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Government of Jammu and Kashmir
Public Works(R&B) Department
Civil Secretariat, J&K Jammu/Srinagar

Subject:- Jammu & Kashmir Road Maintenance Policy, 2021.

Reference:- Administrative Council Decision No.92/14/2021 dated 07-10-2021.

Government Order No. 302 **-PW(R&B) of 2021**
Dated: 08 **-10-2021**

Sanction is hereby accorded to the adoption of Jammu & Kashmir Road Maintenance Policy, 2021 appended as **Annexure-I** and Standard Operating Procedure for Maintenance of Road Network appended as **Annexure-II** to this Government Order.

By order of the Government of Jammu & Kashmir.

Sd/-
Shailendra Kumar (IAS)
Principal Secretary to Government
PW (R&B) Department.

File No: PWD-ACCT/157/2021-05-Department of PWD R&B

Copy to the:-

1. Principal Accountant General, J&K Jammu/Kashmir for information.
2. Joint Secretary, J&K Affairs, Ministry of Home Affairs, Government of India.
3. Joint Secretary, PMGSY/Director General NRIDA, Ministry of Rural Development, Government of India.
4. Principal Secretary to Hon'ble Lieutenant Governor, J&K.
5. Development Commissioner (Works), PW (R&B) Department.
6. All Chief Engineer's of PW(R&B) Jammu/Kashmir /PMGSY Jammu/ Kashmir/Mughal Road Organization/MED Jammu/ Kashmir/ DIQC for information.
7. OSD to Advisor (B).
8. Private Secretary to Chief Secretary, J&K.
9. Private Secretary to Additional Chief Secretary, Finance Department.
10. Private Secretary to Principal Secretary, PW (R&B) Department.
11. Government Order file. (w.2.s.c).

Director Finance 08/10/2021
PW(R&B) Department

Annexure-I to

Government Order No. 302-PW(R&B) of 2021

Dated: 08-10-2021

Jammu & Kashmir

Road Maintenance Policy

2021

Public Works (R&B) Department, J&K

1.0 Introduction:

1.1.1. Geographical area of the Union Territory Jammu & Kashmir has geo-physical terrains ranging from long hilly ranges to plains and valleys. Road network commands an important position in the transportation system and energizes economic growth. Development and maintenance of road infrastructure has remained a major challenge owing to its diverse topography, which is indispensable for overall socio-economic development of the population of Union Territory in Urban and Rural areas.

1.1.2. To provide connectivity to the remotest habitations, the Government has been relentless in its efforts in construction of new roads, up-gradation and maintenance of existing road infrastructure. Huge investments have been made in accelerating connectivity in far flung areas under different Central and UT sector schemes viz., PMDP, PMGSY, CRIF, NABARD and Road Sector under UT/District CAPEX, Languishing Programme, etc.

1.1.3. Under Pradhan Mantri Gram Sadak Yojana (PMGSY), 3467 number of schemes have been sanctioned with a length of 18910 Kilometers to provide connectivity to 2148 eligible habitations. About 14100 Kilometers of the road length have been completed and 2000 eligible habitations have been provided connectivity so far.

1.1.4. Gross road length in J&K is 41,600 Kilometers out of which 29770 Kms is surfaced (20,500 Kms is under PWD and 14100 Kms under PMGSY) and 7000 Kms are un-surfaced. 1908.89 Km roads have been transferred to JMC and SMC as per the 74th Amendment of the constitution to empower local bodies. With the completion of PMGSY- I & II and road projects taken under Languishing Project Scheme as well as other UT/District Sector Schemes there would be more than 46000 Kilometers of the road network by 2022, which would be required to be maintained.

2. Need for Maintenance Policy:

2.1. This huge asset thus developed needs sincere efforts to maintain the same. Inadequate maintenance of roads results in disruption of traffic, hampers economic growth and an increased fuel and maintenance cost of vehicles. For optimum utilization of road assets timely maintenance is essential. The principal objectives of road maintenance are 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. 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 (Source: Manual of Economic Evaluation of Highway Projects in India, IRC 2009).

The Ministry of Rural Development, Government of India, has time and again emphasized to formulate and notify dedicated Road Maintenance Policy for the Roads at the UT Level to ensure adequate and regular stream of maintenance funds with specified outcomes in terms of physical standards.

2.2 Road deterioration and impact of poor maintenance:

2.2.1 Deterioration of roads with passage of time due to wear and tear as is exposed to natural forces and volume of traffic. In unpaved roads, water is by far more important deterioration factor. Water can cause extensive damage through seepage and erosion, resulting in the formation of rills on the road surface. Stagnant water also causes damage by penetrating the road surface, road base, and slopes; resulting in

potholes and muddy areas. Voluminous traffic causes road deterioration through material loss, wear and tear besides road deformation, resulting in ruts, potholes, and corrugations.

2.3 Impact of Poor Maintenance of roads:

(a) **Loss of Assets:**

An investment of about Rs. 8000 crores has been made so far under the PMGSY scheme since its inception. Under CRIF an investment of Rs.1800.00 crores has been made, besides UT is also making its own investments in accelerating the connectivity in far flung areas under different schemes viz., NABARD and UT/District Plan around Rs.1000 to 1200 crores annually. Poor maintenance may result in extensive damages to the upper surface which require huge resources for its up-gradation.

(b) **Loss of Agriculture Output:**

Smooth plying of vehicles on bad roads is affected adversely during rainy season and transportation of agriculture output is affected, thereby adversely affecting the rural economy.

(c) **Loss of Time:**

More working time is lost in travel and transport of people and agriculture produce to market in case of bad condition roads.

(d) **Heavy Rehabilitation Costs:**

A large backlog of deferred maintenance is caused, resulting in 4 to 6 times increase in the cost of restoration and rehabilitation. This leads to increase in additional burden on transporting road aggregate from long distances resulting in increased carbon footprint due to pollution as well.

(e) **Dependence on Slow Moving Vehicles:**
Due to poor condition, road users are compelled to continue to depend upon slow moving non-motorized vehicles rather than switch over to mechanized vehicles.

(f) **Vehicle Deterioration:**
The wear and tear of poorly maintained roads badly affect life of the vehicles, thereby increases its fuel consumption and maintenance cost and hence reduction in life of vehicle.

