

PROJECT PROPOSAL UNDER PROJECT-VARANASI

Format for submitting projects under Project Varanasi.

1	Project type (Strike off those not applicable, refer to the policy document for project types)	(i) Technology Development or Prototype Development. (ii) Faculty Projects (Innovation and application Projects) (iii) Project (Student Nurturing)
2	Title of the Project	Pedestrian Flow Characteristics Along Side Walks in IIT (BHU) and Proposed Pathways
3	Duration of the project	1 Year
4	Total Cost	
5	Name address and phone numbers of PIs and Co-PI's	Dr. Ankit Gupta Assistant Professor (on Contract) Transportation Engineering Section Civil Engineering Department IIT (BHU) Varanasi – 221005 (UP) Mobile: +91-78391-14642 Email: ankit.civ@itbhu.ac.in; ankitgupta.iitr@gmail.com

6. General Description of the project:

The current conditions of IIT (BHU) Varanasi pathways make access and movements for pedestrians very difficult. In the peak hours of the class timings, the mix traffic of the roadway includes motorized two wheelers, car, jeep, three-wheelers, light motor vehicles (LMV), cycles and cycle-rickshaw. With such mix traffic conditions and the absence of dedicated pedestrian pathways, it becomes very difficult for a pedestrian to opt for the walking mode and from here he starts to think on alternate modes (motorized vehicles). To assess this situation in terms of engineering values it becomes necessary to find out the pedestrian flow behavior which includes their speed, flow, density and area-space module. Also observations of pedestrians in various roadways will help us to identify pedestrian patterns which can help to prioritize the obstacles. After analyzing the results Level of Service (LOS) of pedestrians will be compared with the IRC 103: 2012. After this, we will conduct interviews regarding pedestrian mobility in order to collect information on what and how problems affect pedestrians. This information will provide us with ideas for increased pedestrian mobility through identifying issues and presenting prioritized improvement plans. Based on this new pathways will be suggested to accommodate the pedestrians and increasing their mobility.

7. General Description of experience/ expertise of team on such/ similar projects

Dr Ankit Gupta has done his PhD from IIT Roorkee with specialization in Transportation Engineering. His current areas of research include Pedestrian Flow Behavior. He has guided 5 MTech students and one of his students has completed his MTech Dissertation on the topic "Effect of Gradient on Pedestrian Flow Characteristics Under Mixed Flow Conditions". Some of his publications (under review and communicated) specific to the topic are:

1. Jain, A., **Gupta, A.** and Rastogi, R. (2014). "Pedestrian Crossing Behavior Analysis at Intersections", **International Journal of Traffic and Transportation Engineering (IJTTE)**, Vol. 4, No. 1, pp. 103-116.
2. Kumar, P., Rastogi, R., **Gupta, A.** and Jain, A. (2012). "Land-Uses and Activity-Based Traffic Forecasting Model", **Indian Highways**, Journal of Indian Roads Congress, New Delhi, Vol. 40, No. 4, pp. 25-41.
3. Pundir, N. and **Gupta, A.** "A Critical Assessment of Studies on Pedestrian Flow", **Journal of the Institution of Engineers (India): Series A, Springer.** (First Review Submitted)
4. Pundir, N. and **Gupta, A.** "Pedestrian Flow Characteristics Studies: A Review", **Transport Reviews, Taylor and Francis. (IF: 1.68)** (Under Second Review)
5. Pundir, N. and **Gupta, A.** "Gradient Effect on Pedestrian Flow Characteristics at Tourist Destinations", **PROMET**, Scientific Journal of Traffic and Transportation, Croatia. (Communicated)
6. Pundir, N., **Gupta, A.** and Das, V. R. (2014). "Effect of Gradient on Walking Speeds for Hamirpur City", Proc., of Colloquium on Transportation Systems Engineering and Management, CTSEM-2014, NIT Calicut, Kerala, Paper Id 144.

