

# Regional Rapid Transit System



Testing the Commuters' Pulse

2025

A survey-based report on the commuter sentiment, behavioural shifts, and the strategic roadmap for India's emerging regional rapid transit system.

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# Foreword



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India's urban landscape is entering a rapid growth phase, marked by expanding economic horizons and the rise of a vibrant multi-nodal system. Major metropolitan regions such as, Delhi NCR, Greater Mumbai, Bengaluru, Chennai, Hyderabad etc have grown into dynamic engines of national prosperity, powered by innovation, global integration, and strong talent ecosystems. However, this unprecedented expansion has also intensified congestion, extended commute times and placed enormous stress on the urban infrastructure. Growing populations, rising vehicle ownership, and concentrated economic activity have pushed urban transport networks, utilities, and public services to their limits, creating bottlenecks that threaten long-term productivity and quality of life.

However, this challenge also opens a unique opportunity for a well-distributed and interconnected urban future. As people increasingly live, work, and study across multiple city clusters, seamless regional mobility becomes essential to sustaining this next phase of India's development.

In this context, Regional Rapid Transit Systems (RRTS) assume exceptional importance. RRTS offers the ability to connect neighbouring cities at high speed and high frequency, making it easier for people and businesses to access opportunities across regions. By enabling swift travel, expanding labour market catchments, and supporting multi city economic corridors, RRTS becomes a catalyst for new patterns of growth. It strengthens the natural synergies between metropolitan centres and upcoming cities, helping each reinforce the other's strengths.

Globally, RRTS has played a transformative role in shaping prosperous urban regions and fostering balanced development. India's own aspirations align closely with these global successes. The country's

expanding economic geography is demands for modern, high-capacity regional mobility systems.

The establishment of the National Capital Region Transport Corporation (NCRTC) represents a landmark step in this direction. As the implementing agency for India's first RRTS corridor, NCRTC is pioneering a model of integrated regional mobility that can inspire similar initiatives across other major metropolitan regions.

Early insights from the Delhi-Meerut corridor show strong enthusiasm for this new mode of travel. Users value not only the speed and comfort but also the ease of connectivity and the confidence of predictable. Aspirational users highlight the importance of accessibility, seamless last mile connectivity and multi-modal integration, key elements to be strengthen as the system evolves.

The potential of RRTS extends far beyond mobility. It supports vibrant regional economies, encourages new forms of urban development, and creates opportunities for investment opportunities, to collaborate across wider geographies. By interconnecting people and opportunities, RRTS reinforces India's vision of inclusive and regionally balanced progress.

Hence, as metropolitan regions expand their economic influence, the adoption of rapid regional connectivity will serve as a strong foundation for building interconnected, competitive, and future-ready urban clusters. Such systems will enable smoother movement of people and ideas, strengthen economic linkages between neighbouring cities, support innovation across wider geographies, and create vibrant regional corridors where talent, businesses, and opportunities can thrive together. By knitting multiple urban centres into cohesive economic regions, rapid regional transit will play a pivotal role in shaping India's next generation of growth.



# The Regional Imperative: Growth Beyond Metros, Need for High-Speed Regional Connectivity

## 1.1. Urban Transformations and Connectivity Requirements

India's urban system has been undergoing a profound transformation over the past several decades, marked by significant economic restructuring, spatial expansion, and a deepening concentration of economic activity within its major metropolitan regions. Metropolises such as Mumbai, Delhi, Bengaluru, Chennai, and Hyderabad have evolved far beyond their historical roles as administrative or commercial centres. They now function as powerful agglomerations that anchor national economic growth, attract global capital, and host a dense concentration of advanced services and manufacturing industries.

The economic footprint of these cities has expanded substantially over time. Their dynamism is driven by sectors such as information technology, business and financial services, pharmaceuticals, biotechnology, entertainment, logistics, and high-end manufacturing. The concentration of talent, infrastructure, and institutional capacity in the key metros has enabled them to integrate deeply with global value chains and international economic networks.



This rapid growth has also attracted large-scale migration from rural and semi-urban regions in search of employment, education, and improved quality of life. As a result, India's metropolitan regions are experiencing accelerating demographic expansion, rising population densities, and increasing pressure on essential infrastructure such as transport, housing, water supply, waste management, and public services. Congestion, rising land prices, environmental stress, and infrastructure deficits have become defining challenges of the country's largest cities.

At the same time, these metropolitan economies are expanding well beyond their traditional cores. Built-up areas are spreading rapidly into peri-urban and suburban regions, often forming continuous urban corridors. This outward expansion has created longer daily travel distances, fragmented labour markets, and an increasing dependency on road-based transportation. The result is escalating congestion, extended commute times, and growing environmental stress.

This spatial reconfiguration is giving rise to emerging multi-nodal metropolitan regions, where economic activity, residential growth, and industrial development are distributed across multiple interconnected urban centres, satellite towns, and peripheral nodes. However, the ability of these newly forming urban clusters to function as integrated economic systems depends critically on the quality of regional connectivity.

Currently, regional mobility in India relies heavily on road-based systems, such as national highways, state highways, and expressways, supplemented by conventional rail networks. While these systems support substantial volumes of movement, they are increasingly unable to meet the demands of urban regions that are becoming more spatially dispersed, economically interdependent, and functionally integrated.

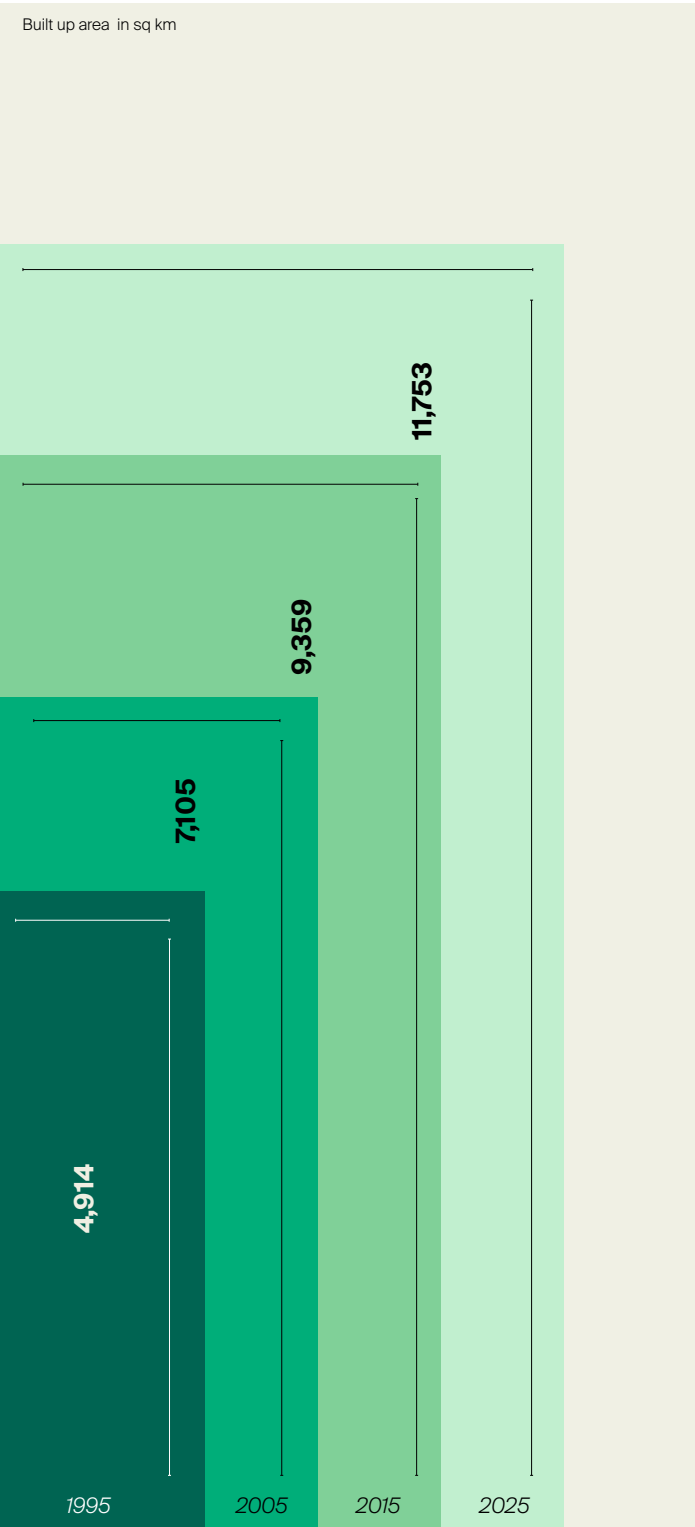
This has created a structural disconnect between the region of opportunity and the region of residence. Even as economic activity remains concentrated in metropolitan hubs, affordability constraints, saturation, and changing lifestyle preferences are pushing residential development into peripheral towns and distant suburbs. Commuting patterns now routinely transcend municipal and metropolitan boundaries, giving rise to emerging regional labour markets. Yet existing mobility systems are not equipped to support the high-frequency, high-speed intercity travel required for such regionalised economies to function efficiently.

India is therefore at a pivotal point in its urban evolution. The saturation of major metropolises, together with the expansion of suburban and peri-urban clusters, presents a unique opportunity to develop a more balanced, multi-nodal urban system one in which economic growth is spatially distributed but functionally interconnected. However, the absence of seamless regional mobility remains the most significant barrier to realising this transition.

In this context, the development of rapid regional connectivity particularly through Regional Rapid Transit Systems (RRTS), becomes essential. Such systems offer a transformative

Exhibit 1:

**Built-up Area by Degree of Urbanisation in Indian Cities has Increased by 2.3x in the Last 30 years**



Source: World Urbanisation Prospects (2025), United Nations

mechanism to bridge the widening gap between metropolitan cores and their expanding hinterlands. They can dramatically reduce travel times, enlarge labour market catchment areas, strengthen productivity, support industrial clustering, and enable peripheral urban nodes to integrate more closely with national and global value chains.

The creation of robust regional mobility networks is not merely an infrastructure investment; it is a structural enabler of India's next phase of urban and economic development. By connecting emerging urban clusters with established metropolitan hubs, India can foster a more balanced, resilient, and competitive urban system one capable of sustaining long-term economic dynamism and supporting broad-based regional development.

Inadequate regional mobility also imposes significant economic and social costs within India's metropolitan regions. Congestion and long commutes diminish productivity, reduce workers' access to diverse job markets, and weaken the ability of firms to tap into large labour pools. The absence of rapid and reliable intercity transit constrains agglomeration benefits by limiting the flow of labour, ideas, and services across the metropolitan region. As a result, cities risk becoming spatially inefficient, with growth increasingly shaped by bottlenecks rather than economic potential.

A well-designed regional mobility framework is therefore critical for India's emerging multi-nodal urban structure. RRTS corridors can anchor new development patterns by encouraging transit-oriented growth, supporting industrial corridors, and aligning land-use decisions with regional economic priorities. They can also help redistribute population pressures by making peripheral towns viable residential options while ensuring strong economic integration with core metropolitan centres. In doing so, regional transit systems can transform India's metropolitan regions into more cohesive, efficient, and sustainable economic spaces capable of meeting the demands of a rapidly urbanising nation.

This report builds on these insights by examining the social and economic impacts of rapid regional transit in key global economies and tracing its evolution within India, supported by a primary survey. Through this perspective, it highlights how RRTS can serve as a structural catalyst for shaping the country's next phase of urban development.



# Global Experiences with Regional Rapid Transit

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Globally, advanced regional transit networks have played a pivotal role in shaping metropolitan development, enhancing labour mobility, and fostering balanced spatial growth. These systems demonstrate how high-speed, high-capacity regional rail can effectively integrate multiple urban centres into a cohesive economic zone, thereby improving productivity and overall quality of life. Examining global precedents provides valuable insights into the transformative potential of rapid regional mobility and underscores its relevance for the Indian context.



## Tokyo

### Metropolitan Intercity Railway & Greater Tokyo Rail Network

Tokyo's regional rail system is widely considered the most advanced example of metropolitan-scale integration. The Greater Tokyo rail network including JR East, private railways, and the Metropolitan Intercity Railway Company (Tsukuba Express), moves over 40 mn passengers per day, making it the world's busiest urban-regional rail system<sup>1</sup>.

#### Key features include:

- Extensive regional reach: The Tsukuba Express spans 58 km and links Tokyo with Ibaraki in just 45 minutes.
- High speed and reliability: Operating at speeds up to 130 km/h, with punctuality measured in seconds.
- Integrated fare systems and synchronized schedules across multiple operators.
- Density shaping impact: Areas around major stations exhibit some of the highest land value appreciation in Japan due to transit-oriented development.

Tokyo shows how regionally integrated, high-frequency rail can knit multiple prefectures into a single labour market, demonstrating the value of RRTS-style connectivity for expanding economic catchment areas.



