Appendix - A - SELECTED INVESTMENT PLAN

A.1 INTRODUCTION

The Investment Plan for Samtse is prepared as a part of the Samtse Structure Plan, with the prime objective of the long-term wellbeing of the people of Samtse and their environment, through an innovative approach and the provision of cost-effective services.

To ensure sustainable communities and bring about lasting improvements to quality of life of individuals, families and neighborhoods, we need integrated policies, investment and action across a range of economic, social, physical and environmental issues.

This coordinated approach aims to deliver

- Access to economic opportunities (e.g. through new businesses and improved transport) along with the skills and support (e.g. training, child care and other support services) to take advantage of these opportunities;
- Improvements to the local environment, open spaces and facilities;
- Good quality and responsive public services (e.g. education, health and neighborhood services such as street cleaning, roads and lighting, and safety);
- Safer communities; and,
- Genuine community engagement in shaping the place they live.

This leads to an approach of making a balanced infrastructure investment program.

The Program will

- Invest in environmental, transportation and social infrastructure; and ,
- Maximize economic efficiency through innovative investment mechanisms like revolving and securitization funds and grants (where necessary).

The main goal is to achieve improved quality of life, increased environmental and health protection, reduced levels of homelessness and improved community well-being.

The main sectors of investment would be:

1. Environmental Infrastructure:

a. Solid-waste management systems, including programs for reducing, reusing and recycling, waste diversion such as composting, upgrades of existing landfill sites;
b. Water and wastewater systems, including water and wastewater treatment plants, distribution and collection systems (covering potable water, sanitary and other effluents and storm waters), and water conservation; and,
c. Protection of ecologically sensitive lands and natural heritage.

2. Transportation Infrastructure:

a. Repair and upgrade of roads and bridges;
b. Construct new roads as proposed in the transportation plan; and,
c. Mass public transport system.

3. Social Infrastructure:

a. New affordable housing;
b. Improved health services;
c. Recreational facilities for children and youth; and,
d. Revitalization, including housing intensification; and heritage preservation.

The investment will benefit in the form of

- Improved productivity and competitiveness;
- Local job creation and training;
- Community economic development;
- Increased community safety; and,
- Reduced levels of homelessness and the related costs of emergency shelters, health and social services.

A.2 EXECUTIVE SUMMARY

The preparation of the Samtse Structure Plan is the primary task of the Department of Urban Development and Engineering Services (DUDES) under the Ministry of Works and Human Settlement (MoW&HS), Royal Government of Bhutan (RGoB). This Investment Plan Report presents and discusses projects which are proposed as a part of the Samtse Structure Plan.

Proposals for action have been proposed along with the projects on-going and future planned [as mentioned in Samtse Structure Plan – 3.9]. Looking at the demographic studies it reveals that population will reach a figure of 13,600 by the year 2025 [Reference: Chapter -4, Demographic Studies and Planning Standards, Samtse Structure Plan].

The Investment Plan proposal can act as a reference to plan carefully, to take care of the infrastructure needs of this growing population. This Plan deals in detail with infrastructure projects. It aims to help various departments to work together more efficiently and to execute the projects in a coordinated way and to provide greater transparency for the community on the infrastructure strategies and projects. Along with this process the implementing authority should also stress on the issues of maintenance and of implication for the provision of new infrastructure; on the possibilities for multi-year budgeting for infrastructure projects, and on new technologies and their implications for infrastructure.

While proposing the proposals for action three major criteria are used to assess the merits of an infrastructure project.

They should:
- Meet a clear social need;
- Be consistent with existing government policies and requirements; and
- Produce more benefits than costs.

The community's need for an infrastructure project may emerge from a number of factors. The report takes in to consideration population factor: population growth, population movements and the characteristics of new population distribution. The community's need for infrastructure may also stem from the demands of economic change over and above that required simply to sustain a growing population.

The Samtse Structure Plan is prepared considering four key policy points within which strategies, plans, initiatives and individual infrastructure projects would fit.

These are:
- Integrating **environment protection** into all activities;
- Encouraging **economic development** and **employment growth;**
- Achieving greater **social justice** for all members of the community and creating livable towns; and,
- Delivering more **financially responsible** programs that reduce public debt and unfunded liabilities.

Some of the most important initiatives aimed at helping, meet these commitments are:
- Reducing pollution from storm water and sewage;
- Integrating land use and transport planning;
- Investing in information technology infrastructure;
- Improving access to affordable housing; and
- Enhancing recreational and cultural infrastructure.

The Investment Plan specifies the proposed projects and recommendations that will deliver these initiatives.

As per the analysis of the proposed projects mentioned in the 'Proposals for Action', the Investment for the Samtse Town (within the proposed extended municipal boundary limits) will be about Nu. 603.323 Million (or, USD 13.433 Million) up to the year 2025, for the projects various SECTORS.

A.3 PROPOSED PROJECTS : COST ESTIMATED (SECTOR WISE)

Samtse Structure Plan proposes various projects under the following SECTOR heads. The cost estimates are carried out for the same projects.

A.3.1 Utilities and Infrastructure

- Water Supply Scheme and Network System
- Sewerage Management and Network System
- Storm Water Management and Watershed Development
- Soil Waste Management System
- Electrical Distribution System
- Street Lighting System
- Telecommunication System
- Local Area Plan Implementation
- Transportation System

A.3.1.1 Water Supply System

The main objective of the proposed Water Supply System is to
- To ensure an efficient and regular supply of potable treated water for the entire area under the present and proposed extended municipal boundary.
- To ensure adequate tapping of the available water sources and after treatment, to utilize them as a part of the town water supply network.
- To enable a decentralized network of sources and supply networks to reduce and distribute the anticipated load on the central network, in the future, on to other subsidiary ones.
- To establish a cost efficient network, which would maximize the use of the gravity flow mechanism, thus efficiently utilizing the local terrain characteristics, reducing the need for expensive pumping facilities to the bare minimum.

