

CONTRIBUTIONS OF METRO-RAIL PROJECT IN BANGALORE'S URBAN FABRIC

A case of Mahatma Gandhi Road

Dhijisha Dhanesh, Simran Sainath

Students,

Guided by Prof. Ar. Harshitha. D

School of Architecture,

Reva University, Bangalore, Karnataka, India.

Abstract : Construction of the metro rail system in metropolis have brought out many vital environmental, social and other related critical issues which is required to be studied and addressed rigorously to make these mega infrastructure projects not only socially and environmentally acceptable, but also technically and economically viable.

MG Road has become the hub of shops, restaurants and businesses. As the evolution of the road changed over the past, the facade of the road has also drastically changed. Even more changes were observed after the metro construction adjacent to that stretch. The metro construction plays a huge role on the exterior outlook of the road.

The study majorly focuses on the changes that the road's facades have gone through over the years, along with understanding, the views of the customers and the shop owners of the MG Road. The investigation is based on live and literature case studies, photographs and qualitative surveys providing a better understanding of the effect of metro construction.

IndexTerms - Metropolis, Metro rail, Infrastructure, Urban Fabric.

I. INTRODUCTION

The physical side of Urbanism is accenting building sorts, open areas, frontages and streetscapes; however, excluding environmental, functional, economic and Socio-cultural aspects. It conjointly describes the physical characteristics of the city. Urban fabric doesn't embody traffic, masses and any political aspects. There are various components included in the Urban fabric like enclosing walls, streets, market areas, etc.

Urban Fabric is usually given a thought, before designing the buildings in towns or cities and it provides the area and the inter-relationship between its parts and components instead of the building itself.

II. IMPORTANCE OF THE URBAN FABRIC

Urban Fabric is regarding creating association between folks and areas, movement and urban form, nature and designed spaces. It attracts several strands of place-making, surroundings, social-equity, and economic viability into the creation of the town with exquisite beauty and identity.

Mahatma Gandhi road was known as the South Parade of Bangalore before independence. This road on 26th February, 1948 was renamed as Mahatma Gandhi road, best known as the MG Road at present. It is the heart of Bangalore with constant thrill and flutter around it. It is one single stretch beginning with Trinity circle on one end and going all the way to Anil Kumble circle on the alternative end. It comes within the Central Business District (CBD) of the city and is one amongst the busiest places in the town. MG Road is currently splendidly called the commercial hub of the city with varied choices offered on the one stretch. MG Road houses few of the foremost reputed corporations within the city, numerous shopping outlets as well as ancient handicrafts, and plenty of tall workplace buildings.

It is accessible with simple handiness of public transportation, in and around the space and is connected by two metro railways – Trinity circle and MG Road metro stations on purple line between Baiyyapannahalli and Mysore Road.

III. MAHATMA GANDHI ROAD

Mahatma Gandhi road was known as the South Parade of Bangalore before independence. This road on 26th February, 1948 was renamed as Mahatma Gandhi road, best known as the MG Road at present. It is the heart of Bangalore with constant thrill and flutter around it; It is one single stretch beginning with Trinity circle on one end and going all the way to Anil Kumble circle on the alternative end. It comes within the Central Business District (CBD) of the city and is one amongst the busiest places in the town. MG Road is currently splendidly called the commercial hub of the city with varied choices offered on the one stretch. MG Road houses few of the foremost reputed corporations within the city, numerous shopping outlets as well as ancient handicrafts, and plenty of tall workplace buildings.



Figure 1



Figure 2

Figure 1: Old MG Road in 1900s.

Figure 2: Old MG Road in 1950s.

IV. NAMMA METRO

Bangalore's Metro has 4 phases - Phase 1, Phase 2, Phase 2a, and Phase 3. Namma Metro has 4 lines in total being the purple line, green line, yellow line and the red line.

Mahatma Gandhi Road's metro station belongs to the purple line.

The purple line: The purple line covers a distance of 18km connecting Baiyyapanahalli to Mysore road. This line consists of 12 elevated stations and 5 underground stations. Mahatma Gandhi road metro stations falls under this line with an elevated station. This line provides the public with a beautiful view of MG Road.

NEED FOR STUDY

This study is required to understand how the urban fabric has changed over the years. It also tells us the user and consumer perspective on the Namma Metro station. It is also discussed about the construction that is currently happening in MG Road along with the perspective and the percentage Metro.

