

# **PROJECT REPORT**

(BBA-605)

On

**“Study of the impact of Lucknow Metro Rail Services  
on the Transport System of Lucknow City”**

Towards partial fulfilment of

Bachelor of Business Administration (BBA)

(BBD University, Lucknow)

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*Session 2015-16*

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# **COLLEGE CERTIFICATE**

## **DECLARATION**

I, Aditya Gairola (Roll No. 1130671010) ,a student of BBA in B.B.D. University, hereby declare that I have personally worked on this project entitled “Study of the impact of Lucknow Metro Rail Services on the Transport System of Lucknow City”

The primary data and information in this report has been genuinely gathered by me.

The secondary data sources have been duly acknowledged in the report.

The result embodied in this project has not been submitted to any other University or Institute.

[ADITYA GAIROLA]

1130671010

## **ACKNOWLEDGEMENT**

I sincerely thank my mentor, Mr. Kaushalendra Singh for his able guidance and support throughout this Research Project.

I would also like to thank all the people whom I surveyed for giving me valuable time and vital information which forms a part of this report.

Last but not the least I thank my parents and colleagues for their help, support and advice which helped me a lot in completing this Project successfully.

## **PREFACE**

I have been born and brought up in Lucknow City, a major metropolitan, and have been witness to the mounting pressure on its transport infrastructure. The City has seen tremendous population growth in the last two decades. Covering an area of 310 sq. km, the state capital has 14.24 lakh vehicles and is witnessing an annual growth of 10~15% in vehicular population.

The city is gasping for breath owing to the congestion and pollution and the absence of any adequate mode of public transportation on many of the routes has infused a sense of despair among the residents.

The Lucknow Metro Rail Project is a ray of hope for the people and the environment in and around the City. The project aims to provide the inhabitants and visitors of Lucknow with a world class Mass Rapid Transit System which is not only convenient, sage, fast and reliable, but also cost-effective and environment friendly.

The purpose of my research is to understand and predict the impact that the Metro Rail Service will have on the transportation system of Lucknow City.

I have surveyed a number of people at key traffic locations where the Government has proposed Metro Stations. The Respondents/Customers of this research are the daily commuters who are facing the dismal traffic conditions in the city.

This is an Unstructured Problem and I came to know about the awareness and reactions of people towards the Metro Project and how they feel the Metro service would affect the overall transport system of Lucknow City.

I would sincerely like to thank my mentor Mr. Kaushalendra Singh for his invaluable guidance and also the respondents of my research, without whom this project would not have been possible.

Lastly, I would like to thank my parents and my friends without whom this project would not have been possible.

## **EXECUTIVE SUMMARY**

Throughout the period of my research, I have discovered a lot and gained valuable insight into the gross traffic situation in Lucknow city. I found that most people are aware and concerned about the increased traffic congestion, air pollution and noise pollution in and around the city.

Most people rely on public transport for their daily commutes and are aware of the now under construction Lucknow Metro Rail Project. In fact they are welcoming it with open arms.

The people are also happy that underground lines are being constructed in the city as it would not obstruct the traffic while under construction as well as after completion.

The impact of the Metro Project on other modes of public transportation is still unclear although a lot of people do believe that the project will affect them adversely.

There are some concerns regarding the safety aspect of the project but overall people believe that the metro will be safe.

Small parking facilities for two-wheelers are being demanded by the people at least at stations near busy areas in the city.

Overall most people believe that the metro service will be able to minimize the current traffic situation in the City and they are hopeful.

## **TABLE OF CONTENTS**

<b>INTRODUCTION.....</b>	<b>9</b>
<b>CURRENT SITUATION OF TRAFFIC IN LUCKNOW.....</b>	<b>14</b>
<b>THE SOLUTION: LUCKNOW METRO.....</b>	<b>22</b>
<b>PROJECT TIMELINE.....</b>	<b>31</b>
<b>CURRENT STATUS.....</b>	<b>35</b>
<b>PROBLEMS DEFINITION.....</b>	<b>38</b>
<b>RESEARCH OBJECTIVES.....</b>	<b>41</b>
<b>RESEARCH QUESTIONS.....</b>	<b>42</b>
<b>RESEARCH METHODOLOGY.....</b>	<b>43</b>
<b>HYPOTHESES.....</b>	<b>46</b>
<b>PROBLEMS AND LIMITATIONS.....</b>	<b>49</b>
<b>DATA ANALYSIS &amp; INTERPRETATION.....</b>	<b>51</b>
<b>FINDINGS.....</b>	<b>62</b>
<b>CONCLUSION.....</b>	<b>64</b>
<b>SUGGESTIONS &amp; RECOMMENDATIONS.....</b>	<b>66</b>
<b>BIBLIOGRAPHY.....</b>	<b>68</b>
<b>ANNEXURE.....</b>	<b>70</b>

# **INTRODUCTION**

Economic growth and spatial development are quite often governed by the quality and quantity of infrastructure provided. While inadequate transport facilities cause congestion, the delays and hazards result in significant socio – economic costs to the society. Supplying and maintaining an optimal level of infrastructure is the key to planned development. India is passing a stage where urbanization is taking place at an increasing rate. With rapid urbanization, there has been a widening gap between demand and supply of urban infrastructure of which transportation is an essential component.



Lucknow is popularly known for its cultural and intellectual traditions as well as its current status as a nucleus of service industry, education & research. Being an important cultural and trading centre, Lucknow continues to grow and attract large number of people to the city. It is a major metropolitan and the largest city of the state of Uttar Pradesh, India and the 2nd largest city in north, east and central India after Delhi (population-wise).

The City has witnessed tremendous population growth in the last two decades. As per census of India 2011, the population of Lucknow Urban Agglomeration was 29 lakhs. The population of Lucknow Metropolitan Area was over 50 lakhs.

The rapid growth of the city and the associated urban sprawl has accentuated the demand supply mismatch amidst the constrained transport infrastructure resulting in economic and social externalities.



Covering an area of 310 sq. km, the state capital had 14.24 lakh vehicles, 80 per cent of them being two-wheelers and 14 per cent cars. The public transport mode share in the city is only 10%. Approximately 94% of the city's registered vehicles are privately owned.

The supply of city buses being only 6 per every lakh people is inadequate for a city's size like Lucknow. The benchmark is between 70 to 80 buses per lakh residents in an urban area in India. The count of auto-rickshaws stands at 4,343 (as of 2014) and that of tempo taxis is 2,534 (as of 2014).

Additionally, the number of cars hitting the Lucknow roads is increasing by 10-15% every year on an average while two-wheelers are increasing by 8-10% as many people opt for two-wheelers instead of four-wheelers to escape traffic. In 2006-08 alone, the traffic load on Lucknow Roads had increased by a staggering 52.21%, much higher than the national average of 20%.



While the number of buses in the city are declining, the number of cars, auto-rickshaws and two-wheelers are increasing, clogging the traffic arteries. Lucknow is thus unable to keep up pace with the demographic and economic growth.

# MAP OF LUCKNOW CITY



# **CURRENT SITUATION OF TRAFFIC IN LUCKNOW CITY**

As mentioned earlier, the public transport mode share in the city is only 10%. Approximately 94% of the city's registered vehicles are privately owned. The supply of city buses being only 6 per every lakh people is inadequate for a city's size like Lucknow. The benchmark is between 70 to 80 buses per lakh residents in an urban area in India. The count of auto-rickshaws stands at 4,343 (as of 2014) and that of tempo taxis is 2,534 (as of 2014). Additionally, the number of cars hitting the Lucknow roads is increasing by 10-15% every year on an average while two-wheelers are increasing by 8-10% every year on an average.



Also, many SUVs are being sold every year in city and easily issued licenses. These SUVs occupy a large part of road while moving causing frequent jams and secondly they are often being driven at a high speed.



