

Curriculum Vitae

1. Name and Photograph: **SUBHASH CHAND**



2. Designation: Principal Scientist

3. Complete address: TES Division,
CSIR-CRRI, Mathura Road,
New Delhi 110 025
sbk.crri@nic.in
subhashkaushal65@gmail.com

4. Areas of Interest: Traffic Engineering, Road Safety and Transport
Infrastructure Design

5. Educational Qualification:

Degree	University/Institution	Year	Division	Specialization
M.E.Civil (Highways)	PEC, Chandigarh. Panjab University, Chandigarh	1996	First class	Highways & Traffic Engineering
B.Sc. Engineering Civil	MIT, Muzaffarpur Bihar University, Muzaffarpur, Bihar	1988	First class with Distinction	Civil Engineering

6. Professional Experience:

Employer	Period	Position held
Central Road Research Institute, New Delhi	July 2011-Till date	Principal Scientist (Scientist E-II)
Central Road Research Institute, New Delhi	July 2006- July 2011	Senior Scientist (Scientist E-I)
Central Road Research Institute, New Delhi	July 1998- July 2006	Scientist C
Central Road Research Institute, New Delhi	July 1993- July 1998	Scientist B
Himachal Pradesh P.W.D. Shimla (H.P.)	July 1991- July 1993	Junior Engineer

7. Membership to Professional Bodies:

- a. Life Member of Indian Road Congress (IRC)
- b. Life Member of Institute of Urban Transport (IUT)

8. Achievements:

- a. Honours and Awards: NIL
- b. Research Projects

Consultancy projects:

1. "Comprehensive Traffic System and Road Planning of S.A.S. Nagar. (Sponsored by Planning Department SAS Nagar, September, 1996) - As one of the Principle Investigators.
2. "Traffic Management Plan of Parivartan Chowk, Lucknow". (Sponsored by UPPWD) – As one of the Principle Investigators
3. "Comprehensive Traffic and Transportation Plan for Nagpur. (Sponsored by NIT Nagpur December, 1998) - As one of the Principle Investigators
4. "Design of Road Signage System for Ring Road from Raj Ghat to Monkey Bridge". Sponsored by PWD Delhi, December, 2000 - **As Project Leader**
5. "Design of Y-Intersection on Approach Road to Gandhi Setu on Gomti River and Ring Road, Lucknow". Sponsored by Lucknow Development Authority, Lucknow. July, 2002 - **As Project Leader**
6. "Feasibility Study for Provision of Pedestrian Facility / Subway and Evolving Traffic Management Plan for Shastri Park Intersection, New Delhi." Sponsored by PWD, Govt. of NCTD in July, 2002- **As Project Leader**
7. "Urban Road Traffic and Air Pollution (Study in Eight Metropolitan cities)." Sponsored by Ministry of Petroleum and Natural Gas, July, 2002 - As one of the Principle Investigators.
8. "Feasibility Study for Provision of Pedestrian crossing Facility (Subway) on Road No 15 near Press Enclave Flats, Saket, New Delhi." Sponsored by NDMC, Govt. of NCTD in August, 2002.- As one of the Principle Investigators
9. "Feasibility Study for Provision of Pedestrian crossing Facility (Subway) on Road Kalidas Marg, Shastri Nagar, Karol Bagh, New Delhi." Sponsored by NDMC, Govt. of NCTD in March, 2003.- As one of the Principle Investigators
10. "Design of Road Signage System for Flyovers in Delhi." Sponsored by Transport Department, Government of NCT Delhi in July, 2003 - As one of the Principle Investigators.