Considering this framework, the following system of supply is proposed:

Flow Diagram of the proposed water supply network system

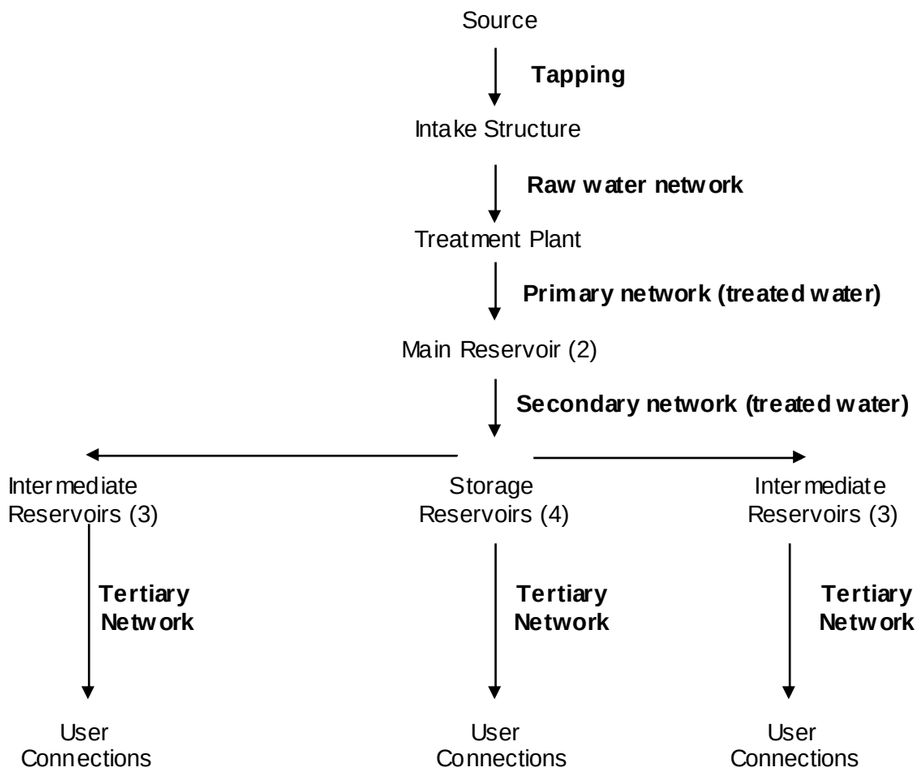

Table A.1 : Summary of Cost Estimates of the Proposed Projects for Water Supply System and its network

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Water Supply Scheme and Network System	**225.77**	**4.753**	85.007	53.812	49.941	37.011

Note: For detailed calculation please refer to Table A.10 at the end of this Appendix

The costing for the Water Supply System is arrived at considering the proposed system of flow from source to the intermediate reservoirs and then to the distribution expected within the proposed municipal limits. **Pricing** of the water supply consumption should be as per the metered consumption for each unit and would vary according to the precinct it is located in. A detailed **pricing mechanism** could be evolved for different grades of development and income groups as per the density of the development. Looking at the proposed systems, there would be a phase-wise expansion of the current manpower capacities engaged in the management and maintenance of the urban water supply network, to cover and manage the other recommended treatment plants and other facilities in the outlying areas.

Conclusion

The estimated cost for the entire water supply network system for Samtse (with the extended municipal limits) is **Nu. 225.77 million**. This is a huge expenditure, but it is a necessity looking at the overall progress of the town. The entire scheme of implementation of the water supply system should be worked-out taking into consideration the amount to be invested and amount to be recovered from the consumers. At the same time the manpower and maintenance tasks have to be considered, as the system would have different control points. The implementing authority must establish this mechanism.

A.3.1.2 Sewerage Management System

The main objective of the proposed Sewerage Management System is to

- To ensure an efficient sewerage and waste water disposal system with respect to maintaining high standards of health and hygiene in Samtse.
- To lay the network of the sewerage network mainly along the natural drains and off the road networks. This will have a major advantage of not blocking the vehicular traffic during sewer repairing operations, which is a chronic problem on several main roads today.
- To enable a decentralized the sewer network and to reduce and distribute the anticipated load on the central network.
- To establish a cost efficient network, by installing sewage treatment plant.

For the purpose of facilitating an efficient sewerage System, the network lines which come from the territories to come at a point where pathways are proposed and then the lines follow the pathway running along the rivulets to the treatment plants. This pathway alignment will enable to locate the lines for maintenance and would also provide an access to the manholes.

Table A.2 : Summary Of Cost Estimates of the Proposed Project for Sewerage Management System

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Sewerage Management and Network System	**83.355**	**1.916**	30.301	15.988	23.825	13.241

Note: For detailed calculation please refer to Table A.11 at the end of this Appendix

The costing for the Sewerage Management System is arrived at considering the various projects mentioned and the mechanism proposed for the same.

Conclusion

The estimated cost for the entire sewerage network system for Samtse (with the extended Town limits) is **Nu. 83.355 million**. It is a large expenditure over the years but it is a necessity looking the overall progress of the town. The entire scheme of implementation of the sewerage network system should be worked-out taking into consideration the amount to be invested, and the amount to be recovered from the consumers. At the same time enough manpower and maintenance tasks have to be considered as the system would have different control points. An appropriate mechanism for implementation must be established by the implementing authority.

A.3.1.3 Storm Water Drainage System

The main objective of the proposed Storm Water Drainage System is to:

- To ensure an efficient storm water disposal system with respect to maintaining high standards of health and hygiene in Samtse.
- To lay the network of the stormwater drainage mainly along the off the road networks.
- To establish a cost efficient network, by constructing storm water drainage channels wherever possible with loads according to areas of collection, thereby reducing on the exposed networks and the possibility of causing serious hygienic problems.

