

URBAN HUB DESIGN TOOLKIT

DESIGN METHODOLOGY FOR THE URBAN NETWORK STRATEGY

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DRAFT

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- Annexure A : The Urban Networks Road Map
- Annexure B : Template E: Urban Hub: Status Quo Assessment
- Annexure C: Precinct Zones: Planning Guidelines

Acronyms

NDP	Neighbourhood Development Programme
CBD	Central Business District
PT	Public Transport
NMT	Non-motorised Transport
PN	Primary Network
SN	Secondary Network
BRT	Bus Rapid Transport
CoCT	City of Cape Town
DAG	Development Action Group

Glossary of terms and definitions

Urban Network	An urban network is generally comprised of a system of urban corridors and nodes, which are related to a PT network. The NDP's "Urban Network" refers to a combination of two networks at different scales which connect at significant urban nodes belonging to the higher order network. See below for an explanation of the two distinct networks.	Interchange Zone	including all roads and pedestrian routes. Where the Access Network is referred to in this document it refers specifically to the access network at the level of the Hub Precinct only. An interchange is where the transport services meet and includes not only the facilities where interchange happens but the environment between these facilities that operate as a large system of connectivity. The Interchange Zone will allow feeder PT services, pedestrians and cyclists opportunities to connect to the higher order metro wide PT network.
Primary Network	The network at the scale of the entire urban area (and crossing municipalities if this is relevant) including the main PT linkages and a limited number of Primary nodes. It also includes the new Urban Hubs which are the subject of this document.	Public Space Network	A connected group of spaces, places and routes that facilitate movement across urban areas but which can also serve a recreational, utility, environmental, social and economic role.
Secondary Network	The network at the scale of the township or a cluster of townships including the linkages to the Primary Urban nodes and a number of lower order nodes.	Prioritise Public Space Network	The prioritised links and spaces of the Public Space Network in terms of their centrality and connective capacity between the "Interchange Zone" and the remainder of the Hub Precinct.
Urban Hubs	Urban nodes are the focus of the present exercise, which seeks to develop town centres within the township areas that function as Primary nodes.	Public Space	Public space includes all land that does not belong to private individuals or institutions and which is accessible to the broader public for circulation, socialising, trading, events etc.
Hub Precinct	The area within the boundary defined in Chapter two of this document as the focus of planning.	Public Realm	Space, outside of the privatised and securitised precincts and buildings which is perceived to be part of a broader shared domain.
Sub-Precinct	The sub-precinct in the context of this toolkit refers to smaller parts of the total Hub Precinct which can be regarded as fairly independent precincts for design and / or implementation purposes.	Prioritised Pedestrian Network	A portion of the Public Space Network that is prioritised in order to focus movement onto key routes and at strategic points.
Access Network	The network of infrastructural links which facilitate movement of people and cars		

Activity Route:	A route characterized by strip and/or nodal urban development along portions of the route. They are generally supported by a mix of land uses and higher density development. PT feeder routes connect with the activity routes at frequent intervals. Feeder routes and PT stops interrupt the movement flows creating opportunities for social and economic activities.
Nett Density:	The number of dwelling units per hectare of land calculated on the basis of land used for residential purposes only (including residential gardens and privatised off-street parking)
Gross Density:	The number of dwelling units per hectare of land calculated over a specified area on the basis of land used for residential purposes and other land uses such as roads, utilities, business, industry, education, transport and parks. Land-extensive land uses such as agricultural, conservation etc. are excluded.
Population density:	Number of people per hectare calculated by multiplying the number of units by a contextually relevant average household size
Gross base Density:	The average number of dwelling units per hectare across large city areas or the whole city, excluding land-extensive uses such as agricultural and conservation.

Toolkit Introduction:

To be able to respond to the NDP's requirements, one needs to understand the intention behind the decision to invest in the Urban Hubs. Investment in the Urban Hubs, which are the subject of the toolkit, is a strategy to enable the long term restructuring of our larger urban settlements.

The NDP's approach sees our cities as two distinct but interdependent networks. At the centre of the primary network is the CBD of the city (and there may be a few within a multi-nodal urban system) which functions as the anchor access precinct. A secondary network feeds the primary network. See Diagram 1.

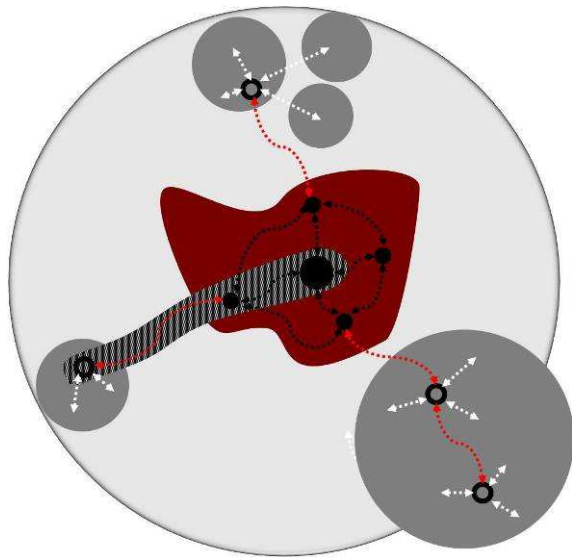


Diagram 1: The Urban Network

At the centre of each secondary network is a set of significant urban hubs. These hubs function as portals between the secondary networks in a township or group of townships and the primary network of the city, as they offer access to the primary network via a combination of higher order public transport links, the most important of which is rail (understood to be the backbone of the public transport network). They can be regarded as gateways to the broader urban region.

It is these points of maximum connectivity within the secondary network that then become the places for logical reinforcement and a concentration of resources if we are to give meaning to the restructuring imperative of the NDP that focuses on more equitable patterns of access through spatial and socio-economic integration. Investment in these hubs will be catalytic with the intention of changing the market dynamics that play themselves out within South African urban settlement areas.

The hubs will in turn be supported by a network of lower order neighbourhood hubs that will be more embedded and service smaller communities.

The hubs will also be the connection to the broader city area and be the highest order node within the townships. They will contain the facilities that service not only local residents but those within a more broadly defined area (a region or district), pulling people from outside in and vice versa. This is essential to the functioning of the overall system of integrated access networks, tiered service delivery systems and in particular, integration of communities and geographic areas.

The hubs should function as urban service centres and contain a number of important public services combined with commercial activities around a transport hub or point of high accessibility. This is essentially the role of a town centre. Town Centres have historically held symbolic value as they develop over time and in so doing become meaningful to a range of people who use them. It should be the intention of these proposed town centre hubs to attain

significance of a cultural nature. Furthermore town centres have historically been integrated with the residential fabric within which they are located. Residential development provides the thresholds on which the commercial land uses and transport services are reliant besides providing essential levels of vibrancy and increased levels of passive security. Without the residential thresholds and 24-7 occupancy and accessibility, it is likely that hubs of this type will not succeed.

In conclusion the role of these new hubs is firstly as a service point, key housing and / or work destination for local residents, secondly as a potential draw-card into the area for residents outside of the area and thirdly as a gateway to the broader urban area for local residents.

If the spatial and structural preconditions are set up for the hubs to fulfil these roles then the hub has the potential to address a number of needs simultaneously including but not limited to social problems such as unemployment, crime, degraded environments, a lack of key bulk infrastructure, bad local and metro wide connectivity as well as broader concerns of low **private sector confidence levels and social and economic integration** etc.

However for the new hubs to succeed as vibrant mixed use environments that address day to day challenges of township residents, proposals need to do the following as a minimum:

- Create a **sense of place** by responding to the topography, climate, human needs, function and culture.
- **Cater for those on foot** (not at the exclusion of the car but always prioritised above the car)
- Be structured around a **safe, convenient, secure, comfortable public space network** supported by a mix of land uses and activities. A public network of spaces and links should be the most important focus of intervention within these hubs. This network should be carefully considered in relation to the existing/ proposed public transport network and designed so that it can be implemented in stages and at every point in time be experienced as a complete network. Key public facilities and commercial activities should

associate with the network of spaces, places and linkages. This will allow thresholds to be increased along strategic routes and around key spaces.

These key goals / focus areas should be central to all work at all stages in developing the new hubs.

What follows is a methodology to help get to grips with key spatial informants that will inform design of the Hub Precincts. Thereafter the methodology suggests how to plan and design the Hub as a Precinct in more detail to inform the Programme Plan and the Project Plan (See Annexure A: Road Map, Nov, 2012) that will identify projects for design development. The methodology also guides more detailed design of the identified projects in preparation for NDP approvals and costing.

Structure of the Document

The Methodology is structured in a way that allows the following tasks to be undertaken in a logical sequence:

- Identification of key opportunities, constraints and challenges
- Identification of the extent / boundary of **the Hub** Precinct
- Identification of Key infrastructure interventions
- Planning of land use components

Parts 1-4 take the user through a process in which some key design and planning issues are addressed and the various elements of the Hub Precinct are quantified and provisionally located. The outcome of the work undertaken using Parts 1-4 will be a Spatial Concept for the entire Hub Precinct.

Further detailed design is then informed by Part 5: Making the Public Realm

The last Chapter of the document discusses phasing. The Framework will provide a basis on which to base phasing within the Hub Precinct.

Purpose of the Document

The toolkit methodology should serve as a reference for designers and planners of the Hub Precincts, a guide for municipal officials and simultaneously an evaluation tool for the NDP who will be overseeing the work of the Municipalities.

It can be used to guide planners and designers through a process but can also be used as a design reference source to be dipped in and out of as required.

Toolkit Part 1: Identifying the key spatial informants and defining the Hub Precinct

MAIN TASK:

- To understand the key spatial opportunities, constraints and challenges.
- To define the extent of the Precinct

The toolkit follows on from work that has been completed in locating the Hub Precinct, which was informed by Status Quo Assessments (Template A-D) completed at the scale of the Municipal area and the Township Focus Area.

By this stage one should have a fixed location for the Hub Precinct, which;

- Has been acknowledged by the metropolitan authority as having the potential to be a significant primary hub after the CBD;
- Has been tested in terms of its capacity to be connected to nodes on the primary public transport routes via the Urban Networks Programme principles;
- Handles a large number of people moving through it on a daily basis;
- Has a major transport facility (rail if not BRT) or the potential to accommodate a viable one;
- Has the potential to function as a town centre / economic hub offering employment and larger scale retail possibilities;
- Has the potential to accommodate public facilities if it doesn't have them already;
- Has the potential to accommodate higher density housing options;
- Has sufficient capacity within the infrastructure networks to accommodate future development;
- Is free of geotechnical, heritage, legal and / or environmental constraints that would significantly restrict future development.

Moving forward with respect to the two tasks identified upfront requires analysis at a local level to be undertaken.

Template E in Annexure A attached is a list of the key areas of investigation required to identify the main opportunities and constraints /challenges. All information should be mapped as far as possible to understand the spatial implications. Where the analysis shows no spatial implication they should be recorded to inform non spatial aspects of the implementation programme.

Once the environmental, land use, access and transport layers have been overlaid, the opportunities and constraints should become evident and provide clues as to what the main spatial challenges are. The geographic extent / boundary of the Precinct should also be able to be provisionally fixed at this point.

It should be noted that the Toolkit used an ideal site with no significant constraints as a basis to demonstrate the key principles and guidelines.

Toolkit Part 2: Identifying the structural typology and main structuring elements

MAIN TASK:

- To identify the structural typology which best reflects the Hub Precinct's future transport scenario.
- To define what the main structural intervention should be given the size of the Hub Precinct and the levels of continuity/discontinuity within the proposed Access Network and the surrounding networks.
- To clarify what the future transport related infrastructural elements should be, what their approximate size / capacity will be and how they relate to each other functionally. This will require PT service networks to be provisionally aligned and facilities identified and located.

2.1 The Structural Typology

Having analysed the existing context in Part 1 and the main public transport related elements in particular, one should be able to define the future structural condition of the Hub Precinct in terms of one of the three typologies defined below. The typologies make reference to existing infrastructures and / or new proposed infrastructures that are required to ensure connection to the Primary Public Transport Network. While they are based on the NDP's preference for rail as the dominant mode for connection to the Primary Public Transport Network they also include one scenario where rail is not present as there will be exceptional circumstances where a rail link will not be possible.

In conclusion there can be, in reality, many typologies but the following three provide a way of distinguishing quickly between three broad types.



Typology 1: Rail Station as one of a number of points along a rail route
An existing or proposed rail line with a station feeding road based public transport networks



Typology 2: Rail Station as end point of rail route
An existing or new rail line with end station, feeding road based public transport networks.



Typology 3: PT route without support of rail.
A new or existing public transport carrying route feeding other road based public transport networks

In the case of typology 1 and 2, the rail as the dominant mode would be supported by road based public transport. Typology 3 may rely on a BRT service and if this is not feasible, then a very robust bus or taxi based service.

The purpose of identifying the typology is to understand the constraints and opportunities associated with each type. These are as follows:

Typology 1: The rail line is a barrier to pedestrian movement and where roads have to cross the rail reserves, land can be sterilised due to the quality of spaces left over from the construction of bridges. Roads crossing the rail line should therefore be limited. Depending on the nature of the road link crossing the rail reserve and the exact positioning of the road in relation to the rail station there may be opportunities to locate a multimodal facility on the bridge to see the integration of all PT modes.

