

Planning Strategies for Traffic Management in Central Business District (Gandhi Square in Mysore City); an Urban Design Study

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ABSTRACT -- Nowadays, number of vehicles and population has been increased rapidly in developing cities all over the world especially in metropolitan cities. In this study we have chosen Mysore as a study area which is one of the famous historical cities and third largest city in the state of Karnataka, India. Mysore is noted for its palaces, including the Mysore Palace and also some heritage buildings. Most of the Mysore city's heritage buildings are located at the heart of the city. During the festivities that take place during the Dasara festival, the city receives a large number of tourists. Therefore during the festival of custom practices and also daily livelihood there will be huge traffic congestion at the centre part of the Mysore city. The traffic congestion is because of rapid growth of vehicles and pedestrian movements in the Central Business Development (CBD) area. Therefore there is a necessity to concentrate on planning strategies to overcome the problem of traffic congestion and ease pedestrian movements in the CBD area. In Mysore, Gandhi square is the historical urban texture, which has different types of land use since 100 years. There is a massive of traffic issue from both pedestrians and vehicles. In this paper authors tried to propose separate routes for pedestrian movement and vehicles which has been conflict in this area. Reduction of traffic volume within the CBD through the provision of pedestrian walkways and linkages will be considered.

Keywords - Central Business District, Traffic Management, Vehicle Traffic Volume, Traffic congestion, Sustainable transportation.

1. INTRODUCTION

Transport is a functional land use. Transportation is an essential part of today's life. It has been an essential and an integral part of the functioning of any city. Transportation plays an important role in the spatial organization of activities, exhibit the characteristics and determine its specific function and its importance for the overall development of the city. In the heritage urban areas, the well –organized transportation provides the connecting linkage with heritage landmark zone to avail the working opportunities and the movement of people in most efficient manner possible. The main factors which influence the choice of different modes of transport are cost of services, speed of transport, regularity and flexibility of services, traffic volume, and management. And density influenced the cost of service.

Transportation System Plan (TSP) that establishes a city's goals in developing it's transportation system for both in short and long run. The Plan identifies both existing and future needs, and recommends improvements to meet that needs. It must provide mobility and accessibility to all urban residents in a safe and environment friendly modes of transport.

Central Business District is focal point of a city. It is the commercial, office, retail, and cultural centre of the city and usually is the centre point for transportation networks.

Traffic congestion is a condition on road networks that occurs as use increases, and is characterized by slower speeds, longer trip times, and increased vehicular queuing.

Pedestrian zone: Happy and healthy living in towns is related to the extent that town's open green space system is enough for the requirements. Today, pedestrian zones have been achieved to increase rapidly disappearing open space and to provide comfortable and safe circulation for pedestrians. A pedestrian zone is simply an area where vehicles are restricted and reserved for pedestrians who are free to occupy the entire space. The zone entrances and exits are often designated with signage to make all users of the road aware when they are entering or exiting such an area.

Gandhi Square: It is a heritage square which is situate in CBD area. It is a famous landmark which uses to be a plaza and cultural zone in last century.

2. OBJECTIVE

1. To analysis the existing land use and structural conditions of the buildings in the area.
2. To study the existing transportation system and traffic volume in the selected site.
3. To identify the problems in the CBD area.
4. To propose a planning design solution through creating pedestrian zone in the area.

3. METHODOLOGY

The project has been deal with in five difference stages as follow:

