**IMPLEMENTATION OF**

**PERFORMANCE BASED MAINTENANCE CONTRACT**

**&**

**COMMUNITY PARTICIPATION IN**

**RURAL ROAD MAINTENANCE PILOTS**

**SELECTION OF ROAD,**

**DPR PREPARTION, PROCUREMENT**



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National Rural Roads Development Agency

**SELECTION OF ROADS**

We should select the roads within following parameters:

1. The package length must be more than 20 kms for economic viability of the contract.
2. If more than one road is to be considered in any package, they should be in close proximity to each other and should be falling in the same (block or Subdivision)
3. PMGSY Roads must have completed 5 year Post Construction Maintenance
4. In respect of roads under Defect Liability Period under post completion of periodic renewal the PBMC model can be adopted only for the off-carriageway activities
5. Road should be in a reasonably good condition so that they are able to retain the expected service level through routine maintenance
6. The cost of initial rectification of the defects should be minimal. This cost should not exceed 15%-20% of the estimated contract price.

On the basis of above parameters prepare a list of proposed roads to be taken up for PBMC (Appendix-A)

**How to prepare the Detailed Project Report (DPR) of Performance Based Maintenance Contracts (PBMC) in Routine Maintenance of Rural Road**

**The Performance Based Maintenance Contract is executed in two stages:**

1. **Initial Defect Rectification (Period-I) :** *All the defects in road are rectified in this period and road is brought to the accepted service levels .These service levels are performance indicators for the PBMC contract*
2. **Routine Maintenance (Period –II):** *The routine maintenance activities are carried out as per chapter 1900 of MoRD Specifications 2014 through contract.*

**Road Inventory Data Sheet (NRRDA APPROVED)**

**Take one sheet for 1st Km**

* Write the basic data of existing road i.e. the Name of Road, detail of existing pavement etc. and also indicate the condition of pavement ( Good / Fair / Poor ) as G/F/P.
* In the road inventory condition data sheet ,the measurement to be taken in 100 meters interval .data sheet inventory
* Start left side off carriageway recording of inventory & its condition I e
* No of trees where tree branches obstruction vision ,
* area of shoulder where grass vegetation grown ,
* length of side drain which is to be maintained in meters

## If drains are choked ,then measure the quantity of muck in Cum.

* Measure the area of shoulders where extra soil is to be stripped and spread in lowered shoulders ( Sqm)
* Measure the area of shoulders where the extra soil is to be brought from outside (Sqm)
* Measure the quantity of slips or rain cuts in cum.
* Same measurement for right side of carriageway
* Now record the condition of carriageway
* Measure area of pot holes
* Measure area of edge breaks
* Measure area of crocodile cracks or other cracks
* Measure area of revelling
* Measure area of depression
* Now start recording of road side furniture
* Record no of Kms where sign boards are provided which are to be maintained OR no of signs boards ( in No ) which are to be maintained
* No of Pipe Culverts to be maintained
* No of slab culverts to be maintained
* If culverts are choked then measure the quantity to be excavated ( This item shall be taken in period-I)
* If km stone is missing ,then same may be recorded and take this item in period -1
* The No of Kms stones & 200 m stone to be maintained (In Km)
* Any other item



**Take another sheet for 2st Km and similar for another Kms**

Compile data of each Km in following abstract:



After completing the inventory data of one road, thereafter take the inventory data of second road and all other roads of package. The sum up the quantities in general abstract of package may recorded on the format given below



**Analysis of Rates:**

The MORD analysis based on Chapter 1900 of Ministry of Rural Development (MoRD) Specifications 2014 may be adopted or the updated State Schedule of Rates (S.O.R.) for road maintenance may be adopted .The states which have not updated S.O.R. for road maintenance can see the sample of MoRD analysis of rates appended in this booklet. The states can also adopt their SOR

**Estimate for PBMC:**

The maintenance activities may be indicated in Annual Maintenance Plan of road to ascertain the frequency of maintenance activities required on that road considering the road traffic intensity, weather & topographic conditions. We have to bring the existing road to the service levels indicated in this booklet. So we have to prepare the estimate for Period-1. Thereafter the contractor /community is expected to sustain the road in these service levels by regular routine maintenance activities. The method to prepare estimate for period-2 is also given here.

**Estimate for Period -1:**

As per condition data of pavement, if road requires initial rectification these items may be taken for period-I. In case of choked drains or Choked culverts these quantities may also be included. Take out quantities of all following items for initial rectification of defects to be taken in period-I:-

1. Pot Holes
2. Crack sealing
3. Crocodile Cracks
4. Revelling
5. Depression
6. Edge breaks
7. Earthwork in the choked culverts/Bridges, side drains

**Estimate for Period -1:**



TICK OUT THE ACTIVITIES AS PER REQUIREMENT OF SITE, RAINFALL



The estimate for period 2 may be prepared after taking items from inventory data sheet and the quantities of pavement items may be assumed or 50% of those taken in period -1 The estimate may be sent competent authority for approval as per directive of State Governments.