Typology 2: For the reasons explained above this typology presents more opportunity for spatial integration.

Typology 3: This scenario has two challenges the first being that of the hub attracting large volumes of PT vehicles given the absence of the rail service. The second challenge is that the route servicing the Urban Hub is of a scale that is not conducive to the making of a pedestrian orientated environment.

Identifying the key structural interventions to address some of these constraints and opportunities and those identified through the previous phase of analysis can now be done using Section 2.2 and 2.3, which describe the components of a typical access system including the rail, road and Non-Motorised Transport (NMT) elements.

2.2 The Access Grid

Movement networks, which if understood as ‘public right of way networks’ (P1 of Chapter 5.1, CSIR 2000) can be understood as a set of links and junctions providing access to key destinations. Depending on the manner in which the links and junctions associate, the network can be ‘open’ or ‘closed.’ Open systems are not limited by access restrictions related to hierarchies of routes. A multidirectional network (rectilinear grid) has the potential to enable all the positive attributes of an open system (integration, even levels of permeability for a range of users) while still allowing traffic management that addresses the negative aspects related to open systems.

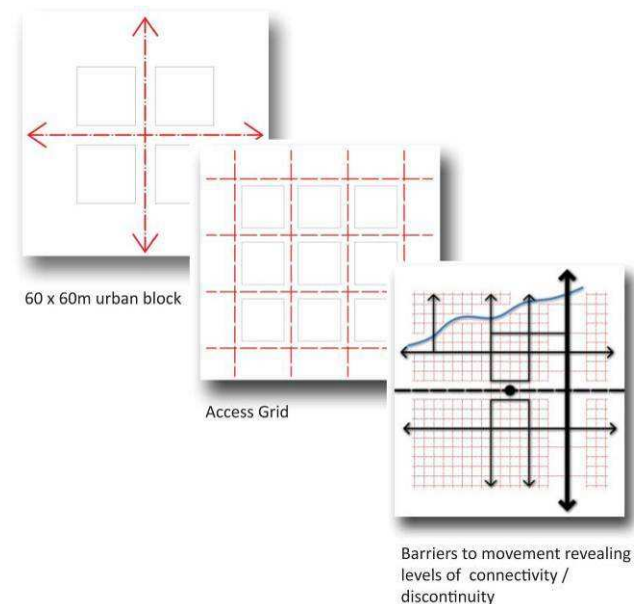
Beyond the necessity to minimise distances between the places of residence and key public destinations is the need to ensure that the movement network is scaled to allow easy pedestrian movement across the Hub Precinct. As has been alluded to above, a rectilinear multidirectional network offers a means to allow an even permeability for both cars and people across a site. Blocks of between 60-120m in width have worked successfully all over the world. Block lengths can be problematic for pedestrians when they exceed 60m as they limit permeability by pedestrians. This is not to say that large blocks cannot be considered but for the purpose of the first conceptual planning exercise it may be useful to start

with a more optimum pedestrian scaled grid of 60m x 60m. If blocks are much bigger than this they should be traversable by pedestrians at strategic points.

It is important to note that a grid is not often very regular. It is inevitably warped to respond to topography, natural features and fixed infrastructure etc.

A scaled plan of the Hub Precinct over-layed with the grid in combination with the key barriers to movement informed by the analysis undertaken in Part 1, demonstrates where connectivity will be restricted but in turn which points within the grid will present the most opportunity. The moments of discontinuity in the system present opportunities, for amongst other things, retail and public servicing.

Diagram 2: The Access Grid.



2.3 Components of an integrated transport network

While the 3 typologies only focus on the main PT mode in relation to the Hub Precinct, the main mode will always be supported by other transport services and their respective networks. It is therefore important to consider all the components of all the PT networks in the early stages of planning the Hub.

However, performance of this Hub Precinct is not only dependant on the alignment and the level of service of the respective PT services but also on the spatial environment that they create by virtue of their scale and form. It is therefore important at this stage in planning the Hub Precinct that one bears in mind the spatial implications of the technical and regulatory requirements associated with road and rail infrastructure for example Road Access Guidelines used by roads and transport engineers to ensure the network is ultimately one that works for commuters and other pedestrians above all else.

The function and scale of roads often dictates the type of land uses that will associate with it, how they will in turn relate to each other and as a result what kind of public environment they will create.

Where the infrastructure will be new, one must conceptualise how the infrastructure can best accommodate the type of land uses and activities necessary to create a comfortable network of spaces and places for people. Where the infrastructure exists it is important to interrogate whether its existing form responds to the NDP's vision of a people and commuter friendly environment.

A set of basic guidelines for each component of the access and mobility network described in the following sections, clarifies the key considerations when designing each of the components.

2.3.1 Rail Infrastructure

2.3.1.1 Rail Lines

Rail lines connect effectively at the level of the entire urban area but are spatially divisive elements, restricting access connectivity on the ground. Bridging the reserves is therefore critical but needs to be done at strategic points.

2.3.1.2 Rail stations

While the rail lines themselves are spatially divisive and limit access, the rail stations provide an opportunity to integrate opposing sides of the lines. Overhead facilities provide universal access over the lines, a more secure link for pedestrians crossing over the rail lines and a ticket office that is equally as accessible from both sides of the rail line.

Rail stations present numerous opportunities as a default of the fact that they have such large numbers of people moving through them on a daily basis. However they have generally been designed to operate in isolation from the surrounding urban environment. Their public interfaces are blank and attract anti-social activity instead of offering access to high thresholds of people for economic operators and space for the public sector to offer much needed services to large numbers of people.

It is critically important that rail station designs and layouts are informed by the following to ensure they make the most of their strategic locations in relation the flows of people across our urban areas:

Guidelines:

- The station should be maximised for commercial land uses that need exposure to regular flows of people on foot on a daily basis. This will require a broad group of stakeholders including the Private sector to come on board when conceptualising rail station precincts.
- Stations should be considered as an extension of the surrounding urban fabric and not as discreet precincts. Furthermore the movement path over

the rail should be considered a priority pedestrian link at the level of the Hub Precinct.

- The public interfaces must activate spaces onto which they front with forecourts associated with their entrances connecting to the broader public space network. In this way the Stations will integrate opposite sides of the rail line.
- Pedestrian ramps over the lines must be designed as covered spaces activated by trading edges, avoiding the situation where they are provided as add on infrastructure with no other purpose than to move people.

2.3.2 Road Infrastructure

Road networks will be comprised of a hierarchy of different routes connecting at different scales including those belonging to the Primary Network, those belonging to the Secondary Network and those belonging to the local Network surrounding the Hub Precinct. For the purposes of this programme the Hub Precinct road network should be understood to comprise of the following:

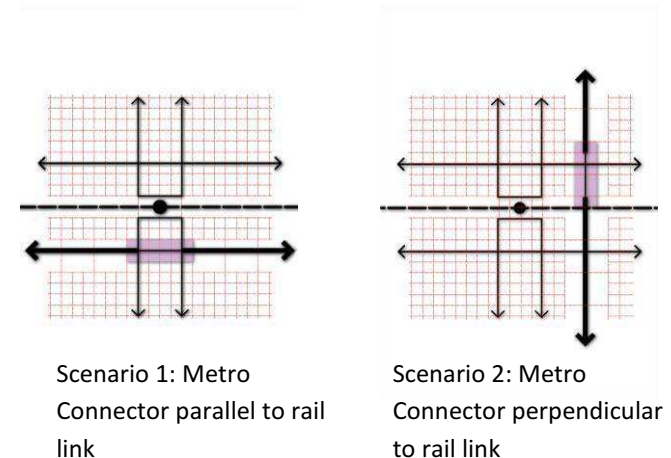
2.3.2.1 Primary PT connectors

The Primary PT connectors can be of two distinct types. The first is a road of a very high order allowing quick fast connections for vehicles. These routes are often mobility focussed and designed to accommodate large volumes of high speed vehicles including BRT services. These routes are typically wide with restricted access points and service roads that provide access to larger properties adjacent to the route. This arrangement, which is dominated by road surface, is generally people unfriendly. Where the vehicle flows are disrupted and PT services are intercepted / stopped, there is potential to maximise on the thresholds generated by a disruption in high traffic and resulting people flows.

The second type is an activity route that carries public transport (bus, taxi and BRT systems) and supports an intense band of mixed land uses on both sides. They are stop-start in nature and accommodate pedestrian activity along their length and across their width.

Where the connector is of the first type (Primary Connector) and is peripheral to the Hub Precinct, it will be necessary to ensure that the PT services using the route can divert off the connector into the Hub Precinct. Where the connector is of the first type and it is unavoidable that the road cuts through the Hub Precinct, detailed design will need to ensure that the road reserve is pinched to improve the feeling of enclosure, safety and vibrancy. The first type is preferable but where the second scenario is unavoidable the following diagrams indicate where the Primary connectors can be pinched to integrate them into the hubs.

Diagram 3: Pinching the Metro connectors



2.3.2.2 Secondary PT connectors

These routes connect surrounding local areas with the Hub Precinct and carry high frequency PT services. They are stop start in nature and attract a mix of land uses and intense levels of pedestrian activity along their length but particularly around the PT service points.

2.3.2.3 Local PT connectors

These comprise routes that feed the Secondary connectors but carry lower volumes of public transport. They accommodate small on street PT stops to service residents in the area.

2.3.2.4 Road based Public Transport facilities

In order to design an integrated PT system it is necessary to consider a generic set of facilities, of different scales and servicing different modes. Road based transport PT facilities can be grouped into two broad groups as follows:

On-street PT stops

On-street PT stops can be categorised broadly into structured stops (separate lanes in the direction of main traffic flow) and the smaller stand-alone shelters. The order of stop is dependent on the vehicle, service frequency and volumes of the PT service. The following provides guidelines to ensure that on-street stops contribute to the quality of the overall environment.

Guidelines:

- On street PT stops must provide as a minimum, shelter from the rain and sun, seating, lighting, service information, access to convenience shopping, safe and generous prioritised crossing for pedestrians.
- On Street PT shelter structures must contribute to definition of localised spaces.
- On street PT stops must associate where possible to important public destinations or main retail / public service points.
- On street PT stops must locate opposite each other to ensure that road crossings can be shared at strategic points.



Bus Stop



BRT Stop

Insert 1: Typical On-street stops

Off-street PT facilities

The size of PT facilities is dependent on the role of each within the local network and vehicle volumes / passenger numbers among other things. There are generally two types of off-street facilities, a) destination terminals which are generally located within employment nodes, educational or institutional hubs and b) transfer facilities which function as transfer points from one mode to another. Destination terminals tend to be most busy through the morning and evening peak periods but there is some activity through the day in the off peak. Transfer facilities are generally mostly busy through the morning and evening peaks only.

Guidelines:

- Volumes and frequencies of vehicles at these facilities can change so facilities should be designed to accommodate potential growth and alternative land uses, should volumes decrease.
- Bus and Taxi facilities should be located in close proximity to key public facilities and services given the high levels of access they provide.
- The bus and taxi facilities should be maximised for commercial land uses that need exposure to regular flows of people on foot on a daily basis. This

will require a broad group of stakeholders including the Private sector to come on board when conceptualising these facilities.

- Bus and Taxi facilities should be spatially integrated with their surrounds.
- Where bus and taxi facility activity is internalised (housed within a structure), the edges should be activated and the pedestrian flows in and out maximised for a range of commercial operators.
- Where bus and taxi facilities are designed as open air facilities, they must be located within a space that can offer adequate definition. These spaces should in turn be designed as far as possible as an extension of the Open Space Network.
- Holding Areas for taxis and buses are space extensive and not conducive to creating a vibrant and safe precinct. They should be located remotely where they do not limit people flows or restrict exposure to these flows for economic operators.
- Regional facilities can be integrated into the centralised Interchange Zone but not at the expense of the quality of the environment as a mixed use urban hub.



Modal Facilities contained within a building



Modal Facilities accommodated with an Open Space

Insert 2: Typical off-street facilities

2.3.3 NMT infrastructure: Pedestrian and Cycling paths

While NMT normally refers to a broad cross section of non-motorised forms of transport including horse drawn carts etc., for the purposes of this high level set of guidelines, only pedestrian and cycling infrastructure has been considered. Where particular sites have other forms of NMT these should be incorporated into the overall network after careful assessment of their needs.

2.3.3.1 Pedestrian infrastructure

The NDP wish ultimately to see these urban hubs as pedestrianized zones within which there is no need for a car. The intention is that the entire road network will be pedestrian friendly and further that the road network will be integrated with a broader open space system providing access to key destinations. This is not to say that the roads will all be 'pedestrianized' but that the approach to the road design will be such that pedestrians will always be understood to be a "dominant" user. Sidewalks and road crossings will be generous and roads designed as "spaces" as opposed to "conduits" for traffic.

Given the need to focus pedestrian movement for commercial maximisation and to increase passive surveillance on strategic routes, it will be necessary to prioritise certain routes within the network for pedestrians. These routes should link strategic points within the hub and strategic points within the hub to points outside of the hub. They will be the focus of detailed design exercises as a sequence of landscaped links and spaces. Other routes within the network should be designed to accommodate safe pedestrian flows but may receive less investment.

Regardless of where in the network you are, the following should be taken into account when designing for pedestrians:

Guidelines:

- Pedestrian networks should address the needs of the disabled and life cycle users such as the young, the elderly and those with prams.