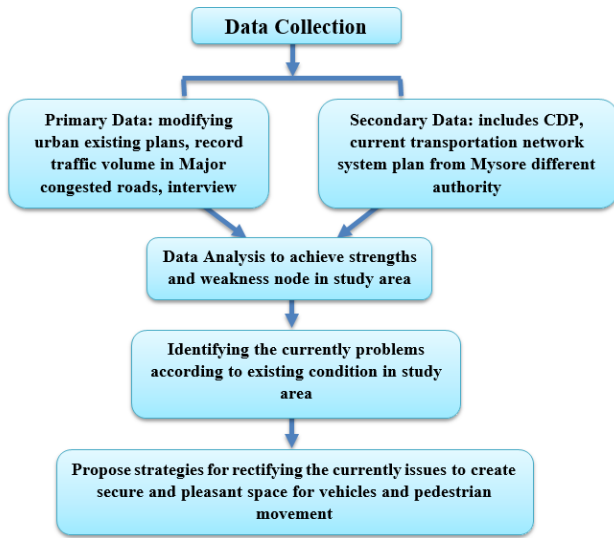


Figure1: Methodology chart

4. EXISTING DATA ANALYSIS

4.1 Land Use Plan

The existing land use constitutes mainly with commercial zone in 52%, especially around Gandhi square. Mixed land use is the second highest portion which includes commercial activity in ground and first floor, residential is the third one. The major business activities include Building materials, hardware's, jewelleries, hotels, lodges etc.

4.2 Conditions of Buildings Plan

In few places it is seen that the structural condition of the buildings are in dilapidated state needs to be demolished and redeveloped. The condition of buildings, the facade treatment, the alterations and transformations required to bring in the visual continuity and aesthetic ambience of the streetscape in influencing the visual perception and characters.



Figure 2: Land use map



Figure 3 : Condition of Buildings Map

4.3 Building Heights

The Vertical developments with most of the buildings is as per the individual owner which do not satisfy the zoning regulations and planning parameters influencing the narrow streets and lanes in complicating the urban fabric without having the knowledge of the future. The max permissible FAR is 1.5 and the FAR consumed presently ranges from 3.5 & 4.

4.4 Age of Buildings

The developments tell us the past, present construction techniques and the materials used in different times expressing the Architectural characters in understanding the generations and the quality of life style in visualizing the transformation of urban space and the urban design of the future.

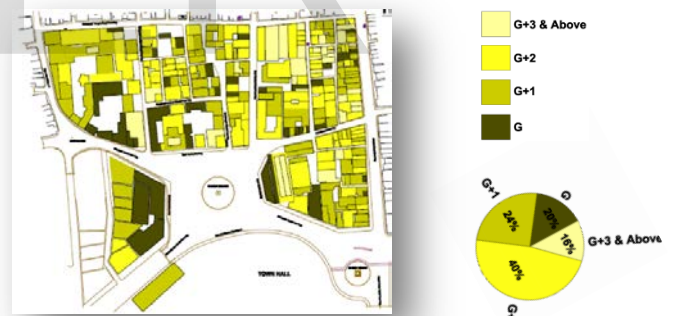


Figure 4: height of building

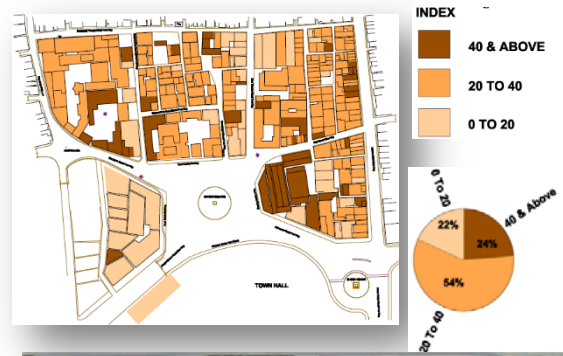


Figure 5: 360 degree view of surrounding Gandhi square

Non-existence of adequate and defined roads and footpath, the square area has been encroached by on street parking, which decreased its capacity. The urban infrastructures which are the urban characters like street lights, signage, furniture, drainages etc., are not well organized and have created visual chaos. Unauthorized street activity like street dwellers and hawkers on the pavements and roads causes disorder of municipal affairs. Movement pattern of pedestrian and vehicles has conflict which cause to urban distribution.

