Local Area Traffic Management Plan, Indiranagar, Bengaluru

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1 INTRODUCTION

Bengaluru today is obviously one of the most sought after cities in the country what with the rapid growth in the IT industry and the rise in the number of job opportunities in the city. With the rising population in the city there is also a corresponding increase in the number of vehicles in the city and a huge increase in the demand on land. Rapid population growth because of IT and other associated industries in Bengaluru led to an increase in the vehicular population to about 1.5 million, with an annual growth rate of 7-10%.

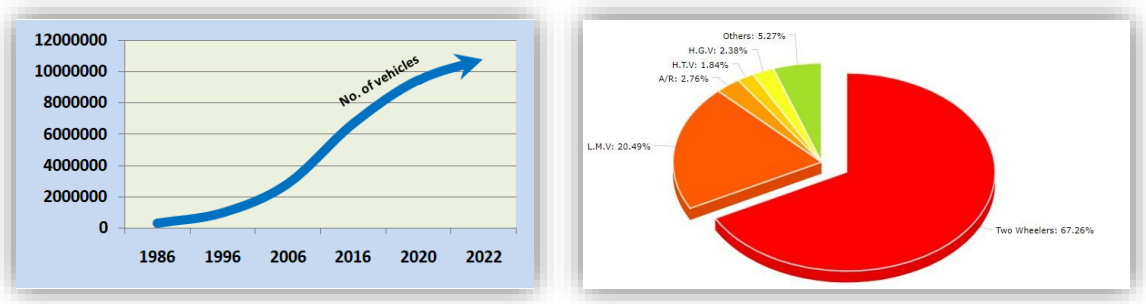

Figure 1. Growth of Vehicles and Vehicular Composition in Bengaluru City

With the increase in population and the expansion of the city, the problem of connectivity of the populace has arisen. Quite obviously personalized modes of transport have grown at a tremendous rate and two wheelers along with cars almost comprise 90% of the total registered vehicular population in the city. What adds to the traffic pressure in particular is that there is very little scope for expansion of roads and the need to use existing roads for smooth movement of vehicles is even more pronounced. In order to mitigate Bengaluru's traffic woes, Metro Rail project and various projects of companies like BDA, BBMP, Railways and NHAI are currently in progress. These will help reduce traffic congestion in future. Such projects will increase capacity of transport system / improve road infrastructure.

Since Metro network is yet to cover the entire city and lacks end mile connectivity, the number of two-wheelers and four wheelers have actually increased. The limited road space of Bengaluru is not able to handle the current traffic generated by the ever-burgeoning population. Network speeds are dropping at an alarming rate as capacity of the junctions and links have exceeded the limits. These have contributed towards increasing traffic congestion, travel times and pollution levels. With the spurt in the economy the land use patterns have been changing at a very fast pace, many of the residential areas are being converted into commercial establishments. With the change in the pattern of the land use the traffic being generated or attracted is greatly affected, many residential areas with large sites are being converted into apartments/flats and with that the number of vehicles/traffic also increases exponentially.

2 STRATEGIC OVERVIEW

Congestion in cities like Bengaluru may be unavoidable and potentially beneficial. Rather than expanding space, the focus should shift towards optimizing systems to improve the movement of the current population. Addressing transportation issues requires an integrated approach within urban planning.

Key decongestion strategies include:

i. Efficient local traffic management
ii. Easing congestion in central business districts (CBD)
iii. Streamlining freight management

iv. Facilitating smoother movement of both private and public transport on main roads
v. Enhancing safety measures to prevent road accidents.

A local area traffic management plan, often abbreviated as LATM, is a strategy developed by local authorities or transportation departments to regulate and improve traffic flow, safety, and overall conditions within a specific area, such as a neighbourhood, town, or district.

That is exactly what is being envisaged for Indiranagar and surrounding areas. Indiranagar, is known for its bustling streets, commercial areas, and residential neighbourhoods. Traffic management in this area and its surroundings has been a significant concern due to increasing population density, commercial activities, and traffic congestion.

The Local Area Traffic Management Plan for Indiranagar encompasses several key strategies:

- Traffic Management Measures
- Traffic Calming Measures
- Enforcement and Regulation
- Technology Integration
- HTV Movement
- Non-motorised Transport Movement
- Traffic Signage and Signals
- Parking Management

A comprehensive local area traffic management plan for Indiranagar and its surrounding areas involves a combination of these strategies, tailored to address the specific traffic challenges and enhance overall safety and mobility within the region.

