

Integration Zone Planning Guidelines

Outcomes-based Transit Oriented Development

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We have reached an interesting time when the drivers of sustainable cities are the same as the drivers of liveable cities, namely, mixed use, connectivity, high quality public realm, local character and adaptability.

When these characteristics come together as they do in Barcelona, they provide an alchemy of sustainability, social benefit and economic vitality.

These cities reduce their need for car travel, reduce energy consumption and emissions, use local materials, support local businesses and create identifiable communities.

Rob Adams, The Age, 2009

Our survey concluded that smart growth development:

- *saves an average of 38% on upfront costs for new construction of roads, sewers, water lines and other infrastructure. Many studies have concluded that this number is as high as 50%*
- *saves municipalities an average of 10% on police, ambulance and fire service costs*
- *produces 10 times more tax revenue than conventional suburban development*

Building Better Budgets, Smart Growth America, 2013



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1 Introduction

1.1 Scope and Purpose

This document offers a quick guide to the purpose, process and content of Integration Zone Planning.

Section 1 defines the scale, scope and purpose of Integration Zone Planning and outlines the spatial elements of the Integration Zone.

Section 2 sets out the steps in the preparation of an outcomes-based Integration Zone Spatial Framework, suggesting the purpose, high-level methodology and tools for each step.

Section 3 outlines the enabling environment for Integration Zone planning (IUDF and SPLUMA) and contextualizes Integration Zone planning within key planning concepts, such as the Built Environment Value Chain (BEVC), spatial targeting, Urban Network Strategy, Transit Oriented Development (TOD) & Walkable Urban Places (WalkUPs).

This document forms part of a suite of guidelines and toolkits provided by the National Treasury to support municipalities, government departments, state owned entities and investors in improving inclusive economic performance of cities from a built environment planning perspective.

Toolkits have been provided for the following related activities:

- Urban Networks Planning
- The Urban Hub Precinct Planning Toolkit
- Precinct Management Guidelines
- BEPP Guidance Notes

Underpinning the Urban Network and Integration Zone concepts is the need for a citywide approach to achieving connected agglomeration.

This document provides guidelines on utilising outcomes-based TOD principles for application in Integration Zones.

This guide addresses the scale of planning between citywide urban network planning and local/precinct planning. This level of planning focuses on interventions for priority integration zones.

1.2 Target Audience

The initial target audiences of this document are the metropolitan municipalities as the scale and complexity of the metros calls for some clarity on the role and components of the integration zone within the urban network. The intention is that the audience will subsequently be extended to include the secondary cities.

1.3 Integration Zone Planning Overview

1.3.1 Identification of the Priority Integration Zone

The BEPP process recommends that within a city's urban network, integration zones are defined and prioritised. In essence the urban network is comprised of the aggregated integration zones and it is anticipated that investment is targeted within this priority integration zone.

Integration Zones should be prioritised relative to one another in terms of their ability to integrate significant townships with the more developed parts of the city space, i.e. according to the size and density of townships and adjacent informal settlements served by the identified Urban Hubs.

The Priority Integration Zone should be the focus of as many public sector role players as appropriate, aligning public sector investment to attract and incentivize firms and households to invest their resources in Integration Zones. It is possible for a municipal government to have more than one Integration Zone at a given point in time, but there should be clear distinction between them in terms of relative resource allocation.

1.3.2 The Purpose of Integration Zone Planning

The Built Environment Value Chain (see Section 3) is aimed at the prioritisation of targeted public and private transit oriented investment (new infrastructure and asset renewal) into a number of “Integration Zones” (IZs), which collectively form a connected network of targeted walkable precincts. Within this targeted policy, planning, budgeting and urban management context the integration zone is conceived as the link between citywide (urban network) and local area (precinct) planning.

This guidance note aims to expand on the detail of the planning substance and process for these Integration Zones, aimed at achieving certain outcomes within the context of dire fiscal constraints.

1.3.3 The Definition of an Integration Zone

An Urban Network is a spatially targeted city or city region-wide TOD network aimed at spatial transformation. An Integration Zone is a branch of an Urban Network. See Figure 1.

It consists of a mass transit spine and a number of targeted “anchor” and “intermediate” nodes as well as transport feeder linkages to secondary township nodes, marginalised residential areas (informal settlements) and employment nodes (commercial and industrial nodes).

1.3.4 The IZ Planning Process Outline

Once confirmed within BEPPs as part of the approved urban network, the planning for the priority integration zone should commence. This guide recommends an **outcomes-based planning process** in the following sequence.

1. Develop a **draft spatial logic** (concept) for the priority integration zone
2. Compile the **spatial profile** of the priority integration zone to capture the key challenges, opportunities and trends influencing the integration zone.

3. Set the **integration zone development targets**.
4. Compile an expanded and robust **spatial logic** (framework) which clearly confirms the Integration Zone **precincts**
5. Outline the Integration Zone **phasing** clearly articulating the rationale and catalytic sequence of nodal and public transport investment
6. Within the overall phasing, identify the key **integration zone projects and strategic interventions**. IZ projects are typically those of wider scale and impact in comparison with individual precinct projects.

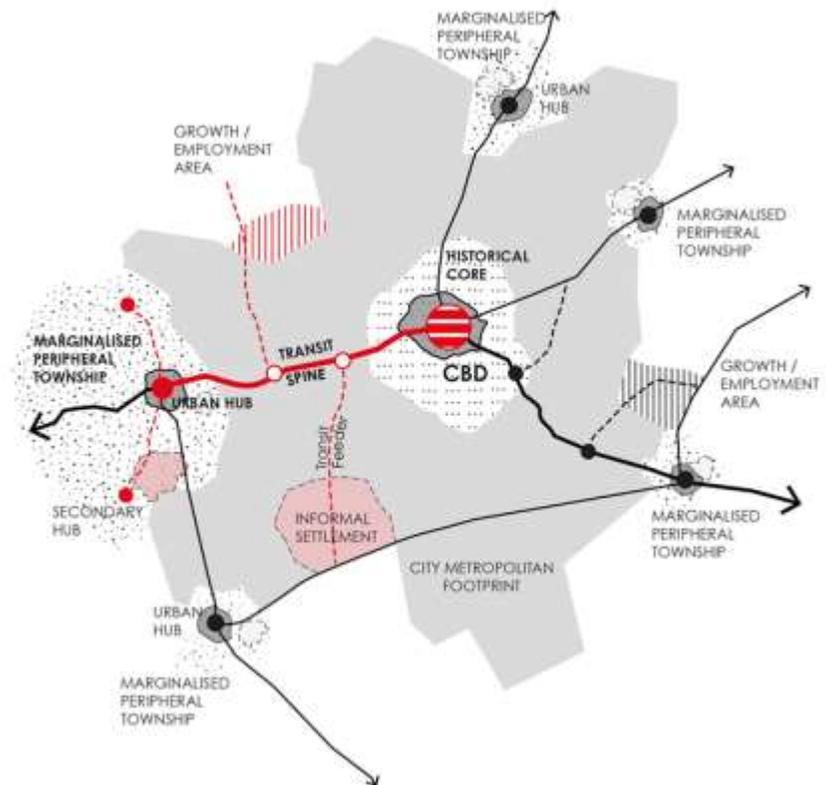


Figure 1: Priority Integration Zone within the Urban Network

1.3.5 Stakeholder Engagement

Since the IZ Plan is intended to direct and integrate the planning, budgeting and investment decisions across all sector departments that impact on the built environment, all 3 spheres of government and SOEs, it is vital that all of these institutions should be engaged as part of the preparation of an Integration Zone Plan.

Since one of the key objectives of the plan is to catalyse private investment, the private sector should also be considered a key stakeholder. At the scale of the integration zone, private sector representatives may include business chambers, developer groupings, banks, informal trading associations and retail organisations.

If any area based management agencies exist within the CBD, Urban Hub or along the transit route, they would be very important stakeholders who should participate directly in the formulation of the IZ plan.