2.4 Significance of Road Maintenance:

In order to counter the otherwise unavoidable deterioration process, road maintenance carried out periodically, is a better policy. One type of maintenance is corrective maintenance, which aims to repair the damage that has occurred. Repairs are made to the road surface and shoulder, the drainage system, and the road structures generally restoring the road to good condition. Improved road condition results in shorter travel time and lower transport costs, and decrease in the speed of deteriorations which starts from scratch. The more deteriorated the road is, the more intensive and costly repairs will be. While the road is still in fair weather condition, corrective maintenance may simply entail patching potholes, reforming the road surface, and undertaking minor repairs to the drainage system and road structures.

Figure 1

Illustration of deterioration effects on a non-maintained road

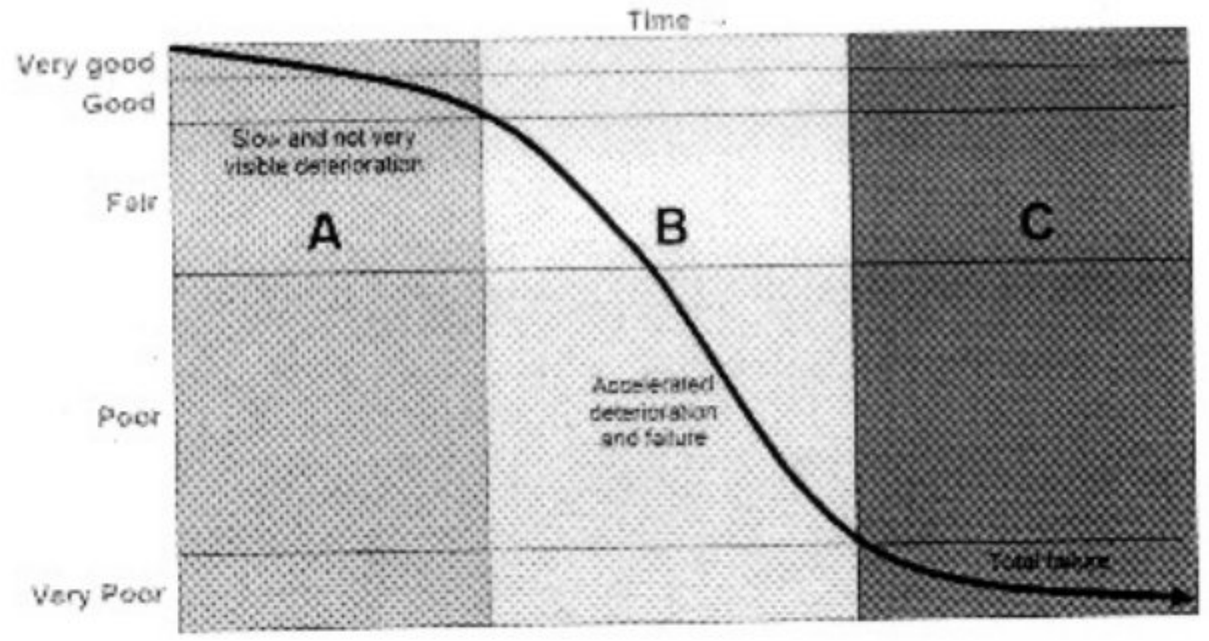
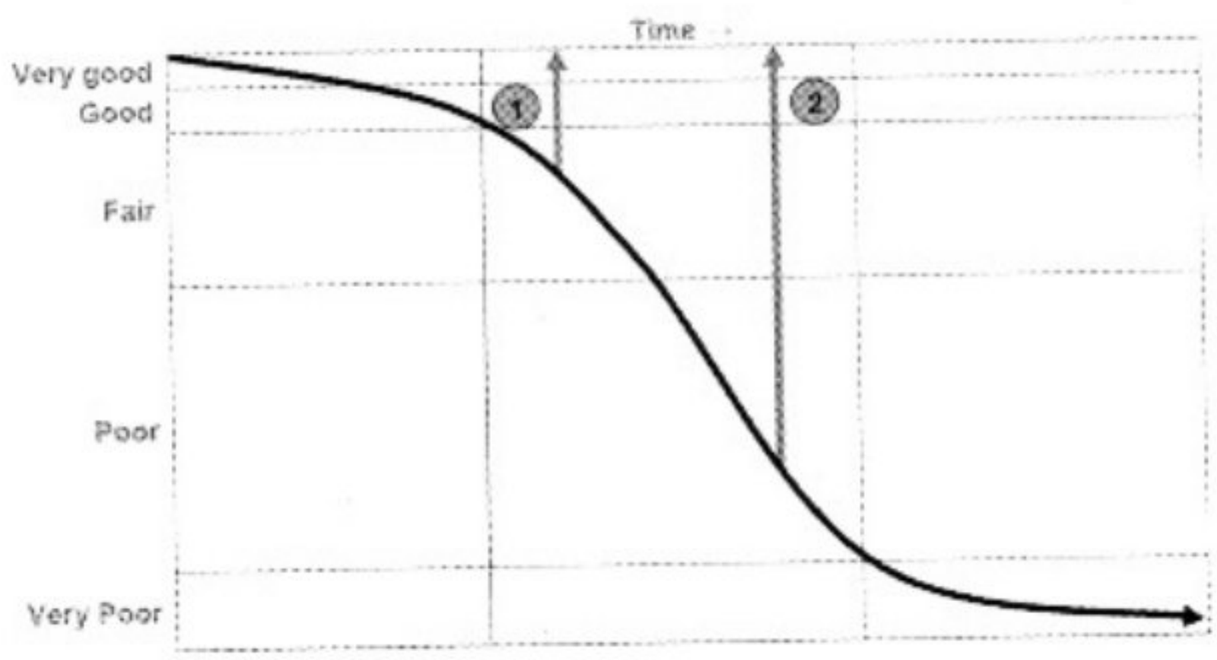


Figure 2

Illustration of corrective maintenance cost



The condition of the road can be improved by carrying out corrective maintenance. Repairs are made to the road surface and shoulder, the drainage system and other physical road structures. The more deteriorated the road is, the more intensive and thus costly the repairs will be (Figure 2). For instance, corrective maintenance when the road is still in good or fair condition (Figure 2 arrow 1) may entail patching potholes and minor repairs to the drainage system and other road structures. However corrective maintenance carried out once the road is already in poor condition (Figure 2 arrow 2), is likely to entail complete

resurfacing and possible reconstruction of the road base. The distance from the line (in black colour) indicating the road condition, to the desired good or very good condition of the road is therefore indicative of the level of corrective maintenance required and thus for the cost of this maintenance.