## Paris

### Réseau Express Régional (RER)

The RER is the backbone of mobility across the Île-de-France region, connecting Paris with suburban and peri-urban communities. With over 2.7 million daily riders, it functions both as a rapid metro in the city centre and a regional connector across longer distances.

#### Key features include:

- 5 major lines (A–E) covering nearly 600 km of track.
- High-capacity rolling stock, with Line A alone carrying over 1.2 mn passengers daily making it one of the highest-ridership regional lines globally<sup>2</sup>.
- Frequent services, with peak headways as low as 2 minutes in central sections.
- Integrated stations such as Châtelet–Les Halles, among the busiest interchanges in Europe. The network is deeply integrated into the broader public transport system, providing seamless interchanges with the Paris Metro, bus networks, trams, and regional rail<sup>3</sup>.

Paris illustrates the value of designing regional systems that serve dual roles, i.e. high-speed connectivity to outer suburbs and high-frequency service within central urban cores, thus, maximizing ridership and regional accessibility.



## London

### Crossrail / Elizabeth Line

The Elizabeth Line offers a contemporary model of regional transit integration, connecting Greater London with its western and eastern commuter belts.

#### Key measurable impacts include:

- 118 km corridor linking Reading and Heathrow in the west to Shenfield and Abbey Wood in the east.
- Ridership exceeding 600,000 passengers per weekday within the first year of full operations<sup>4</sup>.
- Significant travel-time reductions (e.g., reducing Paddington–Canary Wharf travel from 31 minutes to 17 minutes).
- Up to 10% uplift in property values along key stations, as noted by UK appraisal studies.
- Increased rail capacity in Central London by 10%, the largest single increase in decades.

Crossrail demonstrates the strategic economic payoff of reducing cross-metropolitan travel times, improving regional labour mobility, and catalysing corridor-based development.

<sup>1</sup>East Japan Railway Company, Tokyo Metro

<sup>2</sup>Bonjour RATP, "RER Lines", RATP Group

<sup>3</sup>European Commission – Urban Mobility Observatory, "Transforming Suburban Rail: Case Study on RER-Type Systems in European Metropolitan Areas."

<sup>4</sup>Elizabeth Line Passenger Usage Insight, Transport for London, July 2023



## Shanghai:

### Intercity and Suburban Rapid Transit Network

Shanghai's regional rail system integrates the city with satellite towns across the Yangtze River Delta—one of the world's fastest-growing mega-urban regions.

#### **Notable features include:**

- Over 1,000 km of operational suburban and intercity lines, including the Shanghai–Suzhou–Kunshan and Shanghai–Jiaxing connections.
- Train speeds of 160–250 km/h, offering near-metro frequency on regional routes.
- Commuter travel times reduced by up to 50%, bringing major cities within one-hour connectivity.
- TSeamless integration with the Shanghai Metro, which itself carries about 10 million passengers per day.

Shanghai shows how regional rail can anchor the development of mega-regional economies, accelerate industrial growth in satellite cities, and ensure balanced urban expansion.

The above international experience with regional rapid transit systems demonstrates that well-designed, high-speed, multimodal regional networks play a central role in supporting balanced metropolitan growth, strengthening labour mobility, and improving the overall productivity of urban regions.

In the Indian context, these insights are directly relevant to large metropolitan cities, where rapid urban expansion, multi-nodal economic growth, and increasing intercity commuting patterns have created mobility challenges like those observed in large global regions. Therefore, a need for an integrated institutional response has become increasingly evident. Addressing these complex mobility demands requires a specialized agency capable of coordinating across jurisdictions, harmonizing standards, and delivering high-capacity regional transit at scale. It is within this context that the establishment of the National Capital Region Transport Corporation (NCRTC) assumes strategic relevance, marking a pivotal shift toward a regionally coordinated approach to urban mobility in India.



# Emergence of the Regional Rapid Transit System in India

RRTS represent a pivotal advancement in India's transport policy framework, offering a scalable and future-ready solution to the mobility challenges of rapidly expanding metropolitan regions, establishing itself as a key enabler of regional connectivity. As cities increasingly evolve into multi-nodal urban clusters with strong economic interdependencies, the absence of efficient, high-speed regional mobility has emerged as a critical constraint on productivity, spatial equity, and environmental sustainability. Therefore, RRTS is positioned to address this systemic gap by providing a reliable, high-capacity transit option that complements existing metro and suburban rail networks while enabling seamless regional integration.

Designed specifically for intercity commuting, RRTS corridors combine high operational speeds (~160 kmph) with service attributes that ensure predictability, efficiency, and safety. The use of dedicated tracks substantially reduces operational conflicts and enables consistent travel times, which is an essential requirement for enhancing user confidence and supporting long-term modal shift away from private vehicles. This infrastructural separation also strengthens the resilience of the system by insulating operations from external disruptions.

A key policy advantage of RRTS lies in its role as a multimodal integration platform. RRTS stations are conceptualized as regional mobility hubs that integrate metro services, city bus systems, intermediate public transport, non-motorised transport (NMT), and last-mile connectivity solutions. This approach is consistent with national strategies such as the National Urban Transport Policy (NUTP) and the Metro Rail Policy, which emphasise multimodal integration and user-centric mobility planning. By reducing first- and last-mile barriers, RRTS strengthens the overall public transport ecosystem and supports the creation of unified regional mobility networks.



Source: NCRTC

Importantly, RRTS functions as a strategic spatial development instrument. By connecting established urban centres with emerging nodes. Thus, supporting balanced regional development, decongesting metropolitan cores, and promoting development of satellite towns. The system also provides a strong foundation for transit-oriented development (TOD), encouraging compact, mixed-use, and pedestrian-friendly urban development around the station impact zones. This aligns directly with national policy objectives related to sustainable urbanisation, economic decentralisation, and climate-resilient development.

In terms of policy, the emergence of RRTS represents a shift from city-centric mobility planning to a regionally coordinated mobility framework, aligning infrastructure development with economic geography and contemporary patterns of urban growth. By providing fast, predictable, and integrated regional connectivity, RRTS strengthens labour market accessibility, enhances regional competitiveness, and sustainable, inclusive mobility.

Globally, several metropolitan regions have developed such high-speed, high-capacity transit systems to strengthen regional integration, reduce congestion, and create more balanced spatial development. These systems demonstrate how regionally coordinated mobility networks can reshape urban form, labour market dynamics, and regional productivity. Their operational frameworks and impacts provide valuable lessons for India's emerging RRTS programme.

2.1. NCRTC as the First Implementer: The Delhi-Ghaziabad-Meerut RRTS Corridor

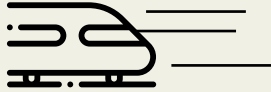
The National Capital Region Transport Corporation (NCRTC) serves as the central institutional mechanism for implementing India's RRTS program. Formed in collaboration between the Government of India and the Governments of Delhi NCT, Uttar Pradesh, Haryana, and Rajasthan, NCRTC operationalises a cooperative model for developing, financing, and managing mobility infrastructure that spans administrative boundaries.

Its establishment aligns with national policy priorities emphasised in the National Urban Transport Policy (NUTP), Gati Shakti National Master Plan, and the broader agenda of fostering regionally coordinated mobility systems.

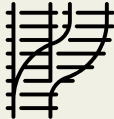
The formation of NCRTC responds to a long-standing policy gap, i.e., the absence of a dedicated institutional authority for planning and managing regional mobility, connecting satellite or peri-urban districts with metropolises. Traditionally, urban transport institutions in India remain city-focused, while national rail infrastructure emphasises long-distance travel. The daily movement of people between rapidly integrating urban clusters—such as Delhi, Ghaziabad, and Meerut—requires a separate governance architecture.

The Delhi-Ghaziabad-Meerut RRTS corridor is the first corridor sanctioned under India's RRTS programme and is positioned as a national demonstration project intended to validate the technical,


Key characteristics of RRTS




High speed operations  
(100-160 kmph)




Dedicated tracks to  
ensure operational  
efficiency




High frequency services,  
reducing waiting time



Advanced signalling  
systems for safety and  
performance



Multimodal integration with  
metro, rail, bus, last mile  
nodes etc



Universal accessibility  
and passenger centric  
amenities

financial, and institutional framework for future regional transit systems.

Key policy features of the Delhi-Ghaziabad-Meerut RRTS corridor include the provision of high-speed, high-frequency services with operational speeds of up to 160 km/h tailored to daily regional commuting patterns, development of dedicated infrastructure that enhances operational reliability and service quality, establishment of integrated station hubs for seamless multimodal connectivity, and the assurance of predictable, sub-60-minute end-to-end travel times, directly addressing long standing policy challenges related to congestion, productivity losses, and inefficiencies in regional mobility.

Currently, with an operational length of 55kms, the average daily ridership of Delhi-Ghaziabad-Meerut RRTS stood at 49,491 as of October 2025. At its full capacity, the corridor is expected to carry

more than 0.8 mn passengers per day.

Further in this study, we have placed a primary emphasis on examining the commuters' perception of the RRTS, with specific attention to how they evaluate its service quality, accessibility, convenience, and overall value proposition. Understanding this perception is essential, as public acceptance and user satisfaction significantly influence the success, ridership uptake, and long-term sustainability of any mass transit system. The RRTS represents a new category of regional mobility in India, and its adoption will depend not only on technical performance but also on how effectively it meets the expectations, preferences, and behavioural patterns of diverse commuter groups. By assessing aspects such as travel time reliability, comfort, affordability, safety, multimodal integration, station environment, and last-mile connectivity, this study aims to generate insights into the factors that shape commuter attitudes toward the RRTS. These findings are poised for an informed policy decision, enhance service planning, and support strategies to strengthen ridership, thereby contributing to the broader goal of promoting sustainable regional mobility across the country.



Source: NCRTC

Note: The corridor is yet to be fully operational as of Dec 2025



Source: NCRTC

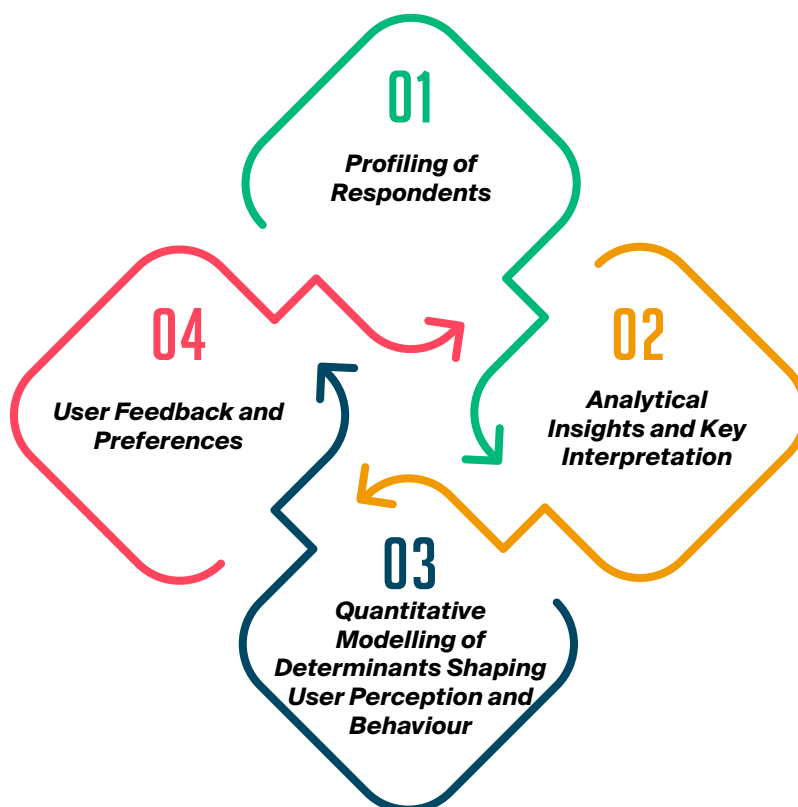
# RRTS Commuters' Perception Analysis: Scope & Methodology

A structured survey was conducted to support evidence-based decision making for the RRTS by assessing commuter behaviour, travel demand, and perceptions across the project region. Two groups were surveyed: existing users of the Delhi-Meerut RRTS and aspirational users who may adopt the system in the future.

Existing users were surveyed at major RRTS stations, i.e. New Ashok Nagar, Ghaziabad, Sahibabad, Modi Nagar, and Meerut South, to evaluate satisfaction and factors influencing current ridership. Aspirational users were surveyed at key transit hubs, including - New Delhi Railway Station, Anand Vihar ISBT, and IFFCO Chowk, to gauge awareness, travel demand, and factors shaping potential modal shift. The survey also explored willingness to relocate to less dense areas with RRTS connectivity.

With 700 samples per category, the dual-survey approach provides a comprehensive understanding of current mobility patterns and future demand, strengthening the evidence base for RRTS planning and policy formulation.

