Proposal for Traffic Congestion Alleviation in Mandi, Himachal Pradesh, India

By: Shiv Sankar Baishya, Alyssa Bornstein, Shoubhik Debnath, Jan Keleher, Suraj B. Malode, Lena Pafumi, and Sachin K. Saini

Sponsor: Dr. Arti Kashyap

Abstract

The goal of this project was to make Mandi City more attractive and navigable to tourists, visitors, and residents through the implementation of safer and more efficient traffic patterns. Traffic congestion in Mandi City is a problem that will be further exacerbated by the increase of population in years to come. We conducted qualitative interviews with local stakeholders and quantitative data from observations and calculations of traffic flow. The analysis of our data confirmed a need for traffic alleviation as both the responses of our interviewees and the results of our calculations indicated that Mandi’s existing infrastructure cannot support its traffic trends. Based on the feedback of our interviewees, we generated a set of recommendations that will mitigate traffic congestion and ultimately make Mandi a safer and more pleasant place to live and grow.

Methodology

Traffic Flow Rate
Parking Capacity
Dimensional Road Analysis

Identifying Problems
Suggesting Solutions

Most Commonly Identified Traffic Problems

- Lack of Parking
- Illegal Parking
- Multiple Directions
- Lack of Law Enforcement
- Physical Obstructions

TOTAL PCU/H FLOW RATE

- Victoria Bridge
- Suketu Bridge
- Skudi Bridge

- We calculated the PCUs (Passenger Car Units) per hour in 3 key locations at 4 different time intervals, based on the vehicle size and number of vehicles

- Narrow and problematic roadways, as well as areas with frequent roadside parking were identified

- Based on our assessment of parking facilities either in or near the center of the city we found that the total number of parking spots was 750 PCUs.

Analysis

Roadway Congestion Index at Hot Spots

- Using traffic flow rate data, as well as lane width data, the Road Congestion Index (RCI) was calculated for the three locations

- Network Weighted Average RCI was calculated as 2.46

Mandi City is roughly 2.5 times over capacity according to standards set by the Indian Road Congress (IRC)

Findings

Recommendations

Parking
- NH-21 Outside of the City
- Press Office Conversion
- Senior Secondary School Conversion
- Shopkeeper Parking at Indira Market
- Taxi Parking Outside of City Center

Policy
- Future Urban Planning
- Private Parking Lot Guidelines
- Traffic Law Enforcement
- All-Pedestrian Area
- Garbage Disposal

Infrastructure
- Overhead Pedestrian Bridge
- Paved Sewer Cover and Sidewalk
- Move Street Shops
- Alternate Bus Routes
- Interior Development of Mandi

Recommendations and Solutions

Future Urban Planning
Parking outside of City (NH-21)

Private Parking Lot
Guidelines
Traffic Police
Press Office
Parking Lot
Encroachment Policies

Re-routing Bus Traffic
Pre-paid taxi booth
Jail Road and Tarna Road
Secondary School
Parking Lot

Relocating street hawkers
Covering sewers
Garbage Disposal System
Pedestrian Bridge

Relocating loading actorknows

Cost

Mandi City is roughly 2.5 times over capacity according to standards set by the Indian Road Congress (IRC)