

INFORMAL SETTLEMENT PIPELINE PLANNING BRIEFING DOCUMENT

A. INFORMAL SETTLEMENT PIPELINE PLANNING PROCESS - PROCESS FLOW TO SUPPORT A MORE VIABLE 'THEORY OF CHANGE':

1. **Quantify informal settlement 'backlogs' and 'needs' / services deficits** (substantially complete although we still have some gaps in terms of: certain services provided and their state of repair e.g. latest CAB and electricity data; settlements affected by high vulnerabilities – need plan of action to wrap this up especially EWS data).
2. **Determine resource availability** to respond including capital and operating budget (in progress but not complete – capital budget info readily available but needs to be documented; incomplete information available however on O&M and recapitalisation costs – i.e. asset life-cycle costs – this is a major deficiency).
3. **Determine current capital and operating costs** of service provision at various levels (more work needs to be done, especially on the operating cost side, once more information is available – see above).
4. **Model different servicing options** across a differentiated pipeline of responses and consider the implications (in progress but need more information in order to validate and finalise – see above). Develop scenarios based on different approaches and assumptions.
5. **Choose the optimal strategic options and develop a pipeline plan** (has not yet occurred or been finalised – the draft, differentiated pipeline framework, is based on various stated initial assumptions and introduces a special focus on well-located B1 settlements for spatial restructuring e.g. via a services frames makes a good start – more work is still required and it is critical that this is finalised as soon as possible, this cannot be done however without items 2-4 first being finalised).
6. **Budget, innovate, implement and review** (current budgeting and pipeline planning occurring in a strategic vacuum – the gaps in 2-5 above need to be addressed so that we can optimise limited fiscal resources, ensure better strategic and servicing outcomes, and most importantly enable better sustainability – once an optimised pipeline approach is instituted it will necessitate some level of innovation e.g. regarding modes of services and the operating and maintenance thereof, and the performance of the optimised approaches will need to be reviewed regularly against stated objectives and changes made where necessary).

B. BRIEFING NOTES ON DIFFERENTIATED PIPELINE PLANNING & BUDGETING

TOOL:

1. Differentiated pipeline planning: The upgrading approach needs to be appropriate to the type (category) of settlement. Settlements are accordingly differentiated into the following main pipeline categories:

i. Well-located category B1 settlements (within PIC and dense urban zones) – 31% of all households.

These settlements should be afforded a high strategic priority given their locational importance. The objective should be to rework space, optimise services and enable or incentivise residents to invest in and improve their own housing over time. A comprehensive package of essential services should be provided. This should include the provision of services frames within settlements and incremental planning and tenure arrangements. The delivery of services will typically need to be in an integrated fashion requiring effective coordination between line departments. The strategic objective is not only to address services deficits but to achieve spatial transformation, land value capture and asset building.

ii. General category B1 settlements (outside PIC and dense urban zones) – 48% of all households.

The focus should be on the provision of a comprehensive package of essential services. Wherever possible services should be designed so that they are permanent, durable and part of a long-term permanent solution. The delivery of these services will typically be non-integrated (via separate line departments), although effective transversal coordination will nonetheless be required, and will focus on addressing those services deficits which are most acute.

iii. B2 settlement (deferred relocations) – 11% of all households.

The focus should be a basic/emergency package of essential services and addressing imminent health and safety threats. The delivery of these services will typically be non-integrated and will focus on addressing those services deficits which are most acute. The level of servicing should be at a minimal level given the intention to eventually relocate the settlement. A lower level of service and cost structure may be appropriate relative to B1 settlements (e.g. in terms of toilet to household ratio or in terms of road and footpath access).

iv. Category C settlements (imminent relocation) – 4% of all households (although further analysis of these areas is required).

Given that the relocation is imminent, little or no service provision will be appropriate. In the event that the relocation is deferred for a period longer than a year or two (i.e. a relocations solution is not yet available), then the settlement should be re-categorised as B2. If necessary, the B2 category could be split between short and long term relocations (e.g. B2S and B2L).

v. Households at severe risk – an undetermined number of households (further assessment and analysis required).

