



DIRECTIVES FOR THE PLANNING, DESIGN AND IMPLEMENTATION OF HUMAN SETTLEMENT PROJECTS IN CAPE TOWN

28 APRIL 2016



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

Making progress possible. Together.

*This report has been compiled
by the Department of Spatial
Planning and Urban Design and
forms part of the Integrated
Human Settlements Framework
Implementation Plan.*

Marco Geretto
Spatial Planning and Urban Design
024 400 9442
Marco.Geretto@capetown.gov.za

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INTRODUCTION

The City of Cape Town, through its subsidised human settlements projects is the largest developer in Cape Town. It therefore has the potential to lay the foundations for a healthy and more sustainable urban future. However, radical changes to the way that housing is delivered is required if the City is to improve the quality of life of its citizens, positively address the challenges of rapid urbanisation and ensure the long term sustainability of the city.

The Integrated Human Settlements Framework (IHSF) developed together with Provincial Government and adopted by Council in 2015 sets out a new direction for human settlement delivery in Cape Town. During the preparation of the IHSF it became apparent that the existing standards, mechanisms and tools for planning and delivering new housing projects are cumbersome, inadequate and result in inefficient and unsustainable settlements. There is a need to shift towards a more bottom-up and incremental urban paradigm which requires a review of current standards and methods of approach.

These directives were the result of an intensive transversal process through which consensus on the planning guidelines were obtained. For a full explanation of the need for, and rationale of these directives please consult 'Discussion Document - Towards Guidelines for the Planning, Design and Implementation of Human Settlements Projects In Cape Town 28 April 2016'.

The purpose of the directives

These directives are a set of design and planning guidelines that will help to ensure the new approach to housing as set out in the IHSF happens in a consistent and positive manner. The directives should inform the design process and layout of all future human settlements projects that the City of Cape Town undertakes.

They will also be used by City line departments in assessing and commenting on development applications submitted for approval through the land use process, whether they be from other public sector organisations or private developers.

The overriding objectives of the directives

- To promote the development of sustainable urban environments that fulfil the economic, social and cultural needs of society;
- To make project managers, designers and planners aware of the City's adopted policies and technical standards;
- To provide clear principles, performance criteria and design guidance for new human settlements projects; and
- To provide a technical basis for engaging communities in jointly developing solutions for their housing needs.

A PARADIGM SHIFT FROM SUBURBAN PLANNING TO A COMPACT, MIXED USE AND INCREMENTAL CITY



The desirable urban future

The underlying objective of these directives is to provide the preconditions for a compact urban future that unleashes the potential of all urban citizens to create compact, high density, mixed use, dynamic, owner built environments that are resilient and relevant to the social, economic needs of society, whilst holding in balance our responsibility towards the broader environment and natural systems.

Applicability

These directives are applicable to all human settlements projects carried out in Cape Town whether they be carried out by the City, other public sector organisations or private developers. The majority of Human Settlements projects will involve the establishment of a township or an amendment of an existing township scheme. A township development is defined as the planning, design and construction of the roads and utility networks that are required to service an urban community. Any proposed layout or amendment to a township scheme must be informed by the City's relevant policies, technical standards and guidelines that are updated regularly. For ease of reference these are identified in the adjacent call out box.

Deviations

It is important to note that deviations and exemptions from these directive for sound reasons will be considered. Designers are however encouraged to engage with the relevant line departments or asset owners during the design phase for direction and guidance.

This is particularly relevant for in-situ informal settlement upgrading projects as these projects require bespoke and often non-conventional solutions to minimise the displacement and the disruption of the social networks on which poor communities depend. Departures will generally be supported on the basis of a sound and rational argument and provided the proposed development is aligned with principles set out in performance criteria identified in 3.4 are met.

RELEVANT POLICIES, STANDARDS, GUIDELINES AND REGULATIONS

Layout

- Urban Design Policy (2013)
- Summary Guidelines and Standards for the Planning of City of Cape Town Social Facilities and Recreational Spaces (3rd revision 2014)
- Design and Management Guidelines For A Safer City (2014)
- Floodplain and River Corridor Management Policy (2009)
- The Development Management Scheme (2015)
- Standard Operating Procedure Guidelines for New Developments Adjacent to Conservation Areas (2013)
- Framework for Resource Efficiency Criteria for Development in the City of Cape Town (Draft June 2015)

Stormwater

- Stormwater Management Planning and Design Guidelines for New Developments (2002)
- Stormwater Management of Slopes Adjacent to Natural Areas (2003)
- Management of Urban Stormwater Impact Policy (2009)
- Floodplain and River Corridor Management Policy (2009)

Water services

- Service Guidelines & Standards, Water & Sanitation Department (November 2013)

Electrical services

- Residential Electricity Reticulation Policy 2013
- Electrification Of Backyard Dwellings Policy (2014)
- Design Standards And Specifications For The Provision Of Public Lighting Services. (2007)

Streets and Roads

- Road Access Guidelines, 2002
- Minimum Standards For Civil Engineering Services In Townships (2013)
- Draft Parking Strategy and Policy Framework (2012)
- NMT Policy and Strategy (TCT 2005)
- NMT Facility Guidelines (DoT -2015)
- Universal Access Policy (2014)
- Traffic Calming Policy (Jan 2016)

Refuse / waste management

- Minimum Requirements For Vehicle Access / Waste Collection (2015)
- Standards And Guidelines For Refuse Room, Refuse Storage Areas (2015)

Buildings

- Smart Building Handbook (June 2012)
- National Building Regulations (SANS 10400)

1 DEVELOPMENT PRINCIPLES

The following principles must guide all human settlement projects:

- 1. Avoid risk areas and sites of ecological importance** - Human settlements should only be planned where it is safe for people to live and where the integrity of natural systems is not undermined by development or through human activity. Flood plains, contaminated areas, servitudes and areas where residents would be subjected to severe health risks should be avoided.
- 2. Manage risk responsibly** - In the current socioeconomic environment it is unreasonable to expect all risks to be eliminated. This calls on the City to implement actions that ensure risks are identified and that reasonable steps are taken to ensure risks are minimised or eliminated where possible.
- 3. Integrate neighbourhoods and improve access** - New development areas must integrate effectively with their surrounding neighbourhoods, linking into surrounding street and utility networks and improve access to public amenities and services. Ensure that residents have access to alternative forms of transport, including public transport, so that they are able to access the opportunities and services available in the city.
- 4. Help build the compact city and plan for sustainable mobility** - new settlements must be planned around access to public transport and other sustainable modes of transport and achieve the density thresholds to support economic activity.
- 5. Focus public investment on public infrastructure** - In the context of scarce resources the City's role needs to be focused on providing that which individual households are not able to provide on their own. This typically includes the provision of bulk infrastructure, formal streets and public facilities.
- 6. Prioritise functionality and quality above quantity** In the provision of public facilities and infrastructure it is important that all facilities are functional. The provision of fewer high quality facilities that serve the needs of the community and can be maintained by the City is more important than dogmatically complying with standards based on quantitative thresholds.
- 7. Variety** - New developments should include a variety of land uses, plot sizes, building types, streets widths and public spaces.
- 8. Resilience, adaptability, flexibility and freedom** - All development parcels should be able to accommodate different types of buildings, accommodate change and allow beneficiaries to invest in their properties as they see fit. Prescriptive designs should be avoided.
- 9. Provide security of tenure** - Beneficiaries must have security of tenure to ensure that the investment they make in their buildings and property is secure and transferable.
- 10. Promote incremental densification and second dwellings** - Utility services and land parcels should allow for intensification and densification over time. All sites should allow for second dwellings as these are critical for accommodating the needs of growing families and help to supplement household income with income generated from the rental units.
- 11. Incremental compliance** - given the limited financial resources available to low income households it must be accepted that it will not be possible to comply with all regulations, norms and standards from the outset. There needs to be a shift from "compliance" to "fit-for-purpose" and the types of solutions adopted should allow for beneficiaries to comply with norms and standards over time.
- 12. Create healthy living environments** - It must be ensured that the places where people live are not harmful to their health and that adequate provision is made for natural light and ventilation.
- 13. Achieve greater resource efficiency** - Proposals must seek to achieve greater resource efficiency, both in terms of energy and materials. This applies to both during construction as well as post-construction operations and management. Assessments should be carried out to determine what is most cost effective to beneficiaries and the City over the long term, considering all life cycle costs.

2 PROCESS GUIDELINES

1. Develop an understanding of how any particular project or site fits into the City's housing plan and what other potential projects (bulk infrastructure upgrades for example) are likely to be linked to the project.
2. Where public participation to inform the planning process is appropriate ensure that the participation process is designed in such a way that beneficiaries are aware of the factors that will influence the design and can make meaningful inputs into the decision making process. All public participation processes should be communicated to and endorsed by the beneficiary community.
3. Engage the beneficiary community where this is possible. Be transparent and communicate regularly and effectively.
4. Undertake detailed enumeration studies with the community to get an understanding of the community composition and needs. Maintain a land register to ensure that the needs of the community are understood and the nature of the project can be determined.
5. Undertake a basic due diligence study that must include an environmental scan, topographical and geo-technical study prior to developing a brief for the project.
6. Develop a strategic approach to all projects that takes into account differences within the beneficiary community, makes provision for relocations, ensures the integration of statutory processes (NEMA / land use) and considers phasing and temporary relocations.
7. Establish a Project Management Team (PMT) with representatives from all relevant City line departments prior to the start of the project to provide input into the terms of reference.
8. Hold PMT meetings at key milestones of the project to allow officials to provide input into the design process.
9. No plan or proposal should be presented to the beneficiary community without the endorsement of the plan or strategy by the PMT.
10. Work with other government departments (Education, Health etc.) and internal line departments to integrate capital and operational budgets so as to ensure that sites left open for community facilities and public open spaces are developed, secured and maintained.
11. When considering rental housing projects or multi-owner typologies consideration needs to be given to the long term operational requirements and financial implications for the City and beneficiaries
12. The double occupation of properties by more than one beneficiary should be explored as a temporary measure to minimise displacement and disruption during informal settlement upgrading projects. Prior to considering such proposals it is critical that:
 - there is engagement and buy-in from the beneficiary community,
 - there is clarity on which beneficiary will eventually own the property,
 - the rights and obligations of the land owner and second occupant are respected,
 - it is clear what type of development may occur on the property and the time period for which double occupation will be acceptable.
13. Education and capacitation programmes must be planned and executed with beneficiary communities during the planning phase and prior to the occupation of the site to ensure that people clearly understand their rights and obligations as citizens of the city. Beneficiaries should also be equipped with some of the basic skills and knowledge that is necessary to manage and maintain their own properties and live healthy lifestyles. This should include handing over maintenance manuals, pre-approved buildings or advice on how to go about extending or adding to a property.

14. Where a development includes stormwater facilities or is close to a water system targeted programmes should be rolled out shortly after occupation and regularly thereafter to ensure that residents understand and come to value the function of such facilities within their neighbourhoods.
15. Post construction monitoring and evaluation programmes must be undertaken to measure the success of the any project so that lessons learnt can be applied to future project. Such programmes must be built into project budgets and should be undertaken at the following intervals after completion:
 - 12 months
 - 36 months (3 years); and
 - 60 months (5 years).
16. Especially where new and innovative technologies, construction methods are proposed a post-user occupancy survey must be undertaken to provide insight into what works and what does not.

3 GENERAL PROVISIONS

1. Where it is safe to do so, upgrade informal settlements in-situ and deliver urban house typologies to achieve higher densities to minimise relocations.
2. All new human settlement projects larger than 2Ha should include a proportion of incremental housing (minimum 30%).
3. Ensure adequate access to public transport in the long term and plan for sustainable transport modes.
4. An assessment must be made during the planning phase of the project to determine the types of public facilities that would be required for development of a socially sustainable community where the immediate needs of the residents are met within 800m from where they live or by public transport. (See section 3.9)
5. Sites must be set aside for commercial and nonresidential uses within the new settlement. When considering the scale and location of such sites consideration needs to be given to the location of the property within the urban network and the scale of development that could be developed by the private sector. Processes must be put in place to ensure that these sites are allocated or released to the market within a reasonable time frame.
6. Layouts must achieve a minimum gross density of 50du/Ha (or 150 persons/Ha)
7. The layout must demonstrate an efficient ratio of development area to circulation. No more than 30-35% of the land budget should be allocated for circulation / road reserves.
8. The implications of design decisions on long term operations, maintenance and management must be taken into account during the design process. Maintenance manuals must be developed for the development as a whole as well as for individual pieces of public infrastructure.

4 PERFORMANCE CRITERIA

While there are different means of delivering housing all development proposals must:

1. Reduce public risk by:

Avoiding areas at risk of flooding

Avoiding man-made risks (polluted stormwater systems etc.) and conflicts (power lines, conflict areas between road users etc.)

Ensuring access for emergency services

Preventing the spread of fire

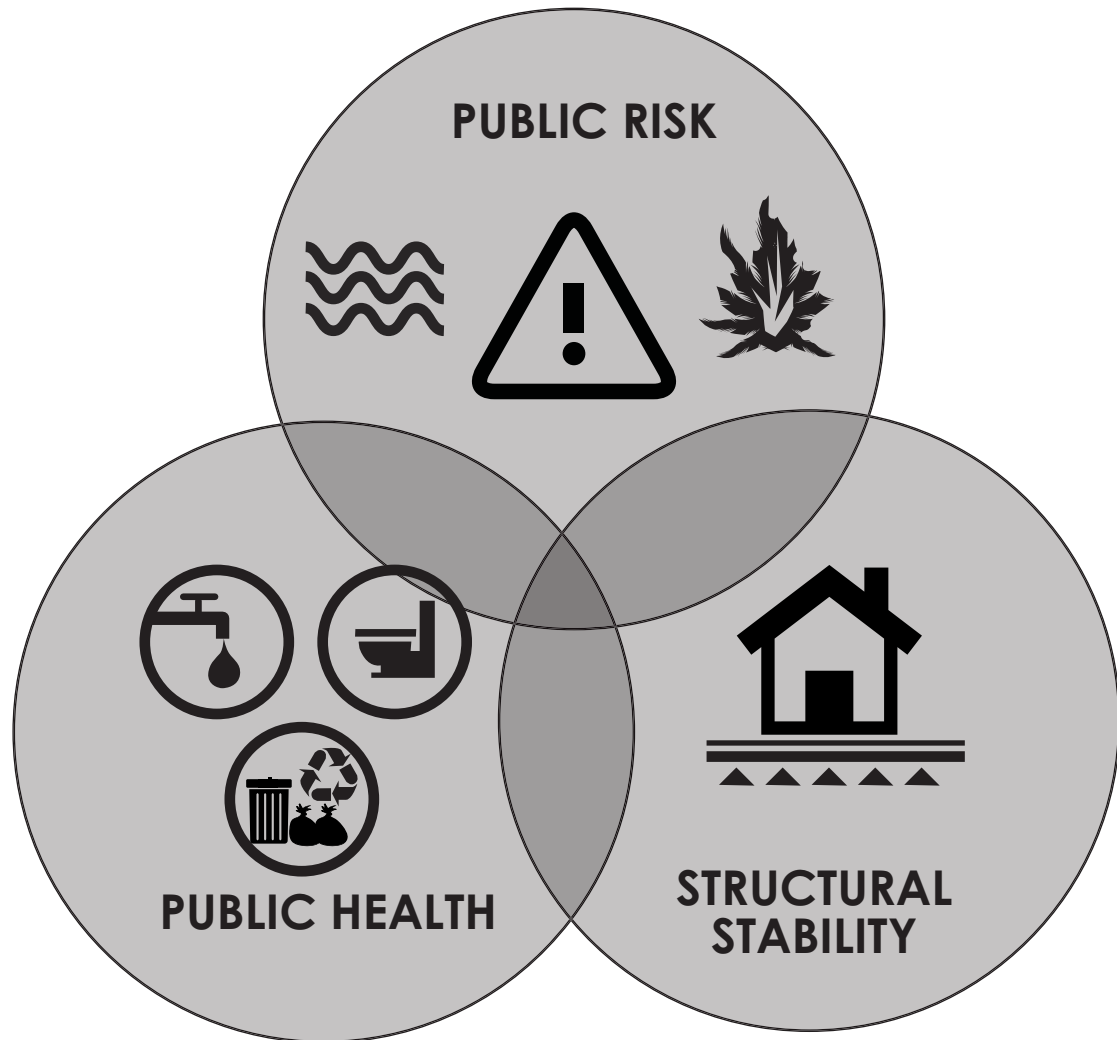
2. Ensure public health by:

Providing access to sanitation and basic services

Ensuring adequate light and ventilation to habitable rooms

3. Ensure structural stability by:

Providing the structural preconditions from which to start the construction of a house.