2.5 Purpose of Maintenance Policy

The purpose of the policy is to provide a guiding framework for establishing the objectives, making arrangements for and establishing sets of procedures for the maintenance and repair of roads by PW(R&B) Department. The purpose of maintenance policy is to ensure that the road remains serviceable throughout its design life.

2.6 Strategy and Action Plan

2.6.1 To focus on coverage of the maintenance of the roads providing connectivity to far flung areas.

2.6.2 To up-grade cross drainage systems of the roads.

2.6.3 To establish Road Maintenance Management Cell (RMMC) for overall planning, management and monitoring system for maintenance of roads. The cell shall ensure dedicated focus of the department on the maintenance of PWD roads. However for PMGSY roads, department shall have a separate cell with same structure as defined in clause 2.2 of SOPs to this policy document. The cell shall be responsible for maintenance management, road safety and training as per clause 6.3 of guidelines issued by MoRD vide F.No.P-17025/22/2017-RC(FMS-357269).

2.6.4 A dedicated Road Maintenance and Monitoring Cell (RMMC) Unit shall be established one each for Jammu and Kashmir which shall be responsible for planning, budgeting and monitoring of all maintenance of road

network under the overall guidance of concerned Chief. This unit shall comprise of one assistant accounts officer, one planning assistant, two assistant executive engineers, four junior engineers one draftsman and two Computer Operators and headed by a Superintending Engineer.

2.6.5 To ensure timely clearances and repair works for proper maintenance of roads.

2.6.6 To address the maintenance and repairs of R&B and PMGSY roads during and after completion of Defect Liability Period (DLP).

2.6.7 To empower RMMC in procuring latest technical gadgets especially gadgets with artificial intelligence in surveying and monitoring of the roads viz., DSV, special vehicles fitted with high tech. cameras, lasers and radar-based equipment's. **This will transform the paradigm and perception of the road maintenance.**

2.6.8 To keep sufficient manpower at ground level for monitoring and reporting of blockage /damages through RMMS and JKPWDOMS web portal and "Tameer Taraqqi" and "Hamari Sadak" mobile apps, which are for engineers and general public respectively.

2.6.9 To implement the Safety Audit of roads and bridges besides ensuring road safety measures on critical spots.

2.6.10 To introduce latest technology and gadgets like Digital Survey Vehicles (DSV's), etc., at RMMC level. This will help in achieving speedy and precise assessment of the road conditions which in turn will support the field staff in framing precise and realistic maintenance proposals. The use of technology shall also help the department in economizing the maintenance costs.

2.6.11 To ensure regular inspection of roads the field staff JE assisted by works supervisor shall visit the various roads as per the schedule detailed out in the SOPs annexed as annexure A to this Policy Document.

2.6.12 The norms for the maintenance of roads covering Routine, Periodic and Emergency Maintenance shall be formulated by the respective provincial RMMCs.

2.6.13 To empower and facilitate the field staff in order to ensure their targeted site inspections all the junior engineers shall be provided with a two-wheeler for accomplishing their tasks.

4. Frame Work

The Government of Jammu and Kashmir intends to adopt a **Road Maintenance Policy** for the planning and execution of maintenance of roads under its jurisdiction and shall be called as "**The Jammu & Kashmir Road Maintenance Policy, 2021**".

3.1. The policy takes into consideration the government's commitment to funding and ensuring transparency in its working, bidding, e-tendering, contract management and implementing road maintenance as under:

3.1.1 Introduce a system of working out present asset value of the road network at the end of financial year on JKPWOMAS web portal. Box 1 provides indicative steps for assessing the replacement value of the network.

Box 1:

Assessing Replacement Value of Road Assets

- Each R&B Division / PIU shall provide assessment in the month of Jan/Feb and Jul/August lean period of work execution) every year in Kashmir division and Jammu division respectively.
- Standard format for inventory and condition survey shall be specified by RMMC for collection of data.
- Each R&B Division/PIU shall work out the replacement value of roads within its jurisdiction. The replacement value of the total road network shall be put in public domain by the Union Territory government.

3.1.2 Constitute a UT level committee to work out realistic norms for maintenance of roads covering Routine, Periodic, Emergency Maintenance and Special Repairs. The said norms shall include details regarding regular

inspection of roads including pavement, shoulders, ancillary structures, road furniture, road marking, etc by JEs/ Works supervisors.

Two wheelers shall be provided to the field engineers to facilitate them in ensuring efficient supervision of roads. Box 2 and 3 spell out major activities of maintenance;

Box 2:

Norms for Maintenance of Roads

The Government shall constitute a Committee under the Chairmanship of Administrative Secretary PW (R&B) Department with following composition, to work out the maintenance norms within three months:

- Chief Engineers, PW(R&B)/PMGSY Jammu and Kashmir
- Director Finance / Planning of PW(R&B) Department
- Consultants / other Departmental Representatives

The norms shall cover the requirements of Routine, Periodic, Emergency Maintenance and Special Repair under different terrain and domestic conditions relevant and same will be available on JKPWDOMS web portal

Box 3:

Major activities for incorporation in Maintenance Norms

Routine Maintenance

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

Periodic Maintenance

- Renewal of road surface
- Major repairs to CD works

Emergency Maintenance

- Reconstruction / repair of CD works damaged due to floods, landslide, earthquakes
- Reconstruction / repair of road sections damaged due to washouts, floods, landslides, earthquakes

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

3.1.4. To ensure allocation of adequate and timely availability of funds needed for maintenance of roads as per Annual Maintenance Plans, prepared by the Department.

3.2 Funding for Maintenance:

3.2.1 Government shall constitute a Standing Empowered Committee to decide on annual allocations of funds for maintenance of different categories of roads network under the chairmanship of the Chief Secretary. The EC shall be comprised of Administrative Secretaries of Finance and Public Works Department, Development Commissioner Works, Chief Engineers of PW(R&B) and PMGSY.

3.2.2 The Committee shall also explore avenues for mobilizing of additional funds for reducing the gap between the funds required and those made available for maintenance of roads. Sources for additional revenue generation can be as under:

(i) Additional Cess on transport fuels.

(ii) Premium and rental charges to be imposed on road users for laying utility services like OFC / cable network for phone connectivity etc.