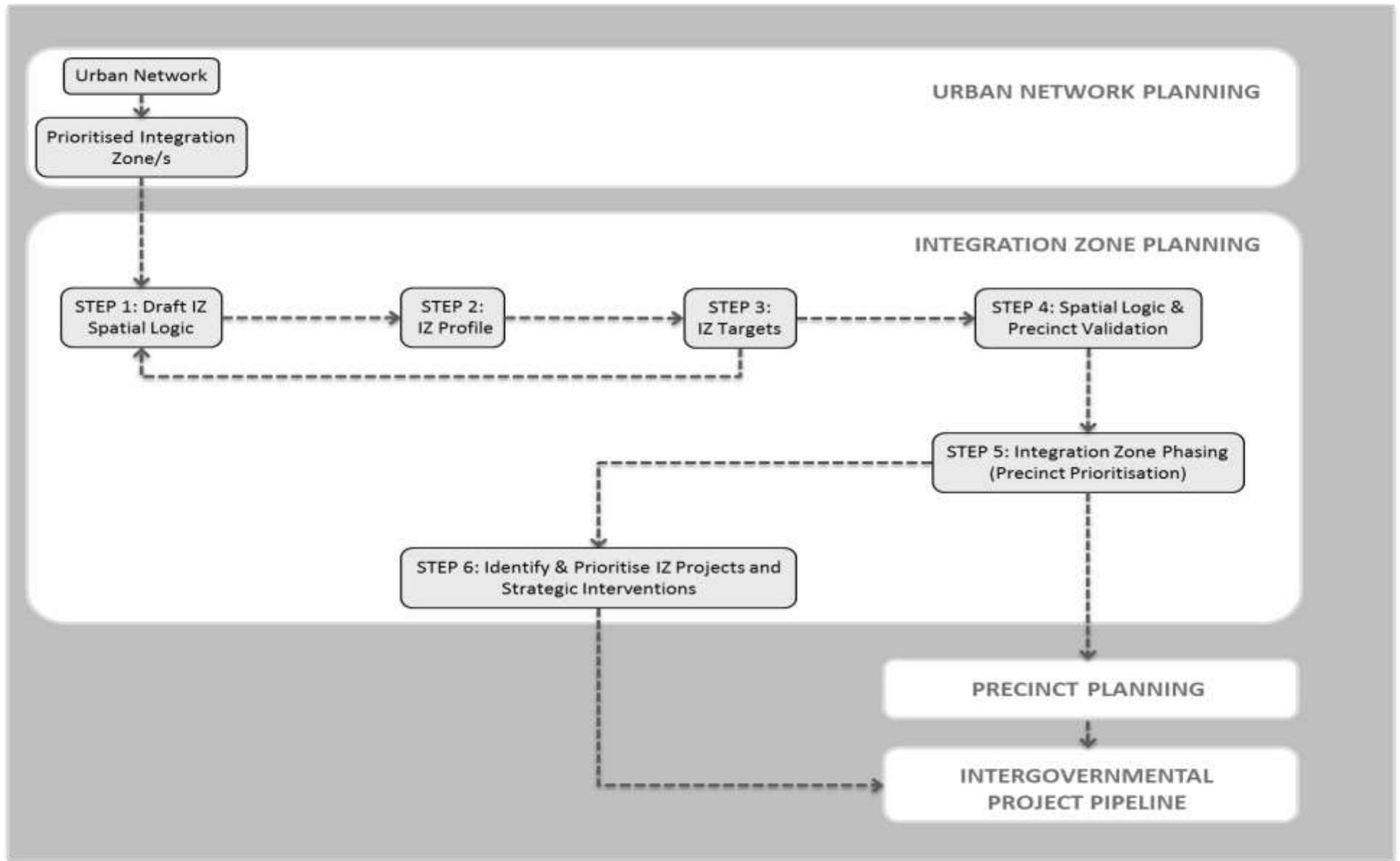


Figure 2: Integration Zone Planning Steps

2 Integration Zone Planning Process

2.1 Step 1: Prepare Draft Spatial Logic

2.1.1 OBJECTIVE

Put in place a high-level spatial concept for the integration zone that identifies the **structuring elements** of the zone and draws out the key issues and questions that should be the focus of the IZ profile (Step 2).

2.1.2 METHOD

Compile a draft spatial concept to include a diagrammatic representation of the elements of the Integration Zone:

1. The **transit spine** (rail/bus route), anchors (**CBD & urban hub** or secondary CBD), **secondary township nodes** and their **transit feeders** (taxi routes) connecting to the urban hub should be distilled from the identification of the urban network - it should not be undertaken from scratch.
2. The **Intermediate Nodes** along the Transit Spine should be located as follows:
 - o Identify key employment nodes and informal settlements within a maximum 30 minute¹ commute along transit feeders to the transit spine. Distances that can be reached within this time range will depend on factors such as transit mode and route options.
 - o Identify the existing and planned intersections of transit feeders (taxi routes) that connect these employment nodes and informal settlements with the transit spine. Locate the intermediate nodes at these intersections. (The number of intermediate nodes required, will be determined via an iterative process in Steps 1, 2 and 3 of this Guide).

¹ Based on widespread international best practice data
<http://persquaremile.com/2012/08/22/commute-time/>

3. The key **employment nodes** and **informal settlements** identified in (2), above, that fall within a local commute (10-15 minutes).

Delineate preliminary precinct boundaries for each of the identified nodes. Outline an 800m walkshed from the midpoint between the public transit facility with the highest modal share and primary land use anchor (regional retail/social facility) in the node. For informal settlements, the public transit facility with the highest modal share, can be used.

2.1.3 TOOLS

This should be a desktop exercise, distilling existing information such as demographic and density and traffic data as well as strategic plans such as the IDP, SDF, ITP to identify the location and extent of the IZ anchors and transit spine.

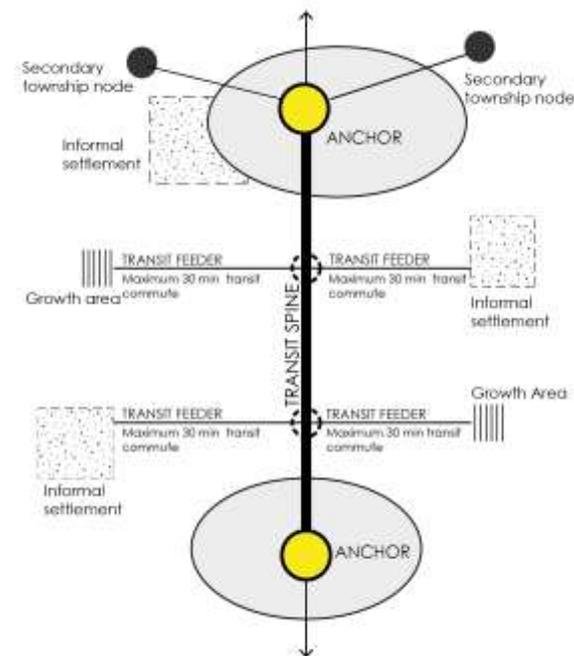


Figure 3: Integration Zone Spatial Concept

2.2 Step 2: Compile Integration Zone Profile

2.2.1 OBJECTIVE

Provide an **evidence-based baseline** for the completion of the IZ Plan via an integrated set of built environment outcome indicators.

2.2.2 METHOD

Prepare a high-level profile report containing quantified baseline summary tables and diagrammatic mapping of the key assets, opportunities and challenges within the integration zone, with specific focus on the IZ nodes identified in Step 1:

- Population, gross dwelling unit densities, residential income and tenure mix
- Land use mix highlighting dominant activities
- Baseline (current) and planned regional, tertiary facilities (such as magistrates courts, universities and colleges, regional hospitals and regional sporting facilities)
- Baseline and planned transport infrastructure and public transport systems, services and interchange zones
- Walkability in relation to existing public transport facilities and primary anchors
- Vacant and underutilised land
- High-level property ownership
- Area reserved for streets and key open space, natural assets and resources
- Baseline and planned bulk infrastructure capacity, highlighting gaps in the IZ infrastructure network

2.2.3 TOOLS

This should largely be a desktop exercise, drawing on the data and mapping of existing documentation such as the SDF, IDP, Infrastructure Investment Planning, Human settlement plans, census data and other databases, strategic plans and policies.

Current levels of **pedestrian and transit accessibility** can be determined using online mapping tools such as:

- Walkscore - www.walkscore.com - please note that the tool can also be applied to local as well as larger “sub-city“ areas, or zones.
- Mapnificent - www.mapnificent.net - requires that cities provide transit data to the site operators.

Each Integration Zone node should be given an “**Access Score**”. The Access Score is the average of the area's walk and transit scores, as illustrated in Figure 4.

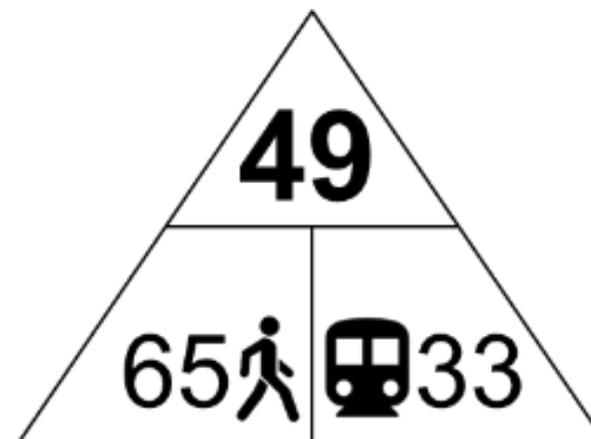


Figure 4: Access Score

Walk score – based on walking routes to destinations such as schools, parks, restaurants, and retail. Pedestrian friendliness metrics include population density, average block length, intersection density, link/node ratio, and route directness. (See www.walkscore.com)

Transit Score - Calculates distance to closest stop on each route, analyses route frequency and type. (See www.walkscore.com)

2.3 Step 3: Set Integration Zone Targets

2.3.1 OBJECTIVE

Quantify the **scale and mix of transit oriented development** for the integration zone.

2.3.2 METHOD

Set overall Integration Zone TOD targets for the **population and associated residential units** required to achieve spatial and economic transformation and support public transport, including the desired **income mix** (subsidy/gap/market) and **tenure mix** (owned/public rental/private rental).

Apportion the above residential aggregate and mix to each IZ element (IZ nodes) identified in the Draft Spatial Concept (Step 1) by applying **gross density and land use mix ratios** required to provide for a live-work-play environment for the existing and new residents.

Should the residential aggregate be larger or smaller than the capacity of the identified IZ elements, adjust the density ratios and/or increase/decrease the number of intermediate nodes to **absorb the balance of the residential aggregate and mix**. (This is an iterative process between Steps 1, 2 and 3).

Assign the new **tertiary/regional scale social facilities** required to support the existing and new population to each IZ element.

It is important that the targets are **measurable**, deliberately ambitious and based on a vision that includes tangible outcomes.

At the same time it is imperative that the targets are **realistic from a financial point of view**. This means that the total projected developable floor area for the IZ precincts should take into account (1) historic annual **commercial, retail and industrial growth** (new and refurbishment) and (2)

the **availability of public and private sector resources** required for land, services and buildings.

The results from Steps 2 and 3 should be illustrated in **summary tables** for the overall Integration Zone and individual precincts – See Table 1.

Table 1: Integration Zone Indicators

Precinct A					
#	Indicator	Baseline ¹	Target	BEPP Code ²	SDG ³
1	Population/ No of Residential Units			-	-
2	Gross Residential Density			IC2	11.3
3	Residential Income Mix			IC3/4/6	11.1
4	Residential Tenure Mix			IC4	11.1
5	Bulk (Coverage and Height)			-	11.3
6	Land use mix			IC5	11.2, 11.3, 11.4, 11.7
7	Tertiary Social Facilities			IC21	11.4
8	Walkability ⁴			-	11.2, 11.3, 11.4, 11.6, 11.7
9	Transit ⁴			IC7	11.2, 11.6
10	Private sector investment			WG13	11.a
11	Capital Funding ⁵			WG7/8	All

1. Baselines are determined in Step 2

2. Linkage with BEPP Outcome Indicator Code

3. Linkage with UN Habitat Sustainable Development Goal 11

4. Access score is the average of walkability and transit scores

5. Capital funding allocations is part of Step 5

The IZ indicators can also be used for the preparation of baselines and targets and subsequent performance reporting of **Built environment Outcome Indicators** as part of the annual BEPP process. (See Indicator Code in Table 1)

The selected IZ indicators are an interrelated set of indicators that converge in IZ precincts, i.e. they should not be seen in isolation from

each other. They have been derived from the following interrelated Accessibility/TOD principles (see Section 3.2.7):

- Walkability (live-work-play precinct accessibility)
- Density (live)
- Inclusivity (live: tenure and income mix)
- Mixed-use (live-work-play)
- Transit (live-work-play inter-precinct accessibility)



*The **Metropolitan Policy Programme** at the Brookings Institution undertook a study of places within metropolitan Washington and found that higher walkability was shown to be directly related to higher economic performance measured in rentals (office, retail and residential) and values (residential). The same applies to a number of social development indicators.*

2.3.3 TOOLS

The targets should be derived from the SDF and municipal development objectives, which in turn should be aligned with the SPLUMA principles.