5 MINIMUM LEVELS OF SERVICE

As a minimum the developer must provide:

1. A complete, dignified and well managed public environment. This is defined as an urban street that is surfaced for the entire width of the road reserve, is regularly maintained and equipped with street lightning.
2. A self draining site with access to formal stormwater services located in the road reserve that is connected to on site or regional attenuation facilities and other stormwater infrastructure.
3. One 40AMP electrical connection per plot with the municipal network designed to meet the demand of up to 3 dwelling units per property (where sites are smaller than 100m² (400du/Ha)) and with an additional dwelling unit for every additional 50m² of site thereafter. The electrical design must allow for multiple meters within the plot (1 per dwelling unit).
4. One water connection per plot with the network potential to meet the demand of up to 3 dwelling units per plot (where sites are smaller than 100m² (400du/Ha)) and with an additional dwelling unit for every additional 50m² of site thereafter.
5. One formal connection to the waste water system with the sewer network able to meet the demand of up to 3 dwelling units per plot (where sites are smaller than 100m² (400du/Ha)) and with an additional dwelling unit for every additional 50m² of site thereafter.
6. An incremental starter structure consisting of:
 - A wet core (composed on an enclosed toilet, hand wash basin - plumbed with cold water, an open gully and foul sewer connection);
 - A party wall (to reduce fire risk and ensure structural stability),
 - A floor slab with foundation walls that are able to support a building of 3 stories (to ensure a dry and sound footing)
7. Direct vehicular access to the property for 70-80% of properties.
8. Access to a solid waste service within 20-40m of the housing unit.

*Where the double occupation of a property is considered as a short term measure each property must have a single connection to the municipal service and multiple meters must be provided, one to each household.

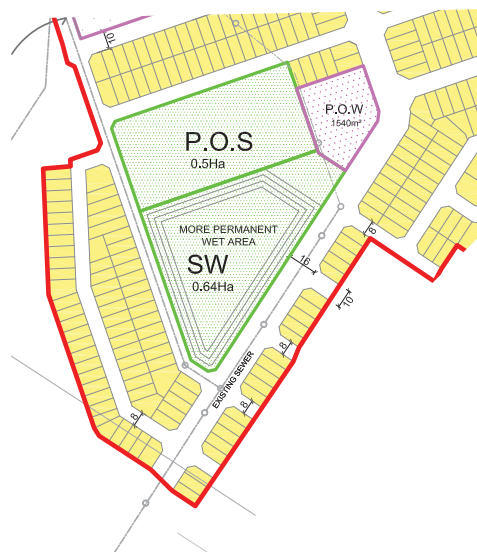
6 STORMWATER DESIGN

1. Develop a regional / site wide approach to stormwater management and seek to develop solutions to stormwater management at the scale of the catchment area and in accordance with the City's stormwater masterplanning.
2. Start the design process by developing a clear understanding of the topography of the site and how natural drainage works.
3. A Stormwater Management Plan must be produced which takes cognizance of applicable stormwater, policies, masterplans, guidelines and by-laws, and must be approved by the City's Stormwater and Sustainability Branch. This plan should not create an additional stormwater management burden on the City or expose residents to undue flood or pollution risk.
4. Avoid creating low points and eliminate trapped lows that cannot be drained naturally.
5. Stormwater attenuation areas must to be provided within the broader site for sites over 4000m² as required by City Policy.
6. Develop stormwater solutions that are easy to maintain. In some situations closed, consolidated systems that include dry ponds that require less maintenance are preferred to open systems such as swales and open channels which can become a public health risk due to solid waste and polluted grey water deposition.
7. Overland stormwater escape routes must be planned for.
8. Stormwater quality management should ideally be dealt with within the development. Where this is not practical stormwater quality can be managed with off site provided these regional facilities are built / upgraded as part of the housing project and form part of a catchment wide stormwater management masterplan.
9. Alternative designs for attenuation and infiltration within the road reserve can be considered but these should not increase the maintenance burden to the City.
10. The co-location of stormwater facilities and public open space or public parking courts is encouraged.
11. Channels and retention areas must integrated into the landscape plan of parks as positive / multi-functional amenities.
12. A detailed landscape plan of all facilities must be submitted for approval.
13. Stormwater conveyance, attenuation and treatment facilities with standing water must be designed carefully to adhere to the National Health and Safety legislation in order to ensure a safe environment, prevent drowning, discourage illegal dumping and facilitate operation and maintenance activities. Physical barriers such as bollards must be installed to discourage illegal dumping, infilling and inappropriate settling.
14. Where swales or sustainable urban drainage are provided that run alongside a street these should form part of the road reserve and should not be zoned open space.



Before beginning the design process develop an understanding of the topography and how water currently flows / moves across the site

15. "Maintenance Management Plans" (maintenance manuals) must be developed for all stormwater facilities. Such MMPs must be approved by the relevant department and handed over prior to the completion of the project.
16. Service level agreements between the different departments who may play a role in maintaining the facility (City Parks, TCT and Solid Waste) must be signed off prior to implementation. The continuation of linear or linked open spaces associated with the stormwater network must be ensured.
17. Sites that are earmarked for development must be graded / sloped / raised to ensure that storm water flows into the street. When appropriate (such as on steeply sloping sites) formal connections to the storm water network in the road reserve should be provided.
18. Floodlines (1 in 50 year) should be physically and visibly demarcated on development sites that may be exposed to flood events to ensure that residents can take appropriate action in the event of such floods.



7 INFRASTRUCTURE AND SERVICES

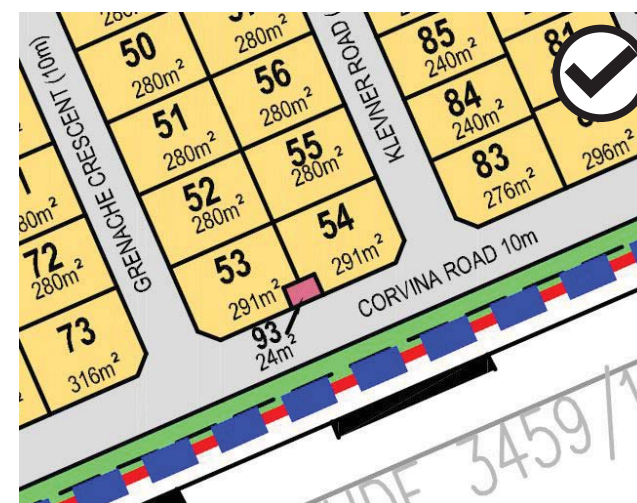
1. The ultimate design density of the development must be determined up front and infrastructure designed appropriately and to a high standard to ensure the longevity of the infrastructure network.
2. Utilities networks must be designed for incremental growth and intensification. It is recommended that the services should be designed to support a net density of 1600 persons/Ha or 400du/Ha over within those areas designated for residential development.
3. Integrate the bulk engineering design and layout into the design process (for all services - water, waste water and electricity) and ensure that adequate provision is made for larger elements of infrastructure such as transformer stations, electrical substations and pump stations.
4. Ensure that the street layout responds positively to the existing topography, that the site is self draining and that gravity related services predominate.
5. Minimise the need for pump stations, manholes and junctions.
6. Investigate the use of recycled and renewable materials for road base courses and retaining structures (geotextiles and natural fibres).
7. Unless services can be accommodated safely and attractively within the road reserve, separate erven should be created for utility services and zoned for utility services.(pump stations, electrical substations).
8. Avoid locating utility services (pump stations, substations etc) on public open space where they can compromise the functionality of the space.
9. Avoid locating utility services (pump stations, substations etc) on street corners.



The integration of stormwater facilities within public open spaces is encouraged, but care needs to be taken in how the spaces are designed. Management agreements need to be entered into between various departments to ensure that the facilities are effectively maintained. It is essential that the properties that surround these spaces provide a positive interface with the park or stormwater facility and that the location of the facility does not compromise the functionality of the park.



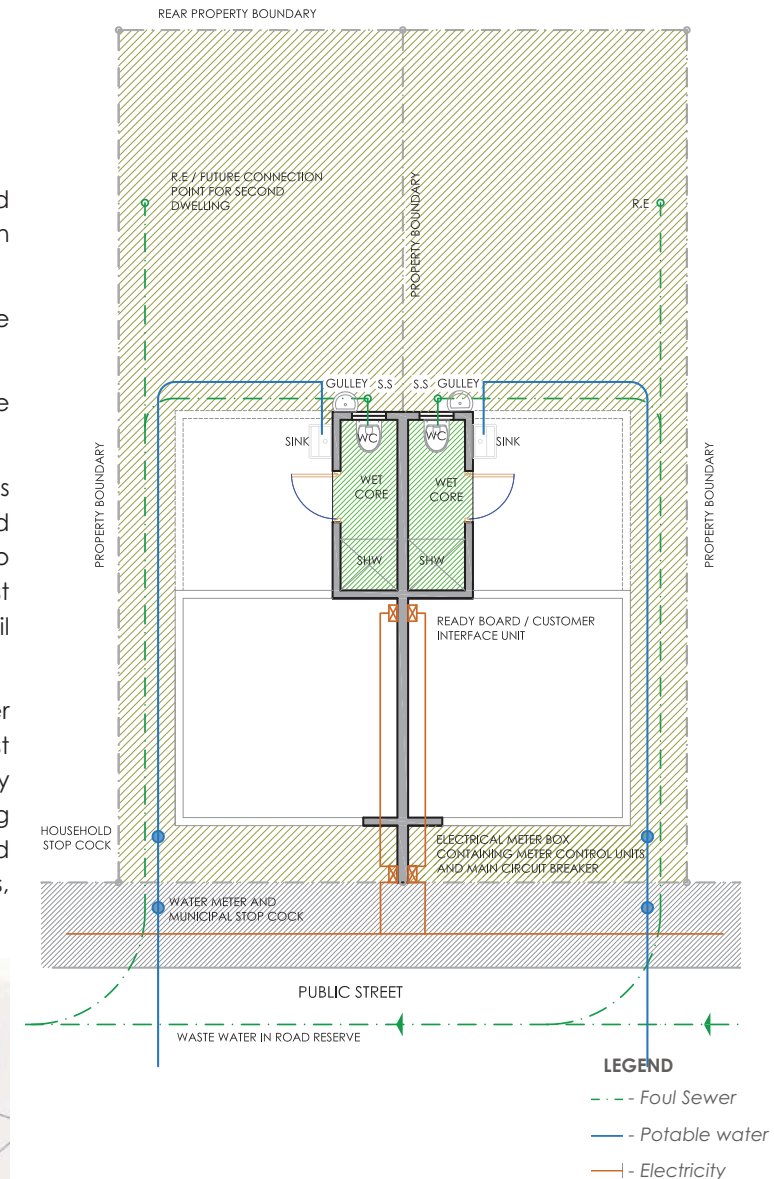
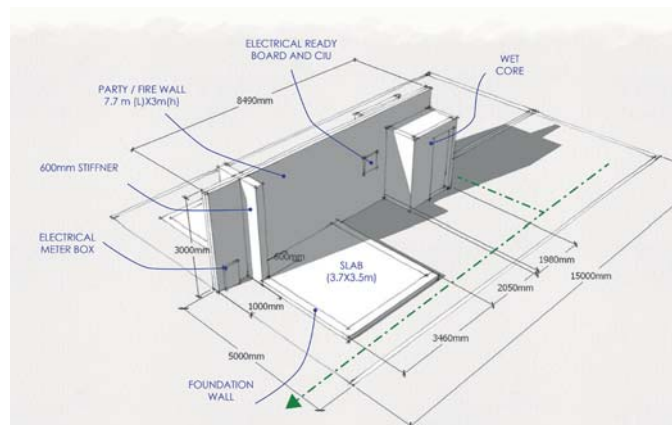
Avoid placing substations on public open space as this undermines the functionality of these spaces as amenity spaces and recreational areas



Substation sites should ideally not be located on corner sites but rather within the urban block and at a mid-point where they can serve multiple directions.

10. Mid-block servicing and servitudes across private properties is not supported.
11. Wet services (potable water and waste water connections) should generally be located in the centre of the property so as not to limit future development. This will make it easy and safe for additional connections to link into the formal utility network when required.
12. Conduits for telecommunication and fibreoptic cables must be included in the road reserve.
13. As a rule of thumb one substation site (5x3.5m) must be provided for every 100 to 150 properties.
14. Electrical sub-stations should be located as close to intersections as possible to allow them to service in multiple directions, but not on the street corner.
15. All electrical cables should be underground and substations should be ground-mounted.
16. Provision must be made within / directly adjacent to the road reserve for distribution kiosks (as a rule of thumb provide 1 kiosk for every 8-12 properties).
17. Provision must be made in the electricity network design and meter box layout for the maximum agreed number of dwellings per site.
18. Each property must be provided with one electrical connection with a single circuit breaker to the site.
19. Multiple electrical meters may be provided on the property for second dwellings or tenants at a later date or as part of the project provided there is only one connection to the property.