**SUGGESTED ROUTINE MAINTENANCE ITEMS FOR PBMC CONTRACT**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Abstract of cost** | | | | | | | |
|  | | | | | | | |
| **Name of work:- Routine Maintenance of Nandpur Mairi Road km 0/0 to 23/675 (Period-2)** | | | | | | | |
| **S.No.** | **Description of item** | **Qty.** | **Unit** | **Through Rate** | **Amount** | **Time/ Year** | **Total Amount** |
| **1** | Repair to pot holes and removal of loose material, trimming of sides, cleaning of surface by providing tack coat, 20 mm thick pre-mix carpet and seal coat type B specification Clause 1904.2 i/c carriage of material within all leads and lifts | 50% of taken in Period -1 | Per Sqm | 265.00 | 299450 | 1.00 | 449175 |
| **2** | Crack sealing repair by widening and thoroughly cleaning crack with compressed air and filling using low viscosity bitumen emulsion and applying crusher dust in case crack are wider then 5 mm as per MORD technical specification 501.2.3.2 | 50% of taken in Period -1 | Per Sqm | 43.50 | 49155 | 1.00 | 73733 |
| **3** | Repair to Edge Break and removal of loose materials trimming of sides cleaning of surface by providing tack coat with bitumen emulsion 20 mm thick Premix Carpet using bitumen VG-10 and seal coat Type-B with Bitumen VG-10 as per Technical Specification | 50% of taken in Period -1 | Per Sqm | 416.00 | 245440 | 1.00 | 368160 |
| **4** | Clearing and grubbing road land including uprooting wild vegetation, grass, bushes, shrubs, saplings and trees of girth upto 300 mm, removal of stumps of such trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, upto a lead of 1000 m including removal and disposal of top organic soil not exceeding 150 mm in thickness as per Technical Specification Clause 201. | 48000 | Per Sqm | 5.70 | 273600 | 2.00 | 547200 |
| **5** | The maintenance of drains include erosion, repair, clearing, cleaning, reshaping, re grading, deepening of side drains as well as catch water drains as per technical specification Clause 1907. | 8517 | Per Rmtrs. | 3.00 | 25551 | 1.00 | 25551 |
| **6** | Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor at OMC as per drawings and Technical Specification Clause 1903 | 9671 | P sqmt | 13.00 | 125723 | 2.00 | 251446 |
| **S.No.** | **Descrtiption of item** | **Qty.** | **Unit** | **Through Rate** | **Amount** | **Time/ Year** | **Total Amount** |
| **7** | Making up loss of material/irregularities on shoulders to the design level by adding fresh approved selected soil and compacting it with appropriate equipment at OMC upto a lead of 1000 m as per technical specification Clause 1903 | 12163 | P sqmt | 42.00 | 510846 | 2.00 | 1021692 |
| **8** | Earthwork in Excavation for clearance of culvert/small bridges as per drawing and technical specifications clause 305.1 including setting out construction of shoring and bracing removal of stumps and other deleterious material and disposal upto a lead of 50 mtrs dressing of sides and bottom and backfilling in trenches with excavated suitable material. | 428.40 | Per cum | 330.00 | 141372 | 1.00 | 141372 |
| **9** | Maintenance of Hume pipe Culvert by way of Clearing, Cleaning, Erosion repair, repairs to cracks, parapet wall and protection work as per drawing and technical specification Clause 1908 | 76.00 | Each | 1,585.00 | 120460 | 1.00 | 120460 |
| **10** | Maintenance of road signs by way of cleaning and repainting of mandatory / requlatory / cautionary / informatory and place identifications sign board as perdrawings and technical specification Clause 1910 | 58.00 | Each | 165.00 | 9570 | 2.00 | 19140 |
| **11** | Maintenance of km stone by way of refiting of tilted stones repairing with cement mortar, cleaning, repairing and lettering on 200 metre km stone and 5th km stone as per drawing and technical specification Clause 1912 | 23.00 | Each | 423.00 | 9729 | 2.00 | 19458 |
| **12** | Maintenance of 200 metre stone by way of refiting of tilted stones repairing with cement mortar, cleaning, repairing and lettering on 200 metre km stone and 5th km stone as per drawing and technical specification Clause 1912 | 89.00 | Each | 93.00 | 8277 | 2.00 | 16554 |
| **13** | White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning scraping etc. as per technical specifications Clause 1915 | 814.00 | Per Sqm | 26.00 | 21164 | 2.00 | 42328 |
| **14** | White washing two coats on Guard Stones and tree trunks including preparation of surface by cleaning scraping etc. as per technical specifications Clause 1915 | 3640.00 | Per Sqm | 4.60 | 16744 | 2.00 | 33488 |
|  |  |  | **Grand total** | | **1857081** |  | **3129757** |

The quantity & frequency of items no 1.2.3 may be decided as per site conditions.