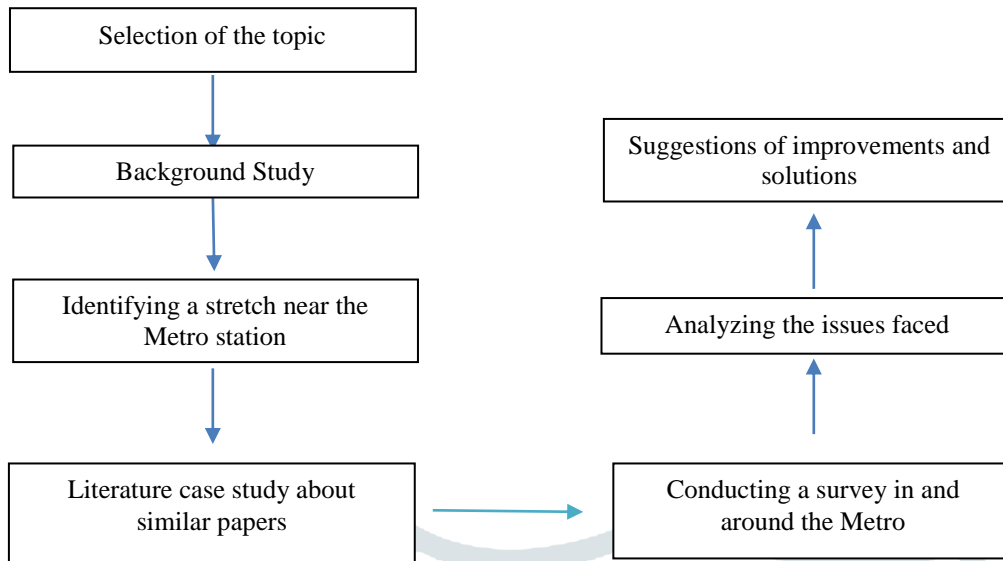
AIM

Effect on the transport and congestion in Mahatma Gandhi road due to the construction of Namma Metro

OBJECTIVE

- [1] To analyze the impacts on the identified stretch, pre-construction and post-construction of the Metro Railways.
- [2] To assess the pros and cons of the metro construction on the MG Road stretch.
- [3] To suggest improvements and solutions for the problems identified in MG Road.