20. Customer Interface Units (CIUs, or keypads) should be installed in each dwelling at its main distribution board or next to the readyboard.
21. Meter Control Units (MCUs) should be installed in the centralised meter box on the street boundary.
22. Water meters must be located in the road reserve where they are accessible.
23. When non-conventional, sustainable technologies and services are proposed and implemented, and where their failure could potentially create a risk to the health and wellbeing of residents, these must be backed up with connections to traditional civil engineering services.
24. As-built drawings of all utility installations together with their instruction and maintenance manuals as must be provided to and verified by the relevant utility department prior to sign off and transfer. This drawing package must include a digital geo-referenced drawing in GIS format locating all utility lines, substations, manholes etc.



THE LOCATION OF SERVICES WITHIN THE SITE

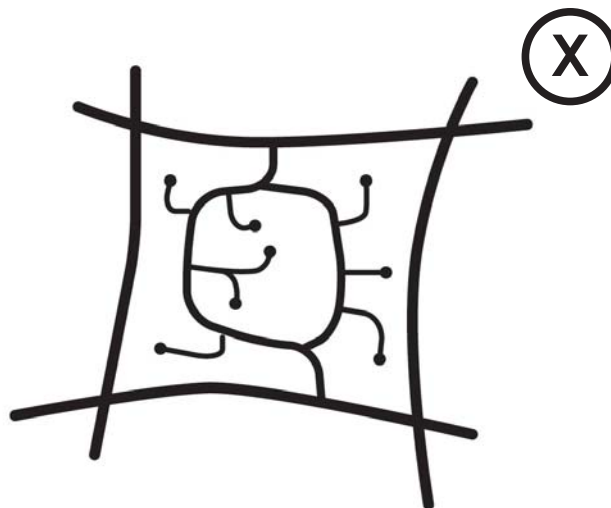
The utility connections to the plot should enter the property from the public road reserve with circuit breakers and municipal stock cocks accessible from the road reserve. The wet core and sewer connection should ideally be located in the centre of the property / plot to provide the householder to extend or move services around with the greatest of flexibility.

8 STREET DESIGN GUIDELINES

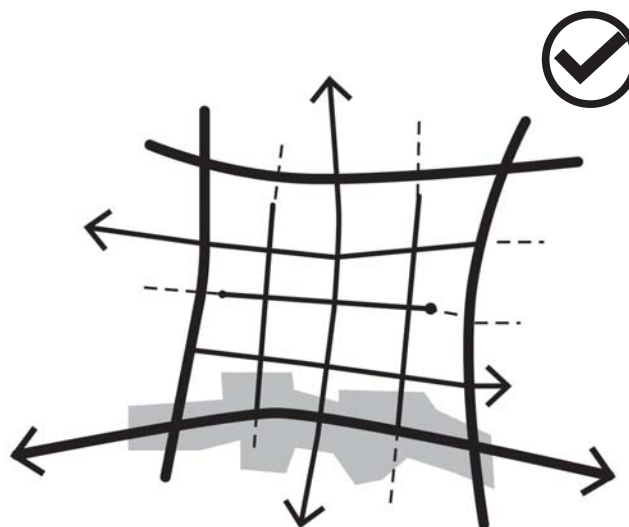
Streets must be designed intentionally to provide structure, create a sense of place, provide access, ensure safe and efficient movement, convenient parking and to act as conduits for utility services. In particular:

PLACE AND STRUCTURE

1. Understand the nature of the streets that are being created. Take into consideration: the types of land uses and activities that will be located alongside them, the types of people who will use them, the role of the street within the broader city street network and the mobility function it will need to fulfil.
2. The street network should create a clear structure to the neighbourhood and contribute to the neighbourhood's unique sense of place.
3. Ensure that the width of the road reserve is sufficient to accommodate its particular requirements. (See standard street widths)
4. Overly complex, convoluted and discontinuous street networks should be avoided.
5. Streets must be designed as flexible spaces that are able to accommodate a range of uses, users and activities.
6. Streets must be designed to be safe for all road users and buildings should look onto and define the street.
7. The road reserve must be treated as a complete environment with quality durable materials, details and finishes. Soft verges are to be avoided unless these have a specific function and where the road reserve width allows.
8. The road reserve should be defined clearly and simply. Irregular street boundaries (small steps or recesses) should be avoided;



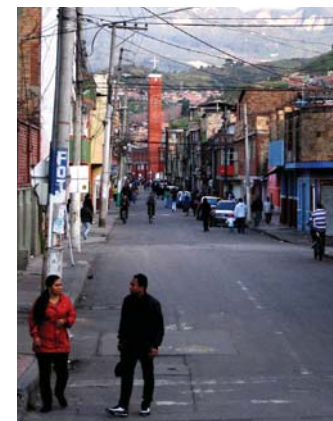
Avoid discontinuous street layouts that become circuitous as these make orientation difficult and limit permeability for pedestrians and NMT users.



Ensure that the layout the street network creates an ordered and legible street network that responds and adapts to local contextual conditions. The grid network should create different levels of permeability for different road users to ensure convenience and promote sustainable modes of transport.



Ensure that the entire road reserve is delivered as a complete street from boundary line to boundary line

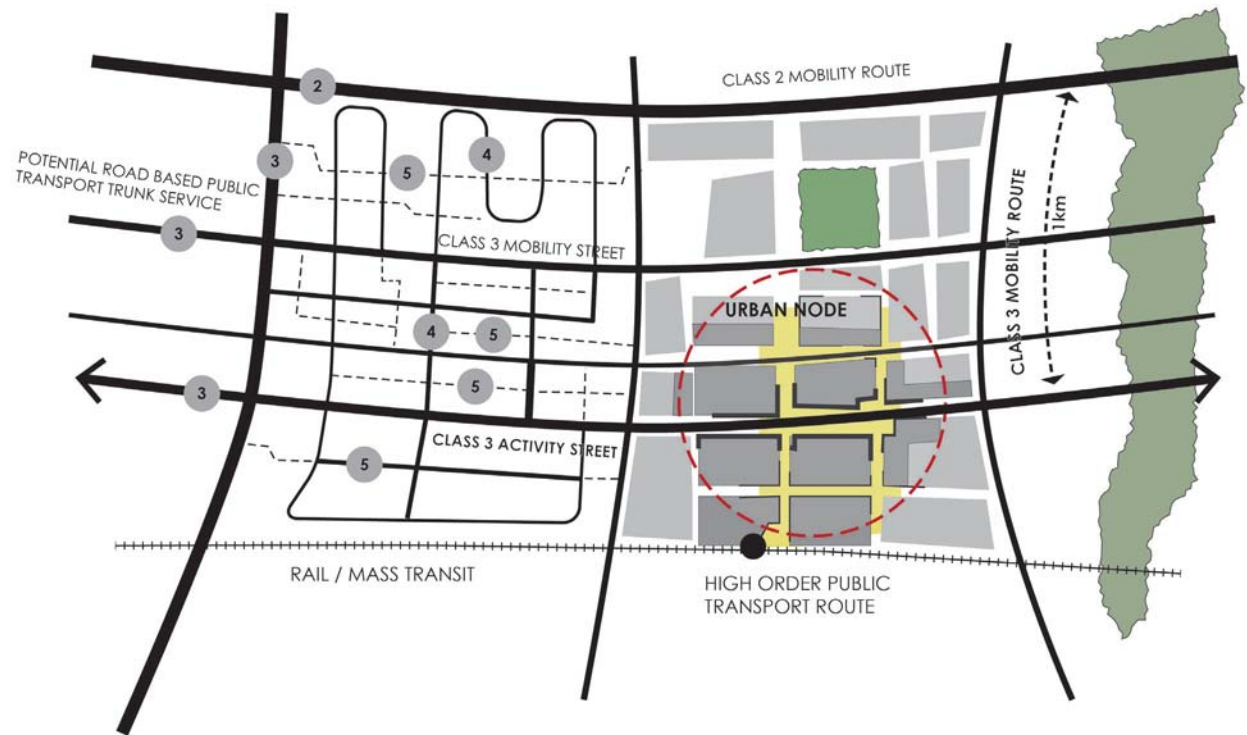


Where possible orientate streets to pick up on existing and future local landmarks and public facilities. This helps create a sense of place with orientation.

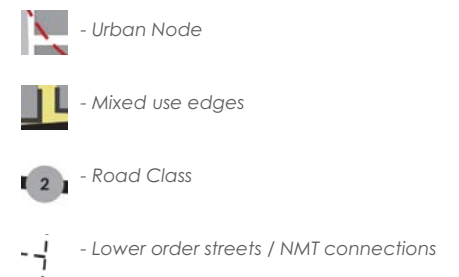


Most residential streets should be designed as shared / pedestrian priority environments with trees and parking helping to negotiate the spaces.

9. Most road reserves should be 8m wide and be treated as shared spaces / pedestrian priority environments.
10. Where there is a mix of formal top structures and incremental housing the formal top structures should be located along the main structuring routes to define the public realm.
11. Where 4m wide pedestrian lanes are proposed properties should be arranged to take access directly from these streets and buildings must overlook these spaces with doors and window from habitable rooms.
12. Keep the road reserves as narrow as possible and widen them at key points to accommodate other bus stops informal trade and other uses.
13. Provide splays at major intersections where sight distances are critical. (Typical splay dimensions are 3, 5 or 7m).
14. In low order residential environments, shared spaces and along pedestrian only lanes where the intention is to discourage speeding and create negotiated spaces square corners are acceptable, provided services can be adequately accommodated.
15. Open spaces should be surrounded by streets or footways to ensure that they are overlooked and that their edges are activated.
16. Look to include street trees within the road reserve to mitigate the impacts of climate change
17. Impact planting with signature trees (mature 200L trees) at strategic places is preferred to tree lined streets.

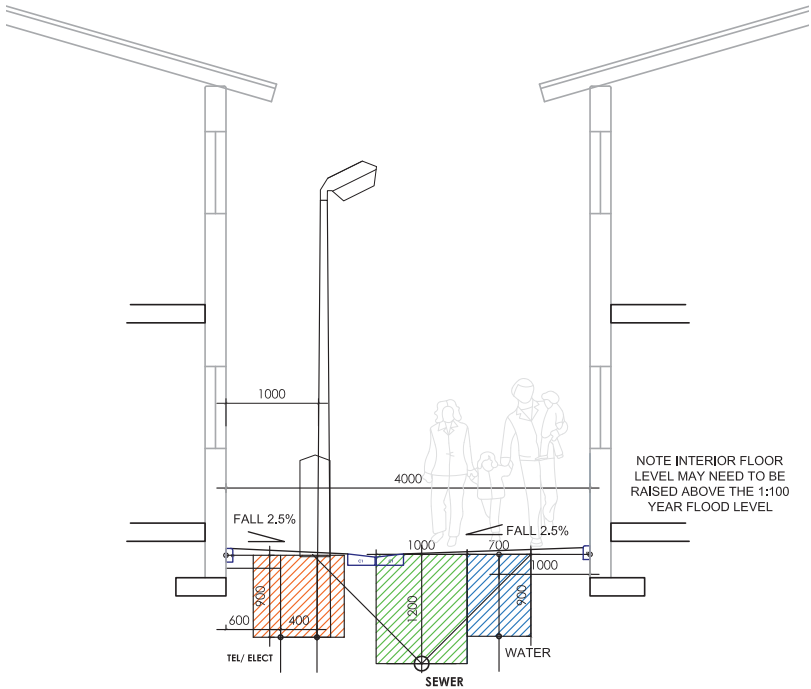


When planning a new development area it is critical to understand how the site fits into the existing and future road network. As far as possible the street network should be arranged into an open grid network with mobility routes supporting urban nodes and activity streets. It is essential to consider the nature of each street and connection, taking into consideration the land use / urban function as well as the mobility function. In all planning it is essential to consider both road and rail based public transport and ensure the continuity of activity routes and ensure that nodes are supported by public transport infrastructure



Typical road reserve widths

Reserve width	Class	Description
40-25m	2/3	Major distributors / IRT trunk routes with dedicated NMT facilities (preferably segregated Class 2 facilities). Cross sections to be agreed with TCT based on the role of the street and Road Access Guidelines
20m	4	High order streets accommodating public transport and class 3 NMT facilities.
16m	4/5	Allows for on street parking, tree planting and 2m wide pavements.
12m	4/5	Allows for 2m wide formal sidewalks and on-street parking on one side of the road.
8-10m	5/6	Should comprise the majority of streets within a settlement - the minimum width can vary from 8m minimum to 10m where required to accommodate services and should be multifunctional in nature.
4m	6	Pedestrian only lanes should only provide access to 30% of properties.



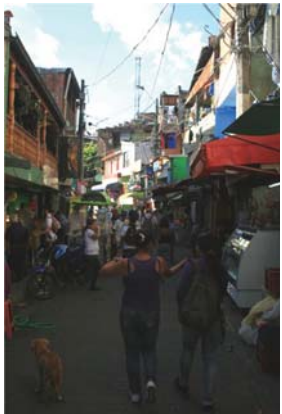
4m

Proposed typical 4m wide pedestrian lane

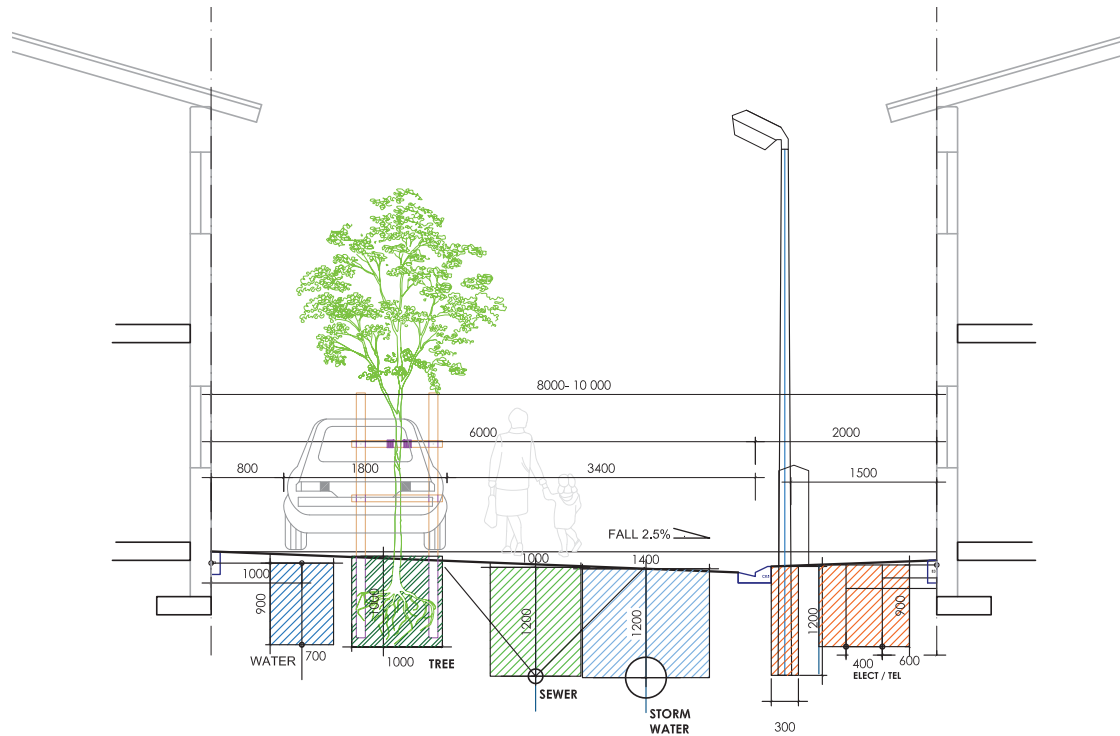
* Note: For material standards, technical specifications and performance criteria please refer to the latest version of the Minimum Standards for Engineering Services in Cape Town available from TCT



