

Potential of Development along Metro Corridor Study Area: Ghitorni to Huda City Centre

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Abstract—Mass Rail Transport (Transit) Systems (MRTS) solve many of the issues raised in Asian contexts, and support the development of low-carbon, park and ride, walk-able neighborhoods. The Site lies along the Mehrauli-Gurgaon road and is flanked by low density development on either side. It is an important connector between Gurgaon and Delhi, the other access road to Gurgaon other than NH8. This stretch is an entry into Gurgaon through road and as well as the metro. Most Indian metropolitan cities have histories encompassing many centuries of growth, and their complex morphogenetic characteristics go hand in hand with age. Though the city centers predominantly comprise narrow roads, they support bustling economic activities. To observe the potential of development along the metro corridor, I have studied the area of Ghitorni metro station to Huda city Centre metro station. We need to analyze how metro rail project has helped in other parts of the country. This study tries to build a relation among accessibility benefits, impact on proximate land use and land value gains.

Keywords: *Metro, Land Use, Land Value, Value Capture.*

1. INTRODUCTION

Indian cities have spread over vast unmanageable areas. Beyond a certain stage or urban boundary, long distance commuting becomes costly, and associated public transport issues of congestion, travel delay etc. dominate. The city centre with its narrow streets built before the invention of the car and bus currently reduces accessibility and attraction, encouraging stand-still traffic across all arterials, and becomes sensitive and uneconomical in terms of road widening.

Mass Rail Transport (Transit) Systems (MRTS) solve many of the issues raised in Asian contexts, and support the development of low-carbon, park and ride, walk-able neighbourhoods. Of course many Indian cities were planned much earlier than metro rail concepts and possibilities were realized, therefore, much of the anticipated developmental impact of the metro rail projects are not easily integrated into current Master Plans.

Meanwhile, the lack of directed and regulated metro rail projects disadvantages effective city growth, especially limiting the city's function and structure. This study attempts to conceptualize better development scenarios in Delhi & Gurgaon.

It is hypothesized that the introduction of metro rail is likely to change each city's land use pattern and intensity of use, thereby altering overall city structure.

The public transportation system does much more than merely carrying its citizens from one place to another - it plays a vital role in encouraging and controlling urban growth.

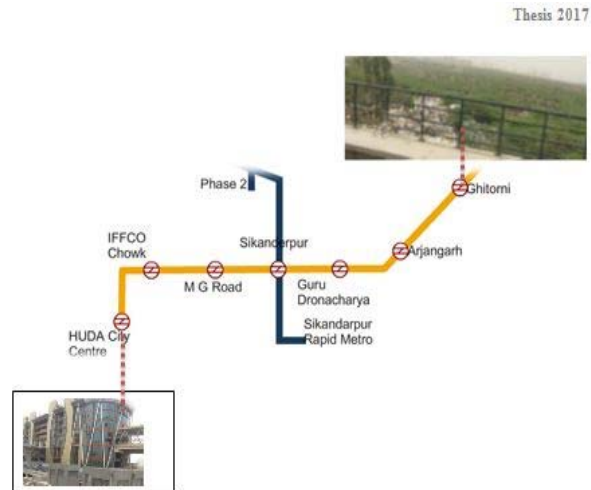
Transport infrastructure projects embrace direct as well as indirect benefits.

The direct user benefits such as reduced travel time, but also indirect benefits such as land value increase, land use densification etc.

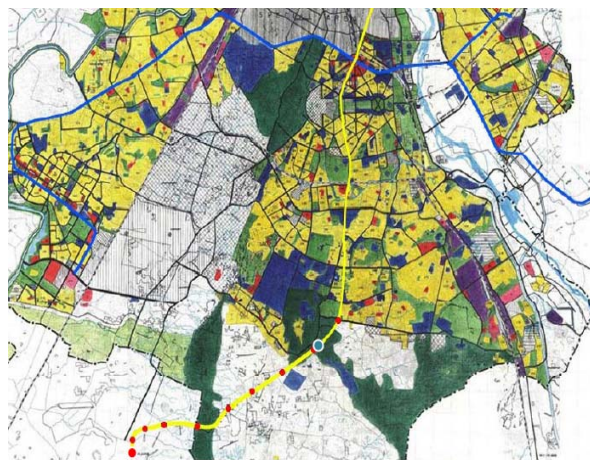
The benefits of transportation investments get capitalized in real estate market in the short-term land-use adjustments occur over longer term.