Once identified, responses mitigating or addressing specific risks (e.g. flooding, fire or profound slope instability) should receive top priority. Responses will need to be tailored to the specific risks and may be cross-cutting (benefiting many vulnerable areas e.g. in respect of optimised fire response for high density areas).

	No. of settlements	No. of households	% of Settlements	% by households
Well located B1 settlements	202	97 113	35%	31%
General B1 settlements	150	149 235	26%	48%
B2 settlements	135,5	33 009	23%	11%
Category C settlements	34,5	10 954	6%	4%
Total incremental upgrades	522	290 311		

Category A conventional housing	56	22 131	10%	7%
Total informal settlement pipeline	578	312 442	100%	100%

Work in progress (Not yet categorised)	9	299		
TOTAL	587	312 741		

2. Overall servicing and theory of change assumptions: It has been assumed that, in phase one of the pipeline planning and upgrading response, the focus should be on:

- a) **achieving a minimum level of acceptable services** (communal ablutions, solid waste management, electricity connections, roads and footpaths, and fire controls) to all informal settlements whilst at the same time minimising relocations;
- b) **starting to address spatial issues** through optimised services and reworking of space in well located B1 settlements;
- c) **initiating incremental planning and tenure arrangements** which improve tenure security, include settlements into municipal planning frameworks and which most importantly can unlock or incentivise people to invest in their own housing improvements rather than relying on government;
- d) **optimising the use of limited fiscal resources** for both capital and ongoing operating, maintenance and recapitalisation of assets (through better prioritised investment);
- e) **mitigating or removing threats** to those households facing imminent and severe threats to safety;
- f) **reducing environmental and other public harm** and negative impacts to the general public including neighbouring (formal) communities.

The following have not been factored in and will be addressed in a next-phase of pipeline planning, subject to review of progress with the current phase:

- i. relocation of all B2 settlements;
- ii. provision of individual water and sewer connections to households;
- iii. formal town planning arrangements and formal tenure provision (title deeds);
- iv. provision of housing or direct housing support.

It has been assumed that a small pipeline of formal/conventional housing provision will be retained, but this will not be the principal means of addressing the informal settlement 'backlogs', noting that this is now accepted national policy.

3. Prioritisation principles for pipeline budgeting: The following process and principles are proposed:
- a) Budget apportionment across categories: Available budget first needs to be apportioned to each main category or pipeline of settlements based on: a) the number/scale of under-serviced households; b) the associated relative per-household cost of responding appropriately within each pipeline. For example, the cost of responding appropriately for well-located B1 settlements in an integrated fashion and involving some reworking of space and partial relocations to establish a services frame, costs approximately 60% more per household than the more basic servicing response for general B1 and B2 informal settlements.
 - b) Prioritisation for well-located B1 pipeline: Settlements are prioritised for integrated/optimised services delivery (e.g. services frame with partial relocations) on the basis of: **services deficit, size of settlement and age of settlement (weighting of 35%, 35% and 30% respectively)**. Services deficit is an aggregated score based on the deficit of CABs, electricity, roads and footpaths and solid waste (weightings of 45%, 25%, 15%, and 15% respectively).¹ Location is not a prioritisation factor since all of these settlements are well located.
 - c) Prioritisation for general B1 pipeline: Settlements are prioritised for the non-integrated /conventional delivery of various services (i.e. sanitation, electricity, RFP, and SW) on the basis of: **the extent of the services deficit, the age of the settlement and the location of the settlement and (weightings of weighting of 60%, 20% and 20% respectively)**. The principle is the prioritise mainly on the basis of addressing service delivery backlogs with a moderating influence of settlement size, age and location.
 - d) Prioritisation for B2 pipeline (deferred relocations): **The basis for prioritisation is identical to that of general B1 settlements**. It is however noted that the level of service and associated costs might not be identical (e.g. a lower level of sanitation or RFP investment may be deemed appropriate).
 - e) Prioritisation for C pipeline (imminent relocations): Settlements are prioritised on the basis of **services deficit, settlement size, settlement age and location (weightings of 40% 20% 20% and 20% respectively)**. However, it is **emphasised that further assessment of land parcels and affected households in this category is required** because: a) there are more than 10,954 households and 35 settlements in this category; b) there is a high cost per household of responding to households in this category (at least R125k for an improved 'TRA' or serviced land release solution); c) the relocations are meant to be imminent based on there being imminent and serious health and safety threats to households. Such an assessment will result in those households being at severe risk being prioritised for a rapid relocation response the balance being re-assigned to the B2 category.
4. Function of the pipeline tool: The pipeline tool functions to enable high-level modelling, strategic decision making, pipeline budgeting and prioritisation of particular types of response. More detailed feasibility work including assessments and technical studies are required for particular projects/settlements within the pipeline as they come on stream in order to determine the optimal engineering services solutions and related costs. An entirely standardised 'one-size-fits-all' approach is not envisaged, even if the pipeline approach does establish broad principles and general approaches for particular pipeline categories. For example, the actual ratios of toilets per household might vary across category B1 or B2 settlements depending on available space, topography or bulk services availability.

