ABSTRACT

Rural Roads – Approval of Operational Guidelines for the implementation of Tamil Nadu Rural Roads Maintenance Policy and approval for setting up of an Empowered Committee chaired by the Secretary, Rural Development and Panchayat Raj Department to approve the annual maintenance plan and review periodically the performance of the districts in the maintenance of rural roads – Orders – Issued.

Rural Development and Panchayat Raj (CGS.II) Department

G.O. (Ms) No.140 **Dated: 24.11.2016**

Read:

1. G.O.(Ms) No.117, Rural Development and Panchayat Raj (CGS.2)Department, dated 03.09.2015.
2. Director of Rural Development and Panchayat Raj, D.O. Letter No.15612/2015/TU4, dated 01.10.2015.

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ORDER:

In the Government Order first read above, the Government have approved the Tamil Nadu Rural Roads Maintenance Policy. In the D.O. letter second read above, the Director of Rural Development and Panchayat Raj has stated that in continuation of Government Order first read above, a draft operational guidelines has been prepared for the implementation of routine maintenance of the rural roads in Tamil Nadu. The draft operational guidelines were sent to the Chief Engineer (C&M), Highways Department to offer remarks. The remarks/additions indicated by Highways Department have also been incorporated in the guidelines wherever necessary.

2. The Director of Rural Development and Panchayat Raj has stated that the following have been detailed in the operational guidelines.

- Types and details of various maintenance activities.
- Prioritisation and Frequency of Maintenance activities.
- Creation of Rural Road Management System.
- Selection and Prioritisation of Roads.
- Preparation of Annual Plan for maintenance.
- Allocation and Release of Funds.
- Maintenance Norms and Preparation of Estimates.
- Mode of Execution of works.
- Institutional Arrangement including the role of Block, District and State level agencies.
- Monitoring and Quality control mechanism.

3. The Director of Rural Development and Panchayat Raj has therefore requested the Government to issue necessary orders on the following:-

(i) To approve the operational guidelines for the implementation of Tamil Nadu Rural Roads Maintenance Policy which is annexed to this Government Order.

(ii) To approve the setting up of an Empowered Committee chaired by the Secretary, Rural Development and Panchayat Raj Department. The Director of Rural Development and Panchayat Raj, Deputy Secretary (Budget) (representing Finance Secretary), Additional Director of Rural Development (Roads and Bridges), Additional Director of Rural Development (Panchayat Raj), Additional Director of Rural Development (MGNREGS), Superintending Engineer (RD), Financial Advisor cum Chief Account's Officer, O/o the Director of Rural Development and Panchayat Raj are the members of the committee. This committee will approve the annual maintenance plan and periodically review the performance of the districts in the maintenance of rural roads.

(iii) To authorise the empowered committee chaired by the Secretary, Rural Development and Panchayat Raj to approve the Annual Maintenance Plan.

4. The Government have examined the proposal of Director of Rural Development and Panchayat Raj and decided to accept the proposal of the Director of Rural Development and Panchayat Raj and issue the following orders:-

a) The Government approve the operational guidelines for the implementation of Tamil Nadu Rural Roads Maintenance Policy which is annexed to this Government Order.

b) The Government approve the setting up of an Empowered Committee chaired by the Secretary, Rural Development and Panchayat Raj Department. The Director of Rural Development and Panchayat Raj, Deputy Secretary (Budget) (representing Finance Secretary), Additional Director of Rural Development (Roads and Bridges), Additional Director of Rural Development (Panchayat Raj), Additional Director of Rural Development (MGNREGS), Superintending Engineer (RD), Financial Advisor cum Chief Account's Officer, O/o the Director of Rural Development and Panchayat Raj are the members of the committee. This committee will approve the annual maintenance plan and periodically review the performance of the districts in the maintenance of rural roads.

c) The empowered committee chaired by the Secretary to Government, Rural Development and Panchayat Raj Department is authorised to approve the Annual Maintenance Plan.

5. This order issues with the concurrence of Finance Department vide its U.O.No.44313/RD/2016, dated 24.08.2016.

(BY ORDER OF THE GOVERNOR)

HANS RAJ VERMA,
PRINCIPAL SECRETARY TO GOVERNMENT.

To

The Director of Rural Development and Panchayat Raj, Chennai-15.
The District Collector, All Districts. (Through Director of Rural Development and Panchayat Raj, Chennai-15.)
The Secretary to Government of India, Ministry of Rural Development, Krishi Bhawan, New Delhi -1.

Copy to

The Hon'ble Chief Minister's Office, Chennai -9.
The Special PA to Hon'ble Minister (Municipal Administration, Rural Development and Implementation of Special Programme) Chennai-9.
The Finance (RD /BG-II / PWD-I/BG-I/FC-IV) Department, Chennai-9.
The Highways and Minor Ports Department, Chennai-9.
The Planning Development & Special Initiatives Department, Chennai-9.
The Principal Private Secretary to Principal Secretary to Government, Rural Development and Panchayat Raj Department, Chennai-9.
The Rural Development and Panchayat Raj (PR-I and B&C) Department, Chennai-9.
The NIC, Secretariat, Chennai-9.
SC/SF

//Forwarded By Order//

T. Vaidh —
SECTION OFFICER

G.O.(Ms)No.140, Rural Development and Panchayat Raj (CGS.2) Department, dated 24.11.2016

ANNEXURE

OPERATIONAL GUIDELINES FOR TAMILNADU RURAL ROAD MAINTENANCE POLICY

1. Introduction

Rural Road connectivity promotes access to economic and social services. The permanent or temporary absence of road connectivity will lead to denial of economic opportunities. Road access is a key component in eradication of poverty and inclusive growth. Considering this, Government of Tamil Nadu has been investing huge sums of money in the improvement of Rural road network which has lead to substantial increase in the rural road network and the length of Black topped roads has almost doubled in the last decade. It is important to safeguard this valuable asset so that the benefits of access can be sustained. This can be achieved only if the roads are covered by a systematic maintenance programme. At present there are no clear guidelines or norms for carrying out routine maintenance of roads. Taking this into account, the Government has laid out a policy framework called the **Tamil Nadu Rural Roads Maintenance Policy.** This policy outlines the approach of the Government in planning, funding, implementation and monitoring of rural roads maintenance. Detailed working guidelines are being enumerated in the following pages for implementation of the maintenance policy.

2. Scope

These guidelines cover the maintenance of all the Village Panchayats and Panchayat Union Roads in Tamil Nadu, hereinafter referred to as Rural Roads or simply roads. These guidelines shall be the basis for carrying out all kinds of maintenance activities in the Village Panchayats and Panchayat Union roads in Tamil Nadu.

3. Objectives of Road Maintenance Policy

- To maintain all roads, bridges and appurtenances, as far as possible, in originally constructed or subsequently improved

conditions to ensure that the investment of public funds is preserved.

- To ensure allocation of funds for the maintenance of roads based on scientific analysis consistent with the utility, age, and existing condition, irrespective of location or geographical distribution.
- To constantly improve the performance of the maintenance management through scientific methods, capacity building and innovation in the use equipments, materials and technology.

4. Need for Maintenance

The word 'Maintenance' itself explicitly defines that the objective is to maintain the road constructed or improved, to the extent possible, in its original condition. All roads, even if constructed with the best quality standards, require maintenance as they are subjected to traffic and the vagaries of nature. Maintenance is essential to get optimum service from the road structure during its design life. Maintenance of the roads will prevent pre-mature deterioration and failure of the road and will enable all the stakeholders to derive maximum benefits.

Lack of maintenance or poor maintenance will lead to:

- Roads rapidly becoming impassable and falling into disrepair
- Denial of long term benefits of road to the road users
- Increase in the vehicle operating cost and denial of riding comfort for the users.
- More accidents
- Ultimately, the social and economic benefit of improved road access is not sustained.

5. Benefits of Maintenance

- Regular maintenance ensures that damages are dealt with and repairs are carried out at an early stage before they become a hazard. Regular inspection of roads enables taking remedial measures for repair of collapsed culverts, landslides, washouts,

etc., which may otherwise pose serious traffic hazards to the road users.

- Periodic maintenance of road shoulders clean and free enables pedestrians, cyclists and slow moving vehicles to travel safely at a distance from other vehicles.
- Clearing the vegetation on road margins improves sight distance. Timely maintenance of signage and road markings contributes to road safety.
- Maintenance also enables reduction in vehicle operating cost, reduced travel time, regularity of transport services, better comfort and continued access to socio-economic services.