3 STUDY AREA

The Study Area is located in the south-eastern part of Bengaluru, covering an area of 8.7 skm. It lies between Old Madras Road and Airport Road, covering areas such as Ulsoor, Indiranagar I Stage and II Stage, HAL II and III Stage, New Thippasandra, Jeevan Bima Nagar, Domlur II Stage, Kodihalli and C.V. Raman Nagar. Arterial Roads such as Airport Road, Trinity Church Road, Old Madras Road and Suranjan Das Road form the extents of the area. The study area has a good network of roads and is well connected to other parts of the city.

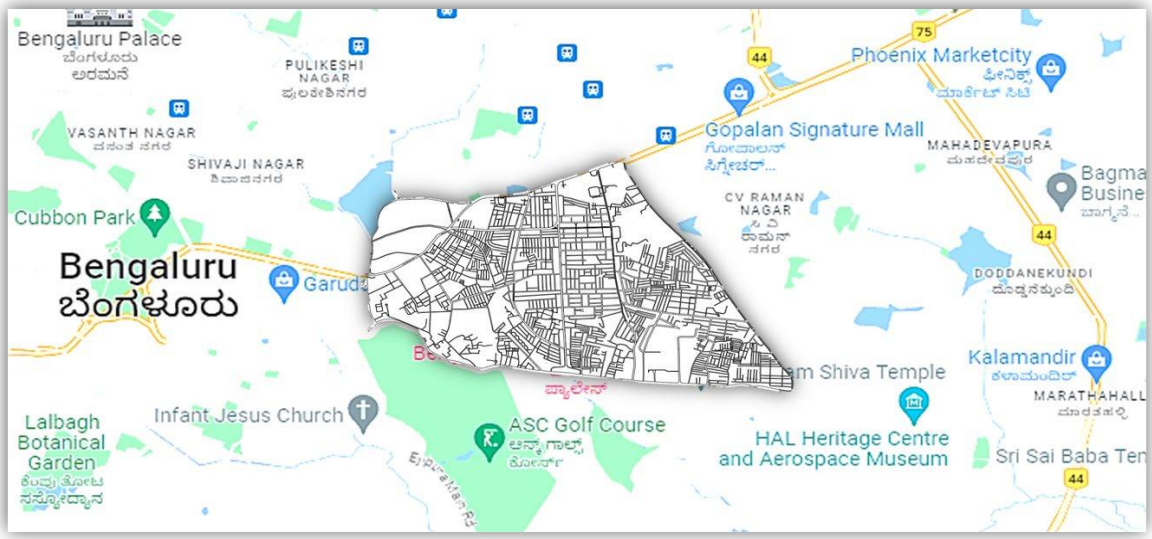

Figure 2. Study Area

Ward is the jurisdictional boundary of Bruhath Bengaluru Mahanagara Palike (BBMP) and the study area consists of 4 wards, namely, Domlur, Jeevan Bima Nagar, Jogupalya and Hoysalanagar having population of 1,55,969 (as per 2001 census) with about 1% being the population in the age group of 0-6. 80% of the population is literate with male population gaining an upper hand.

The study area is surrounded by Shivajinagar and Frazer Town on the western side, K.R.Puram and ITPL on the eastern side, Koramangala and Hosur Road on the southern side. The area caters to a large amount of traffic that plies to the industrial establishments on Old Madras Road, Airport Road and also to the software technology hub i.e. the Information

and Technology Park located in White Field. The traffic originating from the various quarters of the city – Jayanagar, Koramangala, the Central Business District (MG Road and surrounding) pass through the study area to reach the ITPL.

A large volume of traffic is destined and originates from Airport located on the Airport. A large chunk of this traffic traverses through *Namma Metro* purple line which passes through the study area