The survey results and subsequent analysis are organised into four broad categories to ensure a structured interpretation of findings. The Quantitative modelling used Ordinal Logistic Regression to statistically identify the factors influencing commuters' satisfaction and latent demand for RRTS by using odds ratio and predicted probabilities<sup>1</sup>.



This multi-layered analytical structure enables the study to move progressively from descriptive understanding to inferential explanation, thereby linking what users experience with why they behave the way they do in relation to the RRTS system. The results are aimed to provide valuable inputs for forecasting ridership potential and for identifying policy levers that could improve adoption rates. The results of both the descriptive and quantitative analysis are presented and discussed in the following sections.

A detailed summary of the descriptive analysis, including full statistical tables and cross-tabulations, are presented in Annexure 1.

<sup>1</sup>Odds ratio = Odds of a higher outcome per unit increase in a predictor  
Predicted Probabilities = Likelihood of highest level of outcome with an improvement in predicted variable

# Perception Patterns Among Existing Users

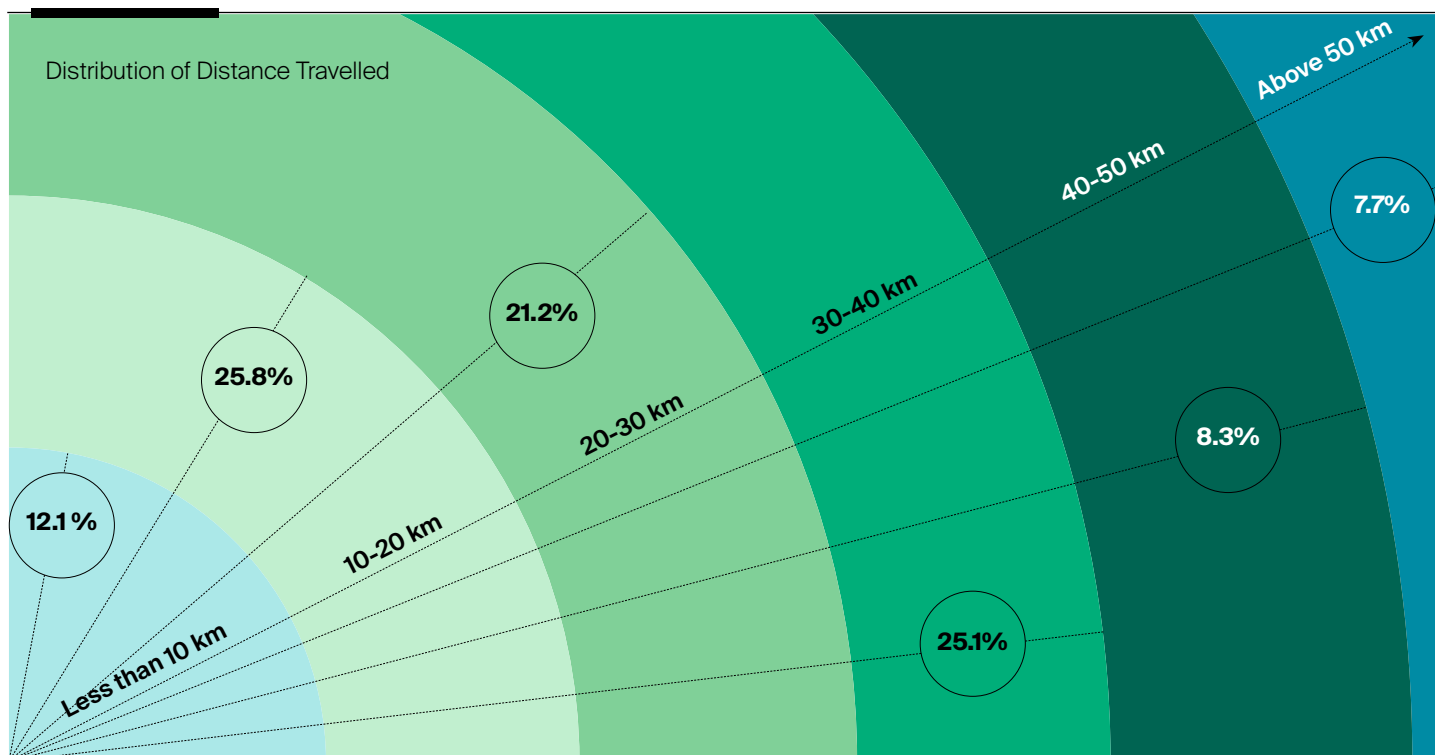
This section synthesises the key outcomes from the existing users survey, integrating statistical evidence with observed behavioural patterns, to build a comprehensive understanding of users' perception of the existing RRTS corridor. The discussion in this section focuses key significant findings that inform user behaviour, satisfaction trends, and perceptions beyond mobility.

## 4.1 Inferences from Key Characteristics

The following section highlights inferences from the key characteristics or profiling of the respondents

*Exhibit 1:*

### Short to Medium Haul Dominate, Highlighting the 30-40km Sweet Spot

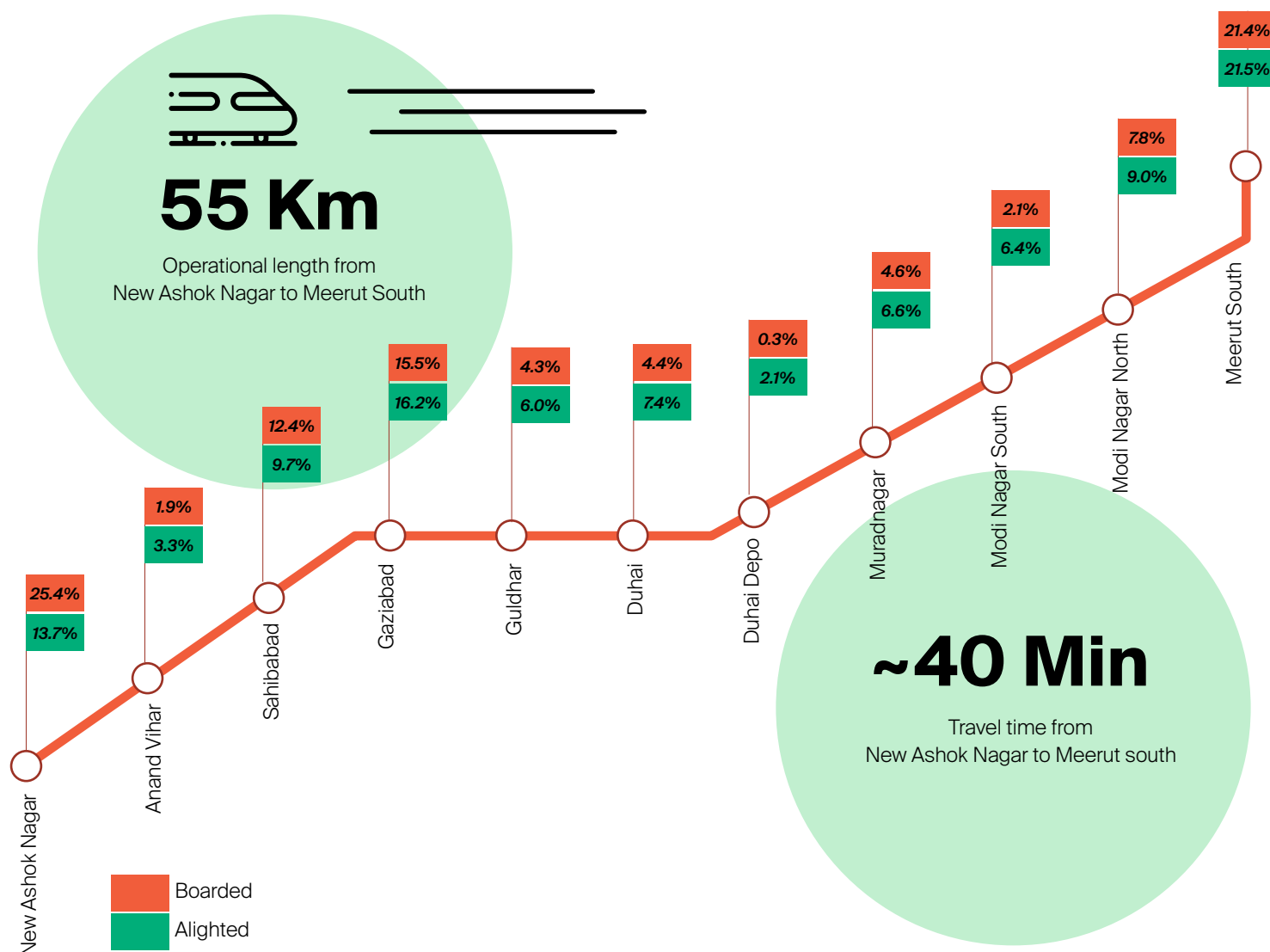


Source: Knight Frank Research

46% of the respondents travel between 20-40 km one way, indicating that most trips are of short to medium distance. While shorter trips reflect local or intra-city commuting patterns, the 30-40 km range falls within the ideal service corridor for RRTS. Travel beyond 40 km remains limited, suggesting that long-distance commuting patterns are yet to develop fully. This highlights an opportunity for the RRTS to attract future long-distance commuters as regional connectivity improves, and travel demand expands.

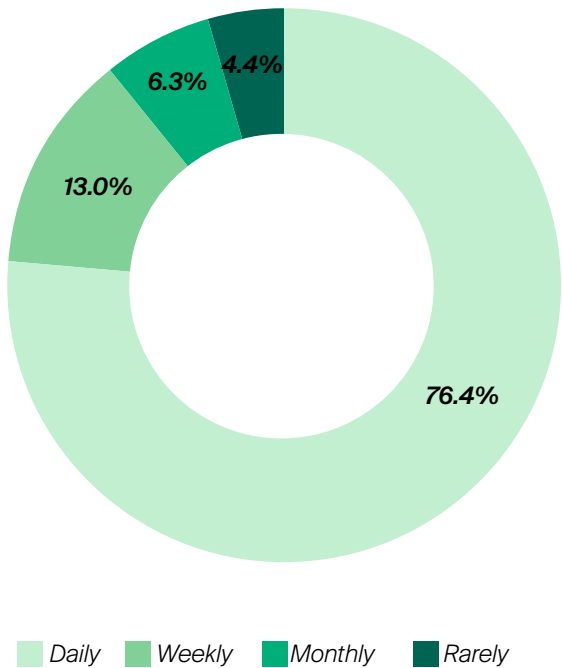
Exhibit 2:

## New Ashok Nagar and Meerut South Command Nearly Half of All boardings



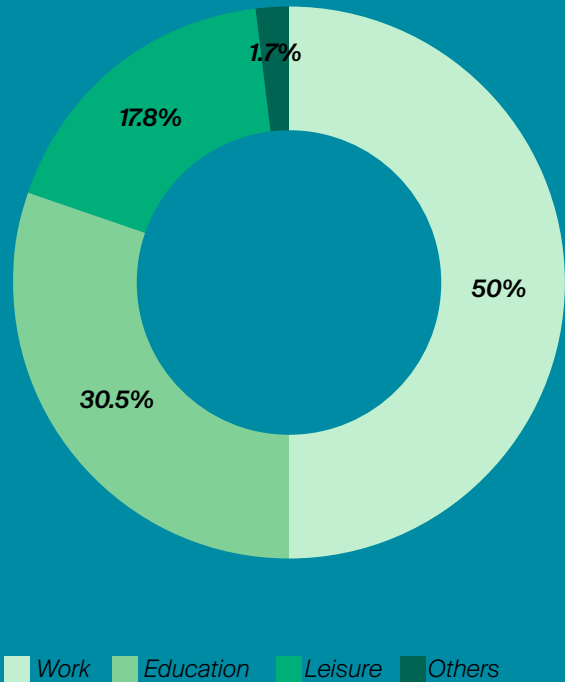
Among the respondents, 25% boarded from New Ashok Nagar station and 21.4% from Meerut South, indicating that these two stations account for nearly half of all boardings. New Ashok Nagar emerges as a critical interchange node, connecting Meerut with the broader NCR region through its metro linkages to Noida and other major commercial centres. This spatial advantage positions it as a gateway for regional commuters accessing urban employment hubs, while Meerut South functions as a key origin point, reflecting the commuting flow from peripheral to core urban areas within the emerging regional mobility pattern.