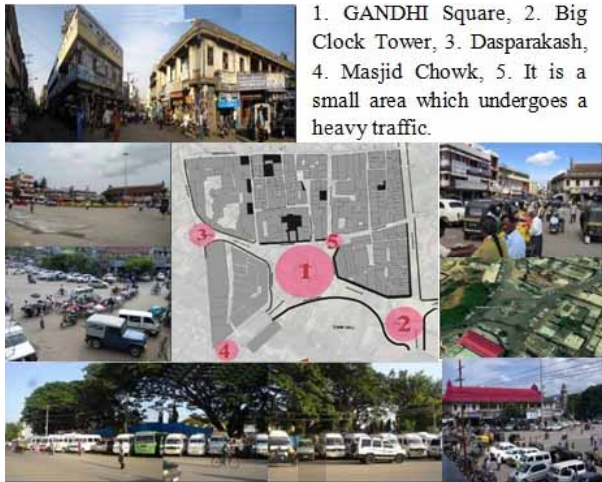


Figure 6: Important Nodes



Figure7: Synthesis of Opportunities

4.5 Synthesis of opportunities

The amalgamation of the above maps (Condition of buildings/ building heights and land use) outlines to achieve synthesis map to determining issues and identifying required guidelines to propose best solution strategies. Darker nodes show spaces which have more opportunity for redevelopment.

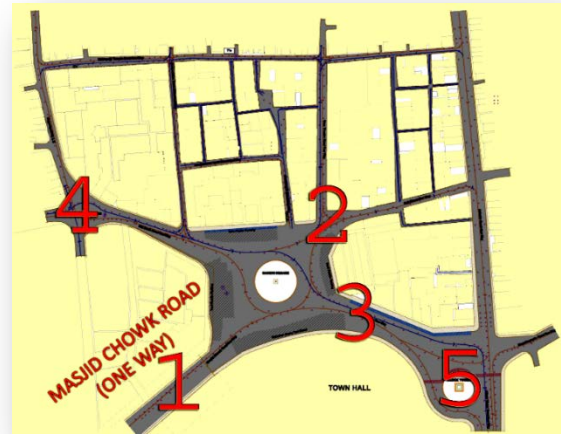


Figure 8: Traffic and Transportation Plan

4.6 Analyzing Traffic Volume in Major Streets in Study

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	470	73	0	378
10 To 12	1920	110	0	520
12 To 14	1502	66	0	224
16 To 18	310	65	0	170
18 To 20	521	63	0	392
Total	4723	377	0	1684

Table 1. Traffic volume in Masjid chowk road (one way)



Figure 9: Masjid chowk road

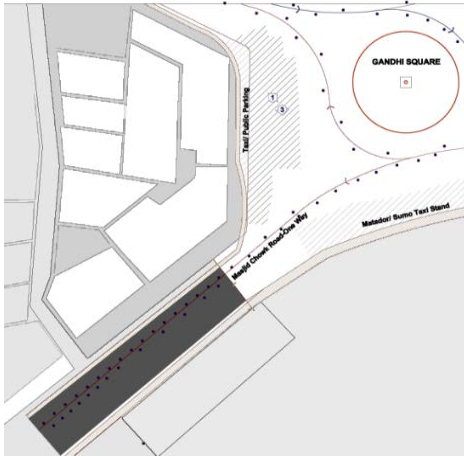


Figure 11: Soji Street views

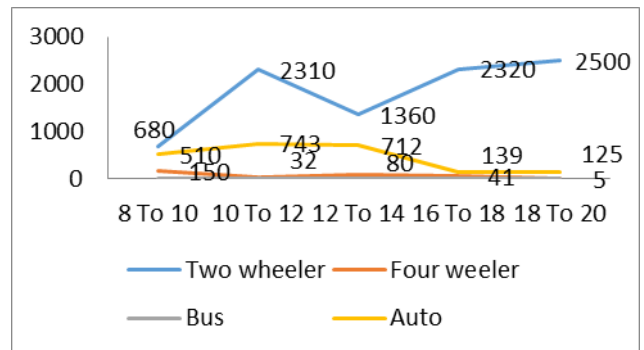


Figure 12: Traffic volume in Soji Street (one way)

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	1380	384	0	430
10 To 12	3315	500	0	801
12 To 14	2240	411	0	738
16 To 18	3876	375	0	657
18 To 20	5124	450	0	942
Total	15938	2120	0	3568