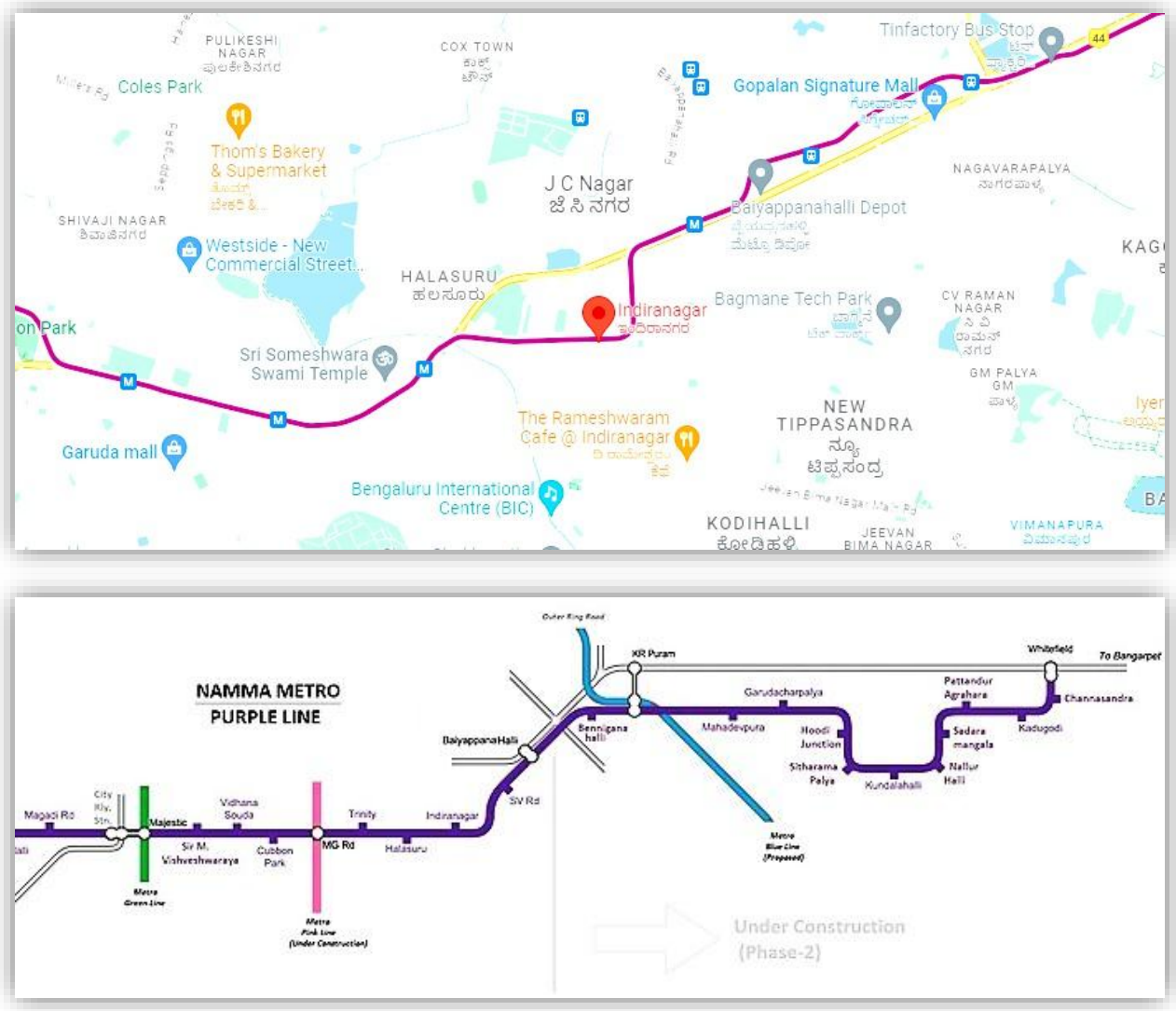

Figure 3. Metro Rail Alignment in the Study Area

The study area has three metro stations, Halasur, Indiranagar and Swami Vivekananada stations.
The other major public transportation means is the Bangalore Metropolitan Transport Corporation (BMTC) buses, about 42 bus routes originate in the study area that are destined to various locations across the city.
Residential areas are distributed on the Northern, Eastern, Western and Central parts of the study area. On the central and eastern part of the area, there are well developed localities like Indiranagar I Stage, Indiranagar II Stage, Jeevan Bima Nagar, Defence Colony and Cambridge Layout with a large number of individual households and an equal number of apartments.
Commercial activities are distributed along Old Madras Road, CMH Road, 100 Feet Road, 80 Feet Road, Thippasasndra Main Road and Jogupalya Main Road.
Religious and Public Institutions like Temples, Churches, Mosques, Schools and Colleges are distributed in different parts of the area. There are organized parks and clubs in some parts of the area.
The Bangalore City Police is responsible to regulate and manage traffic and administratively the Traffic Police have three traffic zones in the study area namely, Ulsoor Traffic Zone, Indiranagar Traffic Zone and Airport Traffic Zone.