6. Definition and Classification of Maintenance

The Indian Roads Congress (IRC) defines road maintenance as "routine work performed to upkeep pavement, shoulders and other facilities provided for road users, as nearly as possible in their constructed conditions under normal conditions of traffic and forces of nature". Maintenance is "essential to get optimum service from the pavement structure during its life period."

7. Types of maintenance

Maintenance work is classified based on its timing, frequency, scale, complexity of activities, cost etc. Maintenance is also classified as On Carriageway works relating to road pavement and surface repairs and Off carriageway works consisting of maintaining shoulders and drains, clearing of CD structures, removal of debris, cutting of grass and bushes, minor repairs to drainage and other structures, maintenance of road signs and pavement markings, side slopes etc. It is the responsibility of the concerned maintenance agencies and officials to ensure that the emphasis is always on preventive and regular maintenance activities.

As per IRC, Maintenance is classified as follows:

- **Ordinary repairs/routine maintenance**
- **Periodic maintenance**
- **Special repairs and flood damage repairs**

i) Ordinary repairs/Routine maintenance

- Routine maintenance activities are small-scale in nature and should generally be done through manual labour. Routine maintenance activities are cyclic activities which are performed at predetermined intervals throughout the year purely as a preventive measure.
- Routine maintenance activities include up-keep of road components such as road formation, retaining walls, breast walls, culverts, bridges, causeways, pavement and other appurtenances, pothole filling, crack sealing etc.

ii) Periodic maintenance

- Periodic maintenance is typically carried out after a period of 5 to 10 years, depending on traffic levels, pavement type and geographical and weather conditions. The most common periodic maintenance activities include renewal of road surface and major repairs of structures.
- Periodic maintenance should be planned in cycles covering several years, thereby clearly defining which roads in the network are due for renewal.
- The life cycle after which the road becomes eligible for Periodic renewal is indicated in **Table V**. However, considering the availability of funds the roads shall be prioritised based on section 12 of these guidelines.

iii) Special repairs and flood damage repairs

- Damages resulting from usage, accident, comprising of repairs and rehabilitation, can be covered under the scope of ordinary repairs/routine maintenance, but damages of a relatively large magnitude are included as special repairs.

- This is required when road structures such as culverts and bridges have suffered serious distress and damage requiring major repairs or even replacement. Major repairs of protective works such as breast walls, retaining walls may also be treated as special repairs.
- Emergency maintenance responds to occasional, unforeseen events such as landslides, washouts, large trees or debris on the road and broken drainage structures. Emergency maintenance can be categorised into (i) temporary restoration works, (ii) re-opening of safe passage on the road and (iii) permanent restoration, for securing the stability of the road and reinstating all its components to its former (or a better) condition.

Rehabilitation and strengthening, which includes major restoration or upgrading of pavement through reconstruction or application of overlays to correct the structural deficiencies should be taken up separately and do not come under the scope of these guidelines and should not be taken up under maintenance funds.

8. Items of work under Maintenance

The following are some of the activities that are part of maintenance:

- The first priority of maintenance is the upkeep of drainage system. It should be the objective of the maintenance agencies to ensure smooth and efficient drainage network in each road.
- The effect of water in the form of ground water, surface water (streams and rivers) or rain water includes erosion and scouring, weakening the load bearing capacity of the road pavement, obstructing the passage of water by silting and even washing away of the entire stretch of the road and its structures.
- All road side drains and cross drainages should be free from all obstructions such as rocks, tree branches, silt and other debris. This shall be ensured by carrying out common activities like clearing shoulders, drains and culverts.
- The drainage system of the roads should be observed during the rainy season to get firsthand knowledge of the functioning of the

drains and also to carry out further improvements or modifications as may be necessary. These observations shall be recorded as part of the road history so that the information can be utilized in future.

- Surface drainage has a direct impact on the pavement and it is important to ensure that the rainwater is drained as quickly as possible by providing required cross slope (camber) and Longitudinal slope (Gradient). Also a watertight seal coat should be provided on the roadway in order to protect the underlying pavement layers.
- The road shoulders should be Trimmed and maintained to their original shape and slope for easy drainage. Poor soils such as clay and black cotton tend to absorb water thereby damaging the pavement and hence should not be used in the shoulders particularly during maintenance operations. Side slopes should be corrected to required gradient along with the shoulders.
- All roads should be provided with side drains and the restoration of the side drains to proper shape and linking the side drains to the cross drainage works is an important maintenance activity. Simple earthen drains of required shape, size and slope is sufficient for rural roads and can be easily provided using manual labour. Removal of silt and other debris is an important activity and the removed material should be discharged at a proper location so that they are not washed back into the drains.
- In the case of hill roads, cut-off drains should be provided to divert run-off water to the cross drainage structures.
- In the case of hill roads, the retaining walls should be properly maintained. Suitable measures to arrest soil erosion are to be adopted.
- Culverts form an essential part of the drainage system, and for this reason need regular maintenance. The most common maintenance activity for culverts is to keep the pipes clear of silt and other debris. When clearing the pipes, it is important to

check the integrity of the pipe joints to verify that the pipes have not been damaged or dislodged. Culvert aprons and headwalls need to be inspected for any cracks, damages and settlements. The apron on the downstream side needs particular attention ensuring that there is no scouring taking place.

- Clearing vegetation, removing bush and grass allows for the free flow of water on slopes and in drains. Excessive vegetation along the road also reduces the line of sight for traffic and also renders shoulders unusable for pedestrians and cyclists. Hence, Clearing works consist of trimming grass, removal of bushes and other vegetation and trimming of branches of trees causing obstructions to the road users. Grass on shoulders, side slopes and in drains should be cut, leaving the roots intact.
- Road signages and markings enhance the safety aspect of the roads and adequate care should be taken to install and maintain signboards like cautionary boards, information boards, etc in good condition. Road markings should be maintained in proper condition. All signs, when viewed from the closest traffic lane, must be completely free of brush, trees, vegetation and other obstructions that prevent passing motorist from adequately viewing the sign. Sign obstructions can be detected by visual inspection.

i) Maintenance of Road Drains

The most important aspect of routine maintenance is the maintenance of longitudinal and cross drains. Hence, first priority shall be given to maintenance of drains. The common defects, their causes and maintenance measures required for road drains are given in the **Table I.**

ii) Maintenance of Surfaced Roads

The surfaced roads or the Black topped roads form the major part of the rural road network. The maintenance of these roads is of major concern since these roads have been improved with huge investment of money and the improper maintenance of these roads will lead to costly rehabilitation or

reconstruction. The maintenance of the various repairs that occur over a period of time has a direct bearing on the road user's comfort and safety. Hence, it is important to understand the common defects and the maintenance activities related to the bituminous surfaced roads.

The old surface regardless of its type may be rough with waves and bumps. When these bumps are of considerable thickness, provision of a thin wearing surface may not be sufficient. In such cases, the bumps and waves should be scarified before the overlay treatment.

iii) Pot-Hole Repair (Patch Repair)

The amount of patching needed to make up pot-holes and localized failures may vary from 0 to 25 per cent of the surface area annually. Patching prolongs the surface life until a time will come when it will be more economical and desirable to renew the surface entirely.

Patching can be done by (i) sand premix, (ii) open-graded premix (iii) dense-graded premix (iv) penetration patching or (v) surface dressing. Dense-graded premix patch only where the existing surface itself is dense-graded asphaltic concrete. Surface dressing (one or two coats) can be done for existing surfaces with a similar specification and where the traffic is not too heavy.

