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| As Sr. Highway Engineer, responsible for preliminary surveys and investigations, review of available maps, data and reports; preparation of design standards, development of typical cross-sections, carrying out alignment study along with determination of need for interchanges and various other grade separation structures, extents of frontage road; preliminary geometric design of mainline road, interchanges, road underpasses and overbridges etc; development of preliminary layout of toll plaza; and preparation of drawings, diagrams and reports.   Consultancy Services for Limited Review of Pavement of Gour-Mohadipur Road at Maldah, Contract Package RAR –III (Balance Work) under West Bengal Corridor Development Project (ADB funded), West Bengal, India, 2009-Ongoing  (Client: Public Works (Roads) Department, Government of West Bengal)  As Design Team Leader-cum-Pavement Expert, responsible for pavement and subgrade investigation, evaluation of pavement rehabilitation & reconstruction needs, and recommending cost-effective solution.  Construction Supervision of Approaches, Guide Bund & Protection Works for Major Bridge over River Ghaghra near Chahlarighat on Sitapur – Bahraich Road under UP State Road Project, Package UPSRP/UPG/13A, Uttar Pradesh, India, 2009-Ongoing  (Client: Public Works Department, Government of Uttar Pradesh)   As Design Review Engineer of the Independent Consultant evaluated embankment slope stability of the bridge approaches and prepared report.  Construction Supervision for 4-laning of Hyderabad-Bangalore Section of NH-7 from Km 251.0 to Km 293.4 (42.4 km) in Andhra Pradesh, Contract Package C-11, Andhra Pradesh, India, 2009 – Ongoing (Client: National Highways Authority of India)  As Sr. Pavement Expert of the Engineer reviewed Mechanistic Analysis and Design of flexible pavement submitted by the Contractor.  Construction Supervision for Strengthening and Widening to 4-lane of NH-41 (54 km) - Balance Work and HPL Link Road (6 km), West Bengal, India, 2009 – Ongoing (Client: National Highways Authority of India)   As Design Review Engineer, responsible for review of pavement rehabilitation & reconstruction, necessary revision of profile and new rigid pavement at toll plaza.   Detailed Engineering for construction of new 8-lane Ganga Expressway, Package IV (200 km) in UP, India, 2008 - Ongoing  (Client: Jayprakash Associates Ltd., India) (Project on-hold by Jaypee Ganga Infrastructure Company Ltd)  As Sr. Highway Engineer, responsible for preliminary design of interchanges including review of design standards specified in the Concession Agreement; identification of alternative schemes for the interchanges with National Highways and State Highways considering various options of tolling system, traffic operation, cost and land acquisition; geometric design and comparison of merits and demerits of the schemes; development of detailed layouts of toll plaza; and preparation of drawings, diagrams and reports. Besides, participated in the group discussions with the client and other consultants.   Detailed Design of Vehicle Test Tracks for Tata Motors Ltd in Jamshedur, India, 2008-ongoing (Client: Tata Motors Ltd., India)  As Sr. Highway cum Pavement Engineer, responsible for all technical matters including survey, detailed design of geometrics, pavement, drainage, etc; and preparation of cost estimates, drawings and reports for the construction of six new advanced torture test tracks inside the existing testing facility area and three new off-road loops with tracks for testing of heavy vehicles.  Detailed Design of Container Handling Terminal for Chennai Port, Chennai, India, 2008  (Client: Singapore Port Authority, Singapore)  As Sr. Pavement Expert, was responsible for detailed design of pavement for the container handling yard using proprietary software and following the standards of British Ports Association/ Interpave and other international design standards for heavy duty pavements under various pavement options including interlocking concrete block paving, roller compacted concrete, jointed plain cement concrete and bituminous pavement, and recommended the cost-effective solution.   Consultancy Services for Preparation of Standard Maintenance Manual for Operation and Maintenance Contracts, India, 2008 (Client: National Highways Authority of India)  As Highway Maintenance Specialist, responsible to assist team Leader on relevant aspects of the assigned task; review current NHAI documents on Item Rate & Performance; study data coverage on non-pavement items of works including Road appurtenances; evaluate drainage system, erosion protection measures and safety elements; prepare check list for inspection of distress and deterioration; assist Team Leader on document preparation as a whole.  