The following minimum set of TOD benchmarks should be used:

- Integration Zones are primarily aimed at spatial transformation. Therefore the majority (at least 50%) of the city's proposed **new public housing** units are to be placed within the integration zone with **priority allocation** given in the following order:
 - CBD
 - Urban Hub
 - Employment nodes
 - Intermediary nodes
 - Secondary township nodes and informal settlements

Development can include infill, densification and brownfield development.

Leverage private sector development to provide affordable housing units via an **inclusionary housing** approach in relevant nodes. This refers to IZ nodes where the residential property market is functioning effectively. This should be accompanied by suitable public incentives to the private sector.

- Densification should initially be prioritized within the CBD, Urban Hubs and Employment Nodes with a target **gross residential density** range between 100 and 180 du/ha in the anchors, 80 to 100du/ha in the intermediate nodes and 60-80 du/ha in the secondary nodes.
- **Regional social facilities** should be derived from citywide needs, with a concerted effort to locate such facilities in the IZ anchors and to achieve a high level of clustering of facilities.
- **A mixed-use ratio** that is aimed at vibrancy and optimises walkability between transit, residential and non-residential uses in IZ precincts.

- **A minimum bulk factor (floor area)** to achieve the critical mass of development required to make a walkable urban place and accommodate sufficiently high densities to provide thresholds of support for retail and commercial development. It is accepted that viable densities for TOD/WalkUPs can be achieved through developments made up of 2-8 stories with 50% coverage. A FAR of 4 is recommended for anchors. High rise towers are not necessary to achieve desirable densities.

Determining which **measure of density** to use depends on the scale and the purpose of the measure. **Gross residential density** better reflects the actual human experience of a place than net residential density, and can be useful to understand broader issues such as walkability. (*Landcom Residential Density Guide, 2011*). **Net residential density** is the appropriate measure at precinct scale, where the actual planned residential land area is available.

See Figure 5 for an **IZ Development Target Process Flow**. A **Spatial Targeting Calculator** based on this process is available on the Neighbourhood Development Programme Website to assist with ensuring targets are **realistic in terms of high-level affordable funding** proposals and takes the **commercial property market** into account. <http://ndp.treasury.gov.za/About%20NDP/Draft%20Spatial%20Targeting%20Calculator.xlsx>

The following **density** tools are recommended:

- SACN, Transit Oriented Density Framework
- Density Atlas - <http://densityatlas.org>
- Lincoln Institute of Land Policy, Visualizing Density - <http://datatoolkits.lincolninst.edu/subcenters/visualizing-density>

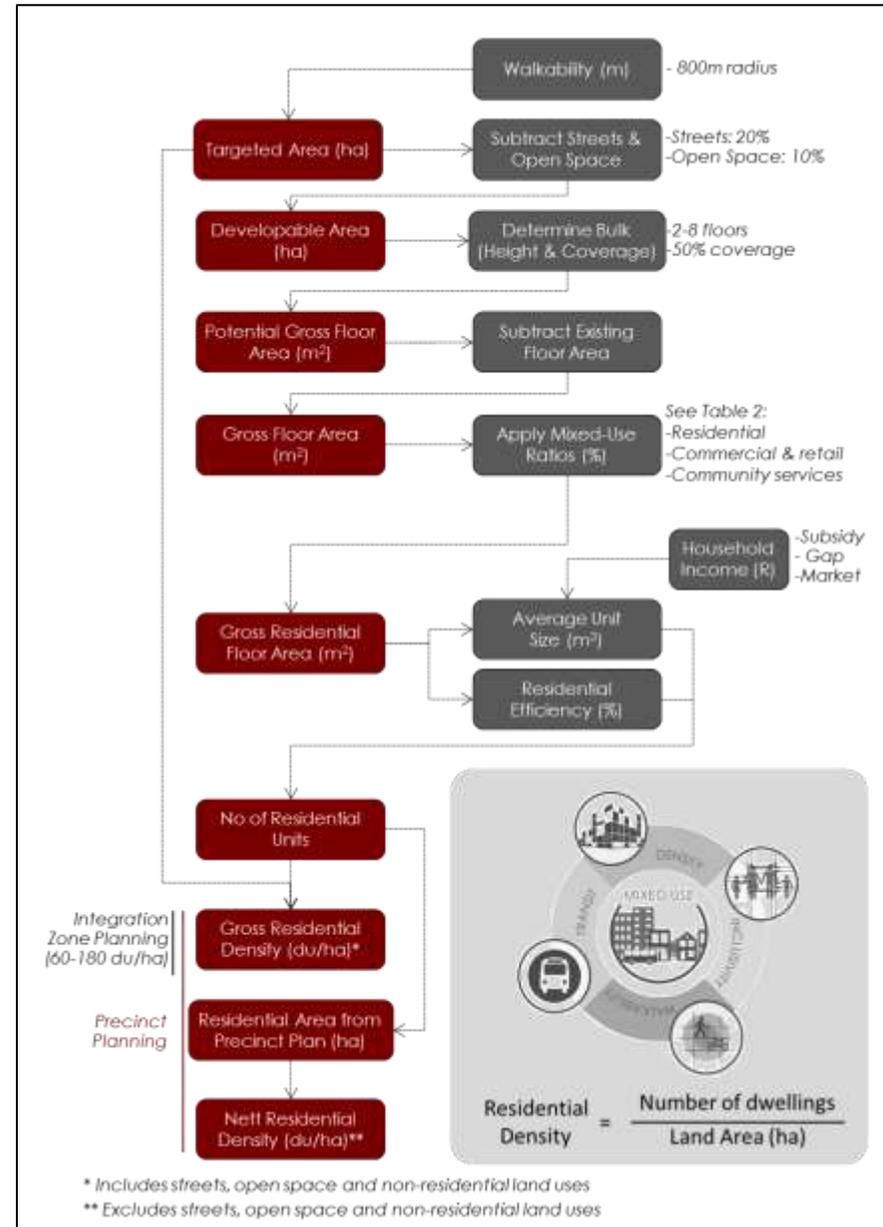


Figure 5: IZ Development Target Process Flow

Table 2: Integration Zone Development Targets

Indicator	Anchors (CBD & Urban Hub) and Employment Nodes	Intermediate Nodes	Secondary Township Nodes
Gross Res Density	100-180 du/ha	80-100 du/ha	60-80 du/ha
Mixed-Use Ratio	44% residential, 45% commercial & retail, 11% community facilities	50% residential, 39% commercial & retail, 11% community facilities	65% residential, 24% commercial, & retail, 11% community facilities
Bulk (Floor Area)	5-8 floors, 50% coverage	3-5 floors, 50% coverage	2-4 floors, 50% coverage
Access Score	>80	65-80	>65
Indicator	Informal Settlements		
Gross Res Density	60-120 du/ha		
Land Use Mix	75% residential, 10% retail, 15% community facilities		
Bulk (Floor Area)	1-3 floors, 50% coverage		
Access Score	>50		

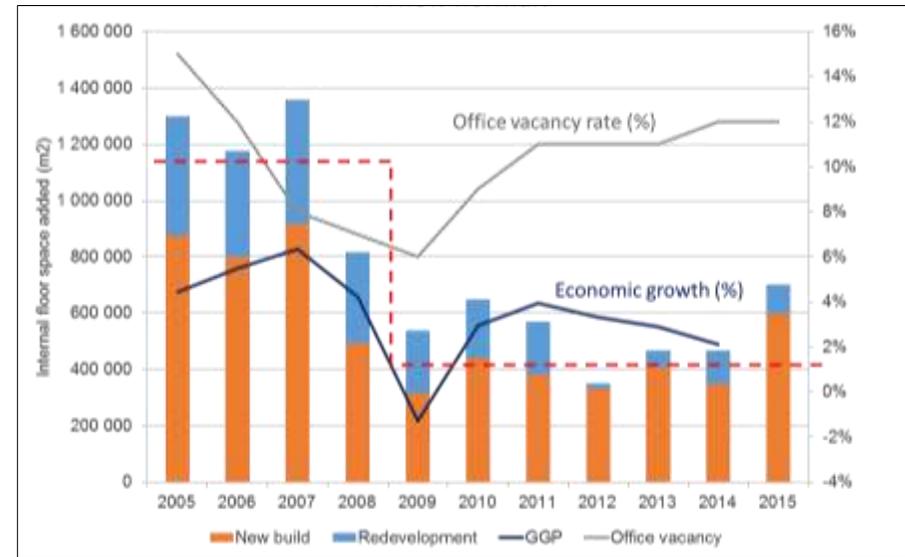


Figure 7: Commercial and industrial building development: A new normal? (City of Cape Town, incorporating SAPOA Office Vacancy Report & Global Insight)



Figure 6: Example of Nett Density Targets (Rob Adam, 2010)