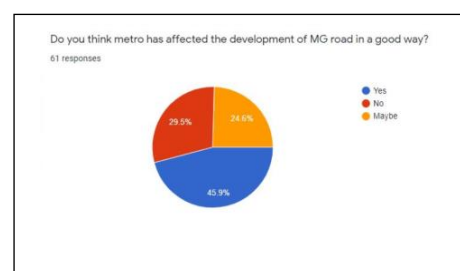
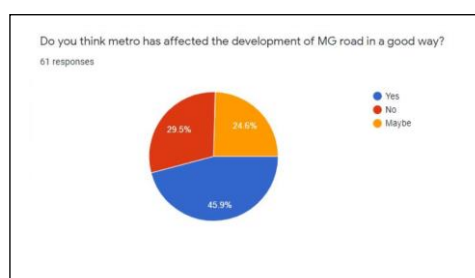
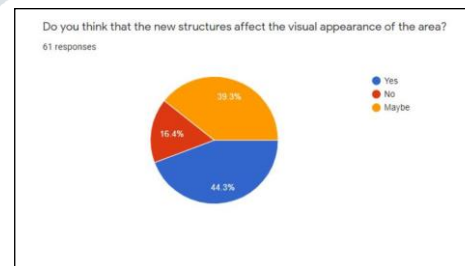
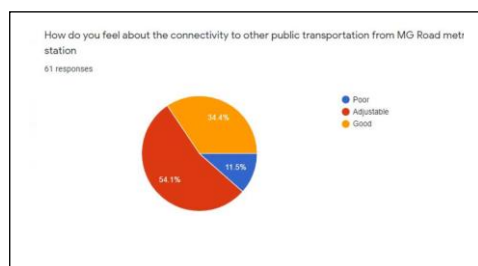
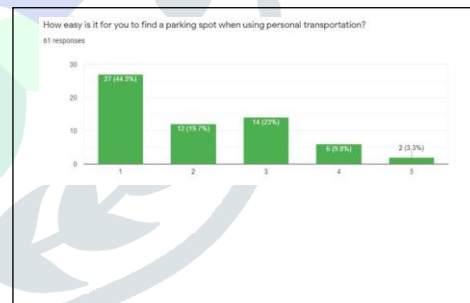
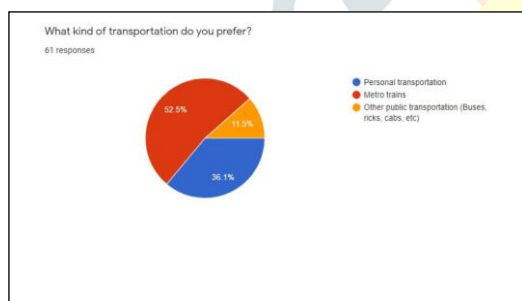
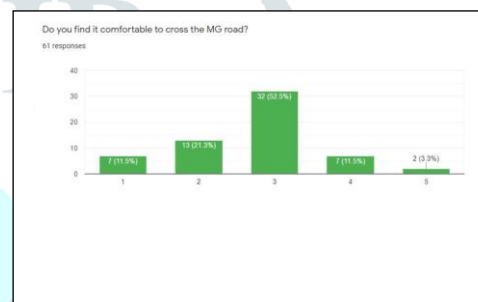
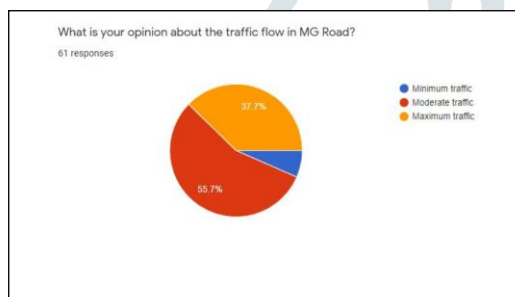
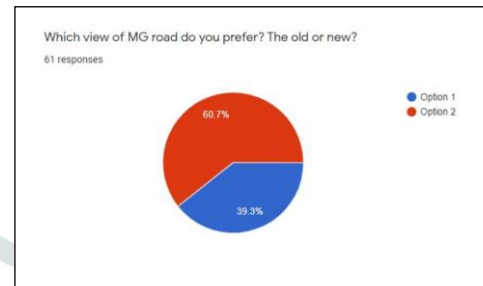
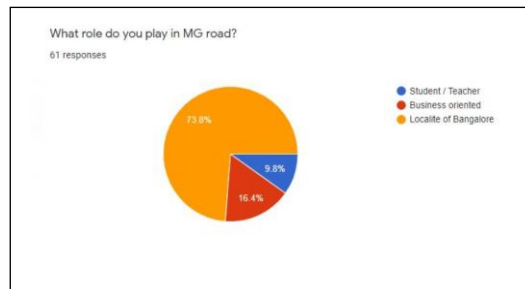
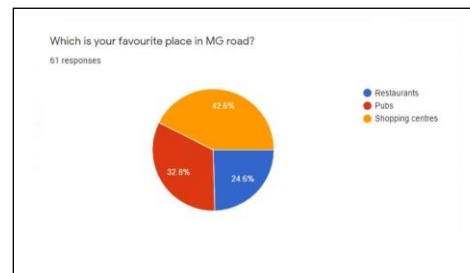
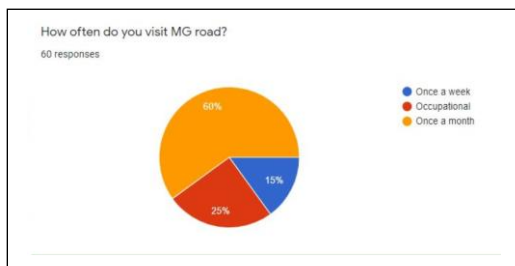
RESEARCH METHODOLOGY

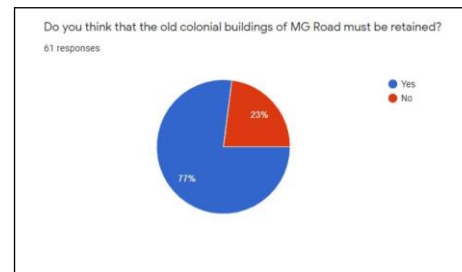
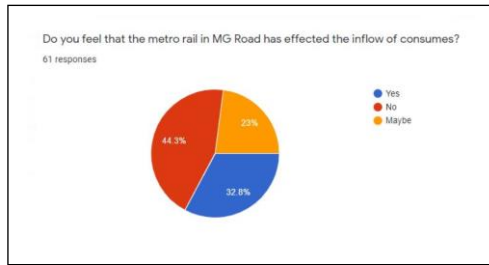