11. "Feasibility Study for Provision of Pedestrian Facility / Subways across Roads around Gole Dak Khana, New Delhi". Sponsored by MCD, Govt. of NCTD in July, 2003 as. **As Project Leader**
12. "Comprehensive Traffic and Transportation Study of Surat City. Sponsored by SMC Surat in September, 2005 - **As a Project Leader**
13. "Impact on Road Accidents and Fatalities after Up-gradation of National Highways from 2-lanes to 4/6 lanes (Divided Carriageways) on Stretches of Delhi-Jalandher, Delhi Agra and Delhi Jaipur Highways". Sponsored by MORTH in February, 2007 - As a Core Team member
14. "Estimation of Benefits of Implementation of Phase-I of Delhi Metro (An Inter-Divisional consultancy Project sponsored by DMRC)--As a Core Team member.
15. "Traffic Management Plan for Area Around ICD Tughlakabad" (A R&D Project sponsored by CONCOR) – Completed- **As a Project Leader**
16. "Traffic Studies for Preparation of DPR of Ludhiana Metro". (Sponsored by DMRC) –Completed.- As a Core Team member
17. "Evaluation of Road Alignment Design of Section of Bangalore-Maissore Highway near Gotegare Lake". (An Inter Divisional consultancy Project sponsored by Ms Nandi Infrastructure Corridor Enterprise Ltd) –Completed.- As a Core Team member
18. "Environment Impact Assessment (EIA) of Metro Bhawan, Delhi". (An Inter Divisional consultancy Project sponsored by DMRC) –Completed.- As a Core Team member
19. "Appraisal/Evaluation of design of additional three Loops of Noida More/Akshardham Interchange on NH-24 by-pass". A consultancy Project Sponsored by DDA- April, 2007 and Technical Assistance to Honorable High Court Delhi and DDA.-**As project leader**
20. "Feasibility study for construction of flyovers at (a) Intersection of Sardar Patel Road – Panchsheel Intersection (b) Intersection of Mother Teresa Crescent and Park Street near Ram Manohar Lohia Hospital on NH-8". (Sponsored by NDMC)– Completed.-**As project leader**
21. "Appraisal of Geometric Design and Soil Testing of Proposed Six Lane Road along Hindon Bundh, As by-pass to Delhi-Meerut Highway, Ghaziabad". (An Inter Divisional consultancy Project sponsored by GDA) –September 2010- **As project leader**
22. "Design of Prefab/Precast Concrete Segmental Cross Drainage cum Roadway over Palam (Sitapuri) Drain". (An Inter Divisional consultancy Project sponsored by DDA).-As a Core Team member

23. "Appraisal of DPRs for up gradation/ Widening of Highways in NCR for National Capital Region Planning Board". (Sponsored by NCRPB) – Ongoing.-As one of the core evaluators in the team, responsible for
- Appraisal of DPR for Improvement by way of four laning of Jhajjar- -Dhaur- Beri Road (11.50 km)
 - Appraisal of DPR for Improvement by way of four laning of Dighal Beri-Jhazgarh Road (15.635 km) etc.
24. "Consultancy Service for Design of Intersections on Kanpur-Hardoi and Hardoi-Sitapur Ring Road in Lucknow City". (Sponsored by UPPWD) - **As Project Leader**
25. "Consultancy Service for Traffic management and Design of T-Intersections of **NH-25** and Triloki Nath Marg in Lucknow City". (Sponsored by UPPWD) –September 2010 - **As a Project Leader**
26. "Design of Park and Ride Facility for Commonwealth Games-2010 at Safdarjung Air Port, New Delhi". Sponsored by NDMC –**As a Project Leader**
27. "Feasibility Study for Providing Pedestrian Crossing Facility at Gole Dak Khana Intersection New Delhi". (Sponsored by NDMC) – **As a Project Leader**
28. "Traffic and Air Pollution Study on Road Network Connecting Darlaghat Ropar and Darlaghat-Nalagarh, Himachal Pradesh (to assess the impact on Transport Infrastructure due to expansion in Cement Plants)". (Sponsored by Ms Gujrat Ambuja Cements Limited) – **As a Project Leader**
29. "Comprehensive Mobility Plan of Lucknow- Traffic Studies for Preparation of Transport System Management Plan for Major Corridors of Lucknow". (Sponsored by Lucknow Development Authority (LDA) – **As a Project Leader**
30. Road Safety Audit during Development and Construction Phases of 4-Laning of National Highways under PPP on DBFO basis-12 Packages- **1200 KM**. Consultancy Project sponsored by Sponsored by NHAI, New Delhi. Nov. 2011 onwards-. **Package Leader (For 4-Packages out of total 12 packages) -**
31. Traffic Management plan and Design of Twenty (**20**) intersections in Allahabad City *Sponsored* by Allahabad Development Authority (ADA) Sep 2012- **As a Project Leader**
32. Testing and evaluation of Drawings and Prototype Samples for Type Approval of Manufacturer of High Security Registration Plates for Vehicle for M/s FTA HSRP Solutions Limited. December-2012. **As a Project Leader**
33. Testing and evaluation of Drawings and Prototype Samples for Type Approval of Manufacturer of High Security Registration Plates for Vehicle for M/s Rosmerta Technologies Limited. October-2012. **As a Project Leader**

