

Government of India
Ministry of Road Transport & Highways

NO. H-39011/30/2015-P&P(Pt-I)

Transport Bhawan, New Delhi
Dated the 22nd August, 2016

To,

1. The Chief Secretaries of all State Governments/ UTs;
2. The Principal Secretaries/ Secretaries of all States/ UTs Public Works Department dealing with National Highways, other Centrally Sponsored Schemes and State Schemes.
3. The Engineers-in-Chief and Chief Engineers of Public Works Department of States/ UTs Public Works Department dealing with National Highways, other Centrally Sponsored Schemes and State Schemes.
4. The Chairman, National Highways Authority of India (NHAI), G-5&6, Sector-10, Dwarka, New Delhi- 110 075.
5. Director General (Border Roads), Seema Sadak Bhawan, 4- Parliament Street, New Delhi - 110 001.
6. The Managing Director, NHIDCL, 3rd Floor, PTI Building, 4- Parliament Street, New Delhi - 110 001.

Subject: Guidelines for procurement, preparation, review and approval of DPR

Madam/ Sir,

1. The Ministry is involved in preparation of various DPRs / Feasibility Report for development / improvement of various sections of National Highways / bridges/ structures etc. The DPR/ Feasibility Reports are required before taking up any National Highway Project for capacity augmentation and removing various deficiencies / improving road safety aspects etc. This circular supersedes the circular No. NH-15017/20/2016-P&M (SPZ) dated 15 July, 2016 and circular no. RW-NH-34015/1/2016 S&R (B) dated 6 July 2016.
2. **Sanction of estimates:** For sanction of DPR estimates, each Project Zone shall first obtain State-wise single stage approval of the rough/tentative cost (project/stretch wise) of competent authority in respect of all the projects for which DPR is to be prepared in the financial year including in-principally approved stretches. The rough/ tentative cost of such projects / stretches shall be worked out on per km cost basis. For plain terrain, Rs 3.5 lakh per km shall be adopted and for rolling/ hilly terrain (excluding centages), Rs 5 lakh per km shall be adopted. In case of isolated bridges/ structures, tentative cost shall be worked out based on recent tender based DPR works sanctioned in the nearby area.
3. **Invitation of bids:** The DPR proposal shall be invited as per Ministry's latest guidelines, by the state PWD/RO, MoRTH and evaluated at their level involving Regional Officer of the Ministry.

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4. **Evaluation of Bids:** The evaluation of bids shall be done as per revised evaluation criteria of technical proposal and evaluation criteria of financial proposal. The revised criteria have been included in Data Sheet of Annexure I to this circular.

5. **Approval of Tender Based Estimate:** Tender based estimate for preparation of DPR/feasibility report shall be approved/ sanctioned at the level of Chief Engineer, MoRTH provided the cost is within approved tentative cost with concurrence of the Deputy Financial Advisor. In case tender based estimate is more than approved tentative cost, separate approval for sanction shall be obtained from Competent Authority.

6. **Preparation, Review and Approval of DPR/ FS:** Six sub-stages have been defined for DPR preparation, each with designated deliverables, reviewing and accepting authority.

a.) The following table shall be followed for MoRTH and its implementation agencies, other than NHAI:

S. No.	Sub-Stage	Key Deliverables	Reviewing and Accepting Authority
I	Draft/ Final Inception Report	Project appreciation, Detailed approach and methodology, Work programme, Proforma for data collection, Design standards and proposed cross sections, Key plan and linear plan, Development plans, Quality assurance plan, Draft design standards	Chief Engineer, PWD/ Chief Engineer, BRO in consultation with Regional Officer, MoRTH
II	Draft/ Final Feasibility Report	Project description including possible alternatives, methodology, socio-economic profile, indicative design standards and technical specifications, traffic surveys and analysis, environmental screening and preliminary assessment, initial social assessment and preliminary land acquisition/ resettlement plan, cost estimates based on preliminary rate analysis and bill of quantities, economic and financial analysis	Chief Engineer, PWD/ Chief Engineer, BRO in consultation with Regional Officer, MoRTH <u>Alignment plan shall be approved by Chief Engineer, MoRTH</u>
III	Draft/ Final LA & Clearances I Report	Strip plan along with land acquisition plan, utility relocation plan, details of properties and estimated costs of acquisition	Chief Engineer, PWD/ Chief Engineer, BRO in consultation with Regional Officer, MoRTH
IV	Draft/ Final Detailed Project Report	Main Report, Design Report, Materials Report, Environmental Assessment Report, Technical Specifications, Rate Analysis, Cost Estimates, Bill of Quantities, Drawing Volume	Chief Engineer, PWD/ Chief Engineer, BRO in consultation with Regional Officer, MoRTH