Examples of 4m pedestrian lanes



8-10m

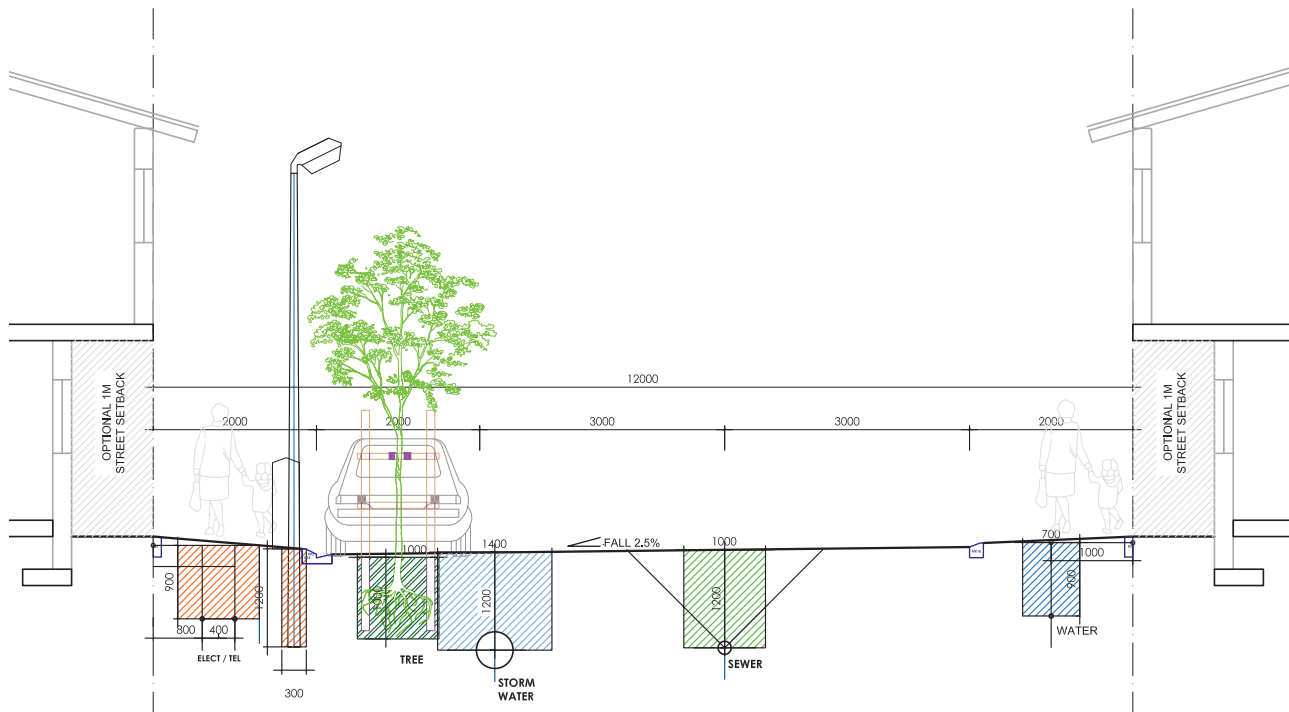


Proposed typical 8m wide multi-functional street - these streets may be increased to 10m where required.

* Note: For material standards, technical specifications and performance criteria please refer to the latest version of the Minimum Standards for Engineering Services in Cape Town available from TCT



12m



Proposed typical 12m wide street

Allows for formal roads, 2m wide pavements and on-street parking on one side of the road

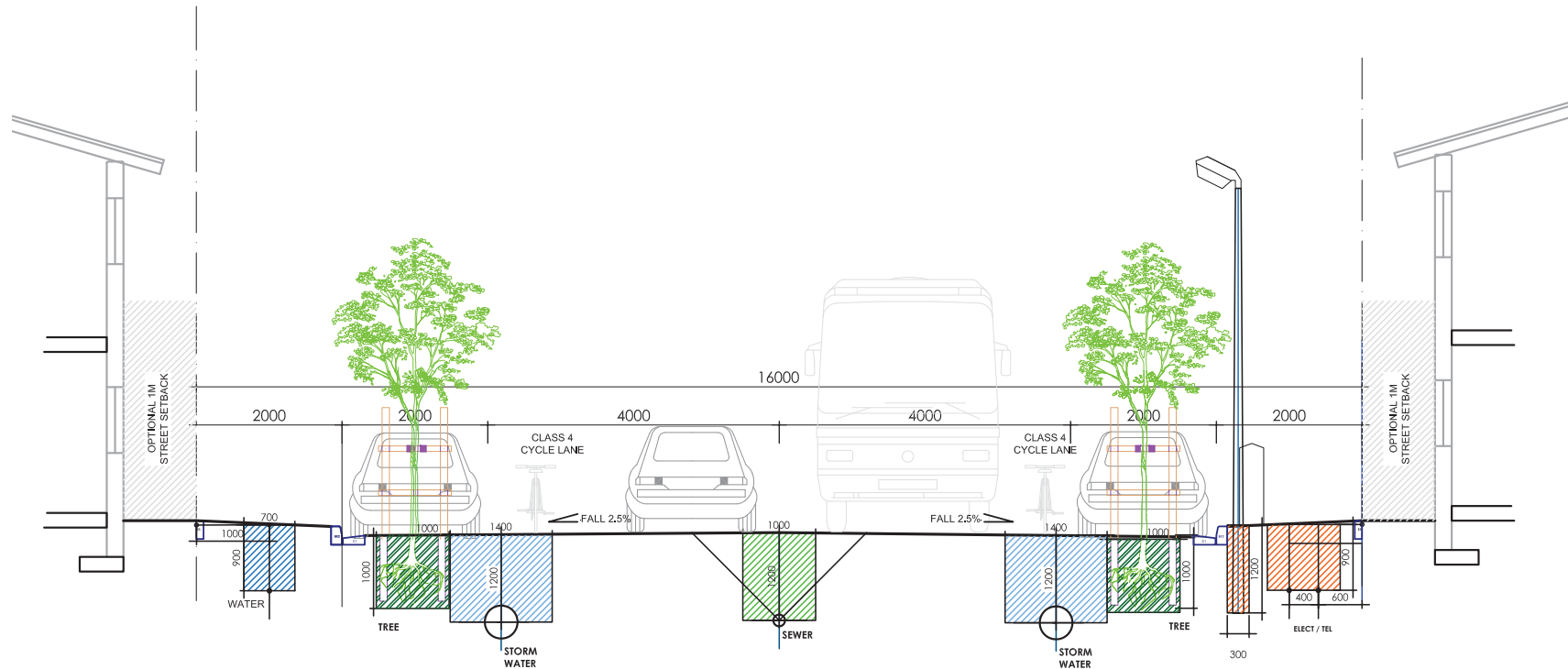
* Note: For material standards, technical specifications and performance criteria please refer to the latest version of the Minimum Standards for Engineering Services in Cape Town available from TCT



Examples of 12m wide streets



16m



Proposed typical 16m wide street

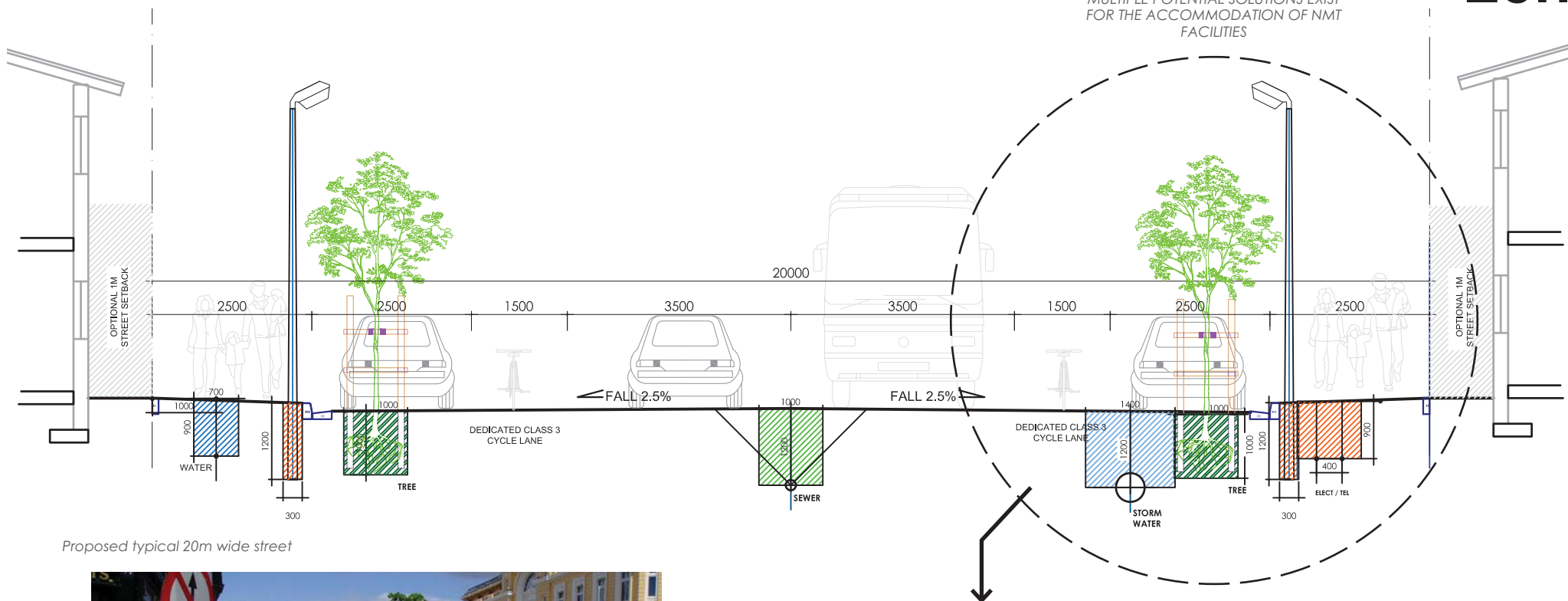
- allows for on street parking, tree planting, non dedicated cycle lane in the road reserve and 2m wide pavements



Examples of 16m wide middle order streets

20m

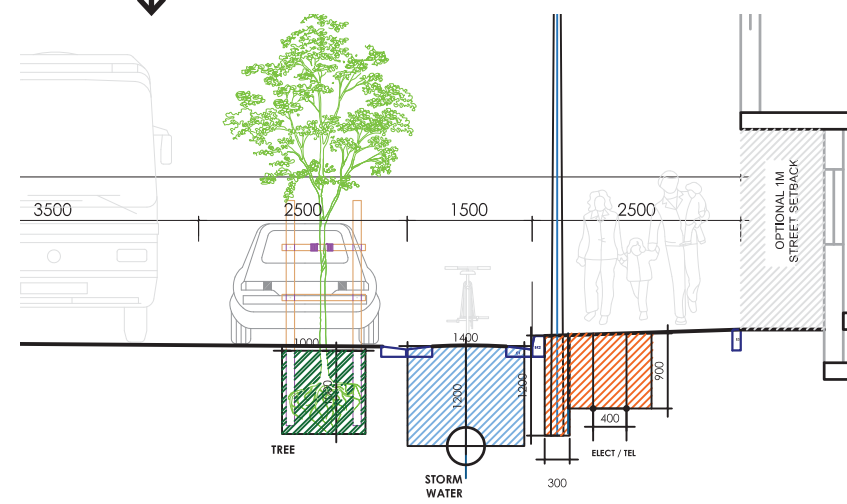
MULTIPLE POTENTIAL SOLUTIONS EXIST FOR THE ACCOMMODATION OF NMT FACILITIES



Proposed typical 20m wide street



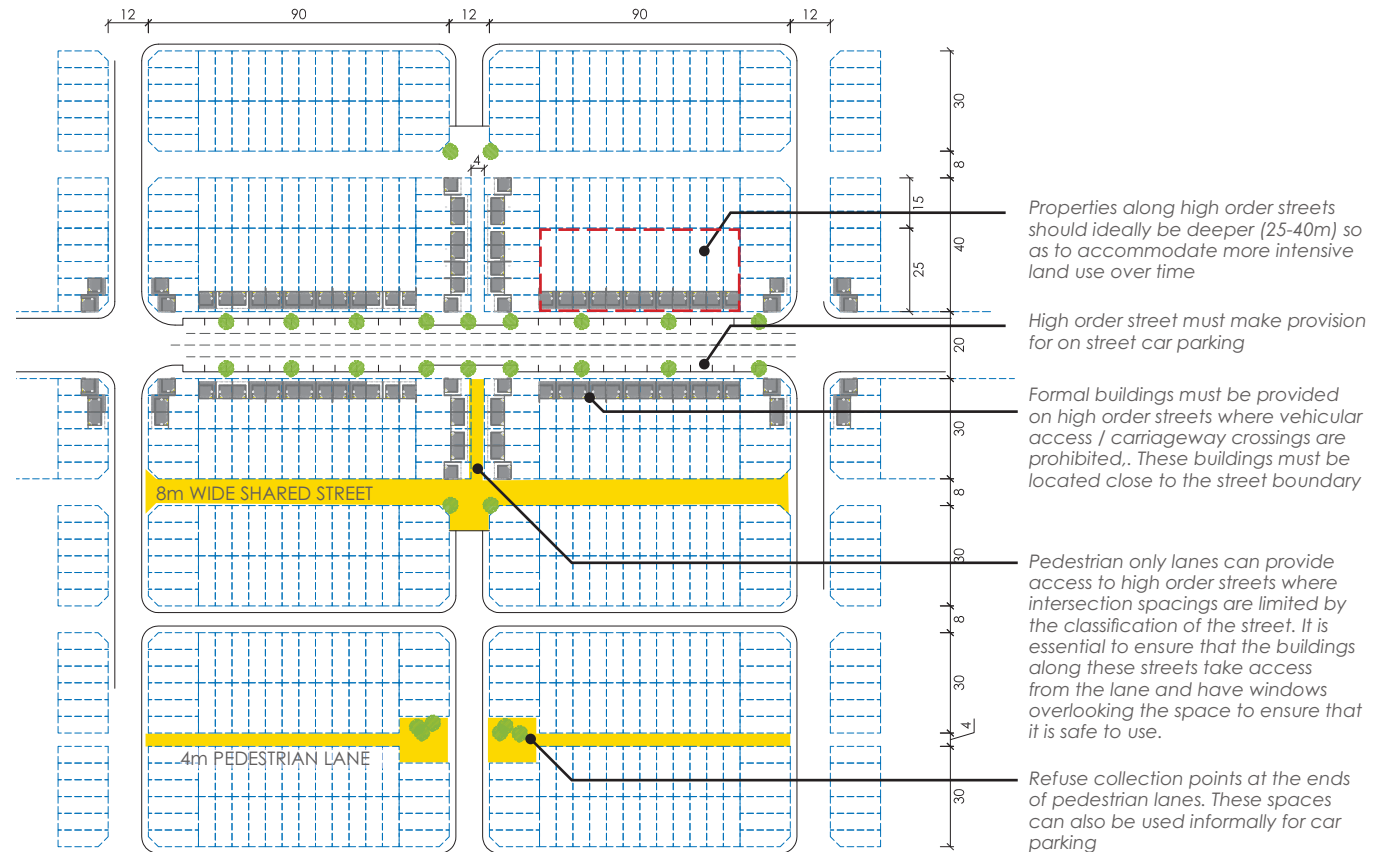
Examples of higher order mixed use street environments