Table A.3 : Summary of Costs Estimates of the Proposed Project for Storm Water Drainage System

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Storm Water, River Training and Flood Protection	**62.966**	**1.447**	22.996	16.483	11.256	12.231

Note: For detailed calculation please refer to Table A.12 at the end of this Appendix

The costing for the Storm Water Drainage System is arrived considering the various projects mentioned in the Utilities and Infrastructure report.

Conclusion

The estimated amount for the entire storm water drainage system for Samtse (with the extended municipal limits) is **Nu. 62.966 million**. It is a large expenditure over the years but it is a necessity looking to the overall progress of the town.

A.3.1.4 Solid Waste Collection and Disposal Systems

The proposed Solid Waste Collection and Disposal System aim at

- Managing the Solid waste at source level by segregating the wastes into recyclable and reusable wastes, organic wastes and other rubbish.

The main objective of the proposed Solid Waste Collection and Disposal System is to

- To manage and minimize the volume of solid waste carried to the landfill site.
- To alter the methodology of solid waste collection and disposal system.
- To manage the solid waste at the source level.
- To extend the services of the solid waste collection network to all the proposed precincts.
- To decentralized the solid waste management system to other institutions and organizations. Large institutions should have their own facilities.
- To promote awareness among the public in managing the solid wastes.

Table A.4 : Summary Of Cost Estimates of the Proposed Solid Waste Collection And Disposal System

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Solid Waste Management System	**30.768**	**0.707**	7.975	7.550	7.621	7.621

Note: For detailed calculation please refer to Table A.13 at the end of this Appendix

Conclusion

The estimated amount for the entire solid waste management system for Samtse (with the extended municipal limits) is **Nu. 30.768 million**. It is a large expenditure over the years but it is a necessity looking to the overall progress of the town. All the projects mentioned aims to minimize and manage the volume of the solid waste collected at the landfill site. Introduction of strict monitoring system, introduction of public participation and privatization of the solid waste management, will minimize the responsibilities and ease the management process for the Samtse Municipal Corporation. These systems will also induce awareness among the public.

A.3.1.5 Electrical [Power] Distribution System

The main objective of the proposed Electrical Power Distribution System is to:

- To provide sufficient electricity requirements to maximum consumption areas.
- To establish a proper mechanism by establishing maintenance centers at key locations.
- To convert the overhead lines network to underground network wherever necessary.

Table A.5 : Summary of Cost Estimates of the Proposed Electrical [Power] Distribution System

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Electrical Distribution System	**72.622**	**1.669**	42.617	9.773	15.339	4.894

Note: For detailed calculation please refer to Table A.14 at the end of this Appendix

Pricing of the electrical distribution system should be worked-out as per the number of connections [by strict monitoring] and the investment to be done for the systems.

Conclusion

The estimated amount for the entire electrical distribution system for Samtse (with the extended Town limits) is **Nu. 72.622 million**. It is a large expenditure over the years, but it is a necessity looking at the overall progress of the town. The entire scheme of implementation of the electrical distribution system should be worked-out taking into consideration the amount to be invested and amount to be recovered from the consumers. Separate facilities to be established by the implementing authority.

A.3.1.6 Street Lighting

The main objective of the proposed Street Lighting System is to:

- To add a character to the streets of different types by providing various types of illumination characteristics.
- To add greater visibility to the vehicular traffic thus reducing the number of accidents.

Table A.6 : Summary of Cost Estimates of the Proposed Project for Street Lighting System

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Street Lighting	**17.004**	**0.391**	4.483	5.943	3.020	3.558

Note: For detailed calculation please refer to Table A.15 at the end of this Appendix

The costing for the Street Lighting System is arrived considering the various transportation projects proposed.

Conclusions

The estimated amount for the entire street lighting system for the Samtse Town (with the extended Town limits) is **Nu. 17.004 million**. It is a large expenditure over the years but it is a necessity looking the overall traffic condition of the town. The entire scheme of

implementation of the street lighting system should be worked-out taking into consideration the immediate requirements.

A.3.1.7 Telecommunication System

The main objective of the proposed Telecommunication System is to:

- To upgrade the network system in areas of high demand.
- To increase the capacity of the existing and newly built stations in a phased manner considering the population and the number of connections.

Table A.7 : Summary of Cost Estimates of the Proposed Telecommunication System

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Telecommunication system	**18.658**	**0.429**	6.509	3.922	5.793	2.434

Note: For detailed calculation please refer to Table A.16 at the end of this Appendix

The costing for the Telecommunication System is arrived considering the various proposed tasks. Accordingly, the entire planning network would have to be done from each of the proposed Urban Village roads after executing a detailed survey.

Conclusion

The estimated amount for the entire telecommunication system for Samtse (with the extended Town limits) is **Nu. 18.658 million**. It is a large expenditure over the years but it is a necessity looking the overall demand of the town and its extended limits. The entire scheme of implementation of the telecommunication system should be worked-out taking into consideration a detailed survey of the immediate requirements and also the future demand.

A.3.1.8 Transportation System

The main objective of the proposed transportation system is to:

- To strengthen the inter-town linkages.
- To reduce the emission levels in the town by promoting the Public Transit System and by discouraging the use of private vehicles.
- To encourage a pedestrian oriented transportation system by enhancing safety and convenience
- To complement the proposed land use pattern with appropriate transportation and pedestrian linkages.
- To create opportunities for the citizens of Samtse to meet new people and make new friends, which they meet sitting next to them in public transport.

Table A.8 : Summary of Cost Estimates of the Proposed Project for Transportation System

Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005-2010 (in million)	Phase Two 2011-2015 (in million)	Phase Three 2016-2020 (in million)	Phase Four 2021-2025 (in million)
Transportation System	**91.002**	**2.092**	30.986	37.422	11.198	11.396

Note: For detailed calculation please refer to Table A.18 at the end of this Appendix

The costing for the Transportation System is arrived taking into consideration the town's present situation. A detailed survey has to be executed on the proposed roads and further make a study on its implication on the surrounding areas of the roads.