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S. No	Sub-Stage	Key Deliverables	Reviewing and Accepting Authority
V	Draft/ Final Technical Schedules	Civil Work Contract Agreement	Chief Engineer, PWD/ Chief Engineer, BRO in consultation with Regional Officer, MoRTH
VI	Draft/ Final LA & Clearances II Report	Land Acquisition Report including final 3a, 3A, 3D notifications, Clearances Report with final approvals from agencies for all project related clearances	Chief Engineer, PWD/ Chief Engineer, BRO in consultation with Regional Officer, MoRTH

b.) For NHAI, the key sub-stages, deliverables, reviewing and accepting authorities following table shall be followed:

S. No	Sub-Stage	Key Deliverables	Reviewing and Accepting Authority
I	Draft/ Final Inception Report	Project appreciation, Detailed approach and methodology, Work programme, Proforma for data collection, Design standards and proposed cross sections, Key plan and linear plan, Development plans, Quality assurance plan, Draft design standards	Regional Officer
II	Draft/ Final Feasibility Report	Project description including possible alternatives, methodology, socio-economic profile, indicative design standards and technical specifications, traffic surveys and analysis, environmental screening and preliminary assessment, initial social assessment and preliminary land acquisition/ resettlement plan, cost estimates based on preliminary rate analysis and bill of quantities, economic and financial analysis	Regional Officer in consultation with CGM (Tech) at NHAI. Alignment plan shall be approved by CGM (Tech) at NHAI.
III	Draft/ Final LA & Clearances I Report	Strip plan along with land acquisition plan, utility relocation plan, details of properties and estimated costs of acquisition	Regional Officer
IV	Draft/ Final Detailed Project Report	Main Report, Design Report, Materials Report, Environmental Assessment Report, Technical Specifications, Rate Analysis, Cost Estimates, Bill of Quantities, Drawing Volume	Regional Officer in consultation with CGM (Tech)

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S. No	Sub-Stage	Key Deliverables	Reviewing and Accepting Authority
V	Draft/ Final Technical Schedules	Civil Work Contract Agreement	Regional Officer in consultation with CGM (Tech)
VI	Draft/ Final LA & Clearances II Report	Land Acquisition Report including final 3a, 3A, 3D notifications, Clearances Report with final approvals from agencies for all project related clearances	Regional Officer

Note: The stages 3, 5 and 6 will run in parallel to stage 2 and 4. The revised sub-stages have been included in Terms of Reference (TOR) of Annexure I.

c.) For each of the six sub-stages in 6.(a) and 6.(b) above, quality checklists have been defined to ensure that all necessary activities pertaining to the sub-stage are completed. Compliance to these checklists shall be reviewed by corresponding review and accepting authority, as mentioned in the above tables. Payments shall be linked to successful completion of the various sub-stages. The checklists for pavements have been included as Annexure II and checklists for structures such as ROB/ RUB as Annexure III.

d.) The timeline for preparation of DPR shall be 8 months. Timeline for scrutiny and approval of DPR shall remain 2 months as per Standard Operating Procedures, MoRTH, Revision - 01, August 2015.