- Pedestrians should be prioritised where they cross major vehicular flows in large volumes within intense urban environments.
- Road crossing facilities should be 'announced.' The surrounding built fabric and landscaping should express and reinforce the crossing area as a space.
- Road crossings should be designed as wide pedestrian 'zones' as opposed to narrow crossings.
- Spaces at either end of road crossing points should be designed generously.
- Pedestrians should be kept at grade where possible, i.e. avoid forcing people onto pedestrian bridges or into subways.

Pedestrian infrastructure should be strategically focussed within an area of 800m from a rail station or other higher order PT facility and 400m from any PT carrying route. The Network should also respond to existing pedestrian desire lines identified through the Part 1 analysis.

2.3.3.2 Cycling infrastructure

Cycling can drastically reduce travel times and by default extend the distances people are prepared to travel to access basic services, work, school etc. Cycling by residents within the hub and outside of the hub should as far as possible be facilitated on the proposed road network or at least along a prioritised set of routes between key points as proposed for the pedestrians. Cycle lanes can be accommodated on the road with traffic, in a separate lane, as part of the sidewalk or away from the road, depending on the space constraints, volumes of traffic and cyclists; and the competency of the cyclists i.e. experienced commuter cyclist versus novice. The following should be taken into account when designing for cyclists:

Guidelines:

- Safe and secure bicycle parking is essential at all key destinations.
- If public transport vehicles are not at the point of being able to accept bicycles, then bicycle parking is critical at the respective modal facilities.
- Along busy cycling routes minimise driveways that cause conflict.

Cyclists will comfortably travel 8-10km to access work, schools and public transport services.

2.4 Bringing the rail, road and pedestrian network components together as a single Access Network.

In order to promote the Hub as a pedestrian friendly environment, proposals should generally reduce the distance people need to move by vehicle to access key day to day destinations. The proximity of key interdependent destinations such as the respective modal facilities to each other in particular is therefore important. The strategy to create an “Interchange Zone” in which the road and rail based services come together within easy walking distance from each other, addresses this need.

Conceiving the area within which the integration of modes happens as an “**interchange zone**” as opposed to a collection of single facilities will also help to integrate the PT facilities into the urban fabric.

To ensure that this “Interchange zone” is usable, understandable and legible but above all else vibrant and seamlessly integrated into the surrounding urban environment, the location of the facilities accommodating the three main modes of PT (rail, bus and taxi) should be carefully considered. They must be located close enough that pedestrians can transfer easily between the three but far enough away from each other that opportunities presented by the pedestrian flows can be maximised. With this in mind it should be noted that a maximum distance of separation of modes should be 150-200m which translates into approximately 2-3 minutes.¹

¹ Determined through an investigation of sites where modal facilities are split

A further strategy to ensure that the hub remains a pedestrian friendly environment is to design a **prioritised pedestrian network** that has the potential to connect strategic PT carrying routes, destinations such as the PT facilities and key Public spaces, public facilities, amenities and service points as part of the broader Public Space Network.

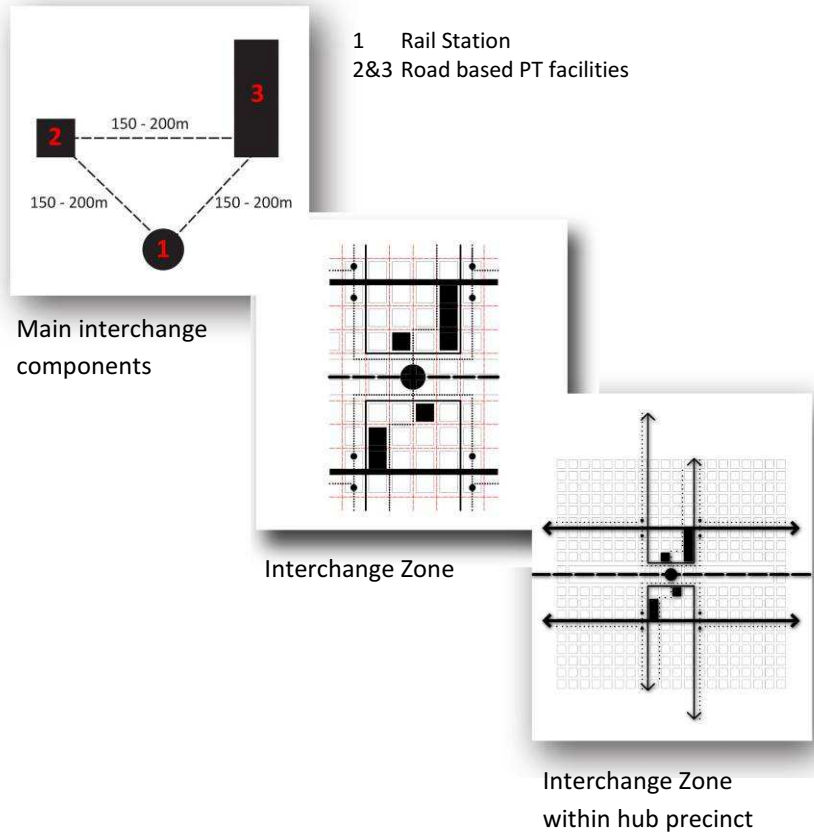
When it comes to motorised forms of transport, it is preferable to work towards a structural pattern where road and rail based systems are located in parallel to each other. This arrangement has been proven to be one of the most efficient. A road system that in turn allows the integration of the “Interchange Zone” with a set of Secondary and Local Connectors, is also essential.

Diagram 4 below demonstrates how, using typology 1 the access network is built up. The diagram was based on the assumption that the site had existing Secondary Connectors supporting the rail line in place. A set of Local Connectors are proposed then to stitch the Primary Connector (being the rail) and the Secondary connectors to the rest of the Hub and further into the Local area.

More detailed planning by transport engineers focussed on frequencies and capacities of the various modes of PT will need to inform where local scale PT stops should be located within the Hub Precinct in relation to the “Interchange Zone” (and how large they need to be, if they are off street facilities).

Once all these aspects have been considered it is possible to fix a conceptual layout that builds on the structural typology. This layout can then form the basis of the next exercise which identifies the land uses that will associate with various components of the Access network.

Diagram 4: Proposed Access Network



Toolkit Part 3: Conceptualising the Land Use components

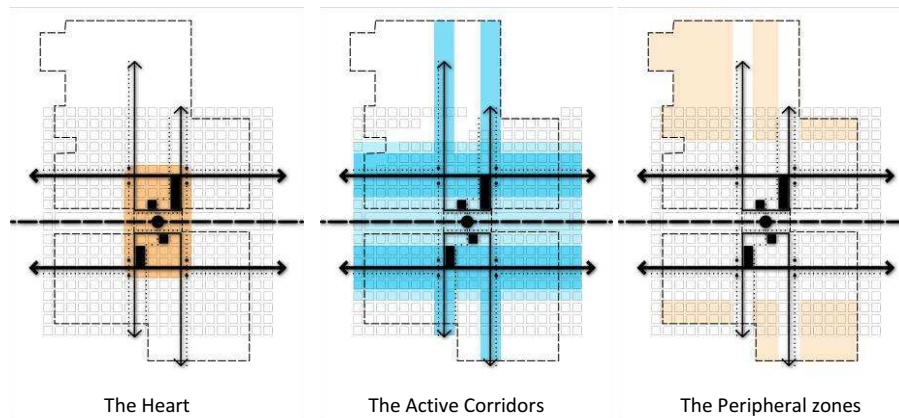
MAIN TASK:

- To identify the main land uses and facilities that would locate within the Hub Precinct and provisionally fix their location in relation to the proposed Access Network.
- To provisionally identify the housing typologies required to achieve the required densities.
- To prepare a Spatial Concept for the Hub Precinct.

3.1 Precinct Zones

When considering the layout of the hub it can be conceptualised as a set of three interdependent zones: The Heart, The Active Corridors and the Peripheral Zones.

Diagram 5: Precinct Zones



These zones can be located but will rarely have a defined boundary. They are notional. Their location is relative to the key structuring elements (components of the Access Network) identified in Diagram 4. The following provides a description of the zones to inform more detailed planning of parts of the hub.

3.1.1 The Heart

The heart is considered to be the central, most public, most dense and most intense area within the hub. It will include the “Interchange Zone” and its immediate surrounds. It is where the key destinations will be located. Key destinations may include the higher order facilities such as district hospitals, magistrates’ courts, training colleges; government offices etc. which will be fed directly from the rail and / or road based PT services. The “Interchange Zone” will allow safe comfortable pedestrian linkage between the rail station and other PT facilities. It will accommodate the busiest pedestrian spaces in the Hub. This area will as a result be the perfect location for a full range of economic operators to be accommodated. It should also accommodate some residential development above ground level to ensure 24-7 activity and surveillance. Parking requirements to support activities in this zone should be zero to minimal given its proximity to public transport services.

3.1.2 The Active Corridor Zones

The Active Corridor Zones relate to the Secondary and Primary Connectors into the Hub Precinct. The Corridors associated with the Primary Connectors are obviously of a different nature as their development is mostly focussed around points (nodes) and less on the line. These guidelines will focus more on the Corridor Zones associated with the Secondary Connectors, assuming they are activity routes.

Businesses and manufacturing will be permitted in these zones but in specific locations only so as not to compromise the liveability of the area. Manufacturing and / or light industrial could be considered along the rail reserve for example, and business could be accommodated above ground floor level at strategic

points associated with key through routes. Ground floors along the key thoroughfares should be occupied by activities that can be active at least 16 hours / day. Parking requirements to support activities in this zone should be minimised given its proximity to public transport services but also to ensure a qualitative living environment.

3.1.3 Peripheral zone

This zone provides the most flexibility but also needs to be the most responsive to the surrounds. Its primary role is to mediate between The Heart and Corridor Zones and the surrounds. This zone will be the least dense, least intense and accommodate the most land extensive of the activities. On the other hand it would not be optimal to see this zone handle all the parking for the hub.

It should also accommodate activities that encourage residents in the surrounding areas to move into the hub and spaces which accommodate existing urban operators who cannot be accommodated in the more intensely developed zones.

3.2 Key design concepts

3.2.1 Densities and residential typologies

SUB TASK:

- To provisionally consider the type of residential development required to support the type of environment desired.

Residential density along with increased levels of connectivity across the urban area can assist to increase thresholds. Thresholds are critical to ensure that public transport services are viable² but also to create a vibrant living environment. This section focuses on density as a means to increase thresholds.

An average base gross density across the entire urban area of 25du/ha (PG:WC, 2009) is necessary to support a reliable public transport system according to international standards. However within a metropolitan and / or sub-metropolitan hub in the vicinity of public transport routes, interchanges and stations, near civic precincts, and where there is a diverse concentrated mix of land uses, activities and services, a density of 100-375 du/ha (net) is preferable (CoCT, 2012). This translates into a gross density of approximately 50-187du/ha³, and an average gross density of 119du/ha. A density of 40-100du/ha gross is regarded as medium density (DAG, 2008).

² A ridership of 40 000 passengers in each direction daily is said to support a rail or dedicated public transport route such as the BRT. This offers a guide as to the optimal densities to achieve within the hub and its immediate surrounds. Public Transport viability can also be related to employment density. The CSIR (2000) suggests that ridership increases significantly when you reach a threshold of 1 employer / 100m² in a centre with more than 10 000 jobs. This is an incentive to create jobs as well as shopping opportunities within the hub.

³ Based on an assumption that gross densities are about half of net densities

The densities that are proposed for the densest parts of the Hub Precinct are therefore relatively high and could result in residential development of between 4 and 7 storeys, and possibly up to 15 storeys in the long term. To achieve medium densities one will need to stack units over a minimum of 2 to 3 storeys as a minimum.

Walk-ups, (avoiding the need for lifts) located on the periphery of the urban blocks around semi-private courtyards are a viable option in the quest for creating a vibrant and well defined public environment. Medium densities can also be achieved through row housing. Increasing the storeys will increase the densities and is also desirable in certain locations where open spaces need definition and containment. The images on the following page provide examples of housing forms where medium to higher densities are achieved.

The most accessible locations i.e. those blocks adjacent to the main transport routes and facilities should accommodate the highest residential densities.

It should be borne in mind that the densities mentioned above can only be achieved if parking is not provided at the required standards generally stipulated by zoning schemes. Reduced parking proposals must be motivated on the basis of proximity to the multiple public transport modes. Minimal Parking will need to be accommodated as far as possible in basements, within shared parking courts and on the street as structured parking can create dead sterile street edges.



Insert 3: High density housing



Insert 4: Medium density housing

3.3 Considering other key land use components

While it is necessary to consider public and privately driven land uses separately when conceptualising potential institutional and financial packaging of projects, it is vitally important to ensure that they are not delivered as discreet operations on the ground. For the urban environment to function as an integrated system, one needs to consider how and where overlaps can occur. These overlaps enable more efficient movement systems, land utilisation and resource utilisation. One should therefore consider the design of **new models of development**, which enable the horizontal and vertical integration of commercial developments, transport related infrastructure and other public sector driven development in the form of social facilities e.g. clinics, libraries, markets etc. Land use budgets conventionally used to calculate the extent of land available for each land use type therefore cannot easily be used to plan precincts of this nature.

Planning and design of complex integrated environments such as these will require careful consideration of the compatibility of some land uses as environmental issues cannot always be mitigated through design.