There is an even bigger problem of inadequate and faulty planning. Old planning has resulted in chaos and traffic jams as all work centres and political and commercial hubs have been centralised in the city. One can find both residential and commercial units being opened up at the same place.

The roads and intersections of the city were designed long time back which are now unable to accommodate the increasing population and the rise in number of vehicles.

The city has two important arteries -- University Road and Ashok Marg, which later converge into Charbagh road. This is the only route going towards central city. Our city planning doesn't even provide any alternative safety exit route to the outer part of the city in case of an emergency such as road blockade, natural disasters etc.



Traffic jams in the streets around the time when schools get over is also a major nuisance almost everywhere in the city.

In modern times when roads are being designed at 24 metre width, due to encroachments of shops, transformers, dumping grounds, vendors and stalls only 13-15 metre road is left for the traffic. Even on this width, most people prefer to park vehicles just in front of the shops which further leaves little space for movement.

The poorly designed road infrastructures built in the recent times have also failed to ease out the traffic menace. Agencies like NHAI, PWD, LMC, LDA work in isolation depending on funds availability and individual plan. This is why structures like flyovers, ROBs, roundabouts are not able to address traffic problems.

While referring to the flyover at Polytechnic Crossing, Mr. Pragesh Khanna, a city based architect says “There is no vision of designing the city. Nowhere in the world can one find a flyover turning left to pass over a juncture. It makes no sense as to why the flyover was designed from Munshipulia crossing towards Chinhath where it had to bend towards left at the roundabout. There is no proper study before planning these structures. A flyover from Wave multiplex or HAL towards Chinhath would have helped much more.”

With metro lines being constructed in the city, we see a lot of traffic jams at the construction sites near Alambagh and the Airport every day. It makes sense that whenever new structures are proposed on roads, an alternative route should always be planned beforehand to avoid road blockages. Unfortunately, with the kind of planning this city has, that’s not possible in Lucknow.

The traffic problems in Lucknow are because of a variety of reasons such as:-

- ❖ Changing demographics due to huge immigration from nearby towns and villages has put pressure on the infrastructure of the city.
- ❖ There has been a lack of Planning (Urban Planning) of the City.
- ❖ Road infrastructure of Lucknow City is inadequate.
- ❖ An increase in people's standard of living has led to increase in the usage of private vehicles.
- ❖ There is an unavailability of a robust rapid transport system and this leads to the increased usage of private vehicles.
- ❖ There is a lack of traffic sense among a majority of people.
- ❖ There is rampant encroachment upon roads by shopkeepers and vendors which leads to traffic jams.
- ❖ There is a lack of sufficient parking spaces in the city.
- ❖ Inefficient maintenance of roads by the authorities.

Furthermore, vehicular exhaust is majorly contributing to the air pollution in and around the city and an increase in lung related illnesses among the residents of Lucknow has also been observed.

According to a study of 17 cities covered by the National Air Quality Index (NAQI) and released by Greenpeace India on 15th Dec 2015, Lucknow is among the six most highly polluted cities in India. The level of Particular Matter (PM2.5) in the air should be 60 micrograms per cubic metre for the 24 hour standard whereas in Lucknow it was found to be 411 micrograms per cubic metre on an average.

Moreover, when the data for this year was compared with the previous years, it showed an increasing trend of air pollution. Central Pollution Control Board officials stated that a high level of Particular Matter in the air particularly, is of grave concern for the health of the people as well as the environment of Lucknow City.



A pollution index by a crowd-sourced global database 'Numbeo' featured Lucknow at the No. 1 spot of the "most polluted city in the world" list in 2013. However Lucknow has currently slipped to the 30th position.

.Traffic noise has also become a major environmental concern in areas with high traffic congestion in and around Lucknow adding to the problem of Noise Pollution in the City.

To say the least, these conditions are creating a lot of problems for the people and the daily commuters in Lucknow (comprised of Professionals, Office Goers, School Children, College Students, Businessmen, etc.) as well as for the city administration and the Lucknow Traffic Police Department.

**THE SOLUTION:**  
**LUCKNOW METRO**

One of the key issues to be tackled here was to improvise on a reliable public transport system; above all, lay emphasis on a mass transportation system, which would be environment friendly; to cater to city's growing travelling needs to sustain in the growing economic activities.

Against this backdrop of increasing number of vehicles on road and congestion and air pollution, the Lucknow Development Authority (LDA) commissioned the Delhi Metro Rail Corporation (DMRC) to prepare a Detailed Project Report for a Mass Rapid Transit System (MRTS) for Lucknow City and in 2008, the Lucknow Metro Rail Project was proposed by the Government of Uttar Pradesh. The project aims to provide the inhabitants and visitors of Lucknow, with a world class Mass Rapid Transit System that is not only convenient, safe and fast but also reliable and cost-effective while providing the city with an environment friendly atmosphere.



The Lucknow Metro Rail Project is being implemented by Lucknow Metro Rail Corporation (LMRC), which is a 50:50 jointly owned company of the Centre and the Uttar Pradesh government.

Lucknow Metro has recently been awarded 'Best Metro for Excellence in Innovative Designs' at 5th Annual Metro Rail Summit in New Delhi on 11<sup>th</sup> March, 2016. It competed against the other metro projects of the country like Delhi Metro, Mumbai Metro, and Jaipur Metro.

French engineering major Alstom is to supply 20 metropolis train sets, each composed of four metro cars. Each car is to be fitted with air conditioning and a passenger information system for a high level of passenger comfort.

The metro cars will be produced in Alstom's Sri City train manufacturing facility in India and the signalling system will be jointly supplied by Alstom's sites in Bangalore and Saint-Ouen in France.

In fact it is a part of the Indian Prime Minister Mr. Narendra Modi's 'Make in India' campaign that India shall emerge as the manufacturing hub of these Metro Rail coaches for the world.

On 29th January, 2016, India exported the first batch of these metro coaches to Australia. Over the next two-and-a-half years, a total of 450 'Made in India' metro coaches will be exported to Australia.