34. Testing and evaluation of Drawings and Prototype Samples for Type Approval of Manufacturer of High Security Registration Plates for Vehicle for M/s Linkpoint Infrastructure Private Limited. May-2013. **As a Project Leader**
35. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-1) of HSRP for M/s FTA HSRP Solutions Limited. March, 2014. **As a Project Leader**
36. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-2) of HSRP for M/s FTA HSRP Solutions Limited. March, 2015. **As a Project Leader**
37. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-3) of HSRP for M/s FTA HSRP Solutions Limited. August, 2015. **As a Project Leader**
38. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-4) of HSRP for M/s FTA HSRP Solutions Limited. January, 2016. **As a Project Leader**
39. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-2) of HSRP for M/s Shimnit Utch Limited. March, 2013 **As a Project Leader**
40. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-3) of HSRP for M/s Shimnit Utch Limited. August, 2014 **As a Project Leader**
41. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-4) of HSRP for M/s Shimnit Utch Limited. March, 2016 **As a Project Leader**
42. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-2) of HSRP for M/s T.E.S.T Security Licence Plates Limited. December, 2012. **As a Project Leader**
43. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-3) of HSRP for M/s T.E.S.T Security Licence Plates Limited. February, 2015. **As a Project Leader**
44. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-1) of HSRP for M/s REAL MAZON INDIA LIMITED. December, 2012. **As a Project Leader**
45. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-2) of HSRP for M/s REAL MAZON INDIA LIMITED. November, 2014. **As a Project Leader**
46. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-3) of HSRP for M/s REAL MAZON INDIA LIMITED. March, 2015. **As a Project Leader**

47. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-4) of HSRP for M/s REAL MAZON INDIA LIMITED. November, 2015. **As a Project Leader**
48. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-5) of HSRP for M/s REAL MAZON INDIA LIMITED. April, 2016. **As a Project Leader**
49. Feasibility study for development of Five intersections as roundabouts in Dwarka, New Delhi *Sponsored by Delhi Development Authority (DDA) August-2015-* **As a Project Leader**
50. Training on "Aspects of Road Safety" for Engineers, Planners & Officers of PWD, Transport Dept. Govt. of Sikkim at Gangtok-December 8, 2014. *A Consultancy Project Sponsored by Transport Department Govt. of Sikkim, Gangtok --* **As Project Leader.**
51. Training on "Aspects of Road Safety and RSA" for Engineers PWD Department Govt. of Uttar Pradesh at Lucknow-January 27-30, 2015. *A Consultancy Project Sponsored by Public Works Department Govt. of U.P., Lucknow --* **As a Core Team Member.**
52. Training Programme on "Road Safety Audit for PPP Projects on DBFO Basis" conducted by CSIR-CRRI on behalf of M/s AECOM Ltd.at CRRI,(22.12.2014 to 26.12.2014). *A Consultancy Project Sponsored by M/s AECOM Ltd.* **As a Core Team Member.**
53. Training on "Aspects of Road Safety" for Engineers, & Officers of OWD, Govt. of Odisha-June, 2015. *A Consultancy Project Sponsored by Public Works Department, Govt. of Odisha-. As a Core Team Member.*
54. Training programme on "Road Safety Audit and Other Aspects of Road Safety" for Engineers, & Officers of PWD, Govt. of Arunachal Pradesh at Naharlagun/ Itanagar-September, 2016. *A Consultancy Project Sponsored by Public Works Department, Govt. of Arunachal Pradesh. As a Core Team Member.*
55. Training programme on "Road Safety Audit and Other Aspects of Road Safety" for Engineers, & Officers of OWD, Govt. of Odisha-December, 2016. *A Consultancy Project Sponsored by Public Works Department, Govt. of Odisha-. As a Core Team Member.*
56. Skill Development & Training on Road Safety Audit for Highway Engineers at Highway Research Station (HRS), Chennai, *A Consultancy Project Sponsored by Highway Research Station (HRS), PWD, Govt of Tamil Nadu, Chennai -. As a Core Team Member.*

57. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-5) of HSRP for M/s FTA HSRP Solutions Limited. May, 2016. As a Project Leader
58. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-6) of HSRP for M/s REAL MAZON INDIA LIMITED. July, 2016. **As a Project Leader**
59. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-7) of HSRP for M/s REAL MAZON INDIA LIMITED. January, 2017. **As a Project Leader**
60. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-4) of HSRP for M/s T.E.S.T Security Licence Plates Limited. January, 2017. **As a Project Leader**
61. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-6) of HSRP for M/s FTA HSRP Solutions Limited. February, 2017. **As a Project Leader**
62. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-5) of HSRP for M/s Shimnit Utch Limited. February, 2017 **As a Project Leader**
63. Skill Development & Training on Road Safety Audit for Highway Engineers at Highway Research Station (HRS), Chennai (2nd Programme), *A Consultancy Project Sponsored by Highway Research Station (HRS), PWD, Govt of Tamil Nadu, Chennai, March, 2017 - . As a Core Team Member.*
64. Road Safety Audit and Review of Hoardings Erected in the Bharatpur, Town Rajasthan sponsored by Urban Improvement Trust, Bharatpur, Rajasthan. April, 2017. **As a Project Leader**
65. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-7) of HSRP for M/s FTA HSRP Solutions Limited. May, 2017. **As a Project Leader**
66. Certification Course on “Road Safety Audit and Other Road Safety Related Aspects” for Road Safety Auditors/Highway Engineers/Traffic Engineers/Transportation Planners and Student Interns-May15th-30th, 2017- *A Consultancy Project designed and organised by TPE Area, CSIR-CRRI. - As a Core Team Member.*
67. Assessment and Evaluation of Manufacturing Process for Conformity of Production (COP-8) of HSRP for M/s REAL MAZON INDIA LIMITED. June, 2017. **As a Project Leader**

Sponsored and In-House Research Projects:

