CHAPTER 4

METHODOLOGY

The complexity of traffic accident scene is rapidly increasing due to urban expansion, increase in population and motorized and non-motorized vehicles, difficulties in introducing various traffic management measures etc as discussed in chapters 1, 2 and 3. The following operations are carried out to analyse road traffic accident scene in selected urban arterials in Madras (Figure 4.1).

- Detailed review of various accident studies made and models built in different countries to understand accident scenes is made. Critical review of the models used by various researchers reveals the deficiency of the models already built. The need to have a comprehensive model to suit mixed traffic conditions prevailing in Indian urban centres has been established.
- Various contributing factors of urban accident scene are identified and discussed in detail.
- A comprehensive model form is identified. It is found to be a multiple linear regression type to account a large number of independent variables associated with the accident scene.
- Based on road geometries and traffic flow conditions, number of road sections are identified in two urban arterials in Madras (Anna Salai and Periyar Salai).
- Data pertaining to all variables required to build, calibrate and evaluate the behaviour of the model and its properties are collected/estimated. Data from secondary and primary sources are collected.
- Model is built based on stepwise regression analysis.
- Techniques are devised to decide the variables which should form part of the model to be used.
- Model is tested for its acceptability by considering its applicability to estimate accidents. It is done by making use of accidents recorded in the past.
- Making use of the estimated values for the variables, the model is used to estimate the future accident scene under different conditions.
Critically review previous accident studies and decide the important variables influencing accident occurrence. Select a model form to accommodate all the variables identified.

Build a comprehensive model for estimating accidents using data pertaining to 23 road sections in Madras City for 8 half yearly periods (1985 - 1988).

Estimate the values of variables for 1989 - 1990

Estimate accidents using the model and compare with accidents recorded at sites for 1989 - 1990

Rebuild the model after changing variables and structure of model.

Is the model acceptable for estimating accidents in future

Yes

Estimate future accident scene under different conditions upto 2001

Arrive at conclusions based on the study

No

Figure 4.1 Basic Frame Work Of The Study