This potential to produce economic benefits has become important in decision-making process of the transport investment.

To observe the potential of development along the metro corridor, I have studied the area of Ghitorni metro station to Huda city Centre metro station. We need to analyse how metro rail project has helped in other parts of the country.



**STUDY AREA - Phase II Yellow Line Metro Corridor
from Ghitorni to Huda city Centre:**



Source: Delhi Master Plan 2021

Over the years the metro was built, prices along the lines have increased and interestingly, the increase has actually closed the gaps between prices in the periphery and the centre of the city.

The value appreciation varies from place to place influenced by various parameters. The study identifies parameters that influence the scale of increment in land values.

11 kms Stretch along the Yellow line from GHITORNI to HUDA City Centre, covering 7 metro stations of Ghitorni Arjangarh, Guru Dronacharya, Sikandarpur, M.G. Road, Iffco Chowk And Huda City Centre.

Accessibility benefits by improvement in public transport impetus to development and hence should be taken as an opportunity to develop the city.

This study tries to build a relation among accessibility benefits, impact on proximate land use and land value gains.

2. OBJECTIVES OF THE RESEARCH:

To assess land use changes and land value increment along the metro corridor at different points of time.

To review impact of metro on development patterns of cities.

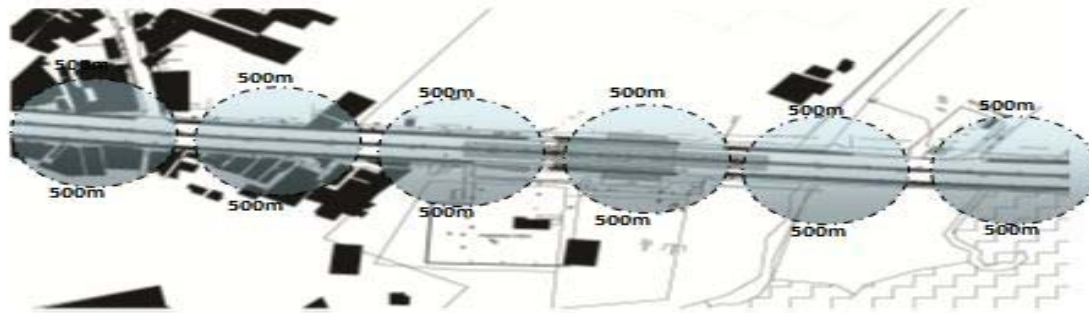
To assess the existing urban spatial structure, land use, land value, mass transport system characteristics.

To prepare practical recommendation and guide lines for local authorities for mass transit supported guided urban development.

3. METHODOLOGY:

The land value has been assessed through market guidance value gazettes and also by direct interaction with developers, real estate agents.

Value appreciation has been captured through change in accessibility, change in ownership patterns, land consolidations, number of transactions, distance from CBD etc. **The metro and the city**



The metro isn't just good for travel though. Its main aim was to reduce the number of cars plying the roads every day in Delhi – and so it does.

Less cars = less smog = less pollution and cleaner air. But its environment friendliness extends far beyond mere pollution reduction. Its regenerative braking systems save the country 400,000 carbon credits a year and now they're looking to reduce the metro's reliance on non-renewable energy resources even further by using solar power. And let's not forget that most of the stations along the Metro's Blue Line all harvest rainwater for the city.

Metro's good for: **real estate prices.** Investors in real estate here don't follow the money; they follow the railway tracks. Over the years the metro was built, prices along the lines have increased and interestingly, the increase has actually closed the gaps between prices in the periphery and the centre of the city.