4 NEED FOR THE STUDY

The objective of a Local Area Traffic Management (LATM) Study is to create safer and more pleasant streets, by achieving acceptable levels of traffic volume and speed, and improving the general amenity of the area. In order to meet these objectives, a LATM study considers traffic volumes, traffic speeds, accident pattern, parking, local street connectivity and proximity to main roads, as well as community perceptions to local traffic issues.
The need for Local Area Traffic Management arises from,

- An intent to reduce traffic-related problems, including
- Traffic safety, leading to measures to control traffic speeds and behaviour
- protection or improvement of local amenity focussing on appropriate allocation, design and use of street space

Local area traffic management is concerned with the planning and management of the usage of road space within a local traffic area, often to modify streets and street networks which were originally designed in ways that are now no longer considered appropriate to the needs of residents and users of the local area. As neighborhoods grow and evolve, traffic congestion, safety concerns, and accessibility issues become more pronounced.

Indiranagar, a bustling locality in Bangalore, faces several challenges that warrant the implementation of a Local Area Traffic Management Plan (LATMP). Here are the primary reasons:

i. Traffic Congestion:

- Growing Population: Indiranagar has experienced significant population growth, leading to increased vehicular traffic
- Commercial and Residential Mix: The area combines commercial hubs and residential zones, contributing to varied traffic patterns throughout the day

ii. Traffic Redistribution due to Metro Rail:

Modal Shift: The availability of a metro line encourages some commuters to switch from private vehicles to public transportation, potentially reducing traffic congestion on certain routes.

Last-mile Connectivity: However, the impact varies based on the ease of access to the metro stations and the provision of adequate last-mile connectivity (like feeder buses or walkways) within the area.

- New Traffic Patterns: The area around metro stations experiences increased traffic due to pick-up/drop-off points and parking, necessitating careful traffic management around these spots.

iii. Safety Concerns:

- Pedestrian Safety: High pedestrian activity without adequate infrastructure like safe crossings or sidewalks
- Accident Hotspots: Certain intersections or roads might have a higher frequency of accidents, posing risks to both pedestrians and drivers

iv. Inadequate Infrastructure:

- Road Infrastructure: Some roads may not be equipped to handle the current traffic volume, causing bottlenecks and congestion
- Parking Issues: Limited parking spaces leading to haphazard parking practices, adding to congestion

v. Environmental Impact: Increased vehicular traffic contributes to pollution and environmental degradation.

Addressing these challenges through a comprehensive LATMP tailored for the study area would help alleviate traffic congestion, enhance safety for all road users, encourage alternative modes of transportation, and improve the overall livability of the area. It would aim to create a more sustainable, efficient, and safer transportation network that meets the needs of the growing community while prioritizing safety and accessibility.

5 PROBLEM IDENTIFICATION

In this stage the preliminary identifications were carried out like:

- What the problems of the local residents were in terms of traffic?
- The problems faced by the local authorities primarily the regulating authority
- According to the end users – the local residents and the authorities the detailed problem statement
- Understanding the main problems of the study area – from the motorist point of view and that of the pedestrians

5.1 RESIDENT OPINION SURVEY

The decision was made to conduct an Opinion Survey of all Residents online via the Google Platform using Google Forms. Precise questions addressing different facets of traffic management—like congestion, safety, public transport, pedestrian and cyclist movement, and parking—were formulated. The survey was then administered through Google Forms, and a sample of the developed form is provided below.,

More than 375 residents of Indiranagar area filled out the forms and once the data was collected, analysis was carried out by thoroughly reviewing the responses, in terms of identifying patterns, common concerns, and priorities among residents. The graphical illustrations of the analysis is presented below,