e.) DPR consultant shall be responsible for sharing the findings from the preparation stages during the bid process. During the bid process for a project, the DPR consultant shall support the Authority in responding to all technical queries, and shall ensure active participation of senior team members of the consultant during all interaction with potential bidders including pre-bid conference, meetings, site visits etc. In addition, the DPR consultant shall also support preparation of detailed responses to the written queries raised by the bidders. Also, the deliverables of the DPR consultant shall include editable soft copies of the final versions of all documents, including but not limited to the strip plan, plan & profile drawings, cross sections of right of way and details of structures as well as any cost workings.

f.) DPR Consultant shall also prepare the complete draft utility shifting estimates using the latest Schedule of Rates and obtain a sign-off from the corresponding utility agencies. For preparation of estimate, consultant shall use technologies for detection of sub-surface utilities as per para 7.

The above revisions from 6.(a) to 6.(f) have been included in Terms of Reference (TOR) of Annexure I enclosed with this circular.

7. **Technology for DPR/ FS Preparation:** The following are the areas where appropriate technology shall be introduced to reduce time for DPR/ FS preparation and improve quality:

(i) **Topographic Survey:**

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- To conduct topographic surveys, technologies which meet the following criteria shall be used. For land based surveys: (a) Fundamental horizontal accuracy of 2 cm or better (b) Fundamental vertical accuracy of 2 cm or better (c) More than 50 points shall be measured per sq. m. For aerial based surveys: (a) Fundamental horizontal accuracy of 5 cm or better (b) Fundamental vertical accuracy of 5 cm or better (c) More than 10 points shall be measured per sq. m.

- To establish accuracy, a check point survey using DGPS (for horizontal accuracy) and Auto Level (for vertical accuracy) shall be carried out to establish the fundamental horizontal and vertical accuracy. A minimum of 25 check points, or check points once every 4 km shall be established, and these shall be strictly different from any geo-referencing or control network points.

- The following are the set of deliverables which shall be submitted after completion of survey:

- (a) Raw DGPS data for the entire highway length and adjoining areas of interest
- (b) Point cloud data/ Data of points captured for the entire highway length and adjoining areas of interest
- (c) Topographic map of scale 1:1000. of the entire highway length and adjoining areas of interest
- (d) Contour map of 50 cm of entire highway length and adjoining areas of interest
- (e) Cross section of the highway at every 1 m in *.dwg format.

- For land based surveys, Mobile LiDAR (Light Detection and Ranging) or equivalent technology that can meet above requirements shall be adopted. For aerial based surveys, Aerial Mobile LiDAR (Light Detection and Ranging) or equivalent technology that can meet above requirements shall be adopted. Land based surveys using Mobile LiDAR or equivalent technology shall be used for most highway projects, except in cases of hilly areas, major bypasses and realignments, where aerial based surveys using aerial LiDAR or equivalent technology shall be used. In shadow areas such as invert levels below culverts, where LiDAR or equivalent technologies cannot survey accurately, traditional methods of Total Station/ Auto Level shall be used to complete the study. In case of mobile LiDAR or equivalent technology, 360 degree panoramic images of the entire highway length and adjoining areas of interest shall be submitted. In case of aerial LiDAR or equivalent technology, ortho-images of the entire highway length and adjoining areas of interest shall be submitted. In case other equivalent technologies are identified at later stages, specifications for the same shall be put up for approval to the Competent Authority.

(ii) Sub-Surface Utility Mapping:

The following criteria shall be met by the process of sub-surface utility mapping:

- (a) Coverage and mapping of all sub-surface utilities within project RoW, especially those under additional carriageway width
- (b) Accurate mapping and resolution of all sub-surface utilities up to a depth of 4 m
- (c) Differentiation between sub-surface utilities such as live electric cables, metallic utilities and other utilities
- (d) Sub-surface utilities radargrams further processed into utility maps in formats such as PDF, JPEG and AutoCAD.

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To meet the above criteria, sub-surface utility engineering (SUE) using technologies such as Ground Penetrating Radar (GPR), Induction Locator etc. or equivalent technologies shall be adopted. In case other equivalent technologies are identified at later stages, specifications for the same shall be put up for approval to the Competent Authority.