Feasibility Study, Detailed Engineering and Construction Supervision for widening to 6/8 lane of Nairobi-Thika Road (45 km) funded by ADB, Kenya, 2007- Onging  (Client: Ministry of Roads and Public Works, Govt of Kenya)  As Sr. Pavement Specialist, responsible for Field Investigation including Axle Load Survey, Life Cycle Cost Analysis and preliminary Design of Flexible and Rigid pavements for the feasibility study.   Construction Supervision for Strengthening and Widening to four-lane of Jalandhar - Amritsar Section of NH -1 in Punjab (49 km), on BOT basis, India, 2006 – 2008 (Client: National Highways Authority of India)  As Sr. Pavement Specialist of the Independent Consultant, responsible for review of investigation, analysis and design of flexible and rigid pavements so far prepared and submitted by the Concessionaire.   Detailed Design and Construction Supervision for Road Network Improvement and Maintenance Project (Ph-I) funded by ADB and OPEC, Bangladesh, 2006-Ongoing (Client: Roads & Highways Department, Ministry of Communication, Bangladesh)  As Sr. Pavement and Materials Engineer, responsible for survey and investigation of pavement, design of new pavement and rehabilitation of existing pavement. Also responsible for investigation for various construction materials, preparation of cost estimate and bidding documents for improvement of 174 km of roads under Road Improvement Component, selection of 400 km of road sections for periodic road maintenance through analysis using HDM-IV, preparation of periodic maintenance strategies, cost estimate and bidding documents. Besides, responsible for geometric design using MxRoad/AutoDesk 3D Civil Highway Design software, prepared cost estimate, drawings and Final Design Report for the Road Improvement component. Feasibility Study and Detailed Engineering for Strengthening and Widening to 4/6 lane of Belgaum – Goa/ Karnataka Border Section of NH-4A (84 km) in the State of Karnataka under NHDP Phase-III Programme, India, 2005-2006 (Client: National Highways Authority of India)  As Sr. Pavement and Materials Engineer, responsible for investigation of materials and pavement, design of new pavement and rehabilitation of existing pavement, and preparation of report.   As Design Team Leader cum Sr. Highway Engineer, led a team of engineers, economists and CAD persons in the following seven projects, developed design philosophy, performed planning, programming and project monitoring; and interacted with the Client and Funding Agency. Responsible for all aspects of engineering surveys and investigations, traffic analysis and projection, geometric design using InRoads/MxRoad software, analysis of existing pavement and locally available construction materials for quality, quantity and lead considerations. Performed Pavement Life Cycle Cost Analysis using HDM- IV for selection of type of pavement, design of pavement rehabilitation and new Flexible and Rigid pavement, design of surface and sub-surface drainage, road signing and marking, and preparation of bidding documents, detailed engineering drawings using AutoCAD Software, cost estimates, project reports and land/structure acquisition plans and schedules. Besides, imparted on-job training to the engineers. • Detailed Engineering for 4-laning of HPL Link Road (6 km), Haldia, West Bengal, India, 2005-2006 (Client: National Highways Authority of India) • Detailed Design, Design Review and Construction Supervision for West Bengal Corridor Development Project - State Highways (151 km) and Rural Access Road Component (km 110) (Funded by ADB), West Bengal, India, 2003-2006 (Client: Public Works (Roads) Department, Government of West Bengal) • Detailed Engineering for Integrated Industrial Ring Road (20 km) in Haldia, West Bengal, India, 2002-2003 (Client: Haldia Development Authority) • Detailed Engineering for Shaktigarh Bypass (6 km) under 4 laning of Panagarh - Palsit section of NH-2 in the State of West Bengal, India, 2002 (Client: National Highways Authority of India) • Detailed Engineering for Internal Road Network of New Assembly Complex at Tripura including 4-lane Access Road, Tripura, India, 2002  (Client: Public Works Department, Govt. of Tripura) • Detailed Engineering for Strengthening and Widening of Selected Road Corridors (487 km) in Jharkhand, 2002-2005 (Client: Public Works Department, Government of Jharkhand) • Detailed Engineering for Strengthening and Widening to 4/6-lane of Durgapur Expressway (65 km) in the State of West Bengal, India, 2001-2002 (Client: National Highways Authority of India)   Feasibility Study and Preparation of DPR for 4-laning of Siliguri-Gairkatta Section of NH-31C (km 145 to km 105) and NH-31 (km 634 to km 580), India, 2002-2003 (Client: National Highways Authority of India)  As Highway cum Traffic Engineer, responsible for detailed reconnaissance, preparation of inception report, planning and programming for traffic surveys, traffic study and demand forecast, alternative alignment study for bypasses at Sebak, Mallbazar and Binnaguri, identification of need for geometric improvement, preliminary geometric design, preparation of widening schemes, finalization of cross-sectional elements, and preparation of Feasibility Study Report.  