2. LITERATURE REVIEW

2.1 SUSTAINABILITY – A SHORT STORY

The first step for the emergence of sustainability was seen in the UN conference on the Human environment held at Stockholm in 1972. The term came into general use in 1987 when a report was published on common future by GroBrundtland Committee. Sustainability has turned to be a rising political work with the united national conference on environment and development in Rio, 1992 and its global action plan for sustainable development (Agenda 21) that brought the terms into the political agenda. There are many definitions of sustainability, liveability, sustainable development and sustainable transport.

2.2 SUSTAINABLE – GLOBAL OUTLOOK

1. UN World Commission on Environment and Development – GroBrundtland Committee – 1987

“To meet the needs of the present without compromising the ability of future generations to meet their needs.”


“Sustainability is equity and harmony extended into the future, a careful journey without an end point, a continuous striving for harmonious co –evolution of environmental, economic and socio culture goals”

“The common aim [of sustainable development] must be to expand resources and improve the quality of life for as many people as heedless population growth forces upon the earth and do it with minimal prosthetic dependence.”

4. Environmentally Sustainable Transport (EST- 1998)

“Transportation that does not endanger public health or ecosystem and meets needs for access consistent with (a) use of renewable resources at below their rates of regenerations (b) use of non-renewable resources at below the rates of development of renewable substitute.” In 2000 EST produced the guidelines for Environmentally sustainable transport. In 2001 the environmental Indicators towards the sustainable development were developed.


It has developed a draft set of Sustainable Transportation principles that “concern access, equity, individual and community responsibility, health and safety educations and public participation, integrated planning, land and resources use, pollution prevention and economic well being”.


Todd Litmen, Victoria, Cannada presents a Literature review on its approach and selection criteria for sustainable Indicators. They offer an alternative perspective on the selection of transport indicators by focussing on access rather than on the transportation system’s ability to “move vehicles”. Sustainable developments can
be defined as “Providing for a secure and satisfying material future for everyone, in a society that is equitable, caring and alternative to basic human needs”.


The centre for Sustainable Transportation, Canada developed initial set of 14 Sustainable Transportation performance indicators. CST defines a sustainable transportation system as

(1) Allows the basic access needs of individual and societies to be met safely and in a manner consistent with human and ecosystem health and with equity within and between generations.

(2) Is affordable, operates efficiently, offer choice of transport mode and supports a vibrant economy.

(3) Limits emission and waste within the planet ability to absorb them, minimize consumption of non-renewable resources, reuse and recycles its components and minimizes the use of land and production of noises.

Sustainability is “the capacity for continuance into the long term future. Anything that can go on being done on an indefinite basis is sustainable. Anything that cannot go on being done indefinitely is unsustainable. ”

8. Procedure for recommending optimal Sustainable planning of European city Transport System (2003) discuss about A sustainable urban transport and land use system
(1) Provide access to goods and service in an efficient way for all inhabitants of urban area.

(2) Protects the environment, culture heritage and ecosystem for the present generation.

(3) Does not endanger the opportunities of future generations to reach at least the same welfare level as those living now including the welfare they derive from their natural environment and culture heritage.

9. Michel Neuman, Associate Professor, Department of Landscape Architecture and Urban planning, Texas university have contributed for sustainable transportation planning in Texas, 2003-2012.

10. Todd Litmen, Director, Victoria transport policy institute (2003 - 2013) have contributed for comprehensive and sustainable Transport planning.

2.3 REVIEW OF STATUS OF RESEARCH – INTERNATIONAL SCENARIO

Research has been carried out by Celko, J. Gavulova, A.(2009) Department of Highway Engineering, University of Zilina, Slovakia. The quality traffic-planning process is an important tool for achieving sustainable traffic. The modern platform for modeling and simulating traffic relations has also begun to be utilized in Slovakia the new transport relations and traffic problems were analyzed. This chosen part of the transport network was imported into a micro simulation model in the VISSIM. New alternative transport solutions and the impact on the infrastructure loading were explored in microscopic models. Real – time Information production and presentation
using GIS-Based Maps for Urban transportation planning was carried out by Balamohan N (2000). GIS Approach of Delineation and Traffic Assessment for the Traffic Analysis zone were calculated using Land use, cadastral and census data.

In 2013, Raja Noriza Raja Ariffina et al. have resourcefully introduced a paper to analyze the features that had an immense influence on the status of the city transport system in the Klang Valley. It scrutinizes the manner in which the policy schedule is adversely affected by the customs, behaviors and viewpoints of those employed in the transport-linked areas. The preliminary records are collected through semi-structured interviews. Government credentials and archival data furnish the vital source for resultant data. The philosophy and attitude of the transport communities appear to have a significant effect on sustainable transport agenda in the Klang Valley.

In 2013, Kibrom Abay industrially investigated the injury harshness of pedestrians taking into account comprehensive road user features and substitute model design by means of superior-quality Danish road mishap information. This kind of approach went a long way in estimating the sensitivity of experimental deductions to the selection of these brands. The experimental scrutiny exposed the fact that overall road user features like criminal record of drivers and temporary behavior of road users at the time of the mishap indicated an interesting insight in the injury intensity investigation. Similarly, the substitute investigative design of the models brought to light that certain traditionally used set-constraints injury harshness models were in a position to underrate the influence of several crucial attitudinal attributes of the accidents.
2.4 CURRENT SCENARIO PREVAILING IN INDIA AS PER THE LITERATURE

- Bottom-up approach

- In this approach, identification and analysis of comprehensive set of transport problems are made.

- Potential solutions to the problem are assessed in isolation and in combination using a detailed transport model.

- Combination which best solves the problems is taken as preferred strategy.

2.5 RESEARCH ISSUES TO ADDRESS SUSTAINABILITY IN URBAN TRANSPORT

- Develop goal-oriented approach for developing urban transport strategies in India

- Developing model that reflects the impact of changing Land-use and/or control policies, slum development, etc., on transportation and vice versa

- Activity-based modelling – still to be developed and attempted in India for possibly better travel demand modelling

- More realistic road layout modelling of modal split (Bi-cycle, Two wheeler, Auto, LMV, HMV walk, public transport modes) has to be developed.
2.7 CONCLUSION

A review of the existing literature did not reveal a sustainable approach to urban street with multi-modal design. Previous research studies focused on analysing each transportation mode independently and providing insight on how model was perceive the arterial roadway environment. Complete Street design can be accomplished by providing optimal facilities for all the modes expected to be present on urban arterials. The concept of complete street has gained interest in recent years. Policy makers, planners and engineers are investing energy in promoting the idea of urban street that accommodates all modes. This study provides a method for practitioners to design a urban street for better sustainable transport.