Patching consists of the following sequence of operations

- Clearing the area by brooming.
- Trimming the sides vertically and the shape to a rectangle or square and making the bottom level.
- Painting the sides and bottom of the hole with a tack coat if a premixed material is used.
- Following the regular specifications of the treatment
- Rolling or hand tamping and checking the profile with straight edge.

iv) Seal Coat

Sealing the surface is resorted to rectify hungry surface, repair cracks, and arrest loss of aggregates. Sealing can take the form of the following treatments:

a. Liquid Seal

Liquid seal is an application of a binder (penetration grade or emulsion) at 9.8 kg/10 Sq.m followed up with a spread of cover aggregates, 6.3 mm nominal size, at a rate of 0.09 cum/10sqm and rolling in position.

b. Fog seal

Fog seal is a spray of slow-setting emulsion diluted with equal amount of water at a rate 0.5-1 litre per Sq.m. Traffic is allowed after the seal sets in. It is provided over a hungry surface, a cracked surface, a surface where there is loss of aggregates and over a surface exhibiting raveling.

c. Slurry seal

A slurry seal is an application of slurry composed of slow-setting emulsion, water and aggregates to a thickness of 5-10 mm. The emulsion and water are 18-20 percent and 10-12 percent respectively of the weight of aggregates. The slurry is spread at the rate of 200 Sq.m per tonne. No rolling is needed. Slurry seal is provided over a hungry surface, cracked surface, a surface where there is loss of aggregates and over a surface exhibiting raveling. Because of low viscosity of the binder, the specification results in sealing voids and cracks.

When the cost of patching becomes too high, it is more economical to renew the surfaces with suitable and such renewals are part of preventive maintenance and prolong the life of a pavement. The type and periodicity of Renewal cycles is given in the **Table V.**

V) Defects, Causes and Maintenance of BT roads

The common surface defects, their causes and the remedial actions required are given in the **Table II.**

VI) Maintenance of Un-surfaced Roads

The following measures are part of maintenance of WBM and Earthen roads:

a. Grading

The main purpose of grading is to restore the pavement and shoulder surface to their original cambers by returning the materials from the sides and shoulders to the centre. The grading should be done just after rains so that the retrieved material can be properly compacted. When side ditches are to be reshaped, it should be tackled at the same time but before the shoulders and carriageway is graded.

b. Patching

The gravel/ soil used in the original work should be, as far possible, used in patching work. The affected area should be cleaned of all loose material and brought to some regular shape preferably rectangular by chiseling. Once the material has been removed the bottom, surface should be compacted with hand rammer. Gravel/ soil at required moisture content should then be placed uniformly over the area (with $1/3^{rd}$ extra thickness). The camber and gradient of the large patch works should be checked before it is properly compacted. The hand feel method of estimating the moisture can be adopted.

c. Regravelling

Gravel roads require regravelling after certain periods of time, depending on the traffic and climatic conditions. Regravelling should be done in one layer of at least 10cm compacted thickness. Before the work is executed, the road surface should be properly graded to camber and gradient. The edges should be boxed to provide lateral support for the new layer and the base should be firm. After the required thickness of gravel has been spread over the firm base to camber and gradient, watering should be done by a water tanker,

and mixed by rotavator or manually. Compaction should be done by 8-10 tonne power roller normally. Compaction should be checked as per normal procedure.

In the case of WBM road patching or remetalling should be done as per regular methods and in no case gravel/soil should be used for patch repair of WBM roads.

The common Defects, Causes and Maintenance of Earthen/Gravel/ WBM Roads are given in the **Table III**.

VII) Maintenance of Cement Concrete Surface

The defects in cement concrete pavements are caused due to the following reasons:

1. Ingress of water to the sub-grade causing uneven settlement especially through joints.
2. Inadequate design and faulty workmanship

VIII) Cracks

A common defect noticed in a cement concrete slab is the appearance of cracks. Cracks can be shrinkage cracks, structural cracks, construction cracks, corner cracks and warping cracks. They can be of varying width. Usually hair cracks are not dangerous since they do not admit water to the subgrade. Medium and wide cracks are harmful since they can cause progressive destruction of the subgrade support by allowing water to percolate. Such medium and wide cracks are filled up by liquefiable substances such as bituminous emulsions, cutback bitumen or joint sealing compounds, whose basic ingredient is bitumen. Before the cracks are sealed, they are cleaned of dust and foreign matter. Compressed air jets and nozzles are useful to achieve this. The dry joints are then filled with appropriate bituminous binder poured by cans. The poured material is topped up with sand or fine chips to prevent the removal of binder under traffic.

IX) Joints

The maintenance of joints consists in examining whether the joints are properly sealed and if not, to immediately seal them. If the preformed joint filler has rotted and deteriorated, it should be removed and substituted by a fresh compressible filling material. The sealing material is then poured.

X) Patching of Slabs

A variety of defects such as sealing, spalling, depressions, irregularities and failures, can occur locally in a slab. In such cases, it is necessary to patch up the defective portions immediately to arrest further deterioration. Bituminous premix materials though very widely used for this purpose are not very satisfactory. The best materials are concrete, and epoxy/ polyester resin mortars. Such patches are of regular geometrical shapes, without acute-angled corners. The sides are first trimmed and made vertical and fresh concrete is laid and tamped.

XI) Mud-pumping and blowing

When the subgrade becomes moist with free accumulation of water, heavy axle loads passing over the slab will eject water and mud through the joints, cracks and pavement edges. This phenomenon is known as mud-pumping and blowing. When a pavement exhibits this phenomenon, the joints and cracks should be inspected and defective ones refilled and sealed. A bituminous under-seal can be pumped underneath the slab to prevent recurrence of the defect. This is accomplished through drilled holes in the slab. A viscous binder is preferred. This fills voids in-between the slab and the subgrade.

XII) Loss of Texture

If the surface becomes smooth and slippery, texture can be restored by cutting grooves by machines.

XIII) Maintenance of Bridges and Culverts

The following Maintenance activities are carried out in respect of Cross Drainage works:

- Re-pointing of joints of brick and stone masonry should be done if deterioration is noticed.
- All vegetable growth should be cleared. Roots of trees which are likely to cause disruption of the masonry of abutments and wing walls should be cleared.
- Weep holes of abutments and wing walls should not be allowed to clog.
- Control of scour of foundation can be obtained by dumping boulders, construction of spurs and dumping a garland of concrete blocks or stone sausages around piers.
- Expansion joints get dislodged and loosened frequently. They should be immediately restored.
- Rating of bridges and culverts should be done periodically and the safe load displayed prominently on the structures.
- Desilting of vent-way, clearing of bushes, white washing of parapets and minor repairs are to be undertaken.

9. Alternate Technology

- *The use of locally available materials including industrial waste, C&D waste, fly ash etc which can be used for temporary restoration, pot hole repairs, restoring berms etc.*
- *Alternate technologies like use of cold mix for patch repairs, readymade market products etc will be propagated.*
- *The use appropriate advanced automated equipments will be encouraged on pilot basis and later scaled up based on suitability.*
- *R&D Activities related to maintenance will be encouraged.*

10. Prioritisation and Frequency of Maintenance activities

- The routine maintenance activities shall be prioritised based on **Table-VI.**
- The frequency of various routine maintenance activities are given in **Table-VII.**
- **The prioritisation of maintenance activities is only a guide for better programming of the maintenance and it should be ensured that all roads are covered under routine maintenance in every calendar year.**
- All roads should be subject to pre-monsoon and post-monsoon maintenance.

11. Rural Road Management System (RRMS)

The management of this vast network of roads require a comprehensive web based road management system. This Rural Road management system (RRMS) will assist in the planning and improvement of roads based on scientific condition assessment of the road network. This Rural Road Management System will contain the entire road inventory including detail of bridges, culverts etc. The road management system will form the basis of selection and prioritisation of roads. **It shall be the responsibility of the districts and blocks to make the required entries in the online system and this shall be a pre-requisite for taking up roads for maintenance.**

i) In the first stage, the online road register available in tnrd.gov.in website will be updated completely to include all Village Panchayat and Panchayat Union roads.

ii) All road related information like length of the road, surface type, surface condition, habitations connected with population, public utilities like schools, hospitals, market centers connected etc shall be uploaded for all the roads.

iii) Technical information like carriageway width, pavement type, traffic volume, Soil type and strength, location, type and size of

Cross drainage works etc should be entered in online for all the roads.

iv) The details of all existing Bridges/CD works should be entered indicating the Date of construction, Type of structure, Waterway (number and length of spans), Foundation particulars, History of periodic maintenance (painting, pointing of masonry etc)

v) The history of the road shall include details of last improvement or upgradation or renewal done including cost and other details. The amount of money spent towards routine maintenance year wise and the details of the works done etc should also be entered in the online system.

vi) In the second stage, a web based Geographical Information System will be developed which will provide spatial and attribute details of the entire road network including location of habitations, public utilities etc. The details of public utilities to be mapped are given in **Table-VIII.**

vii) Finally, a comprehensive Rural Road Management System shall be created linking the MIS and GIS details which shall provide updated details of the status of road network and shall enable planning and budgeting of the road maintenance every year.

viii) The technology support for the creation of the RRMS will be provided at the state level with the support of NIC, Chennai or any other suitable private or government agencies based on due procedures.

ix) It shall be the responsibility of the concerned district and blocks to conduct field survey and to update all relevant information on the web portal for the creation of MIS and GIS.

x) The creation of the Rural Road Management System shall be pre-requisite for sanction works for maintenance and districts/blocks which do not fulfill this criterion are not eligible for taking up Rural Road Maintenance. The time frame for creation of RRMS will be fixed by the Empowered Committee.

xi) The cost or expenditure incurred towards creation of RRMS shall be met from PMGSY administrative funds.

