchitects analysed

An analysis of 10 UK plans from 1996 and 2006 had no anticipated outcome. This small sample identified a marked increase in the Orthogonal Grid, Perimeter Blocks and Mixed Street Widths. See figure 6.

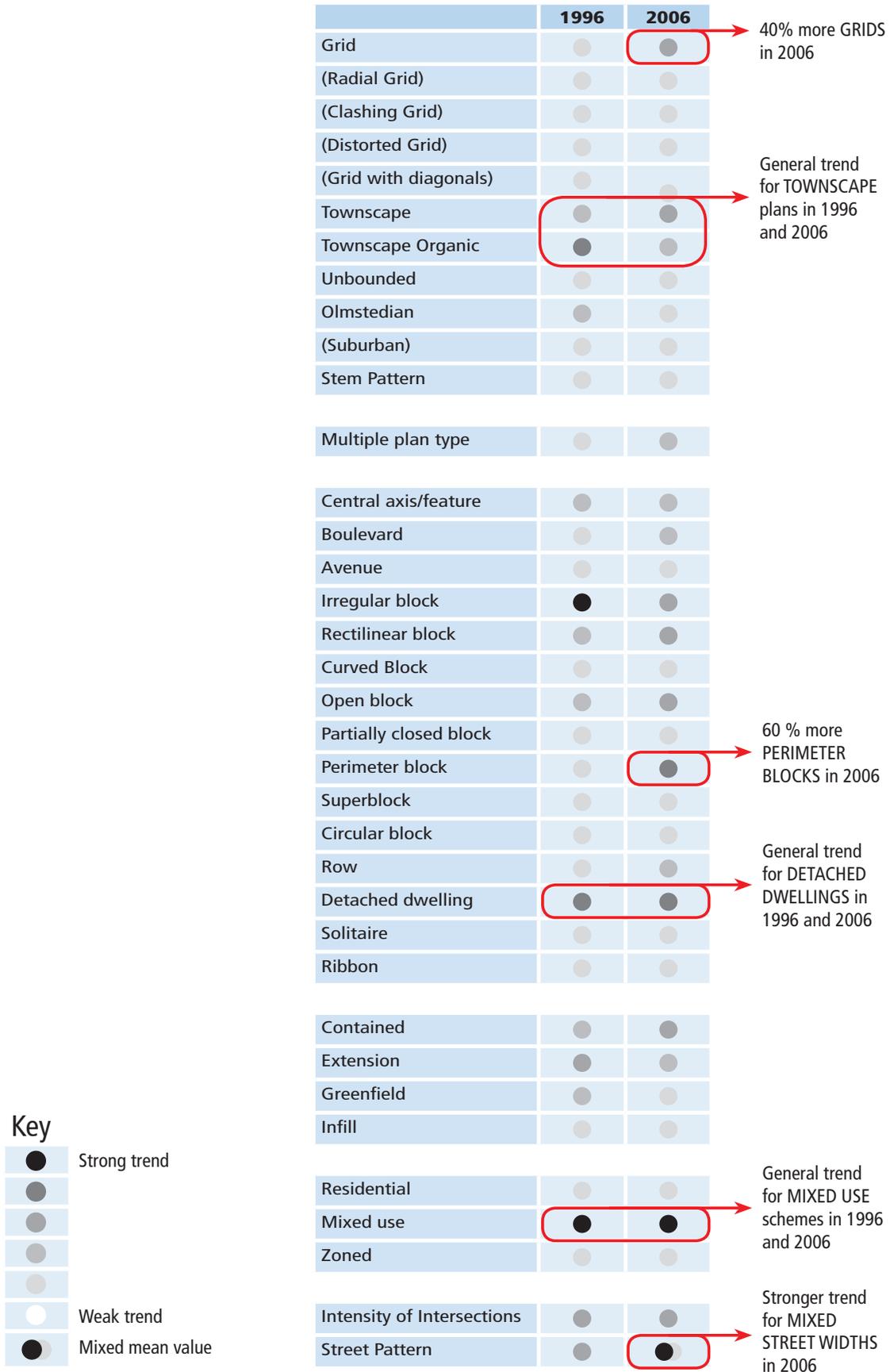


Figure 6 Masterplans from 1996 and 2006 compared

Perhaps the most representative sample tested was that of New Urbanism as this is an ideological movement, well published, with relatively small numbers and self-identified practitioners. It was decided to test the difference between New Urbanist plans in North America and in other global locations as this is an American-originated movement that claims local distinctiveness. A geographically dispersed sample, both in North America and globally, of 40 plans showed very little difference based on location, with the unexpected outcome of more Mixed street patterns outside the US and narrower street patterns in the USA. See figure 7. On the basis of urban structure only this seems to indicate that New Urbanism is a universal plan type that is applied in all locations.