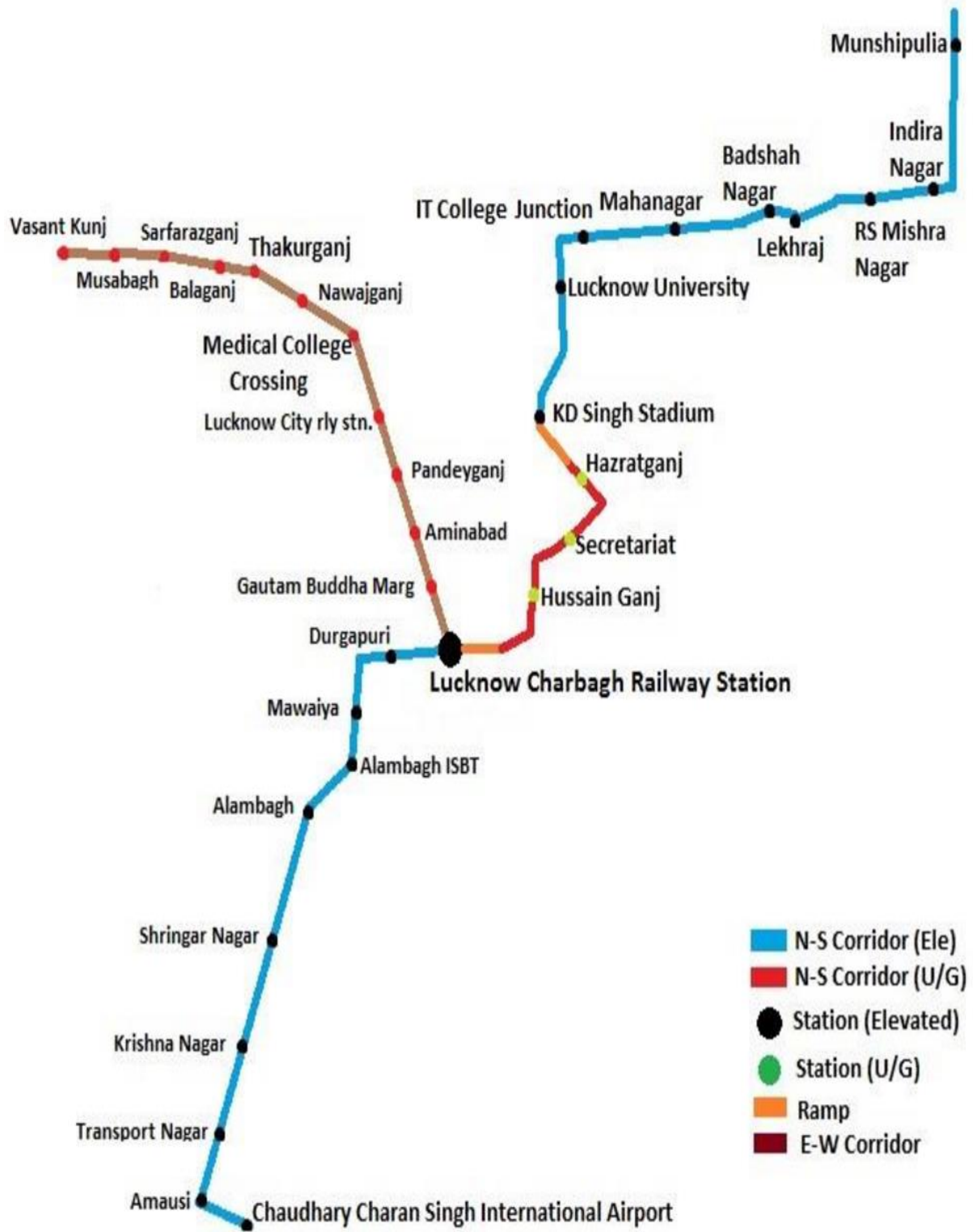


The Lucknow metro project will be the most expensive public transport system in the state of Uttar Pradesh, costing ₹6928 crore in phase 1 of construction, first lane of which is expected to be operational by December 2016. Phase 2 will be start in 2018.

Lucknow's Metro Service is expected to increase the public transport mode share from 10% to 27% in the city of 30 Lakh. The line is expected to carry about 4,30,000 passengers per day in the first year, increasing to over 10,00,000 by 2030 . When completed, it will be the fastest and most economical high speed rapid transit system project in India.

# **LOCATION**

# MAP



Lucknow Metro will have two routes, from North to South and from East to West.

The North-South corridor starts at Chowdhary Charan Singh Airport and goes to Munshi Pulia, with a total length of 22.878 kilometres (14.216 miles) out of which the elevated route will be 19.438 km while underground route length will be 3.440 km with total 19 elevated and three underground metro stations.

The East-West corridor starts at Charbagh Railway Station and ends at Vasant Ken. Both lines will intersect at Charbagh. An extension line from Indira Nagar – Gomti Nagar – Polytechnic Crossing will extend it to Patrakarpuram, Gomti Nagar. The difference between arrival times of trains at each station is expected to be 7 minutes. This would be reduced to 5 minutes and then to 3 minutes in phases.

#### Traffic Forecast of Lucknow Metro

Year	Corridor Length (km)	PHPDT	Daily Passenger km	Daily Ridership	Average Trip Length (km)
<b>North-South Corridor : CCS Airport to Munshi Pulia</b>					
2015	22.878	13190	3227960	429250	7.52
2020		20976	4886515	644659	7.58
2025		25890	6132646	833240	7.36
2030		34955	7664688	1054290	7.27
2041		44408	9501868	1343970	7.07
<b>East-West Corridor : Lucknow Rly Station to Vasant kunj</b>					
2015	11.098	7639	619487	155650	3.98
2020		14157	1007262	243300	4.14
2025		21434	1477121	345930	4.27
2030		29171	1982341	459940	4.31

## **Stations on the North-South Corridor:-**

1. Chaudhary Charan Singh International Airport
2. Amausi
3. Transport Nagar
4. Krishna Nagar
5. Singaar Nagar
6. Alambagh
7. Alambagh ISBT
8. Mawaiya
9. Durgapuri
10. Lucknow Charbagh Railway Station
11. Hussain Ganj
12. Sachivalaya
13. Hazratganj
14. KD Singh Babu Stadium
15. Lucknow University
16. IT Chauraha
17. Badshahnagar
18. Lekhraj Market
19. Ramsagar Mishra Nagar
20. Indira Nagar
21. Munshi Pulia

## **Stations on the East-West Corridor:-**

1. Gautam Buddha Marg
2. Aminabad
3. Pandeyganj
4. Lucknow City Railway Station
5. Medical College Chauraha
6. Nawazganj
7. Thakurganj
8. Balaganj
9. Sarfarazganj
10. Musabagh
11. Vasant Kunj

# **PROJECT TIMELINE**

- ❖ **September 2008:** DMRC submits a concept paper after the Lucknow metro rail project is proposed by the Government of Uttar Pradesh.
- ❖ **October 2008:** The metro rail project in Lucknow is cleared by Lucknow Development Authority (LDA).
- ❖ **February 2009:** An agreement is signed between DMRC and LDA.
- ❖ **June 2009:** A Bangalore-based company hired by DMRC studies traffic pattern of Lucknow.
- ❖ **July 2009:** Geo-technical survey initiated by DMRC.
- ❖ **April 2010:** Traffic and transportation report is submitted by DMRC.
- ❖ **May 2010:** DMRC and a committee headed by the Chief Secretary of Government of UP start consultation process related to traffic issues.
- ❖ **June 2010:** DMRC submits the route alignment plan. The divisional commissioner of Lucknow is asked to coordinate with the concerned departments.

- ❖ **August 2010:** DMRC presents the detailed route plan.
  
- ❖ **September 2010:** The committee headed by the divisional commissioner consults DMRC on the route once again.
  
- ❖ **July 2011:** A detailed project report (DPR) is submitted.
  
- ❖ **June 2013:** The state cabinet headed by chief minister Akhilesh Yadav gave clearance to the metro rail network.
  
- ❖ **August 2013:** UP government approved the revised Detailed Project Report (DPR) submitted by DMRC.
  
- ❖ **October 2013:** Name of Lucknow Metro Rail Corporation approved.  
Construction Phase to begin in December.
  
- ❖ **November 2013:** DMRC pitches for Lucknow Metro work, assures first phase completion by Feb 2017.
  
- ❖ **December 2013:** Government of India, in principle, approves the project.

- ❖ **February 2014:** Metro man E. Sreedharan appointed as chief adviser of Lucknow metro.
- ❖ **March 2014:** Foundation stone laid for Lucknow Metro project.
- ❖ **10 July 2014:** 100 crores rupees were set aside for Lucknow Metro in the Union Budget, by the Finance Minister of India, Arun Jaitley.
- ❖ **27 September 2014:** Construction begins on the Lucknow Metro.
- ❖ **6 August 2015:** Lucknow Metro got clearance from PIB.
- ❖ **22 December 2015:** Union Cabinet has approved the construction of Rail Project Phase - 1 A.
- ❖ **August 2016 (scheduled):** Trial of metro train at priority section.
- ❖ **December 2016 (expected):** Final operation is expected to commence.

# **CURRENT STATUS**

- ❖ Construction on the Lucknow Metro began on 27 September 2014
  
- ❖ April 2015: Work of placing of caps on pillars started.
  
- ❖ Placing of U-Girders began in May 2015.
  
- ❖ Northern Railways in August cleared the hurdles coming in the way of construction of Lucknow metro and allowed it to work in Mawaiyya.
  
- ❖ December 2015: Approximately 56% of the civil work had been completed.
  