Exhibit 4:  
**Daily Commuters Account for Over 3/4th of Ridership**



Source: Knight Frank Research

Exhibit 3:  
**Work Trips Drive 50% of Regional Mobility**



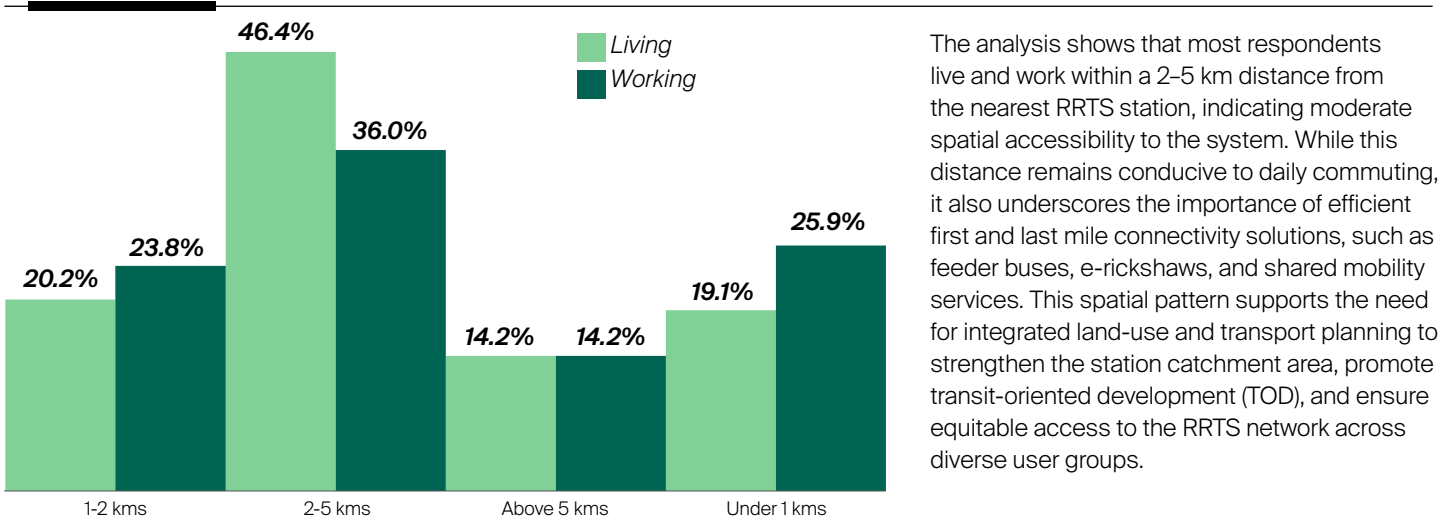
Source: Knight Frank Research

The survey reveals that 50% of respondents travel primarily for work-related purposes, underscoring the dominance of commuting as the central driver of regional mobility. This pattern aligns closely with the core objective of the RRTS, which is to facilitate efficient and high-speed connectivity for daily inter-city commuters. The high proportion of work trips indicates a strong potential demand base among regular travellers and emphasises the need for reliable peak-hour operations, seamless integration with employment nodes, and last-mile connectivity to maximize the system's utility.

76.4% of respondents use the RRTS on a daily basis underscoring the system's growing integration into the routine mobility fabric of the NCR. This high level of regular commuters signifies a shift towards public transit dependency and highlights the effectiveness of the RRTS in addressing daily commuting demands.

Exhibit 5:

2-5km Emerges as the Prime Catchment Zone, Necessitates Last Mile Connectivity



Source: Knight Frank Research

The analysis shows that most respondents live and work within a 2-5 km distance from the nearest RRTS station, indicating moderate spatial accessibility to the system. While this distance remains conducive to daily commuting, it also underscores the importance of efficient first and last mile connectivity solutions, such as feeder buses, e-rickshaws, and shared mobility services. This spatial pattern supports the need for integrated land-use and transport planning to strengthen the station catchment area, promote transit-oriented development (TOD), and ensure equitable access to the RRTS network across diverse user groups.

4.2. Analytical Insights and Interpretations of Existing RRTS Users

This section moves beyond descriptive statistics to explore the underlying dynamics of commuter interaction with the RRTS. Through this analysis, we aim to identify emerging behavioural patterns, assess the system's effectiveness in meeting its intended objectives, and highlight policy implications for enhancing user experience, inclusivity, and long-term sustainability of the RRTS network.

Modal Shift: 65% Shifted from Bus to RRTS, While Car Shift Remains Muted at 9%

One of the most notable findings from the descriptive analysis is the significant modal shift from bus-based transport to the RRTS among existing users. Over 65% of current RRTS commuters previously relied on conventional or intercity bus systems. The primary reasons cited for this shift include improved travel time reliability, enhanced comfort, and greater overall convenience. A majority, around 58% of these former bus users, are medium to long distance commuters, travelling 25 km or more one way, and constitute predominantly daily regular travellers.

Thus, this highlights the RRTS' effectiveness in attracting passengers from public road-based transport by offering a faster, more predictable, and higher-quality commuting experience. The observed modal shift also reflects a growing confidence in rail-based regional mobility solutions among medium to long-distance commuters who prioritise reliability and reduced travel fatigue. A smaller yet noteworthy modal shift is observed from two-wheelers, accounting for 15% of respondents, while the shift from cars (personal and cabs) remains relatively limited at 9%.

The relatively low modal shift from private cars can be attributed to several interrelated factors. Car users generally exhibit a higher degree of travel flexibility and comfort preference, which public transport options must match or exceed to encourage behavioural

change. Many private vehicle owners also benefit from end-to-end connectivity and may not perceive significant time savings if they perceive a lack of first and last-mile connectivity to RRTS stations. Additionally, the availability of subsidised parking and limited disincentives for private vehicle use further reduce the immediate economic advantage of switching to public transport. As a result, attracting this segment will require targeted measures such as seamless multimodal integration, last-mile connectivity, convenient parking facilities, fare rationalization, and enhanced service frequency and comfort standards to make the RRTS a more compelling alternative.

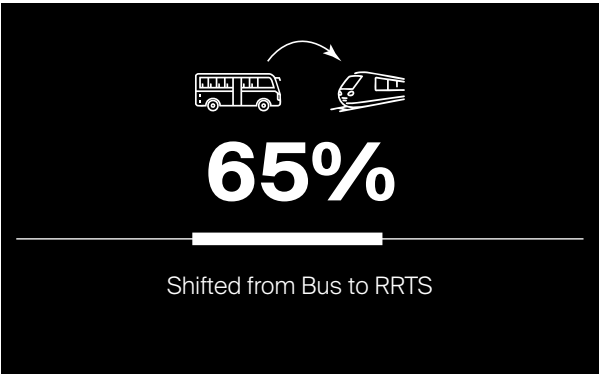
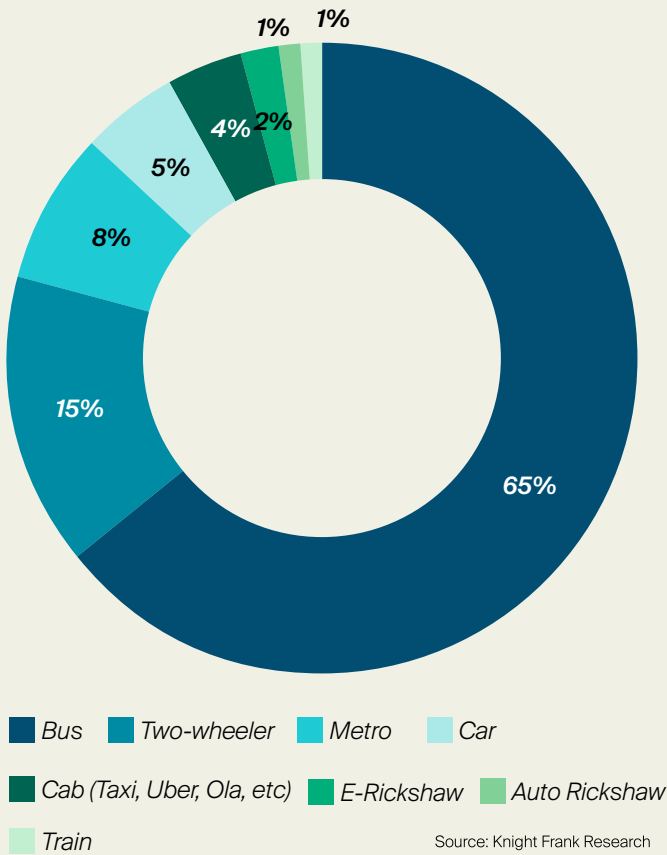


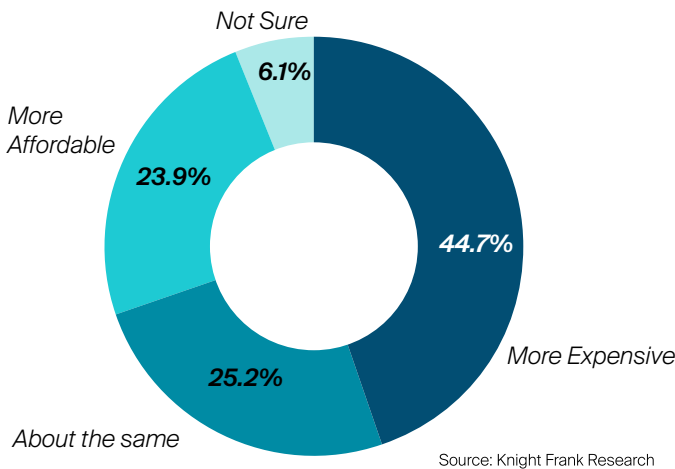
Exhibit 6:  
**Bus Dominates the Modal Shift to RRTS at 65%**



**Changes in Travel Cost: ~45% of the Respondents Perceive their Travel Cost to have Become More Expensive**

Despite 45% of respondents perceiving RRTS travel as more expensive, a substantial 76.4% as shown in exhibit 3, reported using the system on a daily basis, reflecting a strong acceptance of higher fares in exchange for superior service quality. The consistent daily ridership levels demonstrate that the benefits of time efficiency and service reliability outweigh the perceived increase in cost, particularly for regular commuters traveling medium to long distances for work. This indicates a behavioural shift toward quality-driven mobility choices, suggesting that commuters are gradually transitioning from cost sensitive to value sensitive decision-making patterns. These findings underline the importance of maintaining the RRTS's service excellence to sustain this willingness to pay, while simultaneously ensuring social and economic inclusivity.

Exhibit 7:  
**Perceived Cost Barrier: Nearly Half Find RRTS Expensive**



### 4.3. Econometric/Quantitative Assessment of User Perception and Behaviour

To complement these qualitative and perception-based findings, the following section presents the results of the ordinal logistic regression model, offering a quantitative assessment of the factors influencing commuter behaviour and satisfaction. This model enables a more systematic examination of the statistical relationships between socio-demographic attributes, travel characteristics, and user experiences with the RRTS. The analysis provides an evidence-based understanding of how various commuter segments interact with and benefit from the system. The analysis and findings are as below.

#### Efficiency Over Expense: Time, safety and productivity outweigh cost as the primary driver of commuter satisfaction

The survey findings indicate that 43.7% of RRTS users are satisfied and 39.2% are very satisfied with the services, suggesting that over 83% of respondents express a favourable perception of the system's performance. This high level of satisfaction underscores the operational effectiveness and user-oriented design of the RRTS, which has succeeded in meeting commuter expectations across key service dimensions such as travel time reduction, timeliness, comfort, and safety.

This contrast highlights that commuter satisfaction is not solely determined by cost, which is perceived to be expensive in the above analysis but is instead strongly influenced by the value derived from enhanced service quality.