Over time, **residential property** value has **appreciated** by a little more than 11 per cent and the increase in value is even greater for commercial properties. DMRC's own property developments in the area. The **metro** isn't just a metro, **it's an artery, injecting life into the city's economy.**

MRT at Global Level: Case Studies

Austin, Texas

Dallas has a positive effect on property value and economic development. Residential and office buildings experienced the greatest positive impact, with property values increasing by 12.6 and 13.2 percent respectively, as compared to the control group. However, retail and industrial did not experience a significant increase in property value as a result of their proximity to the light rail station.

Changes in Median Property Valuations, 1997-2001

Data Set	Office	Residential	Residential-Vacant	Retail	Industrial
DART Properties	24.7%	32.1%	11.1%	28.3%	13.0%
Control Group	11.5%	19.5%	0.0%	30.4%	21.5%

Source: Bernard L. Weinstein and Terry Clower – “An Assessment of the DART LRT on Taxable Property Valuations and Transit Oriented Development”

Distribution Distance of Parcels

Distance	Parcels	Distribution	Cumulative Distribution
Within a quarter of a mile	508	13.8%	13.8%
Quarter to half mile	322	8.8%	22.6%
Half to three quarter mile	197	5.4%	27.9%
Three-quarter to 1 mile	78	2.1%	30.1%
Beyond 1 mile	2,570	69.9%	100%
Total	3,675	100%	

Source: Rachel Weinberger “Commercial Rents and Transportation Improvements: Case of Santa Clara County’s Light Rail”

To many employers, commuter rail lines function as conduits to affordable housing, helping not only to temper wages but also recruit and retain workers.

The study found that distance from a Metro Link station has a significant influence on property values.

Manila

The **Manila Light Rail Transit System**, popularly and informally known as the **LRT**, is a metropolitan rail system serving the Metro Manila area in the Philippines.

The network consists of two lines: the original LRT Line 1 (LRT-1) or Green Line, and the more modern LRT Line 2 (LRT-2), or Blue Line. The LRT-1 is aligned in a general north–south direction. In conjunction with the MRT-3—also known as the new Yellow Line

Impact of Metro on Manila

On a corridor basis, it appears to accelerate the transformation to higher densities of development (as observed in the vicinity of many stations). The main obstacle to continued densification is really related to the willingness of land owners to open their property to such development

Conclusion:

The study found that commercial land located in a business district and within a quarter mile of a commuter rail station experienced a 120 percent price premium and distance from a Metro Link station has a significant influence on property values.

MRT in INDIA

In India, it is indubitably Metro time. Year 2015 saw the unveiling of metro rails in Chennai and Jaipur, along with the expansion of Metro lines in Delhi and Bangalore. Currently, there are seven operational metro systems in India.

- Kolkata was the first city to be blessed with a metro rail in 1984, followed by Delhi in 1995. The success stories of Kolkata and Delhi paved the way for metro in others cities such as Bangalore (2011), Gurgaon (2013), Mumbai (2014) and Jaipur (2015).
- These cities show a uniformly positive change after the implementation of metros along their metro corridors.
- The deployment of a Metro directly impacts real estate through increase in land value, land use change and densification along the Metro corridor. Such projects also result in increased urban real estate values, since consumers are willing to pay more for the convenience that comes along.

IMPACT ON REAL ESTATE

- The impact of a Metro on real estate along its corridor is direct and powerful. Of course, retail or commercial areas benefit due to improved accessibility, but residential areas receive a dual demand driver
- The Metro generates jobs which result in increased demand for homes, and the reduced commuting costs and convenience draw buyers to areas close to the Metro.
- In areas closest the stations, the visible impact is higher on commercial property values than on residential values, and the effect diminishes as the distance from the station increases

- Land values are inversely related to the distance of land parcels from the metro station. Ordinarily, land values decrease along with the distance from Metro stations. Technically, a Metro exerts an influence buffer of up to 1 km radius, with the maximum influence being within 500 meters.
- The population density of nearby residential areas will increase after the launch of a Metro because of proximity preference, along with the increases demand for retail and office spaces. A constant rise in the land prices in the proximate areas is usually seen during all project stages.
- The transport sector plays a crucial role in the development process of a country.
- It has a direct impact on living standards both in terms of economic as well as social well-being. Demand for transportation related services is generally a derived demand for other economic and social activities such as activities related to health, education, employment, etc.
- Station yards with large areas of surface parking have developable land up to 2 acres. Land prices are higher if a land parcel is located within walking distance, but not directly next to the station. The increase in the land values is reflected in the area served, especially around the stations. There is a considerable increase in demand of retail and office spaces around existing metro stations.