12. Selection and Prioritisation of Roads

The following should be adopted in the selection and prioritisation of roads taken up for maintenance:

i) Only Village Panchayats and Panchayat Union roads available in the online road register can be taken up for maintenance.

ii) The Village Panchayats and Panchayat Union roads in a block shall be classified into High Utility value roads, Moderate Utility Value roads and Low Utility Value roads based on the following factors:

a. Roads directly connecting Habitations.
b. Roads serving as an important link road to habitations.
c. Population directly and indirectly benefitted.
d. Roads directly connecting important public utilities like Market centers, important tourist places, Hospitals, Educational Institutions, Pilgrim centers, Industrial centers etc.,
e. Road serving as an important link to public utilities like Market centers, important tourist places, Hospitals, Educational Institutions, Pilgrim centers, Industrial centers etc.,
f. Bus Plying Roads.
g. Roads serving as link roads for transporting agriculture produce to the nearest main roads, market centers, factories etc.
h. Roads in Coastal areas served as escape route in the time of Flood / Cyclone / Tsunami.
i. Roads which are connecting National Highways, State Highways, MDRs etc.
j. Roads which serve as bypass to the towns and cities or which serve as alternate routes during specific events, public functions, emergencies etc.

iii) Each road shall be assigned a permanent weightage number, based on the above factors, on a scale of 100. The roads shall be categorized as High Utility Value (HUV), Medium Utility Value (MUV) and Less Utility Value (LUV) based on the weightage. The weightage for various parameters will be fixed by the DRD&PR from time to time.

iv) The categorization shall be done at the block level. The Assistant Engineers and Block Development Officer shall be responsible for this. The categorized list of village panchayat roads and panchayat union roads shall be got approved from the village Panchayat and Panchayat union council respectively.

v) The categorized list of Village Panchayat roads and Panchayat union roads shall be then verified and got approved from the concerned AEE (RD).

vi) The list shall then be forwarded by the AEE (RD) for the approval of the District Collector through the DRDA.

vii) The Project Director and Executive Engineer shall make sample checks before submitting the list for the approval of the District Collector.

viii) This list shall be called the Comprehensive Priority List (CPL) and shall be the basis of selection/prioritisation of roads for maintenance and also for improvement and upgradation under various schemes. Once approved by the District Collector the list cannot be modified without the prior approval of the District Collector.

ix) The categorization of roads is to provide clear maintenance prioritisation of roads. The HUV roads shall be covered first and MUV next and so on based on the availability of funds. However, it is to be noted that all roads shall be covered with minimum maintenance activities irrespective of their categorization which shall mainly include the off-carriageway works.

x) The prioritisation for carrying out on-carriageway works shall be based on the Pavement Condition Index (PCI). The types of interventions required based on PCI is given in **Table-IX.**

xi) The other parameter that shall be considered is the age of the road or the time lapsed since last improvement or renewal, since, roads improved recently will be in relatively good condition.

xii) Though all black topped roads are eligible for periodical renewal at the end of the life cycle, the roads shall be selected based on PCI value and also taking into account its categorization, traffic etc. No road should be taken up for renewal simply based on age alone.

xiii) The HUV roads are the prime roads in the block and shall be given the first priority for upgradation (under other schemes) or renewal based on various factors indicated above. This shall be followed by MUV roads. LUV roads shall be covered by on-carriageway and off-carriageway routine maintenance works only and shall not be ordinarily eligible for upgradation or renewal. However, it is the responsibility of the Village Panchayat and Panchayat union to ensure that all roads are maintained in motorable condition albeit with minimum maintenance interventions.

xiv) Length of the roads is not a criterion for carrying out maintenance. However, while taking up roads for periodic renewal, all HUV roads shall be taken up irrespective of the length and MUV roads, which are less than 1 Km shall be taken up for renewal, only after the HUV roads and MUV roads of more than 1 Km are exhausted.

13. Periodic Renewal

i) The norms for taking up periodical renewal of black topped roads shall be based on the life cycle of the road in number of years, as given in **Table-V**. In case any road requires renewal or improvement well before the completion of its life cycle,

then in such cases clearance of the District Collector shall be obtained based on the inspection report of the Executive Engineer concerned with clear reasons specifying the causes for the same.

ii) Though all black topped roads are eligible for periodical renewal at the end of the life cycle, the roads shall be selected based on PCI value and also taking into account its categorization, traffic etc. No road should be taken up for renewal simply based on age alone.

iii) In case if a lower category BT road is required to be renewed owing to reasons that the failure may lead to costly rehabilitation later then the same shall be taken up. However, such roads need to be inspected by the Executive Engineer (RD) concerned and got approved.

14. Annual Plan for maintenance

1. At the beginning of each financial year, an annual road improvement and maintenance plan shall be prepared at the block level.
2. **Preparation of annual plan shall be done as follows:**
   - i) The entire road network in the block shall be categorized into Black topped roads and Non-Black topped roads.
   - ii) The BT roads shall be divided into two categories, roads which have been improved or surface renewed within the last 5 years and roads which have been improved or surface renewed before 5 years.
   - iii) The first category of BT roads shall be under routine maintenance and the budget required for routine maintenance shall be worked out based on the norms indicated by the empowered committee.
   - iv) The BT roads which are more than 5 years old shall be taken up for upgradation based on PCI for periodic renewal or for routine maintenance. The LUV roads shall not be taken up for periodic renewal and shall be

covered under routine maintenance alone. Based on this, the tentative budget required for maintenance of BT roads can be worked out.

v) The cumulative funds required for maintenance of Non-BT roads and BT roads shall be the annual budgetary requirement for Rural Road Maintenance.

vi) The roads which have been already sanctioned under various schemes shall not be considered for the above calculations.

vii) The roads taken up under PMGSY, TNRRIS and NABARD where the routine maintenance is part of the construction contract, the same shall be included in budgeting.

Viii) The **Table IV** indicates the broad outline for working out the Annual budget for road improvement and maintenance.

3. The Annual Budget for rural road maintenance shall be worked out by all the blocks and submitted to the District Collector before 15th February every year. The District Collector shall cross verify the proposals through the PD, DRDA, EE (RD) and AEEs (RD) shall forward the consolidated district proposals to the Director, RD&PR before 15th March every year.
4. The blocks shall also prepare and submit a detailed plan for the implementation of routine maintenance based on these guidelines and also a report on the performance during the preceding year.
5. A provision will be created in the tnrd.gov.in website for the preparation of tentative annual budget for the improvement and maintenance of the roads.
6. Works like jungle clearance, desilting of side drains, side slope correction, removal of blockages etc, which involve only manual labour, will be taken up under MGNREGS. The Maintenance plan shall clearly specify the quantum of funds to be met from

MGNREGS and the amount required from SFC Grants to meet skilled labour/material component.

7. A provision of 5% in the overall maintenance budget shall be made for carrying out emergency repairs.
8. The Empowered Committee chaired by the Secretary, RD&PR shall approve the Annual Maintenance Plan prepared by the districts as per the provisions in **section 14** of these guidelines.

15. Allocation of Funds

The Funds required for Maintenance shall be met from MGNREGS for 100% labour oriented works and for works involving material and machinery, funds will be met from SFC Grants and own funds of local bodies.

16. Eligibility and Selection of Roads

The Districts/Blocks which satisfy the following requirements are only eligible for sanction of works under routine maintenance:

i. The District/Blocks should complete the actions indicated in 1 to 5 of section 11, within 6 months from the date of issue of these guidelines.

ii. The District/Blocks should complete the actions indicated in 6 & 7 of section 11, within 1 year from the date of issue of these guidelines.

iii. The District/Blocks which do not adhere to the above time frame shall not be eligible for sanction of works under maintenance for the second year.