Conclusion

The estimated amount for the entire transportation system for the Samtse Town (with the extended Town limits) is **Nu. 91.002 million**. It is a large expenditure over the years but it is a necessity looking the overall traffic movements of the Town, its extended limits and the safety of the public. The entire scheme of implementation of the transportation system should be worked-out taking into consideration a detailed survey of the immediate requirements and also of the future demand

A.4 PROJECT IMPLEMENTATION AND PROJECT MANAGEMENT

A.4.1 Implementation

The Structure Plan is implemented through a variety of means including Local Area Plans prepared for various zones. The implementation may be done through the following methods

- Urban Strategy and Action Programme
- Economic Strategies
- Guidelines for Developer's Contributions
- City Conservation/ Forest Protection Strategy

- Recreation Strategies
- Tourism Strategies
- Urban Fringe Countryside Management Plan
- Local Transport Plans

Supplementary planning guidance does have to be prepared in order to assist in implementing the strategy. The particular supplementary planning guidance should contain broad guidelines about the requirements for developer contributions towards the services and facilities needed to support new development.

It is proposed that implementation of the Samtse Structure Plan, Samtse Municipal Corporation would be the Implementing Authority. Observing at the present structure of the Samtse Municipal Corporation, there is an immediate requirement to strengthen or rather recruit technical professionals in the engineering and management fields.

Also, the Samtse Municipal Corporation along with the Department of Urban Development and Engineering Services (DUDES) should explore the commissioning of the external or international consultants for design and project management of the jobs. Corporation representatives can be a part of the team so as to get trained and also as a means of direct exposure to the work.

The records from the Construction Development Board confirm that contractors under various categories are capable for executing projects of different scales, thus strengthening the capacities of the building construction contracting industry.

A provision in the projects implementation process is that the work should not be necessarily awarded to the lowest cost bidder. Should be ensured this provision will take care of the quality of the job. But, again this may not suffice, and, a very strict monitoring by a team of technical professionals has to be lined-up for close supervision and monitoring.

With the execution of the projects there has to be a back-up of a very strong maintenance team. This team will ensure regular monitoring and maintenance of the jobs being executed to keep them intact and functioning.

A.4.2 Resources

The Implementing Authorities have a good idea of the resources that are likely to be available to implement the Structure Plan's proposals. This includes taking account of the city's economic policies, the financial policies of implementing agencies and the likely availability for the use of land, labour and other material resources. As the Structure Plan sets out policies and proposals for land use in broad terms and over the long term, such an assessment can only be made in general terms and will inevitably be subject to some uncertainty.

The Structure Plan provides the strategic precinct planning framework for the decision making by a wide range of public and private sector bodies and agencies whose contribution will be necessary to implement the Plan. In preparing the Plan consultation took place with concerned bodies regarding amongst other matters the use of resources. The Implementing Authority will need to work with these other bodies and agencies to secure the necessary resources to implement the Plan. Making effective use of resources will necessitate genuine partnership working both between the Implementing Authority and various bodies and organizations operating at the strategic and more local levels and with local communities.

Public investment includes funds made available from Local Authorities and those secured from the Government via bidding arrangements as for the Local Transport Plans and from other organizations. The restrictions on public expenditure means that much will depend on securing private finance to implement the development requirements proposed in the Plan. The above mentioned guidelines dealing with requirements for developer's contributions towards the services and facilities required to support new development will be particularly relevant in this respect.

A.4.3 Monitoring

Monitoring plays an important part in the Structure Plan implementation process. In order to assess the effectiveness and progress of the Plan, policies should be regularly monitored by the Implementing Authority.

There are two main elements of the monitoring process:

- Scrutiny of emerging Local Area Plans in terms of their conformity with Structure Plan policies.
- Identification of appropriate indicators and the continuous monitoring of social, economic and environmental data to assess the effectiveness of the Structure Plan.

The second element will be undertaken by the use of a selected number of key indicators and targets that will measure specific policies or groups of policies. It will provide a consistent basis to judge whether the Plan is achieving its objectives, and to identify where policies need to be strengthened, maintained, changed or removed as part of future reviews.

The following factors have been taken into account in identifying the key indicators

- The ability of the Structure Plan to influence the indicator;
- The overall objectives of the Plan set out in Strategy Policy;
- The policies themselves;

- The availability of source data; and,
- Their compatibility with other national, regional and local indicators.

The indicators will monitor progress towards meeting the targets set by the Plan. The measurement of such indicators will provide an initial indication of the effectiveness of the policies. However, further analysis will be required to be undertaken to give a more informed consideration. The analysis of indicators and implementation of the policies through Local Area Plans will provide an opportunity to identify areas requiring further investigation and, where appropriate, the need for new policy responses in a future review of the Structure Plan.

Table A.9 : Executive Summary of the Investment Plan Proposals

Cost Estimate Summary : Sector Wise (with phasing)

Sr. No.	Sector	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Water Supply and NetworkSystem**	**225.771**	**4.753**	85.007	53.812	49.941	37.011
2.0	**Sewerage Management and Network System**	**83.355**	**1.916**	30.301	15.988	23.825	13.241
3.0	**Storm Water, Drainage**	**62.966**	**1.447**	22.996	16.483	11.256	12.231
4.0	**Solid Waste Management System**	**30.768**	**0.707**	7.975	7.550	7.621	7.621
5.0	**Electrical Distribution System**	**72.622**	**1.669**	42.617	9.773	15.339	4.894
6.0	**Street Lighting System**	**17.004**	**0.391**	4.483	5.943	3.020	3.558
7.0	**Telecommunication System**	**18.658**	**0.429**	6.509	3.922	5.793	2.434
8.0	**Local Area Plan Implementation**	**1.177**	**0.027**	0.332	0.406	0.239	0.200
9.0	**Transportation System**	**91.002**	**2.092**	30.986	37.422	11.198	11.396
Total		**603.323**	**13.433**	**231.207**	**151.299**	**128.230**	**92.587**

Note

[a] The cost estimates have been derived from : Project mention in 'Proposals for Action' in the Samtse Structure Plan, and the quantification of items of works have been calculated from the proposed layouts etc.