- ❖ December 2016: The first line of Lucknow Metro (Transport Nagar to Charbagh) is expected to get operational.





# **PROBLEMS DEFINITION**

## **MANAGEMENT DECISION PROBLEM**

- ❖ *Will the traffic problems of Lucknow city be resolved by the implementation of Lucknow Metro Rail services by Lucknow Metro Rail Corporation?*

## **RESEARCH PROBLEMS**

- ❖ *To determine the effectiveness of Metro services in solving traffic problems of Lucknow City.*
  
- ❖ *To determine the impact of Metro Services on other modes of Public Transportation in Lucknow City.*
  
- ❖ *To determine the viability/safety factors of an underground Metro line as compared to a surface Metro line.*

## **RESEARCH OBJECTIVES**

- ❖ To determine the effectiveness of Lucknow Metro services.
  
- ❖ To determine the viability/safety factors of an underground Metro line as compared to a surface Metro line.
  
- ❖ To determine the effect of Lucknow Metro on public transport sector of Lucknow (buses, autos, taxis etc.)
  
- ❖ To determine the feasibility of parking facility at Metro stations.

## **RESEARCH QUESTIONS**

- ❖ How effective will the implementation of Lucknow Metro services be in minimizing traffic problems of Lucknow?
- ❖ How many commuters will be opting for the Lucknow Metro services?
- ❖ How much viable/ safe will an underground Metro line be as compared to a surface metro line?
- ❖ What is the current volume of traffic in the areas where Metro route is being set up?
- ❖ By what percentage will the usage of other modes of public transport go down in Lucknow after implementation of metro services?
- ❖ How much travelling time can be reduced by opting for Metro services?
- ❖ How much feasible will the parking facility at Metro stations be?

# **RESEARCH METHODOLOGY**

I have collected data on the research problem by conducting surveys which comprised of specific questions based on the topic.

To get the holistic view of people regarding the upcoming metro service in Lucknow, I surveyed people in five major traffic zones/ areas where the Government has proposed metro stations:—

- ❖ Gomtinagar,
- ❖ Hazratganj,
- ❖ Polytechnic Chauraha,
- ❖ Badshah Nagar, and
- ❖ Transport Nagar (Old Lucknow).

I have surveyed 50 people of these areas and asked them some open ended questions to gain insights on the topic.

I have also done secondary research for data collection by going through all the surveys and studies conducted previously on metro rail services in various metropolitan cities of India.

Apart from this, the Lucknow Metro Rail Corporation website and the NDTV News website have also significantly contributed to the secondary data I have used in this research.

- ❖ **RESEARCH DESIGN – 1** : Descriptive – Survey
  
- ❖ **RESEARCH DESIGN – 2** : Exploratory – Secondary Data Analysis
  
- ❖ **SAMPLE DESIGN** : Random Sampling
  
- ❖ **SAMPLING TECHNIQUE** : Shopping Mall Intercept
  
- ❖ **SAMPLE SIZE** : 50
  
- ❖ **SAMPLE UNIT** : Daily commuter in Lucknow City
  
- ❖ **DATA SOURCE** :-
  - **Primary Data** – Survey.
  - **Secondary Data** – [www.lmrc.com](http://www.lmrc.com), [www.wikipedia.com](http://www.wikipedia.com),  
[www.ndtv.com](http://www.ndtv.com), Research Paper by Keya Chakraborty & Prof. T.G. Sitharam.
  
- ❖ **DATA COLLECTION METHOD** : Survey
  
- ❖ **DATA COLLECTION TOOL** : Questionnaire

# **HYPOTHESES**

- ❖ **NULL HYPOTHESES-** Implementation of Lucknow metro services will NOT be effective and WON'T lead to reduction in traffic.
  - Independent Variable - Lucknow metro service
  - Dependent Variable – Traffic
  
- ❖ **ALTERNATE HYPOTHESES-** Implementation of Lucknow metro services will be effective and lead to reduction in traffic.
  
- ❖ More than sixty percent of the daily commuters will opt for Lucknow metro services after its implementation.
  - Independent Variable - Daily commuters
  - Dependent Variable – Lucknow metro service
  
- ❖ Wider coverage of underground metro lines will increase the transportation safety standards as well as be viable for Government of UP as less land will be required.
  - Independent Variable - Underground metro line
  - Dependent Variable - Transportation safety standard
  - Control Variable - Land requirement

- ❖ Implementation of Lucknow metro services will reduce the usage of other modes of public transportation.
  - Independent Variable- Implementation of metro services
  - Dependent Variable- Usage of other modes public transportation
  
- ❖ The commuters will save a considerable amount of travelling time by opting for metro services.
  - Independent Variable - Metro services
  - Dependent Variable – Travelling time
  
- ❖ Provision of parking facilities at metro stations will reduce the usage of private vehicles as well as unauthorized parking.
  - Independent Variable - Parking facility
  - Dependent Variables - Usage of private vehicles, Unauthorized parking

Statistical Tool to be used: MODE

# **PROBLEMS & LIMITATIONS**

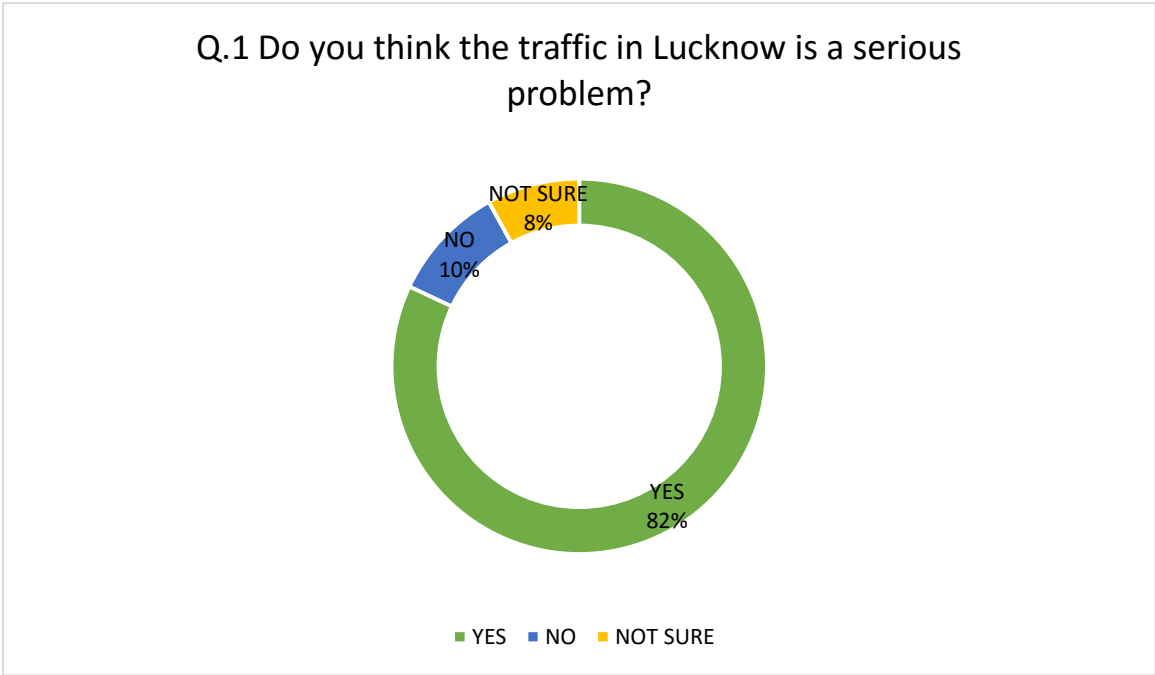
Although I have put in my best efforts to make the study fair, transparent and error free, there are still some inevitable and inherent limitations. Moreover, I have faced some problems while conducting the research.