3.2.3 To formulate an Action Plan and financial implication for time bound removal of maintenance backlog of the road network so that the network is elevated to an acceptable level of service. On the basis of road condition (data 2020-21) the union territory shall identify backlog and remove it in the period of 5 years in a phased manner and the funds for the purpose shall be made available as per Box (4 & 5).

Box: 4

Status of Roads in J&K

Status of Road	length of road	
1. Very Good , Good	34,600	Kms
2. All weather /Fair weather	7,000	Kms
Total	41,600	Kms

Box: 5

1. Periodic Renewal Requirement as per 2020-21 data:

   Considering a periodic renewal cycle of 5 years, length required to be tarred every year 29770-4700 (length under DLP) /5 = 5014 kms

   Requirement of funds @ Rs.17 lakh per km =

   Rs. **852.38.00 Cr**

   at 2021 prices

2. Backlog of Periodic Maintenance:

   As per road condition data, length of roads in fair, poor and very poor condition subject to Periodic Renewal 11830 Kms.

   Considering backlog to be cleared in 5 years the total length required to be maintained shall be [11830/5-1000 (Road under DLP)] = 1366 Kms per annum

   Funds required for 1366 Kms @ Rs.17.00 Lakhs per year: **Rs.232.22 Cr.**

3. Requirement for Routine Maintenance:

   With the yard stick rates for routine maintenance @ Rs.1.00 lakh per km per year for the tarred roads: 25000 x Rs. 1.00 lakh

   = **Rs.250.00 Cr**

   Total requirement of Funds for Financial year:

   Periodic Renewal + Backlog of Periodic Renewal + Routine Maintenance;

   Rs.852.38.00 Cr+Rs.232.22.00 Cr+Rs.250.00 Cr

   = Rs. 1334.60 Cr

   (as per -2020)

3.3. **Performance Evaluation and Quality Control.**

3.3.1. Department shall institute an annual performance

evaluation system to inform the government about the delivery of maintenance and condition of the road network as a result of funds allocated for the purpose.

3.3.2 Department shall implement Road Maintenance & Management System (RMMS) for roads to prepare Annual Maintenance Plans for each Division/PIU based on scientific condition assessment of the road network as defined vide clause 3.3 of SOPs to this policy document.

3.3.3 Set up Special Provincial Task Forces in each circle to deal with emergency situations arising due to natural disaster headed by Development Commissioner Works, Chief Engineers' of R&B, PMGSY, Mechanical and concerned SE of the Circle as members.

3.3.4 The department shall strengthen the ground level staff viz works supervisors and road workers to cover all road length as per current requirement and equip them accordingly.

3.3.5 Design, Inspection & Quality Control department shall be strengthened in terms of manpower and equipment for improving the quality control system in the department including third Party inspection of ongoing/completed projects.

3.3.6 The field units shall collect / outsource the collection of road condition data and inventory data and capture the condition of roads through photographs/ videography (having longitude & latitude) of location and such details shall be uploaded on the department website jkpwdoms. The RMMC shall be provided with a Digital Survey Van (DSV) to conduct Pavement Condition assessment and other detailed surveys with highly

precise and electronic gadgets which can automatically process the data.

3.3.7 Some pilot works of maintenance shall be undertaken jointly by Divisions/PIUs and relevant block/gram panchayat and steadily move towards devolving maintenance responsibility in respect of roads to Panchayati Raj Institutions. Similar pilot projects shall be undertaken with the involvement of local community participation.

3.3.8 Reorganization of R&B Department with adequate expansion of R&B Divisions (one for each 4 to 5 C D blocks), circles, directorates so that adequate R&B institutions are there to ensure the policy objective to be achieved in letter and spirit.

3.4 Skilling and Efficient implementation

3.4.1 Training shall form an integral part of institutional strengthening of the department. For this, department shall formulate a calendar of training programmes for its technical officers at various levels. These training programmes shall include development and dissemination of training modules covering all aspects of road maintenance from planning to execution to monitoring of entire maintenance activities. An in-house cadre of trainers shall be developed for imparting training to the staff. Training modules shall be developed for imparting both on-site as well as off-site training to field staff. Training programmes shall also include study tours aimed at exposing officials to national / international best practices.

3.4.2 Department shall extend support in providing outreach programmes in enhancing the training facilities for all classes of contractors in implementation of

maintenance works. For this, the contractors' associations shall be associated to work out the details of training modules, training providers including on-the-job exposures in close association with the road agencies. Such modules could be in the form of booklets / hand-outs in various maintenance operations as also in audio-visual mode.

3.4.3 The Department shall identify and pilot innovative maintenance models and technologies. These innovations shall be in the form of piloting and adopting different models of outsourcing maintenance works which could be in the form of Performance Based Maintenance Contracting (PBMC), Community Contracting or a hybrid system involving combination of PBMC and conventional Engineering, Procurement and Construction (EPC). The thrust on innovative technologies shall be on materials that can be used in all weather conditions, reduce time and manpower required for repairs, thereby improving productivity. The technology shall be cost effective, easy to manage, off the shelf material for patch / pothole repair and application with simple tools with all maintenance items being accommodated in a small vehicle for speedy execution. Possibility of adopting new techniques for pot-hole repairs such as first time permanent repairs shall also be explored. Effort shall be on environment friendly technologies.

3.4.4 Department shall undertake road user satisfaction surveys every three years on its road network, prepare and put the result on the website.

3.4.5 Standard Operational guidelines for execution of maintenance policy have been finalized by Jammu and Kashmir Public Works Department. The essential

methods & procedures to assist in implementation of Annual Maintenance Plans have been incorporated in these guidelines appended as ***Annexure-II-Standard Operating Procedures for Maintenance of Roads Network in J&K***. Further, guidance on AA, TS shall be adopted from J&K Engineering Manual 2020. The objectives & expectations from the maintenance work, utilization of resources, responsibilities & functions of staff at different level, procedures for contract management, quality assurance, technical specifications, maximum response time have been explained in these guidelines.

3.4.6 Mobile app "Hamari Sadak" developed by the PW(R&B) Department shall be helpful in involving general public to watch of the department by instantly reporting any kind of damages / deficiencies in the roads by uploading the geo-tagged photographs of the spot. This will help the department to address the issues promptly and timely.

3.4.7 Necessary amendments may be made in the provisions of the guidelines by the Jammu and Kashmir Public Works Department on the basis of experiences.