3.3.1 Public facilities and amenities

SUB TASK:

- To identify the potential facilities, amenities and social services required to service the Precinct Hub and its surrounds as an integrated urban system and to locate them provisionally in relation to the elements comprising the proposed Access Network.

In order to estimate the number of facilities and quantity of services one needs to utilise provision standards which in turn require one to be able to estimate the catchment population. This is a complex exercise when dealing with a programme such as this one where you are typically intervening within an existing township.

Should the proposed Hub have been a new development one would calculate the catchment population size using a catchment area of 200ha (based on a feeder radius of 800m from the key PT service hub and an average gross density of 119du/ha and an average household size of 3.1 people⁴). This would give a hypothetical population of ±74 000. This however, is academic as catchments for different types of facilities are different dependant on where the site of intervention is. This is particularly pertinent in an environment, which is serviced by well-functioning PT networks which in turn allow people to move between areas and access facilities as they need⁵.

⁴ This figure is an average household size for the 8 metropolitan municipalities, extracted from Statistics South Africa, 2011 Census

⁵ When identifying the facilities that may need to be provided within the hub it should be borne in mind that the provision standards proposed by the CSIR will be tempered by realities on the ground such as mobility factors which are influenced by affordability levels and movement barriers (large vacant areas, rail lines etc.)

Analysis described in Part 1 in combination with your Hub population calculations will begin to indicate what facilities are required at the various scales of consideration. Provision standards set by the CSIR will help to define the number and type of facilities that may need to locate within the hub against the realities on the ground and needs identified across a variety of scales including the following:

- Metropolitan scale for district and regional facilities
- Local scale (township and / or cluster of 'townships' scale) for schools, libraries, clinics, pay-points, municipal offices etc.
- Hub Precinct scale (a new community, an existing community or a combination thereof) for schools, parks etc.

The public services / facilities provide the building blocks of any settlement and should be located strategically within the Precinct where they are visible and accessible.

Provision guidelines:

Where facilities can service more than one purpose comfortably they should be co-managed and shared as a resource between departments/service providers. The location of each of the respective services/facilities in relation to each other is therefore critical and needs to be taken into account when considering the overall layout of the hub.

However, clustering and sharing of resources between facilities can only be done when there is compatibility between activities. For example schools, libraries and recreational and community facilities can be clustered but police stations and hospitals handling emergency / trauma related activities and other high risk activities cannot be easily clustered with other social facilities.

Clustering of facilities can also help with reducing the total extent of parking required especially when activities are staggered over the day or night.

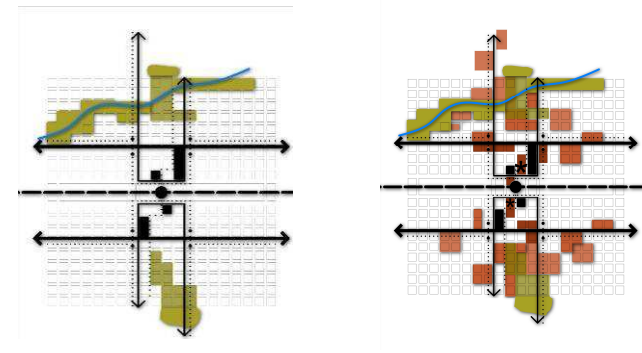
Access guidelines:

Facilities of a lower order nature should be located close to the residential population they serve, 350-500m being an easy distance to cover for those accessing crèches, schools, play parks, convenience shopping.

Facilities of a higher order nature or that do not require people to be accessed on a frequent basis such as hospitals, libraries, recreational facilities, government offices and specialised shopping environments can be as far as 1 - 2 km away or accessible via PT services.

The following diagrams locate a collection of facilities in relation to the proposed Access Network. It proposes a number of key higher order facilities within the "Interchange Zone," others along the Secondary Connectors and the lowest order of the facilities along the Local Connectors servicing the local residential populations.

Diagram 6: Green Amenities and Public Facilities



3.3.2 Commercial land uses

SUB TASK:

- To identify the retail, service related commercial development, business and industrial activities that could locate within the Hub Precinct and to locate them provisionally as overlay zones in relation to the elements comprising the proposed Access Network.

3.3.2.1 Retail activities

The NDP will be looking to support innovative forms of commercial development that challenge the stand alone mall type configurations in particular. The intention is that commercial activities will be integrated with other land uses such as public transport, institutions and residential development. It is also the intention to ensure that new commercial development responds more directly to the pedestrian and commuter flows within the broader urban environment.

Given the intention to invest in PT and in so doing reduce car usage; there will also be new opportunities to develop without massive investment in parking areas and structures. In the context of the above, designers will have the opportunity to reconceptualise the form that commercial development takes.

The analysis undertaken in Part 1 may have identified points and routes where informal trade and formal businesses have agglomerated already and these in combination with the proposed Access Network should provide clues as to where thresholds will be high enough to support further commercial land uses or consolidation of activity when it is informal in nature.

Guidelines:

- Retail should be integrated with other land uses as far as possible.
- Retail centres regardless of scale should be located in highly accessible places such as public transport interchanges or at rail stations where there are high concentrations of people on a daily basis. This will obviate the need for parking.

- Shopping centres create other commercial opportunities and as such should allow for future growth in the vicinity.
- Commercial environments should allow the formal and informal second economy to operate in close proximity.
- Commercial development should allow for the agglomeration of similar type commercial activities.
- Retail environments should locate tenants carefully to ensure that operational hours are extended in certain strategic locations. Restaurants, internet cafes, libraries etc. can extend the operational hours to 18 hours / 7 days a week which is preferable for areas related to transport facilities or key public spaces.
- Large anchor tenants should where possible, be located behind an edge of smaller scale commercial operators fronting onto public spaces and roads. (See Chapter 4 for conceptual approach to handling a range of operators.)
- Retail environments should not enclose and / or securitise precincts larger than an average block. If they do, the public roads are to be respected as public 'rights of way.' These public 'rights of way' can be roofed but they cannot be managed / controlled to restrict access. See diagrams below.

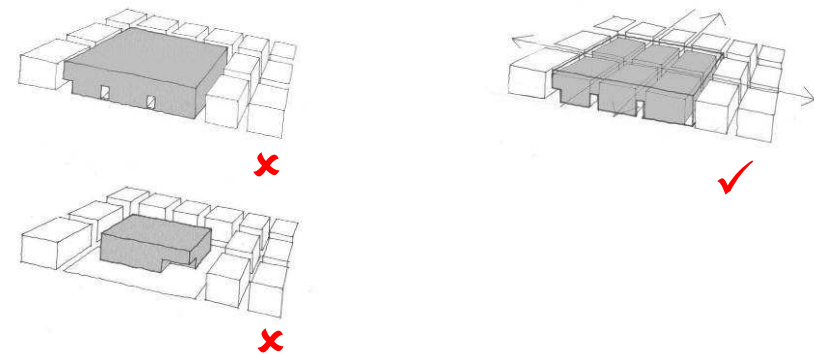


Diagram 7: Retail configuration within an urban environment

- The scale of the saleable / lettable modules within commercial precincts should allow for a full range of operators and tenure possibilities. The following provides a breakdown of typical commercial type environments and suggests where different operators could be accommodated.

Large retail Centres

- Large retail centres work around one or a combination of large retail anchor tenants depending on their size, that take up about 70% of the tenant mix. Large centres can range in size and accommodate a range of different business types including but not limited to banks, restaurants/takeaways/cafes, retail and other service related enterprises. Large Commercial Centres are, in today's economic climate, more viable when they are larger than about 25 000m² GLA and can include banking institutions and more than one large national anchor tenant (Isandla Institute, 2011).

Small retail Centres

- Smaller retail centres (approximately 14 000 to 15 000m²) work around one retail anchor tenant and can accommodate a higher percentage of regional and local businesses. Tenants may include retail operators, service related enterprises, ATMS, restaurants/takeaways/cafes but cannot usually attract banking institutions.

Main Street Shopping

- Main street shopping precincts provide opportunities for private operators to lease or own spaces that open directly onto the street. Operators locating on the main streets have lower affordability levels than those locating in Large Centres and / or prefer to own the property they occupy. Main streets include both large retail operators and service providers (banks etc.) to very small operators such as takeaway businesses, cell phone shops, shoe repair shops etc.

Informal trading areas

- Informal trading locates in relation to the highest pedestrian flows mostly associated with public transport facilities. These areas accommodate a range of operators trading from a variety of different structures including roofed, secured and serviced spaces. It may even include itinerant trading in places. Municipalities often need to invest in

infrastructure necessary to support the traders such as storage, canopies, lighting, security, water, power.

3.3.2.2 Business Activities

Office type developments logically locate in 'town centres'. They need to be easily accessible and close to other businesses which allows them to network and support each other. Large businesses don't always require interfacing directly with the public in the same way that retail does so it is important to locate it within larger development according to the guidelines below.

Guidelines:

- Where offices are located on ground floor they need to activate the street or public space onto which they front or alternatively locate behind banks of smaller scale operators to ensure the public interfaces are activated. (See Chapter 4 for conceptual approach in handling block scale development)
- Offices should be integrated with other land uses in particular public transport and institutional development.
- Where business is integrated with residential it should be of a finer grain, i.e. smaller spaces where work spaces are linked to living spaces directly e.g. loft studios etc.

3.3.2.3 Industrial Activities

The market and the context normally inform the type, size and extent of the spaces required for industrial type land uses. The present demand is generally for serviced land/space that is accessible to the larger metro area and has perimeter security.

Furthermore while private developers will require large sites to deliver feasible development, the demand in townships is often for smaller spaces where local manufacturing and / or warehousing businesses can base themselves. Development within the Hub Precincts should therefore address this need.

Development that responds to the recent trend of combining living spaces (lofts in particular) and workshop spaces for the creative industries should also be incorporated easily into the central parts of the Hub Precinct if there is a need.

An ideal location for industrial activities may be hard up against the rail line, which is generally not optimal for other uses.

Guidelines:

- It is optimal that industrial developments are not developed at a scale which restricts pedestrian movement through the Hub Precinct but rather within the urban block that can be secured if necessary by buildings as opposed to fences.
- Where industrial / business parks are being considered they should be designed to add value to the public streets as a component of the public spatial network and as a result should look to more urban building types and layouts.
- Industrial activities in the hubs should be limited to clean / light manufacturing which is compatible with residential uses.

The diagrams below suggest where the various types of commercial development might go in relation to the proposed Access Network.

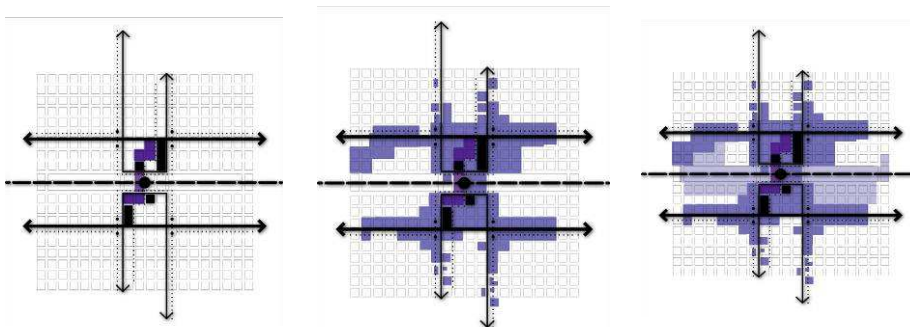


Diagram 8: Concentrated Retail, Business, Industrial

3.4 Parking

Parking can be one of the largest consumers of space in cities and it is therefore critical that planners and designers understand how to minimise it and how to reduce its impact on the public spatial realm.

By structuring development around public transport services, which is the intention of the NDP, one can reduce the need for cars and parking. Beyond this one has to employ design to mitigate the visual impact and ensure that the parking does not create a sterile and socially inactive precinct. To prevent this from happening one should be informed by the following:

Guidelines:

- Provide some convenience parking on street but not in continuous bands as continuous car parking forms a barrier to movement across the street and compromises the quality of the overall environment.
- Provide basement parking where possible but limit the size of the entrances and exits as far as possible as they sterilise the block edges.
- Minimise the visual and environmental impact of parking by limiting the size of parking areas, planting trees and reducing the amount of hard surfacing.
- Where associated to residential areas and / or higher order public networks, parking spaces should be designed as multifunctional spaces e.g. play courts or markets when not in use for parking.
- Avoid 'structured' parking within the first two levels above ground as they create poor street interfaces unless they can be edged with commercial/public land uses onto the street.
- Parking associated to activity corridors should where possible be handled behind the first layer of commercial / public land uses in landscaped parking courts.

3.5 Bringing all the land use components together

SUB TASK:

- To prepare a Spatial Concept informed by the access and land use layers with an accompanying land use breakdown.

The Spatial Concept should be considered as a set of land use and access related layers which come together to form a single system. It should reveal a logic that sees the activity corridors and the main "Interchange Zone" attract the highest density of land use activity.

The framework will be accompanied by a high level Land Use breakdown in which the proposed commercial bulk, residential densities, public facilities, services and amenities for the Hub Precinct as a whole will be described.

The following diagram shows how the layers come together to reveal a locational logic which in turn indicates where the NDP might want to reinforce with investment.