Transport infrastructure needs are assessed based on the demand scenario of such activities which form the potential market for transport infrastructure and services. It is in this context, that the provision of transport related infrastructure and services varies in accordance with its market potential.

Characteristics of the mobility needs of the people form the basis of the types of infrastructural needs and characteristics of the required transportation services



Ghitorni: Finely grained high density compact Urban Villages



Loosely grained sprawling farm housing on land parcel up to 2 acres.

Large Government land parcels that's are almost barren and are up to 15 Ha.



Guru Dronacharya 2000



Guru Dronacharya 2017



Iffco Chowk 2004



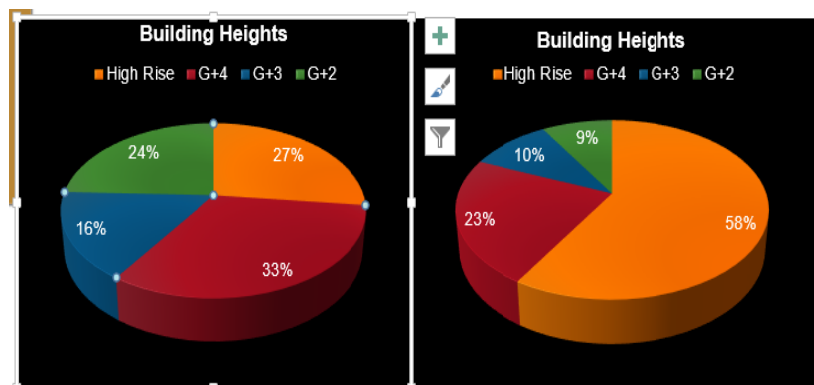
Iffco Chowk 2017

The expansion of the Metro, is likely to generate more jobs in the region and increase residential activity in the area.

The standard of living, of people around the Metro areas, is likely to improve as land and property prices rise. In the National Capital Region (NCR), property prices have appreciated by 16%-17% annually, after the arrival of metro stations.

- Approximately 42% of the housing and employment population and 75% of the commercial and office floor areas are located within a radius of 500 meters of railway stations which demonstrates the integration of land use and transport planning and a compact and efficient urban development approach.

The compact development have various residential housing choices within walking distance of a transit facility ranging from 0.4 to 0.8 km radius, or up to a 15 minute walk



Source: Google Earth 2004 and 2017

Recommendations:

Increase the Potential for Development

- The potential of commercial utilization of real estate along/close to the corridor/metro stations alignment.
- Existing Corridor is very attractive for economic growth.

There is potential of Densification, Institutional Development, Redevelopment and conversion.

- Public/semi Public Areas can be more intensified.
- There is already 40% commercial area to enhance the potential of the area Mixed land Use can be the one option.
- There is vast open ground near IFFCO Chowk Metro named Huda Ground which can be replaced The space remains vacant at most of the time So it can be developed for value capturing.
- With careful planning, **design, financial modelling and phasing** sustainable TOD communities can be created.
- Unplanned development along metro stretches may be considered for redevelopment provided the area are **developed as per lay out with scope for incentives** in form of additional FAR.

- Carriage way under the metro station **should not be occupied /encroached** by parking /informal sector activities.
- **Open space/green zones** along metro stretches needs to be further **strengthened** the **/conserved/beautified** and appropriately used for recreational activities.
- **Ultimate objective of TOD is to encourage pedestrian movement** and hence, those kind of uses may be allowed which generates large footfalls and not increased use of personalized modes.
- Low rise commercial /manufacturing use may be discouraged around metro stretch and the existing ones may be redeveloped by way of incentives
- **Multilevel parking be provided** at origin /destination, metro stations and parking in between at stations be provided subject to requirement.

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