The Prince's Foundation

FOR THE BUILT ENVIRONMENT

Noel Isherwood BA (Arch) AADipl
Poundbury Representative
The Prince's Foundation for the Built Environment is an educational charity founded by HRH The Prince of Wales to:

improve the quality of people's lives by teaching and practising timeless and ecological ways of designing, planning and building.

One of 24 charities for which the Prince of Wales is President, together comprising the largest multi-cause charitable enterprise in the United Kingdom.
Low Carbon Buildings and Communities

The Nature of Living

Noel Isherwood
Low Carbon Buildings and Communities

1 Climate Change: & standard models

2 Low Carbon Building: At the scale of the house

3 Low Carbon Building: At the scale of the neighbourhood

4 Low Carbon Communities: At the scale of the region

Noel Isherwood
1. CLIMATE CHANGE - approximations

REDUCTION IN CARBON EMISSIONS BY 2025 ï 60%

Source: Intergovernmental Panel on Climate Change 2002
1. climate change influences and effects of

Tewkesbury, July 2007
CO2 by sector and approximations

TRANSPORT & BUILDINGS MAKE UP 60% of all Carbon Emissions

Note: estimates do not include non-technical options, such as lifestyle changes.
Quarter/ halve emissions with 3 billion more people?

Reducing Carbon footprint 80% by 2050?
Global resources

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The Long Emergency: James Kunstler
The recession we are in right now is going to be very grim but nothing like as grim as the recession that awaits us if we don’t start living within our means.
The five capitals framework

Ref: Porritt, J: *living within our means*; Forum for the Future, March 2009
Built environment sustainable capitals

• **Natural**: ecosystem balance
• **Human**: employment, education, service provision, personal, emotional, spiritual
• **Social**: public realm, relationships
• **Manufactured**: buildings, transport, communications, energy, infrastructure, appropriate technology
• **Financial**: funding mechanisms, location, efficient mortgage
A VISION OF BRITAIN
Basildon Estate: no natural surveillance
Abstractions

The Radburn Plan
1928

Separation of vehicles and pedestrians
Abstractions

Plan Voisin (Paris) - Le Corbusier
Abstraction of suburbia

Sprawl = use segregation
Abstraction of professional education

1. Professional Silos:
2. Zoned Uses and social segregation
3. Rectilinear planning: Set squares, CAD and Cars
BACKGROUND

WDDC Council Resolution
- 8th June 1988

“....That the future Development Needs of Dorchester and the immediately surrounding area be met by a Limited Development at Herrison Hospital and by expansion of the town westwards....”
I’m hoping to put some of these principles into practice in Dorchester. The holiday traffic pounds through the centre of the town, so they’ve built, at long last, a ring road. Between the ring road and the town centre there are about 350 acres of Duchy of Cornwall land, into which West Dorset District Council is anxious for the town ultimately to expand. They’ve asked the Duchy for a long-term development plan.
Zoning; Car dependent; Abstract
‘Just like invasive species, they are invariably introduced with good or at least benign intentions, by planners, towns councils or governments too much in awe of big business. But then they prove to be hungry, indiscriminate, antisocial and destructive. When no one is paying much attention, the superstores and chain shops grow to dominate and suffocate the economic ecosystem’. Andrew Simms
‘There is a quality even meaner than outright ugliness or disorder, and this meaner quality is the dishonest mask of pretended order, achieved by ignoring or suppressing the real order that is struggling to exist and to be served’.

Jane Jacobs
DIAGRAM of EXISTING ROADS

CONGESTION of the HISTORIC CENTRE THROUGH TENTACULAR SUBURBS

DENSITY of VEHICULAR CIRCULATION

SLAUGHTERED, POLLUTED COUNTRYSIDE

CONGESTED SYSTEM
NOT THE CAR BUT THE SUBURBAN HOME IS THE DEADLY WEAPON

DAILY SUBURBAN MORTARFIRE AGAINST URBAN CENTERS

© Léon Krier
Barriers to walking
Obesity rates

$3 \times$ USA, 1976 - 2006

Source: Centers for Disease Control and Prevention, USA

15% UK, 2003 - 2010

Source: UK Department of Health
Lower obesity

35% (Frank et al., 2004)
Fewer chronic medical conditions

25%  
(Sturm & Cohen, 2004)
Factors influencing walking

Density

Distance

Design

Mixed use
CITY & PARASITE

CITY WITHOUT SUBURB

CITY WITH SUBURB

SUBURB WITHOUT CITY

© Léon Krier
Public places  Objects in space

Collage City by Colin Rowe

Sustainable urbanism  Unsustainable suburbia - Sprawl

Florence, Uffizi, plan

Le Corbusier: Marseilles, Unité d'Habitation, 1946, site plan
Objects in Space -
‘Iconic architecture’
Reasons for visiting places in London, Penang?
Unsustainable ſustainabilityò
DOMESTIC & CIVIC SCALE QUALITATIVE OR QUANTITATIVE

HOUSE  SCHOOL  CONCERT HALL

Copyright Leon Krier
2. LOW CARBON COMMUNITIES: Scale of House

Simple and robust v Complex and fragile
2. **LOW CARBON COMMUNITIES:**

At the scale of the House
Materials

Design that uses materials that are, wherever possible, indigenous, have a natural harmony with the landscape, and which are selected with care to ensure they improve with age and weathering.
A Timeless and Ecological Way of Planning, Designing and Building

Noel Isherwood
Poundbury Representative
Princes Foundation
Building to Last / Craftsmanship

Building robust, ecological and beautiful buildings to last: High thermal performance, low impact organic materials, minimising complex systems, easy patch and repair, craftsmanship and ornament.

- Robustness
- Thermal Performance
- Ecological
- Weathering
- Maintenance
- Thermal Mass
- Carbon rating
- Less oil based products
- Low Embodied Energy
The Prince’s Foundation is working with Tsinghua University to develop a regeneration strategy for the Dai Shi Lan hutong district of Beijing, preserving its sustainable form and relieving overcrowding and lack of sanitation and other facilities.
2. LOW CARBON COMMUNITIES at the scale of the house:

THE NATURAL HOUSE:
Core Principles of the Project

- Low impact, Long Life
- Reducing community footprint
- Deliverable & Desirable
- Simple & Replicable
Dense, urban, replicable?
BRE House precedent ï paired houses
Organic, simple and thermally enhanced - THE NATURAL HOUSE

Building to Last - THE NATURAL HOUSE
The Prince’s Foundation has been working with local partners in Rose Town, a neighbourhood plagued with gang violence, to:
- Restore civil society
- Develop a neighbourhood master plan
- Create a mixed use economic revitalisation strategy
In Jazan, Saudi Arabia, The Foundation held an Enquiry by Design for a mixed-use, mixed-income neighbourhood in December 2007. The project, on land owned by The King Abdullah Foundation, will reintroduce principles of traditional architecture and urbanism to the Kingdom.
### 3. LOW CARBON COMMUNITIES: at the scale of the neighbourhood

**A: PLACEMAKING: a sense of place**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High quality urbanism that creates definable streets:</td>
<td>Streets that display a legible hierarchy with appropriate dispersal of building densities/uses/typologies to the nature of the street with building height contributing to street character.</td>
</tr>
<tr>
<td>Well integrated open space:</td>
<td>Open space provided should be distributed should be designed to have a clearly definable use and long term management regime, as well as being easily accessible.</td>
</tr>
<tr>
<td>Sustainable Buildings:</td>
<td>There should be some consideration to the provision of sustainable buildings, with aim of meeting a minimum of BREAM Ecohomes good standard.</td>
</tr>
<tr>
<td>Architectural Quality:</td>
<td>The scheme’s architecture should respond to its context in style, scale and choice of materials.</td>
</tr>
</tbody>
</table>
PLACE MAKING: Why is it important?

Leon Krier: Learning from Traditional Urbanism
Place - Making

‘Urbanism is about complexity and connectedness…

Â Raymond Unwin was an architect
Â John Noland a Landscape Architect
Â Harland Bartholemew Traffic Engineer

All wrote on urban design 1900’s – all had everything comprehensively in mind’

Andrés Duany CNU 2008 - Lecture
Muscle Power - health and quality of life vs Cars, Fossil Fuels - Obesity and frustration
CITIES WITHIN THE CITY

© Léon Krier
Compact urban form
Energy Use Reduces in Denser, Mixed Use Places

Figure 2.5 Activity intensity versus per capita personal car use in 58 higher income metropolitan areas around the world

Note: Activity intensity is defined as the number of jobs plus the number of people per urban hectare.

Source: Newmari and Kenworthy 2006
CO2 from Auto Use in London

CO2 From Auto Use in Greater London: City Dwellers Produce Less GHGs per Household.

Based on the London Area Transportation Survey for 2001, which only measures the direct distance of any trip and not the actual distance driven and for only a small sample of households. Assuming this sampled distance represents the average distance driven by households in the MSOA, that distance is scaled to that the average annual VMT per HH for Greater London is 17,160 km/year. This auto use is then scaled by an emission factor of 130 grams CO2/km.

Produced by: The Center for Neighborhood Technology
Precedent Analysis

400m radius:
Swiss Cottage 4,000 dwellings
South Kensington 2,500 dwellings
Walthamstow 1,500 dwellings

50,000 people use Walthamstow Central Station each day

Sloane Square
Upton
Kensington
Master Plan: Massing Walthamstow
Climate Impacts of Master Plan for Walthamstow

2438 new households resulting in up to a total CO2 emission reduction of 4,654 tonnes
THE CITIES WITHIN THE CITY

RE-ESTABLISH A PRECISE DIALECTIC BETWEEN CITY AND COUNTRYSIDE

THE PERIPHERY HAS TO BE TRANSFORMED INTO MANY AUTONOMOUS CITIES

© Léon Krier
10 MINUTES
THE STANDARD MEASURE
POLY-CENTRIC FEDERATION

X HOURS
NO MEASURE
COMPULSIVE COMMUTING
MONO-CENTRIC CONURBATION

© Léon Krier
Abstract systems based on the scale of the car

Natural Systems based on the scale of the human being

LOCATION EFFICIENCY
3. LOW CARBON COMMUNITIES:

at the scale of the neighbourhood

B: MOVEMENT & HIERARCHY

Well Connected to Public Transport:
To encourage walking and cycling and therefore reduce car dependency

Walkable Neighbourhoods
The design of the development to incorporate community and neighbourhood commercial facilities in such a way that they be accessible by foot. This also means the provision of a street layout that is well connected allowing pedestrians to take a variety of routes throughout the scheme.

Robust adaptable urban form:
A permeable grid of streets that avoids cul-de-sacs and encourages a range of option routes for pedestrians and vehicles. The street grid should also be integrated with the existing surrounding area.
Structuring Settlements; Poundbury an urban extension to the town of Dorchester
4 WALKABLE NEIGHBOURHOODS

PHASES 3 & 4

PHASE 2

PHASE 1

1 TOWN SQUARE many public places

POLYCENTRIC CITY
POUNDBURY

4 URBAN VILLAGES

MIDDLE FARM
POUNDFULY PARK

2 needs to be named
Mapping the Land

- Landscape
- Setting
- Geology
- History
- Settlements
- Local & Regional
- Colours
- Biodiversity
- Contours
The Masterplan as a flexible framework for diverse patterns of investment and demand
Permeable Streets and Hierarchy of Public Space
Street Layout - Tracking

Good urban layouts can be created which meet standard road requirements
Wide Dimensional Variety of Plot Sizes
## 3. LOW CARBON COMMUNITIES:

*at the scale of the neighbourhood*

### C: MIXED USE

| Mixed Use: | Predominantly residential with mix of other uses such as retail business and community uses. A resident population in terms of income groups and occupations. |
| Mixed Tenure | |
| Mixed Housing type | A range of types to support movement within the neighbourhood and therefore encourage community stability. |
| Urban form should support a range of lifestyle choices | Urban form should accommodate economic as well as residential activity, providing the opportunity for home working. |
| Relatively high density | Density levels should be distributed across the site with suitable densities to support the viability of mixed use areas. |
TO MAKE A CITY
MIXED USE IS NECESSARY BUT NOT SUFFICIENT

CITY ON LAND = FLOTILLA

CITY ON LAND = LINER

TO MAKE A CITY
MIXED USE IS NECESSARY BUT NOT A SUFFICIENT CONDITION

TYPOLOGICAL ORDER
FUNCTIONAL ARCHITECTURAL VARIETY

BURECrATIC ORDER
FUNCTIONAL VARIETY × ARCHITECTURAL UNIFORMITY

OVER DEVELOPMENT - MANHATTANISM
FUNCTIONAL VARIETY × ARCHITECTURAL VARIETY

© Léon Krier
MIXED USE

- shops
- village hall
- health centre
- school
- affordable housing (pepperpotted)
- light industry
- business centres
- allotments
- play areas
- nursery
- street markets
- public services
- faith community
MIXED USE:
PHASES 2 ï 4

- town Square
- shops
- light industrial warehouses
- health centre
- school
- farmers market
- business centre
- cricket oval
- up to 40% affordable housing
Integration of Affordable Housing: Tenure blind
Cereal Factory; employing 120 people from the area
Cereal Factory; employing 120 people from the area
Chocolate Factory; employing 100 people from the area
POUNDBURY VILLAGE STORES
English market towns – Louth, Chesterfield
Adaptable models – dealing with parking and Tesco’s
4. LOW CARBON COMMUNITIES at the scale of the region

Technology or Nature
Los Angeles is remembered mainly for its urban sprawl and freeways. Rural areas in auto cities are being turned into Mac-Mansions.
AUTOMOBILE CITY
1940 - Present, US + Australian Cities Mostly
- Low Density
- Separated uses
- Arterial Grid and cul de sac Based
- Decentralised

[Map with urban planning elements]
Movement hierarchy and urban form

Cartoon illustrating 400-500m local centre structuring principles

Sustainable Neighbourhood Structure
UK Urban Task Force 'Towards an Urban Renaissance'
Regional land and transit oriented planning
Learning from Traditional Urbanism:

Multiple Centres, Connectivity, ecological Footprint, biodiversity, DNA of place
Upton, Northants

First phase of 1999 Foundation masterplan for 6,500 dwellings. Includes primary school, office, retail and pepperpotted affordable.

English Partnerships
EDAW
Alan Baxter & Assoc.
Pell Frischmann
NBC
Traditional road hierarchy (spine road, distributor road, cul-de-sac etc)

Designed with the car as main priority

Lack of legibility and poor pedestrian environment

3,700 units

700 m² retail (based on Local Plan Policy)

52% open space
Enquiry by Design Plan

- Permeable grid network
- Pedestrian orientated streets
- Defined spaces and a legible environment
- 6,400 units
- 13,320 m² retail
- 28% open space but concentrated within country park
- Planning for extra homes in the area would save Northampton from expanding into the countryside in 20 years
Phase 1

- 1300 dwellings
- Primary school
- Retail Boulevard
- Office
- Live/work
- Mixed residential
- Interpretation centre
- Park/playing fields
Formal street
Nene way corridor
4. LOW CARBON COMMUNITIES: Region

Sherford ï
A strategic example

Â New community
Â 4000 residential units allocated in the Structure Plan
Â Need for good public transport links to Plymouth employment centre
Â A sustainable community not a commuter town
Sherford
Master Plan: A New Town for 16,000 people with ½ mile high street, hospital, 4 schools, 200h country park & organic farm

Red Tree LLP
Paul Murrain
Scott Wilson
Lavigne Lonsdale
Julian Brookes Assoc.
Working Group
WSP

Sherford - www.redtreellp.com/
# BRE Sustainability Assessment

## Sustainability Framework Summary

<table>
<thead>
<tr>
<th>Section</th>
<th>Best</th>
<th>Good</th>
<th>Minimum</th>
<th>Not Met</th>
<th>Maximum Possible Score</th>
<th>Actual Score Achieved</th>
<th>%</th>
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<tr>
<td>CLIMATE CHANGE AND ENERGY</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>14.05</td>
<td>11.44</td>
<td>81%</td>
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<tr>
<td>SUSTAINABLE CONSTRUCTION</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>11.30</td>
<td>7.68</td>
<td>68%</td>
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<tr>
<td>COMMUNITY &amp; SUSTAINABLE LIFESTYLES</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6.40</td>
<td>5.40</td>
<td>84%</td>
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<tr>
<td>PLACEMAKING</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>13.20</td>
<td>11.54</td>
<td>87%</td>
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<tr>
<td>TRANSPORT</td>
<td>11</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>11.35</td>
<td>10.89</td>
<td>96%</td>
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<tr>
<td>ECOLOGY</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5.65</td>
<td>5.44</td>
<td>96%</td>
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<td>BUSINESS</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3.85</td>
<td>3.30</td>
<td>86%</td>
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<td><strong>TOTAL SCORE</strong></td>
<td>50</td>
<td>18</td>
<td>5</td>
<td>3</td>
<td>65.80</td>
<td>55.67</td>
<td>85%</td>
</tr>
</tbody>
</table>

**Overall Performance Rating:** Exemplar
3. LOW CARBON COMMUNITIES: Neighbourhood

Walkable linked Neighbourhoods
Land use in medium / long term
Marlborough high street precedent for Sherford
New community with 5500 homes, town centre with retail and employment, up to 50% affordable, rapid bus connection to centre, eco home excellent, 50% renewables, green structure, local food and materials policy.
SCENARIO 3
TRANSPORT-ORIENTED DEVELOPMENT

Transport-Oriented Developments are located within walking distance of rail stations or bus stops. Catering to both those who work in the vicinity and those who commute, T.O.D. can lessen the general dependence on cars.

Whilst opportunities for this sort of development exist in Hertfordshire, there are not enough suitable sites remaining to accommodate all of the housing allocation.

Although the majority of railway stations in Hertfordshire have already been developed, some stations offer the opportunity for additional residential, commercial and retail development. Amongst these are rural railway stations which could become hubs for larger settlements, and urban sites which currently include large car parks or other underutilised land offering the opportunity for development.

Because these sites offer the ideal location for housing, they may justify the demolition of existing underutilised structures, even if it will add to the expense of development. Indeed, when developed in a balanced, pedestrian-oriented and mixed-use pattern, these sites can become both destinations in themselves and feeders to London, ultimately allowing a more efficient use of the rail network as a whole.

One design challenge with these sites is that they must accommodate the parking for the on-site program as well as for commuters who have driven to the station.

---

**ADVANTAGES**

- Improves commercial performance
- Conserves Green Belt
- Reuses resources
- Reuses existing infrastructure
- At existing nodes
- Improves commercial sense of place

**DISADVANTAGES**

- Too few sites available
- Requires compulsory purchase
- Requires demolition
GREENPRINT ASSESSMENT: SCENARIO 3

This Scenario performs best overall in the analysis because it provides an opportunity to address problems in existing settlements and improve the quality of life in and around the New Town centres, whilst also providing new dwellings. Development in central and accessible locations provides the opportunity to strengthen existing employment opportunities. The scale of the development enables construction efficiencies. Some existing buildings and building materials can be reused in new developments.

This Scenario's worst performance is likely to be in the ecology category because there is unlikely to be much opportunity to provide green infrastructure, and city centre locations may not provide additional space for managing rainwater and growing food.

The central location and proximity to existing public transport facilities helps reduce car dependence, and its size provides more critical mass for public transport improvements. Redevelopment in the New Town centres can improve pedestrian and cycle routes and generally improve connectivity to surrounding neighborhoods. The scale of the development offers a better opportunity for well-integrated affordable housing.

**Best case:** The intensification provides small-scale employment opportunities, and integration of uses creates a “place” in its own right. Noise is carefully managed through design standards. Residents using the public transport are encouraged to walk through the development, adding to its economic sustainability. The new development is linked to existing economic and social networks. Connectivity and resource efficiency throughout the town centre are improved.

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
<th>Rank</th>
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</thead>
<tbody>
<tr>
<td>Climate</td>
<td>67%</td>
<td>3rd</td>
</tr>
<tr>
<td>Resources</td>
<td>67%</td>
<td>3rd</td>
</tr>
<tr>
<td>Transport</td>
<td>83%</td>
<td>1st</td>
</tr>
<tr>
<td>Ecology</td>
<td>33%</td>
<td>5th</td>
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<tr>
<td>Business</td>
<td>78%</td>
<td>2nd</td>
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<td>Community</td>
<td>67%</td>
<td>3rd</td>
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<td>Placemaking</td>
<td>87%</td>
<td>1st</td>
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<tr>
<td>Buildings</td>
<td>89%</td>
<td>1st</td>
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<tr>
<td><strong>Average</strong></td>
<td><strong>71%</strong></td>
<td></td>
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<td><strong>Overall ranking</strong></td>
<td><strong>1st</strong></td>
<td></td>
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</tbody>
</table>
Sustainable Urbanism - Dense, walkable neighbourhoods, mixed uses, adaptability

Strasbourg centre - fine grain with tram system
Sustainable Urbanism - Dense, walkable neighbourhoods, mixed uses, adaptability

Strasbourg centre - fine grain with tram system
Sustainable Urbanism - Dense, walkable neighbourhoods, mixed uses, adaptability

Strasbourg centre - learning from tradition
<table>
<thead>
<tr>
<th>Thoroughfare Type</th>
<th>Commercial Street</th>
<th>Transit Route</th>
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<tr>
<td>Thoroughfare Zone Assignment</td>
<td>T5, T6</td>
<td>T4, T5, T6</td>
</tr>
<tr>
<td>Right-of-Way Width (in feet)</td>
<td>17 (5.2)</td>
<td>20 (6.1)</td>
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<tr>
<td>Pavement Width (in feet)</td>
<td>7 (2.1)</td>
<td>7 (2.1)</td>
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<tr>
<td>Movement</td>
<td>Slow (LR Priority)</td>
<td>Restricted Movement (LR Priority)</td>
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<tr>
<td>Design Speed (km/h)</td>
<td>20 (12.5)</td>
<td>20 (12.5)</td>
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<tr>
<td>Pedestrian Crossing Time (seconds)</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Traffic Lanes</td>
<td>1 one-way lane (using part of a loop)</td>
<td>2 lanes</td>
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<tr>
<td>Parking Lanes</td>
<td>none</td>
<td>none</td>
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<tr>
<td>Curb Radius (m)</td>
<td>3 (10)</td>
<td>1.5 (6)</td>
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<tr>
<td>Walkway Type</td>
<td>3 - 7m (10 - 23 feet) Sidewalk</td>
<td>7m (23 feet) Shared/ Surface Sidewalk</td>
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<tr>
<td>Planter Type</td>
<td>Continuous Planter</td>
<td>Continuous Planter</td>
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<tr>
<td>Curb Type</td>
<td>Swale</td>
<td>Swale</td>
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<td>Landscape Type</td>
<td>Trees at 30o c.o. Avg.</td>
<td>Trees at 30o c.o. Avg.</td>
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<tr>
<td>Transportation Provision</td>
<td>Light Rail</td>
<td>Light Rail</td>
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<tr>
<td>Stops/Placemnts</td>
<td>Existing Pavements</td>
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<tr>
<td>Surface Type</td>
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<td>Surface Level</td>
<td>Same as cars</td>
<td>Public Transport only</td>
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<td>Examples</td>
<td>Portland, Oregon (USA)</td>
<td>Zurich (Switzerland)</td>
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THOROUGHFARE TYPES

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<th>Drive</th>
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<td>Transect Zone Assignment</td>
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<td>38m (125 feet)</td>
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<td>Pavement Width</td>
<td>10m (33 feet)</td>
<td>27m (89 feet)</td>
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<tr>
<td>Movement</td>
<td>Slow movement</td>
<td>Slow Movement</td>
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<tr>
<td>Design Speed</td>
<td>90km/h (55mph)</td>
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<td>Pedestrian Crossing Time</td>
<td>5 seconds</td>
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<tr>
<td>Traffic Lanes</td>
<td>2 lanes</td>
<td>2 lanes</td>
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<tr>
<td>Parking Lanes</td>
<td>Just around corners</td>
<td>2.4m (8 feet)</td>
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<td>Curb Radius</td>
<td>1.5m – 3m (5 – 10 feet)</td>
<td>1.5m – 3m (5 – 10 feet)</td>
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<td>Walkway Type</td>
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<td>Planter Type</td>
<td>2m (7 feet) continuous planter</td>
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<td>Curb</td>
<td>Curb</td>
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<tr>
<td>Landscape Type</td>
<td>Trees at 30m c.c. Avg.</td>
<td>Trees at 30m c.c. Avg.</td>
</tr>
<tr>
<td>Transportation Provision</td>
<td>Light Rail + Bicycle Route</td>
<td>Light Rail or Trolley Bus</td>
</tr>
<tr>
<td>Stops/Intersections</td>
<td>Existing and Dedicated Pavements</td>
<td>Dedicated Pavements</td>
</tr>
<tr>
<td>Surface Type</td>
<td>Segregated (green path)</td>
<td>Dedicated</td>
</tr>
<tr>
<td>Surface Level</td>
<td>Same as cars on junctions</td>
<td>Same as cars</td>
</tr>
<tr>
<td>Examples</td>
<td>Strasbourg (France), Alicante (Spain)</td>
<td>Trastevere, Rome (Italy), Brussels (Belgium)</td>
</tr>
</tbody>
</table>
Kevin Lynch “Good City Form” MIT Press, 1981

22 A horsecar on Centre Street in Jamaica Plain in Boston in 1883. This is the transport that opened up the city’s first middle-class suburbs. Commercial services strung out along the car line and modest houses occupied the back streets.
Financial Characteristics of Downtowns with Critical Mass (Blue) versus Suburban Development (Red)

sustainable cash flow

© Chris Leinberger
Design Coding is ensuring the parts become a whole

- Design Coding at its simplest is a set of graphic instructions for the building of a place. Design codes are also often called form-based codes because they focus on physical form rather than land use.
- Design coding emphasizes the construction of a public realm: the spaces between the buildings and sets standards for build quality.
- Design coding is a positive, rather than a negative approach to a town’s growth and development.
- It protects the stakeholder vision and gives certainty to developers.
Pattern Books - Recording types that work

Identify local DNA & Precedent
Record urban and architectural types
Create architectural contrast

Newquay Pattern Book with Robert Adam Architects and Urban Design Associates
The Enquiry by Design process brings together the key stakeholders in an intensive workshop for a proposed project to collaborate in creating a vision for the site through drawing and testing multiple solutions to produce a consensus master plan. It is simultaneously proactive vs. sequentially reactive.
### Private Frontage Types

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>Front Garden: A generous garden shall be situated between the plot line and the building edge. The garden shall remain unfenced, and shall be visually continuous with adjacent gardens, reinforcing a common landscape. The depth of the gardens shall create a buffer from the higher road thoroughfares. The front garden should have a depth of between 5-10m.</td>
</tr>
<tr>
<td>82</td>
<td>Fenced Front Garden: A fenced garden shall be situated between the plot line and the building edge. Bay windows or porches may protrude into the garden. The fence shall maintain the demarcation of the garden. The fenced front garden should have a depth of between 4-10m.</td>
</tr>
<tr>
<td>83</td>
<td>Front Courtyard: A courtyard shall be created by a building edge which shall be part set back and part near the plot line. The courtyard shall enable a suitable drop off space or parking area. A fence may delineate or part delineate the plot. Large trees within the courtyard may overhang the pavement. The front courtyard should have a depth of between 6-10m.</td>
</tr>
<tr>
<td>84</td>
<td>Fenced Basement Lightwell: The building shall be set back from the plot line by a screened lightwell. This space shall create a buffer between the pavement and the building, and shall create access to basement floors from the public realm. The ground floor may be converted into retail or commercial use at a later date. The fenced basement lightwell should have a depth of between 3-5m.</td>
</tr>
<tr>
<td>85</td>
<td>Fenced Front Strip: A narrow strip of landscaping shall separate the building edge and the plot line. The plot line shall be delineated by a fence. The finished ground floor level of the building may be elevated to provide a level of privacy for building occupants. The entrance may be a stair/steep and landing. The fenced front strip should have a depth of between 3-10m.</td>
</tr>
</tbody>
</table>

### B Frontage Types

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B6</td>
<td>Front Strip: A narrow strip of land shall separate the building edge from the plot line, and generally there shall be no fences. The finished ground floor level shall be accessible from pavement level. The front strip should have a depth of between 0.6-1m.</td>
</tr>
<tr>
<td>B7</td>
<td>Shopfront and Eaves: The building line shall be situated close to the plot line with the building entrance on the pavement level, and shall be used primarily for retail. There shall be substantial glazing at ground level and there shall be awnings which may overlap the pavement potentially to the plot line. The shopfront and eaves should have a depth of between 2.5m.</td>
</tr>
<tr>
<td>B8</td>
<td>Columnade: The columnade on the ground floor shall be endowed and provide as from the rest of the facade. The building line shall sit on the plot line, and shall be used primarily for retail. The columnade shall be no less than 0.6m wide and shall be allowed to overlap the whole width of the pavement to within 0.25m of the curb edge.</td>
</tr>
<tr>
<td>B9</td>
<td>Arcade: The arcade shall be an open colonnade where the ground floor line shall be set back from the building line to accommodate the footpath. The building line shall sit along the plot line. The arcades shall be no less than 0.6m deep and shall sit 0.25m of the curb edge. This type shall be used primarily for retail.</td>
</tr>
<tr>
<td>B10</td>
<td>Paved Basement Lightwell: The building shall be set back from the plot line by a paved tap in basement. This type shall be used primarily for commercial or residential. The pavement basement lightwell should have a depth of between 2.5m.</td>
</tr>
</tbody>
</table>
Part 2 The Lexicon of Types ï D Block Types

**D1 Parking Courtyard/Communal**
A courtyard block is a perimeter block that has secure central courtyards to accommodate parking alone between terraces, apartments, or townhouse units at the perimeter of the block.

**D2 Parking Alley**
An alley block is served by secure internal alley(s) that provide access to parking spaces, garages, and backyards of the individual residential plots within the block.

**D3 Mews**
A mews block is served by an accessible mews street that is flanked by accommodation units with integral parking facing onto the mews. Access to mews accommodation is mainly from the mews street side with possible access from the front entrance.

**D4 Wrap Around**
Wrap-around blocks are often required for civic, commercial, and industrial buildings or sometimes large surface parking areas. Wrapping these larger units with smaller plots also means that more attention and servicing is exposed to the street while also achieving privacy at the front to the better. Access to plots around the perimeter as well as servicing can be through an alley or entryway from the front.

**D5 Greenway and Communal Garden**
A greenway block is most likely to appear in a sequence acting as a quiet and green wildlife corridor. They are an addition to the linear parks system and contain a single heavily treed central space running the full length of the block. This space may have communal use but does not form individual garden spaces. The detailed design will need to respond to the particular wildlife movement and habitat. The continuity of the greenway from block to block may allow for a single story building forming the shorter edge of the greenway, depending on the movement habits of the wildlife.

**D6 Back to Back**
A “Back to Back” block is formed by an assembly of plots the back edges of which meet either to the middle of the block. On plot access is exclusively from the street.

---

**D2 Parking Alley**
An alley block is served by secure internal alley(s) that provide access to parking spaces, garages, and backyards of the individual residential plots within the block.

**Access and Servicing**
- All residents of the block can access by way of the internal alley(s) and the private allocations.
- Parking on the internal alley(s) shall be adequate in size.
- Where agreed, building type access to the alley shall be bonded or linked over with appropriate gate plans.
- Access to garages or access to other parts of the block must be through the alley.
- Access to parking for apartments/where there are no garages shall be screened from the core.

**Protection**
- The entrances shall be protected by a screen that provides privacy and security for the vehicular access gate.
- An individual block shall have a screen that provides access to the pedestrian gateway.
- There shall be a controlled pedestrian access to the alleyway from its apartments, parking core.
- From access to apartments on the ground and upper floor, see Parking Courtyard specifications.

**Waste Storage and Collection**
- Communal waste storage shall be located in conformity with the access gate of the alley with access from the driveway and from the street side for easy collection.
- The provision for the block shall complement the arrangement of the building services on the core.
- For further information on Utilities and landscaping, and Design principles see page 10.
Design: Coding for Vision & Standards
### (Name) Crescent

**M15.11**

Uniform character and composition. Uniform vertical rhythm of openings and roof. Continuous first floor balconies Uniform colour.

<table>
<thead>
<tr>
<th>Type</th>
<th>Specification</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part II A</td>
<td>A05.4</td>
<td>Uniform</td>
</tr>
<tr>
<td>Part II B</td>
<td>B4</td>
<td>Uniform/regular</td>
</tr>
<tr>
<td>Part II C</td>
<td>C32</td>
<td>Uniform/regular</td>
</tr>
<tr>
<td>Part II D</td>
<td>D3</td>
<td>Regular</td>
</tr>
</tbody>
</table>

**Elements**

| Materials | Stucco - painted | Regular |
| Windows   | 6 over 6, 2 over 2 | Regular |
| Colour    | White CP 2.3, 2.4 | Uniform |
| Gradient Response | Flat | Uniform |
| Boundary Treatment | 1 spear headed c.i. railings | Uniform |
| Balconies | c.i. decorative, leaded roof | Uniform/regular |

**NOTES:** 1st floor balconies not necessary on south side of street where rear south facing conservatories may be employed as option.

### (Name) Street

**M3.14**

Similarly double fronted. Prominent porches. Variety of colour from similar colour line. Prominent palms in gardens.

<table>
<thead>
<tr>
<th>Type</th>
<th>Specification</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part II A</td>
<td>A3.1</td>
<td>Uniform</td>
</tr>
<tr>
<td>Part II B</td>
<td>B2</td>
<td>Regular</td>
</tr>
<tr>
<td>Part II C</td>
<td>C4.2</td>
<td>Regular</td>
</tr>
<tr>
<td>Part II D</td>
<td>D12</td>
<td>Regular</td>
</tr>
</tbody>
</table>

**Elements**

| Materials | Stucco - painted | Regular |
| Windows   | 6 over 6, 2 over 2 | Regular |
| Colour    | Colours CP 4 - 7 | Variable |
| Gradient Response | Slope taken up by each house | Regular |
| Boundary Treatment | Stonewall with hedge | Regular |
| Porch     | Timber Painted | Regular/Variable |

**NOTES:** Subtle variation in porch detailing and palm in garden is important.
Building Timelessly

- Place
- Permeability
- Hierarchy
- Longevity
- Value
- Scale
- Harmony
- Enclosure
- Materials
- Decoration
- Craftsmanship
- Public Space
- Community