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uKulungisa project preparation fund

Rural Access Road:
Summary Cost and Scope Norms for the Preparation of UPPF Projects

Notes: A) Indicative project sizes, capital values and preparation scopes have been utilised - in reality there will be variations and a standard project preparation template is not possible. B) Project Capital Value is inclusive of all project costs (e.g. project preparation fees, engineering design fees, construction supervision, construction costs and project management). C) Preparation management is at 15% because of a high ratio of complexity relative to the cost of project preparation / diseconomies of scale (i.e. small preparation budgets vs implementation budgets but high complexity).

Disclaimer: Whilst these toolkits have been made available by UPPF for external consumption, including use in support of the CIDB's 'Gateway' process for preparing infrastructure projects, it is emphasized that these toolkits are a work-in-progress and should not be used in a prescriptive fashion. UPPF will update these toolkits from time to time based on experience gained in preparing specific projects. Any suggestions for improvements or refinements should be emailed to UPPF / PPT for the attention of the National Co-ordinator on pptrust@worldonline.co.za

General UPPF Assumptions: 1) Contract and / or Tender Documentation for project implementation is an additional activity / service provided on request;
2) The intensity of the scope of work outlined below has generally been kept to the minimum necessary to determine: a) the viability of the project and b) a preliminary concept and rough estimate for construction / implementation. The limited budgets typically available for preparing projects have also been taken into consideration.

Specific Project Assumptions : 1) Consultants (e.g. engineers) involved in project preparation will also undertake project implementation. This assumption is informed by the small capital value of the projects in question and assocaited difficulties in attracting consultants only for the project preparation phase, as well as the fact that in most projects consultants are already appointed by the municipality.

Description: Upgrading of existing track or road in very poor condition (or re-alignment of existing road or new road) to all-weather gravel surface with basic stormwater infrastructure (open, gravel lined side drains and stormwater pipe culverts with headwalls. Source of suitable road gravel (quality and quantity) is critical and has a bearing on costs. The range in project size that should be considered (due to economy of scale) must be limited to a minimum of 10km of gravel access road (DOT Type 7A - width of surface 5,9m) plus gravel V-drains at a basic cost of R5,2 million (all inclusive) R400,000/km (roads) + R120,000/km (stormwater). The maximum value limit to this type of project is approximately 20km of Type 7A road with gravel side drains and concrete pipe culverts at a total cost of R700,000/km or total value of R14 million.
(ALSO REFER TO NOTES ON HIGHER LEVEL OF SERVICE BELOW)

Assumptions:
Minimum Project Capital Value (R): 5,200,000
Maximum Project Capital Value (R): 14,000,000

Preparation Scope:	Professional	Days (min)	Days (max)	Rate	Budget excl. VAT (min)	Budget excl. VAT (max)		Comments and Potential Cost Factors
Preliminary Assessment								
Preliminary Assessment: To confirm project basics and idenitfy any early risks to be assessed further in the next stage, to confirm municipal buyin and support and to clarify perspective of capital funder in relatioin to the project to be packaged.	Project Manager or Civil Engineer	2	3	6,800	13,600	20,400		Estimated costs still valid for current mechnised construction methods; i.e. ±10% of total value of work is labour-intensive.
Travel								
				Subtotal 1 - Prelim -Ass	**13,600**	**20,400**		
PRE-FEASIBILITY (CIDB 'Assessment') **(USUALLY PART OF FEASIBILITY)**								
Situational Analysis / Need Assessment: confirmation of demographic information (no. of households to be served), existing access, length of road required, etc. Institutional arrangements and sustainability (municipal or DOT road), socio-economic benefit analysis	Civil Engineer	1.5	2	6,800	10,200	13,600	PRE-FEASIBILITY	Optimising the socio-economic benefit is an interrative process along with the Route Assessment; exceptionally steep terrain may cause these two work packages to run over the alloted time frames.
	Social Facilitator	2	3	2,400	4,800	7,200		
Geotechnical Desktop Study & Site Walk-over: focussing on (a) the identification of obvious 'fatal flaws' and areas requiring further intensive investigation, (b) broad-based geotechnical mapping particularly addressing: (i) the possibility of local non-commercial road building material sources (e.g. borrowpits) (ii) indications of the condition, nature and quality of the in-situ subgrade (if the road already exists).	Civil Engineer	1	1	6,800	6,800	6,800		Geotechnical assessment preceding a more intensive, investigative assessment. This consists of a superficial overview towards exclusion of potential sub-optimal alternatives.
	Geologist	2	3	6,800	13,600	20,400		
Route Assessment: desktop- and, where necessary, field-assessment of natural ground levels (including gradients of slopes, approaches to water courses, etc.) of alternative routes to confirm suitability thereof and to identify ownership and any unusual risk and cost factors.	Civil Engineer	0.5	1.5	6,800	3,400	10,200		Route assessment may be hampered by accessibility (dense vegetation, steep topography, river crossing, etc.) and can significantly affect time frames to complete this work package.
	Land Surveyor	2	5	10,000	20,000	50,000		
Preliminary Environmental Assessment: to determine if a listed activity is triggered	Environmental consultant	1.5	3	4,000	6,000	12,000		This work package will necessitate a site visit with the Civil Engineer to clarify the exact activities envisaged. Accessibility can play a significant role on time frames for this work package.
	Civil Engineer	1	3	6,800	6,800	20,400		
Pre-feasibility report: Short executive report summarising main findings, commenting on project viability, and recommending whether or not feasibility should continue.	Civil Engineer	0.5	1	6,800	3,400	6,800		Route assessment may be hampered by accessibility (dense vegetation, steep topography, river crossing, etc.) and can significantly affect time frames to complete this work package.
				Subtotal 1 - Prefeasibility	**75,000**	**147,400**		