¹ Refer to detailed notes in the Excel Pipeline Model on the 'Assumptions & Weightings' worksheet for details.

5. **Prioritisation criteria and methods:** Various prioritisation criteria are utilised. They include: category of settlement, services deficit (either combined or for a particular service), size of settlement, age of settlement, location of settlement, and severity of specific vulnerabilities or threats. These are applied in various ways depending on the pipeline category as outlined in other sections of this document. In contrast to the historical approach where eliminating services deficits was the overriding criterion, the optimised approach takes into account a broader set of criteria and applies these in differentiated fashion for different pipelines of upgrading projects in order to achieve better and more strategic outcomes. *Additional considerations which now receive greater emphasis include: spatial transformation, land value capture, asset building, better long term return on investment in services, and reduced operating and maintenance costs.*
6. **Split categorisation:** Some settlements have a split categorisation, meaning that different portions of the settlement have different categorisation. There are currently 22 settlements with split categorisation, although this number may rise as further assessment of settlements occurs.

Settlements with split categorisation:		
Category	Settlements	Households
B1/A	2	293
B1/B2	8	3 146
B1/C	1	2 060
B2/B1	1	272
B2/C	10	3 763

Settlements with split categorisation have been counted on a fractional basis (e.g. if a settlement is 75% B1 and 25%B2 it is counted as 0.75 of a B1 and 0.25 of a B2 settlement. This is done to prevent over-counting or duplication of settlements in the database. Further assessment of settlements with split categorisation is required in order to determine the number of households and extent of land falling within each category. Until this has been done, settlements have the following assumptions have been applied.

Default split categorisation ratios (to be used until further assessment of affected settlements have been done)				
Split Category	A	B1	B2	C
A/B1	0.75	0.25		
B1/A	0.25	0.75		
B1/B2		0.75	0.25	
B2/B1		0.25	0.75	
B2/C			0.75	0.25
C/B2			0.25	0.75
B1/C		0.75		0.25
C/B1		0.25		0.75

7. Preliminary scenario modelling:

assumptions:		
Av USDG/UISP p/a	1 000 000 000	1 000 000 000
CAB ratio well loc B1	50	50
CAB ratio gen B1	75	75
CAB ratio B2	75	75
Asset life CABs	12	12
Asset life RFP	15	15
Implications:		
Total capital cost	14 402 888 246	14 402 888 246
Number of years	14	14
Annual op budget	2 116 611 039	2 116 611 039
Op budget over period	30 485 312 253	30 485 312 253
Total cost over the period	44 888 200 499	44 888 200 499

8. Further work required in order to finalise pipeline planning process and model:

- a) Confirm appropriate sanitation approach and service ratios for different categories of settlement in the pipeline. + bulks...
- b) Confirm current O&M costs for solid waste and model costs if waste within settlements is to be removed.
- c) Further assess category C settlements (imminent relocations), confirm areas subject to imminent high risks, and re-allocate balance to B2 (deferred relocations).
- d) Identify all land (even in other categories of settlement) where households face imminent threats to loss of life and channel into the appropriate pipeline category for mitigation of these high risks.
- e) Workshop entire pipeline approach and related 'theory of change' with relevant municipal line departments not only in terms of the overall principles and approach, but also the roles and functions of line departments across different categories of response. + get approval

C. PRIORITISATION CRITERIA FOR DIFFERENTIATED UPGRADING PIPELINES

A refined prioritisation system and related criteria are necessary in order to ensure more effective and rational allocation of scarce resources. Historically, the main focus was on eliminating or reducing services deficits. The approach was conceptualised as 'interim' on the assumption that formal housing or formalisation would be the eventual solution. Services were therefore mainly provided in a temporary, reactive and non-integrated fashion. There was limited reworking of space and limited consideration of long term strategic objectives such as spatial transformation or land value capture. It is now accepted that incremental, in-situ upgrading is the primary upgrading approach and that a more strategic and longer term view needs to be taken when providing incremental services. As far as possible, services need to support longer term transformation and wherever possible form part of permanent or semi-permanent solutions rather than being merely interim or temporary in nature. Services need to offer an optimal return on investment and need to be as durable and low maintenance as possible.

The Municipality has already approved the following broad prioritisation criteria (as per Council Resolution of September 2019):

- i. *Vulnerability*: extent of health and safety threats, using net density as one of the means to apply this criterion.
- ii. *Services Deficit*: the various components of Incremental Services that are absent or lacking due to inefficient ratios/thresholds of household numbers relative to service points.
- iii. *Population Coverage*: the larger the settlement in terms of the number of households, the greater the efficiency of delivery and return on investment.
- iv. *Age of Settlement*: how long have people been waiting for services.
- v. *Community Readiness*: how stable the community and leadership are and their appetite to embrace the new, incremental approach.
- vi. *Location*: how well located the settlement is, noting the importance of addressing spatial inequality and inefficiencies and the constraints relating to over-extending the reach of the municipality's bulk infrastructure networks².

Utilising these criteria, a differentiated pipeline of upgrading projects needs to be established, with funding provided to all of the project categories, but with the quantum of budget allocated to each being determined primarily by the overall strategic priority of each one.

² I.e. In terms of various strategic plans and policy prescripts such as the Built Environment Performance Plan (BEPP), the Integrated Urban Development Framework (IUDF), Spatial Planning and Land Use Management Act (SPLUMA), the Spatial Development Framework (SDF). Noting also the need to address spatial inequality and inefficiencies is a high priority from National right down to Local Government Taking direction from the BEPP's Integration Zones, which is a concept to spatially deal with objectives of city-building, especially inclusiveness, efficiency, and connectivity, the Prime Investment Corridor (PIC) and the Urban Zone have been identified as areas to focus on without necessarily neglecting the needs to informal settlements in the remaining Zones.

In addition to the six settlement-level criteria outlined above, the following broader strategic criteria also need to be considered:

- a) *Reducing and eliminating overall services deficits* in a manner which is as cost-effective and well-prioritised as possible with water, sanitation, electricity, and solid waste removal being some of the most pressing priorities.
- b) *Responding proactively to high risk situations* where there is a high risk of loss of life due to fire, flooding or other severe and imminent threats.
- c) *Spatial restructuring* of the City to make it more efficient, inclusive and sustainable e.g. making optimal use of limited, well-located available land and establishing a better urban form for the future.
- d) *Building assets and land value capture* e.g. by servicing well-located settlements and establishing incremental tenure and planning arrangements which unlock owner-driven housing improvements.

In the light of the above, the following framework should be utilised as a starting point for establishing a more effective and differentiated upgrading pipeline planning approach and then refined and adapted by EHS working with the other relevant Line Departments over time.

1. ***Prioritisation of urgent mitigations for extreme (life-threatening) vulnerability:*** These responses should receive top priority on the basis of there being extreme vulnerability and imminent risk of loss of life, and regardless of other criteria (such as locality) or settlement categorization. This type of response may apply to any category of settlements (B1, B2 or C). All households at severe and imminent risk of loss of life in the City should be identified without delay and emergency mitigation strategies determined which may include immediate relocation or other mitigations e.g. flood attenuation measures or early flood warning / response. High risks can arise from factors such as: close proximity to watercourse and within a regular floodline; close proximity to a railway line; unstable slopes prone to landslides, or very dense settlements with a high fire hazard. These extreme risks would normally affect only portions of certain settlements and it is expected that the total number of households affected will be relatively small (with the exception of fire risks which should be regarded as a special case and will require a dedicated response). Further analysis is required in order to identify these most-at risk households and some of this work is already underway in terms of flood delineation work. A special pipeline for fire protection responses should be established within this pipeline, especially for very dense, fire-prone settlements and may include improved infrastructure such as fire hydrants, enhanced local fire response plans and household education for improved prevention. This category of pipeline response would exclude those households who face general vulnerabilities arising from other services deficits (such as sanitation or electricity). These are dealt with through the other pipeline categories outlined below.
2. ***Prioritisation of well-located B1 incremental upgrades for integrated services delivery:*** These settlements should be afforded the second highest strategic priority given their locational importance and the opportunity to establish a more efficient and inclusive future urban form. The main criteria (in order to 'stream' settlements into this pipeline) would be those of category (B1) and location (within prime investment corridor or urban zone), with secondary criteria (to prioritise settlements within the pipeline) being the extent of services deficits, settlement size and settlement age. It is accepted that most well-located B1 settlements are dense or relatively dense and that reworking or space (or partial 're-blocking') will often be required in order to open up space for service access ways. Services will normally need to be planned, designed, procured and implemented in an integrated fashion (e.g. a services frame with footpaths, fire hydrants, solid waste bins, mini communal ablutions, standpipe wash facilities and storm-water controls). Limited relocations may

be required to achieve this strategic objective. The costs of this approach may be higher than for other incremental upgrades, and the process slower, but the locational value of the land will typically justify this more qualitative and integrated incremental upgrading approach, which also establishes a platform for residents to improve their own housing over time and for incremental planning and tenure solutions to be implemented in the future.

3. **Prioritisation of other B1 incremental upgrades for basic services (comprehensive):** These settlements should come next in terms of strategic priority. A comprehensive package of basic essential services should be provided, but this would normally be provided in a non-integrated fashion (unless there was a particular need to coordinate and integrate the delivery e.g. insufficient space to establish an electricity reticulation requiring footpaths to first be established). Specific services which are most lacking would normally be individually prioritised. The main strategic goal is to reduce or eliminate services deficits. The main criterion for this pipeline of upgrading projects would thus be the extent of services deficit for a particular service, with secondary criteria being the settlement size and settlement age. Typically, settlements with the biggest deficit of a particular service (e.g. electricity or communal ablutions) would receive the highest priority for the provision of that particular service, all other things being equal. Where possible, roads and footpaths should be established before settlement densities make it impossible to establish services access ways within the settlement.
4. **Prioritisation of B2 settlements for basic services (minimum level):** These are next in priority. The main objective is to address services deficits, but at a minimum level (mainly to mitigate general health and safety threats and meet minimum basic service standards) given that the settlements are not regarded as permanent and that eventual relocation of the settlements is intended. Given that these settlements are not going to be upgraded in situ (i.e. they will eventually be relocated), the criterion of location would receive less weighting than for B1 settlements. The other criteria would however apply (i.e. the extent/ severity of vulnerability and services deficit, population coverage/return on investment, and how long people have been waiting). The extent of the deficit relating to a particular service would be the main factor in prioritising its provision.
5. **Prioritisation of imminent relocations for category C settlements:** In most instances the relocation of these households is linked to existing formal housing projects which are already in the planning, design or implementation stages and which do not form part of the incremental upgrading project pipelines. Where there is a delay with the relocation solution, then the settlement should be re-categorised to B2 and minimum basic services provided. Where there are households in imminent risk of loss of life then they should be included in the first category of response.
6. **Prioritisation of full upgrade projects for category A settlements:** It is accepted that this pipeline of projects (formal housing projects) is being reduced and largely phased out as a primary means of addressing the informal settlement backlog. This is consistent with recent policy directives from the National Minister of Human Settlements and is also necessary due to the high costs of these projects. From a budget allocation point of view, budgets for housing delivery need to be decreased in favour of more funding for incremental upgrading pipelines outlined above.
7. **Prioritisation of alternative new settlement solutions:** Further strategic consideration is necessary in order to determine what solutions are most appropriate for the Municipality in terms of providing for new settlements/sites. Once this has been determined, then this pipeline can be factored into the prioritization model. New alternative settlements/sites may be required for the following purposes: a) small relocations on well-located B1 settlements in order to open up space for services

(partial 're-blocking'); b) eventual relocation of category B2 settlements; c) future urban influx. The National Human Settlements Minister has proposed serviced land release which needs to be considered as one option (especially for future influx). Another option which is appropriate for the partial relocations required for well-located B1 settlements, is that of improved emergency relocation sites of the type being piloted on Parkington, Havelock and Ezimbelini settlement, where an alternative, lower cost housing typology is utilised with shared mini-communal-ablution facilities. This results in an overall development cost far lower than a conventional housing project, but with a product which is nonetheless safe, durable, potentially double-story and significantly better than informal (shack) housing. In contrast to historical TRAs, such settlements can be regarded as, or converted, to permanent settlement solutions (once the necessary incremental planning and tenure arrangements are in place).

In addition to the above framework, there needs to be more strategic prioritisation of the type and mix of services that are provided in order to optimise available capital funding, minimise operating and maintenance costs and maximise long-term upgrading outcomes.

Regarding the criterion of 'community readiness', it is accepted that this is difficult to assess at a pipeline planning level and should rather be regarded as a 'disqualifying' criterion i.e. where a settlement is known to be 'unready' (e.g. there is a high level of local contestations, conflicts, disputes or fragmentation) which renders it difficult or unviable to undertake services provision, then such settlements should be de-prioritised until these issues of 'readiness' have been resolved.

ADDITIONAL NOTES AND INFORMATION:

Key data sets required for differentiated pipeline planning

- **Informal settlement status quo:** e.g. household dots, settlement boundaries, topography, flood-lines, servitudes etc. etc.
- **Services delivered:** water, sanitation, RFP, electricity, solid waste etc. + state of repair of these services + lifespan of services, recapitalisation etc.
- **Services deficits:** though this requires norms for levels of services for different types of settlement
- **Capital costs incurred to date:** for different types of services
- **O&M costs incurred to date:** for different types of services

Key depts. w.r.t data coordination for pipeline planning:

- EWS
- Dev engineering
- Electricity
- DSW
- Fire
- Human Settlements (overall coordination and strategic direction)

Council-approved prioritisation criteria

Council approval 27 Sept 2019: “That the criteria to determine the pipeline for informal settlement upgrading (including incremental services) projects as contained in the report of the Acting Head: Human Settlements dated on 2019-08-06, be approved.”

Extract from council-approved HSI report dated 06 Aug 2019:

Pipeline prioritisation criteria: In order to establish a more effective informal settlement upgrading pipeline (including incremental services) which meet USDG, NUSP and the Municipality’s own objectives, refined prioritisation criteria are required. These are outlined below:

1. **Vulnerability**: extent of health and safety threats, using net density as one of the means to apply this criterion.
2. **Services Deficit**: the various components of Incremental Services that are absent or lacking due to inefficient ratios/thresholds of household numbers relative to service points.
3. **Population Coverage**: the larger the settlement in terms of the number of households, the greater the efficiency of delivery and return on investment.
4. **Age of Settlement**: how long have people been waiting for services.
5. **Community Readiness**: how stable the community and leadership are and their appetite to embrace the new, incremental approach. While not confined to the South African Shack Dwellers (SDI) settlements, for which the organization has entered into an MOU with the City, but serves as one example to consider.
6. **Location**: in terms of various strategic plans and policy prescripts such as the Built Environment Performance Plan (BEPP), the Integrated Urban Development Framework (IUDF), Spatial Planning and Land Use Management Act (SPLUMA), the Spatial Development Framework (SDF) and others, the need to address spatial inequality and inefficiencies is a high priority from National right down to Local Government. Taking direction from the BEPP’s Integration Zones, which is a concept to spatially deal with objectives of city-building, especially inclusiveness, efficiency, and connectivity, the Prime Investment Corridor (PIC) and the Urban Zone have been identified as areas to focus on without necessarily neglecting the needs to informal settlements in the remaining Zones.