Construction Supervision for Strengthening and Widening to four-lane of NH-41 (54 km), West Bengal, India, 2002-2004 (Client: National Highways Authority of India)   As Design Review Engineer, responsible for review of geometric design, modification of Mecheda Interchange, several underpasses & flyovers, and toll plaza; review of use of fly ash as fill material, identification of stretches that need partial/full reconstruction, review of flexible pavement rehabilitation and design of new pavement.  Besides, was responsible for site reconnaissance and preparation of Expression of Interest and Technical Proposal for the following projects:  • Consultancy Services for Fixing the Alignment of Vadodara-Mumbai Expressway to be executed as BOT (Toll) Project on DBFO Pattern under NHDP Phase VI, India, 2008 • Consultancy Services for Survey, Investigation, and Detailed Project Preparation for Double Lane Alternative Highway from Ranipool to Burtuk and from Melli to Rangpo, Sikkim, India, 2007 • Consultancy Services for Survey, Investigation, and Detailed Project Preparation for Improvement of Subsector Damchu-Chukha (Realignment Portion) on Phuentsholing -Thimphu Road under 19 BRTF Project Dantak, Bhutan, 2007 • Consultancy Services for Project Preparatory Studies for Package IV (Phase II) for Reclassification of State Road Network, Punjab, India, 2007 2000 to 2001:  A.I. & ASSOCIATE, HOUSTON, TEXAS, USA Senior Engineer  As Sr. Highway Engineer, responsible for developing digital terrain models (DTM), alignment design and development of proposed cross-sections using Microstation & Geopak Highway Design software. Carried out design of terminal transitions, intersections, ramp junctions, driveways, roadway signing, marking, and safety devices, storm water pollution control devices, prepared drawings and computed quantities of various roadwork items for the following detailed design projects.   • Replacement of the existing bridge over Gerritsen Inlet, Belt Parkway, Brooklyn, New York, USA, 2000-2001  (Client: New York City Department of Transportation) • Detailed Engineering for Widening to Four lanes of Airport Boulevard, Houston, USA, 2000 (Client: Houston City Department of Transportation) • Detailed Engineering for Widening to Four lanes of US 90, Devers, Texas, USA, 2000  (Client: Texas Department of Transportation)  • Detailed Engineering for Widening to 4 lanes of Wolf Creek Bridge & its approaches, Texas, USA, 2000 (Client: Houston City Department of Transportation) • Detailed Engineering for Improvement of Neighborhood Roads, Houston, Texas, USA, 2000  (Client: Houston City Department of Transportation)    1999:  TEXAS DEPARTMENT OF TRANSPORTATION, BRYAN, TEXAS, USA Engineering Specialist  Advance Planning for Improvement of the Existing Interchange of FM 60 with FM 2818, Bryan, Texas, USA, 1999  As Design Engineer, responsible for preparing a report showing bottlenecks of the existing diamond interchange, annual variations of level of service at the ramp junctions and main lanes, certain immediate improvement measures and comparison of the alternative schemes with partial and full cloverleaf and directional interchange along with their merits and demerits considering land acquisition and total cost.   Hydrology and Hydraulic Study for SH 40 Corridor, Bryan, Texas, USA, 1999  As Design Engineer, responsible for detailed study of hydrology, estimation of design discharge, design of culverts, study of hydraulic performance of the proposed culverts, and analysis of water surface elevations and flood plane using HECRAS Ver. 2.2 software. Besides, compared total cost for single and tandem structure and prepared a study report.   As Design Engineer, prepared advance schematic roadway designs using Microstation and Geopak software for a few four-laning projects in Bryan District, Texas. In addition, performed pavement investigations including survey of visible distress, measurement of roughness and rut depth using SIometer, and Falling Weight Deflectometer (FWD) tests as routine tests under TxDOT’s pavement management information system (PMIS) and maintenance management system (MMS); and developed rehabilitation schemes under RRR programme.    