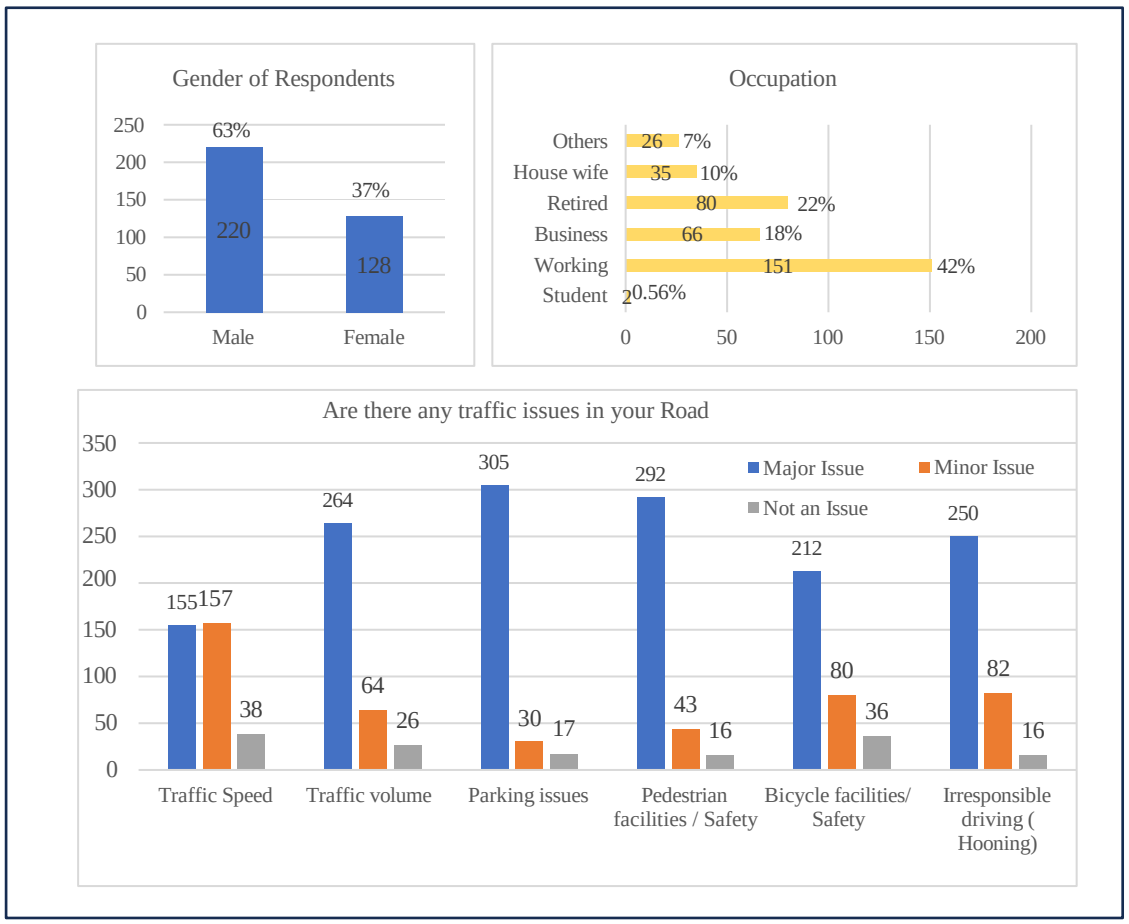

Figure 4. Analyses results of Resident Opinion Survey

Men comprised 63% of the respondents, while women accounted for 37%. 151 respondents (42%) were working professionals while 80 people (22%) who responded were retired from their services and 66 respondents had business of their own. 35 housewives also responded. Their eagerness and proactive involvement signify a strong community interest and potential support for the initiative at hand. This level of engagement promises to offer diverse and comprehensive feedback, which is instrumental in shaping and implementing community-centric endeavors.

5.2 PROBLEMS AT LINKS AND JUNCTIONS

Figure 5. Pictures depicting problems encountered on links and at junctions

6 ANALYSIS

This stage of the project is characterized by obtaining data and analyzing them both at macro and micro level.

6.1 MACRO LEVEL ANALYSIS

The accident locations, various traffic generators and attractors, traffic control devices, neighborhood boundaries, public transport operations, truck routes, exiting traffic flow and parking pattern in the study area were studied and mapped accordingly.

6.2 MICRO LEVEL ANALYSIS

This stage of the project is characterized by obtaining data by more scientific means by conducting the various surveys in order to obtain and identify the problematic areas/zones.

The surveys that were conducted are:

i. Turning Volume Count Surveys
ii. Speed Surveys
iii. Delay Surveys
iv. Topographic Surveys
v. Parking Survey
vi. Signal timing surveys

Hourly variation and composition of traffic at junctions and on links, speed on the links and delays at intersections, parking demand and composition form the micro level findings.

7 THE PLANNING

This stage is the most essential part of the study and here the detailed plans were drawn after taking into consideration the problems that were identified in the earlier stages and the detailed findings.