[b] The cost estimated mentioned above are excluding 'inflation' component. During the process of finalizing and approval of a particular proposal necessary inflation index rate to be implied and then the final cost to be arrived at.

[c] 1 US Dollar = Nu. 43.50

Table A.10 : Cost Estimate for the Proposed Water Supply Scheme and Network System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Source**										
1.1	Intake Structure and Sand Trap	2	Nos.	415,750	831,500	0.832	0.019	0.416	0.416		
1.2	Monitoring and Maintenance Facility	2	LS	285,000	570,000	0.570	0.013	0.285	0.285		
	Total [1.0]				**1,401,500**	**1.402**	**0.032**	**0.701**	**0.701**	**0.000**	**0.000**
2.0	**Main Plant**										
2.1	New Treatment Plant - 1	1	Nos.	4,800,000	4,800,000	4.800	0.110	4.800			
2.2	New Treatment Plant - 2	1	Nos.	6,500,000	6,500,000	6.500	0.149			6.500	
2.3	Up-gradation of existing facility	1	Nos.	2,500,000	2,500,000	2.500	0.057		2.500		
	Total [2.0]				**13,800,000**	**13.800**	**0.317**	**4.800**	**2.500**	**6.500**	**0.000**
3.0	**Reservoirs**										
3.1	Main	2	Nos.	6,500,000	13,000,000	13.000	0.299	6.500		6.500	
3.2	Storage	4	Nos.	3,115,000	12,460,000	12.460	0.286	3.115	3.115	3.115	3.115
3.3	Distribution	6	Nos.	2,025,000	12,150,000	12.150	0.279	4.050		4.050	4.050
	Total [3.0]				**37,610,000**	**37.610**	**0.865**	**13.665**	**3.115**	**13.665**	**7.165**
4.0	**Distribution Network Pipelines**										
4.1	Raw water line from Source to treatment plant	4,950	Rmt.	3,115	15,419,250	15.419	0.354	9.252	6.168		
4.2	Treatment Plant to Main Reservoir	1,750	Rmt.	4,005	7,008,750	7.009	0.161	4.556		2.453	
4.3	Main Reservoir to Storage Reservoir	3,760	Rmt.	4,690	17,634,400	17.634	0.405	8.817		8.817	
4.4	Storage Reservoir to Distribution Reservoir	4,515	Rmt.	4,005	18,082,575	18.083	0.416	4.521	4.521		9.041
4.5	Up-gradation of existing pipelines	4,680	Rmt.	3,650	17,082,000	17.082	0.393	8.541	8.541		
4.6	Fire Hydrant System (pressurized)	3,780	Rmt.	4,750	17,955,000	17.955	0.413	6.284	7.182	1.796	2.693
4.7	Distribution Network Pipelines	5,775	Rmt.	3,660	21,136,500	21.137	0.486	7.398	8.455	2.114	3.170
	Total [4.0]				**114,318,475**	**114.318**	**2.628**	**49.368**	**34.866**	**15.179**	**14.905**
5.0	**Total [1.0+2.0+3.0+4.0]**				**167,129,975**	**167.130**	**3.842**	**68.534**	**41.182**	**35.344**	**22.070**
6.0	**Miscellaneous**										
6.1	Water Meter installation	4,000	Nos.	4,750	19,000,000	19.000		4.750	2.850	5.700	5.700
6.2	Maintenance Facility	2	LS	450,000	900,000	0.900	0.021	0.450		0.450	
6.3	Material Stock - Pipes	1	LS	17,147,771	17,147,771	17.148	0.394	4.287	2.572	5.144	5.144
6.4	Material Stock - Valves etc.	1	LS	5,715,924	5,715,924	5.716	0.131	1.429	0.857	1.715	1.715
	Total [6.0]				**42,763,695**	**42.764**	**0.546**	**10.916**	**6.280**	**13.009**	**12.559**

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
7.0	**Other related cost**										
7.1	System Design Cost [4.5 %] of (5.0)		%		7,520,849	7.521	0.173	2.632	3.008	0.752	1.128
7.2	Supervision and Administrative Cost [5 %] of (5.0)		%		8,356,499	8.356	0.192	2.925	3.343	0.836	1.253
	Total [7.0]				**15,877,348**	**15.877**	**0.365**	**5.557**	**6.351**	**1.588**	**2.382**
Total [5.0 + 6.0 + 7.0]					**225,771,018**	**225.771**	**4.753**	**85.007**	**53.812**	**49.941**	**37.011**

Notes

[a] The item rate cost mentioned are inclusive of cost of material and labour including concrete channel and safety covers.

[b] The system proposed of treatment plants, reservoirs and water supply network is tentative based on the structure plan proposals and should be systemized by executing a proper survey for the source, for positioning of the reservoirs and further distribution network of pipelines with respect to it's diameter, type of type and it's laying.

[c] After the detailed survey the entire system should be designed by a Expert in Water Supply System.

[d] The System Design Cost are notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.