1997 - 1999:  TEXAS TRANSPORTATION INSTITUTE, COLLEGE STATION, TEXAS, USA Pavement Research Engineer   • Integration of Pavement Management Systems of Texas Department of Transportation, Texas, USA, 1997-1998 (Client: Texas Department of Transportation)  • Pavement Investigation and Design of Flexible Pavement Rehabilitation for SH 286, Texas, USA, 1997 (Client: Texas Department of Transportation)  As Pavement Research Engineer, worked on pavement management information system (PMIS) used at the network level and FPS-19 (flexible pavement thickness design program) used at the project level by Texas Department of Transportation and performed a thorough literature search for pavement performance prediction models. Identified various levels of PMS and priority for integration of various modules of the system including GIS. Performed a sensitivity analysis of FPS-19, developed a database from Long-Term Pavement Performance (LTPP), evaluated the performance prediction models used in PMIS and FPS-19 using the database and recommended improvements. Besides, studied Illislab finite element model (computer program) for analysis of rigid pavement and through statistical analysis of the outputs from Illislab program developed empirical models and charts for thickness design of jointed plain cement concrete pavements (JPCP). Tested and evaluated Universal Mechanistic Design (UMD) software for pavement design.   In addition, performed pavement investigation using Ground Penetration Radar (GPR) and FWD for several road sections in Texas, back-calculated elastic moduli of pavement layers using MODULUS program, and designed pavement rehabilitation.   1983 - 1996:  CONSULTING ENGINEERING SERVICES (INDIA) PVT. LTD., NEW DELHI Project Manager/Senior Engineer/Engineer/Assistant Engineer  Detailed Design and Construction Supervision of Namkading–Savannakhet Road (275km), Thakhek, (World Bank funded), Section of National Road No.13, Khamoune Province, Lao PDR, 1993-1996  (Client: MCTPC, Govt. of Lao PDR)  As Sr. Highway/Pavement Engineer, responsible for design of horizontal alignment & vertical profile of 275 km of roadway, design of five major at-grade intersections and several minor junctions, design of culverts, and preparation of location plan for road marking, signs & guard posts for Contract I & II at the construction stage. Supervised various construction activities and material testing in the laboratory, checked Interim Payment Certificates, prepared progress reports and attended progress review meetings with the client & contractor. Performed roadway design, pavement investigation & design, and prepared Detailed Engineering Report for Improvement of Kengkabao-Seno Section (10 km) in Contract II. Besides, imparted on-job training to counterpart staff of client.   Detailed Engineering Study for Improvements of 320 km of Class A & B Roads under Third Improvement Project, Sri Lanka, (ADB funded), 1992  (Client: Govt. of Sri Lanka)  As Sr. Highway/Pavement Engineer, organised and supervised roadway and structure inventory to cross-check the base maps; designed roadway geometrics, supervised Benkelman Beam Deflection (BBD) Tests; analysed BBD test data; designed new pavements and rehabilitation of pavements; and prepared cost estimates and Bill of Quantities. Also, prepared typical cross-sections and typical details of road marking & signs, busbays, and other road furniture as per safety policies, and assisted in preparing contract documents and reports.   Major Construction & Reconstruction of Roads, Baseline Traffic & Transportation Study, Traffic Engineering & Management for Trivandrum, Cochin and Calicut cities under Kerala Urban Development Project, (World Bank funded), India, 1990-1992 (Client: Govt. of Kerala)  As Sr. Highway/Pavement Engineer, prepared Project Identification Report on Road Development for the City of Trivandrum; for this report organized and supervised traffic surveys, analysed traffic and prepared traffic projections, conducted roadway inventory including abutting land and structure, roadway condition survey, and bridge/culvert inventory and condition survey; and prepared reports. In the next phase of work for the same project, as the Resident Engineer with similar set-up in Cochin, Kerala, prepared a report on Baseline Traffic and Transport Study for the City of Cochin. For this report, developed several drawings showing road network with different features like, traffic volume, zone to zone movement of traffic, road classification, roadway width, etc. For the feasibility studies of the identified road sections for major construction and reconstruction, performed pavement and subgrade investigation and designed pavement rehabilitation and new pavement, designed roadway geometrics, and prepared drawings, cost estimate and reports.   • Feasibility Study for Strengthening and Widening to Two-lane of Sambalpur-Raurkela Road (167 km) and Keonjhar-Bhadrasahi Road (67 km) and Detailed Engineering for Strengthening and Widening to Two-lane of Sambalpur-Raurkela Road (167 km), Orissa, (ADB funded), 1989 – 1990 (Client: Public Works Department (Roads), Govt. of Orissa) • Feasibility Study and Detailed Engineering for Strengthening and Widening to Four lanes of Bhubaneswar –Cuttack-Jagatpur Section of NH-5 (31 km) Orissa, (World Bank funded), 1988 – 1989 (Client: Public Works Department (NH Wing), Govt. of Orissa) • Feasibility Study Report on Strengthening and Widening to Two lanes of Hyderabad – Ramagundam – Karimnagar Road (250 km), Andhra Pradesh, (ADB funded), 1988  (Client: Public Works Department (Roads), Govt. of Andhra Pradesh)  As Highway Engineer in the above three projects, organised and supervised various types of traffic, topographic, and road condition survey as the site in-charge; analysed traffic; investigated existing roadway geometric deficiencies and determined the need for pavement strengthening and widening; prepared preliminary improvement plans; developed preliminary alignment plan for a bypass at Jharsuguda; performed preliminary design of pavements; prepared drawings and cost estimates; and assisted in running HDM III and preparing the feasibility report. In the detailed design stage, conducted detailed pavement investigations including Benkelman Beam Deflection Tests, designed pavement rehabilitation and new flexible pavement, designed horizontal alignment, vertical profile, junctions and flyover; prepared plan & profile drawings, location maps showing road signs, markings, guard posts, etc, and typical detailed drawings; prepared cost estimates and assisted in report preparation.  Ahmedabad – Vadodara Expressway, Gujarat, (World Bank funded), 1988 As Highway Engineer, prepared alternative flyover schemes with at-grate roundabout at Vadodara end junction.  Improvement of Chowringhee Road Corridor, Calcutta, 1987 As Highway Engineer, supervised physical survey, designed junctions and horizontal alignment, and prepared functional plan.  Traffic Engineering Schemes for Hotel Taj Bengal, Calcutta, 1987 As Traffic Engineer, organised and supervised traffic and topographic survey, analysed various types of traffic data, prepared alternative traffic circulation schemes, designed flexible pavement, and prepared cost estimate and project report.  Traffic Engineering Schemes under Capitol Complex Project, Imphal, Manipur, 1986 As Highway Engineer, organised and supervised various types of traffic, road condition, and socio-economic surveys; performed preliminary design of pavements; and prepared cost estimate for the project report.  Drainage Improvement Schemes for Guwahati, Assam, 1986 As Drainage Engineer, designed drainage system, computed design discharge, performed hydraulic design, prepared typical details, plan and profile drawings and cost estimates.  Junction Improvement Schemes for Guwahati, Assam, 1986 As Traffic Engineer, performed geometric design of junctions and signalization schemes, and prepared cost estimates.  Techno-Economic Feasibility Study for Construction of a Jetty at Falta Export Processing Zone, West Bengal, 1985 As Traffic Engineer, conducted surveys, prepared projection of cargo traffic and cost estimates and performed economic analysis.   Detailed Engineering for Ahmedabad – Vadodara Expressway, Gujarat, (World Bank funded), 1984 – 1985 As Assistant Engineer, designed terminal at-grade junctions, prepared signalization schemes, prepared plan and profile drawings, detailed cross-section & miscellaneous drawings, computed quantities and assisted in preparing Detailed Project Reports.  Kona Truck Terminal in West Bengal, 1985 As Assistant Engineer, supervised traffic survey, collected and collated socio-economic data, and analysed traffic data.  Improvement of Barrackpore Trunk Road, Kolkata, West Bengal, 1983 - 1987 As Assistant Engineer, performed geometric design of junctions and prepared signalization schemes, functional plan, typical cross-sections and cost estimate.  Construction of Dry Dock and Modernisation of Infra-structure facilities at Rajabagan Dock Yard, Calcutta, 1983 - 1984  As Assistant Engineer, was responsible for site supervision and project monitoring. |
| **Comments/ Hobbies/ Interests etc:** |
| Playing violin, painting, reading books, watching movies |