Alternative arrangement with a protected bike lane (this alternative is appropriate where intersections spacing are long and where there are limited carriageway crossings)

ACCESS

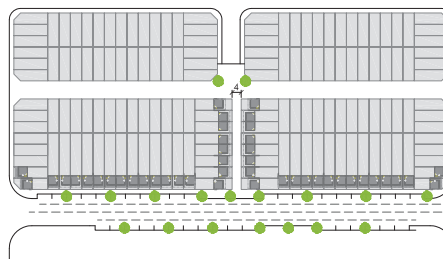
18. Ensure adequate access for emergency services and service vehicles. As far as is practical ensure that refuse vehicles are able to travel in a continuous forward motion.
19. Link the proposed street network into the existing surrounding street network and accommodate existing and anticipated pedestrian desire lines.
20. All streets should provide universal access and be designed to facilitate access for those with disabilities.
21. Avoid gradients over 1:10 (10%).
22. Ensure that between 70 and 80% of properties are accessible by vehicle.
23. Where the road section includes barrier kerbs these should allow for the safe turning of refuse vehicles. Standard radii are 2, 5, 10 and 15m.
24. Carriageway crossings to individual properties must be provided as part of the development. The approval of additional crossings is at the discretion of TCT and the District Manager (PBDM).



An example of street grid within an incremental development area with varying street widths accommodating the needs of all road users

25. Direct vehicular access to properties along Class 2 and Class 3 Streets will not be permitted unless these comply with the Road Access Guidelines.
26. Formal top structures must be built on those properties adjacent to higher order roads (Class 2 and Class 3 streets or where otherwise deemed appropriate). These houses must be located as close to the street boundary as possible to define the street and will not be permitted vehicular access from the road reserve unless it is safe to do so. The houses should also address the street positively with windows overlooking the street. Barrier kerbs and other obstacles (trees, streetlights etc.) should be installed along the road reserve to prevent and discourage informal access. On street parking in these instances should be considered (apart from on Class 2 Streets) and pedestrian access from the house onto the street is encouraged.
27. Pedestrian access to properties via 4m wide pedestrian only lanes is acceptable. Such lanes should be no longer than 90m to ensure that man holes can be inspected and adequate access for emergency services. The placement of street furniture and buildings should prevent / discourage vehicular access into these streets.
28. A 2m wide pavement should be provided on all streets wider than 8m, on both sides of the street.
29. When laying out nonresidential sites consider the servicing requirements of future buildings and how car parking will be provided within the site.

POTENTIAL ACCESS ARRANGEMENT AND BLOCK LAYOUTS ALONG HIGH ORDER STREETS (CLASS 3)



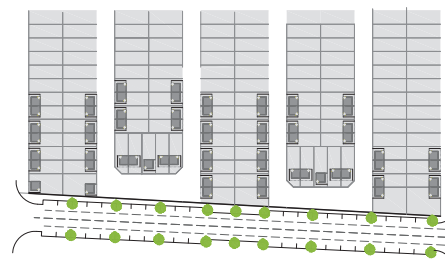
Plots front onto the street but no vehicular access is permitted. Parallel parking may be provided on street.



Plots fronting onto high order roads access via pan handle. Parallel parking may be provided on street.



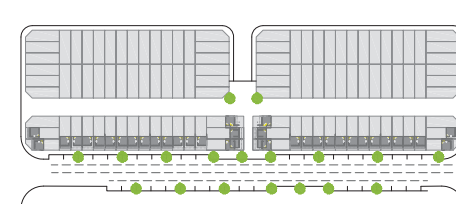
Plots fronting onto high order roads access via cul-de-sac. Parallel parking may be provided on street.



The arrangement of blocks allow for short service roads along high order street allowing for circulation of larger vehicles within the development. Barrier kerbs, bollards and trees can be used to restrict illegal vehicular access from the minor streets onto the high order streets



If it is not possible to use any of the above layouts alternatives long narrow plots may be provided but the urban block must be at least 30m deep and buildings must be built on these site within 1m of the rear street boundary (along the higher order road). This will allow such sites to accommodate more intense urban development in the long term.



Narrow blocks along high order streets should be avoided but if these are necessary formal buildings must be built on these site within 1m of the rear street boundary (along the higher order road) and the buildings must have windows overlooking the street.



MOVEMENT

30. Prioritise NMT modes and the use of public transport as the primary means of transport.
31. Develop a strategy for the incremental roll out of public transport services and ensure that sufficient provision is made for facilities (such as taxi ranks and embayments) with the new development area.
32. The street network must create a road hierarchy to ensure access to all parts of the development and provide sufficient distribution of traffic onto and from the metropolitan road network.
33. The street network must be intentionally designed to discourage speeding and unsafe driving behaviour without the installation of speed calming measures.
34. Control measures at intersections must be designed to deal appropriately with current and anticipated future traffic volumes without the need for redesign.
35. As a general rule streets should either be 4m wide pedestrian lanes (prohibiting access by vehicle) or 8m wide facilitating vehicular access and movement.
36. 8m wide vehicular streets may be narrowed or pinched down to 5.5m in select places to manage traffic flow, but this should not be for longer than 15-20m (see block on page 30).
37. Plan the NMT network up front and secure appropriate road reserves for NMT facilities.
38. NMT routes should be continuous, with proper indication of the intended way to integrate with other traffic where dedicated routes end.
39. Where dedicated NMT facilities are provided it is necessary to consider bi-directional movement and future desire lines.

40. Dedicated NMT facilities must be provided along higher order mobility routes. It is therefore important to ensure that these can be accessed at regular intervals.
41. The street network must allow for the penetration and circulation of public transport services.
42. Plan the width of the road reserve by considering both adjacent land uses and future levels of traffic.
43. Ensure good sight conditions at busy intersections and avoid creating intersections with an angle of less than 70°.

ON-STREET PARKING

44. The street network must be designed to accommodate on street parking where it is likely to be needed. This may require the widening of the road reserve in select locations.
45. When off street parking is not provided provision must be made for on-street parking formally or informally in the road reserve at a ratio of 1 parking bay for every 4 residential properties across the development.
46. On-street parallel parking must be provided along wider road reserves and where properties are not permitted to have carriageway crossings.
47. Public parking courts should be avoided. Where there is a need to increase the amount of on-street parking the road reserve should be widened at specific points to include different types of parking (perpendicular / 45 degree parking).



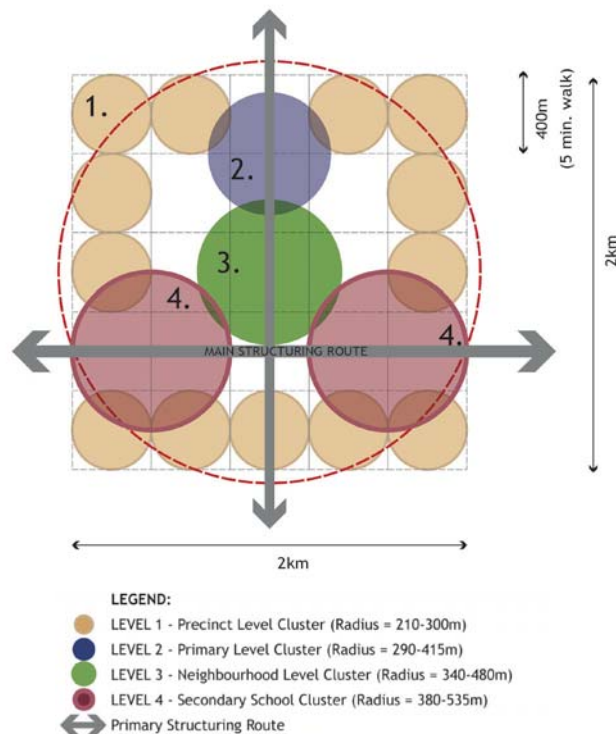
Different ways of accommodating on street parking.

UTILITIES AND STREET LIGHTING

48. Design streets and the street network as a conduit of stormwater that directs rain water into detention and attenuation areas.
49. Investigate sub surface stormwater quality management solutions within the road reserve (such as permeable paving and infiltration strips).
50. Road reserves must be wide enough to accommodate all services (stormwater network, potable water reticulation, sewer reticulation, electrical reticulation, street lights, telecommunications network services) below ground.
51. Road reserves should be wide enough to get access to and maintain services without risk of damage to adjacent properties or other services.
52. Fire hydrants must be provided in accessible locations and in positions that ensure adequate coverage for fire hose reels.
53. The location of services within the road reserve must take into account the likelihood that buildings will be built right up to the street property boundary.
54. Where there are curves in the street network seek to achieve straight runs between man holes of 60-90m in order to be efficient.
55. Substations, minisubs, pump stations and other control boxes must be located in a manner that does not undermine the quality of the public realm, create blind spots, entrapments spaces or create an obstacle / nuisance within the road reserve whilst at the same time ensure efficiency of service provision. Ideally these should be located outside the road reserve and on separate erven.
56. Street lights must be provided along all streets to ensure adequate levels of illumination in hours of darkness.
57. Public street lights may not be fixed to buildings and should be placed away from buildings to prevent them from being used to provide access for criminals.
58. Where vehicular access is limited spaces must be created within the layout for refuse collection points on collection day. These spaces should be sized according to the number of properties the area served and detailed appropriately.
59. Develop maintenance plans and manuals for streets prior to implementation.

9 PUBLIC FACILITIES AND PUBLIC OPEN SPACE

1. Planning for public facilities must begin at a regional and subregional level to ensure that there is sufficient access to high order facilities. This should be based on the "Summary Guidelines and Standards for the Planning of City of Cape Town Social Facilities and Recreational Spaces (3rd revision)", CSIR, 2014.
2. If there are existing facilities within the local area that are accessible from the site it is preferable to invest in and upgrade these rather than provide new facilities as part of the project.
3. Sites that are well located, relative to existing or future public transport should be set aside for public facility clusters / civic precincts.
4. Where the scale of the development is such that there is a clear need for public facilities, provision must be made for these within the site.
5. If no operational funding is available or if no management arrangements can be agreed to to secure a site for a public facility / public open space or deliver facility within 5 years of occupation, sites for public facilities should not be provided.
6. When required provide fewer, larger, high quality public facilities (rather than many smaller ones).
7. Create a hierarchy of civic precincts / civic clusters within the settlement based on the principles set out in "Annexure E: The cluster approach to the provision of public facilities within urban areas" CSIR, 2014 to minimise operational costs and give structure to the neighbourhood.



THE CLUSTER APPROACH TO PUBLIC FACILITY PROVISION

See annexure E: the cluster approach to the provision of public facilities within urban areas" in summary guidelines and standards for the planning of city of cape town social facilities and recreational spaces (3rd revision)", CSIR, 2014

The diagram above illustrates an abstract arrangement of facility clusters for a neighbourhood of 20 000 people / 6000 units at a gross density of 50du/ha. This requires an area of 114Ha, which is approximately 4 km². In principle each neighbourhood of 20 000 people should have access to clusters containing two secondary schools and three primary schools. In practice this diagram will be distorted by local conditions. It needs to be highlighted that the application of the cluster approach needs to be contextualized. The typologies and layouts cannot be dogmatically applied to all new developments.

The adjacent diagrams seek to provide an indication of what the different levels of civic cluster could look like. Again the composition and arrangement of the elements within the cluster will vary to create a unique sense of place and identity

Level one cluster - Community level (3000 pop)

Community level clusters are very localized and based on the threshold for a crèche or place of worship (2000 – 3000 pop).

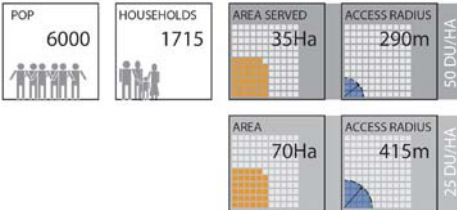
POP 3000	HOUSEHOLDS 850	AREA SERVED 17Ha	ACCESS RADIUS 210m
		50 DU/HA	
		AREA 35Ha	ACCESS RADIUS 300m
		25 DU/HA	





Level two cluster - Primary school cluster (6000 pop)

Primary level nodes are still localized and based on the threshold for a primary school (6000 pop). This implies that the daily needs of a small child are accessible within a 5-10 minute walk.



LEGEND:

- 1) PRIMARY SCHOOL (15,000m²)
- 2) SCHOOL HALL *
- 3) LIBRARY / MEDIA CENTRE *
- 4) PLACE OF WORSHIP (900 - 1,200m²)
- 5) ECD (CENTRE OF EXCELLENCE) (1,000m²)
- 6) SHOP / MIXED-USE
- 7) HIGH-DENSITY WALK-UP HOUSING

- PUBLIC FACILITY SITES
- POSITIVE URBAN EDGES
- SHARED CAR PARKING AREA / CIVIC FORECOURT
- PUBLIC OPEN SPACE (1350m²)
- PRIMARY STRUCTURING ROUTE (16 - 20m)
- ▲ PRIMARY PEDESTRIAN ACCESS POINT

(* = PART OF SCHOOL SITE)



Level three cluster - Neighbourhood cluster (8 000 pop)

Neighbourhood Level clusters are similar to a level two / primary level cluster and based on the threshold population of 8000 people. This scale of node makes provision for a neighbourhood scale public open space of between 5000 and 10000m².