[e] In [6.0] Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

Table A.11 : Cost Estimate for the Proposed Sewerage Scheme and Network System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Collection**										
1.1	Group collection structure	20	Nos.	825,000	16,500,000	16.500	0.379	4.125	4.125	4.125	4.125
	Total [1.0]				**16,500,000**	**16.500**	**0.379**	**4.125**	**4.125**	**4.125**	**4.125**
2.0	**Treatment Plant**										
2.1	New Treatment Plant - 1	1	Nos.	6,500,000	6,500,000	6.500	0.149	6.500			
2.2	Future Treatment Plant - 2	1	Nos.	8,500,000	8,500,000	8.500	0.195			8.500	
	Total [2.0]				**15,000,000**	**15.000**	**0.345**	**6.500**	**0.000**	**8.500**	**0.000**
3.0	**Sewerage Network Pipelines**										
3.1	Laying of new sewerage pipeline	7,190	Rmt.	3,320	23,870,800	23.871	0.549	10.742	4.774	4.774	3.581
	Total [3.0]				**23,870,800**	**23.871**	**0.549**	**10.742**	**4.774**	**4.774**	**3.581**
4.0	**Total [1.0+2.0+3.0]**				**55,370,800**	**55.371**	**1.273**	**21.367**	**8.899**	**17.399**	**7.706**
5.0	**Miscellaneous**										
5.1	Mechanized Pressure Cleaners	8	Nos.	2,015,000	16,120,000	16.120	0.371	4.030	4.030	4.030	4.030
5.2	Maintenance Facility	2	LS	915,000	1,830,000	1.830	0.042	0.915		0.915	
5.3	Material Stock - Pipes	1	LS	3,580,620	3,580,620	3.581	0.082	1.611	0.716	0.716	0.537
5.4	Material Stock - Ancillary etc.	1	LS	1,193,540	1,193,540	1.194	0.027	0.537	0.239	0.239	0.179
	Total [5.0]				**22,724,160**	**22.724**	**0.522**	**7.093**	**4.985**	**5.900**	**4.746**
6.0	**Other related cost**										
6.1	System Design Cost [4.5 %] of (4.0)		%		2,491,686	2.492	0.057	0.872	0.997	0.249	0.374
6.2	Supervision and Administrative Cost [5 %] of (4.0)		%		2,768,540	2.769	0.064	0.969	1.107	0.277	0.415
	Total [6.0]				**5,260,226**	**5.260**	**0.121**	**1.841**	**2.104**	**0.526**	**0.789**
Total [4.0 + 5.0 + 6.0]					**83,355,186**	**83.355**	**1.916**	**30.301**	**15.988**	**23.825**	**13.241**

Notes

[a] The item rate cost mentioned are inclusive of cost of material and labour.

[b] The system proposed of treatment plants and sewerage pipeline network is tentative based on the structure plan proposals and should be systemized by executing a proper survey with respect to group collection points, network of sewerage pipelines with respect to it's diameter, type of type and it's laying.

[c] Item Rate for item no. (3.1) includes pipleline cost, manholes and inspection chambers.

[d] After the detailed survey the entire system should be designed by a Expert in Sewerage System.
[e] The System Design Cost are notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.
[f] In [5.0] Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

Table A.12 : Cost Estimate for the Storm Water Drainage System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Collection Structures**										
1.1	Collection Structures	10	Nos.	780,000	7,800,000	7.800	0.179	1.950	1.950	1.950	1.950
	Total [1.0]				**7,800,000**	**7.800**	**0.179**	**1.950**	**1.950**	**1.950**	**1.950**
2.0	**Support Systems**										
2.1	River Training	1	LS	4,500,000	4,500,000	4.500	0.103	2.250	2.250		
2.2	Flood Protection	1	LS	6,500,000	6,500,000	6.500	0.149	3.250	3.250		
	Total [2.0]				**11,000,000**	**11.000**	**0.253**	**5.500**	**5.500**	**0.000**	**0.000**
3.0	**Storm Water Drain Network**										
3.1	Open Storm Water Drains	8,670	Rmt.	1,990	17,253,300	17.253	0.397	4.313	4.313	4.313	4.313
3.2	Storm Water Drain Channels	3,750	Rmt.	5,245	19,668,750	19.669	0.452	8.851	2.950	3.934	3.934
	Total [3.0]				**36,922,050**	**36.922**	**0.849**	**13.164**	**7.264**	**8.247**	**8.247**
4.0	**Total [1.0+2.0+3.0]**				**55,722,050**	**55.722**	**1.281**	**20.614**	**14.714**	**10.197**	**10.197**
5.0	**Miscellaneous**										
5.1	Mechanized Pressure Cleaners	2	Nos.	975,000	1,950,000	1.950	0.045		0.975		0.975
	Total [5.0]				**1,950,000**	**1.950**	**0.045**	**0.000**	**0.975**	**0.000**	**0.975**
6.0	**Other related cost**										
6.1	System Design Cost [4.5 %] of (4.0)		%		2,507,492	2.507	0.058	1.128	0.376	0.501	0.501
6.2	Supervision and Administrative Cost [5 %] of (4.0)		%		2,786,103	2.786	0.064	1.254	0.418	0.557	0.557
	Total [6.0]				**5,293,595**	**5.294**	**0.122**	**2.382**	**0.794**	**1.059**	**1.059**
Total [4.0 + 5.0 + 6.0]					**62,965,645**	**62.966**	**1.447**	**22.996**	**16.483**	**11.256**	**12.231**

Notes

[a] The item rate cost mentioned are inclusive of cost of material and labour.
[b] The Support System (2.0) are proposed and needs a very critical approach on the design of the system. An expert should be employed to explore the Support System proposed.
[c] Item Rate for item no. (3.0) includes cost of excavation, concrete trenches and covers.
[c] After the detailed survey the entire storm water system should be designed by a Expert to work as a back-up system during emegencies.
[d] The System Design Cost are notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.