17. Maintenance Norms and Preparation of Estimates

1. A Committee Chaired by the Director of RD&PR, Additional Director of Rural Development (Roads and Bridges), Additional Director of Rural Development (Panchayat Raj), Additional Director of Rural Development (MGNREGS), Superintending Engineer (RD), Two Project Directors, DRDA, Two Executive Engineer (RD), Chief Engineer (C&M), Financial Advisor cum Chief Accounts Officer, DRD&PR and Two experts from road

sector as decided by the DRD&PR will approve cost norms annually to be adopted for estimating maintenance budget.

2. The cost norms will be fixed for roads based on the age, type of surface, pavement condition etc.
3. The cost norms approved by the committee shall be used for the preparation of maintenance budget at the block level. However, detailed estimates shall be worked out for individual works based on field conditions.
4. The following items should be included in the estimate for routine maintenance based on field verification:
    i. Jungle clearance on shoulders, side slopes, cutting or trimming of tree branches.
    ii. Restoration of rain cuts and dressing of shoulders and side slopes to required slope.
    iii. Formation or complete restoration of shoulders.
    iv. Restoration/formation of side drains, removal of silt and debris in side drains.
    v. Removal of silt, blockages in cross drainage works.
    vi. Rectification of cracks, structural defects, clearing weep holes, pointing of joints, etc
    vii. Rectifications of surface defects including pot holes, ruts, corrugation etc.
    viii. Correction of camber and super elevation.
    ix. Painting, refixing or replacing road furniture such as HM stone, KM stone, damaged hand rails, missing guard stones Sign Board, Logo board, Caution board etc.,
5. The estimates for all the above items shall be prepared based on State Highways Standard Specification for Roads and Bridges, Ministry of Rural Development (MORD) and Ministry of Road Transport and Highways (MORTH) specifications and standards.
6. The Rural Schedule of Rates shall be adopted for preparation of estimates for items of works like jungle clearance, desilting of side drains, side slope correction, and removal of blockages etc,

which involve manual labour, since these can be taken up only under MGNREGS.

7. Similarly, all the items of work involving material and machinery like patching of pot holes, various other surface treatments, repair of structures etc shall be taken up under Rural Road Maintenance.
8. Hence, separate estimates shall be prepared for works under MGNREGS and Rural Road Maintenance.
9. The items of works that can be taken up under MGNREGS and Rural Roads Maintenance are given in **Table- X.**
10. Though there is no ceiling on the % of the patches to be provided for routine or periodic maintenance, it shall be generally restricted to 25% of the surface area. In cases if the % of patch is higher than 25% then the road shall be inspected by the Executive Engineer and only after the specific recommendation of the Executive Engineer such roads shall be approved. The ultimate objective of maintenance shall be to reduce the defects on the roads through preventive maintenance.
11. The provisions for treatment of surface defects shall be made corresponding to the type of defects as given in **Table- II.**
12. Detailed estimates should be prepared after a proper site inspection by the Union Overseer/Assistant Engineer. No rough cost estimate should be prepared.
13. The estimate should contain detailed Specification report containing clear justification for the work, Name of the scheme, year and Administrative sanction details, Brief description of the proposed maintenance activities, Report on Pavement Condition Index, Specifications adopted, Provision made in the estimate, Schedule of rates adopted etc.

14. Abstract of the estimate should comprise of the correct and detailed specifications of the all items of work with respective quantity and rate.

15. Detailed estimate should contain item wise quantities with detailed specifications.

16. Data sheet should contain detailed calculations for arriving at the rate for each item based on standard data. This shall be duly checked and signed by concerned JDO/SDO of the District.

17. **Photographs should be taken at defective portion of the road indicating chainages. The photographs should be commensurate with the provisions made in the estimate. The surface patches should be measured accurately and shall be indicated in the estimate along with the exact location. Photographs of all patch portions should be enclosed in the estimate. Photographs indicating portion of the road requiring jungle clearance, desilting of side drains, blocked culverts, KM and HM stones etc should be enclosed in the estimate.**

18. All the above records should be duly authenticated/duly signed by the Assistant Engineer and Assistant Executive Engineer.

19. JDOs/SDOs are primarily responsible for correctness of lead and data.

20. The AE/UE is responsible for correctness of length, width, details regarding surface condition, provisions made and previous maintenance.

21. The AEE shall cross check the provisions given in the estimate vis-a-vis the site conditions and is responsible for adequacy of provisions made in the estimate.

22. The Project Director, DRDA and EE (RD), will super-check atleast 10% of the works each and the AEEs (R&B) & AEE (RD) and other Assistant Director level officers shall each inspect at least

20% of the works independently and check the correctness of the estimates.

18. Administrative Sanction

Administrative Sanction to the works shall be issued by the competent authority as per G.O. (Ms) No.203, RD&PR (PR.1) Department, dt.20.12.2007 and amendment to the Tamilnadu Panchayats (preparation of Plans and Estimates for works and mode and conditions of Contracts) Rules 2007 and G.O.No.54, RD & PR (PR.1) 22.5.2014 after completing test-verification as prescribed in Para above.

19. Technical Sanction

Technical sanction will be accorded by the competent authority as per G.O. (Ms) No.203, RD&PR (PR.1) Department, dt.20.12.2007 and amendment to the Tamilnadu Panchayats (preparation of Plans and Estimates for works and mode and conditions of Contracts) Rules 2007 and G.O.No.54, RD & PR (PR.1) 22.5.2014.

20. Tendering

(i) **The works under Rural Roads maintenance will be executed following the Tamil Nadu Transparency in Tenders Act, 1998 and Rules, 2000.** Table-I of Notification-II in the Tamil Nadu Panchayats (Preparation of Plans and Estimate of works and mode and conditions of contracts) Rules, 2007 vide G.O. (Ms) No.203, RD&PR (PR.1) Department, dt.20.12.07 will be followed for tendering.

(ii) The roads shall be bunched into packages for tendering purpose.

(iii) The tenders for routine maintenance shall have validity for the entire financial year and specific conditions indicating that the contractor shall carry out pre and post monsoon maintenance shall be included in the bidding document.

(iv) Similarly, the blocks may approve a panel of contractors and annual rates for carrying out specific items of maintenance works on need basis.

21. Execution of works

The measurements, Check Measurement and Super check **of the works shall be done as per the norms indicated in G.O. (Ms) No. 54, RD&PR (PR.1) Dept., dt. : 22.05.14.**

In the case of road works taken up under PMGSY, NABARD etc were the maintenance is contracted out along with construction the same shall be check measured by the AEE (R&B).

The instructions of the National Green Tribunal regarding onsite compliance during construction of roads shall be strictly followed.

22. Institutional Arrangements

i) Block Level

1. The BDO (BP) and BDO (VP) shall be responsible for planning and implementation of the maintenance of Panchayat Union roads and Village Panchayat roads respectively.
2. They shall be responsible for establishing and maintaining a road inventory, providing detailed information about the road assets and update the data in the RRMS on a regular basis.
3. They shall be responsible for the preparation of Annual Maintenance Plan. They shall identify and allocate required funds for maintenance as per the approved maintenance plan from out of SFC grants, general funds and other own revenues. The Union Engineer/Assistant Engineer will assist the BDOs in the preparation of Annual Maintenance Plan.
4. Ensure periodic inspection and reporting of the conditions of the roads continuously before, during and after the completion of maintenance activities.
5. Ensure execution of works as per necessary standards and quality of material and workmanship.
6. Maintenance of records.

ii) District Level

1. The District Rural Development Agency shall be responsible for the implementation of maintenance of roads at the District level.
2. It shall be the responsibility of DRDA to ensure setting up of a proper Rural Road Management System in all the Blocks.
3. DRDA shall provide necessary guidance and support to the blocks for the planning and implementation of road maintenance.
4. DRDA shall verify and consolidate the annual maintenance plan and submit the same to SRRDA for approval.
5. DRDA shall monitor the implementation of maintenance of roads and shall put in place a proper inspection mechanism by deputing officers at the district and sub-divisional level.
6. DRDA shall also be responsible for the Quality control of maintenance works.
7. DRDA should facilitate creation of logistical support at the block level for the implementation of maintenance of roads and shall also undertake periodic capacity building and training of block officials with regard to maintenance of roads.
8. DRDA shall prepare and submit an annual report on the performance of the district and blocks under "Maintenance".

iii) State Level

1. At the State level, State Rural Road Development Agency shall be responsible for monitoring and guiding the Districts in the maintenance of roads.
2. SRRDA shall submit the consolidated annual maintenance plan for the approval of the empowered committee.
3. SRRDA shall also arrange for third party quality control check of the works done under maintenance.