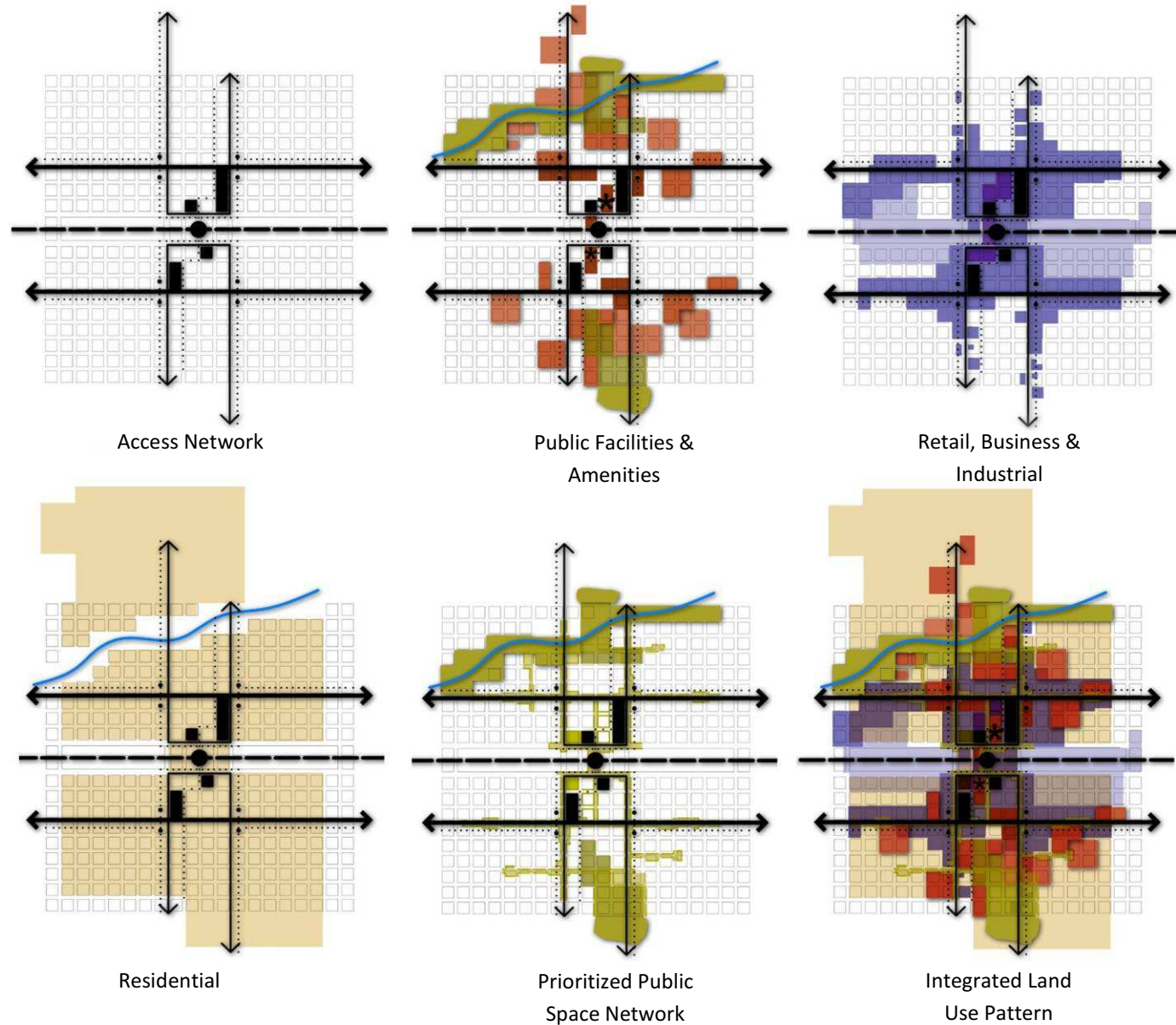


Diagram 9: The land use layers which inform the Spatial Concept

Toolkit Part 4: Conceptualising the form of Development

MAIN TASK:

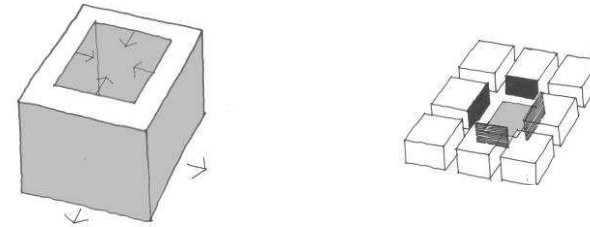
- To prepare Sub-Precinct Plans. Sub-Precinct Plans should identify how the urban blocks will be laid out at a conceptual level indicating proposed bulk / GLA where appropriate, land use and how the parking is to be addressed.

Part 4 provides tools for the design professionals to move forward with design at a more detailed level. It focuses on the scale of the urban block, which is the scale at which the planning parameters come into play. Bulk, parking and land use are important considerations and the spatial implications of integrating them needs to be fully understood.

4.1 Key Urban Principles

The following six principles need to inform design at the level of the urban block but also the spaces in between as it is impossible to consider the one without the other.

4.1.1 Definition



It is important to provide definition to public outdoor spaces. Enclosure created by buildings (or tree planting) provides psychological comfort. Built edges can also offer protection from dominant winds if the spaces are correctly orientated. However, the height of the buildings in relation to the adjacent space is a critical consideration.



Insert 5: Defined space vs expansive space

4.1.2 Scale



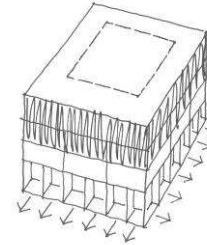
Scale is about the relationships between, in this case, a human being and their built environment. While being a quality that cannot be easily defined it is something that is critical to the psychological well-being of an individual. Design associated with the public realm should always use the person on foot as a measure of appropriateness.

The width of the street spaces and the extent and shape of the public squares, forecourts etc. should be carefully considered against the volume of people expected to occupy the space and the nature of the expected activity. The over scaled nature of spaces and buildings can be mitigated through design and / or the utilisation of trees or other vertical elements.



Insert 6: Trees mitigating scale of public square vs empty over scaled ground plain

4.1.3 Diversity



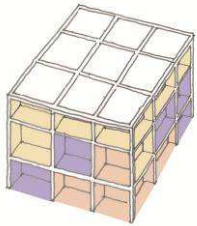
Buildings facing onto public streets and in particular the main PT routes and public spaces should accommodate a range of occupants. Large operators often require visible entrances but prefer blank edges for security and / or privacy. Large tenants can therefore locate internal to development blocks, freeing the edge of the urban blocks for a range of smaller scale operators. The modules of the block interfaces should ideally be narrow to ensure the largest number of operators is exposed to the passing public.

A vertical mix is also essential to ensure extended periods of activity into the evenings across areas that will contain some residential units.



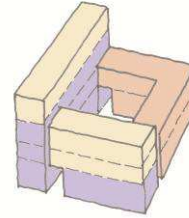
Insert 7: Vertical and horizontal mix of land uses vs mono-functional block development

4.1.4 Flexibility



Positive settlements have always showed a measure of flexibility in their structure to accommodate changes in use and occupants over time. 3 dimensional frames and 2 dimensional layouts should be robust in their ability to be re-occupied and / or redeveloped. This is important not only to save on resources and minimise waste but to accommodate a range of agents and unexpected demands over time.

4.1.5 Compaction and Integration



The intensity of land use activities and density of buildings is essential to creating a vibrant urban environment.

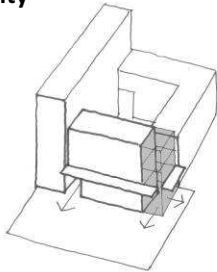
Where land uses are separated and developed in discreet pockets on their own land portions, the intensity of use of the total environment is diluted. Compaction requires that land uses are integrated horizontally and vertically.

The integration of different user groups is also critical to ensure vibrancy. Two of the main sets of user groups are pedestrians and vehicle owners. The potential conflict between these two user groups can be managed by prioritising one or the other clearly through design interventions. In the case of the Hub Precinct pedestrians will generally be prioritised above private vehicles and their owners.



Insert 8: Isolated facility vs an integrated facility

4.1.6 Legibility



Development of the blocks needs to be legible to users in environments which are dense and integrated. Entrances need to be located in high visibility locations such as corners or associated to key open spaces. Where they are not they should be designed as welcoming spaces that people can clearly understand as the main access points to their intended destinations. The integration of horizontal and vertical circulation is also preferable.

Furthermore design of the volumes of the intended development should give clues as to how the land uses / tenants / occupants / activities are distributed and relate to each other. For example where courtyards are part of the broader city public network of spaces then the public should have glimpses of the inner courtyard from the outside to know that they exist.



Insert 9: Defined corner entrance vs undefined entrance

4.2 The Urban Block

While the intention is to ensure a vertical and horizontal mix of land uses, this section focuses on the opportunities to mix land uses horizontally. Looking at the ground level only there are three distinct land use scenarios.

- The entire block is mostly residential at ground level;
- The entire block is commercial or public in nature at ground level; and
- The entire block is a mix of land uses at ground floor.

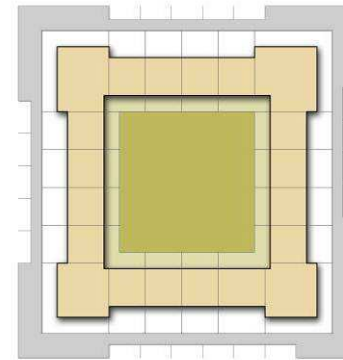
The following pages provide guidelines specific to the 3 different land use scenarios at the scale of the urban block.

4.2.1 Residential blocks

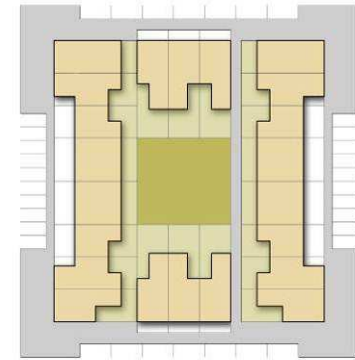
Residential development can be of two primary types when making more dense urban environments. It will either be in the form of perimeter type development around the edge of an urban block where living units are stacked on top of each other (Type A) or where units are built as continuous rows on small plots (Type B). The latter does not preclude stacked units but it generally doesn't allow more than about two to three storeys of units in total. The perimeter type block arrangement can therefore accommodate much higher densities. The tenure systems will differ depending on whether units are stacked.

The following should inform design at the level of the block regardless of which housing typology one uses:

- Create semi private space away from the street for residents
- Provide sufficient space at the interface (back and front) to achieve the desired privacy gradient
- Locate pedestrian entrances at points of high visibility / connectivity
- Locate parking in small planted courtyards within the block or between blocks and in limited lengths along the street.
- Where courtyards are created internally, make sure the building height to courtyard area is the right ratio to allow adequate levels of sun and light in. Conversely make sure the courtyards are sufficiently defined to create a sense of enclosure.
- Where courtyards are created, use the building as the security line to avoid requiring high fences /walls.



Type A



Type B

Diagram 10: Typical Residential Blocks

4.2.2 Commercial / Institutional blocks

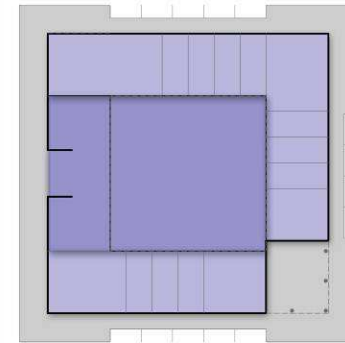
Commercial development can be of two primary types when making more dense urban environments. It will either be a scenario where:

1. An anchor tenant is located centrally within the block and the periphery is made available for smaller scale operators (Type A1);
2. An anchor tenant is located centrally within the block and the layout allows for pedestrian passage through the interior of the block. In this case it is necessary to edge the circulation space with small scale operators (Type A2); and
3. An anchor is located on the periphery of the block and with other smaller scale operators around the remainder of the periphery, defines an internal courtyard space that can be used either for parking, servicing or for a pedestrianized / living out space (Type B).

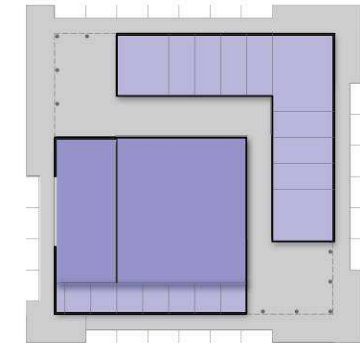
Regardless of the scenarios the following should inform design of commercial ground floors:

- Where there is a range of different size operators/tenants, allow the smaller operators to locate on the street edge and along internal pedestrian routes to maximise on visibility and accessibility.
- Allow a finer scale penetration of blocks by pedestrians where possible.
- Limit the extent of the service interface for large tenants on the street
- Limit the amount of at grade parking, locating it rather below ground, or in limited lengths along the street edge.
- Align main pedestrian entrances with corners or other highly visible or accessible points on the periphery of the block.
- Integrate PT stops where possible into the edge of the building where the blocks edge important PT routes.
- Where courtyards are created internally, make sure the building height to courtyard area is the right ratio to allow adequate levels of sun and light in. Conversely make sure the courtyards are sufficiently defined to create a sense of enclosure.
- Where courtyards are created, use the building as the security line to avoid requiring high fences /walls.

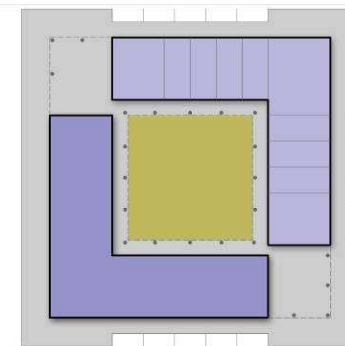
- Where spaces on ground floor have two public interfaces consider how servicing of the units can happen without compromising the quality of the courtyard and street.



Type A1



Type A2



Type B

Diagram 11: Typical Commercial Blocks

4.2.3 Mixed Use blocks

There will be a number of different ways to configure a mix of land uses at ground level. This scenario presents the same challenges as those discussed above however, the interface between the residential and the commercial needs to be managed more closely. When considering a horizontal mix of uses at ground level the following should inform design.

- The scale of the commercial / public building to the residential should be well considered given the potential for larger commercial / public buildings to overshadow smaller residential buildings.
- The interface condition between the different land uses should be carefully negotiated.
- Where courtyards are created internally, make sure the building height to courtyard area is the right ratio to allow adequate levels of sun and light in. Conversely make sure the courtyards are sufficiently defined to create a sense of enclosure.
- Where courtyards are created, use the building as the security line to avoid requiring high fences /walls.
- Where spaces on the ground floor have two public interfaces consider how servicing of the units can happen without compromising the quality of the courtyard and street.

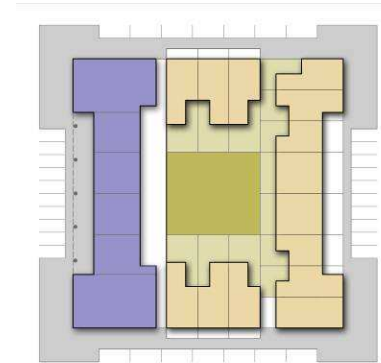


Diagram 12: Typical Mixed Use Block

Toolkit Part 5: Making the Public Realm

MAIN TASK:

- To prepare a set of detailed design guidelines for the Precinct Hub with furniture specifications if required, followed by more detailed urban design frameworks for each of the respective sub-precincts.

The following material focuses on the public interfaces, spaces and streets and on soft and hard landscaping as an essential tool in shaping and giving meaning to the Public Realm.

5.1 Public interfaces: Design Objectives

The public realm is comprised of a set of public spaces and routes that form a connected whole and facilitate seamless movement between key destinations and places within a settlement.

The form of, and the activities contained within, the built edges that define the public spaces and routes, are important when considering the notion of urban performance. It is for this reason that the following focusses on both land use aspects and formal aspects of design associated with the public interface.

5.1.1 Transparency

Eye contact and the ability for occupants of the internal spaces and passers-by to engage is critical – increased levels of visual connection make for healthier social relations, safer environments as people look out for each other. Ground floors in particular should be transparent / open, where possible to facilitate engagement. Upper floors should have balconies and large apertures to increase eyes on the street.

5.1.2 Detail

The façade must have sufficient detail to engage someone passing on foot. Too often facades are articulated and detailed for those passing in vehicles that cannot engage detail but prefer large scaled statement type forms to attract attention.

5.1.3 Depth and modulation

Flat ground floor facades, whether transparent or not are alienating. They do not provide a level of psychological comfort necessary to encourage stopping or pausing. The flat smooth facades result in faster moving foot traffic thus resulting in less interaction between street users.

Facades with depth can ensure that the needs of the private individual/occupant of the building and the general public can be mediated within a neutral space. Balconies, terraces, arcades etc. create a transitional space in which the occupants of buildings and passers-by can engage.

Smooth facades also do nothing to retard air flows and can in fact contribute to increased tunnel effects along the road network.

5.1.4 Climatic Responsiveness

It is vital that streets and public spaces can meet the basic comfort requirements of people by providing some measure of protection from the sun, rain and the dominant winds. Colonnades offer partial protection from the rain and sun which is important in the South African Context.

It is also important to respond appropriately to orientation as different orientations will require different design responses. North facing facades are optimal for living areas, outdoor entertainment, restaurants, cafes etc. West facing facades need extra shading. South facing facades are ideal for working spaces.

See the photographs on the following pages for examples of key principles described above.



Insert 10: Transparency



Insert 11: Detail / rhythm of facade



Insert 12: Depth and modulation ✓



Insert 13: Climatic Responsiveness ✓

5.2 Applying the principles

The following sections illustrate how one would use the principles and objectives identified above to inform the design of some of the key public interfaces.

The sections distinguish between a mixed use condition and a condition where residential is the dominant land use. The following sections focus on the land use configurations that would typically locate in The Heart. Where the sections refer to commercial land uses they will include 'clean' manufacturing, retail, business, offices, restaurants etc.

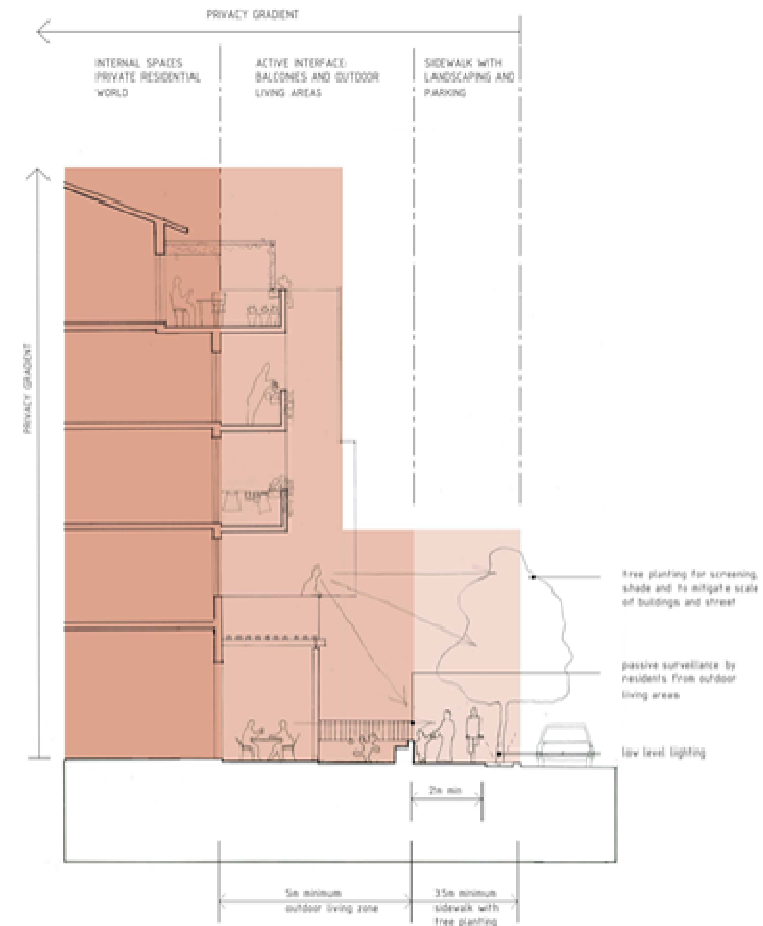


Diagram 13: Residential Edge: Spatial Condition

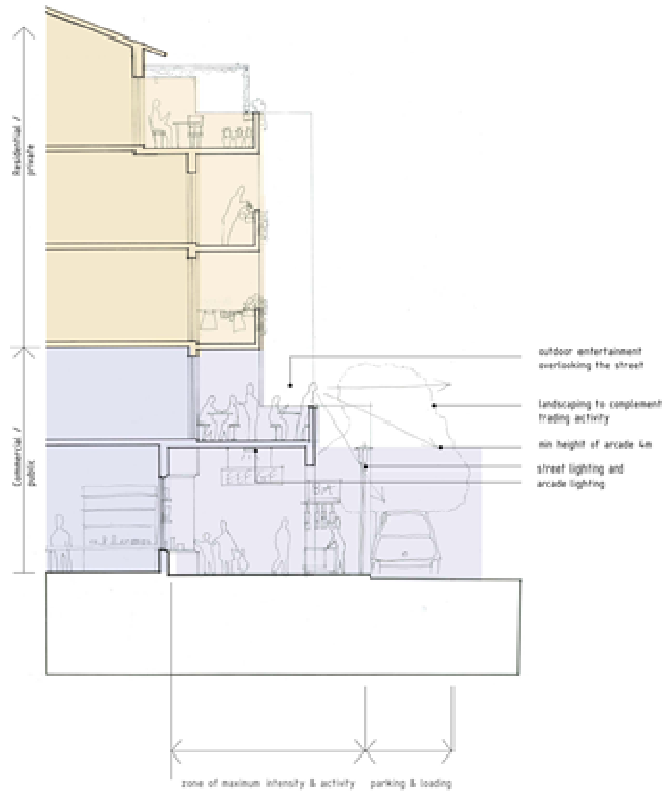


Diagram 14A: Mixed Use Edge: Land Use and Activity Zones

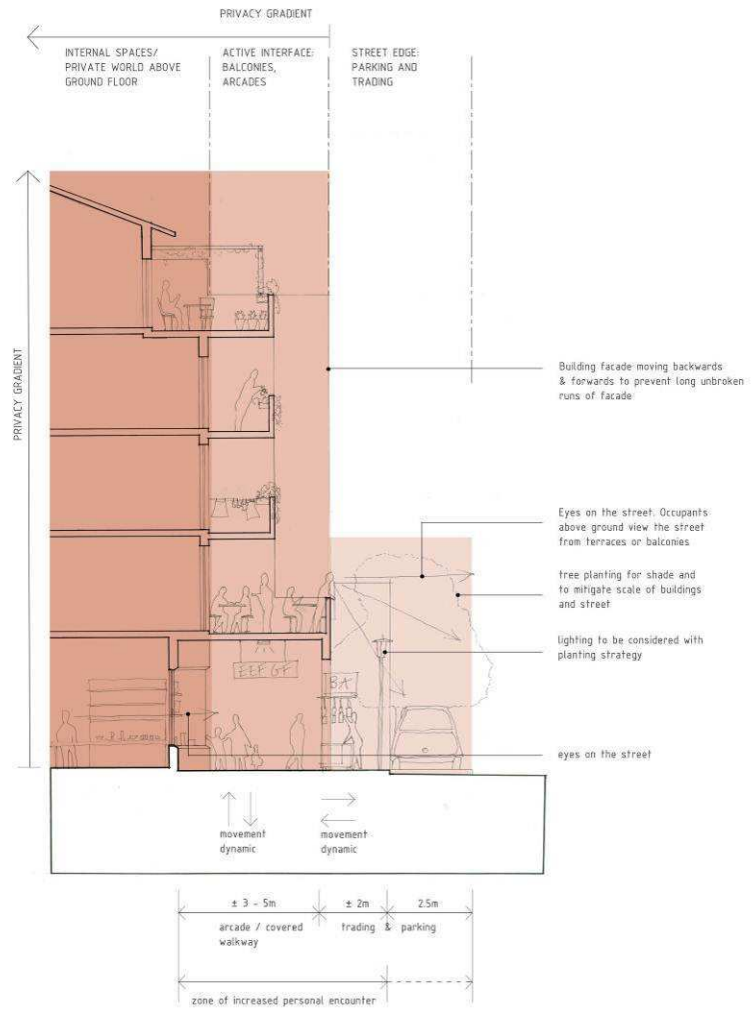


Diagram 14B: Mixed Use Edge: Spatial condition

5.3 Landscaping and Place making Design Guidelines

Landscaping is a vital component of any Public Space Network. Landscaping refers to soft, green elements such as planting and hard elements such as paving and street furniture.

It is important that there is a consistent language of detailing across at least the Prioritised Pedestrian Network specifically and beyond, where viable. Guidelines and specifications will need to be developed for each Hub informed by the context. These documents should then be made available to the public sector and private developers where they are responsible for the making of portions of the Prioritised Public Space Network, by setting in place agreements in respect of their respective responsibilities.

Guidelines related to the soft elements will be comprised mostly of potential planting lists, irrigation specifications etc.

Signage, seating, lighting and paving can be specified in detail and where there is significant demand, a request for purpose designed items can be made up.

Built infrastructure such as the toilets / water points can be iconic place making / space defining elements based on a standard layout that can be adjusted according to the exact context.

The following provides guidelines at the level of principle and where appropriate, detailed recommendations which should inform the detailed guidelines for the Hub Precinct.

5.3.1 Soft Landscaping

5.3.1.1 Tree planting

Trees can be used to address scale. Trees provide a sense of texture, and seasonal interest. Rows of trees serve a dual purpose of ameliorating climate and defining space.

- Plant at maximum 5m centres and a minimum of 2m away from vertical faces, but this is also dependent on size of adult tree.
- Continuous lines of the same tree species provide strong edge definition.
- The introduction of different species should only be done when there is a need to mark key entrances, significant axis etc.
- Ensure tree planting does not obstruct main NMT routes or sidewalks.
- Trees should be conceptualised as groups/blocks or lines, where feature trees are used they should be reinforced with seating opportunities.
- Trees should be indigenous to Southern Africa.
- Trees should be planted as big as possible to enable the full impact to be understood up front by users of the spaces.
- Deciduous trees are appropriate within NMT zones but trees providing shade throughout the year should be evergreen.
- Try to locate trees close to seating so that people can site in the shade.
- Trees should be surrounded by tree cages where necessary through their first years of development to ensure protection from animals, vandalism and / or wind. Tree cages can be temporary and / or permanent although they all need to be robust, easily replaceable and easily maintainable. Tree cages should be designed to reflect the character of the surrounds. They can be simple and rough but they can also be more sophisticated if they are to be more permanent in nature.

5.3.1.2 Grass

Grass can offer visual relief but can also facilitate storm water infiltration

- Only use grass in less trafficked zones.
- Only use grass when the maintenance of these areas can easily be achieved, inclusive of watering, mowing and fertilising.
- Consider using grass blocks where traffic volumes are not great and where storm-water penetration is preferable.

5.3.1.3 Low planting

Planting provides visual relief and interest in hard landscaped areas.

- Create flower beds when the maintenance of these areas can easily be achieved, inclusive of watering, annual thinning, fertilising and replanting.
- Use indigenous water-wise palette of plant material.
- Where possible integrate seating and planting - planter box edges to be widened as seats for example.

5.3.2 Hard Landscaping

5.3.2.1 Paving

Paving provides a means to define space, clarify zones and add to the identity of a space / link. Most importantly it improves the trafficability of surfaces. It can also provide a means to code space contributing to the legibility of the system of public spaces / routes.

- All hardened surfaces are to drain. A 2% fall is sufficient for a surface to drain.
- Make sure pavers are held with an edging and where large areas are brick paved that they are arranged in a herringbone or interlocking pattern to prevent shifting due to heavy use.
- In situ finishes should have expansion joints.
- Brick banding and expansion joints should be used to break up the larger areas of paving and allow the ground plane to be referenced back to an overall grid alignment or the buildings.

- Be careful to create large areas of light coloured surface as it will create glare. Large areas of dark finishes can contribute to a significant build-up of heat.
- Be careful to specify the correct strength pavers for those surfaces intended to be used by vehicles.
- Sidewalks / pedestrian routes should be a minimum of $\pm 1.8\text{m}$ to allow three people to walk alongside or pass each other and two wheelchairs / prams to pass each other. Minimum dimensions: Cycle Lanes should be a minimum of $\pm 1.5\text{m}$. When two-way cycling traffic is being catered for a minimum of $\pm 2.5\text{m}$ is recommended with 0.5m clearance on either side.

5.3.2.2 Bins

Bins must be located within areas generating litter e.g. in public squares around interchange facilities, areas where people will spend their work breaks, Bins should also be located in trading areas although this requires very frequent emptying and cleaning through a sustainable waste management strategy.

- Bins can be integrated with other elements such as seating or lighting to contribute to increased levels of legibility.
- Bins in the higher order public spaces located adjacent to key public facilities should accommodate recycling.

5.3.2.3 Lighting

Lighting serves an important function in making secure and safe public spaces. Light itself at night and the elements during the day as a series of vertical elements also play an important role in defining space

- Lighting can be used to focus flows by identifying key routes and must be used to light changes of level at night.
- Lighting can be used to create atmosphere and illuminate features whether they are built elements, features such as trees, art etc.
- Lighting can be integrated into bollards and buildings.
- Remember that reflected light is more effective than a direct light source.
- Lamp posts should be no more than approximately 15-20m apart however the light bulb will need to be specified to achieve this.

5.3.2.4 Signage

There are various types of signage including informative, communicative and directional signage.

- It is important that there is a consistent signage theme used throughout the public space network.
- Signage must not obstruct NMT users. It must be positioned outside of the main flow areas and not be lower than 2.1m if it is within an NMT zone.
- Signage for the visually impaired to be incorporated into broader signage strategy.
- Signage strategy to include temporary signage for events (e.g. Flags etc.).
- Signage should be compliant with all statutory regulations.

5.3.2.5 Seating

Seating provides opportunities for those on their feet to rest, pause, interact but they can also help to define space.

- Seats must be configured in relation to each other to encourage chance interactions but also to allow individuals opportunities to observe from a distance.
- Recommended seating width is 0.42m and seating height is 0.45m.

5.3.2.6 Bollards

Bollards along road edges can serve as warning barriers and to demarcate separate use zones. They can be used as a substitute for kerbs or in conjunction with them to indicate in particular the limits to vehicular traffic. They can also simultaneously be used as temporary seating elements.

- Recommended spacing is a minimum of 1.5m
- Recommended height is minimum of 0.9m and maximum of 1.2m

5.3.2.7 Bike Racks

Bike racks should be provided at all main public entrances off the main streets. For the bikes to be secure the bike racks need to be located in view of passing pedestrians that is steady through a 16 hour day or within a securitised precinct.

- Bike racks must be positioned so that they do not obstruct pedestrian flows.
- Bike racks must consist of a non-removable frame to which a bicycle can be secured without falling over.

5.3.2.8 Art and sculpture

Art and sculpture within public spaces can provide a means for culture to be expressed. It ensures art is accessible to wide range of people. Sculpture can add to the identity of a space or place. Art and sculpture can be used to create interest and instigate engagement between people who don't necessarily know each other. Art can also help to focus attention to a particular point within a space or be used to direct movement and or views, in a particular direction. Sculpture can activate spaces by encouraging levels of physical engagement of individuals using public spaces.

- Local artists should be used where possible.

5.3.2.9 Toilets / water points

Provide toilets at key points including but not limited to transport interchanges and public spaces, market spaces. These should preferably be integrated into the buildings in the vicinity and managed to ensure accessibility through extended hours including early mornings and late evenings.

These service points can also be standalone elements and if so should be iconic landmarks and space making elements. They can be combined with other information sharing functions to create mini-one stop shops.

Toolkit Part 6: Considering an appropriate Phasing Strategy

MAIN TASK:

To consider a planning and implementation phasing strategy.

6.1 The role of the Local Authority

The NDP's intentions are to use public funding to leverage private sector investment. If the constitutional mandate of the municipality is to be developmental and pro-poor, it must take a strong lead and make the objectives clear upfront to the private sector who will ultimately be benefitting in the long term indirectly by a broadening market.

In a fickle economy Local Authorities will have to play an even stronger and more proactive role as the private sector will be more resistant to investing in areas perceived to be more risky and will want to set more stringent conditions. Here in lies the biggest challenge.

To ensure that one does not allow a business as usual development scenario to play itself out with little consideration of what is required to create a more urban and qualitative environment, the Local Authority will need to be very clear in their strategy and method of engagement about the expectations of the State who should act in the interest of the broader public.

6.2 Phasing strategies

Approaches to phasing cannot be considered without understanding the potential institutional arrangements that will need to be put in place between the respective role players and the land release strategy that the State prefers to

adopt. Furthermore the approaches will also be informed by land ownership patterns and income streams required by the local municipality to sustain their involvement in the development of the hub and the surrounding area. The most important issue to bear in mind is that the NDP will focus investment only on the public infrastructure (roads, civils, transport) and public facilities.

The phasing approach will always be informed by Part 2 of the Toolkit in which a structural typology is identified and Part 3 which fleshes out what land uses may be located within the precinct and where.

In principle, phased implementation within the context of the urban hubs would need to proceed along the following sequence.

Step 1:

Focus public funds on rail infrastructure and / or higher order road based infrastructure (such as a BRT) that would open up investment opportunities. The infrastructure would need to include the vehicular and pedestrian links between any PT facilities that enable the local access network to connect to the metro wide service network in a spatially meaningful way.

Step 2:

Focus public funds on bulk infrastructure required to support strategically located sites along the linkages created in step 1.

Step 3:

Focus public funds on the creation of key spaces and social facilities that would encourage the private sector to invest in specific locations. However it is critical that the public spaces are only implemented once there is a quantum of development that can activate the edges of the necessary public space routes and / or links that are prioritised. Any public spaces or links implemented upfront should be part of the prioritised public spatial network.

Furthermore the approach to phasing must always be carefully considered against the following principles:

- The first intervention must always make the connection between the rail and road based PT networks but simultaneously connect to the local road access system.
- The first phases should always attempt to create a complete 'system.' The first phase must create a network of pedestrian spaces and routes that connect key generators of movement and destinations. Furthermore the first phase must ensure that the network of pedestrian routes and spaces are edged appropriately to create the necessary definition, levels of enclosure and activity required for the spaces to perform optimally.
- The first phase of intervention should as far as possible relate to existing 'edges' so that the precinct is not an 'island.'
- When considering long term phasing, designers must be aware of potential future growth needs of PT facilities and provide a generosity in the design to facilitate growth where advised, bearing in mind that linear arrangements provide an easier means to grow facilities than centralised arrangements.

Irrespective of the implementation strategy, the municipality must take a proactive pro-poor approach to urban land governance and facilitate integrated solutions that will require different departments within the municipality and spheres of government to work together. In this regard it is critical that all departments, individuals and spheres share a common set of objectives and set reasonable and strategic time frames. The respective phases may have different objectives but the overall intent of the NDP must be the single biggest informant.

Examples of objectives which may be behind particular phases include the following:

- Demonstrating the state's commitment to capital expenditure;
- Demonstrating the state's commitment to sustainable management solutions; and
- Demonstrating the sustainability of appropriate alternative development models and forms.

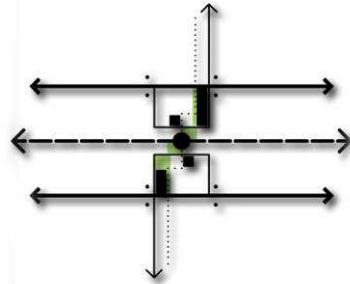
The following puts forward an ideal spatial phasing approach for a site that is presently serviced by a rail line and station. The phasing assumes that the rail station needs major investment to handle increased volumes and that the rail station precinct is badly integrated with the surrounding road network. The Spatial Concept and the Prioritised Public Space Network would need to have been conceptualised before the following exercise is conducted. This would ensure that key elements of the proposed urban structure are fixed from an early stage and form a robust and legible framework onto which future development can clip.

- | | |
|----------|--|
| Phase 1: | Reinforce rail station as focal point / point of highest convergence. |
| Phase 2: | Construct vehicular routes and pedestrian links between rail and local road based system and associated PT facilities. |
| Phase 3: | Service sites adjacent to primary road link and pedestrian spaces/links. |
| Phase 4: | Construct key attractors (higher order facility such as a library, court, Home Affairs office) at strategic points associated with the station and other modal facilities. |
| Phase 5: | Release property adjacent to main public thoroughfares to the private sector for commercial, residential development and appropriate mixed use. |

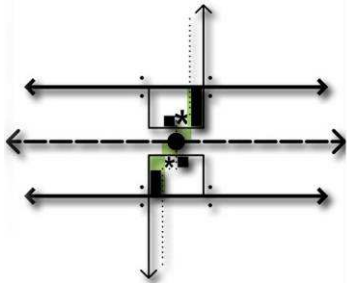
The diagrams below, which are based on the diagrams used previously in Chapter 2 and 3, demonstrate what these steps may comprise.



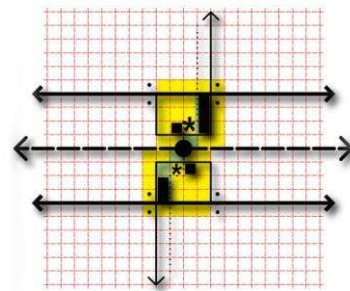
Phase 1



Phase 2



Phase 3 & 4



Phase 5

This proposed phasing strategy requires significant public sector investment upfront and assumes that the funds will be forthcoming. It also assumes that the State will be able to cover the costs of maintenance and management of the public spaces before other partners are brought on board. Strategies to encourage the private sector on board to address NDP objectives could include amongst others:

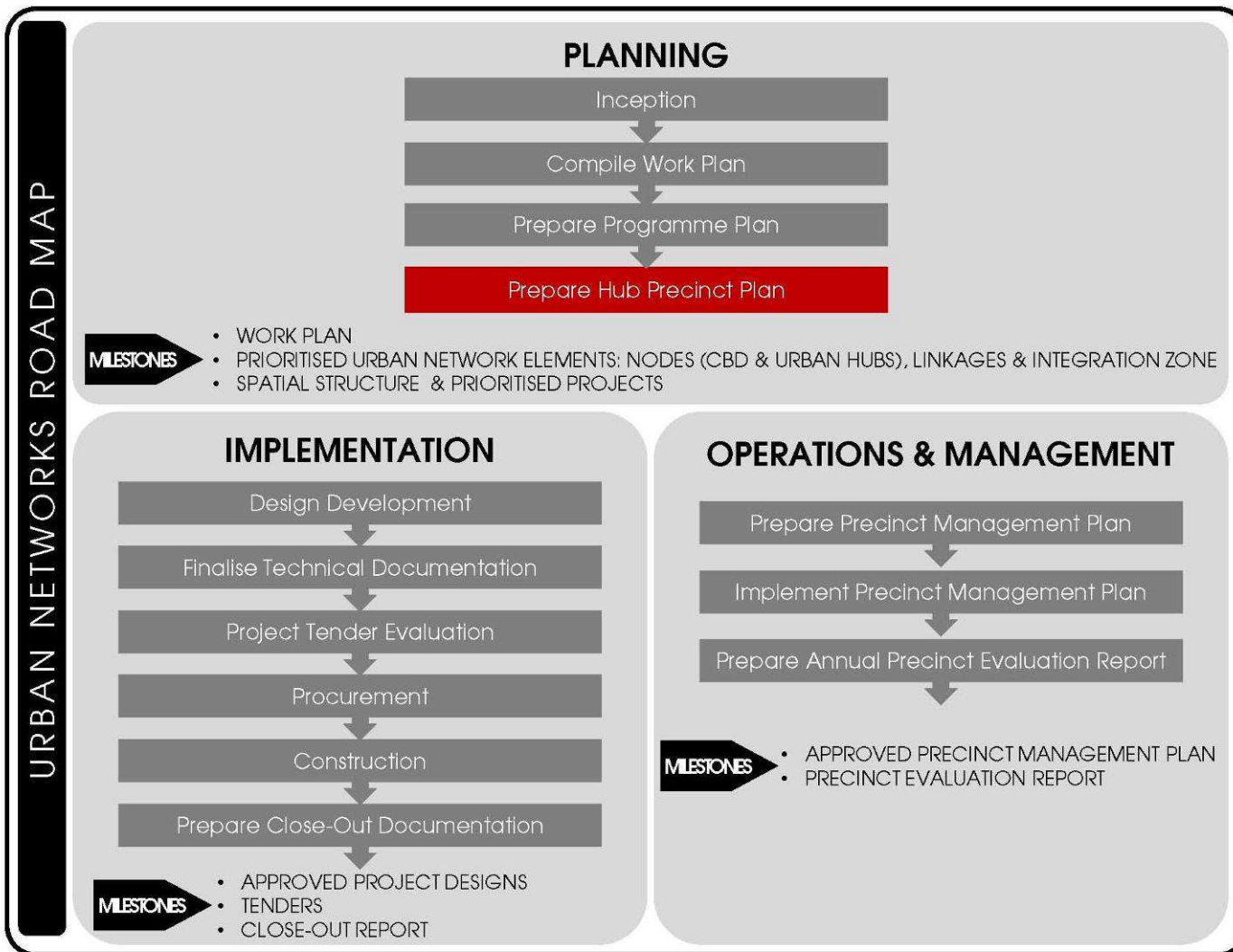
- Provision of density incentives and rebates,
- Offering rebates to developers of affordable housing,
- Offering tax rebates for employees who can provide housing on site or close to the place of their work.

Diagram 15: Phase 1 -5

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Annexure A: The Urban Networks Road Map (Nov 2012)



Annexure B: Template E: Hub Precinct - Status Quo Assessment Sheet

ANNEXURE B: TEMPLATE E

HUB PRECINCT: Status Quo Assessment

Complete the following assessment sheet as the first step in working towards proposals for the Urban Hub.

The area for analysis should be provisionally identified upfront before this exercise is initiated however the analysis itself may lead to the revision of the Hub Precinct boundary.

Note: Mapping must be undertaken using an appropriate geo-mapping tool such as GIS or AutoCAD that allow layers of information to be over-layed. This is important as it allows patterns / relationships between land use, transport and infrastructure and topography to be observed.

1.GENERAL / PLANNING AND REGULATORY ENVIRONMENT		
NO	TASK	TYPICAL RESPONSE
1.1	Show on a map Land Ownership in the vicinity and indicate whether there are any land tenure issues such as illegal occupation of land and / or land claims	E.g. Site X is illegally occupied by X many households and there are no land claims.
1.2	Show on a map Zoning in the vicinity according to the relevant Zoning Scheme	E.g. Larger sites are being rezoned to accommodate flats.
1.3	Note land use parameters / regulatory measures applicable to the sites in question.	
1.4	Map and describe the implications of any applicable Planning Policy (nodes, corridors)	E.g. The SDF identifies the intersection of X and Y roads as a node of regional significance. They propose mixed use development in the node. Recent development of Site X and Y have responded to this.

2.LAND USE PATTERNS		
NO	TASK	TYPICAL RESPONSE
2.1	Describe and map the main land use patterns within the precinct. Distinguish as a minimum between commercial (including Industrial, business, offices, retail etc.), residential, Institutional, green open space used for	E.g. The area comprises mainly single residential houses with large tracks of vacant land.

	recreational purposes, conservation areas and utilities. Where the Local authority has detailed information include this.	
2.2	Describe the main development trends, initiatives in the vicinity.	E.g. Development of the precinct is to the east where some SHIs are planned.
2.3	Describe distinguishing land use features of the precinct.	E.g. The precinct is the main economic hub of the township. A large shopping center is located on the eastern side of the precinct.

3. ACCESS AND TRANSPORT		
NO	TASK	TYPICAL RESPONSE
3.1	Identify and map existing PT services and stops	
3.2	Identify and map limitations for connection via PT modes with broader area	
3.3	Map pedestrian and cycling movement patterns and indicate graphically how volumes of people between the routes differs	
3.4	Identify and map barriers to pedestrian movement at the local scale	
3.5	Identify and map hierarchy of roads and list class of roads (existing and proposed)	
3.6	Identify and map goods lines (rail)	
3.7	Confirm transport planning for the township focus area	No rail extensions within the next 20 years planned. Major public intermodal transport facility currently under construction in Mamelodi, Denneboom.

4. SOCIAL CONTEXT		
NO	TASK	TYPICAL RESPONSE
4.1	Map and describe the nature and condition of facilities within the Hub Precinct <ul style="list-style-type: none"> • Pre –School • Primary School 	E.g. There are three Primary Schools but they are all in a bad condition with limited sporting facilities

	<ul style="list-style-type: none"> • Secondary School • Library • Clinic • Hospital • Community Centre/Thusong Centre/MPCC • Sport Facility • Other 	
4.2	Map the location of areas / sites perceived to be unsafe and describe nature of crime	E.g. Crime is associated to the vacant land which residents cross to access the schools. It is mostly petty theft/ muggings
4.3	Provide a rough breakdown of the split in housing tenure status (ownership, rental etc.)	E.g. Ownership-5400, Rental-200
4.4	Describe housing typologies and densities	E.g. The housing is generally of a suburban nature – free standing on plots of X ^m ² with a net density of ?du/ha
4.5	Provide a breakdown of split between formal, informal and traditional dwelling types, backyard dwellings and hostels.	E.g. Formal-520, Informal -360, Backyard Dwellings-25
4.6	Confirm the housing need within the precinct?	E.g. 20 000 Units-Individual housing subsidy, 5000 Units- Bonded
4.7	Describe any particular social / health related problems within the localized community	E.g. The informal settlement on Erf X has a high incidence of TB

5. ECONOMIC CONTEXT		
NO	TASK	TYPICAL RESPONSE
5.1	Identify and map existing retail/business hubs	
5.2	Confirm and map any proposed/planned business opportunities within the node.	
5.3	Describe main economic trends within the broader area	E.g. Industrial development in the area north of the hub and intense informal trading on the edge of this area
5.4	Investigate and map all informal trading /service related activity. Show location and extent (approximate number of operators) of informal activity.	

6. INFRASTRUCTURE		
NO	TASK	TYPICAL RESPONSE
6.1	Confirm and map the location, capacity and condition of infrastructure and services to supply current needs and future development within the area: <ul style="list-style-type: none"> • Water Services • Sanitation • Electricity • Gas • Storm Water • Solid Waste Disposal(Bulk and reticulation) 	<u>E.g. Solid Waste Disposal</u> Entire area serviced weekly. Currently waste disposal facility has reached capacity- new site for disposal of waste is required.
6.2	Confirm and map any service related servitudes, right of way and setbacks	E.g. The? kVA power line crossing Erf X is located within an Xm wide servitude and has a setback requirement of 25m.

7. ENVIRONMENT (TOPOGRAPHICAL)		
NO	TASK	TYPICAL RESPONSE
7.1	Describe and map the Geotechnical conditions and highlight implications for development	E.g. Dolomite limits development on eastern side of node.
7.2	Identify topographical features and map them on contoured base	

8. ENVIRONMENT (BIO-PHYSICAL)		
NO	TASK	TYPICAL RESPONSE
8.1	Map and describe environmentally sensitive areas such as wetlands or botanically significant sites	E.g. The wetland is ecologically sensitive. The area to the south of it is of medium botanical significance which means that it cannot be developed and a setback may be required.
8.2	Map and describe pollutant activities such as	E.g. Dust pollution occurs due to mine dump located on the northern corner of the township focus

	dumping, erosion of slimes dams, noise pollution etc.	area.
8.3	Map existing parks, recreational areas, conservation areas	

9. ENVIRONMENT (CULTURAL/HISTORICAL)		
No	TASK	TYPICAL RESPONSE
9.1	Map and describe sites of historic significance to the community	E.g. Bleskokspruit World Heritage Site
9.2	Map and describe sites of social significance for example sites that have been used to worship communally	E.g. The grassed slope east of the river is used extensively by church groups on a Sunday
9.3	Map and describe sites of cultural significance	E.g. The vacant land west of the towers is used for initiation rights

10. ENVIRONMENT (SPATIAL)		
No	TASK	TYPICAL RESPONSE
10.1	Map the landscape (built and inbuilt) as a set of edges, nodes, paths, landmarks, domains, major and minor gateways	
10.2	Describe urban morphology – building types, typical materials and how types respond to topography, climate if relevant	E.g. The houses have covered outdoor areas to allow for outdoor living OR E.g. Buildings are generally part constructed of stone as it is readily available

11. CLIMATE		
No	TASK	TYPICAL RESPONSE
11.1	Note the dominant wind directions	E.g. SE wind blows through summer months. NW wind through winter and carries rain.
11.2	Note average temperatures for summer and winter	E.g. 22° average through summer, 15° average through winter

12. INSTITUTIONAL		
No	TASK	TYPICAL RESPONSE
12.1	Describe payment for services.	60% payment for services
12.2	Describe community involvement in urban management	Community stakeholders involved in decision making

Annexure C: Precinct Zones: Planning Guidelines

ANNEXURE C: Precinct Zones: Planning Guidelines		
ZONE	CATEGORY	GUIDELINE
The Heart		
	Land Use Proposals	<p>Vertical arrangements to dominate: Ground floors should be active and public in nature 18hrs/day. First floor upwards should have overlooking features on the street edge.</p> <ul style="list-style-type: none"> ○ Land uses will include: Hard public Space (for events, trading), Commercial, institutional, civic, government offices, health facilities, libraries, colleges, offices, transport related facilities, residential, clean high end manufacturing. Residential densities should be the highest in the node. Requiring multi-level development. ○ Residential densities will range between 100-375du/ha (net)
	Spatial Conditions	<p>Highest bulk within hub is to be permitted here; and depending on context could be up to 15 floors although a max of 7 may be more realistic in the medium term. A minimum of 4 stories is required. A range of operators including large anchor tenants and smaller scale operators should be accommodated.</p>
	Environmental Conditions	<p>A common design language must be employed within the public network of streets and spaces. Public interfaces are crucial and should be designed according to a set of guidelines. Ground floor facades should be permeable and interactive. Levels above ground should have overlooking features to encourage passive surveillance over the street. Hard and soft landscaping should reinforce special places and busy pedestrian links.</p>
	Structural Focus	<p>Pedestrian / commuter movement routes and forecourts to higher order facilities.</p>

The Active Corridor Zones		
	Land Use Proposals	<p>Vertical arrangements to dominate: Ground floor should be public / active in nature 16hrs/day. First floor upwards should have overlooking features on the street edge.</p> <ul style="list-style-type: none"> ○ Land use types: Hard and soft public Space (for residents and employees), commercial, institutional e.g. libraries and schools, colleges, offices, transport related facilities, residential, clean, high end manufacturing. ○ Residential densities will range between 75 and 175du/ha (nett)
	Spatial Conditions	Bulk should be between 3 and 7 stories depending on context.
	Environmental Conditions	<p>Public interfaces are crucial. Ground floor facades should be permeable and interactive. Levels above ground should have overlooking features to encourage passive surveillance over the street. Hard and soft landscaping should reinforce special places along the activity routes and within the broader corridor zone.</p>
	Structural Focus	Pedestrian / commuter movement routes towards the corridors and the “Interchange Zone”
The Peripheral Zones		
	Land Use Proposals	<p>Development will not be as high as other two zones. Ground floor related development should define street edge and should be public / active in nature 16hrs/day. First floor upwards should have overlooking features on the street edge.</p> <ul style="list-style-type: none"> ○ Land use types: Higher order green Open Spaces, limited commercial, institutional e.g. libraries and schools, residential, clean-high end manufacturing in appropriate locations, holding facilities for transport services, utilities. ○ Residential densities should be reasonably high if within the 800m or so of the

		“Interchange Zone.” Residential densities will range between 50 and 175du/ha (nett)
	Spatial Conditions	Bulk should be between 2 and 7 stories depending on context. Residential densities to be accommodated in a range of high density typologies including townhouses. Other institutional and / or manufacturing activities should be accommodated within a minimum of 2 to 3 storey buildings.
	Environmental Conditions	Development should still attempt to make a positive street frontage. Levels above ground to have overlooking features to encourage passive surveillance over the street. Soft landscaping to reinforce special places that provide recreational opportunities for local residents. Planting of trees to be accommodated within all residential road reserves as a minimum. Large Open Spaces should be edged by multi-storey development.
	Structural Focus	Pedestrian / commuter movement routes towards the corridors and the “Interchange Zone.” Green Open Space system to be more extensive in this Zone and to connect to a prioritised pedestrian network.