Table 4a. Traffic volume KT Street (One way)



Figure 14: KT Street

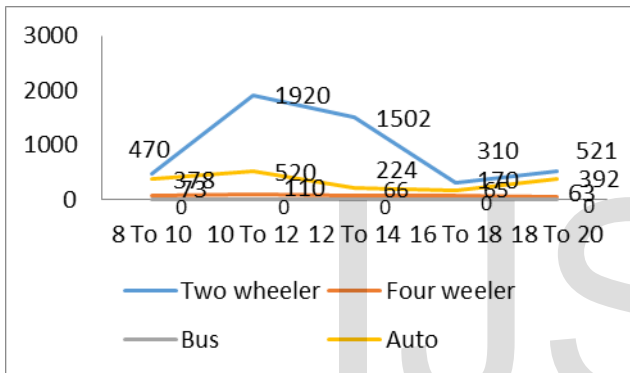
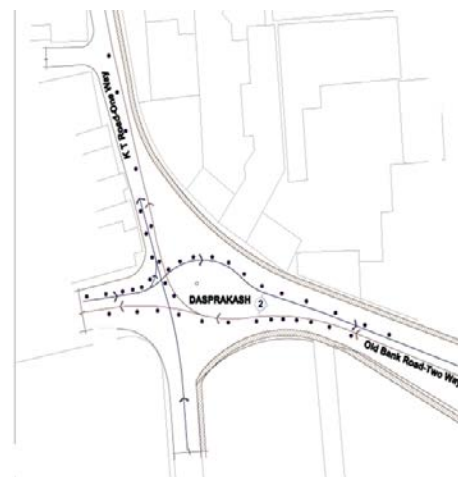


Figure10: Traffic volume in Masjid chowk road

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	680	150	0	510
10 To 12	2310	32	0	743
12 To 14	1360	80	0	712
16 To 18	2320	41	0	139
18 To 20	2500	5	0	125
Total	9170	308	0	2229

Table 2. Traffic volume in Soji Street (one way)



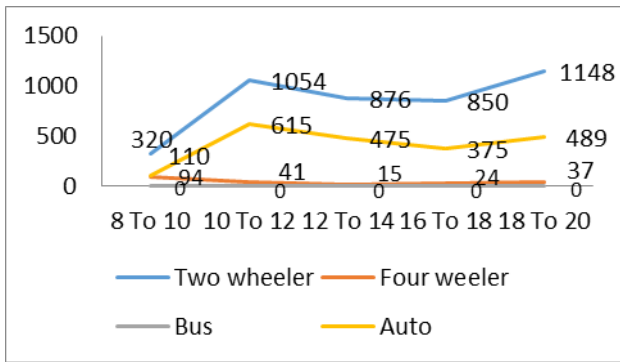


Figure 15: Traffic volume KT Street (One way)

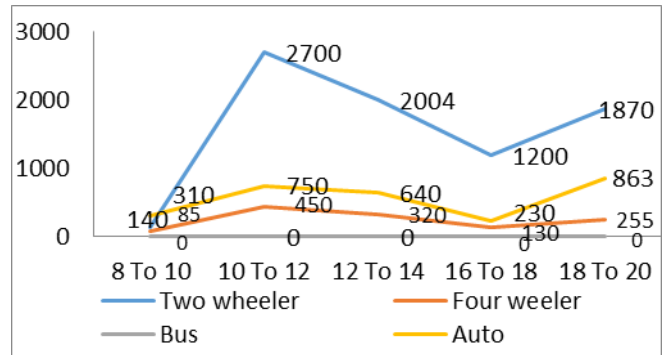


Figure 17: Traffic volume Old Bank Road, left

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	140	85	0	310
10 To 12	2700	450	0	750
12 To 14	2004	320	0	640
16 To 18	1200	130	0	230
18 To 20	1870	255	0	863
Total	7914	1240	0	2793