23. Inspection

Maintenance is a continuous activity happening throughout the year and the scheduling of various maintenance activities shall depend on various factors like rainfall season, age and condition of the road, intensity of traffic etc. Hence, it is important to have continuous verification of the road network so that the maintenance requirements are assessed and prioritised. Hence, inspection of all roads shall be done at least once in every three months by the technical staff at the block level. In case of roads which have higher traffic intensity such as bus plying roads shall be inspected more frequently. The entire road network shall be divided among the existing staff i.e. Assistant Engineers, Overseers and Road Inspectors. Each officer shall be assigned with a set of roads within a geographically contiguous area. They shall inspect these roads and submit their report in the road condition survey form. The road condition survey form for various types of roads is given in **Table- XI to Table- XIV.** These reports shall be the basis for priortising and scheduling the maintenance activities in the block. A provision will be made in tnrd.gov.in website for online entry of these reports.

Bridges should be periodically inspected at least once in a year by Assistant Engineers in case of culverts of waterway upto 6m, Assistant Executive Engineers in case of minor bridges (Length 6-30m), Executive Engineers in case of medium bridges (length 30-150m) and Superintending Engineers in case of major bridges (length greater than 150m). The items to be noted during inspection are given in **Table- XV.**

24. Quality Control

- All the mandatory Quality control tests before, during and after execution of the works shall be carried out as per the quality Control Handbook Vol. I and II published by NRRDA
- A separate QC register should be maintained for each work and the record of tests shall be entered by Assistant Engineer and verified by the Assistant Executive Engineer (R&B) and Executive Engineer (RD).

- QC register shall be submitted along with the bills and the same shall be verified before release of payment.
- The details of the QC tests conducted, observations made shall be entered in the online QC module in tnrd.gov.in website.

25. Monitoring

The execution of the works taken up under maintenance will be monitored through the **Real Time Monitoring System developed by NIC, Chennai** in order to ensure continuous monitoring and expeditious completion of works.

26. Documentation

Proper documentation of the works should be done capturing various processes in the implementation of the maintenance works. Photographs of the site before undertaking the work, during execution of the work and after completion of the work should be taken and properly documented.

The Secretary to Government, Rural Development and Panchayat Raj Department is empowered to modify these guidelines whenever necessary, in consultation with the Director of Rural Development and Panchayat Raj.

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PRINCIPAL SECRETARY TO GOVERNMENT.

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T. Vaidyanathan

SECTION OFFICER

Table-I
Defects, Causes and Maintenance Measures in Drains

Sl. No.	Defects	Cause	Maintenance Measures
1.	Ditch cross section destroyed	Plying of vehicles/ movement of animals	Reshaping/ Regrading of ditch
2.	Ponding in ditch and on shoulder	Insufficient ditch cross section	Deepening of ditch
3.	Silting of drain	Water flows slowly on the invert slope	Desilting of ditch
4.	Uneven ditch invert	Blockage caused by debris/ vegetation	Clearing, cleaning and regrading
5.	Erosion of sides and bottom of ditch	Too steep gradient	Reinforcing of ditch slopes, regrading or realignment of drain, ditch checks
6.	Destruction of lined or precast drain	Poor alignment or change in flow direction	Erosion control and realignment of drain
7.	Ditch lining is damaged	Settlement/ erosion of soil under ditch	Erosion repair and lining repair
8.	Ponding, erosion	In-sufficient lateral drainage	Provision of lateral drainage
9.	Silting, blockage by debris of culvert	Too flat gradient, in-correct positioning of culvert Floating debris lodged in culvert	Clearing and cleaning and provision of debris rack.
10.	Erosion of stream bed at culvert outlet	Water flow very fast/ culvert invert on a flat grade	Erosion repair
11.	Settlement cracks on the culvert	Settlement of soil below	If minor cracks, only repair of cracks. In case of major settlement the culvert must be reconstructed.
12.	Rusting of steel in culvert	Weathering, poor quality material	Repair of steel section
13.	Cracks in paved surface of causeways	Settlement	Sealing of cracks
14.	Obstruction on shoulders	Operational	Removal of obstruction
15.	Level of shoulders higher than carriageway	Transportation of carriageway material by traffic, swelling of soils, vegetation growth.	Regrading of shoulders and surface vegetation control.
16.	Ruts and depressions in shoulder	Erosion, plying of vehicles	Patch work and reshaping
17.	High vegetation on shoulder	Unchecked growth of vegetation	Vegetation control
18.	Level of shoulder lower than carriageway	Erosion/ settlement of carriageway	Replenishment of shoulder
19.	Vegetation overgrowth on slopes	Lack of grass cutting, trimming	Vegetation control
20.	Erosion of slopes due to surface water	Rain water accumulation at the top of the slopes	Erosion repair by cut off ditch, collector drains, chutes, berms, vegetation cover and masonry protection

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SECTION OFFICER

Table-II

Defects, Causes and Maintenance of BT roads

Defect	Causes	Maintenance Measure
Bleeding Surface	Excess/Unsuitable binder	Spreading of aggregate Chips
Surface and pavement structure cracks	Poor quality of material/ workmanship Insufficient pavement crust excessive loads	Local sealing or filling in of cracks strengthening
Ruts and depression	Poor quality of material inadequate pavement or subgrade strength	Slight rutting : filling Deep rutting : local restoration of pavement
Edge subsidence	Inadequate or badly maintained shoulders	Slight subsidence: filling of ruts and depressions and restoration of shoulders
Rutting	Loss of strength due to water penetration	Deep subsidence: Local restoration of pavement, improvement of drainage
Edge damage	Poor drainage Narrow road Shoulder damage due to action of water	Local restoration of pavement Repairs of shoulder
Potholes	Degradation of pavement structure, Poor quality of material, Infiltration of water Traffic	Cutting and removal of material up to affected depth, filling and compaction by ramming
Shoving	Failure of subgrade/sub-base, Water ingress, Poor materials, Poor workmanship, Heavy traffic	Cutting and removal of material upto full depth of affected area and refilling with appropriate materials in layers and compacting

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Table-III
Defects, Causes and Maintenance of Earthen/Gravel/ WBM Roads

Sl. No.	Defects	Causes	Maintenance Measures
1.	**Earthen/ Gravel roads**		
	(a) Loss of shape	Traffic; Natural elements	Grading by motor graders or manually in dry condition, wetting the loose material and compaction by power roller.
	(b)Corrugations	Materials; traffic	Grading (as above)
	(c) Ruts	Iron rimmed carts	Patch repairing in case of minor defects. Severe and extensive damages should be rectified by regravelling.
2.	**WBM Roads**		
	(a) Potholes	Substandard aggregates; excessive plastic filler in rainy season	Patch repairing in case of minor defects.
	(b) Ravelling	Traffic; substandard construction; excessive plastic filler in rainy season; non-plastic filler in dry areas.	Remetalling in case of extensive damage.
3.	Roadside Drains & Ditches		As suggested in **Table-I**

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Table-IV

Surface Type	Item of work	Category of road, PCI and Age	Scheme
Black Topped Roads	Strengthening	• High Utility Value & • Medium Utility Value • PCI 2 & less and more than 5 years old	NABARD, TNRRIS, PMGSY, SCPAR, MLACDS, MPLADS etc
Black Topped Roads	Renewal	• High Utility Value & • Medium Utility Value • PCI more than 2 and more than 5 years old	CFC grants, SFC grants, General Funds of VP and PU.
	Routine Maintenance	• High Utility Value, • Medium Utility Value & • Less Utility Value • PCI more than 2 and less than 5 years old	MGNREGS, CFC grants, SFC grants, General Funds of VP and PU.
Non-BT Roads	Upgradation	• High Utility Value, • Medium Utility Value	NABARD, TNRRIS, PMGSY, SCPAR, MLACDS, MPLADS etc
	Routine Maintenance	• High Utility Value, • Medium Utility Value & • Less Utility Value	MGNREGS, CFC grants, SFC grants, General Funds of VP and PU.