These problems and limitations include the following:

- ❖ The views of my respondents might not entirely and truly reflect the views of 50 lakh people of Lucknow.
- ❖ There may be some biased responses from the respondents.
- ❖ Some respondents were hesitant in providing some answers.
- ❖ Some respondents needed a Hindi translation for every question.
- ❖ A few respondents were unaware of the undergoing Metro Project.
- ❖ The biggest problem I faced was to get respondents for my research as being commuters, most people were justifiably in a hurry.

**DATA ANALYSIS &  
INTERPRETATION**

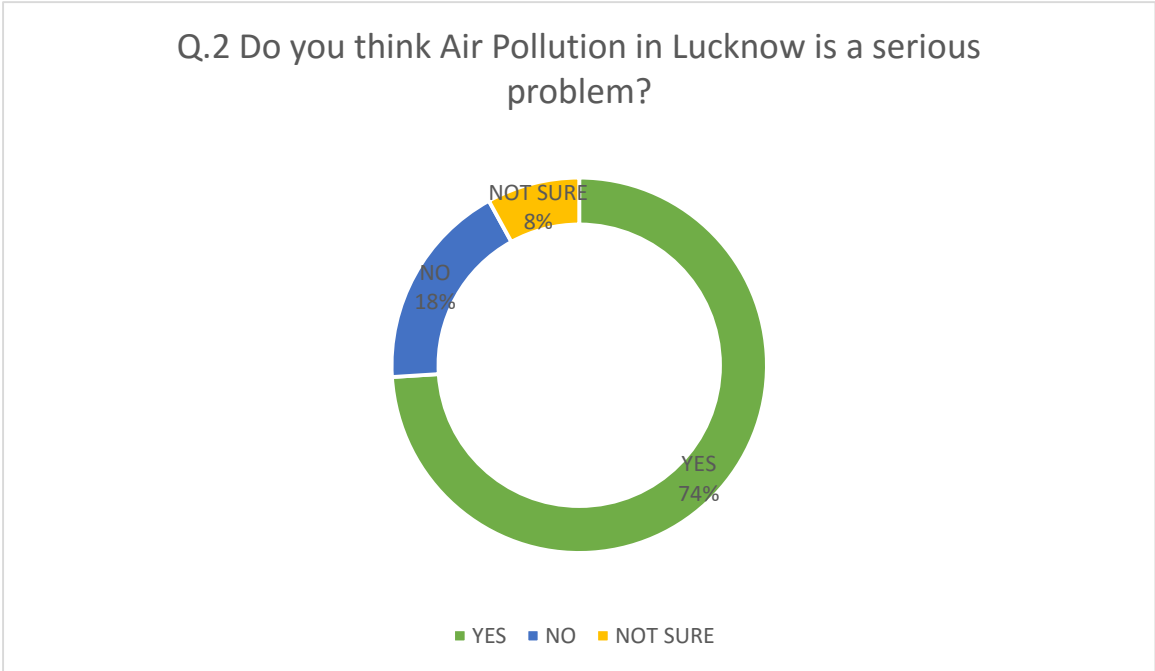
Q.1 Do you think the traffic in Lucknow is a serious problem?	
Response	Number of Respondents
Yes	41
No	5
Not Sure	4



**INTERPRETATION:**

A vast majority of people believe that the traffic problem in Lucknow is a serious issue.

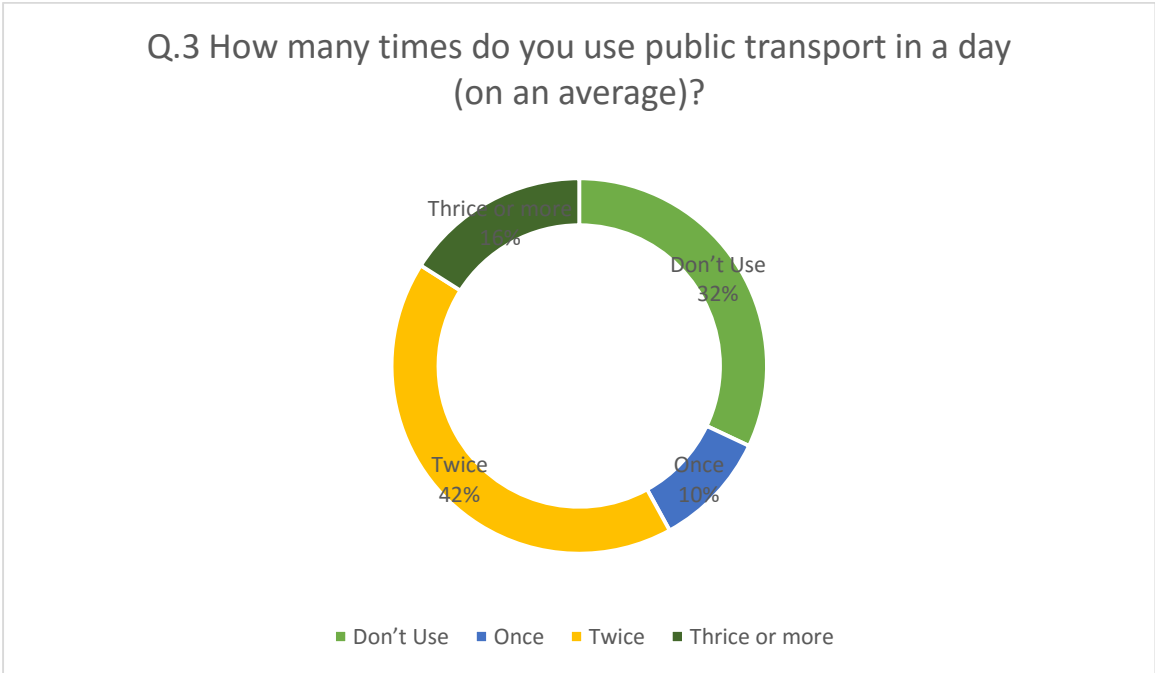
Q.2 Do you think Air Pollution in Lucknow is a serious problem?	
Response	Number of Respondents
Yes	37
No	9
Not Sure	4



**INTERPRETATION:**

A vast majority of people believe that Air Pollution in Lucknow is a serious problem.

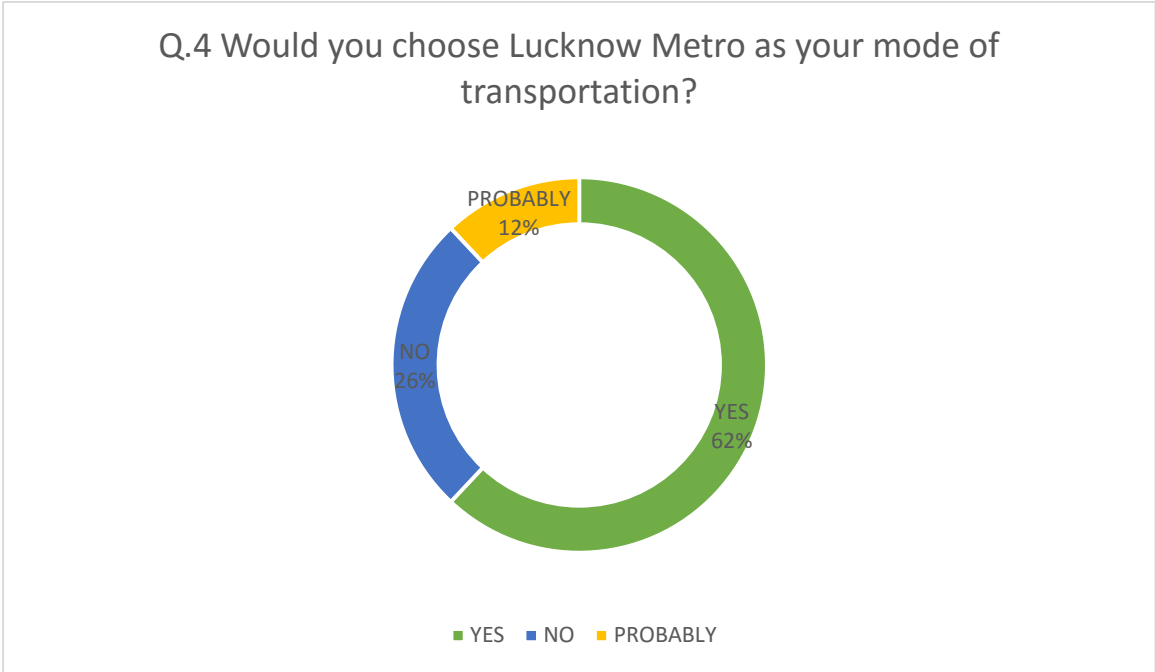
Q.3 How many times do you use public transport in a day (on an average)?	
Response	Number of Respondents
Do not use	16
Once	5
Twice	21
Thrice or more	8



**INTERPRETATION:**

A vast majority of people use public transport on a daily basis with a huge 58% using it at least twice a day.