**SUGGESTED ROUTINE MAINTENANCE ITEMS FOR COMMUNITY CONTRACT**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Abstract of cost (Only off carriageway items )** | | | | | | | |
|  | | | | | | | |
| **Name of work:- Routine Maintenance of Nanpur Mairi Road km 0/0 to 23/675 (Period-2)** | | | | | | | |
| **S.No.** | **Descrtiption of item** | **Qty.** | **Unit** | **Through Rate** | **Amount** | **Time/ Year** | **Total Amount** |
| **4** | Clearing and grubbing road land including uprooting wild vegetation, grass, bushes, shrubs, saplings and trees of girth upto 300 mm, removal of stumps of such trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, upto a lead of 1000 m including removal and disposal of top organic soil not exceeding 150 mm in thickness as per Technical Specification Clause 201. | 48000 | Per Sqm | 5.70 | 273600 | 2.00 | 547200 |
| **5** | The maintenance of drains include erosion, repair, clearing, cleaning, reshaping, re grading, deepening of side drains as well as catch water drains as per technical specification Clause 1907. | 8517 | Per Rmtrs. | 3.00 | 25551 | 1.00 | 25551 |
| **6** | Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor at OMC as per drawings and Technical Specification Clause 1903 | 9671 | P sqmt | 13.00 | 125723 | 2.00 | 251446 |
| **7** | Making up loss of material/irregularities on shoulders to the design level by adding fresh approved selected soil and compacting it with appropriate equipment at OMC upto a lead of 1000 m as per technical specification Clause 1903 | 12163 | P sqmt | 42.00 | 510846 | 2.00 | 1021692 |
| **8** | Earthwork in Excavation for clearance of culvert/small bridges as per drawing and technical specifications clause 305.1 including setting out construction of shoring and bracing removal of stumps and other deleterious material and disposal upto a lead of 50 mtrs dressing of sides and bottom and backfilling in trenches with excavated suitable material. | 428.40 | Per cum | 330.00 | 141372 | 1.00 | 141372 |
| **9** | Maintenance of Hume pipe Culvert by way of Clearing, Cleaning, Erosion repair, repairs to cracks, parapet wall and protection work as per drawing and technical specification Clause 1908 | 76.00 | Each | 1,585.00 | 120460 | 1.00 | 120460 |

**PROCUREMENT:**

* Standard Bidding Documents (SBD) for PBMC:

The templates for bidding document for PBMC through contractor, PBMC for Community Participation (Through Contractor) PBMC for direct Community Participation are available and can be adopted as per suitability at site.

* Draft of Notice Inviting Tender:

After selecting the SBD, the detailed of measurement, priced Bill of Quantities may be attached. The DNIT approval of competent authority may be obtained.

* Bidding for Community Participation: (For off-carriage way activities)

1. In consultation with Block Development Office of area, the communities such as Mahila Mangal Dal (MMD), Self Help Groups (SHGs), Village Employment Council (VEC), registered NGOs may be identified.
2. The meeting may be convened with Chairperson /Secretary of identified community and elders or respected seniors from the beneficiaries villages may be invited for constitution of Road Maintenance Committee (RMC).
3. The scope and procedure of project may be discussed in the meeting. The Model Bidding Document (MBD) for Community Participation may be adopted for pilot.
4. After meeting, the process of selection of Community Road Maintenance Team (CRMT) as per the guidelines given in SBD for Community Participation. The CRMT leader may also be selected. The training shall be imparted to CRMT by the officials of Nodal Agency
5. The scope, payment procedures shall be explained to all CRMT members. The tripartite agreement with all stakeholders i.e. Govt. , Community, Nodal agency shall be signed.

**SERVICE LEVEL OF ROAD**

All the initial defects are rectified in the period-I and road is brought to a defined service level. Following service level are to maintained in the stipulated period

1. There are no potholes in the carriageway
2. There are no surface patches in the carriageway
3. There are no depressions, rutting or any corrugated surface in the carriageway
4. The surface bleeding of bituminous course, if any, has been treated
5. There is no edge break
6. The shoulders / berms are properly built-up and maintained in entire length of road
7. The existing side drains are clear of silt, debris, garbage etc., and water flows though these drains without any obstruction
8. The passage and inlets/outlets of existing Cross-Drainage structures are clear of silt, debris, garbage etc., and water flows though these without any obstruction
9. There is no growth of grass on carriageway
10. The vegetation along the road does not obstruct the vision of driver (Passenger car)
11. All existing Road Signage and Road marking (as per the layout and inventory detail given at time of bidding) is in good condition and visible to the road user
12. All existing parapets are in proper shape
13. All Kilometre stones are in place