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Table -V
Life Cycle of Surfaced Roads

Traffic CVPD	Type and periodicity of renewal		
	Low Rainfall (1500 mm/year)	**Medium Rainfall (1500-3000 mm/year)**	**High Rainfall (>3000 mm/year)**
<150	Surface dressing after 6 years	Surface dressing after 6 years	Surface dressing after 6 years
150-450	Surface dressing after 5 years	Surface dressing after 4 years	Surface dressing after 3 years
>450	OGPC/MSS after 6 years	OGPC/MSS after 5 years	OGPC/MSS after 4 years

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Table -VI
Prioritisation of Routine Maintenance Activities

Defect	Criteria	Action	Priority
Features concerned with safety of traffic			
Breaches or blockages in the roadway	Any type of breach, that endangers safety of traffic or obstruct flow of traffic	Remove blockages and repair cuts	**Urgent**
Tree branches at height less than 4.5m over the roadway		Cut branches in of lower ones first	**Special attention**
Carriageway and crust condition			
Cracking without rutting	Cracking in local areas less than 25% of the total area	Local sealing or filling of cracks	Routine
	More than 25% of total area		**Special attention**
Stripping	Less than 25% of total areas	Apply local sealing	Routine
	Exceeding 25% of total area	Apply surface dressing	**Special attention**
Bleeding	Less than 25% of total area	Sand the surface	Routine
	Exceeding 25% of total area	Apply surface dressing	**Special attention**
Rutting	Less than 50mm depth with limited cracking	Prime and fill with bituminous mix	Routine
	Less than 50mm with severe cracking		**Special attention**
	More than 50mm depth with severe cracking	With surface dressing over cracks Overlay required	**Special attention**
Potholes	As soon as they develop	Patching	**Special attention**
Reflection cracks	Widely spaced	Crack Sealing	Recurrent
	Closely spaced	Apply surface dressing	**Special attention**
Edge subsistence and rutting	Any extent	Patch road edge and repair shoulder	Recurrent
Deflective camber	Any extent	Reconstruct camber	**Special Attention**
Undulations	Any extent	Investigate and rectify	**Special Attention**
Loss of material on unpaved road	Any extent	Regravelling	**Special attention**

Table -VI (contd.)
Prioritisation of Routine Maintenance Activities

Defect	Criteria	Action	Priority
Shoulders and side drains			
Deformation or scouring of shoulders	Any extent	Fill and compact to restore camber	Routine
Shoulders and side drains			
Deformation or scouring of shoulders	Any extent	Fill and compact to restore camber	Routine
Silting of side drains	Any extent	Clear the drains	Routine
Scouring in side drains	Any extent	Reconstruct to desired shape. Install scour checks and mitre drains	**Special attention**
Cross drainage works			
Causeways: Potholes in paved surface, erosion of inlets, outlets and guide posts		Pitching, repair and replace	**Special attention**
Culverts: Silting, erosion of inlets and outlets and settlement cracks		Remove silt, repair erosion and cracks	**Special attention**
Other works			
Vegetation control		Remove bush and cut grass	Routine
Road furniture and signs dirty, corroded or missing		Clean, repair and replace	Routine

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Table -VII
Frequency of routine maintenance activities

Sl.No.	Name of Item/Activity	Frequency of operation in one year
1	Restoration of rain cuts and dressing of berms as per clause 1902 of the specifications	Once generally after rains (In case of areas having rainfall more than 1500 mm per year, as and when required).
2	Making up of shoulders as per clause 1903 of the specifications	As an when required
3	Maintenance of Bituminous surface road and/or gravel road and/or WBM road including filling pot holed and patch repairs etc as per clause 1904, 1905 and 1906 of the Specifications.	As an when required
4	Maintenance of drains as per clause 1907 of the Specifications	Twice (In case of hill roads as an when required)
5	Maintenance of culverts and cause ways as per clause 1908 and 1909 of the Specifications.	Twice (In case of hill roads as an when required)
6	Maintenance of road signs as per clause 1910 of the Specifications	Maintenance as and when required Repainting once in every two years
7	Maintenance of guard rails and parapet rails as per clause 1911 of the Specifications	Maintenance as an when required Repainting once in a year
8	Maintenance of 200m and Kilo Meter stones as per clause 1912 of the Specifications	Maintenance as and when required Repainting once in a year
9	White washing guard stones	Twice
10	Re-fixing displaced guard stones	Once
11	Cutting of branches of trees, shrubs and trimming of grass and weeds etc as per clause 1914 of the Specifications	Once generally after rains (In case of areas having rainfall more than 1500 mm per year, as and when required)
12	White washing parapets of C.D. works	Once
13	White and Black banding tress	Twice
14	Painting of Speed Breakers	As when required

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Table -VIII
List of Public Utilities

Sl.No	Detail
1	HR. Sec. School
2	Middle School
3	Primary School
5	ITI
6	Arts & Science Colleges/Professional Colleges
7	Health Sub Centre / ANM Centre
8	Primary Health Centre (PHC)
9	Community Health Centre (CHC) / Bedded
10	Hospital (and referral for PHC patients)
11	Veterinary Hospital
12	Panchayat Office
13	Block Office
14	Taluk Headquarter
15	Village Administrative Office
16	Library
17	Public Distribution Shops
18	Noon Meal/Kitchen shed
19	Anganwadi Building
20	Community Hall
21	Self Help group Building
22	Burial ground or cremation shed
23	Food grain godown
24	Important Pilgrim Centers
25	Important Tourist attraction places

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Table -IX
Prioritisation of Maintenance Based on PCI

PCI	Condition of the Pavement	Action to be Taken
≤ 1.0	Pavement is in very poor condition with extensive severe cracking, alligatoring, potholing and depressions. Ridability is very poor and the surface is very rough and uneven.	Reconstruct immediately
1.0 to 1.5	Pavement is in poor to very poor condition with moderate alligatoring and extensive severe cracking, potholing and depressions. Ridability is poor and the surface is very rough and uneven.	Reconstruct within 1 year
1.5 to 2.0	Pavement is in poor condition with frequent moderate alligatoring and extensive moderate cracking, potholing and depressions. Ridability is poor and the surface is rough and uneven.	Reconstruct in 1-2 years
2.0 to 2.5	Pavement is in poor to fair condition with frequent moderate cracking, potholing and depressions and intermittent moderate alligatoring. Ridability is poor to fair and surface is rough and uneven.	Reconstruct in 2-3 years or Resurface in 1-2 years.
2.5 to 3.0	Pavement is in fair condition with intermittent moderate and frequent slight or moderate alligatoring, potholing and depressions. Ridability is fair and surface is moderately rough and uneven.	Resurface in 2-3 years
3.0 to 3.5	Pavement is in fairly good condition with slight cracking, slight or very slight potholing and a few areas of slight alligatoring. Ridability is fairly good with intermittent rough and uneven sections.	Resurface in 3-5 years
3.5 to 4.0	Pavement is in good condition with frequent very slight or slight cracking. Ridability is good with a few slightly rough and uneven sections.	Normal maintenance only
> 4.0	Pavement is in very good condition may be with few hairline cracks. Ridability is very good, may be with few areas of slight distortion.	No maintenance required

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SECTION OFFICER

Table –X

Details of Maintenance activities to be taken up under MGNREGS & Rural Road Maintenance

Item of works to be covered under Rural Road Maintenance	Item of works to be covered under MGNREGS
1. Surface defects like Cracks, Corrugations, Depression / Settlement, Disintegration, Ravelling, Rutting, Potholes, Shoving, Upheaval, etc., 2. Replacement of HM/KM/Name board/sign boards/Guard stones 3. Painting and lettering of HM/KM/Name board/sign boards/Guard stones 4. White washing of parapet	1. Cutting of branches of trees, shrubs and trimming of grass and weeds etc., 2. Formation and repair of earthern side drains & Desilting of CD works. Pot hole refilling using locally available material. 3. Side berms cutting & Filling and Repairs to shoulders using locally available soil 4. Refixing of the HM/KM/Name board/sign boards/Guard stones 5. Planting and Maintenance of Tree plantation in road margins

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T. Vaishnavi
SECTION OFFICER

Table -XI
Online Road Condition Survey Form for Surfaced Roads

	District				
	Block				
I	***Basic Information***				
(i)	Name of the road				
(ii)	Category of the road (PUR/VPR)				
(iii)	Length of the road (In KM)				
(iv)	Road code				
(v)	Year of last construction / Periodic Maintenance				
(vi)	Date of last inspection				
II	**Surface Defects / Chainage**	**0/0 -1/0**	**1/0 -2/0**	**2/0 - 3/0**	**Approximate % of Area/Length**
(i)	Pot holes (√ or X)				
(ii)	Edge repair (√ or X)				
(iii)	Cracks (√ or X)				
(iv)	Depressions (√ or X)				
(v)	Ravelling (√ or X)				
(vi)	Rutting (√ or X)				
(vii)	Shoving (√ or X)				
III	**Side drain**				
(i)	Jungle clearance (√ or X)				
(ii)	Silt Removal (√ or X)				
(iii)	Berms Cutting (√ or X)				
(iv)	Repair to Concrete Drain (√ or X)				
(v)	Repair/Replacement of Concrete Cover Slab (√ or X)				
IV	**Jungle clearance (√ or X)**				
(i)	Restoration of Shoulders Berms Cutting / Berms Filling (√ or X)				

V	CD & Protective Works	Minor Repairs	Major Repairs	Reconstruction	Remarks
(i)	RCC Culvert (Chainage)				
(ii)	Pipe Culvert (Chainage)				
(iii)	Causeway (Chainage)				
(iv)	Hard bed (Chainage)				
(v)	Retaining wall (Chainage)				
VI	**Road Furniture**	**Replacement**	**Minor Repairs**	**Painting & Lettering**	
(i)	Name Board /Sign Boards (√ or X)				
(ii)	HM Stones (Chainage)				
(iii)	KM Stones (Chainage)				
(iv)	Guard Stones (Chainage)				
(v)	Others (specify)				

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Table -XII
Online Road Condition Survey Form for WBM Roads

	District				
	Block				
I	***Basic Information***	-			
(i)	Name of the road				
(ii)	Category of the road (PUR/VPR)				
(iii)	Length of the road (In KM)				
(iv)	Road code				
(v)	Year of last construction / Periodic Maintenance				
(vi)	Date of last inspection				
II	**Surface Defects / Chainage**	**0/0 -1/0**	**1/0 -2/0**	**2/0 - 3/0**	**Approximate % of Area/Length**
(i)	Pot holes (√ or X)				
(ii)	Edge repair (√ or X)				
(iii)	Cracks (√ or X)				
(iv)	Depressions (√ or X)				
(v)	Ravelling (√ or X)				
(vi)	Rutting (√ or X)				
(vii)	Shoving (√ or X)				
III	**Side drain**				
(i)	Jungle clearance (√ or X)				
(ii)	Silt Removal (√ or X)				
(iii)	Berms Cutting (√ or X)				
(iv)	Repair to Concrete Drain (√ or X)				
(v)	Repair/Replacement to Concrete Cover Slab (√ or X)				
IV	**Jungle clearance (√ or X)**				
(i)	Restoration of Shoulders Berms Cutting / Berms Filling (√ or X)				

V	CD & Protective Works	Minor Repairs	Major Repairs	Reconstruction	Remarks
(i)	RCC Culvert (Chainage)				
(ii)	Pipe Culvert (Chainage)				
(iii)	Causeway (Chainage)				
(iv)	Hard bed (Chainage)				
(v)	Retaining wall (Chainage)				
VI	**Road Furnitures**	**Replacement**	**Minor Repairs**	**Painting & Lettering**	
(i)	Name Board /Sign Boards (√ or X)				
(ii)	HM Stones (Chainage)				
(iii)	KM Stones (Chainage)				
(iv)	Guard Stones (Chainage)				
(v)	Others (specify)				

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Table -XIII

Online Road Condition Survey Form for Gravel Roads

	District				
	Block				
I	***Basic Information***	-			
(i)	Name of the road				
(ii)	Category of the road (PUR/VPR)				
(iii)	Length of the road (In KM)				
(iv)	Road code				
(v)	Year of last construction / Periodic Maintenance				
(vi)	Date of last inspection				
II	**Surface Defects / Chainage**	**0/0 -1/0**	**1/0 -2/0**	**2/0 - 3/0**	**Approximate % of Area/Length**
(i)	Pot holes (√ or X)				
(ii)	Edge repair (√ or X)				
(iii)	Depressions (√ or X)				
III	**Side drain**				
(i)	Jungle clearance (√ or X)				
(ii)	Silt Removal (√ or X)				
(iii)	Berms Cutting (√ or X)				
(iv)	Repair to Concrete Drain (√ or X)				
(v)	Repair/Replacement to Concrete Cover Slab (√ or X)				
IV	**Jungle clearance (√ or X)**				
(i)	Restoration of Shoulders Berms Cutting / Berms Filling (√ or X)				
V	**CD & Protective Works**	**Minor Repairs**	**Major Repairs**	**Reconstructi on**	**Remarks**
(i)	RCC Culvert (Chainage)				
(ii)	Pipe Culvert (Chainage)				
(iii)	Causeway (Chainage)				
(iv)	Hard bed (Chainage)				

(v)	Retaining wall (Chainage)				
VI	**Road Furnitures**	**Replacement**	**Minor Repairs**	**Painting & Lettering**	
(i)	Name Board /Sign Boards (√ or X)				
(ii)	HM Stones (Chainage)				
(iii)	KM Stones (Chainage)				
(iv)	Guard Stones (Chainage)				
(v)	Others (specify)				

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Table -XIV
Online Road Condition Survey Form for Earthern Roads

	District				
	Block				
I	***Basic Information***				
(i)	Name of the road				
(ii)	Category of the road (PUR/VPR)				
(iii)	Length of the road (In KM)				
(iv)	Road code				
(v)	Year of last construction / Periodic Maintenance				
(vi)	Date of last inspection				
II	**Surface Defects / Chainage**	**0/0 -1/0**	**1/0 -2/0**	**2/0 - 3/0**	**Approximate % of Area/Length**
(i)	Rain Cuts (√ or X)				
(ii)	Edge repair (√ or X)				
(iii)	Depressions (√ or X)				
III	**Side drain**				
(i)	Jungle clearance (√ or X)				
(ii)	Silt Removal (√ or X)				
(iii)	Berms Cutting (√ or X)				
(iv)	Repair to Concrete Drain (√ or X)				
(v)	Repair/Replacement to Concrete Cover Slab (√ or X)				
IV	**Jungle clearance (√ or X)**				
(i)	Restoration of Shoulders Berms Cutting / Berms Filling (√ or X)				
V	**CD & Protective Works**	**Minor Repairs**	**Major Repairs**	**Reconstruction**	**Remarks**
(i)	RCC Culvert (Chainage)				
(ii)	Pipe Culvert (Chainage)				
(iii)	Causeway (Chainage)				
(iv)	Hard bed (Chainage)				
(v)	Retaining wall (Chainage)				

VI	Road Furnitures	Replacement	Minor Repairs	Painting & Lettering	
(i)	Name Board /Sign Boards (√ or X)				
(ii)	HM Stones (Chainage)				
(iii)	KM Stones (Chainage)				
(iv)	Guard Stones (Chainage)				
(v)	Others (specify)				

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Table -XV
List of items to be inspected in Bridges

(i) Condition of foundations, and any signs of scour

(ii) Condition of substructure and any signs of damage

(iii) Condition of floor protection works, and signs of scour and dislodgement

(iv) Bearings : greasing, tilts, signs of corrosion

(v) Superstructure : signs of cracks, corrosion

(vi) Condition of painting of steel girders

(vii) Signs of settlement

(viii) Condition of wing walls

(ix) Condition of guide bunds

(x) Condition of approaches

(xi) Condition of wearing coat, hand rails, approach slabs, curbs, drainage spouts and guard stones.

(xii) HFL reached

(xiii) Condition of river channel and its banks

(xiv) Adequacy of the opening

(xv) Condition of pipes in a pipe culvert and minimum cushion

(xvi) Condition of foot path

(xvii) Condition of service utility pipes

(xviii) Removal of sand heaps in carriageway of bridges

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