3.4.8 All the concerned divisions of the PW (R&B) Department who have jurisdiction for the maintenance of roads falling beyond DLP shall execute these works by tendering these works through stage contracts. Stage contracts shall be implemented for items of immediate need only as per the e-Marg pattern of PMGSY and other items shall be executed by usual tendering process. This will help

the department eliminate the process of repeated tendering thus save time and ensure timely rectification of the road damages. The process will also generate a pro active approach on part of the contractors which will further help the roads become less susceptible to damages.

Sd/-

Shailendra Kumar (IAS)
Principal Secretary PW (R&B)
Department

Annexure-II to `

Government Order No. 302-PW(R&B) of 2021

Dated: 08-10-2021

STANDARD OPERATING PROCEDURES

FOR

MAINTENANCE OF ROAD NETWORK

IN

JAMMU AND KASHMIR

Public Works (R&B) Department, J&K

TABLE OF CONTENTS

Chapter 1

Introduction

The UT of J&K has a road network spread on a length of 41600KMs out of which 34000KMs are surfaced. These roads are constructed with huge investment and it becomes obligatory for the UT to ensure regular upkeep and maintainace of these roads to facilitate general public in their day-to-day and socio- economic activities.

All roads require maintenance as they are subjected to traffic and the vagaries of weather. Even with the highest possible quality of construction, maintenance is essential to get optimum service from the road structure during its life period. By applying preventive maintenance, the deterioration of the road and its components will get declined, thus reducing the cost in rehabilitation.

Roads command an important position in the transportation system. Road infrastructure is critical to economic growth and social development. Maintaining these roads in serviceable condition is crucial to agricultural and industrial growth on the one hand and affording means of access to the public. The continued extension and improvement of the road network does however, create new and growing challenges in terms of an increasing maintenance burden. In order to sustain the benefits of the investments made in building and improving roads, there is a need to boost capacity in terms of providing adequate maintenance.

More emphasis needs to be placed on the maintenance of existing road infrastructure assets. This implies that an increasing proportion of funds and managerial capacity needs to be allocated for protecting the investments made earlier in building the road network.

It has been felt necessary to put in place a **Standard Operating Procedure** for maintenance of the roads at operational level for securing adequate and timely maintenance of the road network in addition to the SOPs already issued by PW(R&B) department vide circular No. 05-PW(R&B) of 2021 dated 03-03-2021 and vide Circular No. PW(R&B)DCW/PS/558/2021 dated 01-04-2021 (enclosed as Annexure B and Annexure C).

Chapter 2

Organizational Setup

2.1 Jammu and Kashmir Public Works Department is responsible for the operation and maintenance of the entire road network under its jurisdiction. The Chief Engineers of respective Province of Jammu and Kashmir are overall in-charge of the construction and maintenance of roads across the state. The construction and maintenance of the road network comprising are further supervised by the Superintending Engineers who have administrative control over the field Circles. These circles are further divided into field Divisions each headed by an Executive Engineer. Similarly, these field divisions have a number of sub divisions headed by an Assistant Executive Engineer who are assisted by a number of AEs/JEs each of whom is in-charge of a section. The AEs/JEs are in turn assisted by Works Supervisor etc.

2.2 A dedicated Road Maintenance and Monitoring Cell shall be established one each for Jammu and Kashmir which shall be responsible for Planning, Budgeting and Monitoring of all maintenance of the road network under the overall guidance of the concerned Chief Engineers. This unit shall be headed by one Superintending Engineer who shall be supported by two Assistant Executive Engineers, four Junior Engineers one Draftsman and two Computer Operators besides one Assistant Account Officer, one Planning Assistant and other clerical staff.

2.3 Technical audit of sample stretches as well as the quality inspections shall be conducted by the Quality Control Wing (RRMTL) of the DIQC Department.

CHAPTER 3

Planning and Design

3.1 Maintenance Works shall include all works of routine maintenance, periodic maintenance, road rehabilitation including pavement strengthening, special repairs and emergency maintenances.

3.2 The **RMMC Unit** shall initiate action on maintenance activities as under:

(i) Exercise for **review of Yardstick/Norms for routine maintenance** shall commence in October every year and the process completed by 30th November. The norms as finalized shall be notified by 31st December and shall be applicable for the next financial year beginning 1st April. Even in case the norms do not require any change the existing norms shall again be notified by this date.

(ii) A **yearly review of the rates of individual items** involved in maintenance activities shall be carried out after fulfilling the codal formalities as on 1st October of that year and the review shall be completed by 30th November. The rates so finalized shall be notified by 31st December.

A **Periodic Renewal cycle** of 5 years shall be adopted for roads traversing altitude above 2000m (snow bound areas) and 6years for roads traversing altitudes below 2000m (non snow bound areas)

The **Specifications** to be adopted shall be JKPWD Specifications for Union Territory works and Ministry of Rural Development (MoRD) Specifications for PMGSY works. In case specification for a particular item in State Works are not available MoRD specifications for Rural Roads shall be followed and vice-versa.

The **Field Units**, namely, the Divisional Offices shall be responsible for carrying out the Road Inventory and Road Condition Surveys as per prescribed procedures.

3.3 The **road condition data survey** at every 100 m interval shall be carried out by the concerned divisions through Junior Engineers in charge of the respective sections. Their work shall be supervised by their AEs/AEEs, physically checked and certified. The road condition data shall be generally collected through visual inspection however if digital survey vehicles (DSVs) are made available by RMMS cell then it shall be preferred to conduct surveys using DSVs. The **schedule for the above activities** shall be as under:

(i) The surveys shall commence immediately after the retrieval of monsoons in October and completed by 15th of November for non snow bound areas while as in snow bound areas it should be completed by the end of March every year.

(ii) Data from the survey shall be uploaded on the Road Maintenance Management System (RMMS)/Maintenance module by the Divisional Offices by last week of December/March on JKPWDOMS.

(iii) Results of the entire road network shall be generated by the Department by 31st December/31st March.

The PW(R&B) Department shall finalize the priority list for Annual Maintenance Plan (AMP) and disseminate the same to all field offices by the Ist week of January for non snow bound area and last week of march for snow bound area. The field Executive Engineers on receipt of the approved AMP shall have another verification carried out to confirm that the roads appearing in the AMP with respect to their jurisdiction actually qualify for Periodic Renewal and revert back to the Department 2nd week of January for non snow bound area and last week of march for snow bound area with full justification in case any substitution is required. Annual Maintenance calendar shall be hoisted on departmental website by March every year.