Level four cluster - Secondary School level cluster (10 000 pop)

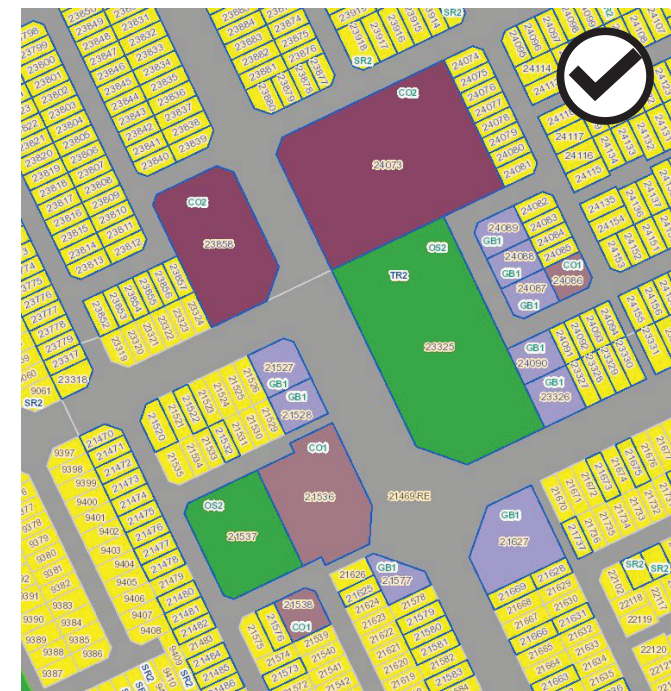
Level four clusters operate on the neighbourhood level and are based on the threshold for a secondary school (8000 - 10000 pop). This implies that the typical needs for a secondary school learner are accessible within a 5-10 minute walk.



8. When creating the subdivision for civic precincts provide large, generous, undivided plots for community facilities that can be subdivided at a later date if necessary. These properties must be formally transferred to the City and allocated to the relevant department and secured and protected after construction until buildings are developed.
9. District systems (such as grey water recycling systems and district energy systems) should be investigated within civic precincts to reduce operating costs.
10. The types of buildings and public facilities provided or planned for should be urban in nature, making the most effective use of the land available through multi-storey, multifunctional buildings.
11. New typologies of public building should be developed so that the use of these multi-functional building can be optimised and a range of services can be provided to the residential community.
12. Avoid locating sports fields, public open spaces and schools along high order roads as this creates conflict between pedestrians and traffic.
13. Layouts should include larger properties (300m²) adjacent to public open spaces for low order community facilities such as Early Childhood development Centres (ECDs) and places of worship. Processes must be put in place to ensure that these sites are allocated and released to the appropriate organisations and institutions for development (Preferably through long lease agreements).
14. Provision must be made within the budget of new housing projects for the construction of quality public open spaces.



Avoid creating public open spaces that are awkwardly shaped and which are backed onto by development.



Create civic nodes by clustering public facilities, public open space, business and sites for commercial activity. It is also important to ensure that public open spaces are surrounded by public streets and overlooked by development. (Mfuleni)

15. Public spaces must be intentionally designed to encourage play, recreation and social interaction.
16. Public spaces should be detailed to be attractive and robust.
17. There is a preference for the provision of fewer, more substantial, functional open spaces within a development as opposed to many small open spaces that are a challenge to manage and maintain.
18. The capital costs and operational implications for the maintenance of the public spaces (parks and streets) must be agreed to with the relevant line department before the project starts and agreements committed to writing.
19. A portion (20%) of the area of the road reserve can be considered part of the open space provision, provided the street environment is designed as a pedestrian priority area and landscaped appropriately.
20. Tree planting and soft landscaping should be implemented to mitigate the consequences of climate change, reduce heat stress and prevent the urban heat island effect. Impact planting with signature trees (mature 200L trees) at strategic places is promoted above a proposal that involves more extensive tree planting.
21. Tree and plant species should be drought resistant and require minimal irrigation.
22. Where required all green open spaces and trees must be equipped with automatic irrigation and maintained by the developer for a minimum period of 3 years after construction (once established irrigation may not be required depending on the type of species planted).
23. Alternative water supply should be used for irrigation (treated effluent and borehole water).



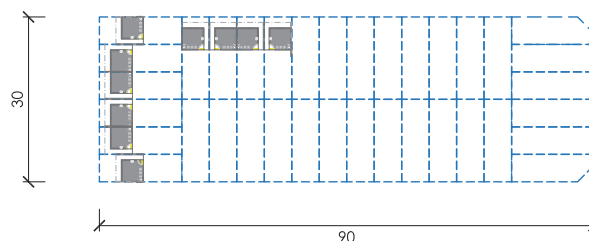
New types of public facilities need to be developed with an emphasis on multi-functionality and managed through new operational arrangements.



Public open spaces should be designed to be robust and hard wearing and buildings must look out onto the space

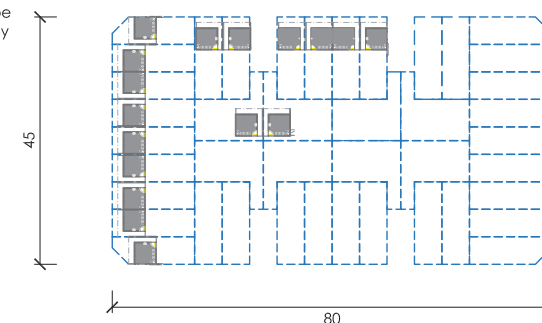
10 BLOCK AND PLOTS

1. Urban block and plots should be graded and levelled to drain towards the street;
2. Single sided blocks that back onto streets and open spaces should be avoided. If this is unavoidable plots in these blocks should be a minimum of 30m deep.
3. Unless single sided, urban blocks should be a minimum of 30m in depth so as to accommodate individual plots that are between 15 and 20m deep.
4. Urban blocks should preferably be between 60 and 160m in length to balance the need of infrastructure efficiency and pedestrian permeability. Unless special circumstances require it blocks should be no shorter than 60m and no longer than 200m.
5. Avoid creating blocks that are between 100 and 120m in length as these require additional manholes that add cost to the project and are less efficient.
6. The shape and proportions of the individual plots should be simple so as to accommodate different house types and also to help manage common boundaries.
7. The size of plots should vary depending on their location within the urban network. Deeper sites should be provided along high order streets to accommodate commercial activity, but in general residential plots should be between 75 and 100m².
8. Plot sizes should be a minimum of 75m² to allow for the future expansion of dwellings, second dwelling and private open space, preferably towards the back of the property (Deviations of up to 10% will be considered in exceptional circumstances in accordance with the development principles.)

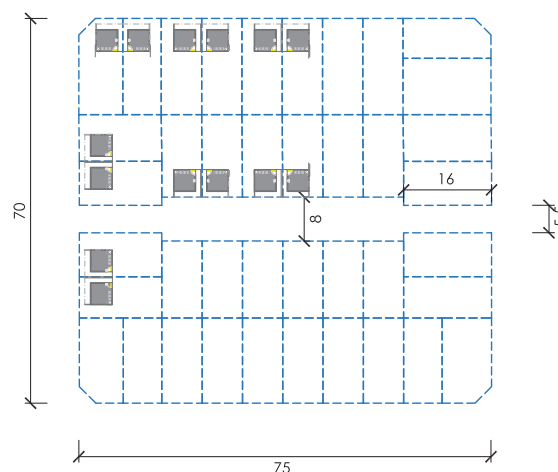


Urban blocks should optimally be 30m deep and 90m long to achieve optimum land use efficiencies. Variations of 10% will be considered where appropriate or in informal settlement upgrading projects where there is a need to provide accommodation for as many beneficiaries within the settlement as possible.

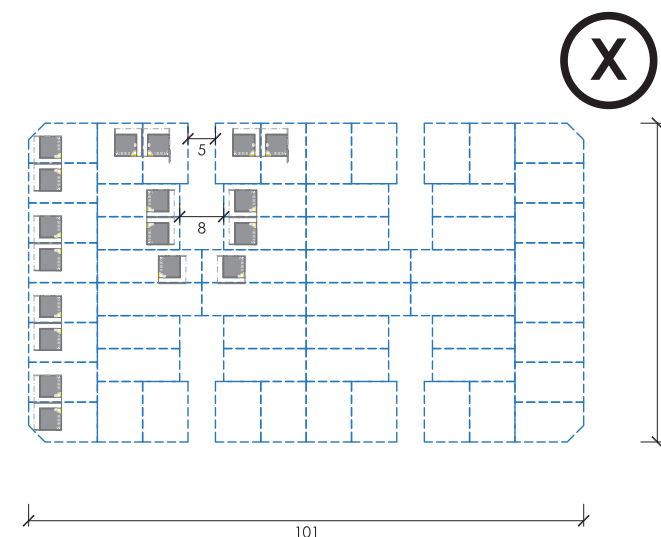
Splays should be provided at busy intersections



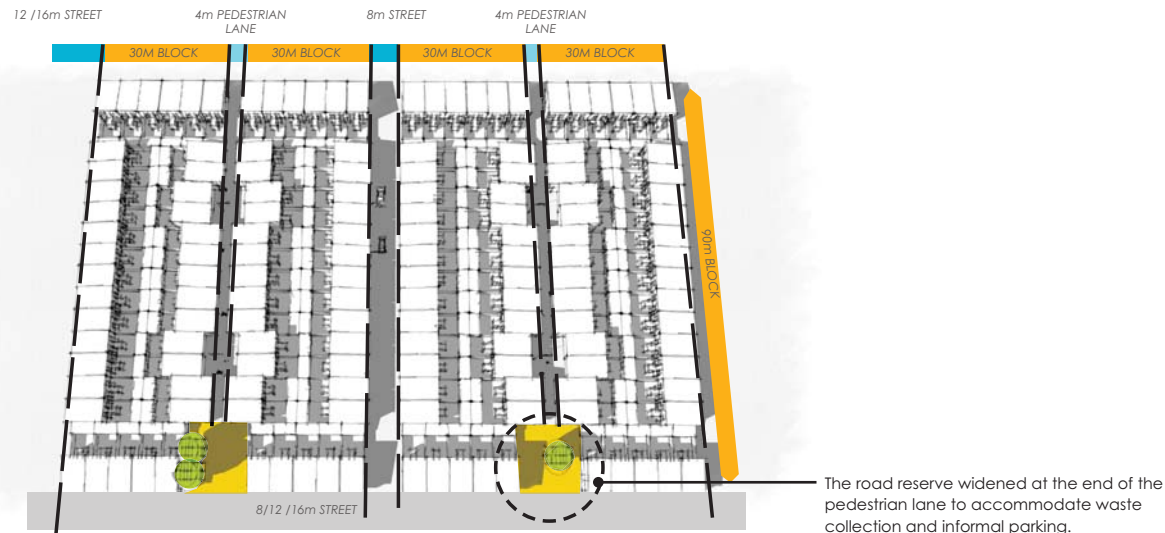
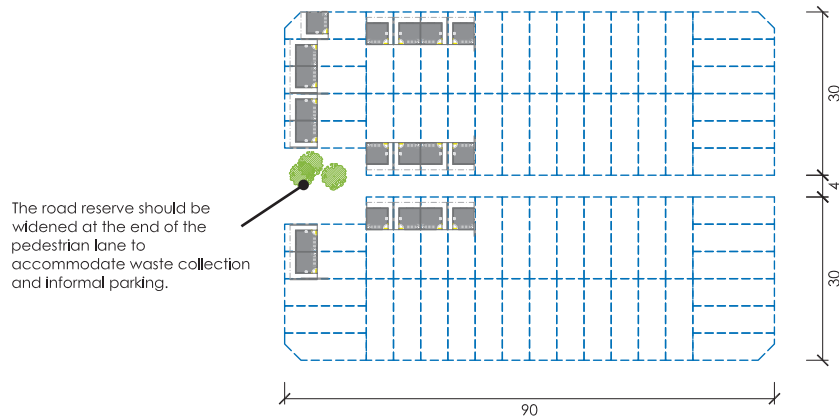
Deeper double loaded urban blocks that include shared access should be explored to improve land use efficiency, but consideration needs to be given to the cumulative servicing costs of this model. Special attention also needs to be given to the shape of even to ensure that they can be developed effectively and also to ensure common boundaries are easy to identify for enforcement purposes.



Vehicular streets may be narrowed or throttled at key points to create a more pedestrian oriented environment and discourage speeding but the shape of the road reserve should remain simple. Detailed consideration needs to be given to how such blocks fit into the road network and how carriageway crossings and kerbs are detailed.



While it is possible to create larger composite blocks with cul-de-sacs that are more efficient in terms of land use this arrangement requires additional manholes and the levels need to be dealt with carefully to ensure that the sites and roads drain naturally.



The above diagram and plan illustrates the potential arrangement of traditional 30m urban blocks into a street network that includes 8/12/16m vehicular streets and 4m wide pedestrian lanes.

9. Plot dimensions should promote attached urban house typologies. These should generally be narrow (3.75 - 7.5m) and deep (15-20m) to increase infrastructure efficiencies, promote natural surveillance, cross ventilation natural lighting and encourage the development of urban house typologies.
10. Typical erf dimension are as follows: 3.75x20m, 5x15/20m 6x15/20m and 7.5x20m.
11. Double - loaded blocks, four erven deep should be explored to achieve greater efficiencies.
12. There must be a clear definition of public and private space within the development.
13. Common boundaries must be physically demarcated to prevent encroachment. The minimum provision of wire fences with posts on the boundary peg is required, but low precast / timber fences along common boundaries are preferable.

