Annexure 13: Lighting Cost Calculations

Following an exercise of counting light masts on the freeway using Google Earth, and requesting input from knowledgeable people in the industry, the following was determined regarding costing of lighting.

COST CALCULATION – R21 HIGHWAY

1 MASTS

No. of streetlight luminaires per mast	2
Installation cost per mast (complete)	R 50 000
Spacing	34m
No. of masts per Km	29
Mounting height of luminaires	20m

2 STREETLIGHTS

Luminaire type	HPS
Wattage per luminaire	600W
Luminaire price	R 5 000
Starting Current per luminaire	2,8A
Total starting current per mast	5,6A

3 CABLING

Cable size 16mm² x 4C cable	
BCEW 6mm²	
Cable price per metre	R 70.00
BCEW price per metre	R 6.00

4 VOLT DROP CALCUALTION

Allowable volt drop per luminaire	6% of 230V = 13V
Max. no. of masts per stretch	12
Length of cable(as per volt drop calculation)	374m
Length of BCEW	374m

5 COST CALCULATION PER Km

Masts	29	R1 450 000.00
Streetlights	58	R 290 000.00
16mm² Cable(supply)	374m	R 26 180.00
6mm² BCEW	374m	R 2 244.00
Cabling(install)	374m	R 29 920.00
Small material	sum	R 50 000.00
TOTAL		**R 1 848 344.00**
+ 15%		**R 2 125 596.00**

The 15% added is for possible profits added on material and labour by the various contractors.

NOTES

1. The cable size is chosen because it is easier to work with than bigger sized cables.
2. The Cost Calculation cannot be guaranteed as 100% correct. There are many unknown factors.
3. The Small Material is for various equipment used, e.g. cable joints, cable terminations, trenching if required, photo cells, etc.
4. Only 29 masts cab be fed with the 374m of cable. A new cable will be required for the next 29 masts.
5. The total number of masts per supply point are:
   200kVA 173 masts spread over three phases
   100kVA 86 masts spread over three phases
   A 100kVA supply will be easier to use due to shorter cable runs.