3.4 Field offices shall initiate action for preparing estimates and inviting bids for works proposed to be contracted out for

the approved chain ages of various roads immediately and works shall be awarded by 25th of March.
Implementation shall commence by 10th of April except for the hilly areas where the working season normally starts in May end/June.
The Annual Calendar of Road Maintenance Activities shall be as given in Table 1

Table 1

Annual Calendar of Road Maintenance Activities

Sr. No.	Item of Work	Intervention Standard	Response Time	Frequency	Remarks
1	2	3	4	5	6
1.	**Cleaning / desilting of road side drain / gutter**				
	Water diverted out of drain onto roadway	Causing a hazard to traffic	Immediate	Thrice	
	Obstruction or Siltation impeding flow	Blocked by more than one-fourth of the size of the drain	14 days and prior to monsoon	i. February ii. May and June iii. August and September and as and when required i.e. blockade more than one-fourth	

2.	**Pothole Filling**				
	Collection of patch repair material for Bituminous roads			i) Feb and March ii) Aug and September	Kashmir Jammu
	Collection of patch repair material for WBM roads			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 in depth Depressions >50mm in depth	21 days	Immediate on their occurrence	
	Pothole filling in WBM with maximum dimension >200mm	Depth > 75mm	21 days		
	Pothole filling in Gravel/ Katcha surface	Depth >50mm Width >300mm	45 days		

3.	Filling edges of bituminous surfaces and Replenishing/lowering earthen/ hard shoulders	Difference more than (-) 50mm/ (+) 0mm		Before and after Monsoons/ snow season 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/snow season and once in between i.e. February/ March, June, August and September	
5.	Restoration of rain cuts and side slopes			May/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	14 days	Twice (May and October) and as and when required i.e, blockade more than one fourth of the opening	
7	Deformation of culvert, its invert and alignment		45 days and prior to monsoon/ Snow Season		

8.	While washing of Parapets, Guide Stones, Tree Trunks etc.			Twice (May and October)	
9.	Re-fixing disturbed caution boards, other signage etc.			Once and as and when required	
10.	Re-fixing displaced Km. stones, 200m stones, guard stones, guard rails			Once and as and when required	
11.	Cutting of branches of trees, pruning shrubs			Once (October)	
12.	Removing wild seasonal growth on berms and from road side structures			Twice (March and September)	
13.	Painting of Km. stones, Numbering of culverts, Road markings etc. including history of road on Km. stones			Once (May/ November)	
14.	Maintenance of T & P	All round the year			
15.	Removal of encroachment	All round the year			

Table 2 (PBMC Evaluation Format)

S. No.	Name of Item/ Activity	Frequency of operation in one year
1	Restoration of rain/snow cuts and dressing of berms as per clause 1902 of the Specifications.	Once generally after snow / 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 and when required.
3	Maintenance of Bituminous surface road and/ or gravel road and/or WBM road including filling pot holes and patch repairs etc as per clause 1904, 1905 and 1906 of the Specifications.	As and when required.
4	Maintenance of drains as per clause 1907 of the Specifications	Twice (In case of hill roads as and 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 and 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 and when required. Repainting once in a year.
8	Maintenance of 200 m 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

3.5 The Superintending Engineers in charge of field circles shall closely monitor the progress of the above activities in respect of their jurisdictions.

3.6 The AEEs/AE and Junior Engineer shall prepare monthly Maintenance Plan of the roads and forward it to the Assistant Engineer one week before the commencement of the respective month for approval. This list of works shall be prepared and finalized within the first three months of the calendar year so that these works are taken up from the start of the next financial year.

CHAPTER 4

INSPECTION

4.1 Duties

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 Road worker/Work supervisor shall keep a strict watch on the condition of the entire stretch of road under his beat and cover the same daily.

(ii) The Junior Engineer incharge shall inspect the entire road length under his jurisdiction at least once every week. He shall simultaneously verify at site the contents of the Daily Progress Report as maintained by the Mate/Work Inspector in his dairy and initial the same and upload on JKPWDOMS.

(iii) The AEE/AE incharge of the road shall ordinarily travel at the rate of 30 Km. per day and inspect the entire length under his jurisdiction at least once every month. He shall invariably be accompanied by the Junior Engineer incharge to whom he can give the necessary directions for repairs and upload on JKPWDOMS.

(iv) The Executive Engineer shall also arrange to travel only moderate distance each day and shall be accompanied by the AEE/AE incharge. He shall inspect all the roads under his jurisdiction once every three months and upload on JKPWDOMS.

(v) The Superintending Engineer shall, whenever possible, be accompanied by the Executive Engineer. He 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 and upload on JKPWDOMS.

(vi) Every effort shall 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 Junior Engineer and the Assistant Executive Engineers/ Assistant Engineers.

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

4.1.1 **Duties of road worker**

(i) To report to Junior Engineer.

(ii) To mark daily attendance of labour working under him.

(iii) 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.

(iv) To assist the Junior Engineer in taking out the measurement for daily work done by labour.

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

(vi) 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.

(vii) To get cement/composite mortar prepared in his presence as per instructions of Junior Engineer/Work Supervisor.

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

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

4.1.2 **Duties of Work Supervisor**

(i) To report to Junior Engineer.

(ii) To maintain daily diary of the work done and to put up to the Section Incharge every alternate day.

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

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

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

(vi) To take round of various bridges and roads under his charge on regular basis and report to section incharge 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 labour within the specified period.

(vii) To assist Junior Engineer in taking out measurement and distributing work to labour daily and checking their attendance.

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

(ix) To take measurement of daily work done.

(x) To ensure adequate quantum of work being done by gang and that it conform to norms

(xi) To maintain material at site account and account of traffic signs.

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

(xiii) To ensure submission of daily report.

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

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

4.1.3 **Duties of Junior Engineers**

(i) Inspection and supervision of works as prescribed in JKPWD engineering Manual 2020.

(ii) Recording the progress of labour in the Measurement Book (MB) and ensuring that the output of labour matches with the norms for task for labour.

(iii) The progress of all items shall be recorded on the M Book.

(iv) Reporting observations to higher authorities.

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

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

(a) Over toping/breach;

(b) Landslides;

(c) Earth quakes;

(d) Accident;

(e) Any other reason (specify);

(vi) Arranging for removal of obstructions such as dead animals, trees and other debris lying on road.