Type	Mix of uses	Indicative mix
Urban	<ul style="list-style-type: none"> A substantial residential community involving high and medium-rise residential and mixed-use developments. Intense commuter land uses such as offices that will benefit from the excellent transit connections. A good range of retail, services and community services and facilities to meet the needs of the local residents and employees. Promotion of a vertical mix of uses to ensure that ground-floor street frontages are active. 	Residential: 60% Commercial: 25% Retail: 10% Community: 5%
Suburban	<ul style="list-style-type: none"> A large medium and low-rise residential catchment to provide activity and a local community. A good range of shops, services and employment opportunities. A good range of community services and facilities. A mixed-use core with active frontages. 	Residential: 70% Commercial: 10% Retail: 15% Community: 5%
Neighbourhood	<ul style="list-style-type: none"> Predominantly medium and low-rise residential. A small collection of supporting shops and services. No major attractors or destinations. 	Residential: 90% Commercial: 2.5% Retail: 5% Community: 2.5%
City centre	<ul style="list-style-type: none"> Offices and other high-intensity commuter uses. Major retail and other high-intensity visitor destinations. Major cultural and entertainment destinations. High-density residential to provide a local community, after-hours activity, safety and custodianship of public spaces. Local shops and services to meet the needs of local residents, workforce and visitors. Promotion of a vertical mix of uses to ensure that ground-floor street frontages are active. 	Residential: 30% Commercial: 40% Retail: 20% Community: 10%
Activity centre	<ul style="list-style-type: none"> A good range of retail, commercial and employment opportunities to service the large catchment. A good range of community services and facilities to service the large catchment. A large residential catchment to provide a local community, after-hours activity, safety and custodianship of public spaces. Promotion of a vertical mix of uses to ensure that ground-floor street frontages are active. 	Residential: 50% Commercial: 25% Retail: 15% Community: 10%
Specialist activity centre	<ul style="list-style-type: none"> A dominant specialist land use (e.g. hospital or university). Clusters of complementary land uses. A significant residential population to provide activity and a local community. A basic range of shops and services to meet the needs of the local community and employees. 	At least 20% residential At least 10% retail, commercial or community

Figure 8: Queensland TOD Guide, 2016

2.4 Step 4: Prepare Spatial Logic and Validate IZ Precincts

2.4.1 OBJECTIVE

Refine an envisaged spatial structure for the Integration Zone and confirm the location and extent of the IZ precincts earmarked for detailed planning and investment.

2.4.2 METHOD

Map the regional “capital web” in terms of the key elements of the access, public space and social facility network:

- The desired access network including major transport routes, public transport network, including routes, services and interchange zones
- Regional open space networks of citywide significance, including river corridors, regional recreational facilities and so on.
- Existing and proposed regional/tertiary social services or government service clusters that are strong destination points within the city.

The spatial logic should expand on the draft spatial logic and should clearly **set out**:

- What stays the same or needs to be protected or enhanced (such as economic activities, heritage and cultural zones or open space networks)
- What needs to change, including densification areas, infrastructure upgrades, land use changes, etc.

Confirm the identification and demarcation of integration zone precincts

identified in Step 1 in terms of the integration zone profile and targets (Steps 2 and 3). The number of precincts identified should accommodate the overall development requirements as determined in the integration zone targets and should as far as possible have potential to operate as walkable urban places (WalkUPs), excluding informal settlements, which should be earmarked for transit-based accessibility.

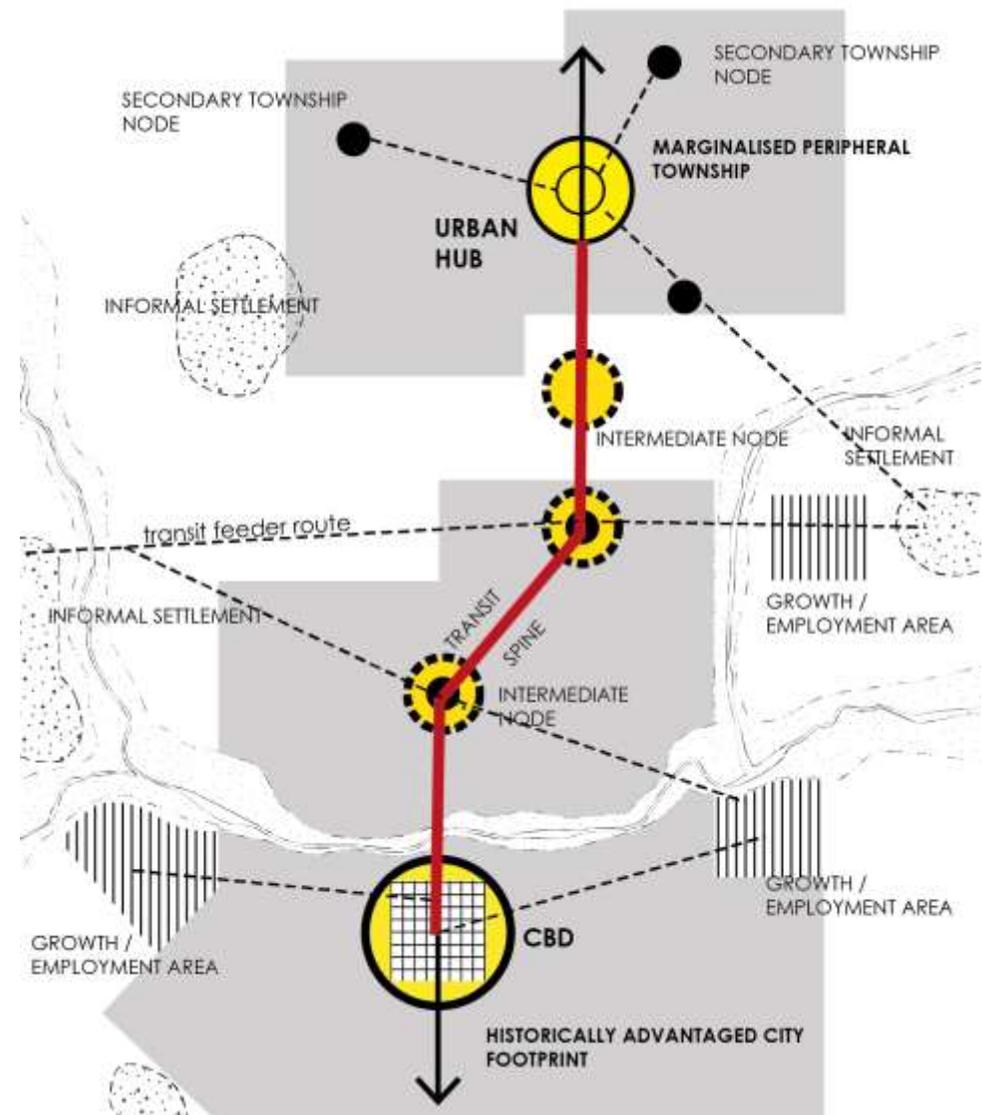


Figure 9: Identification of IZ Precincts

2.4.3 TOOLS

Draw from the SDF, ITP as well as available property, zoning and economic data to finalise the **location** of the precincts within the IZ.

The desired access network including major transport routes and the public transport network can be modelled to achieve a desired transit score of 80 or higher. See www.walkscore.com

In line with the **Urban Hub Toolkit**, use GIS based mapping with quantified areas, densities, transport routing, stops and infrastructure routes to demarcate:

- the approximate location of each precinct's heart
- the approximate extent and boundary of each precinct
- the key interchange points in each precinct

A key consideration in defining the extent of the precinct is to establish the **10 minute (800m) walkshed** from the midpoint between the public transit facility with the highest modal share and primary land use anchor (regional retail/social facility).

This needs to take into account the existing and possible pedestrian network which is primarily the street grid but may also include bridges and paths through open areas.

While it's easy to compute a catchment area "as the crow flies," this fails to account for barriers like highways and rivers, and variations in street layout – which can be significant. Walkable areas can be calculated using network analysis, based on a street network of pedestrian-specific infrastructure like paths, trails, and overpasses. The actual walkability of an area is very dependent on how permeable the street grid is and the extent and location of barriers. This influences the extent of coverage possible within the transit walkshed - Refer to Section 3.2.7 for more information.

Travel Time Map

[Add to your site](#)

Explore how far you can travel by car, bus, bike and foot from this location.

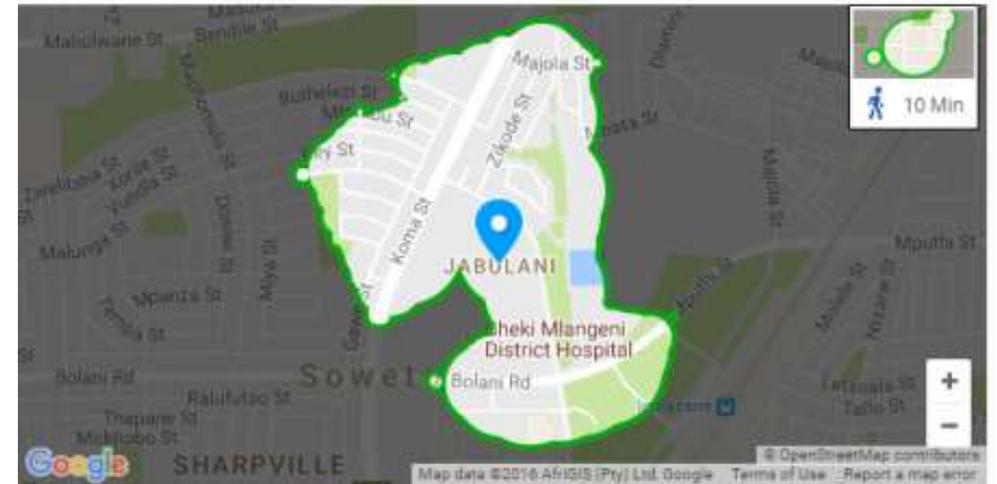


Figure 10: Jabulani 10 minute walkshed
www.walkscore.com

2.5 Step 5: Outline Integration Zone Phasing

2.5.1 OBJECTIVE

Determine the relative prioritisation of IZ precincts in order to put in place an **outcomes-based planning and investment programme** aimed at achieving the IZ targets.

2.5.2 METHOD

Prioritise integration zone precincts in order to determine planning, technical assistance and project funding sequencing:

Consistent with the Urban Network approach the 2 Integration Zone anchors, the CBD and the Urban Hub should largely be the first priority.

Prioritise the intermediate nodes identified as part of the IZ spatial logic (Step 4) relative to one another, followed by the relative prioritisation of the employment nodes, secondary township nodes and informal settlements.

Prioritisation should be informed by the propensity of each node to attract the maximum amount of private mixed-use investment over the shortest possible time.