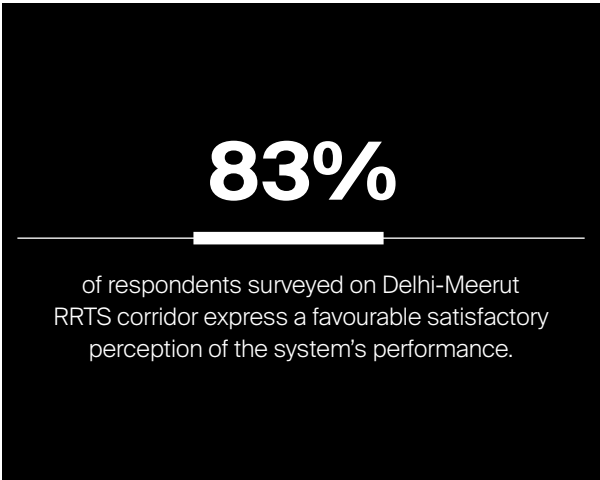
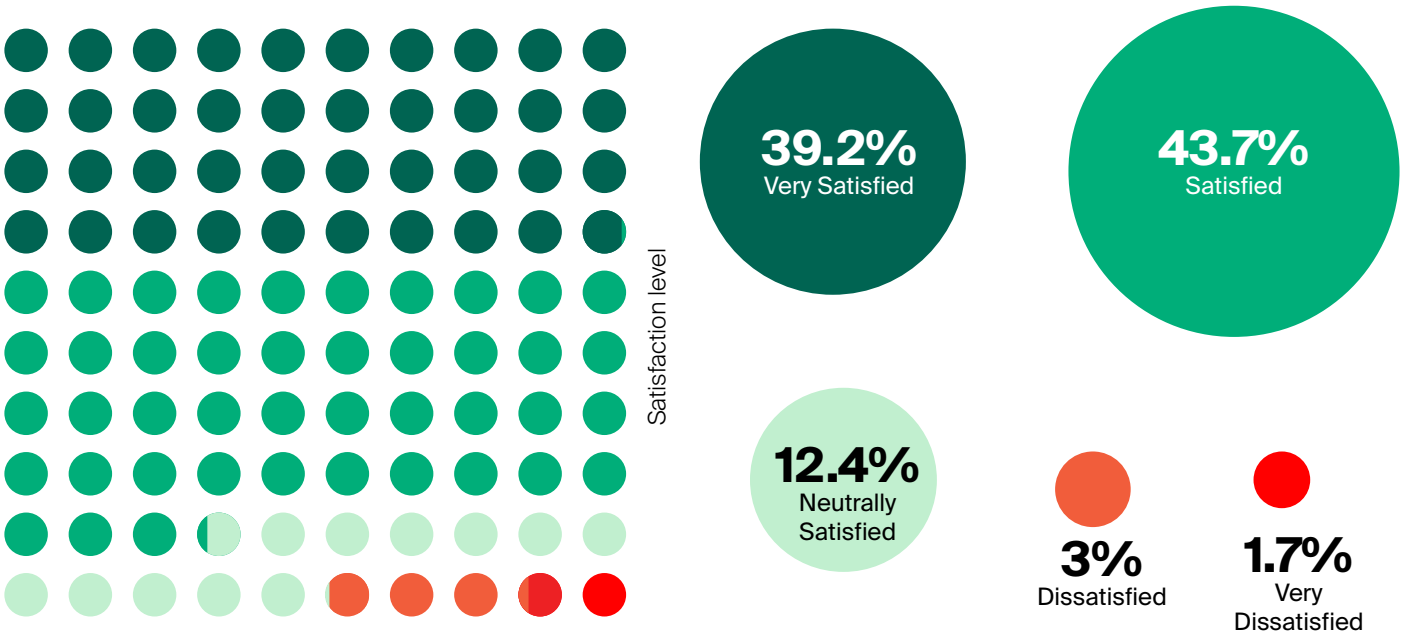


Exhibit 8:

#### ~83% of the Respondents Report High Satisfaction with the Existing RRTS Usage

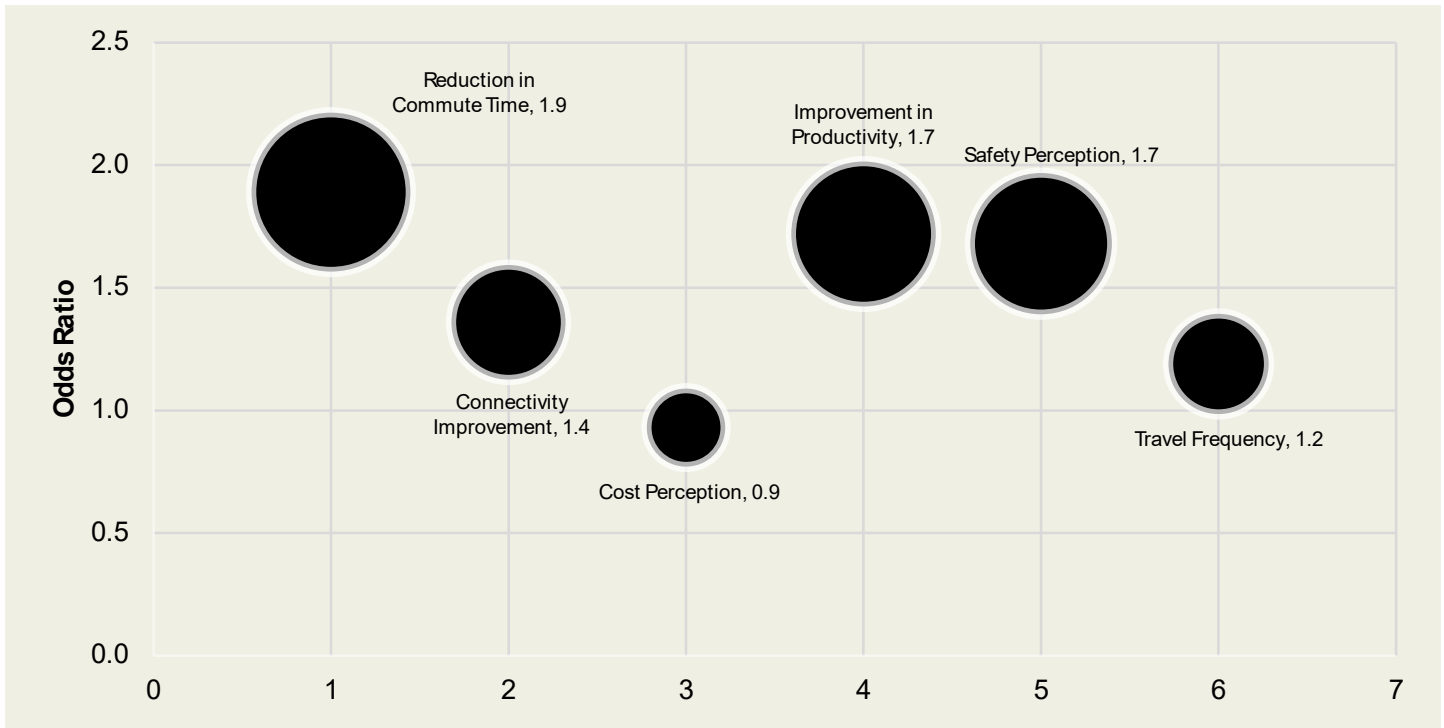


Source: Knight Frank Research

To identify the factors influencing these observed patterns, we have captured the relationship between user satisfaction and key socio-demographic and travel-related variables. The key model outcome is as below, and the detailed statistical output is provided in annexure 2

Exhibit 9:

Reduction in Commute Time Drives Users' Satisfaction by ~2x



Source: Knight Frank Research

- Users experiencing faster travel time are 1.9 times more likely to report higher satisfaction.
- With improvement in perceived connectivity, the odds of reporting higher satisfaction increase by 1.4 times, highlighting the critical role of seamless integration with metro, feeder, and local transit networks.
- Perception that the RRTS is more expensive, has only a minor and a statistically insignificant effect on satisfaction as indicated by an odds ratio close to 1, suggesting that fare perception does not meaningfully influence overall satisfaction.
- Users who feel their commute has become more efficient or productive are about 1.7 times more likely to be satisfied, demonstrating the RRTS's contribution to both personal and professional efficiency.
- Passengers who feel safe while travelling are 1.7 times more likely to report higher satisfaction, reinforcing the role of safety and security as essential components of user experience.
- Frequent users are around 1.2 times more likely to express higher satisfaction, due to greater familiarity, convenient, and consistent service experience with the RRTS.

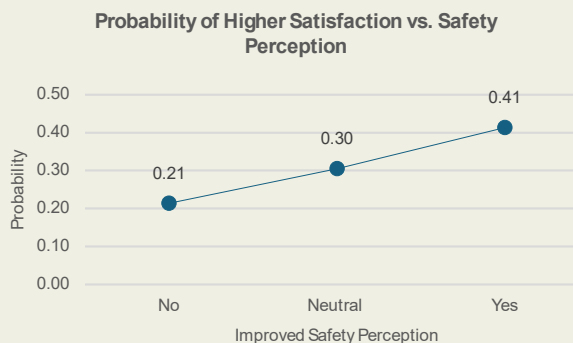
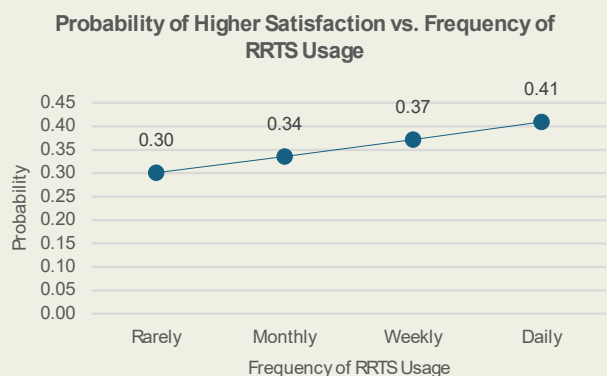
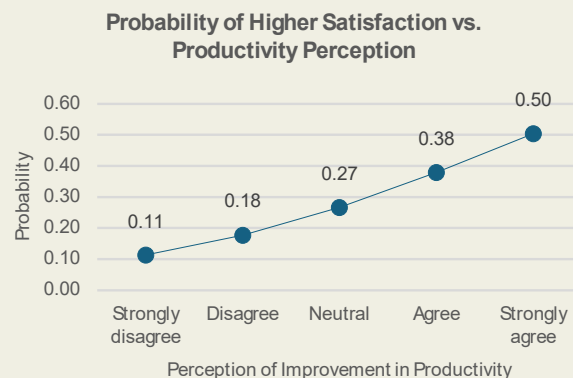
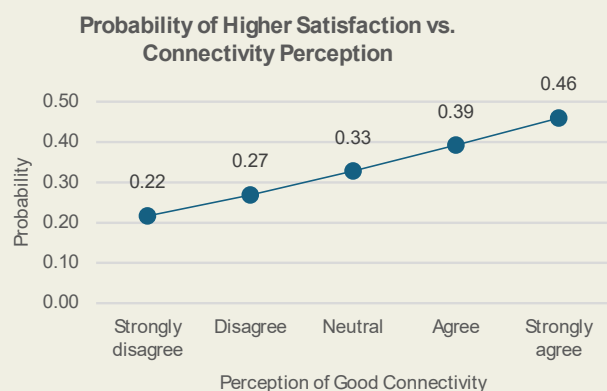
45%

of respondents reported higher commute costs after shifting to the RRTS, however, fare perception has little impact on their overall satisfaction.

The model results collectively highlight among the explanatory variables, reduction on commute time, improvement in connectivity and productivity emerge as the influential factors driving commuters' perception. This is further reinforced by our predicted probability analysis.

- The probability of higher satisfaction increases from 22% to 46% when respondents perceive an improvement in regional connectivity.
- A significant rise in productivity—driven by reduced travel time and better comfort—boosts the probability of satisfaction to 50%, from 11% otherwise.
- Frequent use of the RRTS and a strong perception of safety increase the probability of satisfaction to 41%

## Connectivity and Productivity Gains Drive Probability of Higher Satisfaction



Source: Knight Frank Research

Overall, the model underscores time savings and productivity as the most statistically significant drivers of user satisfaction, with the odds of a positive experience nearly doubling when commuters can travel faster or work on the go. Cost perception proved to be statistically insignificant, meaning that variations in ticket price have almost no impact on whether a user is happy with the service. Ultimately, the data confirms that riders prioritize safety and connectivity far above fare levels, valuing a high-quality, efficient experience over a cheaper commute.

## Uplifted Economic Sentiment: Driven by visible infrastructure upgrades and growing commercial and real estate activities

A clear majority of respondents perceive that the RRTS has contributed to greater economic opportunity in their area, with over 55% agreeing and 25% strongly agreeing with this statement. This positive outlook suggests that commuters associate the RRTS not merely with enhanced mobility but also with the potential for increased access to jobs, markets, and commercial activity. The responses reflect an emerging recognition of the system's wider developmental impact, where improved regional connectivity is seen as a driver of economic dynamism and opportunity.

