

No. NHSRCL_CO/GEN/HT/OI/HSR VIADUCT/1476/1/OHQ 2827

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Subject: Inviting the research proposal for project of “Optimization of High Speed Railway Viaduct (HSR) design”

1. National High Speed Rail Corporation Limited (NHSRCL), a joint sector company of Government of India and participating states (i.e. Gujarat & Maharashtra), is implementing the prestigious Bullet Train Project for Mumbai-Ahmedabad High Speed Rail project (MAHSR) under various provision of Indian Railway Act.
2. A High Speed Railways Innovation Centre (HSR IC) has been formed with a vision “To undertake research, development in relevant fields of High-Speed Rail technology by leveraging Indian technical capabilities so as to contribute to rail transportation, happier society and self-reliant nation through development of indigenous capabilities & cost- effective solutions”. For details of HSRIC, our web address, cited below may be visited.
(<https://www.nhsrcl.in/en/innovation/hsr-innovation-center>)
3. HSRIC has identified a project of “Optimization of High Speed Railway Viaduct (HSR) design” for research and development. In order to select partners for targeted, applied collaborative research and to ensure fruitful partnerships, the brief of the project is being shared as Annexure- I with your institution and other institutes/organizations.
4. The proposal can be prepared by the Academicians/Researchers of the Institute or jointly with partners and should briefly explain how the research/study/modelling etc. is proposed to be carried out in timely, cost, effective and efficient manner. The proforma for submission of project proposals is being shared as Annexure-2
5. Proposals received from various institutes/organizations will be reviewed and based on evaluation a few (one or more) proposals would be selected for research and development.
6. It is requested that your institution may consider the invitation and send the proposal in word document file on innovation.hsr@nhsrcl.in, before 15/04/2020 for further evaluation.




(Alok Tripathi)
(Technical Head)
HSR Innovation Centre
Trust & GM(Innovation)/NHSRCL)

DA: As above

हाई स्पीड रेलवे इनोवेशन सेंटर | High Speed Railways Innovation Centre

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Annexure - 1

Project :	Optimization of High Speed Railway Viaduct(HSR) design (Finalisation of Viaduct design parameters and preparation of guidelines for High Speed Railway projects in India)
Need :	Presently, there are no Indian Standards for HSR. So it is pertinent to prepare a set of Guidelines to be followed for HSR in India with an intent to Standardize and Optimize the Viaduct design .
Back Ground :	<p>National High Speed Railway Corporation (NHSRCL) is Implementing first High Speed Rail Corridor in India between Mumbai- Ahmedabad.</p> <p>High-speed Rail will be operating at a speed of 320 Km/hr at an elevated (10 to 15 m) track above the ground on a viaduct all along except 26 kms in Mumbai, which will be underground.</p> <p>Detailed project Reports (DPRs) for further HSR corridors have also been under taken by NHSRCL, which will be the route map for development of various HSR corridors across India.</p> <p>Construction of Viaduct, being a very crucial element in HSR infrastructure, it is proposed to optimize/standardise the design elements of HSR viaducts.</p>
Research Objectives:	<ul style="list-style-type: none"> • To study the Design Parameters for Viaduct Design used in Japan, China, Europe and other HSR's in the World. • To finalise the Design Parameters & Methods suiting Indian Conditions, Available materials etc. and prepare guidelines for HSR in India. • To optimise the viaduct design by standardising the spans, using continuous spans. • Pile-Pier bend and using innovative construction techniques like full span launching etc. for mass construction.

Indicative list of parameters to be finalized	<ol style="list-style-type: none">1. Standard HSR train loading2. Derailment Load3. Impact /Dynamic Augmentation factor4. Dynamic response parameters like frequency, deck acceleration, derailment factor etc.5. Traction & braking ,train lateral forces, LWR forces6. Train aerodynamic effect7. Displacement limits - vertical, horizontal, rotation8. Bridge bearings, seismic retainers/dampers, noise barriers9. Seismic design10. Structural design code11. Optimise viaduct design for mass construction – standard span length & deck width, type of superstructure., pile-pier arr., FSLM
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Proforma for Submission of Proposals

1. Title of the Project
2. Objectives
3. Description of Project proposal
4. Methodology
5. Duration of the Project
6. Expected Major Outcomes / Deliverables
7. Plan of work including phasing of work schedule and timelines with key Mile Stones (may be tentative)
8. Estimated Budget
9. Details of the Institution
10. Research Team (including young researchers/ Ph.D. students)

**ENDORSEMENT FROM THE HEAD OF INSTITUTION
(TO BE GIVEN ON LETTER HEAD)**

PROJECT TITLE:

1. Certified that the Institute welcomes participation of Dr./Shri/Smt./Km. _____ as the Principal Investigator and Dr./Shri/Smt./Km. _____ as the Co-Investigator for the project and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume the responsibility for the fruitful completion of the project (after obtaining consent in advance from HSRIC).
2. Certified that the equipment, other basic facilities and such other administrative facilities as per terms and conditions of the grant, will be extended to investigator (s) throughout the duration of the project.
3. Institute assures financial and other managerial responsibilities of the project.

Name and Signature of Head of Institution

Date:

Place:.....