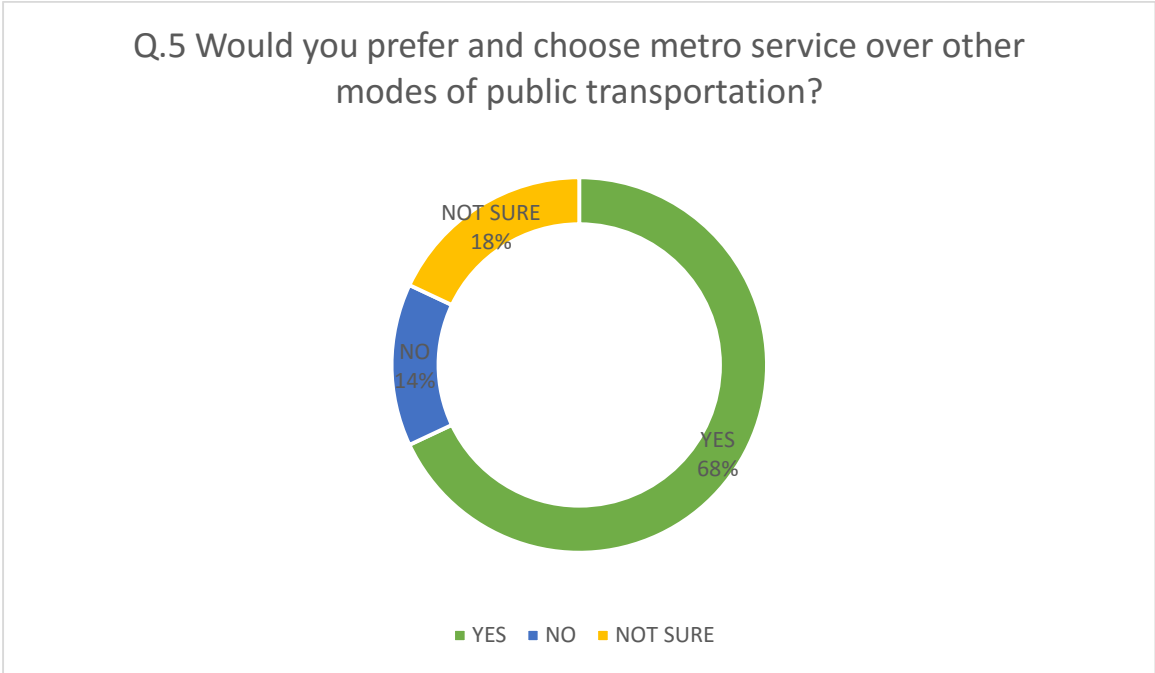
Q.4 Would you choose Lucknow Metro as your mode of transportation?	
Response	Number of Respondents
Yes	31
No	13
Probably	6



**INTERPRETATION:**

A majority of people are likely to choose the metro service as their mode of transportation.

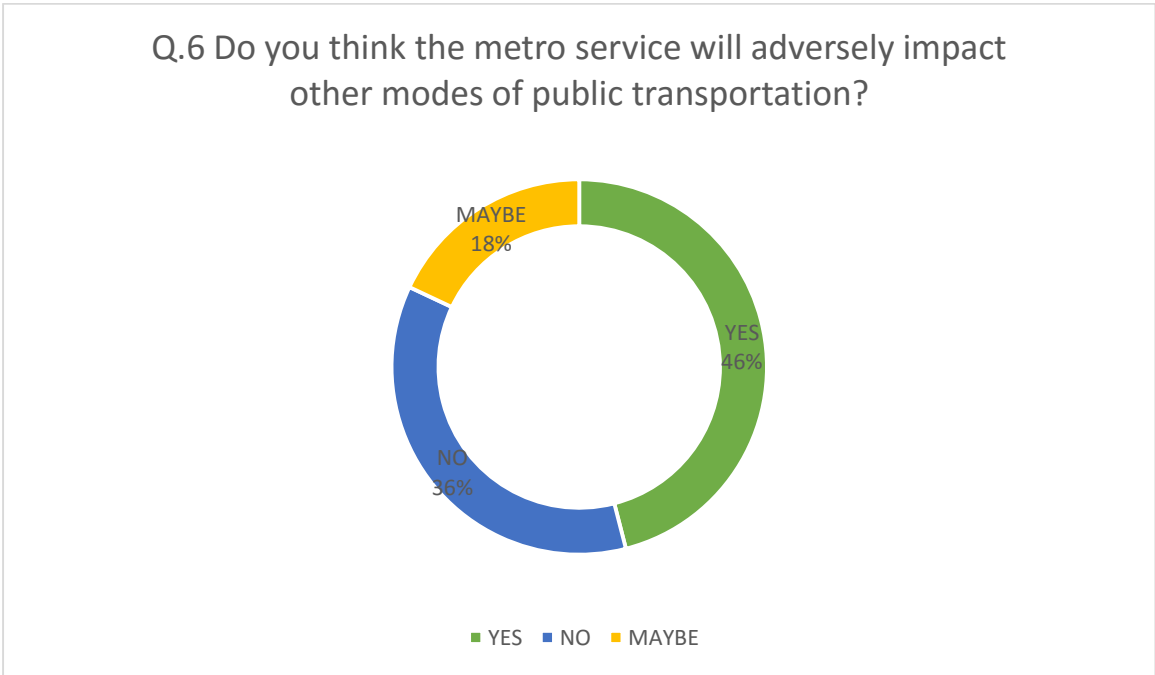
Q.5 Would you prefer and choose metro service over other modes of public transportation?	
Response	Number of Respondents
Yes	34
No	7
Not Sure	9



**INTERPRETATION:**

A majority of people are likely to prefer the metro service over other modes of public transportation.