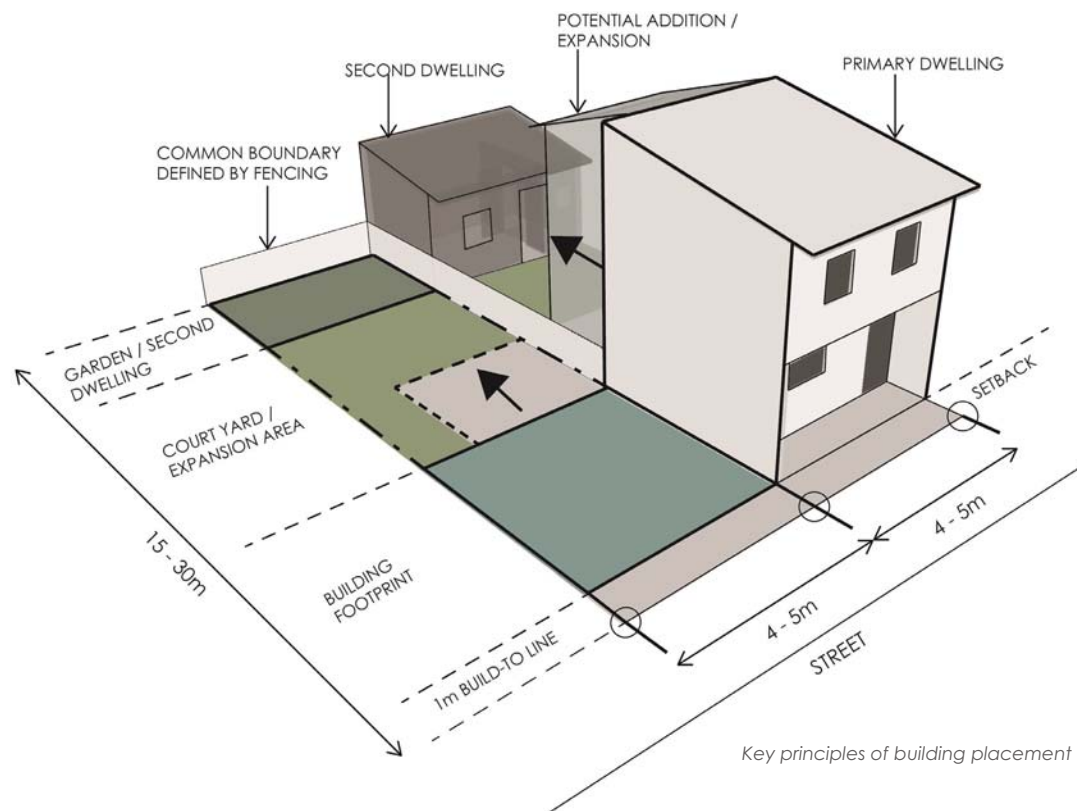
11 BUILDING DESIGN AND LAYOUT

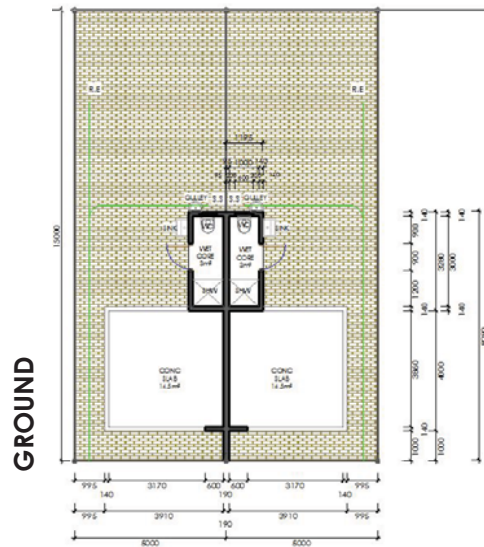
BUILDING LOCATION AND SITE LAYOUT

1. Create a well defined and legible urban structure and public environment through the placement of buildings to make it easy and convenient for people to orientate themselves.
2. Buildings must be located as close to the street boundary as possible. 1/1.5m build-to-lines from the street boundary are strongly encouraged.
3. Building typologies directly on the street boundary should be investigated, but it must be ensured that the foundations and footings do not protrude into the road reserve where they could cause damage to services. It must also be ensured that these are sufficiently deep to ensure that they are not undermined should a water pipe burst in the road reserve.
4. Interior finished floor levels should be raised above the 1:100 year flood level, but where this is not practical entrance thresholds could be raised to prevent water ingress during infrequent flood events. In these cases due consideration should be given to how access is provided for people with disabilities.

PARKING

5. There is no requirement for off-street car parking within subsidised housing developments where properties are less than 100m².
6. The design and layout of plots and house types should allow beneficiaries to convert a portion of their houses into garages and accommodate parking on site if they wish to and where it is safe to do so from a traffic management perspective.
7. Communal parking areas should only be proposed within private properties where the ownership and management of the spaces is committed to in writing prior to implementation.

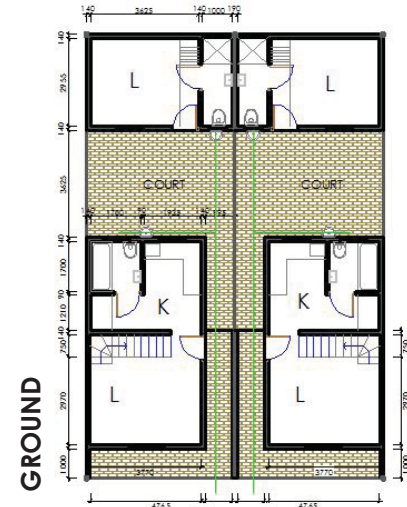




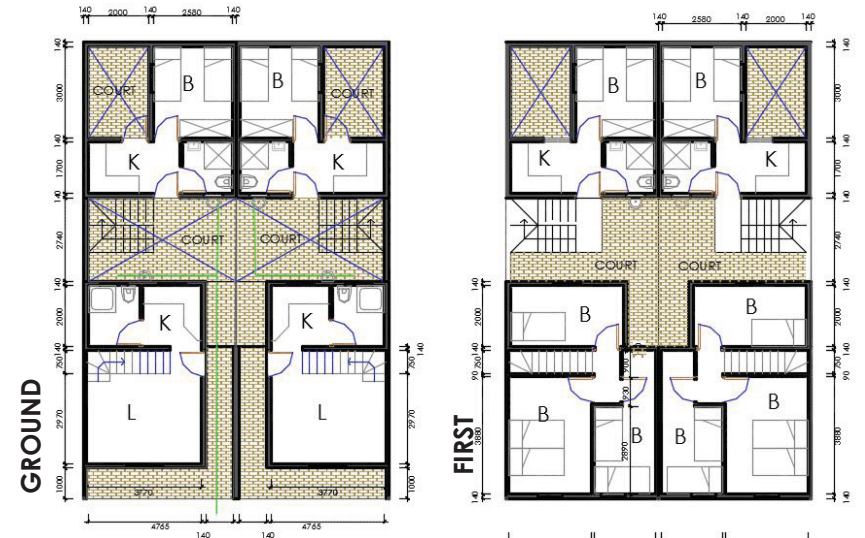
INCREMENTAL STARTER UNIT



A SUBSIDY HOUSE WITH EXTERNAL SERVICES TO PROMOTE A SECOND DWELLING



A 3 BED HOUSE WITH A RENTAL UNIT AT THE REAR OF THE PROPERTY



A 3 BED HOUSE WITH TWO RENTAL UNITS AT THE REAR OF THE PROPERTY

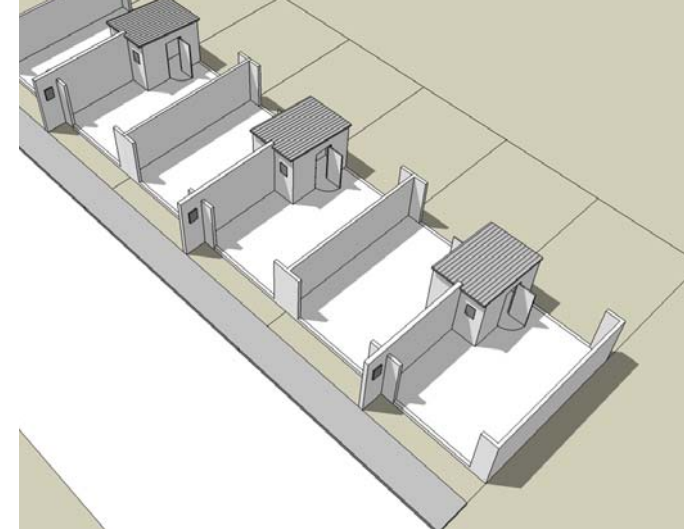
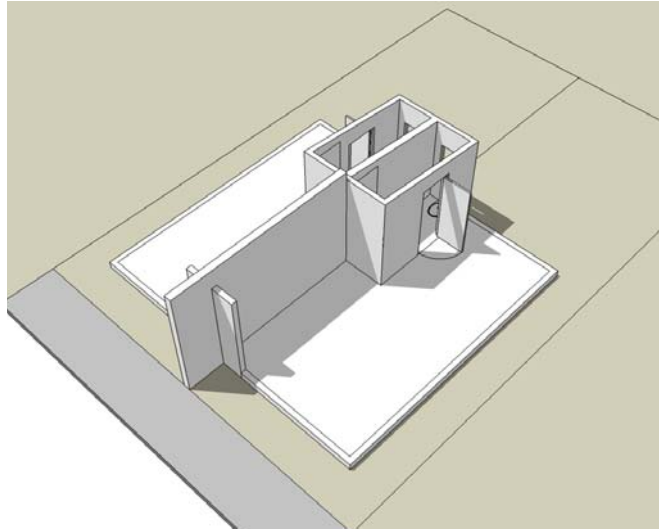
The above generic plans illustrate how a building can grow and adapt on a 5x15m plot. They show how the same plot can be developed from a starter unit that provides a party wall and a slab, to a double storey subsidy type house, to a subsidy house with a second dwelling as well as a primary dwelling with two small flats to the rear for second dwellings.

INCREMENTAL HOUSING

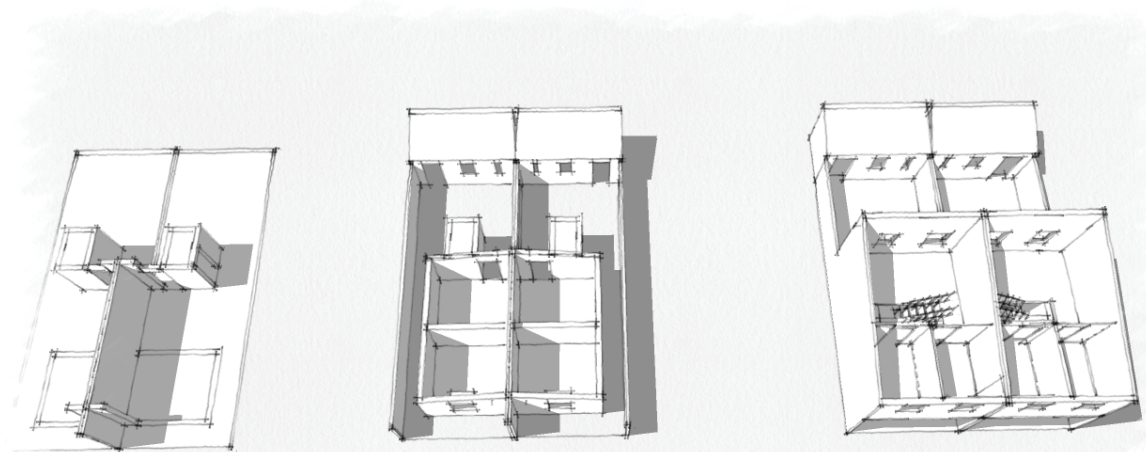
8. Where incremental development is proposed a starter structure, including a party wall, wet core, slab and foundations must be provided on each site.
9. Foundations for all load bearing walls must be designed to sustain the loading of a 3 storey building, built with traditional construction methods (masonry walls, timber roof structure).
10. Generic house plans should be developed to the level that can be submitted for building plan approval illustrating how the starter unit can be extended and added to over time so as to comply with National Building Regulations. These plans should be issued to the household prior to occupation.

HOUSE TYPES

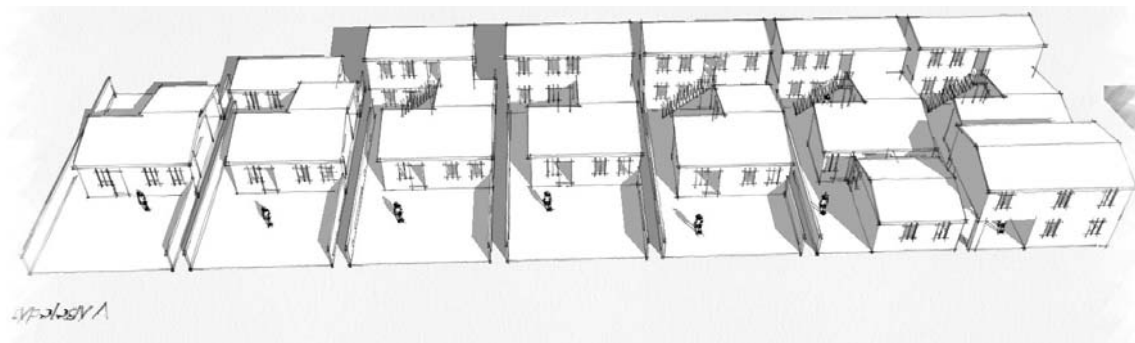
11. Urban house typologies (semi-detached, row houses and courtyard houses) are preferred.
12. Buildings / unit typologies should be dual-aspect to facilitate natural cross ventilation and provide natural light into all rooms. Bathrooms should be naturally lit and ventilated (Avoid extractor fans / mechanical ventilation).
13. Building types must take into consideration how rain water will be collected off roofs and hard surfaces to avoid flooding and the discharge of rain water to adjacent properties.
14. The design of the residential unit should not be prescriptive or limit how a unit can be extended or added on to.
15. Building types must be adaptable and able to accommodate additions, extensions and second dwellings.



When delivering incremental housing different types of starter structures should be provided.



16. All load bearing walls must be designed to sustain the loading of a 3 storey building, built using traditional construction methods (masonry walls, timber roof structure).
17. Avoid locating bathrooms and wet cores on the street facade.
18. Places for hanging washing and storing refuse bins must be considered during the design of the house.
19. Generic house plans should be developed to the level of detail required for building plan submission in order to illustrate how the different building types could be extended over time, adding a potential second and third dwelling to the site.
20. Buildings should be designed to allow for ground floor accommodation to be converted into commercial / business units, particularly on routes that are likely to experience high pedestrian traffic volumes.
21. Generic building plans should also illustrate how a garage or car parking space could be accommodated on the property. Where this is proposed residential accommodation must be provided above the garage with windows looking onto the street.
22. Threshold elements (such as porches, overhangs or recesses) should be provided for each unit along the street frontage / in front of the front door to the unit.
23. Where semi-public or semi-private spaces are provided it must be clear who the owners of these spaces are and who is responsible for the maintenance and management thereof.



Conceptual diagrams illustrating how generic house types can be added to and extended over time



Stoops and overhangs along the street boundary create a threshold between public and private space and improve the street interface.



Rear common boundaries must be clearly defined with a fence or wall, to define private spaces and improve levels of safety.

FLATS AND GROUP HOUSING

24. The layout of general residential type developments (cluster housing and flats) and specifically rental housing, must allow for the individual units and blocks of flats to be subdivided, sectionalised and privatised in future.
25. Avoid large gated estates that hinder accessibility.
26. Flats must be designed to discourage illegal extensions and second dwellings, or make it easy to identify and enforce regulations as soon as illegal structures are built.
27. Articulate the roof line and façade of larger buildings to break up the scale and massing of the buildings and introduce a more human scale to the development.
28. Washing lines, refuse bin stores and letter-boxes must be considered and appropriately located within the property.
29. Each block of flats must be designed with safety and secure access in mind. Gates should be provided to limit / control access.
30. Security devices such as burglar bars and gates must be considered during the design phase and installed as part of the project to ensure an attractive and uniform approach within the development.
31. Each block of flats should ideally have a maximum of 20 - 25 units accessed off a single circulation core to help maintain levels of intimacy and improve levels of safety and security within the development.
32. Dedicated storage areas for bicycles and other items must be considered during the design process.
33. Ensure that the shape and geometry of rooms are able to accommodate furniture in a variety of ways and that furniture is able to fit upstairs.
34. The design of ground floor units should facilitate their conversion into commercial units / live-work units. Any changes in land use must go through a statutory process to ensure compatibility with residential uses.



