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# An Analysis of Factor's Contribution to Jaipur Ring Road : A Case Study of Jaipur Ring Road Project

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Abstract: The defining trait of urban areas is density: of people, activities, and structures. The defining trait of urban transportation is the ability to cope with this density while moving people and goods. Density creates challenges for urban transportation because of crowding and the expense of providing infrastructure in built-up areas. It also creates certain advantages because of economies of scale: some transportation activities are cheaper when carried out in large volumes. These characteristics mean that two of the most important phenomena in urban transportation are traffic congestion and mass transit. Cities are locations having a high level of accumulation and concentration of economic activities. They are complex spatial structures supported by infrastructures, including transport systems. The larger a city, the greater its complexity and the potential for disruptions, particularly when this complexity is not effectively managed. Urban productivity is highly dependent on the efficiency of its transport system to move labour, consumers, and freight between multiple origins and destinations. Additionally, transport terminals such as ports, airports, and railcards are located within urban areas, help anchor a city within a regional and global mobility system. Still, they are also contributing to a specific array of challenges..

Keywords: Ring Road, Corridor, NHAI, SH, Transport

### I. INTRODUCTION

Road transportation networks are connected with movements on constructed roads; carrying people and goods from one place to another by means of lorries, cars, etc. Transportation may be further categorized by the vehicle used or the purpose for transport itself.

### India's golden triangle

**IGT** is a tourist circuit which connects the national capital Delhi, Agra and Jaipur. The Golden Triangle is so called because of the triangular shape formed by the locations of New Delhi, Agra and Rajasthan on a map. The trips usually start in Delhi moving south to the site of Taj Mahal at Agra, then west, to the desert landscapes of Rajasthan. The Golden Triangle is now a well travelled route providing a good spectrum of the country's different landscapes. The circuit is about 720 km by road. Each leg is about 4 to 6 hours of drive. The Shatabdi express train also connects Delhi with Agra and Jaipur.

The road network consists of a system of interconnected paved carriageways which are designed to carry buses, cars and goods vehicles; the road network generally forms the most basic level of transport infrastructure within urban areas, and will link with all other areas, both within and beyond the boundaries of the urban area. The role of the road network in the attractiveness of communes in the department was initially proposed as a determining factor, but the correlation analysis between the distance to a strategic transport axis and the more or less strong attraction of communes was inconclusive.

The Indian road network is administered by various government authorities, given India's federal form of government. The following table shows the total length of India's road network by type of road and administering authority as of 31 March 2016.

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22



International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

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Category	Managing Authority
National highways	Ministry of Road Transport and Highways
State highways	Public works department of state/union territory
Other PWD roads	Public works department of state/union territory
Rural roads	Panchayats and PMGSY
Urban roads	Municipal corporations and municipalities
Project roads	Various government departments of states/union territories, and SAIL, NMDC and BRO

Road transportation networks are connected with movements on constructed roads; carrying people and goods from one place to another by means of lorries, cars, etc. Transportation may be further categorized by the vehicle used or the purpose for transport itself.

A ring road (also known as **beltline**, **beltway**, **circumferential** (**high**)**way**, **loop** or **orbital**) is a road or a series of connected roads encircling a town, city, or country. The most common purpose of a ring road is to assist in reducing traffic volumes in the urban centre, such as by offering an alternate route around the city for drivers who do not need to stop in the city core.

#### Outer Loop of City, Town, and Country called Ring Road



**Study Area :- Jaipur** is the capital and the largest city of the Indian state of Rajasthan. As of 2011, the city had a population of 3.1 million, making it the tenth most populous city in the country. Jaipur is also known as the Pink City, due to the dominant colour scheme of its buildings. It is located 268 km (167 miles) from the national capital New Delhi.

Jaipur was founded in 1727 by the Rajput ruler Jai Singh II, the ruler of Amer, after whom the city is named. It was one of the earliest planned cities of modern India, designed by Vidyadhar Bhattacharya. During the British Colonial period, the city served as the capital of Jaipur State. After independence in 1947, Jaipur was made the capital of the newly formed state of Rajasthan.

Jaipur is a popular tourist destination in India and forms a part of the west Golden Triangle tourist circuit along with Delhi and Agra (240 km, 149 mi). It also serves as a gateway to other tourist destinations in Rajasthan such

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23



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#### Volume 5, Issue 8, June 2025



as Jodhpur (348 km, 216 mi), Jaisalmer (571 km, 355 mi), Udaipur (421 km, 262 mi), Kota (252 km, 156 mi) and Mount Abu (520 km, 323 mi). Jaipur is located 616 km from Shimla.

On 6 July 2019, UNESCO World Heritage Committee inscribed Jaipur the 'Pink City of India' among its World Heritage Sites. The city is also home to the UNESCO World Heritage Sites Amber Fort and Jantar Mantar.

Jaipur, the "Pink City of India" is located in the eastern side of Rajasthan and it is surrounded by Aravalli Hill at its three sides. City wise Alwar and Sikar are two cities located at it northern side, Ajmer, Nagaur, and Sikar are situated at west, Ajmer, Sawai Madhopur, Tonk at the southern side and Dausa and Bharatpur at the East side of Jaipur. Jaipur is located at the average height of 1417 ft from sea base, and geographical position wise it is located at Jaipur is located on 26° 55' north latitude and 75° 49' east longitude. It's municipal boundary extends from 26 degree 46 minutes north latitude to 27 degree 01 minutes north latitude and 75 degree 37 minutes east longitude to 76 degree 57 minutes east longitude.