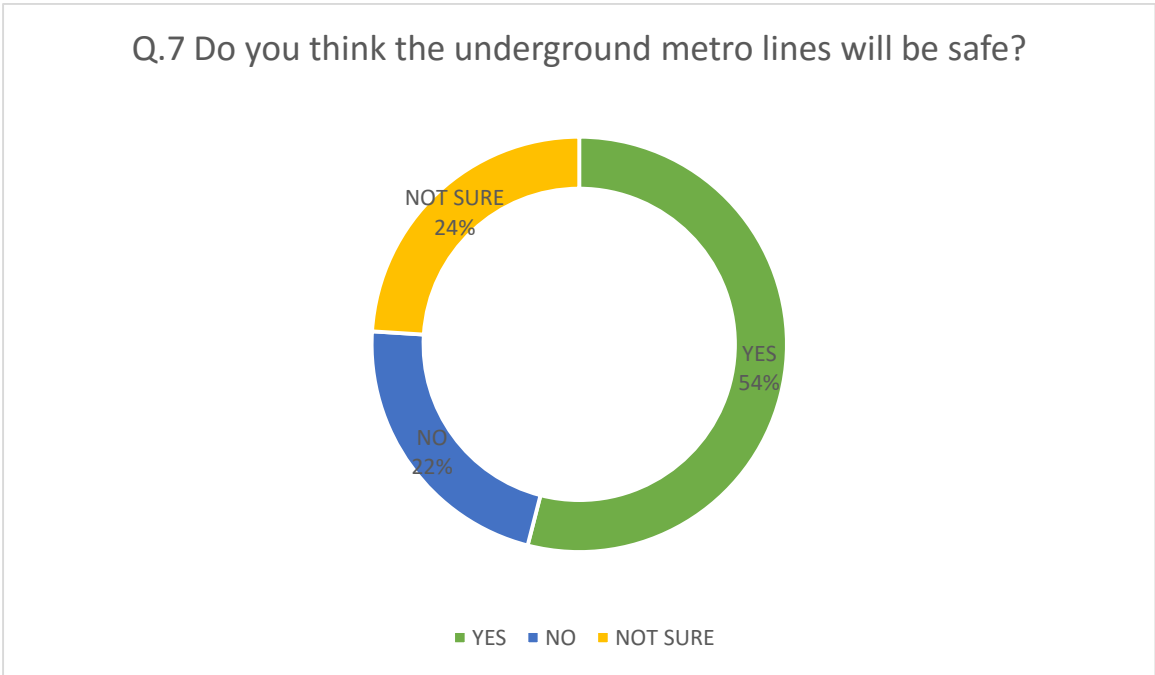
Q.6 Do you think the metro service will adversely impact other modes of public transportation?	
Response	Number of Respondents
Yes	23
No	18
Maybe	9



**INTERPRETATION:**

There is a mixed reaction from people regarding whether or not the metro service will adversely impact other modes of public transportation (autos, buses, etc.) although a majority of people think that it probably will.

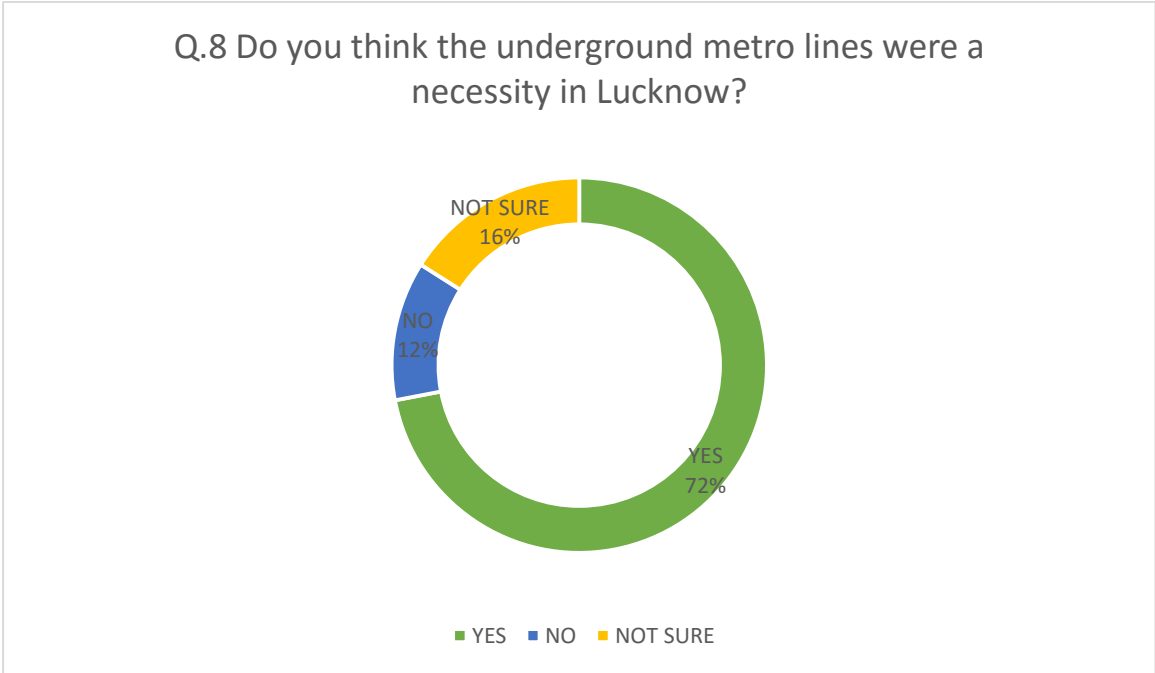
Q.7 Do you think the underground metro lines will be safe?	
Response	Number of Respondents
Yes	27
No	11
Not Sure	12



**INTERPRETATION:**

There is a mixed feeling among people regarding the safety aspect of underground metro lines. While a majority of people believe that underground metro lines will be safe, a sizeable section expresses their concern.

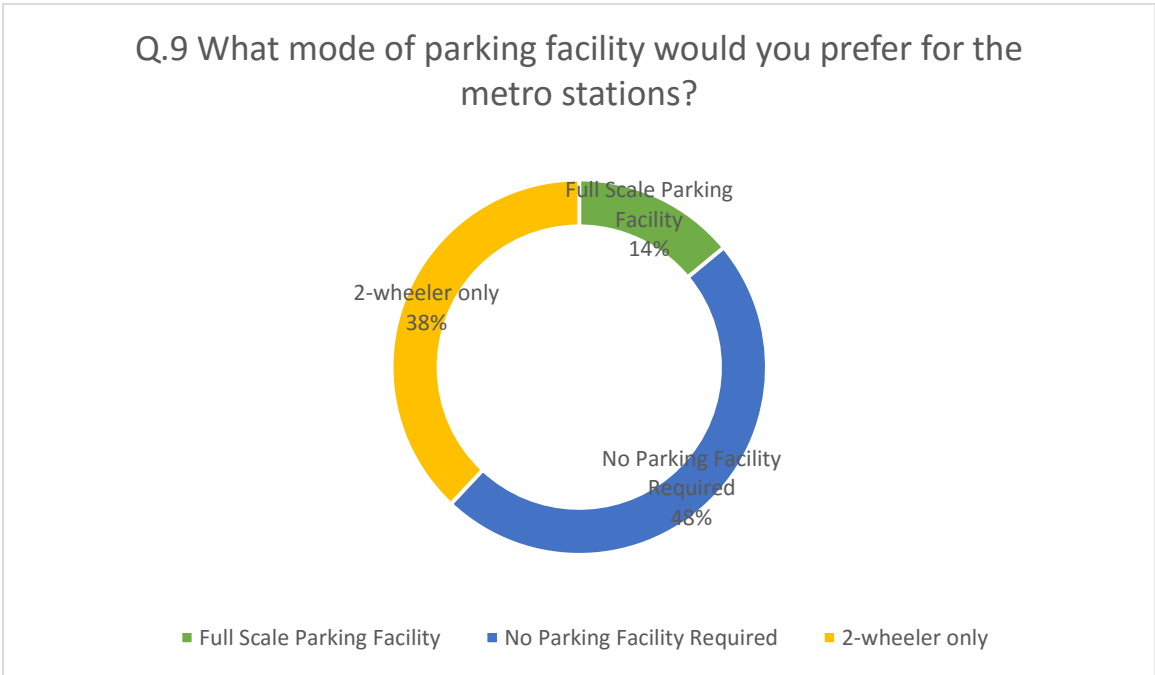
Q.8 Do you think the underground metro lines were a necessity in Lucknow?	
Response	Number of Respondents
Yes	36
No	6
Not Sure	8



**INTERPRETATION:**

A vast majority of people feel that underground metro lines in Lucknow were absolutely necessary.