Springfield Terrace in Woodstock is an excellent example of how social housing can be integrated into an existing network of streets. Certain buildings have since been sectionalised and are now owned and managed privately



Large gated social housing estates, while easier to manage and control restrict public access in, around and through the development, do not create any private space for residents and create sterile environments that are institutionalised and not able to change over time.

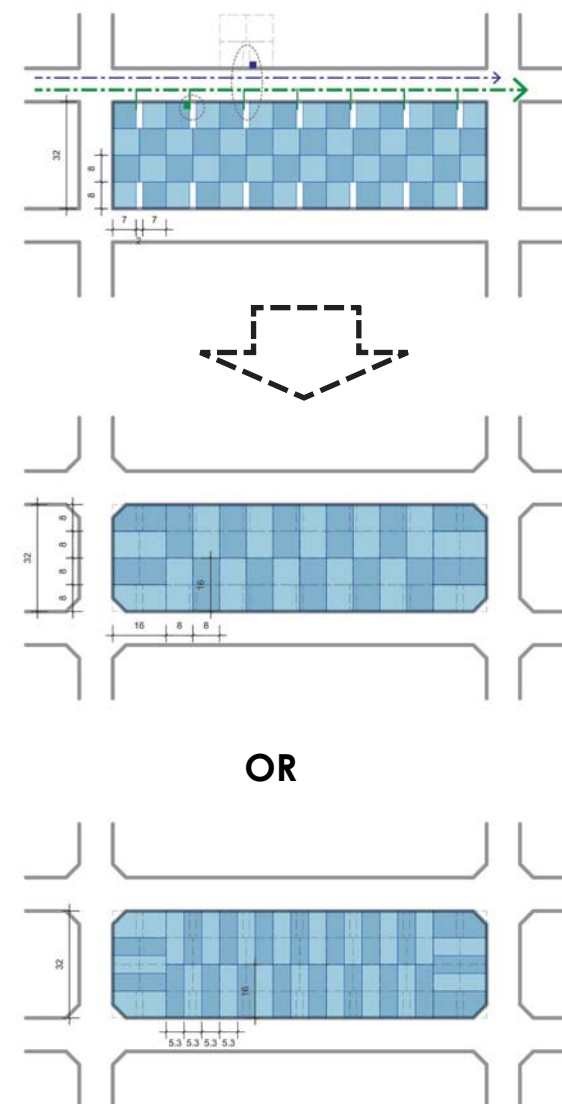
12 BUILDING TECHNOLOGIES AND CONSTRUCTION MATERIALS

1. Investigate the use of recycled and renewable materials for the construction of road pavements and houses.
2. Innovative, non-conventional and prefabricated building materials should be explored during the design process, however wherever possible use building materials and technologies that are readily available in local building supply stores and that make it easy for beneficiaries to extend or add to the original structure.
3. Sustainable technologies should not burden the household or the City with operating costs and maintenance requirements that they can not afford.
4. Where sustainable technologies are not provided from the outset, ensure that sustainable building technologies (solar water heating / heat pumps etc) can be retrofitted to the building without major modification to the structure or reticulation systems.
5. Use robust, durable and efficient materials.
6. Promote the use of local resources - such as sand bag houses.
7. Where emergency starter kits are provided seek to ensure that these are fire resistant where possible or treated with a fire retardant.
8. Consider the entire buildings process and methods of construction to minimise waste and ensure that buildings can be added to over time so as to ultimately comply with building regulations.
9. Keep the detail of junctions between different building materials simple and ensure that waterproofing and rainwater management solutions are easy to install, maintain and replace.
10. The detail design of the units, especially starter units or incremental houses, should provide simple clues to home owners for how to expand or alter the original structure
For example, a concrete ring beam built into a wall could indicate where a wall bracket can be hung to support a suspended floor; or an oversized wall nib could suggest how off-the-shelf burglar bars could be installed onto a stoep.

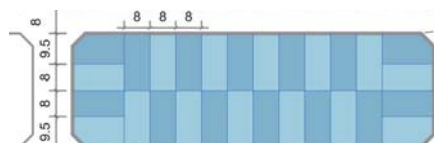
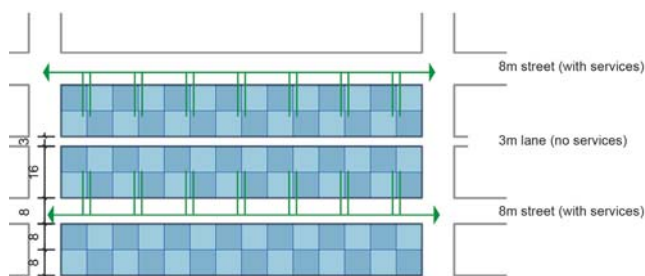


13 EMERGENCY HOUSING

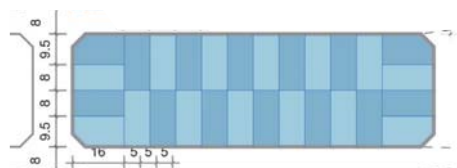
1. Any emergency housing project must be based on the principles set out in this document.
2. The planning of these areas must follow an accelerated land use planning process and rights must be obtained for the long term development of the site.
3. It is essential that a technical Project Management Team composed of officials from various line departments is set up to input into the layout and allow for the rapid resolution of strategic and technical issues.
4. Locations of emergency housing sites must be carefully considered taking into account where people would be moving from, where they work or attend school and what they depend on for their livelihoods.
5. A strategic stormwater management plan must be developed for the site to ensure that no trapped lows are created and that the site can be naturally drained. Appropriate measures must be implemented at retention areas and discharge points to deal with pollution from litter and grey water.
6. Emergency housing sites must be planned so that the urban blocks created and services delivered can be integrated into the adjacent streets and utility networks at a later date without the need to relocate services and infrastructure.
7. Emergency housing sites must be fenced with an appropriate fencing that allows the full integration of the settlement with future / adjacent development. The fence must have one or more vehicular entrances but multiple pedestrian entrances should be provided where pedestrian desire lines are likely to be. Due consideration must be given to the aesthetic impact of the fence on the receiving context.
8. Formal infrastructure and utility networks must be installed to comply with the City's standards and specifications. Such infrastructure must be signed off and maintained by the relevant line department once installed.
9. Where there are no connections to bulk services waste water should be directed into central conservancy tanks for storage and removal. Such conservancy tanks should be located at the low points of the site where they can be connected to formal services in the future. Alternative technologies such as bio digesters and package plants should be investigated.
10. Chemical and VIP toilets should also be considered as a temporary measure.
11. Communal ablutions and service points may be provided.
12. Locate sanitary facilities in such a manner so as to ensure safety to vulnerable members of the community.
13. Water points should only be provided where there is a connection to a waste water system.



Conceptual diagrams illustrating a typical emergency housing block that may be resubdivided at a later date to form individual erven.



OR



14. Gravel streets within the settlement are acceptable as a short term measure provided sufficient operational budget is secured to maintain such a street. The streets must be graded to direct stormwater to appropriate discharge points and upgraded with a traditional asphalt surface to comply with standards within two years of implementation.
15. The main access road into the settlement must have a formal asphalt surface for the first 30m from where it links onto the formal road network.
16. Smaller 30 -60m² plots may be created but only as an interim / temporary measure.
17. Temporary plots and internal services must be arranged so that in the long term the individual erven and access streets can be consolidated into urban blocks at least 30m in depth and then resubdivided into individual erven to allow for a range of different house typologies to be developed.
18. The urban block (including any minor lanes) created must be subdivided and rezoned as a single erf with a single residential two (SR2) zoning to allow for future subdivision.
19. The land must remain in the ownership of the City but residents must have security of tenure.
20. Pedestrian lanes are permitted but any lanes less than 4m in width may not contain any utility services .
21. A minimum width of a temporary pedestrian lane is 3m.
22. Emergency temporary top structures and fire fighting installations must be provided to the satisfaction of the Fire Department.
23. Provision must be made for soft public infrastructure such as crèches.
24. At least one public open space must be designed and delivered as part of the project. This facility must be equipped with play equipment for young children and a multifunctional open space for adults and youth.
25. A waste management plan must be developed to ensure that waste and refuse is collected on a regular basis.

GLOSSARY OF TERMS

Accessibility

The degree to which a site, building, service, or environment is accessible to people, irrespective of who they are or how they move.

Active frontage/ interface

Refers to street frontages where there is an active visual engagement between those in the street and those on the ground floors of buildings. This quality is assisted where the front facade of buildings, including the main entrance, faces and opens towards the street, and also where ground floor uses accommodate activities that provide interaction between pedestrians and the building uses including cafes/restaurants, shops, offices etc.

Adaptability

The capacity of a building or space to be changed so that it responds to changing social, technological and economic conditions.

Agency

The capacity, condition or state of performing an action. Relates to the shifting roles played by different actors in the delivery of housing.

Built form

The shape and massing of a development. Built form relates to qualities such as density or quantum of development (often referred to as massing), coverage (how much of the site is built up), building height, the distance from property lines.

Community facility

A building or structure which houses a service to the public or a select group or community. Such facilities include crèches, religious institutions and clubs. Full public access to such facilities is often restricted or limited.

Classes of Roads

Roads are categorised into different classes in the Road Access Guidelines, where higher order (lower number) classes refer to roads with a larger geographic scale of traffic distribution. Class 2 roads are Primary Distributors, meaning that they are vehicle only routes that service the urban area as a whole and are used for long distance traffic movement around the City. Class 3,4 and 5 roads are all mixed pedestrian/ vehicle routes. Class 3 roads distribute traffic between different districts and provide the link between the primary network and residential roads. Class 4 roads are residential through roads which distribute traffic within neighbourhoods and link higher order roads with access roads (class 5 roads). Class 5 roads provide access to specific buildings and land within neighbourhoods.

Context

The broader environment within which a development or site is located. Context is a broad term and can refer to natural systems, topography, the social and economic environment, the built environment, access, public institutions, public space, and public utility services.

Desire line

An imaginary line linking facilities or places. Desire lines become evident when watching people move through an area and are often visible through informal footpaths across open spaces.

Diversity

A place which offers variety and choice in terms of land use activity and mobility options.

Enclosure

An experience in which a pedestrian feels sheltered within the public realm. Buildings, walls, trees, landscaping and street widths are all factors in creating a sense of enclosure.

Form

The layout (structure and urban grain), density, scale (height and massing), appearance (materials and details) and landscape of development.

Higher order structuring route

Streets or movement corridors which play a critical role in determining the structure of the urban environment. The following are characteristics of structuring routes: high levels of spatial continuity and access; a concentration of mixed land uses and activities; contain higher order public facilities; development is generally more dense; and an intensity in the movement of people, goods, public transport and private vehicles.

Integration

The spatial and functional linking of areas of development and their inhabitants. Integrated areas form a coherent physical whole where, in livability terms, the whole is greater than the sum of its parts.

Intensity

Refers to achieving a greater spectrum of mixed land uses through increased use of space, both horizontally and vertically, within existing areas, properties and new developments.

Landmark

A building or structure which is recognisable and stands out from its background by virtue of height, size or some other aspect of design.

Landscaped

The intentional arrangement of soft (trees and planting) and hard elements within a space.

Layout

The way buildings, routes and open spaces are placed in relation to each other.

Legibility

The degree to which the qualities or structure of a neighbourhood or building can be perceived and understood.

Massing

The combined effect of the arrangement, volume and shape of a building or group of buildings in relation to other buildings and spaces.

Node

A point within the urban system where activities, land uses and development is concentrated. Nodes are typically located where levels of accessibility are high and at the confluence of movement and public transport routes. The size and extent of a node depends, on the nodes location within the larger urban system and on the limitations of a pedestrian to move within it. A node generally has a sphere of influence of between 200 - 400m from its centre.

Overlooking/ overlooked

When a building has doors and windows positioned in such a manner that they allow the occupants inside a building to visually connect with the spaces outside of that building.

Passive surveillance is the casual observance of public and private areas by people in the course of their normal activities.

Permeability

The degree to which an area has a variety of pleasant, convenient and safe routes through it.

Public facility

A building which is owned, built, managed and maintained by a governmental institution or which provides a service on behalf of government.

Public good

The condition in which all citizens are able to enjoy in the benefits urban living to the extent that each individual's actions does not lead to a subtraction or diminishment of any other individual's or groups ability to act or enjoy the same benefits.

Public realm/ environment

The collection of physical and nonphysical elements which are accessible or impact on the general public. Some aspects of the public realm are privately owned and managed. The public realm includes amongst others all forms of media, open spaces and streets.

Public space

The public space includes the natural and built environment used by the general public on a day-to-day basis such as streets, plazas, parks, and public infrastructure.

Semi private space

A space that may be communally or publicly owned but the manner in which it is used means that the not all members of the public have access to or may not use the space. For example: a shared parking court or a communal play area with restricted access or a stoep outside a house or a private garden within a block of flats.

Semi public space

A space that may be privately owned but the manner in which it is used and fact that the public may have access to the gives the impression that the space may be used by anyone. For example: a colonnade outside a shop, or a shopping mall.

Sense of Place

The quality of a space which makes it feel special or unique, and helps to foster a sense of belonging for those who have attachment to the space. It is associated with a strong identity or uniqueness.

Surveillance

The ability of a person or thing to observe and control activities within a defined space. Surveillance may be achieved passively - by providing physical opportunities to connect a surveyor to a space; or through active or artificial means - through CCTV or law enforcement patrols.

Sustainable Urban Drainage Systems (SUDS)

A branch of Water Sensitive Urban Design which focuses specifically on stormwater management

Top Structure

A formal house provided through the government subsidy program that complies with National Building Regulations.

Views & vistas

A visual quality within the landscape/urban landscape that typically provides some visual amenity. The importance of the view typically relates to the level of amenity the view provides. A vista is a corridor view usually framed by an avenue of trees or buildings.

Urban grain

A description of the density and nature of development which results from the arrangement of buildings in space. The term urban grain is used at a variety of scale and can refer to the density of urban blocks, streets, plot or buildings footprints.

Urban structure

The structuring framework of a region, town or precinct, showing relationships between zones of topography, natural environments, activities, built form and open space. It encompasses broader systems including transport and infrastructure networks.

Water Sensitive Urban Design

An approach which seeks to ensure that development in urban areas is holistically planned, designed, constructed and maintained so as to reduce negative impacts on the natural water cycle and protect aquatic ecosystems. Sustainable water supply, sanitation and stormwater management are encompassed within the WSUD approach.