1. Traffic Management Plan for Aurobindo Marg from AIIMS to IIT Gate, Delhi. (On behalf of Delhi Traffic Police and Transport Department Govt. of NCTD, September, 2003)- As one of the Principle Investigators.
2. Traffic Study for Expert Committee on Concrete Roads in Nagpur, Sponsored by Expert Committee on Concrete Roads, Nagpur. October, 2001- As one of the Principle Investigators.
3. Traffic Management Plan of Tagore Garden New Delhi. Sponsored by Delhi Traffic Police, December, 2001 - As Project Leader
4. "NCR Plan- 2021: Transport Infrastructure and Communication Group Report". Sponsored by NCRPB, New Delhi. March, 2002- As one of the Principle Investigators.
5. "Study of Pedestrian Road Side Walk/Footpath in Delhi" –April 2003 (In house research project) - As Project leader
6. "Access Audit of a shopping mall (Metrowalk) in Rohini with special reference to People with Disabilities". (With Handicap International and Samarthaya, an NGO working for PwD's) As one of the core members
7. "Access Audit of Gargee College with special reference to People with Disabilities". (With Handicap International and Samarthaya, an NGO working for PwD's) - As one of the members
8. "Appraisal of Proposals for Pedestrian Foot Over Bridges/ Sub- Ways in Delhi". (A Technical advisory service to PWD Govt. of NCTD) – Ongoing.-As member of Technical Sub Committee on Subway
9. "Appraisal/Evaluation of design of Constructed Loop of Noida More/ Akshardham Interchange on NH-24 by-pass". A Technical Report as Technical Assistance to Honorable High Court Delhi in connection with a PIL on the subject).-As project leader.
10. *Development and Application of Technologies for Sustainable Transportation (SUSTRANS)-A Super Institutional 12th Five Year Plan Network Project (SINP). Sponsored by CSIR-Planning Commission. **Package Leader** for Two Packages out of total-15 Packages. Responsible for development of methodology and guidelines for design of Feeder Transport and Parking System at PT terminals)*
11. *Development of Indian Highway Capacity Manual (Indo-HCM). A Super Institutional 12th Five Year Plan Network Project (SINP). Sponsored by CSIR-Planning Commission. **Package Leader** for Two Packages out of total-9 Packages. Responsible for development of*

methodology and guidelines for analysis and design of roundabouts and signal controlled Intersections)

12. Guidelines for Traffic Management in Construction Zones IRC:-46 (2014) - First Revision. Indian Roads Congress Code: IRC-H1 Committee members along with IITs, MoRTH, SPA, Consultants, Retired Experts: As **Committee Member**, Contributed towards the revision of Document as well as participated in deliberations of the Meetings.
13. Guidelines for Road Side Hoardings IRC: 46: 2014 (Draft First Revision). Indian Roads Congress Code: IRC-H1 Committee members along with IITs, MoRTH, SPA, Consultants, Retired Experts: **Committee Member, & Core-Group Member** along with Dr. LR Kadyali, Dr.Geetam Tiwari & Sh. HC Sethi, Contributed towards preparation and submitting the document for the revision as well as participated in deliberations of the Meetings.
14. Guidelines for Traffic Management in Work Zones IRC: SP: 55- 2014 (First Revision). Indian Roads Congress Code: IRC-H1 Committee members along with IITs, MoRTH, SPA, Consultants, Retired Experts: As **Committee Member**, Contributed towards the revision of Document as well as participated in deliberations of the Meetings.
15. Guidelines for Traffic Forecast on Highways IRC: 108- 2015 (Second Revision).). Indian Roads Congress Code: IRC-H1 Committee members along with IITs, MoRTH, SPA, Consultants, Retired Experts: As **Committee Member**, Contributed towards the revision of Document as well as participated in deliberations of the Meetings.
16. Code of Practice for Road Markings IRC:35- 2015 (First Revision). Indian Roads Congress Code: IRC-H1 Committee members along with IITs, MoRTH, SPA, Consultants, Retired Experts: As **Committee Member**, Contributed towards the revision of Document as well as participated in deliberations of the Meetings.

c. Research Publications

Journals

1. Dr. T. S. Reddy, Dr. S.Gangopadhyay, Subhash Chand, “Traffic Management at Intersections of Nagpur City”, Urban Transport Journal – Volume 1 No.2 December, 2000 Institute of Urban Transport (India).
2. Neelam J Gupta, Subhash Chand, E Madhu, “Review of Feeder system for public transport towards Sustainability”, Indian Journal of Transport Management- IJTM, ISSN 0970-4736, quarterly Journal, Central Institute of Road Transport (CIRT), Pune, India and Association of State Road Transport Undertakings (ASRTU), New Delhi, volume 38, number 2, April – June 2014, pp 113-123

3. Subhash Chand, Neelam J Gupta and S. Velmurugan, "Development of Saturation Flow Model at Signalized Intersection for Heterogeneous Traffic", 14th World Conference on Transport Research, Transportation Research Procedia by Elsevier, 2016.(Accepted)
4. Neelam J Gupta, S. Velmurugan and Subhash Chand, "Capacity Estimation of Signalized Intersection for Heterogeneous Traffic", Transportation Research Procedia by Elsevier, 2016.(Accepted)
5. Neelam J Gupta, Subhash Chand, E Madhu and Mukti Advani, " Feeder Connectivity for Sustainable Public Transportation Systems", ", Indian Journal of Transport Management- IITM, ISSN 0970-4736, quarterly Journal, Central Institute of Road Transport (CIRT), Pune, India and Association of State Road Transport Undertakings (ASRTU), New Delhi, April-June 2016. (Accepted)

Conferences/ Seminar

6. Subhash Chand, Dr.T.S. Reddy, Developmental and Funding Needs of Rural Road Transport in India, National Conference on Rural Roads, Indian Geotechnical Society, Visakhapatnam Chapter Andhra University, Visakhapatnam on 2-3 October, 1995.
7. Dr. T.S.Reddy & Subhash Chand, Traffic Management Planning of Intersections on NH-7 in Nagpur City, National Seminar on Challenges for Road Transportation in 21st Century Leading to Fuel Economy CIRT 2001, Patiala February, 23-24, 2001.
8. Prof. P.K.Sikdar, A.N.Ramalingaiah and Subhash Chand, Simulation of Roundabout and Signalised Pedestrian Crossing using TRANSIT-11, International Workshop on Transportation Planning and Implementation Methodologies for Developing Countries (Transportation Infrastructure Projects) 6th TPMDC 2004, IIT Bombay December, 16-18, 2004.
9. Subhash Chand and Neelam J Gupta, Analysis of Saturation Flow at Signalized Intersection in Urban Area, International Conference on Transportation Planning and Implementation Methodologies for Developing Countries 11th TPMDC, IIT Mumbai, 10th -12th December 2014.
10. Subhash Chand and Neelam J Gupta, Analysis of Saturation Flow at Signalized Intersection in Urban Area, International Conference on Transportation Planning and Implementation Methodologies for Developing Countries 11th TPMDC, IIT Mumbai, 10th -12th December 2014.
11. Simran Kaur, Neelam J Gupta, Subhash Chand and E. Madhu, "Evaluation of Parking Facilities at Public Transport Terminal", Recent Advances in Traffic Engineering, RATE2015, 3-4 July 2015, SVNIT, Surat.

12. Shubham Sehgal, Neelam J. Gupta, Subhash Chand and S. Velmurugan, "Saturation flow of heterogeneous traffic at signalized intersection", 3rd Conference of the Transportation Research Group of India, Kolkata, CTRG2015, 17-20 December 2015.
13. Jasmeet Kaur, Neelam J.Gupta, Subhash Chand and Dr. E.Madhu, "Feeder Transport System Facilities at Public Transport Terminals – A Case Study of Delhi" , 3rd Conference of the Transportation Research Group of India, Kolkata, CTRG2015, 17-20 December 2015.
14. Subhash Chand, Neelam J Gupta and S. Velmurugan, "Development of Saturation Flow Model at Signalized Intersection for Heterogeneous Traffic", 14th World Conference on Transport Research, WCTRS2016, 10-15 July 2016, Shanghai, China (Accepted).
15. Neelam J Gupta, S. Velmurugan and Subhash Chand, "Estimation of Critical gap of Roundabout under Mixed Traffic Condition", 14th World Conference on Transport Research, WCTRS2016, 10-15 July 2016, Shanghai, China.(Accepted)
16. Neelam J Gupta, S. Velmurugan and Subhash Chand, "Capacity Estimation of Signalized Intersection for Heterogeneous Traffic", International Symposium on Enhancing Highway Performance (ISEHP16), 14-16 June 2016, Berlin, Germany (Accepted).