8. Deliverables (The deliverables are to be described in each section. If there is no deliverable in a particular section then say the same clearly.):

(a) Prototype: Not Applicable

(b) Process Prototype: Not Applicable

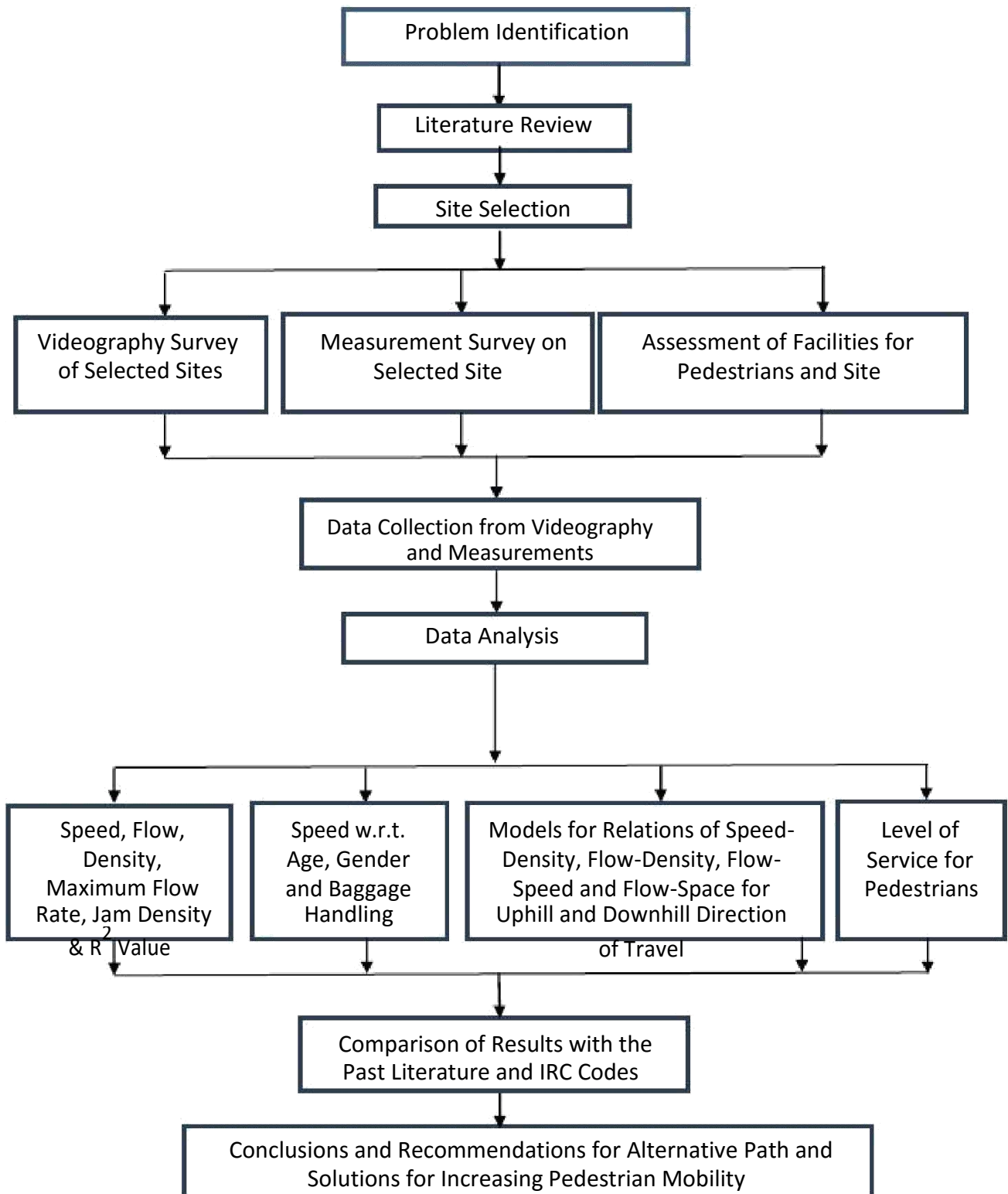
(c) Design/ Technical Document: A technical report will be prepared under this project which will present the pedestrian flow characteristics on the pathways of IIT (BHU). These quantitative results will present the flow conditions and safety of pedestrians. Based on this report the alternate options for increasing the flow conditions and encouraging the pedestrian behavior will be addressed and suggested.

(d) Software: Not Applicable

(e) Document (audio, visual, write ups web sites etc): Technical report will be prepared on this study and few publications (of good repute) are expected from this study. Videography survey will lead to the data extraction of pedestrian and mixed traffic flow behavior.

(f) Any other: Alternate pathways and innovative ideas for increasing the pedestrian culture in IIT (BHU) will be proposed

9. Method/ Technology to reach the deliverable. (A detailed description of method or technology may be described)



10. Time line / mile stones for achieving the deliverables.

ACTIVITY	MOTNTH											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Literature survey, and identification of sites	■	■										
Field data collection and extraction		■	■	■	■							
Data analysis (Statistical and Analytical)					■	■	■	■	■			
Result comparison with IRC codes and previous literature									■	■		
Conclusions and recommendations										■	■	
Report writing										■	■	■