Figure: 1. Location map of study area



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#### **Objective :-**

- Organised and rapid development of the Jaipur Region
- Boost Jaipur economy leveraging Express Freight and Industrial Corridors (Delhi-Mumbai)
- Protect the socio-economic interests of the people
- Decongest the city of Jaipur by creation and connection of new growth centres

#### In urban city we have faced many problem like

- a. Traffic congestion and parking difficulties
- b. Longer commuting
- c. Public transport inadequacy
- d. Difficulties for non-motorized transport
- e. Loss of public space
- f. High infrastructure maintenance costs
- g. Environmental impacts and energy consumption
- h. Accidents and safety
- i. Land footprint
- j. Freight distribution

So we will now study about solutions of these problems.

#### **Hypotheses:-**

- Efficient Regional Transport Connectivity
- Distance and Travel Time Savings
- Bypass for Freight Traffic relieving city congestion
- Reduced air and noise pollution

### **II. METHODOLOGY**

The article is a combined analysis of primary data, secondary data and personal visit in the study area. Primary data are collected from observation of natural setting, field experiment and personal interaction with the affected people. Secondary data has been collected from various government and non government organization as NHAI, JDA .









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#### **Facilities Provided for Project Affected People**

- Internal Scheme Level Roads with Streetlights
- 24-Hour Dual Water Supply Treated Water and Recycled Water
- Package Sewage Treatment Plant
- Local distribution with underground power lines (<33 KV)
- Dedicated Infrastructure Corridor (Water, Sewerage, Electricity and Space Provision for Gas and Telecom)
- Space provision for other amenities and open spaces

#### **Alignment Selection**

- · Improved connectivity for potential growth zones
- Freight transportation to avoid city road network reduced air pollution
- · Passes through predominantly barren land and minimises agricultural land acquisition
- Bypasses most villages and Forest/Ecological areas
- · Minimises construction of new structures and thereby cost of transportation corridor

#### **Interchanges and Structures**



#### 6 NH Interchanges, 3 SH Interchanges, 1 SEZ, 4ROB's

Jaipur Ring Road is a project of Jaipur Development Authority to reduce increasing traffic of Jaipur city which connects NH-11 (Agra Road), NH-8 (Ajmer Road), NH-12 (Tonk Road), and NH-12 (Malpura Road) having a length of 150 km. The 57 km out of 150 km long six-lane Jaipur Ring Road has been completed at a cost of Rs. 1217 crore which was inaugurated by Sushma Swaraj, Arun Jaitley and Nitin Gadkari.

### Jaipur Ring Road called thatState of Art

- Km 0 to 20 (Agra Road to Tonk Road)
- Km 20 to 33 (Tonk Road to Malpura Road)

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- Km 33 to 47 (Malpura Road to Ajmer Road)
- Km 47 to 63 (Ajmer Road to Kalwar Road)
- Km 63 to Km 87 (Kalwar Road to Sikar Road)
- Km 87 to 111 (Sikar Road to Delhi Road)
- Km 111 To 133 (Delhi Road to Jamwa Ramgarh Road)
- Km 133 to 144 (Jamwa Ramgarh Road to Agra Road)



#### **Transportation Corridor Features**

- 144 km length
- 9 interchanges
- 10 major bridges
- 7 minor bridges
- 4 ROBs
- 38 underpasses
- 89 culverts
- Connectivity across Transport Corridor on average every 3 km

### Rehabilitation and Resettlement GoR Policy

- Those land owners who give land free of cost compensation would be 25% of Developed land
- · Development will include leveled land with water, sewer, and power
- 20% residential land and 5% commercial land
- Compensation in cash for existing structures
- Attempts will be made to re-locate in the same village
- Developed plots of different sizes would be allocated
- Land already notified for South Alignment
- Land to be notified for North Alignment, Interchanges, and Node Developments

#### **Facilities Provided**

- Internal Scheme Level Roads with Streetlights
- Dual Water Supply Distribution System Treated Water and Recycled Water
- · Sewage Collection System and Sewage Treatment Plants
- Local Distribution Network with underground power lines (< 33 KV line)
- Dedicated Infrastructure Corridor
- Space provision for other amenities and open spaces

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#### Why this project:-

- Efficient Regional Transport Connectivity
- Distance and Travel Time Savings
- Bypass for Freight Traffic relieving city congestion
- Reduced air and noise pollution

#### **III. CONCLUSION**

The study acknowledges the importance of infrastructural projects like that of ring roads. The ideology behind ring road development corridor is to create infrastructure to meet rapid growth and urbanisation. The project will also create provision for sport zones, special economic zones, garment processing areas, exhibition grounds, transport nodes, hospitals, satellite towns, etc. This project will serve a dual purpose of providing improved access to areas that have already developed and will also serve as an impetus to the growth of under- developed areas. The technical knowhow in the Baltic countries will enable us to achieve this task in a more sustainable manner both from infrastructural and environmental perspectives. The Washington State Ring road project is an ideal project that shows us that the development of the facilities in the influence area can lead to a more holistic development. This endeavour is being viewed as a catalyst for economic growth and regional development. The immediate and direct positive impacts of the project include employment and business opportunity, better roads and transport facility to the nearby areas, other communication accessibility, easy access to basic services like schools, health centres, etc, and local marketing of agricultural produce. The projects like this definitely create hindrances for the public as they restrict the movement. The same has been observed and the continuous delaying has added an extra burden and has given a negative connotation in the minds of people. Also, the inter- departmental lacks coordination, which led to slow paced transition. The large scale deforestation, seeping of chemicals in ground water leads to contamination, habitat destruction causes long term ecological imbalance. But the merits of this project supersedes the demerits and if this project is carried out in a sustainable and justified manner than it shall manifest huge economical success for the Jaipur District.

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