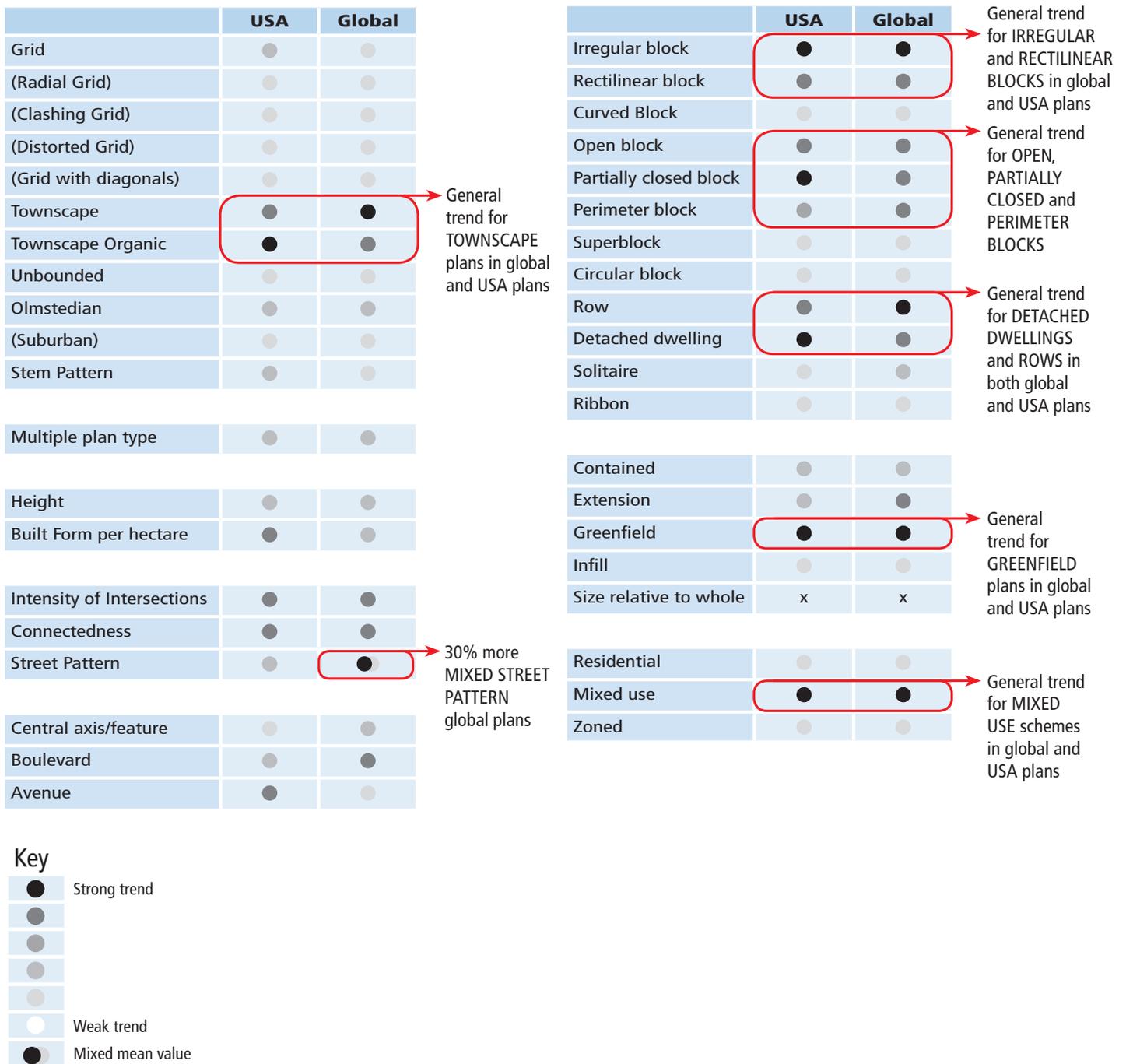


Figure 7 Masterplans defined as New Urbanism in the USA analysed

The descriptive and comparison methodology from this research seems to be capable of giving meaningful results by identifying similarities and differences between groups of master plans. It could have wide potential applications from (as originally intended) detecting trends in recent and incomplete plans, to providing quantitative descriptions of existing plans to identify the form-based factors that underlie the success or failure of the plan. It would benefit from further work with fully-researched comparative samples.