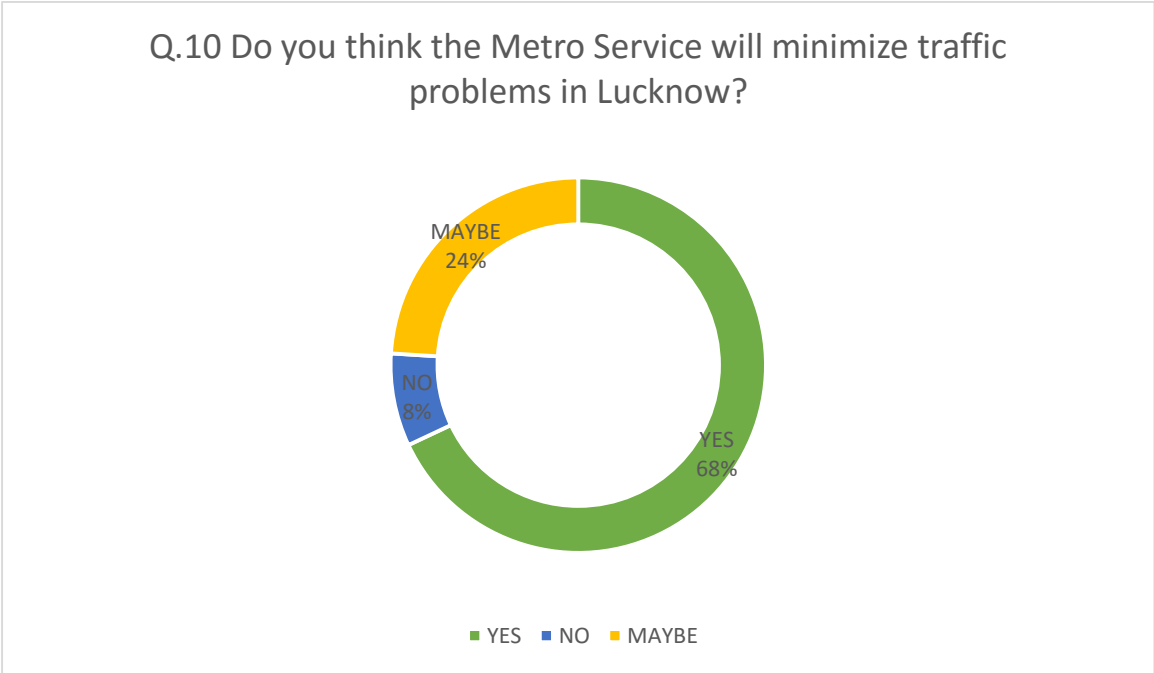
Q.9 What mode of parking facility would you prefer for the metro stations?	
Response	Number of Respondents
Full Scale Parking Facility	7
No Parking Facility Required	24
2-wheeler only	19



**INTERPRETATION:**

A sizeable section of people think that any kind of parking facility is not required at the metro stations while another large section demands a parking facility for two-wheelers at least.

Q.10 Do you think the Metro Service will minimize traffic problems in Lucknow?	
Response	Number of Respondents
Yes	34
No	4
Maybe	12



**INTERPRETATION:**

A resounding 68% of people believe that the Metro Service will definitely help in minimizing the traffic problems of Lucknow City while over 90% think it probably will.

# **FINDINGS**

- ❖ 82 % of the people believe that yes, traffic in Lucknow is a serious problem, 10% say no while 8% are not sure.
- ❖ 74 % of the people believe that yes, Air Pollution in Lucknow is a serious problem, 18% say no while 8% are not sure.
- ❖ 32% of the people don't use public transport, 10% use in once, 42% use it twice and 16% use it at least thrice; on a daily basis.
- ❖ 62% of the people are willing to choose metro as their mode of transportation, 26% are unwilling and 12% think they'll probably use it.
- ❖ 68% of the people are willing to choose the metro service over other modes of public transportation, 14% are not and 18% are not sure.
- ❖ 46% of the people believe that yes, the metro service will adversely impact the other modes of public transportation in Lucknow city, 36% say no while 18% are not sure.
- ❖ 54% of the people believe that underground metro lines will be safe, 22% don't and 24% are not sure.
- ❖ 72% of the people believe that underground metro lines were a necessity in Lucknow City, 12% don't and 16% are not sure.
- ❖ 14% of the people believe that a full scale parking facility is required at or near the metro stations, 48% believe that no facility is required while 38% say that at least a 2-wheeler parking facility should be made.
- ❖ 68% believe that the metro service will help in minimizing the traffic problem in lucknow,8% don't and 24% are not sure.

# **CONCLUSION**

- ❖ The people of Lucknow City believe that Traffic and Air Pollution is a major and serious problem for the people as well as its environment.
- ❖ A lot of people in the city rely on public transport for their daily commute in the city.
- ❖ A lot of people are willing to choose Lucknow Metro as their mode of transportation even over other modes of public transportation.
- ❖ People are still unclear as to whether the metro service will have any adverse impact on other modes of public transportation such as Buses, Rickshaws, Autos, Taxis, etc.
- ❖ A majority of people think that the Metro service will be safe but many are concerned especially taking into mind the recent accident.
- ❖ People believe that the underground metro lines were a necessity in the poorly planned city.
- ❖ Generally, people believe that there is no need for a parking facility near the metro stations, but many demand a small facility for parking two wheelers at least.
- ❖ Most people agree that the Metro Service will in fact be able to minimize the Traffic Problem in Lucknow City.

**SUGGESTIONS &  
RECOMMENDATIONS**

My suggestions and recommendations to the Lucknow Metro Rail Corporation are -

- ❖ Ensure that the construction of Metro rail is completed in time.
- ❖ Ensure that there are no undue delays of the metro trains once operational.
- ❖ Ensure that the metro service does not get overburdened and inefficient.
- ❖ Ensure that there is ample scope for further expansion of metro lines.
- ❖ Ensure cleanliness in coaches.
- ❖ Ensure safety of passengers.
- ❖ Make a separate women only coach.
- ❖ Ensure reservation of seats for handicapped people.
- ❖ Make a small parking facility for two wheelers at or near each metro station.
- ❖ Ban on-board smoking and carrying of firearms.
- ❖ Ensure the availability of spittoons in the metro stations.

# **BIBLIOGRAPHY**

### **BOOKS:**

- ❖ **“Research Methodology” – by C.R. Kothari**

### **WEBSITES**

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- ❖ **[www.google.com](http://www.google.com)**
- ❖ **[www.ndtv.com](http://www.ndtv.com)**
- ❖ **[www.timesofindia.indiatimes.com/city/lucknow](http://www.timesofindia.indiatimes.com/city/lucknow)**

# **ANNEXURE**

Q1. Do you think the traffic in Lucknow is a serious problem?

- YES
- NO
- NOT SURE

Q2. Do you think Air Pollution in Lucknow is a serious problem?

- YES
- NO
- NOT SURE

Q3. How many times do you use public transport in a day (on an average)?

- DO NOT USE
- ONCE
- TWICE
- THRICE OR MORE

Q4. Would you choose Lucknow Metro as your mode of transportation?

- YES
- NO
- PROBABLY

Q5. Would you prefer and choose metro service over other modes of public transportation?

- YES
- NO
- NOT SURE

Q6. Do you think the metro service will adversely impact other modes of public transportation?

- YES
- NO
- MAYBE

Q7. Do you think the underground metro lines will be safe?

- YES
- NO
- NOT SURE

Q8. Do you think the underground metro lines were a necessity in Lucknow?

- YES
- NO
- NOT SURE

Q9. What mode of parking facility would you prefer for the metro stations?

- FULL SCALE
- NONE REQUIRED
- 2-WHEELER ONLY

Q10. Do you think the Metro Service will minimize traffic problems in Lucknow?

- YES
- NO
- MAYBE