Segment the precincts into phases in terms of realistic planning and implementation timeframes (as a relative percentage) to accommodate the integration zone targets set in Steps 3 and the relative priority of each precinct:

Precinct	MTEF	Medium-Long Term (4-10y)	Long Term (10-20y)
A			
B			
C			
Total	100%	100%	100%

It is of vital importance to ensure that the planning principles detailed in Step 3, (IZ Targets) are used as a **reality check** in precinct phasing. These are: (1) **availability of public and private sector resources** and (2) historic annual **commercial, retail and industrial growth**.

In the event that one of the anchors is not the first priority, a clear **motivation** and rationale for the proposed project sequencing should be compiled.

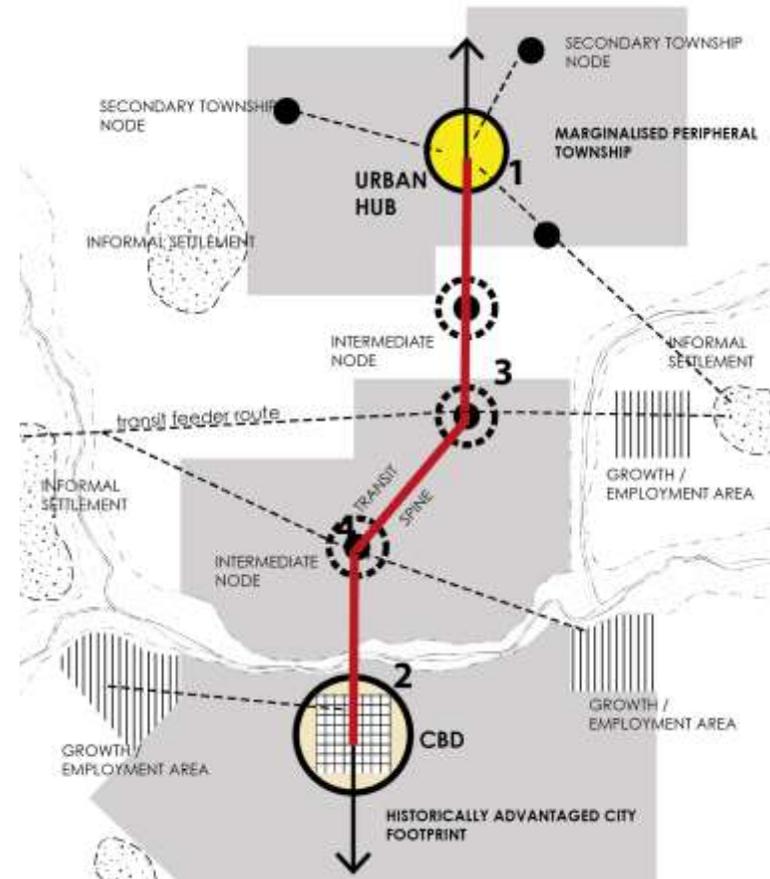


Figure 11: Integration Zone Phasing

2.6 Step 6: Prioritize IZ Projects & Strategic Interventions

2.6.1 OBJECTIVE

Identify and prioritise (1) specific capital projects required to implement the spatial logic for placement on the intergovernmental project pipeline and (2) key interventions that are required to accelerate activities along the BEVC.

2.6.2 METHOD

Identify projects and strategic interventions:

This refers to capital projects and interventions that are at the scale of the integration zone as a whole or those that extend beyond the scale of any single precinct.

Capital projects are typically linear or bulk service related projects. This may include the following:

- Transport infrastructure such as road or rail links (transit spine and feeders), citywide cycle routes, including bridges and underpasses
- Bulk service infrastructure required to support IZ and precinct targets defined for the IZ spatial logic
- Open space network improvements

IZ strategic interventions may include:

- Improving operational efficiencies and aligning public transport services provided by the different spheres and entities.
- The identification of IZ wide policy, municipal regulations or incentives and proposals for new or amended municipal, provincial & national policies, incentives and regulations. Refer to the mixed-use zoning codes below and the utilisation of an inclusionary housing approach aimed at achieving the IZ outcome targets (Step 3).
- Institutional arrangements required to release strategic land parcels

- The establishment and operation of urban management institutions at IZ-wide and precinct scale.
- Development charges modelling approach, including aspects such as spatial cross-subsidisation, i.e. subsidising targeted IZ precincts via contributions from investment in established nodes.

Prioritise projects according to each project's propensity to accelerate private investment in relation to the precinct targets and relative priority.

An **IZ project pipeline** should include the following:

- Priority number (linked to location shown on spatial logic map)
- Project name and description
- Asset owner
- High-level project cost and cash flow
- Funding source/s
- Preconditions for planning, design and implementation

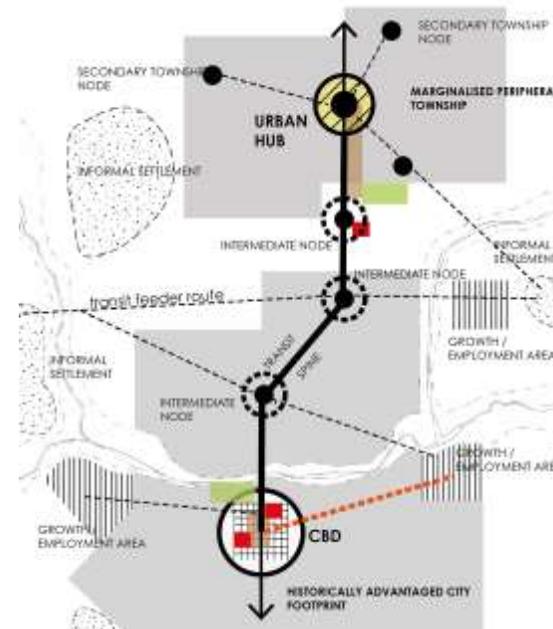


Figure 12: Integration Zone Projects

Make proposals on how to align project prioritisation with citywide infrastructure, transport and open space sector planning as well as area based management instruments. Where these are contradictory, such planning and institutional alignment may require the revision of citywide plans and structures so that the spatial transformation envisaged for the integration zone can be prioritised.

Segment the high priority projects into projects that require **project preparation** and those that are implementation ready. Include the former projects on the BEPP Catalytic Project Register.

The **monitoring and evaluation** of Integration Zone capital projects and strategic interventions should be undertaken by metros via the annual BEPP process, in consultation with public and private sector development partners.

2.6.3 TOOLS

Infrastructure capacity to cater for the projected growth as specified in the IZ targets should be determined from the city's infrastructure master plans and via inter-sectoral/sphere working groups.

Mixed-use zoning codes are aimed at accelerating mixed-use development. "In Washington DC, Commercial-Residential (CR) Zones are utilised for this purpose. The CR Zones are a family of mixed-use zones comprising a variety of densities, heights, and mix of uses.

Each CR Zone is defined by 4 factors indicated in the zone name: CR, C, R, and H. These symbols correspond to overall allowed density (CR), maximum non-residential density (C), maximum residential density (R), and maximum height (H)."

(<http://greatergreaterwashington.org>)

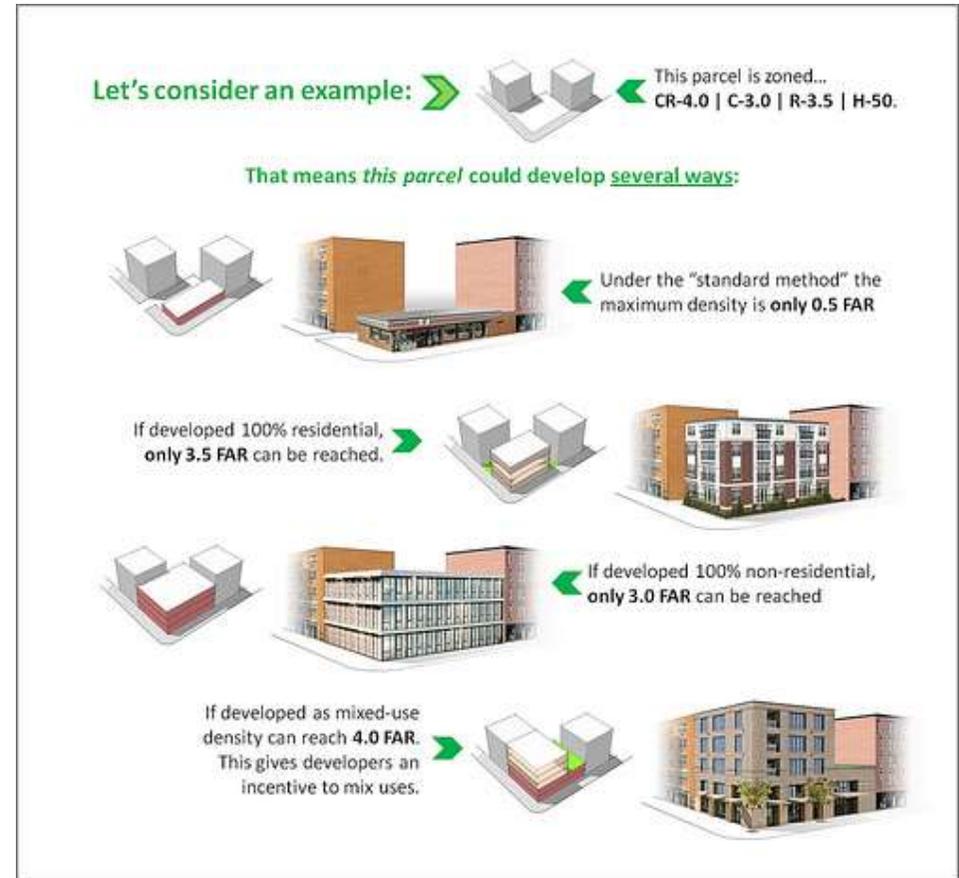


Figure 13: Commercial-Residential (CR) Zones

3 Integration Zone Planning Context

3.1 Enabling Environment

3.1.1 IUDF

The IUDF seeks to foster a shared understanding across government and society about how best to manage urbanisation and achieve the goals of economic development, job creation and improved living conditions for our people. The IUDF sets out “an urban vision of creating “liveable, safe, resource-efficient cities and towns that are socially integrated, economically inclusive and globally competitive, where residents actively participate in urban life” was developed. As well as, alignment of people’s jobs, livelihoods and services promises an urban dividend that can reset the country’s social and economic growth trajectory” (<http://www.cogta.gov.za>).