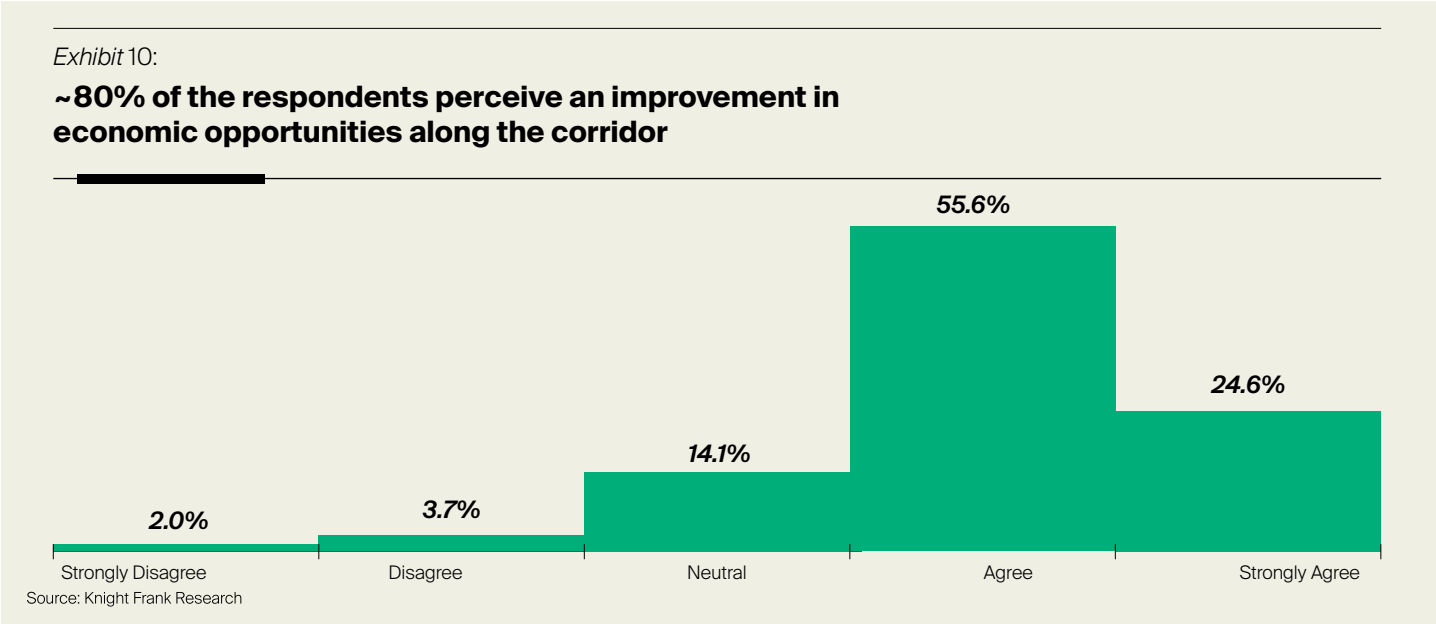
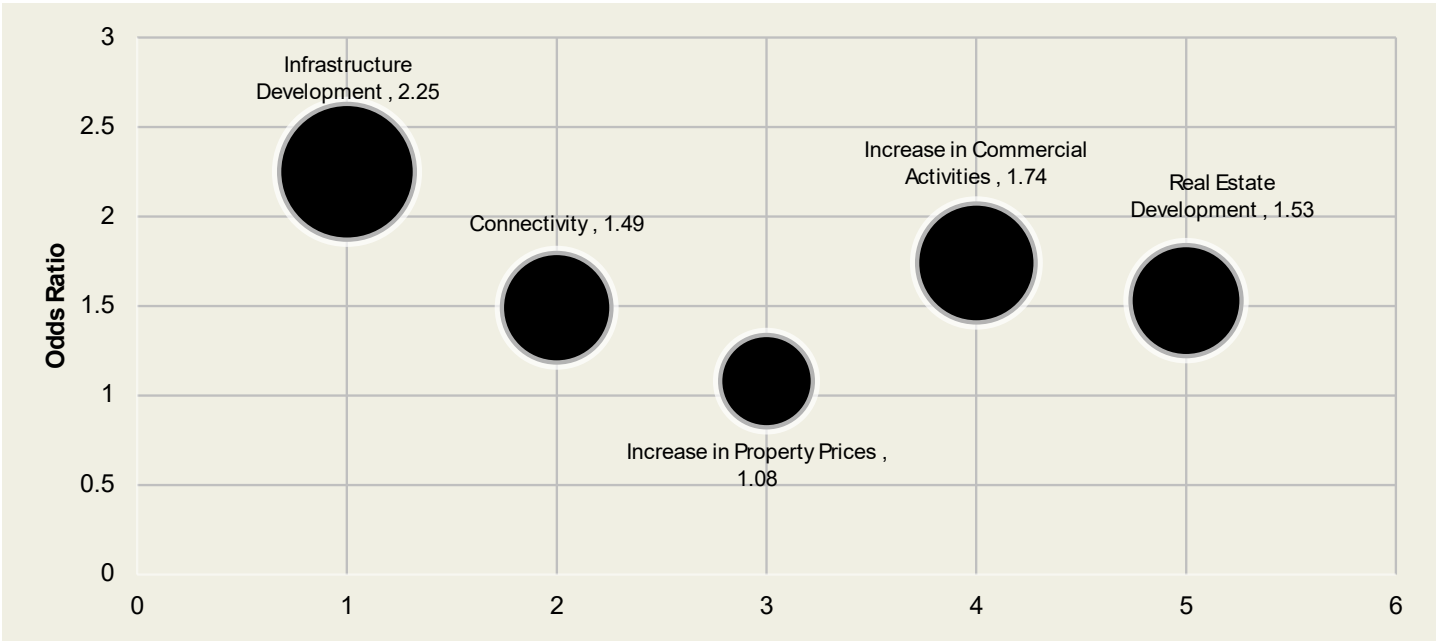


Exhibit 11:

## Visible Infrastructure Enhancements Boosts Perceived Economic Development by 2.25x



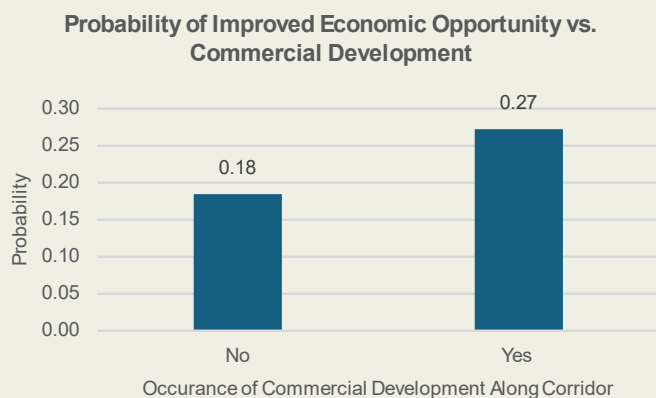
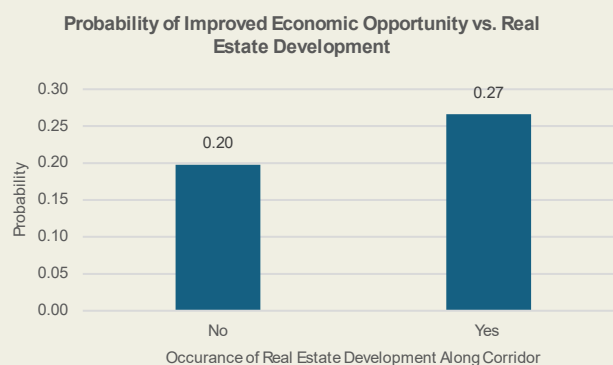
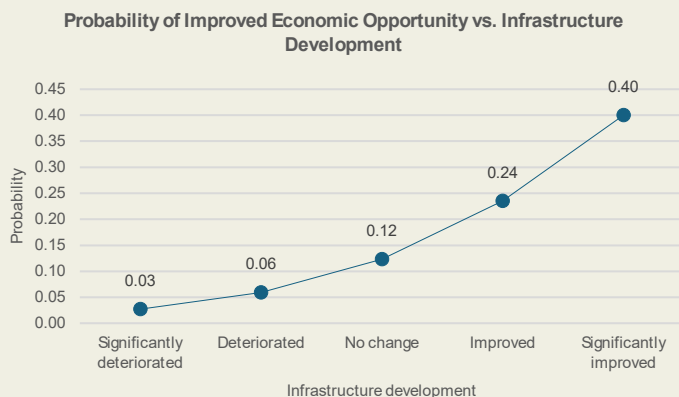
Source: Knight Frank Research

- Better infrastructure increases the likelihood of perceiving enhanced economic opportunity by 2.25 times.
- The influence of better connectivity improves perceived economic development, but without visible complementary investments, its impact remains limited.
- Rising property prices exert only a marginal and a statistically insignificant influence on perceived economic opportunity. Respondents are likely to view property prices as an outcome of growth, rather than its driver.
- Increase in commercial activities increases the odds of perceived economic development by 1.7x, a highly significant relationship that underscores its role as a clear signal of local economic vibrancy.
- Real estate development increases the likelihood of perceived economic opportunity by 1.5x, indicating that visible projects such as, new housing, mixed-use developments, and urban expansion etc, strengthen optimism about local economic potential.

The regression results show that perceptions of improved economic opportunity are driven primarily by visible, tangible development led most strongly by infrastructure, followed by commercial and real estate growth. This is further reinforced by our predicted probability analysis.

- The probability of perceiving improved economic opportunities jumps from just 3% when infrastructure is seen as deteriorated to nearly 40% when it is viewed as significantly improved.
- Commercial development raises the probability of perceiving improved economic opportunities from 18% to 27%, while real estate development increases it from 20% to 27%.

## Infrastructure Development Improves Probability of Perceiving an Improvement in Economic Development



**80%**

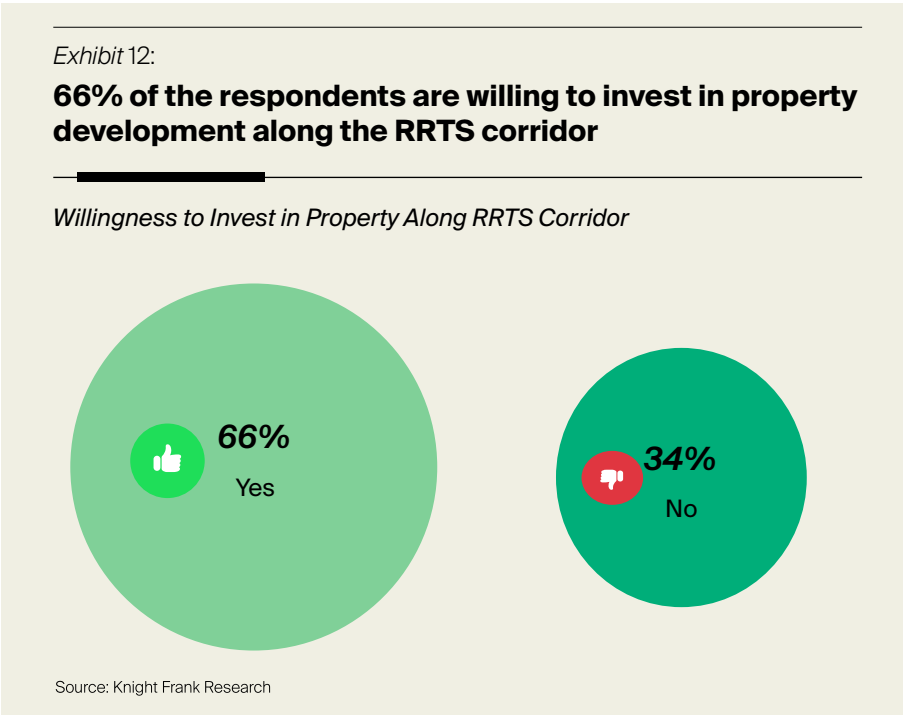
of respondents believe the RRTS has increased economic opportunities in their area, driven primarily by new infrastructure development and rising commercial activity.

Source: Knight Frank Research

These findings underscore the importance of sustained physical and business infrastructure- as observed through improved infrastructure, commercial activity and real estate development- in fostering economic confidence among residents. In contrast, while connectivity improvements and rising property prices show positive associations, their effects are statistically insignificant, suggesting that respondents value substantive, on-ground development over indirect indicators. These findings highlight that large-scale transport investments like the RRTS yield the greatest perceived economic dividends when complemented by parallel infrastructure and commercial development.

Investment Flows Where Development Shows: Commercial activities and real estate development shape sentiments

This analysis captures respondents' inclination to purchase or invest in real estate in areas influenced by the RRTS network. To refine these insights, we focus specifically on the working population in the survey sample. Within this group, 67% expressed a willingness to invest in real estate development along the RRTS corridors. This strong interest reinforces the central role of infrastructure driven connectivity in shaping investment decisions. Improved regional mobility not only enhances access but also signals long-term development potential, making surrounding areas more attractive for future growth.