REVIEW OF LITERATURE

| Sl. No | Title | Conclusion |
|------------------|---|---|
| Research Paper 1 | Mode of Choice Model- A Case Study on Namma Metro | Female and people who don't have private vehicle are the majority to shift the mode of transportation to metro. |
| Research paper 2 | Metro Rail Transit system in various Indian cities. | Metro has been designed to decrease traffic on road and to construct a cheaper mode of public transportation. |
| Research paper 3 | Impact of metro rail construction work zone on traffic environment | Metro has been designed to decrease traffic on road. |
| Research paper 4 | Execution of Metro rail projects – A case study of Nagpur metro rail. | Metro construction should boost infrastructure and help economy to develop. |
| Research paper 5 | The study on the impact of Bangalore Metro Rail Project on retail business. | 62% of traders are affected due to the constitution of metro, so is affecting business activities. |
| Research paper 6 | Critical Issues Related to Metro Rail Projects in India | Metro construction should not affect environment by any chance and it should be aesthetic and convenient to public it should be sustainable and acceptable. |

CONSUMER SURVEY QUESTIONNAIRE- RESPONSE (GRAPHICAL REPRESENTATION)





ANALYSIS OF THE SURVEY

- [1] MG Road is and has always been a hub for major activities in Bangalore be it shopping, offices, partying or even having a good meal with family/friends MG Road has it all.
- [2] The survey analysis tells us that majority people visit the road once a month minimum.
- [3] Due to metro it becomes easier for the consumers to travel to and for making their travel time shorter. This even allows consumers to cross the road without any trouble.
- [4] As the road is packed it consumers it is extremely difficult to find a parking spot for consumers using their personal transport. When shown two different images of the road one image from the 1950s and the other being the present-day majority consumers preferred the MG Road these days this tells us that the road has undergone major changes over the years. The changes that the road has undergone help the consumers these days to lead a easy and comfortable travel life.
- [5] Majority of the consumers say that the existing colonial buildings must be retained. The colonial buildings play a major part in the evolution of the road showing us the changes that has taken place over the years.
- [6] The metro has definitely affected the business of the retailers in both the ways. Their income has increased as the number of customers arriving at the road has increased but they also feel that the construction of the metro rail that is happening currently has affected them negatively.
- [7] The on-going construction of the new Metro station has affected the transport and access to MG Road, by which the owner of a retail shops quotes "TODAY'S PAIN IS TOMORROW'S GAIN."

PROPOSALS

DOUBLE DECKER PARKING SYSTEM

As noticedMG road has a lot of space left on the sides of the unused walls. These spaces can be well utilized by providing parking spaces,i.e, double-decker side wall parking system.

Characteristics:

- 1. Simple operation
- 2. Safe and reliable
- 3. Convenient in and out of car
- 4. Ultra low noise
- 5. Small space occupation
- 6. Beautiful and fashionable in appearance
- 7. Easy and fast installation
- 8.Both suitable for home use and public use



Figure 5

| | |
|----------------------|---|
| Car Capacity | ≤2300kg, 2700kg, 3200kg |
| Lifting Height | 1800mm, 2100mm, 2132mm (Customized) |
| Mode of Operation | Manual buttons / Keys (Optional) |
| Motor Power | 2.2 Kw |
| Photoelectric Sensor | Prevent people or cars entering by mistake during operation |
| Anti-falling Device | Multi-level locking holes |
| Warning Device | Buzzer alarming during operation |
| Rise/Fall Time | 60/55s |

Figure 6

Figure 5: Double-decker parking system.

Figure 6: Basic product specifications.

UNDERGROUND DRIVEWAY

The underground driveway helps in diverting the traffic from the main street providing the consumers to move around freely. Tunnels for transportation allows, among other benefits, efficient use of underground land, redirecting traffic congestion from town centers, decreasing landscape damage due to major roads passing through open spaces, and reducing air pollution in residential areas.