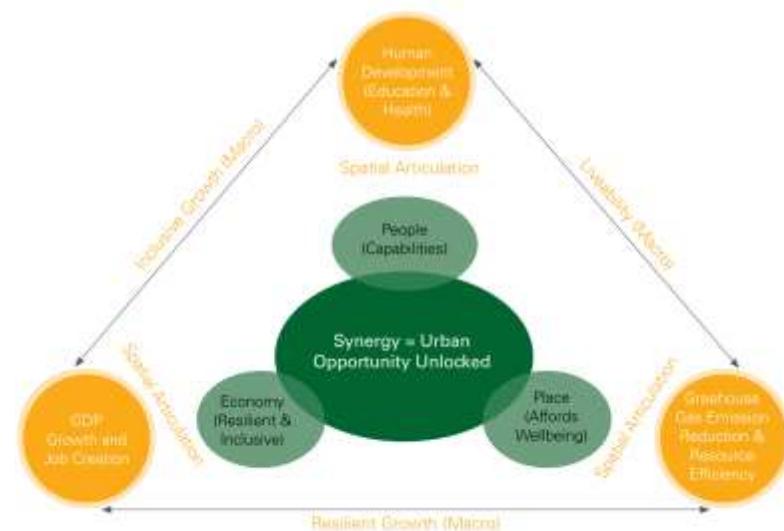


Figure 14: The IUDF's Concept for Unlocking Urban Opportunity

3.1.2 SPLUMA

The Spatial Planning and Land Use Management Act (SPLUMA) calls for spatial development frameworks to outline specific arrangements for prioritising, mobilising, sequencing and implementing public and private infrastructural and land development investment in priority spatial structuring zones. It requires that spatial planning at the National, Provincial and Municipal scales give effect to SPLUMA principles.

Chapter 4 Part E of SPLUMA (Clause 21) requires that a municipal spatial development framework must –

“(d) identify current and future significant structuring and restructuring elements of the spatial form of the municipality, including development corridors, activity spines and economic nodes where public and private investment will be prioritised and facilitated”;

“(e) determine a capital expenditure framework for the municipality’s development programmes, depicted spatially”.

Chapter 5, clause 24(3) of SPLUMA also indicates that a land use scheme may include provisions relating to “specific requirements regarding any special zones identified to address the development priorities of the municipality”

The SPLUMA principles of spatial justice, sustainability, resilience, quality and efficiency, as well as good governance by definition also apply to Integration Zone Planning.

3.2 Central Concepts and Instruments

Poverty alleviation can only be meaningfully addressed through sustained economic performance. The bulk of the economy and population are located in cities and this proportion will increase over time through increased urbanisation and agglomeration.

South African cities are however highly inefficient due to spatial and institutional inefficiencies. This inefficiency excludes the majority of the population from accessing the benefits of agglomeration. A coordinated, systematic urban investment and management approach is required to create cities that work for people and firms.

This approach is aimed at providing for the poor by growing the economy and creating liveable places with good access to job opportunities, affordable shelter, goods and services. One of the most important aspects in achieving this is maximising ROI in the built environment. This is the capital investment in infrastructure, residential and commercial property and the spatial form that links these elements within a city.

3.2.1 Built Environment Value Chain

The BEVC is an intergovernmental process or set of activities aimed at achieving the built environment objectives in cities. The BEVC activities are linked together in a logical sequence, and form part of a cyclical, rather than a linear process.

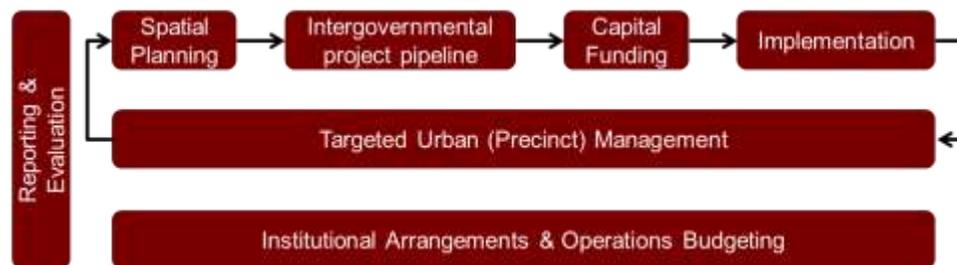


Figure 15: The Built Environment Value Chain

3.2.2 Built Environment Performance Plans

The BEPP is a planning tool aimed at strengthening the overall urban intervention logic to be more outcomes focused. It focuses on measurable improvements to urban productivity, inclusivity and sustainability through targeting a restructuring of the urban built environment through public investment programmes and regulatory reforms.

It is a plan and process that is informed by the Built Environment Value Chain. It does not duplicate or replace existing statutory planning instruments such as SPLUMA and IDP's.

The purpose of the BEPP is to improve the performance of metropolitan built environments by promoting a more compact, integrated and transit oriented urban form. There is growing consensus that fundamental urban spatial restructuring is critical to faster and more inclusive growth. The fragmented and low density spatial form of our cities has become a structural constraint to growth, not just in the property market but also impacting on the cost of doing business in labour and product markets. Our cities are uniquely unproductive, unequal and unsustainable, and the costs are being paid for by poor people, government and the environment. This is clearly outlined in the National Development Plan (NDP) and Integrated Urban Development Framework (IUDF) where both prioritise urban spatial restructuring adding to the growing policy attention and market incentives for a new urban form.

The BEPP is also a requirement of the DORA in respect of infrastructure grants related to the built environment of metropolitan municipalities. It remains one of the eligibility requirements for the Integrated City Development Grant (ICDG). The ICDG is an incentive grant that rewards the application of infrastructure grants, as part of the total capital budget, toward catalysing spatial transformation through a spatial targeting approach at a sub-metropolitan level.

3.2.3 Spatial Planning / Targeting

The first component of the BEVC is a spatial targeting approach as identified in the National Development Plan aimed at the planning of productive and inclusive cities.

Spatial targeting is aimed at the prioritisation of built environment investment (new infrastructure and asset renewal) into a number of priority investment zones that give rise to an intergovernmental project pipeline (catalytic metro, provincial, national and SOC urban development projects) within the following targeted spaces:

- Integration Zones (which collectively form a connected network of targeted spaces)
- Marginalised areas (Informal settlements, townships and inner city areas)
- Growth nodes (commercial and industrial nodes)

The prioritisation of these areas does not translate into an exclusion of allocation of resources to other areas, although a substantial portion of resources should be allocated to the three categories of targeted spaces and this allocation should increase year on year". (*Guidance Note for the Built Environment Performance Plan (BEPP) 2017/18 – 2019/20*)

The key outcome of the three parallel spatial targeting planning and project prioritization streams is a set of strategic economic, spatial transformation and upgrading projects within the urban network.

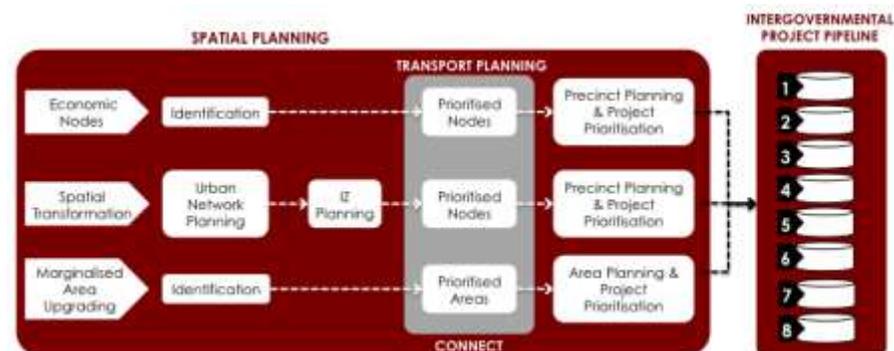


Figure 16: Spatial Targeting Outputs

Together, these priority projects comprise the intergovernmental project pipeline. This intergovernmental project pipeline is envisaged as the mechanism to “collectively support the achievement of targets associated with building more productive, inclusive and sustainable cities.

3.2.4 Spatial Targeting Hierarchy

As an approach to spatial transformation, the concept of spatial targeting is conceived as a system of fiscal and institutional support and incentive that promotes agglomeration, connectivity and walkable urban places with high economic and social opportunity across small, medium and large scales of planning and investment.

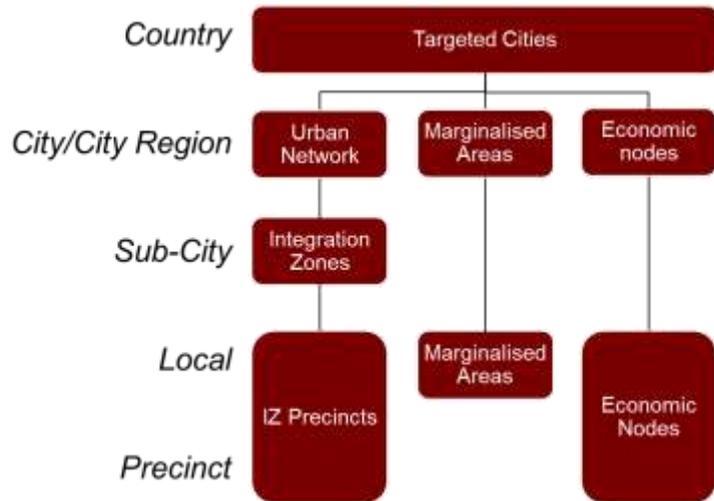


Figure 17: Spatial Targeting Hierachy

3.2.5 Urban Networks (City / City-Region Targeting)

The National Treasury has devised a progressive spatial targeting methodology known as the Urban Network Strategy (UNS). The UNS is a planning approach aimed at realising compact and connected cities within the context of the SA's fragmented urban form and constrained fiscal environment. It is based on Transit Oriented Development (TOD), i.e. on the principles of agglomeration (mixed-use densification) and connectivity.

Spatial targeting at city / city-region scale via the UNS results in an Urban Network, which is a TOD network aimed at spatial transformation.

Integration Zones are individual sub-metro branches of the Urban Network.

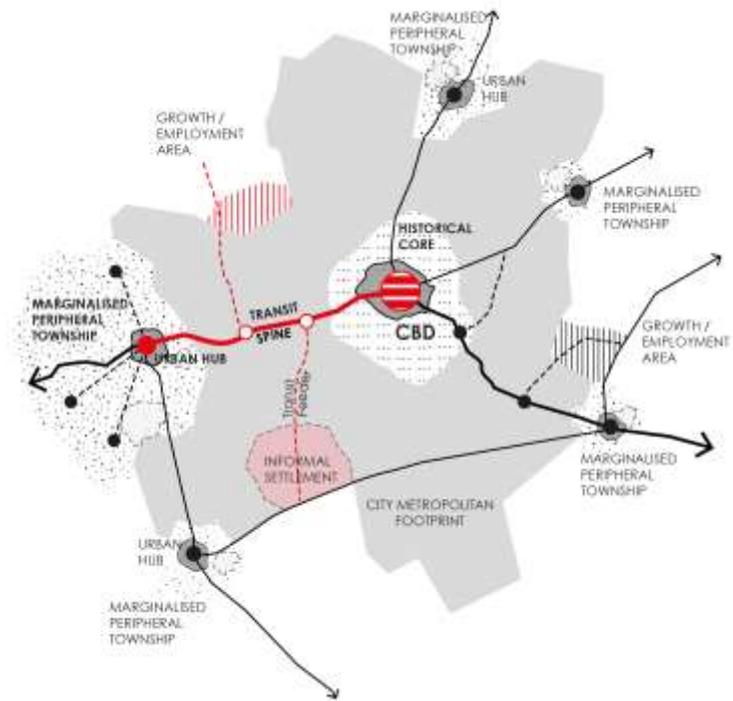


Figure 18: Priority Integration Zone within the Urban Network

3.2.6 Precinct Planning

At a more detailed scale of planning than the integration area zone, precinct planning is being supported within the prioritised IZ nodes. The purpose of Urban Hub Precinct Planning is to formulate the spatial logic and business case for catalytic capital investments within the anchors (prioritized urban hubs). The Urban Hub Design Toolkit has been developed to guide the process and content of Precinct Plans for urban hubs. A Design Guide for the built form of CBDs and urban hubs (which should ultimately perform like CBD's) is also in the process of preparation. This should inform the design of projects within CBDs, urban hubs and other Integration Zone nodes.

The identification and allocation of funding to the Urban Hubs assumes that the priority hub within the priority Integration Zone of the city is identified, planned and selected for coordinated, catalytic investment. The gap between the citywide urban network of planning and the precinct planning at the urban hub precinct planning is recognized and it is the purpose of this guidance note to address this.

3.2.7 Transit Oriented Development and Walkable Urban Developments

In SA, TOD is defined as a planning concept that promotes the creation of a spatially targeted, inclusive network of well-designed, walkable, mixed-use, high density urban communities focused around transit stations.

TOD is characterised by:

- A rapid and frequent transit service.
- High accessibility to the transit station.
- A mix of residential, retail, commercial and community uses.
- High quality public spaces and streets, which are pedestrian and cyclist friendly.
- Medium- to high-density development within 800 metres of the transit station (i.e. the TOD precinct).
- Reduced rates of private car parking.

More recently, the economic, financial and social returns of the concept of WalkUPs (Walkable Urban Places) are being researched and demonstrated. This form of development has much higher density, employs multiple modes of transportation that get people and goods to walkable environments and integrates many different real estate products in the same place.

“This research challenges real estate developers, investors, regulators, managers, academics and citizens to rethink the way we manage the 35% of our nation’s wealth that is invested in real estate and infrastructure, the built environment. This is an important recalibration that affects how most of us live, work and are

entertained. To ignore this structural change would be akin to ignoring the impact roads and cars had on the built environment more than a half-century ago. This new development model is walkable urban development.”

There is a game-changing shift underway in real estate. New research reveals how walkable urban places and projects will drive tomorrow’s real estate industry and the economy and what actions are needed to take advantage of these market trends.

“Regionally significant” WalkUPs will be the primary location of economic growth in metropolitan D.C. For most other U.S. metropolitan areas, regionally significant WalkUPs will also play a significant role in the future”. (2016, Smart Growth America, *The WalkUp WakeUp Call*)

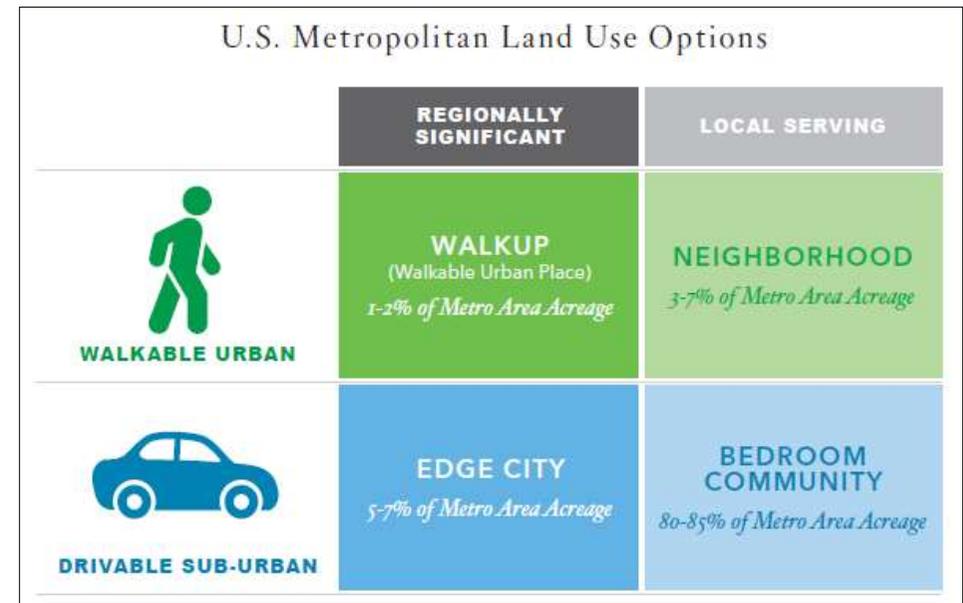


Figure 19: WalkUps & Regional Urban Investment Typologies

“In metropolitan areas, land use is functionally categorized as either regionally significant or local serving. Regionally significant places have

concentrations of employment (export or base and regional employment), civic centres, institutions of higher education, major medical centres and regional retail, as well as cultural, entertainment and sports assets. Local-serving places are bedroom communities dominated by residential development that is complemented by local serving commercial and civic uses, such as primary and secondary schools, police and fire stations, and so on. Generally speaking, regionally significant places are where the metropolitan area earns its living while local-serving places are where peoples spend their non-work lives" (DC The WalkUP Wake Up Call, 2016, p7).

"Walkable urban development includes:

- Substantially higher densities (1.0 to 40 FAR, though mostly in the 1.0 to 4.0 range).
- Mixed-use real-estate products, or the adjacent spatial mix of products.
- Emerging "new" product types, such as rental apartments over a ground-floor grocery store.
- Multiple transportation options, such as bus, rail, bicycle, and pedestrian-friendly sidewalks, as well as motor vehicles, that connect to the greater metro area. Within the boundaries of the WalkUP itself, most destinations are within walking distance".

(2016, Smart Growth America; Foot Traffic Ahead, p6)

The economic benefits of walkable CBDs have also been established in extensive research across 80 cities where it was shown that "Clustering and proximity are critical to the success of commercial districts. While car dependency determined the rise of suburban malls, with associated issues such as 'food deserts', a dense and walkable urban network may facilitate the spread of small local shops and street markets, able to increase variety of goods and services, independent retailing, local employment and start-up opportunities" (2016, ARUP, p56).

Integration Zones are considered in the context of the urban network as these types of regionally significant walkable places.

The distinction between a geometric radius of 400m and the actual walkshed is well illustrated by the Greenfield Tool Box. This is illustrated in Figure 20 with some US examples illustrating this point in Figure 21 .

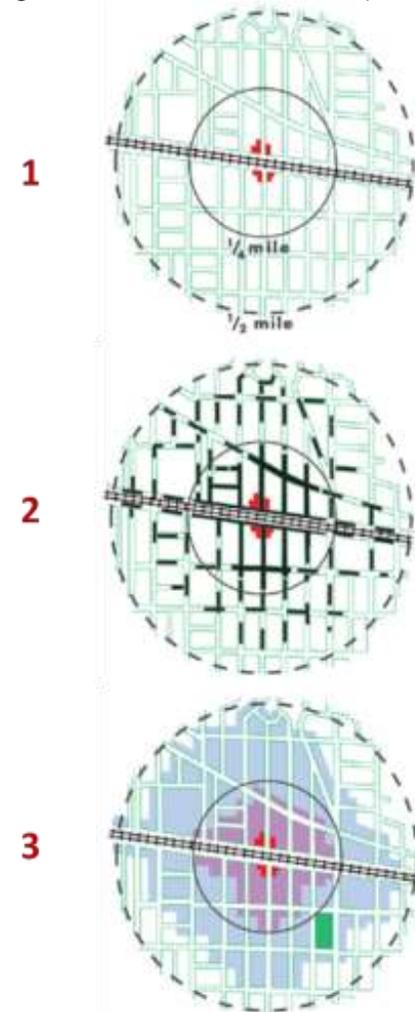


Figure 20: Walkability Catchment (Calgary Regional Partnership)
<http://greenfield.calgaryregion.ca/tools.php>

Mapping process

The first step in mapping the walkable catchment is to identify and map the network providing mobility to the pedestrian. Identification should take into consideration the ability of pedestrians, to get to or from a destination, which means that streets, footpaths, bridges and other pedestrian access infrastructure that can be used for walking should be included in the analysis. The street network should be examined to determine if there are sidewalks for pedestrians.

Once the network is identified, the second step is to map the walkable catchment on the network.

First, draw a circle around the destination with a 400 metre radius. This circle represents the maximum possible walking distance “as the crow flies.”

Second, measure the walkable distance (e.g., 400 metres) from a destination along the pedestrian routes. This mapping process identifies the actual walking distance. Note that the 400 metres distance from the destination will likely fall short of the circle mapped in the previous step – this is due to the 400 metre distance being mapped “as the crow walks.”

Third, identify the lots, buildings, parks, and other destinations that can be reached within that distance. The area around these features represents the walkable catchment.

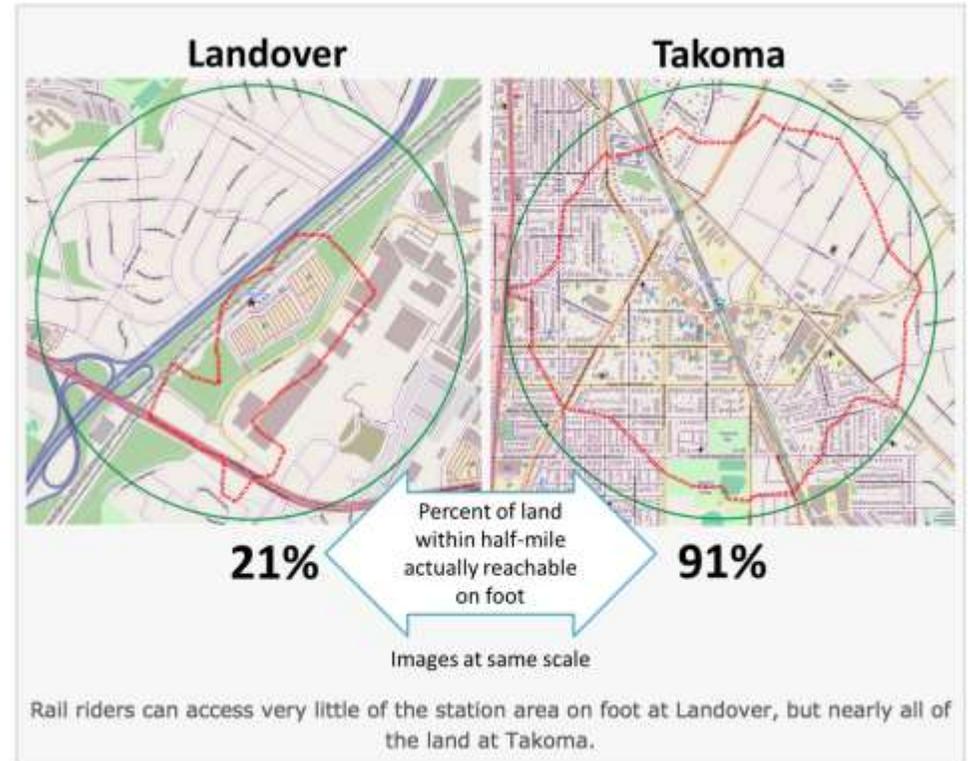


Figure 21: Actual Walksheds versus Access Radius
(Washington Metropolitan Area Transit Authority)

GLOSSARY OF TERMS

Affordable Housing: A dwelling where the total costs do not exceed 30% of a household's gross income including taxes and insurance for owners and utility costs.

Access and movement framework: This is a framework plan that illustrates diagrammatically how the access and movement infrastructure is aligned. It is accompanied by descriptions of the capacity of the public transport facilities and includes the nature of infrastructural links.

Bulk factor: the quantum of developable floor area that may be developed on a property in terms of the provisions of a statutory land use scheme. (i.e. the sum of the areas of all floors of a building on the subject property).

Capital Web: The capital web encompasses the total public realm – the streets, squares, parks, public buildings and public transport systems – all things paid for and used by the public. The elements on which design attention is initially focused are the movement and green space networks.

Density (Nett): The number of dwelling units per hectare of land calculated on the basis of land for residential purposes only (including residential gardens and privatized off-street parking)

Density (Gross): The number of dwelling units per hectare of land calculated over a specified area on the basis of land uses for residential purposes and other land uses such as roads, utilities, business, industry, education, transport and parks. Land extensive uses such as agriculture and conservation etc. are excluded)

Densification: A process of development that intensifies urban land use within a defined geographic area.

Engineering Infrastructure: Engineered services such as roads, electricity, water, sewer and storm water systems. Sometimes also referred to as 'hard services'.

Floor Area Ratio (FAR): (also **floor space ratio (FSR)**, **floor space index (FSI)**, site ratio and plot ratio) is the ratio of a building's total floor area (gross floor area) to the size of the piece of land upon which it is built.

Inclusionary Housing: A housing programme that requires developers to dedicate a certain percentage of new housing developments to low and low/middle income households at affordable housing costs. (Definition from the Gauteng Draft Inclusionary Housing Bill 2012)

Integrated Planning: Integrated planning refers to the co-operation of different sector departments, different spheres of government, parastatals and the private sector in order to achieve publicly participated and accepted development outcomes.

Integration Zone: An Urban Network is a spatial targeting methodology based on Transit Oriented Development. The network consists of a number of Integration Zones.

Interchange Zone: The area in which various transit modes come within a walkable range of one another. These may include rail, bus and taxi stations and termini. This is not the same as an intermodal interchange facility. (refer to the Urban Hub Toolkit)

Intermediate Node: is a node between the two IZ anchors that is strategically located at key intersections connecting to key destinations and opportunities outside the transit spine via feeder routes (taxis).

Intersection spacing: The distance between different street/road intersections.

IZ Feeder Routes: High frequency transit routes connecting the Intermediate nodes with growth nodes / areas of need within a 20 minute or 30km commute of the transit spine.

Marginalised Areas: Areas that are in decline and/or where people are deprived. These are areas that are typically not the focus of the private sector developers and will thus require some kind of intervention from government to start with if it is to be turned around. Marginalised areas consist of townships, informal settlements and inner cities.

Massing: Massing refers to the structure in three dimensions (form), not just its outline from a single perspective (shape). Massing influences the sense of space that the building encloses, and helps to define both the interior space and the exterior shape of the building.

Mixed-Use Development: The presence of more than one type of land use in a building or precinct, including residential, commercial, retail or community facilities. A mix of uses can be achieved vertically within a single building or horizontally in a precinct. Commercial land uses include both office and light industrial. Community uses include health, education, cultural, administrative, recreational and public transport facilities

Node: A well-defined and legible urban environment where highly accessible, mixed and compatible uses are concentrated and serviced.

Pedestrian Permeability: describes the extent to which urban forms permit (or restrict) movement of pedestrians in different directions.

Precinct: A geographically smaller area that has specific characteristics that requires detailed planning within the broader administrative boundaries of a municipality. Precincts are not formal administrative areas in terms of current planning legislation or policies. In the context of the Urban Network, precincts are also focus areas for more detailed planning within the Integration Zone.

Population Density: The number of people in a given area, calculated as people per km².

Precinct Plan: A development plan and guidelines for a localized area, taking directive from higher order plans.

Public Transit Infrastructure: Public Assets/Property related to public transport use such as rail, buses, bus stops and stations and rail stations.

Public Realm: Spaces that are used by the public, including streets, squares, parks and environmental reserves.

Residential Density: The number of housing units in a given area, calculated as dwelling units per hectare (du/ha) and calculated per erf.

Nett Density: The number of dwelling units per hectare of land calculated on the basis of land for residential purposes only (including residential gardens and privatized off-street parking)

Gross Density: The number of dwelling units per hectare of land calculated over a specified area on the basis of land uses for residential purposes and other land uses such as roads, utilities, business, industry, education, transport and parks. Land extensive uses such as agriculture and conservation etc. are excluded)

Spatial Logic: Spatial organization of an urban area, illustrating the location and nature of key elements of the urban systems including nodes, corridors and linkages and clarifying spatial and functional relationship between them

Spatial Targeting: A built environment investment prioritisation approach where specific areas are prioritised for investment at a range of geographic scales to achieve particular development outcomes. Spatial targeting is an approach recommended by the National Development Plan.

Transit Nodes: Stations and focal points for transit services. Transit nodes tend to be well separated or less frequent to facilitate fast travel, as opposed to transit corridors, which provide frequent stops along a corridor.

Transit Oriented Development (TOD): is a planning concept that promotes the creation of a spatially targeted, inclusive network of well-designed, walkable, mixed-use, high density urban communities focused around transit stations.

Transit Spine: Rail or bus routes connecting two Integration Zone anchors (CBD and Urban Hub).

Transit Feeders: Public transport routes (mostly taxis) connecting (1) the Urban Hub to the Secondary Township Nodes and (2) the Intermediate nodes to key employment and marginalised residential destinations.

Intermediate Nodes: concentrations of development between the two anchors that are strategically located at key intersections along the transit route and connecting to key employment and marginalised residential destinations via transit feeders.

Urban Development Zone: demarcated zones within urban areas designed to stimulate investment in inner city areas in terms of the Urban Renewal Tax Incentive

Urban Hub: Is a precinct within the marginalized peripheral township that is at the point of maximum connectivity, clustered around a transport hub. These are envisaged to serve as town centres to the townships in which they are located.

Urban network: A spatially targeted, city or city region-wide TOD network aimed at spatial transformation. The network consists of a number of Integration Zones.

Urban Networks Strategy: A spatial targeting and TOD approach aimed at spatial transformation of South African cities.

WalkUps: Walkable Urban Places are a form of development that has much higher density, employs multiple modes of transportation that get people and goods to walkable environments and integrates many different real estate products in the same place.

Walkshed: Walking distance from transit station taking into account actual, walkable routes and barriers to access such as freeways, rivers, lack of sidewalks.

ACRONYMS

BEVC: Built Environment Value Chain

BEPP: Built Environment Performance Plan

DORA: Division of Revenue Act

IUDF: Integrated Urban Development Framework

IDP: Integrated Development Plan

ITP: Integrated Transport Plan

IZ: Integration Zone

NDPP: Neighbourhood Development Partnership Programme

SDF: Spatial Development Framework

SOEs: State Owned Enterprises

SPLUMA: Spatial Planning and Land Use Management Act of 2015

TOD: Transit Oriented Development

UNS: Urban Networks Strategy