*RRTS emerges as a key catalyst—elevating confidence, improving market attractiveness, and strengthening the overall investment proposition of the influence zone.*



Exhibit 13:

## Improvement in Commercial Activities and Real Estate Developments Boosts Investment Intent by 10.2x and 7.7x respectively



Source: Knight Frank Research

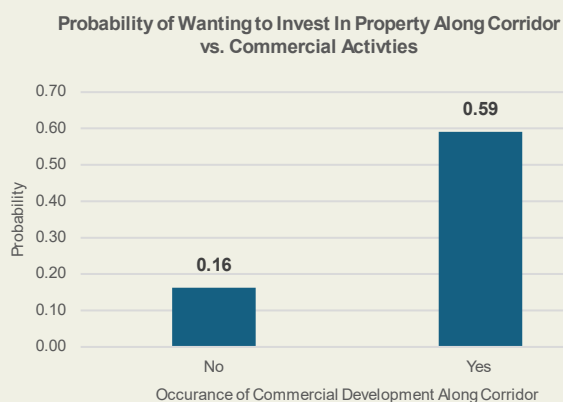
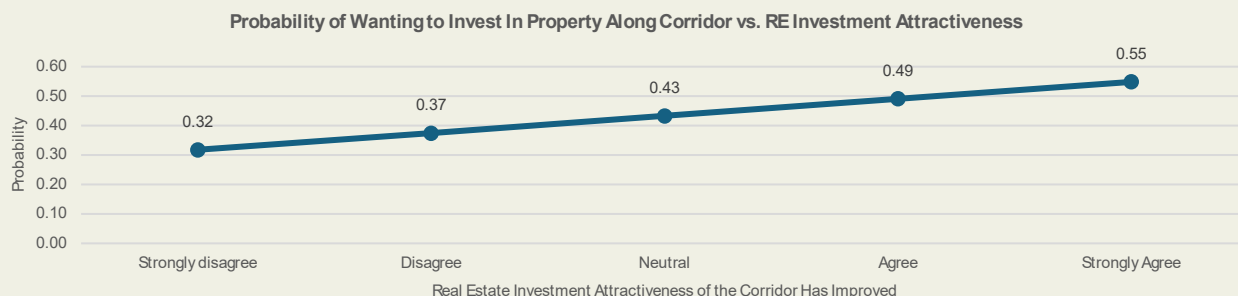
- Commercial activities emerge as the most influential factor driving willingness to invest, with respondents who perceive greater commercial development being over 10 times more likely to express investment intent.
- Respondents are nearly 8 times more likely to invest in areas witnessing active real estate activity, indicating that visible construction, mixed-use projects, and new housing developments reinforce confidence in market potential.
- Respondents are 1.6 times more likely to invest where infrastructure improves and property prices remain low—a mix perceived as high value for money. But when prices rise without matching infrastructure upgrades, investment likelihood drops to 0.54 times (46% lower), suggesting concerns about overvaluation and weaker returns. The results reinforce that infrastructure improvements must accompany price growth to maintain investment appeal.
- Infrastructure on its own does not influence investment intent; without affordability and visible commercial activity, standalone improvements appear insufficient, as reflected in the insignificant relationship.
- Perceptual dimension of investment behaviour, or market sentiment, often drives intent even before tangible development. Our model underlines that favourable market sentiment meaningfully contributes to willingness to invest by 37%.

Predicted probabilities derived from the model provide further insight into the relative strength of these factors.

- The probability of wanting to invest rises sharply from 16% to 59% when respondents perceive commercial development in the area.
- The presence of active real estate development increases the probability of willingness to invest from 19% to nearly 57%, reaffirming the importance of visible market activity in influencing investor confidence.
- Improvements in real estate investment attractiveness increases the probability of investment from 32% to around 55% across its scale.

Overall, the model highlights that investment intent along the RRTS corridor is primarily shaped by visible commercial and real estate activity, supported by positive investment sentiment—underscoring that investors respond more to observable market dynamism and business potential than to infrastructure improvements alone. While improved infrastructure enhances investment prospects when coupled with affordability, its isolated effect remains limited. Moreover, the role of real estate investment attractiveness suggests that perceptions and expectations about future growth are nearly as influential as tangible development, reaffirming the importance of fostering confidence and optimism in emerging RRTS corridors.

## Real Estate Growth and Commercial Activity Perceptions Influence Investment Probability



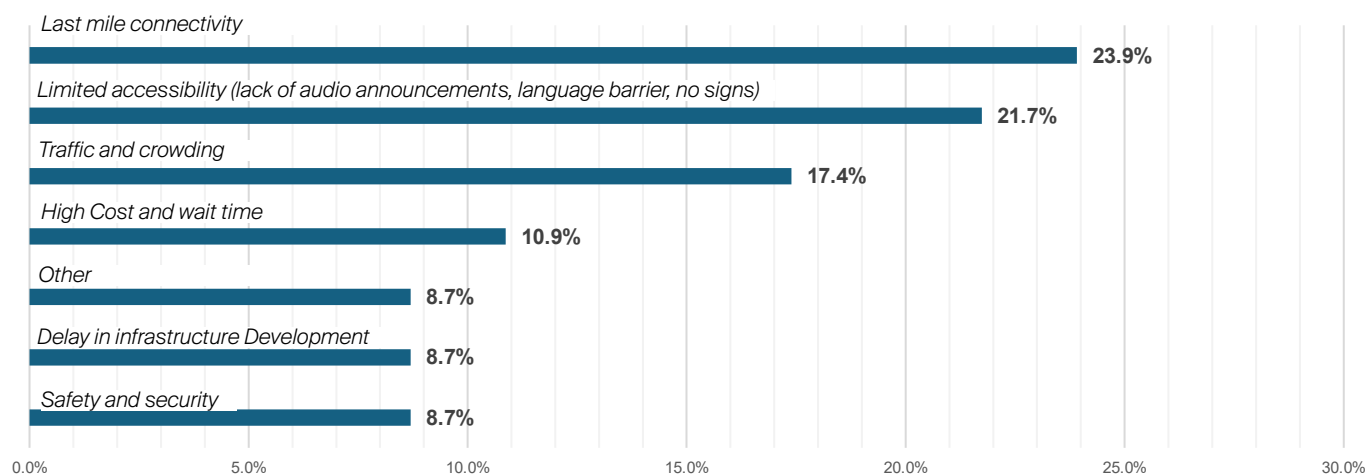
Source: Knight Frank Research

## 4.4. Users' Feedback and Preferences

While the above section captures the various socio-economic and infrastructure-related perceptions of the respondents, here we have captured the various challenges faced by the respondent as well as their requirements for additional enhancements.

Exhibit 14:

### 24% Cite Inadequate Last-Mile Connectivity as a Key Challenge

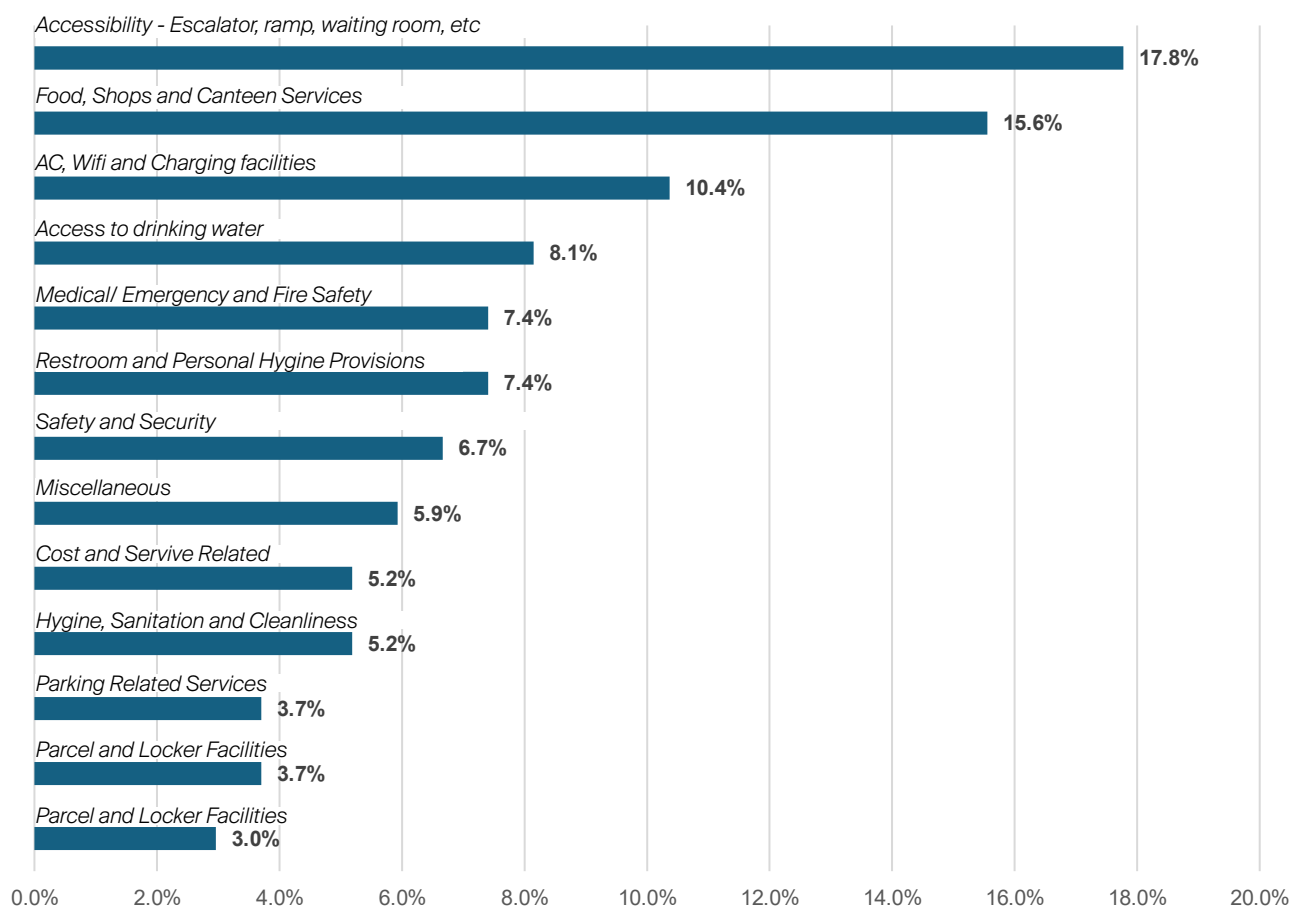


Source: Knight Frank Research; Others include - Limited parking facilities and inadequate maintenance of the station surrounding.

The survey results highlight several key accessibility challenges faced by RRTS users. Last mile connectivity emerges as the most significant issue, reported by 23.9% of respondents, indicating gaps in end-to-end connectivity. This is followed closely by limited accessibility features, such as inadequate audio announcements, language barriers, and insufficient signage—reported by 21.7%, reflecting the need for more inclusive user support systems. Traffic and crowding related challenges account for 17.4%, suggesting broader operational and external factors affecting ease of access. Meanwhile, high costs and long wait times (10.9%), safety and security concerns (8.7%), and delays in surrounding infrastructure development (8.7%) are less frequently cited but still notable. Overall, the findings underscore that improving last-mile integration, enhancing accessibility features, and addressing congestion around stations are critical to strengthening the overall user experience.

Exhibit 15:

## In-Station Accessibility, Food & Beverages Emerge as Key Commuters' Requirements



Source: Knight Frank Research; Miscellaneous include suggestions related to feedback mechanisms, eco-friendly initiatives, community engagement, staff needs, and child-friendly amenities.

In terms of key requirements, the respondents place strong emphasis on improving station-level facilities to enhance their overall RRTS experience. Accessibility-related features such as escalators, ramps, and waiting areas are the most requested additions, cited by 17.8% of respondents, highlighting the need for more user-friendly station layouts. This is followed by demand for F&B retail services (15.6%), reflecting the importance of convenience-oriented retail at transit hubs. Other frequently requested amenities include AC, Wi-Fi, and charging facilities (10.4%), access to drinking water (8.1%), emergency/safety features, and restroom/personal hygiene provisions (7.4% each). Safety-related concerns also surface, with 6.7% of respondents emphasizing the need for enhanced security. Additional needs such as hygiene, parking, and parcel services are mentioned to a lesser extent but remain relevant. Overall, the results show that commuters expect RRTS stations to function as well-equipped, accessible, and service-rich environments that support comfort, convenience, and safety.

# Uncovering Latent Demand Through Aspirational User Analysis

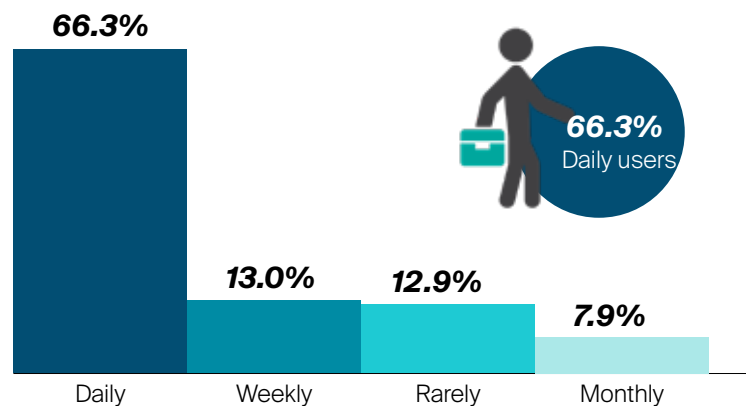
This section presents a detailed analysis of the survey conducted among potential users of the RRTS. The respondent pool includes both professional migrants and long-distance daily commuters across various parts of the NCR. The purpose of the survey was to, a) understand the current level of public awareness and perception about the upcoming RRTS corridors; b) examine existing patterns of travel demand, including frequency, purpose, and preferred modes of transport; and c) to identify the key determinants, such as travel time, cost, comfort, accessibility, connectivity etc, that are likely to influence a potential modal shift from existing transport options to the RRTS once it becomes operational and integrated with regional transport networks. The insights drawn from this analysis are critical for understanding commuter expectations and for designing strategies to enhance RRTS adoption and ridership in the NCR.