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

4.1.4 Duties of Assistant/Assistant Executive Engineers

(i) Inspection and supervision of works as prescribed in JKPWD engineering Manual 2020.

(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.

4.1.5 **Duties of Executive Engineers**

(i) Inspection and recording of observations as prescribed in JKPWD engineering Manual 2020.

(ii) Planning and finalization of nature of maintenance activities e.g. surface repair, prepare to CD works etc.

(iii) Arranging men, materials and machinery in advance as per requirements.

(iv) Finalizing action on reports of Assistant Engineers and also on safety measures, diversion in case of breaches and flood damages.

(v) Coordination with various agencies like Traffic Police, Local Administration, Publicity Media etc., in case of emergent repair, interruption to traffic by road blockage, etc.

(vi) Initiate steps for finalizing permanent restoration works

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

4.2.1 Action to be taken by the Road worker/Work Supervisor

(a) Immediate report of the road breach/blocked will be made to Junior Engineer and 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

(b) "**Road closed**" boards and "**Diversions**" boards shall be fixed on both sides at 60 m distance in advance of the hazard

(c) Arrangements for red lights to be done in case of darkness

(d) Labour shall be deputed to guide the traffic to prevent any accident

(e) Construction of diversion, if possible

4.2.2 **Action to be taken by the Junior Engineer.**

(a) He will at once visit the site of the hazard and shall ensure that:

(i) Road has been closed by means of barricading with empty drums or any other means available at site

(ii) That caution and diversion boards have been fixed on both sides

(iii) Arrangements made to guide the traffic by posting gang men having red flags

(iv) Arrangements made for red lights and chowkidar etc.

(v) Steps to stop further damage to the road are taken as per site requirement

(vi) Possibilities of construction of diversion to be explored. If possible the diversion should be constructed with available resources

(b) He shall immediately report to the AE/AEE, Executive Engineer and Superintending Engineer regarding the road breach, duration of blockade of the traffic followed by a detailed report containing:

(vii) Name of the road

(viii) Location of the breach/blockade

(ix) Length and average depth of the breach

(x) Date and time of occurrence

(xi) Duration of suspension of traffic

(xii) Requirement of men and material for restoration of traffic and road and the approximate cost

(c) All arrangements and efforts shall be made for restoration of traffic

(d) He will intimate the details of any losses and injuries to the public, if any, including the extent of compensation if payable

4.2.3 **Action to be taken by the Assistant Executive Engineer**

a) He shall at once inspect the site of the hazard

b) He shall inspect all safety measures taken by the Junior Engineer.

c) He shall ensure that the restoration of traffic is done at the earliest.

d) He shall send a detailed report regarding the breach/blockade enumerating all the points given under 2 (b) above. In addition to these he will also include the following points:

(xiii) The causes of the breach/blockade

(xiv) Forecast estimate for restoration of traffic and road

(xv) Remedial measures to avoid any future occurrence with forecast estimates

(xvi) Any other information which he wants to include

4.2.4 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.

4.3 Duties and functions of RMMS Cell

The duties and functions of RMMS cell shall be as per chapter 9 of J&K Engineering Manual 2020

CHAPTER 5

5.1 EXECUTION OF MAINTENANCE OPERATIONS

5.1.1 Safety of Workers and Road Users during Maintenance

(I) In the implementation of maintenance operations, the road user and personnel involved in the work shall not be exposed to hazards. Besides, delay and inconvenience to the traffic should be reduced to the minimum.

(II) Traffic hazard and inconvenience be minimized by use of temporary road signs and controlling/guiding of the traffic.

(III) Maintenance operations should at a time be confined to small lengths say 30m in half the pavement width, leaving the other half for use by traffic.

(IV) For further details on safety parameters reference can be made to J&K Engineering Manual 2020.

Junior Engineer /Assistant Executive Engineer shall immediately report the closure of road/obstruction due to any of the following reasons

(a) Over topping/breach
(b) Land slides
(c) Earth quakes
(d) Accident
(e) Any other reason such as dead animals, trees etc.

In case road is breached or blocked the contractor shall take following action:

(a) Immediate report of the road breach/blocked will be made to Junior

Engineer/ Assistant Executive 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

(b) "Road closed" boards and "Diversions" boards shall be fixed on both sides at 60m distance in advance of the hazard.

(d) Labour shall be deputed to guide the traffic to prevent any accident till such time that alternate arrangements are made by the department

CHAPTER 6

MONITORING

6.1 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 JKPWDOMS web portal. Superintending Engineer in charge of field circle 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-4 (Routine Maintenance), Table-5 (Periodic Renewal) and Table-6 (Special Repairs/Flood Damage Repairs) by the 15th day of the calendar month immediately succeeding the quarter under report:

Table-4

Financial Progress of Routine Maintenance

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

Table-5

Physical and Financial Progress of Periodic Maintenance

Name of Division: -

Name of Sub-Division: -

Name of Road	Jo b No	Sanctioned Length (in Km.)	Sanctioned Amount (Rs. in 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 l (in Km.)	Financial (Rs. Lacs)	Physical (in Km.)	Financial (Rs. Lacs)
1	2	3	4	5	6	7	8	9	10	1	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-6

Physical and Financial Progress of Special Repairs/Flood Damage Repairs

Name of Division: -

Name of Sub-Division: -

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)

6.2 The Superintending Engineer shall hold review meeting with the Divisional and Sub-Divisional officers before the 25th day of the calendar month immediately succeeding the quarter under report and send his report to the Chief Engineer by the 30th day of the same month with a copy to RMMC.

6.3 The Chief Engineer shall review the same and forward it with his comments to the RMMC by the 15th day of the next month.

The RMMC Cell shall analyse the full data and forward his comments to the Superintending Engineers and the Executive Engineers by the 20th day of next month with a copy to the concerned Chief Engineer.

6.4 At Division level the Executive Engineers shall review the physical and financial progress on the above analogy on a monthly basis and hold a review meeting with the Assistant Engineer by the 12^{th} day of each succeeding month.

CHAPTER 7

FINANCIAL MANAGEMENT

7.1 The rules for keeping and rendering accounts and dealing with financial transactions made in respect of works under UT Head shall be as per relevant Public Works Accounts Code.

The Executive Engineer shall maintain cash books in respect of all financial transactions.

7.2 Works executed under the PMGSY programme would in addition to above, be governed by the PMGSY Accounts Manual of Maintenance Fund, by opening a separate Bank account for the Maintenance Fund as per the provisions of this manual.