Table A.13 : Cost Estimate for the Proposed Solid Waste Management System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Collection Structures**										
1.1	Land Fill Site	1	LS	4,500,000	4,500,000	4.500	0.103	1.125	1.125	1.125	1.125
1.2	Large Pick-up Bins	30	Nos.	375,000	11,250,000	11.250	0.259	2.813	2.813	2.813	2.813
1.3	Refuse Collector	4	Nos.	3,150,000	12,600,000	12.600	0.290	3.150	3.150	3.150	3.150
	Total [1.0]				**28,350,000**	**28.350**	**0.652**	**7.088**	**7.088**	**7.088**	**7.088**
2.0	**Total [1.0]**				**28,350,000**	**28.350**	**0.652**	**7.088**	**7.088**	**7.088**	**7.088**
3.0	**Miscellaneous**										
3.1	Maintenance of Refuse Collectors		LS	1,000,000	1,000,000	1.000	0.023	0.250	0.250	0.250	0.250
	Total [3.0]				**1,000,000**	**1.000**	**0.023**	**0.250**	**0.250**	**0.250**	**0.250**
4.0	**Other related cost**										
4.1	Supervision and Administrative Cost [5 %] of (2.0)		%		1,417,500	1.418	0.033	0.638	0.213	0.284	0.284
	Total [4.0]				**1,417,500**	**1.418**	**0.033**	**0.638**	**0.213**	**0.284**	**0.284**
Total [2.0 + 3.0 + 4.0]					**30,767,500**	**30.768**	**0.707**	**7.975**	**7.550**	**7.621**	**7.621**

Table A.14 : Cost Estimate for Electrical Distribution System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Transformers**										
1.1	Transformer	4	Nos.	2,628,000	10,512,000	10.512	0.242	2.628	2.628	2.628	2.628
	Total [1.0]				**10,512,000**	**10.512**	**0.242**	**2.628**	**2.628**	**2.628**	**2.628**
2.0	**Electricity Distribution Lines**										
2.1	Underground Lines	3,760	RMT	5,600	21,056,000	21.056	0.484	15.792		5.264	
2.2	Overhead Lines	8,125	RMT	2,418	19,646,250	19.646	0.452	14.735		4.912	
	Total [2.0]				**40,702,250**	**40.702**	**0.936**	**30.527**		**10.176**	**0.000**
3.0	**Total [1.0+2.0]**				**51,214,250**	**51.214**	**1.177**	**33.155**	**2.628**	**12.804**	**2.628**
4.0	**Miscellaneous**										
4.1	Maintenance Yard Facility	2	LS	3,150,000	6,300,000	6.300	0.145	3.150	3.150		
4.2	Material Stock - Wires	1	LS	7,682,138	7,682,138	7.682	0.177	3.457	1.536	1.536	1.152
4.3	Material Stock - Ancillary etc.	1	LS	2,560,713	2,560,713	2.561	0.059	1.152	0.512	0.512	0.384
	Total [4.0]				**16,542,850**	**16.543**	**0.380**	**7.759**	**5.199**	**2.049**	**1.536**

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
5.0	**Other related cost**										
5.1	System Design Cost [4.5 %] of (3.0)		%		2,304,641	2.305	0.053	0.807	0.922	0.230	0.346
5.2	Supervision and Administrative Cost [5 %] of (3.0)		%		2,560,713	2.561	0.059	0.896	1.024	0.256	0.384
	Total [5.0]				**4,865,354**	**4.865**	**0.112**	**1.703**	**1.946**	**0.487**	**0.730**
Total [3.0 + 4.0 + 5.0]					**72,622,454**	**72.622**	**1.669**	**42.617**	**9.773**	**15.339**	**4.894**

Notes

[a] The item rate cost mentioned are inclusive of cost of material and labour.
[b] Item Rate for item no. (1.1) includes cost of the transformer, transformer room etc.
[c] After the detailed survey the entire system should be designed by a Expert in Electrical Distribution.
[d] The System Design Cost are notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.
[e] In [5.0] Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

Table A.15 : Cost Estimate for Proposed Street Lighting System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Street Lighting**										
1.1	On proposed new Roads.	7,815	RMT	1,050	8,205,750	8.206	0.189	2.051	3.282	1.231	1.641
1.2	On existing roads	4,880	RMT	525	2,562,000	2.562	0.059	0.641	1.025	0.384	0.512
1.3	Hight Masts (in selected areas)	2	Nos.	2,345,000	4,690,000	4.690	0.108	1.173	1.173	1.173	1.173
	Total [1.0]				**15,457,750**	**15.458**	**0.355**	**3.864**	**5.480**	**2.788**	**3.326**
2.0	**Total [1.0]**				**15,457,750**	**15.458**	**0.355**	**3.864**	**5.480**	**2.788**	**3.326**
3.0	**Miscellaneous**										
3.1	Material Stock - Wires	1	LS	772,888	772,888	0.773	0.018	0.348	0.155	0.155	0.116
	Total [3.0]				**772,888**	**0.773**	**0.018**	**0.348**	**0.155**	**0.155**	**0.116**
4.0	**Other related cost**										
4.1	Supervision and Administrative Cost [5 %] of (4.0)		%		772,888	0.773	0.018	0.271	0.309	0.077	0.116
	Total [4.0]				**772,888**	**0.773**	**0.018**	**0.271**	**0.309**	**0.077**	**0.116**
Total [2.0 + 3.0 + 4.0]					**17,003,525**	**17.004**	**0.391**	**4.483**	**5.943**	**3.020**	**3.558**

Notes

[a] The item rate cost mentioned are inclusive of cost of material & labour. [b] In [3.0], a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

Table A.16 : Cost Estimate for Tele-Communication System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Telecommunication System**										
1.1	Up-gradation of present Exchange	1	LS	6,500,000	6,500,000	6.500	0.149	2.925		3.575	
1.2	Underground network	3,180	RMT	1,850	5,883,000	5.883	0.135	1.471	2.353	0.882	1.177
1.3	Overhead network	2,660	RMT	1,190	3,165,400	3.165	0.073	0.791	0.791	0.791	0.791
	Total [1.0]				**15,548,400**	**15.548**	**0.357**	**5.187**	**3.145**	**5.249**	**1.968**
2.0	**Total [1.0]**				**15,548,400**	**15.548**	**0.357**	**5.187**	**3.145**	**5.249**	**1.968**
3.0	**Miscellaneous**										
3.1	Material Stock - Wires	1	LS	2,332,260	2,332,260	2.332	0.054	1.050	0.466	0.466	0.350
	Total [3.0]				**2,332,260**	**2.332**	**0.054**	**1.050**	**0.466**	**0.466**	**0.350**
4.0	**Other related cost**										
4.1	Supervision and Administrative Cost [5 %] of (2.0)		%		777,420	0.777	0.018	0.272	0.311	0.078	0.117
	Total [4.0]				**777,420**	**0.777**	**0.018**	**0.272**	**0.311**	**0.078**	**0.117**
Total [2.0 + 3.0 + 4.0]					**18,658,080**	**18.658**	**0.429**	**6.509**	**3.922**	**5.793**	**2.434**

Notes

[a] The item rate cost mentioned are inclusive of cost of material and labour.