RECREATIONAL SPACE

Providing a recreational space / walk-ways, etc, above the underground driveway tunnels enhances the over view of MG Road metro and station and my road itself. The majority traffic issues are resolved and provide a better open space for the consumers.



Figure 7



Figure 8

Figure 7: Underground driving tunnels.

Figure 8: Sketchup view depicting the desired recreational space.

LIMITATIONS OF THE STUDY

- [1] Study was limited, due to time constraints.
- [2] One on one survey could not be conducted due to the COVID19 crisis.
- [3] Aim had to be revised due to lack of information on primary studies within the limited time.

CONCLUSION

This research paper gives a general idea about the effect on the transport and congestion in Mahatma Gandhi road due to the construction of Namma Metro. The impacts on the identified stretch, pre-construction and post-construction of the Metro Railways were assessed. The changes that the road has undergone due to the construction of metro help the consumers these days to lead an easy and comfortable travel life. And at the meanwhile, problems were faced when it comes to the transport, parking and other congestions of the private vehicles. As the road is packed, consumers find it extremely difficult to find a parking spot when using their personal transportation. Changes and solutions for these problems could be brought to the MG Road by the addition of Double-decker parking systems, underground driveways, using the space above the underground driveways as recreational spaces which can be used by the pedestrians. Making these changes not only solves the problems currently faced, but also adds on to the beauty of the stretch's urban fabric.

REFERENCES

- [1] **Research Paper 1**
<https://www.ripublication.com>
Date of access: 26/2/2020.
- [2] **Research Paper 2**
Advani, M. and Tiwari, G., 2005. Evaluation of public transport systems: case study of Delhi Metro. Transportation Research & Injury Prevention Programme, p.1.
- [3] **Research Paper 3**
[://www.google.com/url?sa=t&source=web&rct=j&url=https://www.ijesird.com/july_11_16.PDF&ved=2ahUKEwistP_I3ZLoAhUwxTgGHTL7CLkQFjAEegQIAxAB&usg=AOvVaw09XP7279hz4XgWAjE5gq9N](https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.ijesird.com/july_11_16.PDF&ved=2ahUKEwistP_I3ZLoAhUwxTgGHTL7CLkQFjAEegQIAxAB&usg=AOvVaw09XP7279hz4XgWAjE5gq9N)

[4] Research Paper 4

Raut, A., Tonpe, A., Kulkarni, A. and Bhaiswar, S., Execution of Metro Rail Projects–A Case Study of Nagpur Metro Rail.

Date of access: 26/2/2020.

[5] Research Paper 5

<https://gfgc.kar.nic.in/vijayanagar/FileHandler/8-0d496fed-c1ae-481c-85b6-70a2ab301fd7>.

Date of access: 05/2/2020.

[6] Research Paper 6

Sharma, N., Dhyani, R. and Gangopadhyay, S., 2013. Critical issues related to metro rail projects in India. Journal of Infrastructure Development, 5(1), pp.67-86.

Date of access: 19/2/2020.

[7] Figure 1: <https://www.roaddistance.in/metro/namma-bangalore-metro/route-map/>**[8] Figure 2:** Google Maps**[9] Figure 3 :** <https://www.alamy.com/stock-photo-old-vintage-1900s-crystal-picture-palace-on-south-parade-road-now-83584287.html>**[10] Figure 4:** https://www.google.co.in/search?q=220px-M.G.Road,Bangalore+in+1950&sa=X&biw=1536&bih=722&sxsrf=ALeKk03Lcbvv59EzUyfET6TRX4PZs2sBOg:1586007910918&tbm=isch&source=iu&ictx=1&fir=XnUgD7xjA7PAqM%253A%252Cg6nc8thFjD8KIM%252C_&vet=1&usg=AI4_-kSY1wA3OIMADwUY8soL_TGisRqwyQ&ved=2ahUKEwifoJDx887oAhVOzzgGHTAPB5kQ9QEwAnoECAyQCQ#imgrc=XnUgD7xjA7PAqM:

[11] FIGURE 5 & 6: <http://my-autoparking.com.sell.everychina.com/p-105513167-double-decker-parking-post-parking-solution-pallet-parking-system.html>

SURVEY QUESTIONNAIRE: <https://forms.gle/k6XoXP2wVMYoatoGA>