Table 4b. Traffic volume Old Bank Road, left

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	98	0	0	28
10 To 12	1970	0	0	150
12 To 14	1750	0	0	115
16 To 18	430	0	0	26
18 To 20	1099	0	0	142
Total	5347	0	0	461

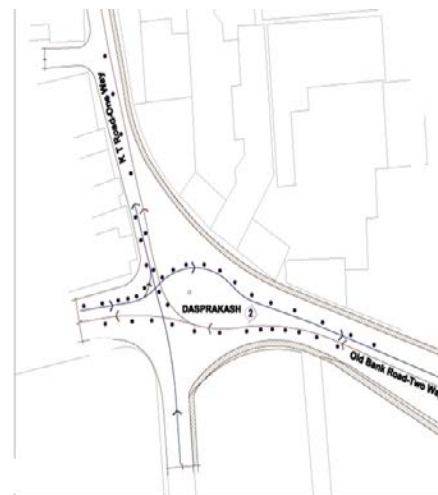
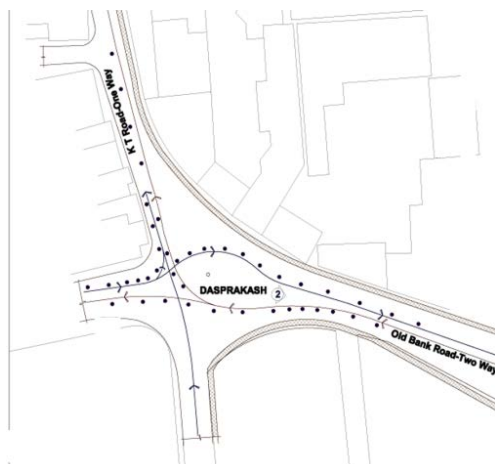
Table 4c. Traffic volume Hanumantha Rao St (One way)



Figure 16: Old Bank Road



Figure 18: Hanumantha Rao St



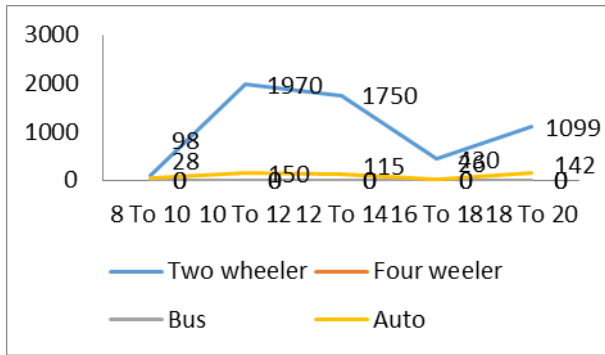


Figure 19: Traffic volume Hanumantha Rao St

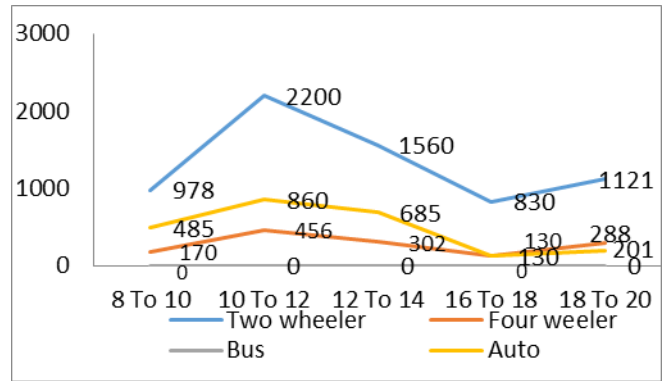


Figure 21: Traffic volume Old Bank Road, Right

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	978	170	0	485
10 To 12	2200	456	0	860
12 To 14	1560	302	0	685
16 To 18	830	130	0	130
18 To 20	1121	288	0	201
Total	6698	1355	0	2361

Table 4d. Traffic volume Old Bank Road, Right, two way

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	2260	495	140	495
10 To 12	3300	550	130	700
12 To 14	2840	325	135	552
16 To 18	700	145	140	250
18 To 20	1420	240	75	424
Total	10520	1755	620	2421

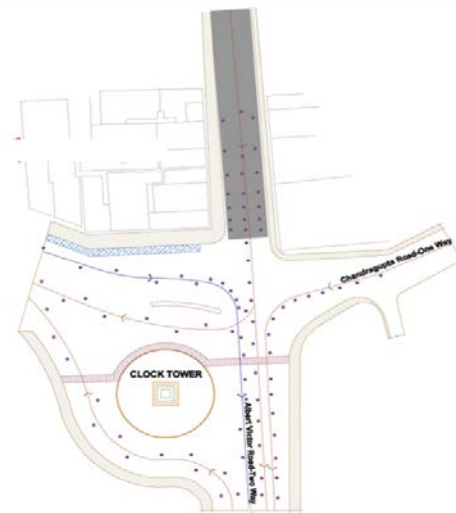
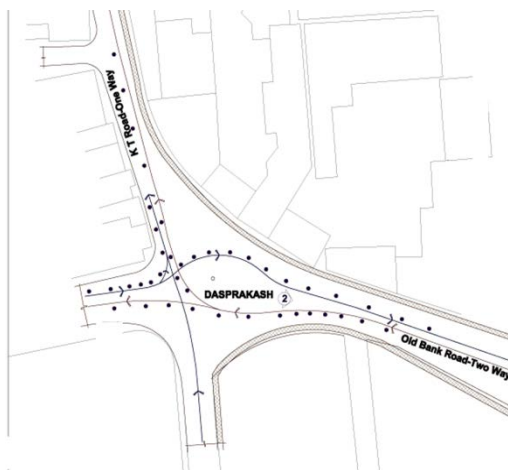
Table 5a. Traffic volume Old Bank Road, North (One way)



Figure 20: Old Bank Road



Figure 22: Old Bank Road (one way)



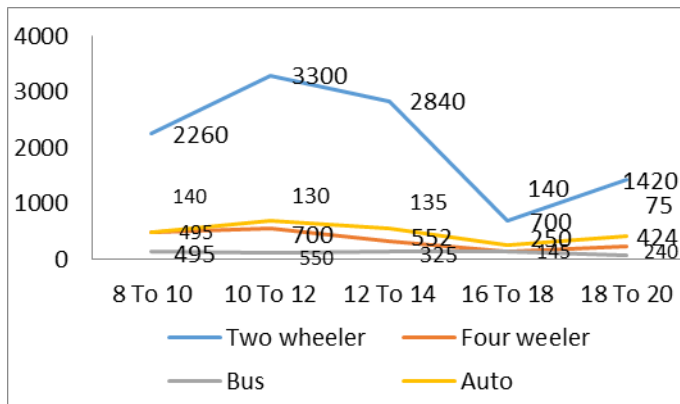


Figure 23: Traffic volume Old Bank Road, North

Time(hours)	Two Wh	Four wh	Bus	Auto
8 To 10	5725	1289	301	1085
10 To 12	8100	1750	285	1417
12 To 14	7321	1560	293	1347
16 To 18	3500	950	301	723
18 To 20	4560	1202	180	1421
Total	29206	6751	1360	5993

Table 5b. Traffic volume Old Bank Road, South (Two ways)

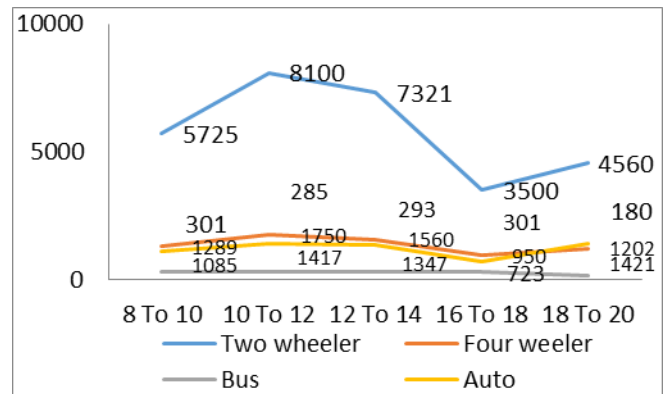


Figure 25: Traffic volume Old Bank Road, South (Two ways)

According to above traffic volume which mentioned the highest portion is belonging to two wheelers that are more in old bank road and Mahaveer road. The second highest portion is 4 wheeler and auto that according to width and accessibility of roads they changed alternatively. It is observed that peak hours for traffic volumes is 10 to 12 in the morning because offices start to work by 10.30 am in India and it is from 6 to 8 pm.

5. Existing Elevation

In this picture it is observed skyline of buildings around Gandhi square buildings materials and shapes is heterogeneous. Banners and boards of commercial stores don't have any harmony in size and color which has bad effective on visual view. Existing of LMV in front of old amphitheater and around square provokes to existing chaos.



Figure 24: Old Bank Road (two way)



Figure26: Existing Elevation

6. Proposal Plan

As specific in the master plan for preventing form conflict of pedestrian and vehicles movement, separate route for vehicles has been embedded. Plaza allocated in the center by number 3 which is a place for gathering people for festivals as past. In town hall yard some landscape design has done to create visual connectivity with pedestrian zone and plaza to

integrating precinct. One the edge of pedestrian zone there are spaces for vendors which would be able to have their activity in good order and in identified place.

In right side of square according to land use map in existing document there is an abandoned amphitheater which has been located by building number 5. This building has connected by Sky Bridge to town hall yard which prepare for people to have a bird view of site. In left side building number 6 has been proposed to incorporate retail shops in one building. Around Gandhi Square there are three vacant lands which has shown by their distance in meter from center of study area under number 1, 2 and 3 which their area is 1024 m², 2000 m² and 3540 m² respectively. By considering their area location number 1 and number 2 is sufficient for multilevel parking for road users. Location number 3 because of its area and its accessibility to heritage zone like palace.

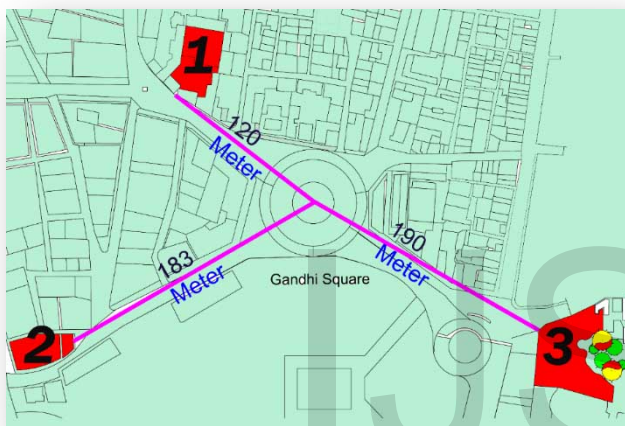


Figure 27: Multilevel Parking Location

Big clock tower and other historical area would be a good nominate to propose cab service space for transferring local and international tourist.

7. Conclusion

Transport problems are very common in the Central Business District of Indian Cities as a result of the growing concentration of population, rapid urbanization and economic activities of certain point of the world. The problem associated with Parking and traffic Management problem within the Central Business District Area. Findings in this research work revealed that parking problems and Traffic Management which leads to time delays and traffic congestion are as a result of inadequate parking space, traffic signs/signals, human factor indiscipline act and development of illegal stalls.

All Local Planning Authorities should specify and enforced the provision of parking space in conjunction with new building in Gandhi Square, Mysore. It has been noticed that parking problems and traffic congestion are apparent in commercial area as a result of the land use pattern. The commercial land use has a high vehicular and pedestrian traffic generating capacity.

In light of the findings of this research work, the following recommendations are suggested to reduce and possible eradicate the problems of parking and traffic congestion confronting the study areas. Recommendation was made for Parking Management, Parking design standard, parking control; traffic management for both vehicular and pedestrian, Land-use and Land development; enforcement of edict and bye-laws by statutory agencies.

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