The Study area was divided into 5 Sectors to have a better understanding of the area and to carry out the analysis and to chalk out proposals taking into consideration the minutest detail. Each Sector has individualistic character and is distinct by itself. The proposed plans for the 5 sectors were thought of keeping in mind the existing traffic flows and pattern of movement, land use pattern and population, parking pattern, bus routes and stops, schools.

The proposals were aimed at achieving 2 things, Traffic Management and Traffic Calming. The traffic can be managed by regulating flows and parking, by relocating bus stops and allocating bus bays and by improving the junctions. The traffic needs to be calmed down at school zones by providing on-street or off-street parking facilities, installing signages and speed breakers.

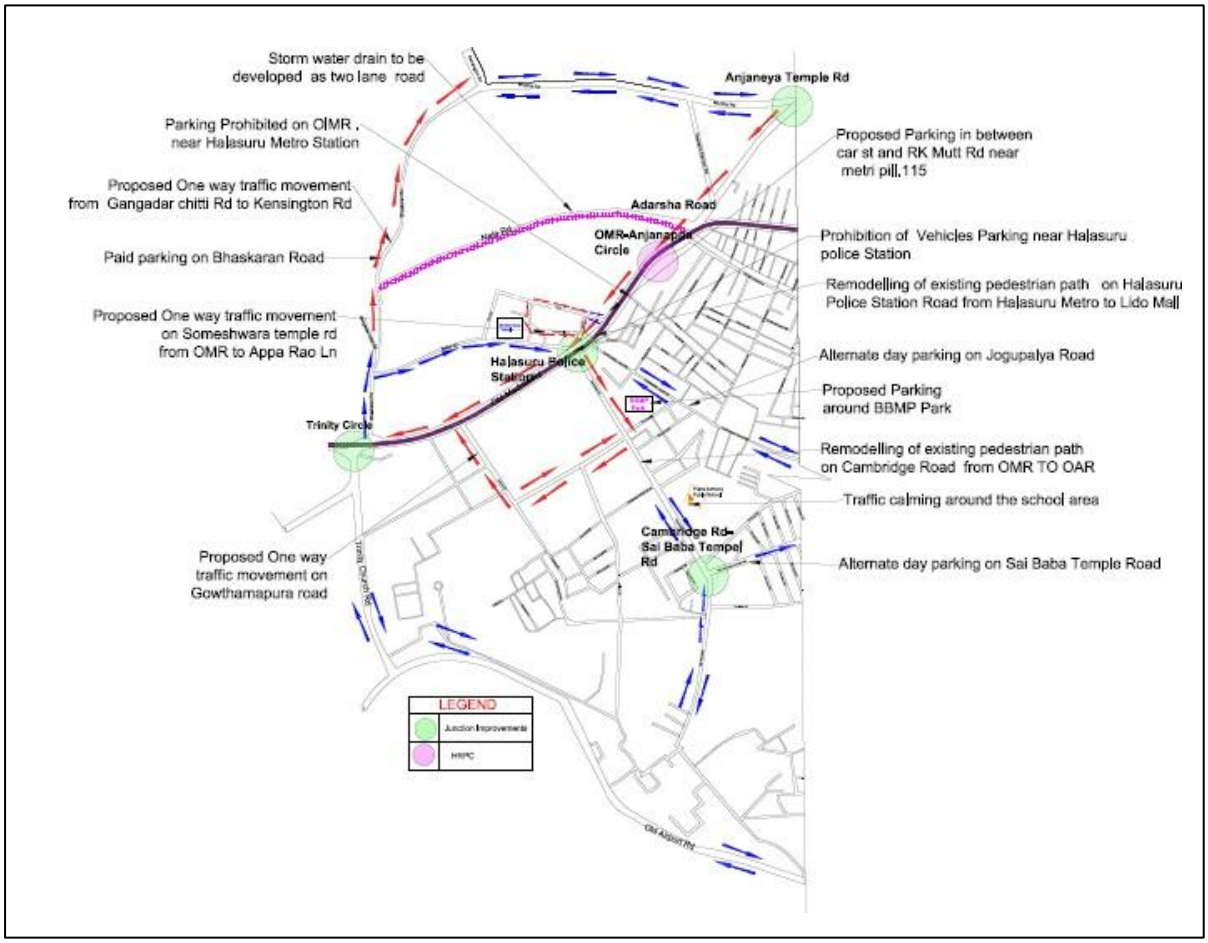

Figure 6. Proposed Improvements for Sector 1