[b] In [3.0] Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

Table A.17 : Cost Estimate for Local Area Plan Implementation

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Local Area Plan Implementation**										
1.1	Extender Boundary Limits	216	Acre	750	162,000	0.162	0.004	0.073		0.089	
1.2	Demarcation	225,650	SQ.M.	4.25	959,013	0.959	0.022	0.240	0.384	0.144	0.192
	Total [1.0]				**1,121,013**	**1.121**	**0.026**	**0.313**	**0.384**	**0.233**	**0.192**
2.0	**Total [1.0]**				**1,121,013**	**1.121**	**0.026**	**0.313**	**0.384**	**0.233**	**0.192**
3.0	**Other related cost**										
3.1	Supervision and Administrative Cost [5 %] of (2.0)		%		56,051	0.056	0.001	0.020	0.022	0.006	0.008
	Total [3.0]				**56,051**	**0.056**	**0.001**	**0.020**	**0.022**	**0.006**	**0.008**
Total [2.0 + 3.0]					**1,177,063**	**1.177**	**0.027**	**0.332**	**0.406**	**0.239**	**0.200**

Notes

[a] The extended boundary limits of the SAMTSE Municipal Corporation needs to be esablished permanently.

[b] Local Area Plan needs to be demarcated as per the final approved plan with permanent bench markings.

Table A.18 : Cost Estimate for the Proposed Transportation System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate (Nu.)	Estimated Cost (Nu.)	Estimated Cost (Nu.) (in million)	Estimated Cost (US $) (in million)	Phase One 2005 - 2010 (in million)	Phase Two 2011 - 2015 (in million)	Phase Three 2016 - 2020 (in million)	Phase Four 2021 - 2025 (in million)
1.0	**Roads**										
1.1	**Up-grade Existing Roads**										
1.1.1	Urban Corridor / Urban Bypass	1,820	RMT	4,125	7,507,500	7.508	0.173	2.628	3.378	0.751	0.751
1.1.2	Urban Spine	2,660	RMT	3,850	10,241,000	10.241	0.235	3.584	4.608	1.024	1.024
1.1.3	Secondary Roads in Urban Hub	1,440	RMT	2,015	2,901,600	2.902	0.067	1.016	1.306	0.290	0.290
	Total [1.1]				**20,650,100**	**20.650**	**0.475**	**7.228**	**9.293**	**2.065**	**2.065**
1.2	**New Roads**										
1.2.1	Urban Corridor / Urban Bypass	6,850	RMT	5,850	40,072,500	40.073	0.921	14.025	18.033	4.007	4.007
1.2.2	Secondary Roads in Urban Hub	1,875	RMT	2,850	5,343,750	5.344	0.123	1.870	2.405	0.534	0.534
	Total [1.2]				**45,416,250**	**45.416**	**1.044**	**15.896**	**20.437**	**4.542**	**4.542**
1.3	Develop and improve Road Junctions	5	Nos.	800,000	4,000,000	4.000	0.092	1.000	1.000	1.000	1.000
1.4	Construct pedestrain footpaths	3,750	RMT	1,450	5,437,500	5.438	0.125	1.903	2.447	0.544	0.544
1.5	Parking Lots	4	Nos.	450,000	1,800,000	1.800	0.041	0.450	0.450	0.450	0.450
1.6	Bus Stops	4	Nos.	85,000	340,000	0.340	0.008	0.170		0.170	
	Total [1.0]				**77,643,850**	**77.644**	**1.785**	**26.646**	**33.627**	**8.770**	**8.600**
2.0	**Total [1.0]**				**77,643,850**	**77.644**	**1.785**	**26.646**	**33.627**	**8.770**	**8.600**
3.0	**Miscellaneous**										
3.1	Road Cleaning Equipments	2	Nos.	875,000	1,750,000	1.750	0.040	0.438	0.263	0.525	0.525
3.2	Maintenance Facility	1	Nos.	350,000	350,000	0.350	0.008	0.350			
3.3	Material Stock	1	LS	3,882,193	3,882,193	3.882	0.089	0.971	0.582	1.165	1.165
	Total [3.0]				**5,982,193**	**5.982**	**0.138**	**1.758**	**0.845**	**1.690**	**1.690**
4.0	**Other related cost**										
4.1	System Design Cost [4.5 %] of (2.0)		%		3,493,973	3.494	0.080	1.223	1.398	0.349	0.524
4.2	Supervision and Administrative Cost [5 %] of (2.0)		%		3,882,193	3.882	0.089	1.359	1.553	0.388	0.582
	Total [4.0]				**7,376,166**	**7.376**	**0.170**	**2.582**	**2.950**	**0.738**	**1.106**
Total [2.0 + 3.0 + 4.0]					**91,002,208**	**91.002**	**2.092**	**30.986**	**37.422**	**11.198**	**11.396**

Notes

[a] The item rate cost mentioned are inclusive of cost of material and labour including concrete channel and safety covers.
[b] After the detailed survey the road alignment and the cross-section to be finalized with a Road Designer\Expert.
[c] The Road Design Cost are notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.
[d] In [3.0] Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies.