GOVERNMENT OF TRIPURA
PUBLIC WORKS DEPARTMENT
AGARTALA, TRIPURA

No. F.35(1)/MC/PWD/2017/234-353 Dated, Agartala, 04.02, 2019

N O T I F I C A T I O N

The Governor of Tripura is pleased to notify "Tripura Roads Maintenance Policy (PMGSY & non-PMGSY)" excluding National Highways with detailed procedure for implementation in the State with immediate effect.

Tripura Road Maintenance Policy with details standard procedure will remain in operation until further order of the State Government. The State Government shall have full power to amend /modify this Policy.

The policy is available in the home page of PWD with the link http://www.pwd.tripura.gov.in/pwd/index.php/government/road-maintenance-policy

(Susanta Dutta)
Deputy Secretary, PWD

Copy forwarded to:

1. PPS to Chief Secretary, Govt. of Tripura.
2. PS to all Principal Secretaries/ Secretaries of all Department of Govt. of Tripura.
3. All Chief Engineers, PWD(R&B/DWS/WR/Buildings/PMGSY/NH, Agartala.
4. All Head of the Departments.
5. All Addl. Chief Engineer, PWD(R&B/DWS/WR/Buildings/PMGSY/NH, Agartala
6. All Executive Engineers, PWD,R&B/DWS/WR/Buildings /PMGSY/NH, Agartala.

Copy Also to:

1. Joint Secretary (RC) & Director General, NRRDA, Ministry of Rural Development, Krishi Bhavan, New Delhi- 110114
2. The Superintendent, Tripura Govt. Press, Agartala , Tripura with request to publish in next issue of Tripura gazette.

Government of Tripura
Road Maintenance Policy

(PMGSY and Non PMGSY Roads excluding NH)

Acknowledgements

Government of Tripura would like to express its appreciation to the Ministry of Rural Development, Government of India and National Rural Roads Development Agency, Government of India for their support and cooperation in drafting the Policy on Maintenance of Roads in Tripura State.

Forward

The priority of the Government of Tripura has been to make the connectivity to all habitations with all weather roads in the state. The scheme like PMGSY of Govt. of India has also facilitated to make the programme of state government a success.

Amongst the Physical Infrastructures, road connectivity is one of the most important area which forms the backbone of the Country or state. Simultaneously, construction of rural roads brings multifaceted benefits to the rural areas by way of increases in agricultural production and the size of markets, better prices for agriculture produce, reduction in transport costs and the creation of off-farm employment opportunities. They also provide access to medical and educational facilities. Provision of rural roads is an effective element of a poverty reduction strategy.

The Ministry of Rural Development, GOI has been constantly pursuing to frame a policy on maintenance of rural roads in the state. The principal objectives of road maintenance are to keep roads open, reduce rate of deterioration and extend life of the road network, reduce vehicle operating costs and improve the speed and frequency of public transport services. Maintenance also safeguards previous investment in construction and reduces burden of huge rehabilitation costs later. So, off late, it has become a bare necessity of the department to frame a policy not only for the rural roads but for all type of roads and therefore, this initiative to frame a policy would cover all roads in the state excluding National Highways.

The Policy covers the elements like State Government commitment, adequate funding, implementation, efficiency, quality control etc. aspects and above all fully driven through electronic system based on software. It is emphasized that this policy with efficient and scientific engineering planning would facilitate use of maintenance fund with optimum outcome and benefits.

Abbreviations

ADT -Average Daily Traffic

AE -Assistant Engineer

ARMOP: Annual Road Maintenance and Operation Plan

BT -Black-Top (surfaced roads)

CC -Cement Concrete

CE -Chief Engineer

CUCPL- Comprehensive Upgradation cum Consolidation Priority Lists

CV -Commercial Vehicle
CVD -Commercial Vehicle per Day DPR -
Detailed Project Report

DRD -Department of Rural Development

DRDA -District Rural Development Agency

EE -Executive Engineer

FY -Financial Year (1st April to 31st March) GOI -
Government of India

GOT -Government of Tripura
Ha -Hectare

IRC -Indian Roads Congress

MDR -Major District Road

MLAs -Members of Legislative Assembly

MMS -Maintenance Management System

MNP -Minimum Needs Programme

MORD -Ministry of Rural Development, Government of India

MOSRTH -Ministry of Shipping, Road Transport and Highways, Government of India

MPs –Members of Parliament

NABARD -National Bank for Agriculture and Rural Development

NH -National Highway

NHAI -National Highways Authority of India

NHDP -National Highway Development Project

NRRDA -National Rural Roads Development Agency

ODR -Other District Road

PC -Premix Carpet

PCI- Pavement Condition Index

PCU -Passenger Car Unit

PIU -Project Implementation Unit

PMGSY -Pradhan Mantri Gram SadakYojana

RD - Rural Development Department

PRI -Panchayati Raj Institution

RCI – Road Condition Index

RIDF -Rural Infrastructure Development Fund

TRAMS- Tripura Road Assets Management System

SD -Surface Dressing

SE -Superintending Engineer

SFC -State Finance Commission

SH -State Highway

TNA -Training Needs Assessment

TOR -Terms of Reference

VR -Village Road

WB -World Bank

WBM -Water Bound Macadam

Definitions

Annual Road maintenance Operation Plan means the annual road maintenance and Operations plan for the State of Tripura

Defect means any form of failure in the road surface including cracks, deformation and disintegration. These types of failure can be structural or visual in nature.

Link Routes are the roads connecting a single habitation or a group of habitations to Through Roads or District Roads leading to Market Centres. Link Routes generally have dead ends terminating on habitations, while Through Routes arise from the confluence of two or more Link Routes and emerge on to a major road or to a Market Centre.

TRRDA means Tripura Rural Road Development Agency

LSGD means Local Self Government Department

Maintenance with respect to roads means repair or remedial treatment to road formation and pavement failures. The purpose being to make the road trafficable until reconstruction works can be carried out by the department.

Major District road means road within the District serving areas of production and market and connecting these with each other or within the highways.

Pavement Condition Index(PCI) is a numerical index used to indicate the condition of the pavement. It is a statistical measure and requires manual/mechanical survey of pavement.

Primary Road Network means the main road which can be either single carriageway or dual carriageway. Broadly primary system comprises National Highways and Expressways

Rural Roads means road connecting villages or group of villages with each other and to the nearest road of a higher category.

Secondary Road Network is made up of State Highways and Major District Roads

State Highways means arterial routes of the State linking District Head quarters and important cities and tourist centre and ports within the State and connecting them with National Highways of the neighbouring States.

Through routes are the ones which collect traffic from several link roads or a long chain of habitations and lead it to a market centre or a higher category road, i.e. the District Roads or the State or National Highways.

CONTENTS

CHAPTER 1
INTRODUCTION

The Pradhan Mantri Gram Sadak Yojana (PMGSY) envisages connecting all habitations with a population of 500 persons and above in the plain areas and 250 persons and above in hill States, the tribal and the desert areas. As a result of the PMGSY, the rural road network has experienced a considerable growth in terms of its total length. Also, this programme have contributed to the general improvement of the quality of the rural road network. It is the Flagship programme of GOI for creation of Rural Infrastructure. Tracks and trails and other local roads in a very poor shape have been upgraded to all-weather standards with proper drainage and river crossings. This massive improvement of the rural road network has several benefits, both in economic and social terms. Communities are no longer isolated and can partake in mainstream economic and social activities and access to basic services such as health and education is improved as a result of the improved roads.

Road network plays a very important role and to achieve connectivity to the remotest villages in the State, the Government has been relentless in its effort and after the inception of PMGSY; rural connectivity has definitely got momentum and the status of PMGSY projects from Phase-I to Phase-X is follows:

Abstract of PMGSY Projects approved by GOI

State	Sanctioned		Completed	
	No	Length in KM	No	Length in KM
Tripura	1367	4903.59	1147	3637.63

Roads are the critical infrastructure component for economic growth and social development of the State and the surrounding region. One of the key issues that had emerged during the implementation of PMGSY is the preservation of the infrastructure assets being created by the programme through effective maintenance. For roads constructed under PMGSY, separate maintenance contract is made mandatory with the contractor of the work for maintenance during the defect liability period of 5 years immediately after construction. This arrangement addresses the immediate maintenance needs for PMGSY roads, however, this should not be considered in isolation of the condition and maintenance options for the rest of the road network serving rural people.

The principal objectives of road maintenance policy is to provide a guiding frame work, making establishment & establishing procedures to keep roads open, reduce rate of deterioration and extend life of the road network and improve the speed and frequency of public transport services. Comfort, convenience and safety are assured for road users. Maintenance for roads also generates local employment opportunities and additional market prospects for the local construction industry. Maintenance of roads provides an economic rate of return which is often in the range of 25 to 30 per cent. Maintenance fund of constructed roads in PMGSY is budgeted by the State Government and placed at the disposal of TRRDA in a separate maintenance fund account.

Assets preservation is more important than asset creation. If care is not taken for a scientific Asset Management Strategy, asset erosion takes place resulting in huge replacement of invested cost.

Ministry of Rural Development, Govt. of India vide letter D.O. No. P-17029/01/2006/WB/IL0/Pt, dated 25.06.2015, insisted a Rural Road Maintenance policy approved by the State Government. Another letter Dt. 05.04.2017 from Secretary of the Ministry of Rural Development, GOI addressed to Chief Secretary, Govt. of Tripura was received for expeditious formation of the Policy and its notification.

The setting up of a sustainable maintenance regime will require:

Adequate resource mobilisation for maintenance Institutional arrangements for allocating resources and managing the road network; Strengthening the institutions to undertake planning, design and implementation of maintenance interventions, and providing technical support to them; Developing appropriate and workable maintenance planning and implementation systems.

The road link that fails, crack, get deformed or disintegrate present a danger to road users. In addition they impose wear and tear on vehicles, increased consumption of fuel, delay in travel and various other economic costs. There is a need for the concerned agencies and organization to effect repairs and restoration of road in a proper timely and systematic manner.

The objectives of the policy are to enable:

i. Adequate, timely and sound maintenance of roads to provide safe convenient and efficient access and usage to road users;

ii. Judicious and optimal utilization of available funds and resources for the maintenance and repair of roads;

iii. Efficient maintenance by using appropriate technology, State of Art and effective repair treatments by inducting new technology and equipment in road repair and maintenance work;

iv. Capacity building and organizational development of the manpower and agencies engaged in road construction, primarily maintenance and repair in the State for efficient discharge of road development and maintenance function.

Any inadequacy in funding and implementation on the ground will result in the erosion of the asset base. The State is committed towards ensuring adequate funds for maintenance of the entire road network

within its jurisdiction. Under no circumstance shall maintenance be regarded as a secondary issue.

Though the GOI has been insisting to frame a Policy for maintenance of Rural Roads, but off late it justifies to frame a policy by the state not only for rural roads but for the entire road network in the state excluding National Highways, which are looked after by MoRTH, GOI. At present, no such policy exists in the state, and as a result the demand of fund for maintenance of roads is mainly made on hypothetical calculation which is based on road length, surface condition etc. without proper systematic and scientific approach.

Tripura having located in the extreme part of North-East is mainly a land-locked State and therefore, the factors like availability of materials, experienced manpower, skilled labourers are really a big hindrance to the State in the road maintenance. In addition, more than 3/4th of his boundary is surrounded by Bangladesh where maintenance of road is also required considering its strategic importance. Thus, instead of only rural roads, all types of roads excluding National Highways have been covered in this policy document.

Thus the Government of Tripura intends to adopt a roads maintenance policy for the planning & execution of maintenance of roads under its jurisdiction and shall be called as **"Tripura State Roads Maintenance Policy".**

Interpretation:

If any question arises relating to the implementation of this policy, the same shall be referred to the Government for its decision which shall be final. The decision of the Government shall be implemented.

The Government of Tripura reserves the right to modify and amend the said policy from time to time as the case may be.

Keeping in view for better implementation of the Policy, the following government departments/ bodies shall be responsible:

i. Public Works Department(R&B), Govt. of Tripura for all State Highways, Major District Roads, Other District Roads and Village Roads under jurisdiction of PWD(R&B);

ii. TRRDA for all PMGSY Roads;

This policy takes into consideration the Government's commitment, adequate funding, Institutional reforms, ensuring transparency in its working, bidding, e-tendering, contract management and implementing all state roads maintenance.

CHAPTER 2

GOVERNMENT COMMITMENT

With the adoption of the policy, the government will ensure that it is implemented and will explore that the required fund according to the norms are made available for the purpose. If in a situation, when the fund is not available to the proportionate demand, the government can modify the prioritization and streamline the implementation. The government will be committed to introduce a system of working out present asset value of the road network at the end of financial year.

Box 1 provides indicative steps for assessing the replacement value of the network.

Box 1: Assessing Replacement Value of Rural Road Assets
1. Each Section/PIU office is directed to provide the assessment of RCI every year immediately after the rainy season. 2. Each Section/PIU office is directed to provide the assessment of RCI value once in 2 years immediately after the rainy season 3. Standard format for inventory and condition survey shall be followed for collection of data. 4. Each Section/PIU office works out the replacement value of roads within its jurisdiction as per illustration given in Table 1. 5. The replacement value of the total road network is put in public domain by the state government.

Table 1: The replacement value of rural roads assets in the state of Tripura (*Boast Assessment based on as of 1st January 2017)*

Sl No	Category of roads	Length in Km	Unit Cost Rs Lakh/Km	Amount (Rs Crores)
	Metaled Road			
1	State Highway	329.00	205.00	674.45
2	Major District Roads	90.00	195.00	175.50
3	Other District Roads	1099.00	150.00	1648.50
4	Villiage Roads (PMGSY)	3637.00	110.00	4000.70
5	Villiage Roads (NON-PMGSY)	4323.00	105.00	4539.15
TOTAL				**11038.30**

Note: 1. Roads having land width more than 3.0 m is considered.

2. SOR Variation in each year shall be applied to update the replacement value

Section/PIU office shall carry out evaluation of the existing road condition in terms of physical condition of both the on-carriageway as well as the off-carriageway through Road Condition Survey. Such surveys shall assess type, magnitude, location of distressed road and other physical parameters It shall evaluate Road Condition Index (RCI) and take up prioritization of road on the basis of RCI and Utility value for including in Comprehensive Upgradation cum Priority Lists (CUPL).

Road condition survey should be conducted on each stretch of road on a yearly basis immediately after the rainy season. The data collected should be recorded kilometre wise.

Traffic data on each road is to be collected as per the procedure laid down in Indian Road Congress. The traffic data should show classification of motorized, non motorized, commercial vehicles etc. The traffic volume data should be used as an input in prioritization of maintenance works.

Table-I : Rating of pavement for Rural roads

Sl No	Parameter	Range of Distress (percent)		
		Good	Fair	Poor
1.	Potholes	Up to 0.5	From 0.5 to 1.0	Above1.0
2.	Patching	Up to 5	From 5 to 20	Above 20
3.	Cracking	Up to 10	From 10 to 20	Above 20
4.	Ravelling	Up to 10	From 10 to 20	Above 20
5.	Pavement Condition Index	4 to 5	2 to 3	1

Apart from pavement, PIU should look at off- carriageway requirements such as drainage and shoulders, performance of cross drainage structures (causeways, culverts, bridges), road signs, pavement markings, traffic control devices, stretches subject to flooding, side slope erosion, safety hazard spots, sight distance/ visibility at road intersections, particularly at the meeting points with main roads.

Table 2 provides a checklist of items relating to structures that should be inspected.

Table 2 : Inspection of structures

Item	Defect /Damage
Foundation	Cracks
	Erosion along and underneath
Head and wing walls	cracks
	blocked seepage holes
	Erosion behind walls
Abutments and piers	cracks
	blocked seepage holes
	Erosion behind walls
Culverts	blocked drainage
	Blocked or silted
	cracks
Decking	Settlement cracks
	Loose
	drainage

Item	Defect /Damage
Approaches	Drainage
	Visibility
	settlement
Berms	cracks
	bends
	corrosion
	rotting
Waterway	Vegetation growth
	Deposits of sand, silts or debris
Road furniture	damaged
	Missing
	Faded point
Banks	Eroded
Guard rails	damaged
	missing

The Section/PIU office shall identify different type of road maintenance activities and prepare a manual of technical practices to carry out the same.

1. To constitute a **State level committee** to work out realistic norms

A committee consisting members from PWD and Finance should be constituted for maintenance of roads covering Routine, Periodic, Emergency Maintenance and Special Repairs.

This Committee will be authorised to review & revise norms on an annual basis.

Box 2: Fixing up Norms for maintenance of roads

The following committee would be responsible for fixing the norms.

The committee may comprise of:

1. Secretary, PWD
2. Secretary, Finance
3. Chief Engineer, PWD(R&B)
4. Chief Engineer, PMGSY

From the Comprehensive Up-gradation cum Consolidation Priority Lists (CUCPL) to be prepared by each section office/PIU every year, a schedule of activities to be done under Routine Maintenance, Periodic Maintenance, Emergency Maintenance, Special Repairs, Up-gradation shall be produced before the Standing Empowered Committee well in advance before the start of the relevant financial year along with the allocation of resources to the different operations/components.

Box3: Major activities for incorporation in Maintenance Norms

A. Routine Maintenance

Pothole repairs
Erosion control on shoulders, slopes,
Cleaning of drains, culverts, other waterways
Bush clearing, cleaning and repair of road signs

B. Periodic Maintenance

Renewal of road surface Major repairs to CD works

C. Emergency Maintenance

Reconstruction / repair of CD works damaged due to floods, earthquakes

Reconstruction / repair of road sections damaged due to washouts, floods, landslides, earthquakes

D. Special Repairs

Clearing of landslides

Repair/Reconstruction of retaining/breast walls Repair/Reconstruction of damaged drains

Repair/Reconstruction of Road damaged due to laying of Public service utilities

E .Up-gradation

Relaying of crust due to increase in traffic

Pavement strengthening necessitated due to the increased annual maintenance cost

The Operations/ components would be in the following manner

Table 1

ANNUAL CALENDER OF ROAD MAINTENANCE ACTIVITIES (Routine Maintenance)

Sr. No.	Item of Work	Intervention Standard	Response Time	Frequency	Cost
1	2	3	4	5	6
1.	**Cleaning/de-silting of road side drain/gutter**				
	Water diverted out of drain onto roadway	Causing a hazard to traffic	Immediate	Thrice i) February ii) May and June iii) August and September and as and When required i.e. blockade more than one-fourth	
	Obstruction or Siltation impeding flow	Blocked by more than one-fourth of the size of the drain	14 days and prior to monsoon		
2.	**Pothole Filling**				
	Collection of patch repair material for Bituminous roads			i) January and February ii) July and September	
	Collection of patch repair material for WBM repair			i) January and February ii) July & August	
	Pothole filling in Bituminous and rigid pavement with maximum dimension more than 200mm, cracks, edge breaks, ruts and depressions	All potholes ≤75mm depth Cracks >5mm in width Edge Breaks >150mm in width Ruts >50mm	21 days	Immediate on their occurrence	

		in depth			
		Depressions			
		>50mm in depth			
	Pothole filling in WBM with maximum dimension >200mm	Depth > 75mm			
	Pothole filling in Gravel/ Katcha surface	Depth >50mm Width >300mm			
3.	**Filling edges of bituminous surfaces and replenishing/ lowering earthen/ hard shoulders**	Difference more than (-) 50mm/ (+) 0mm		Before and after monsoons and as and when required i. e. when the requirements as specified are exceeded as per Col. 3	
4.	**Dressing of berms**			Before and after monsoon and once in between i.e. February/ March, June, August and September	

5.	**Restoration of rain cuts and side slopes**			September and as and when required	
6.	**Cleaning of Cross-Drainages**				
	Debris and silt reducing effectiveness of structure, broken or cracked structure causing instability, under mining or not functioning properly	Blocked by more than one-fourth of the size of the culvert opening		Twice (May and October) and as and when required i.e. blockade more than one-fourth of the opening	
	Deformation of culvert, its invert and alignment		45 days and prior to monsoon		
7.	**White washing of Parapets, Guide Stones, Tree Trunks etc.**			Twice (April and October)	
8.	**Re-fixing disturbed caution boards, other signage etc.**			Once and as and when required	
9.	**Re-fixing displaced Km. stones, 200m stones, guard stones, guard rails**			Once and as and when required	
10.	**Cutting of branches of trees, pruning shrubs**			Once (October)	

11.	**Removing wild seasonal growth on berms and from road side structures**			Twice (March and September)	
12.	**Painting of Km. stones, Numbering of culverts, Road markings etc. including history of road on Km. stones**			Once (April/ November)	
13.	**Maintenance of T & P**	All round the year			
14.	**Removal of encroachment**	All round the year			

ANNUAL CALENDER OF ROAD MAINTENANCE ACTIVITIES (Periodical Maintenance)

Sr. No.	**Item of Work**	**Intervention Standard**	**Response Time**	**Frequency**	**Cost**
1	**2**	**3**	**4**	**5**	**6**
1.	Surface dressing	Resurfacing the pavement surface with a single bituminous surface dressing	After the expiry of design life and according to evaluation of pavement structure	As and when required	
2.	Spot rehabilitation	New single surface treatment by scarifying the old surface	After the expiry of design life and according to evaluation of pavement structure	As and when required	
3.	Overlay	Resurfacing and reshaping the surface with BM	After the expiry of design life and according to evaluation of	As and when required	

		and BC	pavement structure		

ANNUAL CALENDER OF ROAD MAINTENANCE ACTIVITIES (Emergency/special Maintenance)

Sr. No.	Item of Work	Intervention Standard	Response Time	Frequency	Cost
1	2	3	4	5	6
1.	Constructing temporary bridge structures	As and when causes hazardous to traffic	Immediate	As and when required	
2.	Flood debris removal	As and when causes hazardous to traffic	Immediate	As and when required	
3.	Repair of settlement and land slides	As and when causes hazardous to traffic	Immediate	As and when required	
4.	Removal of materials like soil, rock, boulders, etc.	As and when causes hazardous to traffice	Immediate	As and when required	

ANNUAL CALENDER OF ROAD MAINTENANCE ACTIVITIES (Upgradation)

Sr. No.	Item of Work	Intervention Standard	Response Time	Frequency	Cost
1	2	3	4	5	6
1.	Major restoration or upgrading of the pavement through reconstruction to rectify structural deficiencies	As and when maintenance cost exceeds the permissible unit cost	Immediate	As and when required	

3. Overall responsibility for efficient planning management and delivery of rural road maintenance shall be vested with PIUs. A dedicated Planning, Budgeting and Monitoring (PBM) Unit, in the PWD(R&B)

Headquarters to be headed by a Superintending Engineer, which shall be responsible for Planning, Budgeting and Monitoring of all maintenance works of the road network under the overall guidance of the Chief Engineer, PWD(R&B).

4. To ensure allocation of adequate and timely availability of funds needed for maintenance of roads as per Annual Maintenance Plans, prepared by the Section offices/PIU, the committee would allocate the fund every financial year as obtained below.

Sl No	Financial year	Maintenance fund required to be released(Crores) Total of column no:6 of Table1
1	Routine Maintenance	
2	Periodic Maintenance	
3	Emergency /Special Maintenance	
4	Upgradation	

CHAPTER 3

ADEQUATE FUNDING

Road maintenance in the state of Tripura has been given always a priority but it is fact that there is a serious gap between the funds required and those allocated for roads. As a result, roads have been deteriorating fast and the backlog of periodic maintenance has been mounting, if sufficient funds are not allotted in time.

Funds also have to be identified for bringing the existing roads to the maintainable condition, their rehabilitation costs will be very high and beyond the resources in sight.

A time bound implementation plan for this is urgently required for ensuring the availability of funds for the maintenance of roads after construction.

To decide on annual allocation of funds for maintenance of different categories of roads with reasonable share for roads based on the percentage of roads with respect to the total road network a **Standing Empowered Committee (SEC)** is proposed as follows:

i. Secretary, PWD
ii. Secretary, Finance,
iii. Chief Engineer, PWD (R&B)
iv. Chief Engineer, PMGSY, PWD
v. Addl. Chief Engineer/ Superintending Engineer, Planning, PWD(R&B)

The distribution of funds shall be given according to the output to be generated through RAMS, purely based on RCI for all roads.

The government will take efforts to set up a dedicated road maintenance fund with money from the fund of budget and a part of the taxes/ fines received / collected from various sources.

The committee with the approval of finance department shall formulate the necessary rules for setting up the funds crediting of various moneys thereto, drawal expenditure from the fund, maintenance of accounts and audit thereof for the proper operation of the fund.

In order to formulate an Action Plan for time bound removal of maintenance backlog of the rural road network to an acceptable level of service. On the basis of road condition and reports generated through RAMS, the State shall identify backlog & remove it in a fixed period.

Box 4:

Tarred Roads in the state:

SH

1. Very good and good roads: inkms
2. Fair roads: in kms
3. Poor & very poor: inkms

Total: inkms

MDR

1. Very good and good roads: inkms
2. Fair roads: in kms
3. Poor & very poor: in kms

Total: inkms

ODR

1. Very good and good roads: in kms
2. Fair roads: in kms
3. Poor & very poor: inkms

Total: inkms

VR

1. Very good and good roads: inkms
2. Fair roads: inkms
3. Poor & very poor: inkms

Total: inkms

Based on RCI, which is a road condition survey, the above classification is made and the kilometres are tabulated.

1. Periodic Renewal Requirement:
2. Backlog of Periodic Maintenance
3. Requirement for Routine Maintenance
4. Emergency and special repair

Total fund requirement =

Total requirement of Periodic Renewal+ backlog of Periodic Renewal + Routine Maintenance+ Special repair.

CHAPTER 4
ORGANISATIONAL SETUP

All departments of the state government mainly responsible for construction of roads shall be responsible for the operation and maintenance of the entire road network under its jurisdiction. The administrative control of the department shall rest with the Secretary, of the concerned department of the Government of Tripura. The Chief Engineer, PWD (R&B) would be overall in-charge of the Public Works Department(R&B) looking after State Highways, Major District Roads, Other District Roads and also village roads including PMGST roads under PWD in the state. The construction and maintenance of the network comprising those category of Roads shall be supervised by each circle office headed by Superintending Engineer. The circles are further divided in to field Divisions headed by an Executive Engineer. The field Division offices have a number of sub division offices headed by Assistant Engineers.

A dedicated Planning, Budgeting and Monitoring (PBM) Unit in the office of the Chief Engineer, PWD (R&B) headed by an Additional Chief Engineer/ Superintending Engineer shall be responsible for Planning, Budgeting and Monitoring of all maintenance works of the road network under the overall guidance of the Chief Engineer, PWD (R&B). This unit shall comprise of one Executive Engineer, two Assistant Engineers, two Draftsman and two Computer Operators.

The same unit will work for the following three stages but the field works as necessary will be carried out by the concerned field functionaries:

1. Planning

   (i) Survey and data base inventories

   (ii) Prioritization

2. Delivery

   (i) Contract Procedures

   (ii) Contract documentation

   (iii) Contracting arrangement

   (iv) Execution of works and supervision

3. Monitoring and supervision

   (i) Monitoring

   (ii) Review and Evaluation

   (iii) Technical and Financial auditing

CHAPTER 5
TRIPURA ROAD ASSET MANAGEMENT SYSTEM (TRAMS)

As a part of road sector modernization and institutional capacity building for better management of the road network of the state, a computerised road asset management system shall be developed. The asset management system aims to establish a centralised database to store data on physical characteristics, periodic inspection, and an evaluation tool to maintain, upgrade road assets and bridges. This system is envisaged to improve the technical capacities, skills and management capabilities of the Public Works Department, by effectively prioritizing works on its road network. This system will support key business areas of the Public Works Department (PWD) and would be a core application within the overall computerization of PWD business processes. The Asset Management System (AMS) for the state of Tripura, to be called Tripura Road Asset Management System (TRAMS) will consist of seven web-GIS based modules as,

i. Road Information System (RIS),
ii. Bridge Information System (BIS),
iii. Traffic Information System (TIS),
iv. Pavement Management System (PMS),
v. Annual Maintenance and Programming Tool (AMT),
vi. Right-of-Way Features Information System (RWFIS),
vii. Road Safety Information System (RSIS).

All the modules would be web-GIS-based facilitating input and update various data and view the same through reports, charts and GIS maps. TRAMS to be used by the department staff to access on-line GIS

maps to obtain current information on any road and bridge pertaining to asset inventory, current road condition/traffic. The analytical models be implemented through PMS and AMT that allow prediction of condition of assets and maintenance requirements to ascertain requirements for annual and multi-year road maintenance plans. The tools in-built within the system should be based on modern asset management principles that consider future traffic demand and sound engineering principles combined with economic theories. Use of modern technology in road survey and evaluation of road condition using a state-of-art survey vehicle be introduced in the State. The survey vehicle installed with Digital Laser Profiler (DLP), Distance Measuring Instrument (DMI), Trimble DGPS, Gipsi Trac (geometry module), Video Cameras which are integrated together to collect accurate, time stamped spatial data and high resolution photographs. Thus, each data / photograph collected be linked with GPS coordinates and linear chainage there-by making the data more widely acceptable to GIS-based Asset Management Systems. The video cameras installed in the survey vehicle are used capture high-resolution images stamped with DGPS location and chainage. These are used for collecting road inventory, condition, Right-of-way features of the road. Steps/ operation consists of followings:

a. Design of overall architecture, functional modules, outputs and data requirements, methodology of data collection to be finalised through a Business Process Analysis

b. Software development, testing, installation and commissioning in the PWD Data Centre.

c. Data Collection on SHs and MDRs, ODRs and Village Roads, processing and upload to the database

d. Training, use of system to prepare maintenance plans, and implementation of the system in PWD

This initiative will usher a systematic approach for maintenance planning of the roads and bridges. Thus the Department will envisage that it can ensure quick data dissemination, informed decision making there by better utilisation of public fund in a balanced manner. Further, following would be some of the major benefits expected of implementing this policy:

• Provide improved internal and external communication regarding asset information for more effective management within and outside the department.

• Improved data quality, consistency, and credibility because of adoption of standardized data collection, analytical, evaluation methods.

• Help the department to choose cost-effective, optimal, sound design, maintenance and rehabilitation policies, by comparing alternative maintenance/rehabilitation strategies.

• Evaluate and prioritise widening, rehabilitation, and maintenance works based on engineering, traffic, economic and social parameters

• Review impact of different funding levels, or forced decisions on the overall health of the asset to decide desirable funding

• To be used as a tool for allocating funds for maximum public benefits/returns on a rational basis.

• Review asset conditions through PCI, roughness, asset value and road network utilisation as an outcome of resources/budgets spent for performance monitoring of the department.

In order to bring out the entire system of management, the following areas of the planning and operation should be given the emphasis:

A. Inspection
B. Inventory
C. Prioritization
D. Annual Maintenance Plan
E. Mobile Based Application

A. INSPECTION:

Attention of all officers/officials of the Department is drawn to the imperative necessity for the maintenance of the roads under their jurisdiction. In order to maintain the roads efficiently and economically, officers/officials in-charge of the roads must exercise the greatest care to see that money and materials are used with caution and financial prudence. To achieve this, frequent inspections are necessary and in this connection the following broad principles are laid down:

(i) The Assistant Engineer/ Jr. Engineer shall keep a strict watch on the condition of the entire stretch of road under his jurisdiction.

(ii) The Jr. Engineer incharge shall inspect the entire road length under his jurisdiction at least once in every week. He shall simultaneously verify at site the contents of the Daily Progress Report as maintained in his dairy and initial the same.

(iii) The Assistant Engineer in charge of the road shall inspect the entire length under his jurisdiction at least once in every month. He shall invariably be accompanied by the Jr. Engineer incharge to whom he can give the necessary directions for repairs.

(iv) The Assistant Engineer and Executive Engineer shall also arrange to travel only moderate distance each day and shall inspect all the roads under his jurisdiction once every three months.

(v) The Superintending Engineer shall plan his visit through alternate routes rather than following only the regular and direct route while proceeding/coming back from tour. This is necessary to ensure that alternate routes/interior roads get inspected even when the purpose/destination for the tour may be different. It may, therefore, be ensured that the officer does not undertake to and fro journey through the same route. He shall travel on alternate route on one or another journey.

(vi) Every effort should be made to issue instructions verbally and with personnel consultation supplemented by notes in the notebook of the person to whom orders are given. This procedure will save time in writing long inspection notes.

(vii) Superintending Engineer should be able to supplement the notes given in the notebooks with more precise orders.

(viii) From the point of view of safety of traffic, as well as from the point of view of safety of road structures, it is essential to pay special attention to the maintenance of road berms. The Inspecting officers should make special note of the condition of the berms and their improvement since the last inspection and record the same in the notebook of the Jr. Engineer or other Accredited Engineers.

(ix) The Superintending Engineer shall also inspect the roads from overall road safety considerations and give appropriate directions.

Duties of Jr. Engineers

(i) To report to Assistant Engineer.

(ii) To help in the layout, marking, checking the quality and quantity of work done by the labour and get the work executed as per instructions.

(iii) To assist the Assistant Engineer in taking out the measurement for daily work done.

(iv) To display necessary caution boards for safety point of view as per standard layout.

(v) To report to his senior about any causality, accident, encroachment of Government property or any type of serious damage to the Government property within his beat.

(vi) To maintain sign boards under his charge.

(vii) To report about damages to structures, kilometre stone etc. and keeping them in position.

(viii) To comply with any instruction given by his immediate superior.

(ix) To ensure providing and proper upkeep of diversions.

(x) To maintain daily diary of the work done and to put up to the Section/PIU in charge every alternate day.

(xi) To maintain daily receipt/daily consumption of material consumed.

(xii) To help in preparing estimates for minor works and repairs.

(xiii) To ensure execution of work according to specifications and drawings.

(xiv) To take round of various bridges and roads under his charge on regular basis and report to Section/PIU in-charge about repairs to be done. He shall also assist to plan out a programme for such repairs in advance and ensure their execution through the department

(xv) To estimate and indicate rough quantities of materials required

(xvi) To take measurement of daily work done.

(xvii) To report about unauthorized constructions and encroachments on government premises.

(xviii) To comply with the instructions given to him by his immediate officer.

(xix) To ensure submission of daily report.

(xx) To see that log books are filled daily for machinery and that machinery are parked properly.

(xxi) To maintain details of land width and check encroachments.

(xxii) To ensure proper maintenance of speed humps and caution boards including their painting.

(xxii) Inspection and supervision of works as per prescribed norms.

(xxiii) Reporting observations to higher authorities.

(xxiv) Preparing estimates for repairs after conducting condition survey of roads.

(xxv) Reporting about closure of road/obstructions due to any of the following reasons;

Over toping/breach;

Landslides;

Earth quakes;

Accident;

Any other reason (specify);

(xxvi) Enumerating safety measures and restoration works in case of flood damages and breaches and reports on opening of traffic/completion of restoration.

Duties of Assistant Engineers

(i) Inspection and supervision of works as per norms.

(ii) Reporting observations which suggestion for remedial action to higher authorities.

(iii) Getting estimate prepared and checked after conducting surveys and site investigations.

(iv) Reporting about heavy rain fall in the area and consequent rain damage.

(v) Enumerating action on the report of Engineering subordinates regarding obstructions, accidents etc.

(vi) Enumerating safety measures and restoration of (both temporary and permanent) works in case of flood damages and breaches.

Duties of Executive Engineers

1. Planning and finalization of nature of maintenance activities e.g. surface repair, prepare to CD works etc.
2. Finalizing action on reports of Assistant Executive Engineers and also on safety measures, diversion in case of breaches and flood damages.
3. Coordination with various agencies like Traffic Police, Local Administration, Publicity Media etc., in case of emergent repair, interruption to traffic by road blockage, etc.
4. Initiate steps for finalizing permanent restoration works.

Action to be taken in case the road is Breached or Blocked

Action to be taken by the Jr. Engineer

- Immediate report of the road breach/blocked will be made to Assistant Engineer. The following points will be included in the reports:

  (i) Name of the road
  (ii) Location of the breach/blockade
  (iii) Length and nature of the breach/blockade
  (iv) Date and time of occurrence
  (v) Assessment of the assistance in the form of men and material required

- "Road closed" boards and "Diversions" boards shall be fixed on both sides at 60 m distance in advance of the hazard
- Arrangements for red lights to be done in case of darkness
- Labour shall be deputed to guide the traffic to prevent any accident
- Construction of diversion, if possible

Action to be taken by the Assistant Engineer

- He will at once visit the site of the hazard and shall ensure that:

- Road has been closed by means of barricading with empty drums or any other means available at site.
- That caution and diversion boards have been fixed on both sides
- Arrangements made to guide the traffic by posting gang men having red flags
- Arrangements made for red lights and chowkidar etc.
- Steps to stop further damage to the road are taken as per site requirement
- Possibilities of construction of diversion to be explored. If possible the diversion should be constructed with available resources
- He shall immediately report to the Executive Engineer, Executive Engineer and Superintending Engineer through fax regarding the road breach, duration of blockade of the traffic followed by a detailed report containing:
  (i) Name of the road
  (ii) Location of the breach/blockade
  (iii) Length and average depth of the breach
  (iv) Date and time of occurrence
  (v) Duration of suspension of traffic
  (vi) Requirement of men and material for restoration of traffic and road and the approximate cost
  (vii) All arrangements and efforts shall be made for restoration of traffic
  (viii) He will intimate the details of any losses and injuries to the public, if any, including the extent of compensation if payable

Action to be taken by the Executive Engineer

(a) He shall at once visit the site of breach. In case of multiple occurrences, he will inspect them in order of priority and importance

(b) He shall ensure speedy restoration of traffic

(c) He shall send a detailed report to the Superintending Engineer and Chief Engineer about the road damage indicating:
  i. Nature and cause of damage with location
  ii. Proposals for remedial measures with financial implications

iii. Nature and course of consequential damages to public properties etc.

iv. Action taken for restoration of traffic and restoration of damages with financial implications

(d) He shall be fully responsible for all the action taken for the protection and safety of traffic and road

B. INVENTORY

To start with the system of functioning through the Policy, collection of one-time data on the followings will be outsourced to suit the requirement of TRAMS:

a. Inventory of all roads including right of way features, pavement surface roughness data, pavement composition
b. Soil sample using test pit at 2 KM intervals
c. Inventory and conditions of all bridges/cross drainage works
d. Traffic volume count at least in one location of one road or in case the road length exceeds 30 KM, data at 30 KM interval.
e. Traffic axle load on 50 locations

C. ANNUAL MAINTENANCE PLAN

Based on the output from TRAMS, maintenance required for the year be worked out and revenue sub division wise plan be developed through system segregating one component each for SH, MDR & ODR and other for village roads. The cost for each following classification of maintenance should also be worked out:

a. Routine maintenance
b. Periodic maintenance
c. Emergency/ Special maintenance
d. Up-gradation

Thus based on the inputs and data collected and entered into the TRAMS, a Comprehensive Up-gradation cum Priority List (CUPL), once generated will be placed to the State Level Committee. Based on the allocation of fund in the corresponding year, CUPL will be approved.

D. MOBILE BASED APPLICATION

Mobile based application technology shall be adopted for the maintenance purpose with the assistance of the centralized GIS lab facility. PIU's should capture the photographs of the condition of the

road in the network of roads while performing the pavement condition survey for fixing up the priorities. Using the mobile application as and when required the photographs is captured at site and uploaded simultaneously to the server. The parameters attributing to routine maintenance activities can be managed from the State office.

CHAPTER 6

FINANCIAL MANAGEMENT

The rules for keeping and rendering accounts and dealing with financial transactions made in respect of works under State Head shall be as per guidelines and Delegation of Financial Rules of Tripura.

The Executive Engineer shall maintain cash books in respect of all financial transactions. All financial transactions made during the month shall be posted monthly in the Register of Works from Works Abstract.

The Register of Works shall be maintained by all level of officials making payment and will record of expenditure being made every month and finally the yearly expenditure of maintenance incurred on each road as this Register is to be maintained with a separate page devoted to each road.

There is in-built provision in the contracts of PMGSY works, where the agencies engaged for construction of roads have to maintain those roads upto certain period and therefore, till completion and handover of those PMGSY roads to PWD(R&B), responsibilities remain with the agencies for up-keepment of those. Roads. During taking over those roads by PWD(R&B), complete details of those roads including length, locality, habitations covered, right of way, carriage way width, crust thickness and other important parametres be recorded in the register.

The Executive Engineer of these Accounting Centers are authorized signatories for drawl and disbursement of money. Ledgers shall also be maintained to keep a watch on the expenditure.

Year wise, Phase wise and Package wise ledger accounts shall be maintained for accounting of periodic maintenance separately for PMGSY (Regular).

The funds shall be demanded by the Divisions on the basis of actual bills.

Funds received for renewal and routine maintenance shall be shown separately in the monthly accounts. The Year wise, Phase wise and Package wise schedule of expenditure shall be prepared separately for periodic renewal and routine maintenance.

The funds may consist of all or any of the following:

a) The allocation for maintenance of road from the consolidated fund of the State under the Non- plan Head as prescribed by the Government.

b) All money received for maintenance of roads for State roads as per the Central Grants recommended/ awarded by the Finance Commission from time to time.

c) Any other sum or grant may be decided from time to time for the purpose of road maintenance by the Government

d) Any grant, aid, loan or other sum lawfully received.

e) Any other income accruing for the fund remain un-committed or unspent at the end of any financial year for any reasons what so ever then such amounts shall continue to vest with the fund and shall be available for utilization in the next financial year.

Utilization of Fund:

Making payment to consultants and/or experts appointed for providing advice and assistance in discharge of their functions.

- Incurring expenditure on such emergency maintenance work on State rural roads
- To provide road safety infrastructure signage and equipments
- Providing support to Government in provision of way bridges and other facilities for overload control of vehicles on State rural roads.
- Expenditure on research, education and training to related to maintenance of State rural roads.

- Meeting all expenses, cost and charges including fees payable to the auditors.
- Making any other payment related to road maintenance authorized by the Government

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CHAPTER 7
QUALITY ASSURANCE

Instead of making it a bottom- up approach, it should be inherited into the system of management as top-bottom approach. Maintenance of quality has to be imbibed in the minds of the contractor as well as the officials of the department.

The direct responsibility for ensuring proper quality of work as per approved specifications for achieving the intended performance rests with the field team of Executive Engineer, Assistant Engineer and Junior Engineer. The Superintending Engineer shall be overall responsible for management of Quality System and Procedures for the works under his charge.

Responsibilities of the field staff

The broad responsibility of the staff and the Engineer-in-charge will be as under:-

(i) To ensure that materials duly approved by the competent authority are used in the work.

(ii) Wherever necessary the Executive Engineer shall approve the sources for respective materials.

(iii) Approval of samples of materials to be used.

(iv) To ensure that all the mandatory field and laboratory tests as laid down in the specifications are carried out at appropriate time and materials failing to conform to the required specifications are promptly rejected and removed from site.

(v) As far as practicable all tests on materials shall be carried out at the construction site in a field/ Divisional/ state level

laboratory, which shall be set up under the control of the Executive Engineer.

(vi) It will be incumbent upon the Executive Engineer to keep a watch over regular testing of materials before making payment at the stage of each running bill.

(vii) Samples for tests shall be taken mostly by the Junior Engineer, or some by the Assistant Engineers. Samples for 10% of mandatory tests shall be collected by the Executive Engineer. 10% of the field tests shall be get done by the Executive Engineer in his presence.

(viii) A guard file shall be maintained at all work sites, with copies of all inspection reports to-date.

(ix) Inspection Register, Site Order Book, Record of tests, Hindrance Register, etc. shall be put up for entries and review to every inspecting officer.

(x) The inspecting officers of the rank of Superintending Engineer and above shall not confine themselves only to review of progress, co-ordination and general matters, but shall also inspect the work from quality Assurance aspects.

(xi) The Executive Engineer and Superintending Engineer shall invariably review and sign the guard file of earlier inspections, Inspection Register, Site Order Book, Register of tests carried out, Hindrance Register etc.

(xii) The Executive Engineer shall ensure that the Assistant Engineers and Junior Engineers, as well as the contractors' supervisors in-charge are fully aware of the specifications and method of execution of any new/fresh item of work to be taken

up in the next 2 weeks. The Assistant Engineer/Junior Engineer/ Supervisor shall ensure that this important aspect is not overlooked.

Quality Assurance set up at Circle Level

The Quality Assurance team with the Superintending Engineer of the Circle as its head will comprise the Assistant Engineer (along with his Junior Engineer for laboratory work), whose main job is quality assurance. In order that the role of the Assistant Engineer (QA) is effective in the process of Quality Assurance, the following points are essential:

(i) The periodicity of visit of works should be such that the process control at various stages is possible.

(ii) There should be minimum delay between inspection of work and communication of inspection report to the field formation.

(iii) The Assistant Engineer (QA) shall carry out his tasks in a manner that relates operationally to the quality specifications and standards laid down for the work, and to the control actions that can be applied to the construction process. Thus the Assistant Engineer (QA) should assess those aspects which are important to the overall quality of the finished work.

The functions of the Quality Assurance team at Circle level are to check the compliance of Quality Assurance system by the field units and to guide the field engineers in quality related aspects of the work. For this purpose, the Assistant Engineer (QA) shall carry out a minimum of 4 visits to works every month.

(iv) The Assistant Engineer (QA) shall prepare his program and seek approval of the Superintending Engineer. The program shall be sent to site in advance of inspection.

Such inspections by the QA team shall, however, not absolve the responsibility of the Junior Engineer/Assistant Engineer/Executive Engineer for accepting only quality work from the contractor.

On the basis of his observations with regard to the quality of works, general adherence to the quality assurance procedures and the standard of progress, the Assistant Engineer (QA) shall submit an overall assessment report to the Superintending Engineer of the Circle. The Superintending Engineer shall comment on the report with minimum delay. The Assistant Engineer (QA) will then send the report to the Executive Engineer concerned for compliance.

CHAPTER 8

CAPACITY BUILDING

Training can increase efficiency and productivity in completing daily work tasks. Training can also help organization achieve greater consistency in process adherence, making it easier to project outcomes and meet organizational goals and targets.

To meet the target of productivity, efficiency etc. it is required not only to train the engineers, but it is required simultaneously to train the agencies and its workers also. So, different training modules will be developed separately for each of their functional areas.

With introduction of software based policy, it would require more extensive training to the field functionaries of the department for a sustainable system to take place in road maintenance.

CHAPTER 9

MONITORING

In order to ensure the desired progress in terms of physical and financial targets, it is essential to keep a close watch through monitoring of returns as well as through online monitoring.

Superintending Engineer shall ensure that there is proper monitoring of all maintenance activities. He shall monitor the physical and financial performance through quarterly returns to be submitted to him by the Executive Engineers in the format as per Table-1 (Routine Maintenance), Table-2 (Periodic Renewal) and Table-3 (Special Repairs/Flood Damage Repairs) by the 15th day of the calendar month immediately succeeding the quarter under report:

Table-1
Financial Progress of Routine Maintenance

Name of Division/PIU:						
Name of Sub- Division/PIU:						
Name of road	**Length of road (km)**	**Budget Allotment (Rs. Lacs)**	**Routine Maintenance (All in Rs. Lacs)**			**Remarks**
			Expenditure up to last Quarter	**Expenditure during the Quarter under review**	**Cumulative Expenditure during the year**	

Note: The Executive Engineer shall certify that financial figures given are as per the Register of Works (CPWA-41) corresponding to Works Abstract (CPWA-34)

Table-2

Physical and Financial Progress of Periodic Maintenance

Name of Division/PIU: -

Name of Sub-Division/PIU: -

Name of Road	Job No.	Sanctioned Length (in Km.)	Sanctioned Amount (Rs. Lacs.)	Achievement upto last Financial Year		Target for current Financial Year		Achievement during the year upto last quarter		Achievement during the quarter	
				Physical (in Km.)	Financial (Rs. Lacs)	Physical (in Km.)	Financial (Rs. Lacs)	Physical (in Km.)	Financial (Rs. Lacs)	Physical (in Km.)	Financial (Rs. Lacs)
1	2	3	4	5	6	7	8	9	10	11	12

Cumulative Achievement during the year		Overall upto date Achievement		Likely date of Completion	Remarks
Physical (in Km.)	Financial (in Rs. Lacs)	Physical (in Km.)	Financial (in Rs. Lacs)		
13	14	15	16	17	18

Note: The Executive Engineer shall certify that financial figures given are as per the Register of Works (CPWA-41) corresponding to Works Abstract (CPWA-34)

Table-3

Physical and Financial Progress of Special Repairs/Flood Damage Repairs

Name of Division/PIU: -

Name of Sub-Division/PIU: -

Name of Road	Job No.	Type of Repair	Sanctioned Amount (Rs. Lacs.)	Achievement upto last Financial Year		Target for current Financial Year		Achievement during the year upto last quarter		Achievement during the quarter	
				Physical (Km./%age/ No.)	Financial (Rs. Lacs)	Physical (Km./ %age/ No.)	Financial (Rs. Lacs)	Physical (Km./ %age/ No.)	Financial (Rs. Lacs)	Physical (Km./ %age/ No.)	Financial (Rs. Lacs)
1	2	3	4	5	6	7	8	9	10	11	12

Cumulative Achievement during the year		Overall upto date Achievement		Likely date of Completion	Remarks
Physical (Km./%age/ No.)	Financial (in Rs. Lacs)	Physical (Km./%age / No.)	Financial (in Rs. Lacs)		
13	14	15	16	17	18

Note: The Executive Engineer shall certify that financial figures given are as per the Register of Works (CPWA-41) corresponding to Works abstract (CPWA-34)

IDENTIFICATION OF GROWTH CENTRES AND RURAL HUBS

Growth Centres are habitations which have a high population, high level of educational facilities, good health service facilities, good agricultural produce markets, are well served by buses, railways, are already electrified, have retail shops selling agricultural inputs and items of daily consumption and postal facilities etc.

A **'Rural Hub'** is a large growth centre, characterized by the fact that it is connected to more than one Through Route (e.g. a T-junction or a crossing) thus giving it a higher potential. These Growth Centres and Rural Hubs help to ensure easy access to raw materials, labour inputs etc. for off-farm activities and bring the benefits of economic growth to the rural hinterland, including white goods, and passenger transport vehicles, as well as electivity, telecom, internet and other communication infrastructure etc.

A system of making shall be developed giving weightage as under:

WEIGHTAGE

	Parameter	Category Weight	Sub- Category Weight/s
A.	POPULATION(as per 2011 Census)	50	
	A score of 1 for each 150 population subject to maximum of 50		50
B.	EDUCATIONAL FACILITIES (Score of the highest category)	10	
	Primary School Middle School High School Pre-University Course(PUC)/10+2 institute ITI Degree College		2 3 5 7 8 10
C.	MEDICAL FACILITIES (Score of the highest category	7	
	Sub-Centre /ANM Centre Primary Health Centre (PHC) Community Health Centre (CHC) / Bedded Hospital (and referral for PHC patients)		2 4 7
D.	VETERINARY FACILITIES	3	
	Veterinary Hospital		3
E.	TRANSPORT AND COMMUNICATION INFRASTRUCTURE	15	

	Railway Station Bus Stand Notified Tourist Centres Post-Telegraph Office, PCO/Bank/ Regional Rural Banks One Diesel / petrol authorized Outlet 1 Additional authorized Diesel Outlet 1 Electric Sub Station 11 KVA 2 Electric Sub Station above 11 KVA 1		4 3 2 2 1 1 1 1
	MARKET FACILITIES (Cumulative Score)	12	
	Mandi (based on Turn Over) Ware house/ cold storage Retail shops selling Agricultural inputs and items of daily consumption		7 3 2
G.	ADMISTRATIVE CENTRES(Score of the highest category	3	
	Panchyat HQ Sub Tehsil Tehsil/ Block headquarter		1 2 3
		100	**100**

The following criteria for prioritisation can be adopted.

Priority	Marks Scored
I	>80
II	70-80
III	60-70
IV	Below 60

CHAPTER 10

MAINTENANCE THROUGH CONTRACTS

Considering the present manpower in the departments and also looking into the aspects on availability of machineries, equipment etc. it is considered to go for contract based management on maintenance

of road assets. Two types of maintenance contracts are described here, and suggested for implementation in the state.

A. EPC (Engineering, Procurement and Construction Contracts)

The Contractor shall ensure and procure that at all times during the Maintenance Period, the nature of maintenance conforms to the maintenance requirements set forth in conditions of the contract. The Contractor shall prepare a monthly maintenance programme in consultation with the Authority's Engineer and submit the same to the Authority's Engineer not later than 10 (ten) days prior to the commencement of the month in which the Maintenance is to be carried out. For this purpose a joint monthly inspection by the Contractor and the Authority's Engineer shall be undertaken. The Maintenance Programme shall contain the following:

(a) The condition of the road in the format prescribed by the Authority's Engineer;

(b) the proposed maintenance works; and

(c) deployment of resources for maintenance works.

In the event that the Contractor fails to repair or rectify any Defect or deficiency set forth in conditions within the period specified therein, it shall be deemed as failure of performance of Maintenance obligations by the Contractor and the Authority shall be entitled to effect reduction in monthly lump sum payment for maintenance in accordance with Clause of the contract.

If the nature and extent of any Defect justifies more time for its repair or rectification than the time specified, the Contractor shall be entitled to additional time. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

B. Performance Based Maintenance Contracts (PBMC)

Performance-based Maintenance Contract of Roads is a new way of effectively and efficiently preserve road assets that is rapidly evolving around the country. It has started to replace the traditional method-based contracting of road maintenance more than a decade ago.

The traditional way of contracting out road maintenance is based on the amount of work being measured and paid for on agreed rates for different work items. By contrast, Performance-based Road Management and Maintenance Contracts define minimum conditions of road, bridge, and traffic assets that have to be met by the contractor, as well as other services such as the collection and management of asset inventory data, call-out and attendance to emergencies, and response to public requests, complaints and feedback. Payments are based on how well the contractor manages to comply with the performance standards defined in the contract, and not on the amount of works and services executed. Performance Contracts are defining a final product and it is up to the contractor how to achieve this. Therefore, work selection, design and delivery are all his responsibility. Hence, the choice and application of technology and the pursuit of innovative materials, processes and management are all up to the contractor. Though this allocates higher risk to the contractor compared to traditional contract arrangements, but at the same time opens up opportunities to increase his margins where improved efficiencies and effectiveness of design, process, technology or management are able to reduce the cost of achieving the specified performance standards. So, PBMC is considered one of the suitable way out for up-keepment of the roads and suggested in the state.

ROAD MAINTENANCE FUND

While the Road Maintenance Policy is placed, resource of fund for the purpose is required to be explored, as only the present system of financing through state budget may not be sufficient. A good way to secure an adequate and stable flow of funds is to charge road users a road maintenance fee in exchange for the services of maintaining roads.

The following suggestions are placed to explore the sources:

a. Cess on sale of Petrol/ Diesel being sold within state.
b. Apportionment from Road taxes as collected by Transport Department.
c. Provision of 5 years' maintenance in DPRs of all new road projects
d. Provision of administrative charges on all deposit works
e. Grant from Finance Commission

CHAPTER 11

FORMATS

Approximate Calculation of Annual Maintenance Cost of Roads

(Based on per-kilometer repair cost of road length)

For the State of Tripura

Replacement value of Road Assets in Tripura

Sl No	Category of roads	Length in Km	Unit Cost Rs Lakh/Km	Amount (Rs Crores)
	Metalled Road			
1	State Highway	1057	205.00	2166.85
2	Major District Road		195.00	
3	Other District Roads	461	150.00	691.50
4	Villiage Roads (PMGSY)	3637	110.00	4000.70
5	Villiage Roads (NON-PMGSY)	6835	105.00	7176.75
TOTAL		**11990**		**14035.80 cr**