

list of figures

page section 1.0

012	Figure 1 Suburb plan of Eixample, Barcelona
012	Figure 2 Suburb plan of Coin Street, London
013	Figure 3 Multi-storey housing 100 Wozoco's, MVRDV
013	Figure 4 Incremental housing, Freedom Park, MMA Architects
013	Figure 5 Strip housing, Prinsenhoeck, Neutelings + Sittard
013	Figure 6 SpaceMatrix

section 2.0

016	Figure 7 Comparison of densities in big cities
017	Figure 8 Measuring densities
018	Figure 9 Comparison of population density in South African cities
018	Figure 10 Suburbia - low density, single storey detached housing, mono-zoned residential-use areas
018	Figure 11 Inner city –high density, multi-storey, mixed use areas
019	Figure 12 Smaller poorer black areas of high densities of people in relation to larger wealthier white lower densities of Pretoria metro
019	Figure 13 Factors contributing to positive integration
020	Figure 14 Pretoria population density by race
021	Figure 15 Compact mixed use development
024	Figure 16 Cost comparison between suburban + urban living
025	Figure 17 Number of people crossing 3.5m wide space in an urban environment during a one hour period
026	Figure 18 Street maps at the same scale showing intersection density
027	Figure 19 Variety of open space design elements
028	Figure 20 Transformation of perimeter block into a diverse fine grain environment
029	Figure 21 Comparison of various typologies yielding the same density
030	Figure 22 Assimilation of old and new buildings
033	Figure 23 Elements contributing to a diverse environment

section 3.0

036	Figure 24 Map of South Africa
036	Figure 25 Proximity of Parktown to Johannesburg inner city
036	Figure 26 Proximity of Greyville to Durban inner city
036	Figure 27 Proximity of Oranjezicht to Cape Town inner city
036	Figure 28 Proximity of Muckleneuk to Pretoria inner city
037	Figure 29 Locating Muckleneuk, Pretoria
038	Figure 30 Church square, historical inner city centre of Pretoria
038	Figure 31 Church square, historical inner city centre of Pretoria
038	Figure 32 Church square, present inner city centre of Pretoria
038	Figure 33 Development of Pretoria
039	Figure 34 Lack of development of Muckleneuk
040	Figure 35 view from Salvokop hill - Gautrain station & Pretoria cbd, Hatfield

040	Figure 36 view from Klapperkop hill towards Union Buildings
040	Figure 37 view from Union Buildings toward Muckleneuk hill
042	Figure 38 Contour map
042	Figure 39 City blocks
042	Figure 40 Nodes, landmarks, hard edges + soft edges
043	Figure 41 Views toward landmarks + city
043	Figure 42 Topography
043	Figure 43 Illustrative sketch indicating ridges of Pretoria
043	Figure 44 Topographical model
043	Figure 45 Pretoria block size comparison
043	Figure 46 ZAR Hospital
043	Figure 47 Unisa
043	Figure 48 Heritage House
043	Figure 49 Barclay Square
043	Figure 50 Telkom Tower
043	Figure 51 3D model of Muckleneuk
044	Figure 52 Recreation + open space
044	Figure 53 Figure Ground
044	Figure 54 Zoning
045	Figure 55 Burgers Park
045	Figure 56 Magnolia Dell
045	Figure 57 Freedom Park
045	Figure 58 Church Square
045	Figure 59 Aerial map of Pretoria
046	Figure 60 Topographical model
049	Figure 61 ZAR Hospital + Telkom tower
049	Figure 62 Sir Herbert Baker designed house
049	Figure 63 Magnolia Dell Park
050	Figure 64 Mapping of heritage buildings + jacaranda trees
051	Figure 65 Jacaranda Trees
051	Figure 66 Jacaranda Trees
051	Figure 67 Jacaranda Trees
051	Figure 68 Cape Dutch style house
051	Figure 69 Cape Dutch style house
051	Figure 70 ZAR Hospital
051	Figure 71 Neo-classical style house
051	Figure 72 Neo-classical style house
051	Figure 73 Modernist style house
051	Figure 74 Modernist style office
051	Figure 75 Modernist style house
052	Figure 76 Heritage study of residential houses in Muckleneuk
054	Figure 77 Transit Map
055	Figure 78 Railway station
055	Figure 79 Railway perimeter fence
055	Figure 80 Railway as barrier
055	Figure 81 Railway lines
055	Figure 82 Bridge over railway
055	Figure 83 Railway as connector

Section 4.0

061	Figure 84 City blocks
062	Figure 85 Eixample figure ground
062	Figure 86 Diversity diagrams
062	Figure 87 Transformation of typology over time
063	Figure 88 Chamfered corners
063	Figure 89 Mid-rise buildings
063	Figure 90 Aerial view of city blocks
063	Figure 91 Inner courtyard of a city block
063	Figure 92 Typical block section
063	Figure 93 Typical block 3D
064	Figure 94 Coin Street figure ground
064	Figure 95 Diversity diagram
064	Figure 96 Public open space between housing and commercial and public facilities