FEASIBILITY (CIDB 'Concept')							
Geotechnical investigation, sampling and testing: focusing on study of in-situ road materials, in-situ testing along the proposed route, locating and assessing local borrow pits and/or commercial quarries, laboratory testing of potential quarried material, highlighting risks w.r.t. steep gradients, hard rock areas (blasting), areas with poor foundation materials (wetlands / marshy areas), etc and reporting to engineer	Geotechnical Technician	3	7	8,400	25,200	58,800	Geotech sampling is an extension of the geotechnical investigation work package, though financially they are separate. Uniformity ,or otherwise, of materials along the proposed route can significantly affect the time and cost of these work packages.
	Geotech lab	7	21	na	20,000	60,000	
Conceptual/prelim. road design and cost estimate: focusing on traffic volumes, road widths, layerworks; earthworks volumes utilizing information from geotech study; and stormwater controls. Includes basic design of culverts, minor bridges / causeways and relating design to DoT norms / requirements where necessary. Cost estimate based on previous local project actual costs, amended to account for particular features of the proposed alignment.	Civil Engineer	3	6	6,800	20,400	40,800	This is assuming a gravel road, will depend a lot on length of road, topography, extent of river / watercourse crossings, whether or not the road is an asphalt / tar road. A max of probably 20 days
Logistical assessment & plan: logistics and plan for implementation (e.g. material suppliers, contractors, transportation, road access etc).	Civil Engineer	0.5	1.5	6,800	3,400	10,200	
EPWP / local job creation: plan for creation of local skills development and work opportunities.	Civil Engineer	0.5	0.5	6,800	3,400	3,400	The degree of labour-intensivity proposed for the construction has a significant effect on the time frames proposed. The time frames and costs allowed for here imply a conventional mechanised road construction method with semi- and unskilled labour employed only for laying of pipes, building headwalls, etc. Local job creation is also very dependent upon local availability of labour and the skill levels available. At the stage of earliest contact, the community must be engaged as to what wage rates are applicable to avoid unmet expectations, additional costs and delays at construction stage.
	Social Facilitator	2	5	2,400	4,800	12,000	
Basic Environmental Assessment: it is assumed that this will typically be required as roads will generally be wider than 4m. Possible wetlands must be identified and route alterations made where possible.	Environmental consultant	7	15	4,000	28,000	60,000	Work such as a low-level crossing in a water course would trigger a listed activity for which a full EIA would be required. Time frames would be radically increased in this case. Routes should therefore be chosen to avoid this wherever possible.
EIA: including management of EIA process, drafting & submission of scoping report, appointment and management of any specialist consultants for specialist reports, public participation process, Record of Decision (RoD), etc.	Environmental consultant	15	25	4,000	60,000	100,000	
EIA specialist report 1	Specialist 1	0	8	6,800	-	54,400	
EIA specialist report 2	Specialist 2	0	8	6,800	-	54,400	
Implementation Estimates & Programme: Estimates for capital costs; operation and maintenance costs (10 to 15 year life span), financial viability and socio economic analysis + detailed programme (timetable) for implementation.	Civil Engineer	1.5	2.5	6,800	10,200	17,000	
				Subtotal 2 - Prefeasibility	**175,400**	**471,000**	
Final report & MIG/MIS Application Form:							
Feasibility Study Report with Executive Summary of all preceding reports/information, and business plan for council approval, MIG1 Project Registration Form for submission via MIG Information System (MIS)	Civil Engineer	3	5	6,800	20,400	34,000	
Community participation and consultation ongoing throughout the above process	Social Facilitator	5	10	2,400	12,000	24,000	More than one distinct community may be affected by a proposed road. The number of communities involved can play a significant role on the time spent in community participation. Cognisance must be taken of potential 'bones of contention' between communities to avoid delays during the construction phase.
				Subtotal 3 - Feasibility	**32,400**	**58,000**	

FEASIBILITY

Combined Subtotal 4 (all stages)	**296,400**	**696,800**
Travel & minor disbursements at 7.5%	22,230	52,260
Project Preparation Management at 15%	44,460	104,520
Subtotal 5	**363,090**	**853,580**
Contingencies at 5%	18,155	42,675
Total preparation budget	**381,245**	**896,259**
Total Preparation costs as a percent of total project cost (including capital)	7.3%	6.4%

NOTE: HIGHER LEVEL OF SERVICE

The above Toolkit Summary has been drawn up on the assumption that a basic level of service as outlined under 'Description' is being considered. However, where a higher level of service is contemplated, such as a 'black top' road, the following implications must be borne in mind:

(1) The Need Assessment would need to confirm that level of service proposed is appropriate and in-keeping with the findings of the financial viability and socio-economic analyses (normally carried out under the Implementation Estimates & Programme work package). This is likely to increase the duration of Work Package 1 considerably, depending on the level of service considered.

(2) A higher level of service would require a greater degree of certainty of the availability of suitable road building material. This is likely to demand additional geotechnical laboratory work, depending on the level of service considered. This could affect both the cost and duration of this work package.

(3) Conceptual/Preliminary Road Design is, likewise, affected by a higher level of service in that a greater degree of design is required for higher service levels. Time frame adjustments should be estimated to the Client as early as possible.