The payments of bills on account of maintenance of PMGSY roads shall be made out of funds provided to JKRRDA for the maintenance of these roads.

No payment of maintenance of PMGSY roads shall be made from UT Funds, which are within the DLP as per contract.

The demand for funds/Bank Authorization shall be made for routine maintenance and periodic maintenance on separate requisition forms devised by JKRRDA/RMMC for these maintenance activities.

Ledgers shall also be maintained in the JKRRDA/RMMC to keep a watch on the expenditure.

The funds shall be released to these accounting centers by the JKRRDA through the system of Bank

Authorization.

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

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

Monthly accounts shall be rendered by accounting centers to JKRRDA by the 5th of the following month for their scrutiny and compilation on monthly basis.

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.

CHAPTER 8

QUALITY ASSURANCE

8.1 The Quality Assurance activity, in order to be truly effective has to ensure a progressively improved and uniform quality of the finished work. 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 Executive Engineer, Assistant Engineer and Junior Engineer. The Design and Quality Control (DIQC) shall be overall responsible for management of Quality System and Procedures for the works under its charge in J&K by implementing three tier quality control system on the pattern of PMGSY.

8.2 **Responsibilities of the field staff**

The broad responsibility of the staff and the Engineer-in-charge shall 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) Samples of materials shall be approved by the Executive Engineer.

(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 in conformity with the JKPWD engineering manual 2020 and upload the same on JKPWDOMS web portal.

(v) As far as practicable all tests on materials shall be carried out at the construction site in a field/Divisional laboratory, which shall be set up under the control of the Executive Engineer. A Junior Engineer of the Division with aptitude for testing shall be selected by the Executive Engineer for manning the laboratory. He shall be given training in the Central Laboratory to familiarize with the various tests, and then placed in charge of the field laboratory. All the tests shall be in conformity with quality control module of JKPWDOMS

(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 Executive Engineers. Samples for 10% of mandatory tests shall be collected by the Executive Engineer. 10% of the field tests shall be got 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. All the site inspections, record of tests, etc., shall be uploaded on JKPWDOMS using Tamir Taraqqi App.

(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 and also upload on web portal.

(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. and upload the same on web portal using mobile app (Tamir Taraqqi)

(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.

8.3 **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.
- 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/ 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 upload an overall assessment report on JKPWDOMS. 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.

8.4 Quality Assurance set up at Provincial Level

Quality Assurance in Zones shall be looked after by the Zonal Quality Assurance (QA) unit headed by the Superintending Engineer (Design).

The Zonal QA unit shall follow the guidelines and norms relating to quality systems and procedures as laid down by the Engineer-in-Chief/Chief Engineer (QC) from time to time. These Zonal QA units shall function under the control of Zonal Chief Engineer who shall be fully responsible for effective quality assurance in his Zone.

Chief Engineer (DIQC) Setup

The Chief Engineer (DIQC) shall have the overall responsibility of constantly reviewing the existing quality assurance procedures and updating them on the basis of feedback from the Quality Assurance teams.

His unit shall carry out the functions of Zones (QA) teams for works where no Superintending Engineer (QA) is posted.

Carry out investigations and enquiries with regard to quality related aspects for specific works.

CHAPTER 9

9.1 Maintenance Operations through Contracts

9.1.1 EPC (Engineering, Procurement and Construction) contracts.

The Standard Operating Procedures as outlined in the previous chapters shall be applicable for maintenance of the road network in situations where maintenance works are outsourced through EPC (Engineering, Procurement and Construction) contracts.

9.1.2 Stage Contract

All the concerned divisions of the PWD who have jurisdiction for the maintenance of roads falling beyond DLP shall execute these works by tendering them through stage contracts. Stage contracts shall be implemented for items of immediate need only as per the e-marg pattern of PMGSY while as other items shall be executed by usual tendering process. The stage contracting will help the department in having timely rectification of the road damages and eliminate the process of repeated tendering. The process will also generate a pro active approach on part of the contractors which will further help the roads become less susceptible to damages.

The engineer in-charge (JE) shall inspect all the roads under his jurisdiction in every calendar month and get verified by AEE. The AEE shall issue the letter within 3 days of inspection to contractor for rectification who shall rectify the deficiencies within a maximum period of 10 days from the date of the letter issued to him.

The contractor shall be paid quarterly, six monthly or annually as per the proportion of total amount subject to the condition that the stage contractor has maintained the road as per the norms, codal provision and satisfaction of engineer in-charge. All the items and rates of stage contract shall be based on relevant SOR and the contractor shall quote his rates as a percentage of the SSR of PWD. In case of non-schedule items required in stage contracting of a road, same can be incorporated by framing a detailed

nomenclature of the item and furnishing an analysis of the rate. The analysis of the rate shall be proposed by concerned Executive Engineer and approved by the competent authority.

9.1.3 Performance Based Maintenance Contracts

The contractor shall follow the Annual Calendar of Routine Maintenance activities as per chapter 3 unless a different calendar to be adopted has been specified in the Contract document.

The inspections to be conducted by the contractor or by his authorized representative shall ensure that the Intervention Period for undertaking maintenance measures to control defects for adherence to the Performance Criteria for Defects shall be strictly observed as per the Contract Agreement.

9.2 Performance based evaluation format for maintenance of road works

Sr No.	Name of Item/Activity	Maximum Performance Evaluation Index	Performance evaluation marked by JE/AE	Performance evaluation Verified by AEE	Performance evaluation Approved by EE	Remarks
1	Maintenance of road pavements in terms of their respective IRC and MORTH specs.	40				
2	Restoration and maintenance of rain cuts, damage due to snow, making up of berms/shoulders and dressing of side slopes, incl. landslide/slips,etc. in terms of respective IRC and MORTH specs.	20				
3	maintenance of road furniture in terms of respective IRC and MORTH specs	15				
4	maintenance of road markings in terms of respective IRC and MORTH specs	10				
5	clearance and maintenance of cross drainage works and side drains in terms of respective IRC and MORTH specs	10				
6	clearance and branch cutting of trees etc in terms of respective IRC and MORTH specs	5				
	Total	100				
	Note: 1. All above maintenance works shall be carried out in terms of the table 2. **2. Marks less than 80 should not enable bill generation on JKPWDOMS**					

Flow Chart for Road Maintenance