064	Figure 97 Example of mid-rise housing + commercial	091	Figure 152 Typical courtyard housing developments along a slope
065	Figure 98 Building in Coin Street	091	Figure 153 Plan exploration of diversity of unitsizes within courtyard developments
065	Figure 99 Building in Coin Street	094	Figure 154 Urban design framework
065	Figure 100 Building in Coin Street	096	Figure 155 Concept sketch
065	Figure 101 Inner courtyard	097	Figure 156 3D model of transformed Muckleneuk1
065	Figure 102 3D view of Coin Street	097	Figure 157 3D model of transformed Muckleneuk2
067	Figure 103 Courtyard space	098	Figure 158 Plan indicating strip development up Muckleneuk hill
067	Figure 104 3D Layout configuration	098	Figure 159 Section through Leyds street
067	Figure 105 Housing on a slope	100	Figure 160 Public amenities
067	Figure 106 Street perspective	100	Figure 161 Public Realm
068	Figure 107 External facade treatment	101	Figure 162 Housing typologies
068	Figure 108 Circulation	101	Figure 163 Typologies
068	Figure 109 Courtyard space	102	Figure 164 Kids in the street - Proposal for manhole covers encouraging learning opportunities for kids
068	Figure 110 Typical unit plans	102	Figure 165 Green strip - Proposal for green strip - Introducing water + resting spaces
068	Figure 111 Floor plan	102	Figure 166 Night safety - Proposal for lights in all - Public areas to create safer areas at night
068	Figure 112 Section	102	Figure 167 Play areas - Proposal for intermediate play areas for kids along the green strips
069	Figure 113 External façade	103	Figure 168 Solar charging stations - Proposal for charging 'pods' to be placed in the area using solar power
069	Figure 114 External façade	103	Figure 169 Floor finish - Proposal for texture to be used in public spaces
069	Figure 115 Floor plans	103	Figure 170 Pedestrian strips - Proposal for pedestrian areas000
070	Figure 116 Heritage building and new built	103	Figure 171 Softer Courtyard spaces - Proposal for courtyard spaces higher up the slope with less foot traffic
070	Figure 117 Courtyard Spaces	102	Figure 172 Partial map of proposed Muckleneuk
070	Figure 118 3D Massing	104	Figure 173 3D of strip showing trees + green spaces
070	Figure 119 Space between blocks	106	Figure 174 Plan indicating courtyard development of strip
070	Figure 120 Floor plan	108	Figure 175 Leyds street elevation
071	Figure 121 Site plan, typical floor plan + section	108	Figure 176 Section a-a through green open space
072	Figure 122 Street perspective	108	Figure 177 Berea street elevation
072	Figure 123 Street perspective	110	Figure 178 Aerial view of local scale
072	Figure 124 Elevation	110	Figure 179 Street perspective of local scale
072	Figure 125 Typical floor plan	111	Figure 180 Sketch of inner courtyard
073	Figure 126 Typical floor plan	111	Figure 181 Sketch of green open space
073	Figure 127 Elevation	112	Figure 182 Phase 1 _ 1-5 years
073	Figure 128 Overall floor plan	112	Figure 183 Phase 2 _ 5-10 years
073	Figure 129 Street elevation	113	Figure 184 Phase 3 _ 10-15 years
073	Figure 130 Street perspective	113	Figure 185 Phase 4 _ 15-20 years
074	Figure 131 Plan + 3D massing of incremental housing		
074	Figure 132 Expressions of permutations of incrementality of a typical house layout		
074	Figure 133 Shared terraces		
074	Figure 134 Incremental development		
075	Figure 135 Typical floor plan		
075	Figure 136 Elevation		
075	Figure 137 Courtyard space		
075	Figure 138 Street elevation		
	section 5.0		
078	Figure 139 Design development plan		
080	Figure 140 Development of plan indicating accessibility of the larger study area as well as detailed site		
081	Figure 141 Parking		
081	Figure 142 Train Station		
081	Figure 143 Bus stops		
084	Figure 144 Diversity of housing types + sizes		
084	Figure 145 Diversity of programme (left) + Diversity of old + new buildings (right)		
085	Figure 146 Plan exploration of accessibility + the public realm close to the railway deck		
085	Figure 147 Section exploration of massing of buildings along slope close to the railway deck		
086	Figure 148 Plan exploration of courtyard housing and mixed use developments		
086	Figure 149 Section exploration of courtyard housing and mixed use developments		
088	Figure 150 Plan exploration of integrating old & new buildings (left) + design development of courtyard type housing (right)		
090	Figure 151 Montage exploring housing along a slope with mixed use developments along railway		

list of tables

page

057	Table 1 Density calculations of existing condition
060	Table 2 Toolkit of number of people, cars, jobs and dwellings used to analyse areas of cities
060	Table 3 Developing a density tool to analyse existing city neighbourhoods
062	Table 4 Number of people, cars, jobs and dwellings in Eixample study area
063	Table 5 Density analysis of various aspects of Eixample
064	Table 6 Number of people, cars, jobs and dwellings in Coin St study area
065	Table 7 Density analysis of various aspects of Coin St
067	Table 8 Number of people, dwellings and cars in courtyard typology
068	Table 9 Number of people, dwellings and cars in transitional housing typology
069	Table 10 Number of people, dwellings and cars in multi storey housing typology
070	Table 11 Table 11 Number of people, dwellings and cars in housing in green open space typology
071	Table 12 Number of people, dwellings and cars in terraced housing typology
072	Table 13 Number of people, dwellings and cars in strip housing typology
073	Table 14 Number of people, dwellings and cars in housing along a slope typology
074	Table 15 Number of people, dwellings and cars in incremental housing typology 1
075	Table 16 Number of people, dwellings and cars in incremental housing typology 2
082	Table 17 Integration design development
092	Table 18 Density calculations of existing and final proposed
096	Table 19 Improved density, access to green open space + access to transit
114	Table 20 Density calculations_existing and final proposed