(iii) Cadastral Mapping:

All DPR consultants shall digitize land cadastral maps before preparing the land acquisition plan. The digitized map shall exactly match the original map, like a contact print, since the dimensions and area of plots, or the whole village are to be extracted from the map itself. An accuracy of 1mm or higher in a 1:1000 scale map shall be ensured, as this translates into an accuracy of 1 m or higher on ground.

(iv) Traffic Count Survey:

DPR Consultants shall use the results of traffic count surveys being done by IHMCL. If required, specifically in cases where a particular stretch is not being covered by IHMCL, DPR consultants shall carry out traffic count surveys on their own using ATCC systems or equivalent technologies. The ATCC system shall meet the following accuracy levels after validation/ correction:

(a) Classification of vehicles: better than 95% (b) Counting of vehicles: better than 98%.
Before validation and correction, the ATCC system shall meet the following accuracy levels: (a) Classification of vehicles: better than 90% (b) Counting of vehicles: better than 95%.

For verification of the above mentioned accuracy levels, audit of raw ATCC data shall be done on a sampling basis. Systems such as Pneumatic Tube Detector, Inductive Detector Loop, Video Image Detection and Infrared Sensor etc or any other equivalent technologies shall be adopted to meet the above accuracy levels. In case other equivalent technologies are identified at later stages, specifications for the same shall be put up for approval to the Competent Authority

The above revisions 7.(i), 7.(ii), 7.(iii) and 7.(iv) have been included in Terms of Reference (TOR) of Annexure I enclosed with this circular.

8. Payment Schedule:

The standard form of payment schedule to be followed in RFP document has been developed for procuring consultancy services for preparation of Detailed Project Report (DPR) for development of National Highways. The Competent Authority has approved the following Payment Schedule for uniformly using in RFP document for procurement consultancy service on National Highway works being carried out by implementing agencies i.e State PWD/ NHAI/ NHIDCL/ BRO. The following revised payment schedule has been included in Draft Contract for Consultant's Services of Annexure I enclosed with this circular.

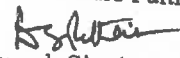
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S.No	Item	Payment as % of contract value
1	Submission of final Inception Report	15%
2	Submission of final Alignment Plan	10%
3	Submission of final Feasibility Report	5%
4	Submission of final Land Acquisition Report	10%
5	Submission of clearance proposals	5%
6	Submission of Draft DPR	10%
7	Approval of Final DPR	10%
8	Approval of Technical Schedules	5%
9	3D publication	10%
10	Clearance – Stage I Approval	5%
11	Clearance – Stage II/Final Approval	5%
12	Retention to be released after 3 years	10%
	Total:	100%
13	Bonus on submission of draft 3A within 1 month of alignment finalization	2.5% bonus
14	Bonus on submission of draft clearance proposals within 1 month of alignment finalization	2.5% bonus

9. **Extension of Time and Variation/ Change of Scope:** In case Extension of Time is required for carrying out the DPR/feasibility report, it shall be granted at the level of Chief Engineer, MoRTH dealing with State. The matter of variation /change of scope upto 5% of consultancy contract amount for DPR/feasibility study shall be approved at the level of Chief Engineer, MoRTH. In case, the variation/change of scope exceeds the 5% of consultancy contract amount, revised approval shall be obtained.

10. This issues with the concurrence of Finance Wing and approval of Secretary (RT&H).

Yours Faithfully,



(Devesh Singh Pathania)

Under Secretary to the Government of India

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Copy to:

- All Technical Officers of the Roads Wing, MoRT&H.
- All Directors/Deputy Secretaries, MoRT&H.
- PS to Hon'ble Minister (RT&H).
- PS to Hon'ble Minister of State (RT&H).

- PPS to Secretary (RT&H)/PPS to DG(RD) & SS/PPS to AS&FA
- PS to ADG-1/II/Coordinator-1/II/III/Chief Engineers/Joint Secretaries, MoRT&H.