## 5.1 Inferences from Key Characteristics

This section presents an overview of the key characteristics of the survey respondents, examining patterns in transport usage, commuting behaviour, and perceptions of regional connectivity, and broader urban development. The analysis offers a clear lens into the factors shaping perceptions and aspirations across the surveyed population.

Exhibit 16:

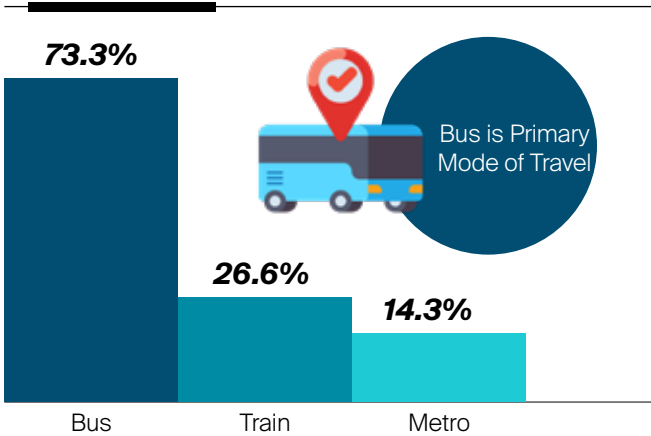
### High Reliance on Public Transport, ~66% are Daily Users



A majority (66.3%) reported using public transport daily, indicating a high level of travel regularity and dependence on shared modes. About 13% of respondents use public transport on a weekly basis, while 12.9% reported using it rarely, and 7.9% use it monthly. This distribution suggests that most respondents are habitual public transport users, providing a representative sample for analysing commuter perceptions and behaviour.

Exhibit 17:

Bus Dominates Public Transport Commutes

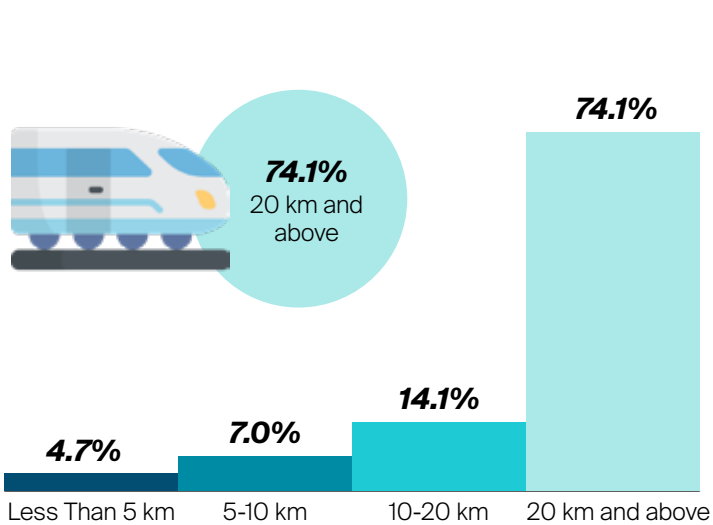


Source: Knight Frank Research

Among respondents who regularly use public transport, the majority (73%) reported commuting primarily by bus, followed by 26.5% who travel by train and 14.3% who use the metro. This distribution indicates that buses remain the predominant mode of public transport among surveyed commuters, with comparatively lower reliance on rail-based systems.

Exhibit 18:

Majority (74%) Travel Medium to Long Distance, Consistent with Regional Mobility Needs

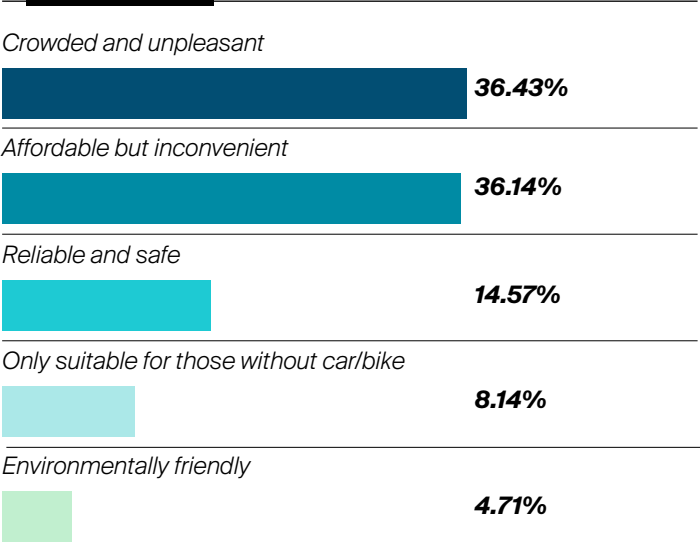


Source: Knight Frank Research

In terms of one-way travel distance, most respondents (74.1%) commute more than 20 km, followed by 14.1% who travel between 10–20 km, 7% who travel 5–10 km, and 4.7% who travel less than 5 km. This distribution suggests that the respondent group predominantly comprises medium- to long-distance commuters, consistent with the regional mobility focus of the RRTS.

Exhibit 19:

~72% of Respondents Report Discomfort With Their Existing Mode of Public Transport

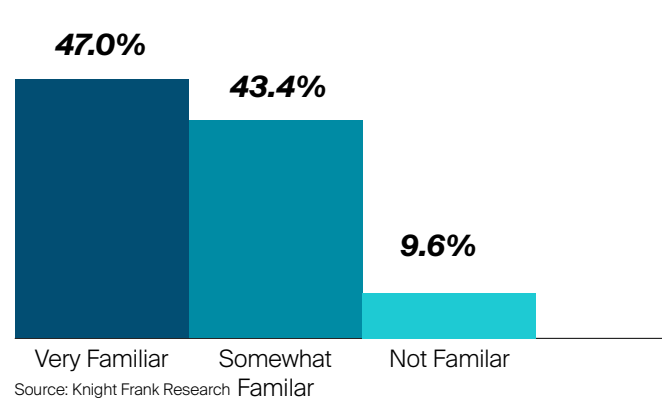


Source: Knight Frank Research

Public transport is largely perceived as uncomfortable and inconvenient. While 36% of respondents find it crowded and unpleasant and another 36% see it as affordable but inconvenient, only 15% view it as reliable and safe, and 8% consider it primarily for those without private vehicles. Overall, it remains functional but lacks comfort, reliability, and aspirational appeal. These responses highlight a persistent image of public transport as functional but lacking comfort, reliability and aspirational appeal.

Exhibit 20:

Awareness of Existing and Future RRTS Corridors Is Nearly Universal (~90%)



Source: Knight Frank Research

Over 90% of respondents are very familiar (47%) or somewhat familiar (43.4%) with the system, and 88.3% are aware of its benefits. These findings suggest that communication and outreach initiatives undertaken so far have been effective in generating broad based public recognition of the RRTS. The high familiarity among aspirational users implies that initial awareness objectives have largely been met, providing a solid foundation for the next phase of public engagement.

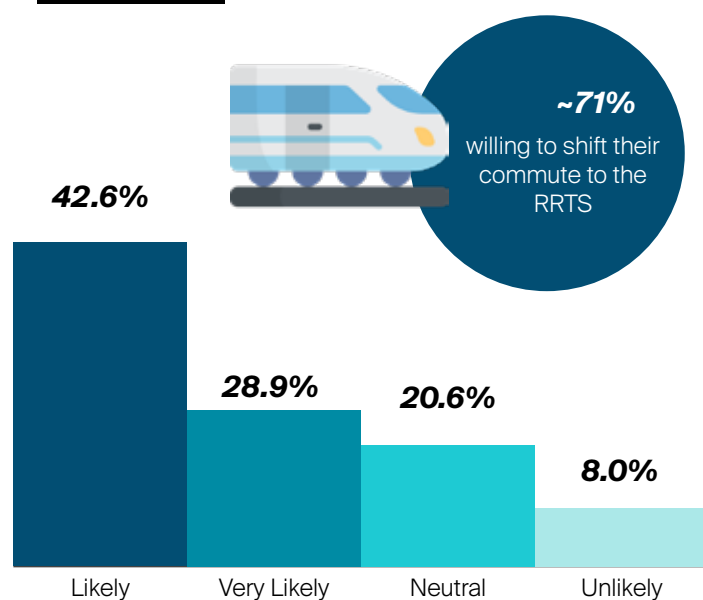
## 5.2 Econometric/Quantitative Assessment of User Intentions

### *Integration Drives Intention: Multi-modal access and awareness drive aspirational RRTS usage*

To understand the potential adoption of the RRTS, respondents were asked to indicate their likelihood of using the system once operational in their home regions. As per the survey, large majority of respondents, i.e. ~71.4% are either likely or very likely to use the RRTS once contingent to its connectivity in their respective home regions. Only 8% indicated they are unlikely to use the system, while about one-fifth (20.6%) remain neutral, reflecting a group that could potentially be influenced through improved information and service experience.

*Exhibit 21:*

#### **~71% of the Respondents are Willing to Shift their Commute to the RRTS**



Source: Knight Frank Research

The strong positive inclination toward usage demonstrates broad public acceptance and interest in the RRTS concept, suggesting that the system already enjoys a favourable perception among potential commuters. From a policy perspective, this provides

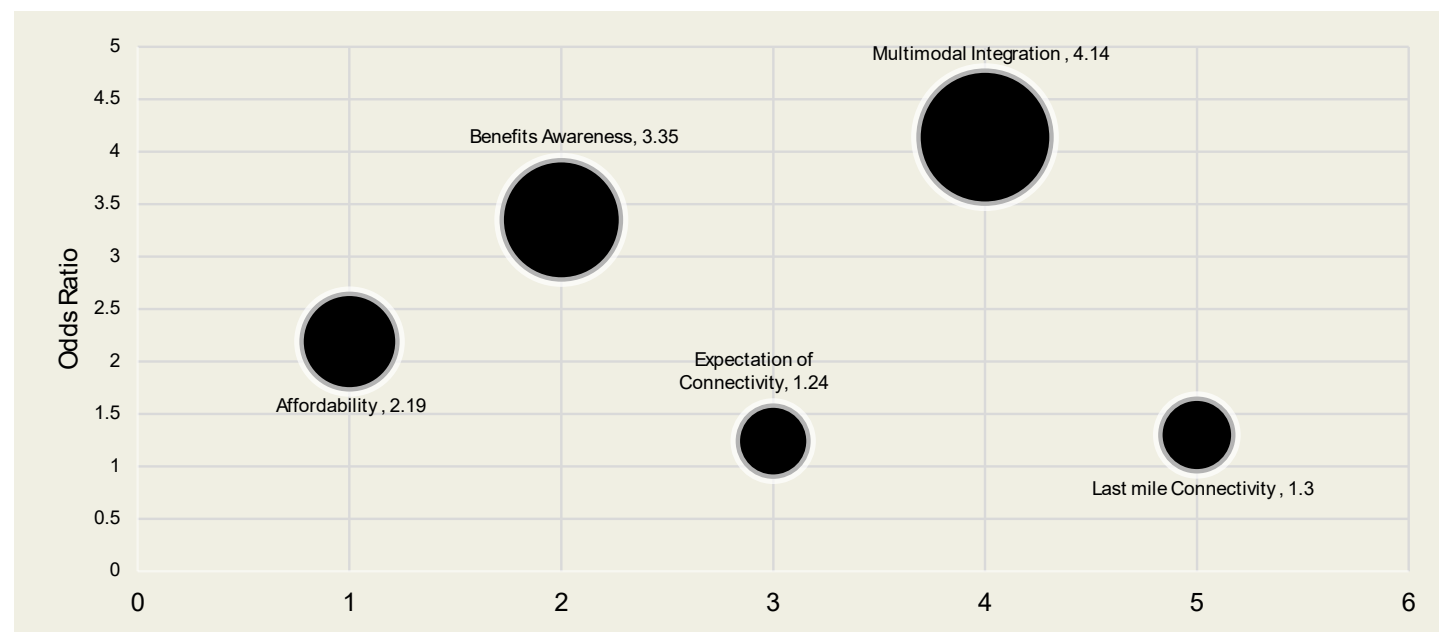
a solid foundation for achieving early ridership targets and promoting mode shift from private to public transport.

We have further statistically measured the likelihood of usage of RRTS using an ordinal logistic model. The model estimates how various predictors, i.e., affordability, awareness, transport integration, and accessibility etc, affect the probability of respondents falling into higher categories of usage likelihood.



Exhibit 22:

## Multimodal Integration Influences the Odds of RRTS Usage by 4.14x



Source: Knight Frank Research

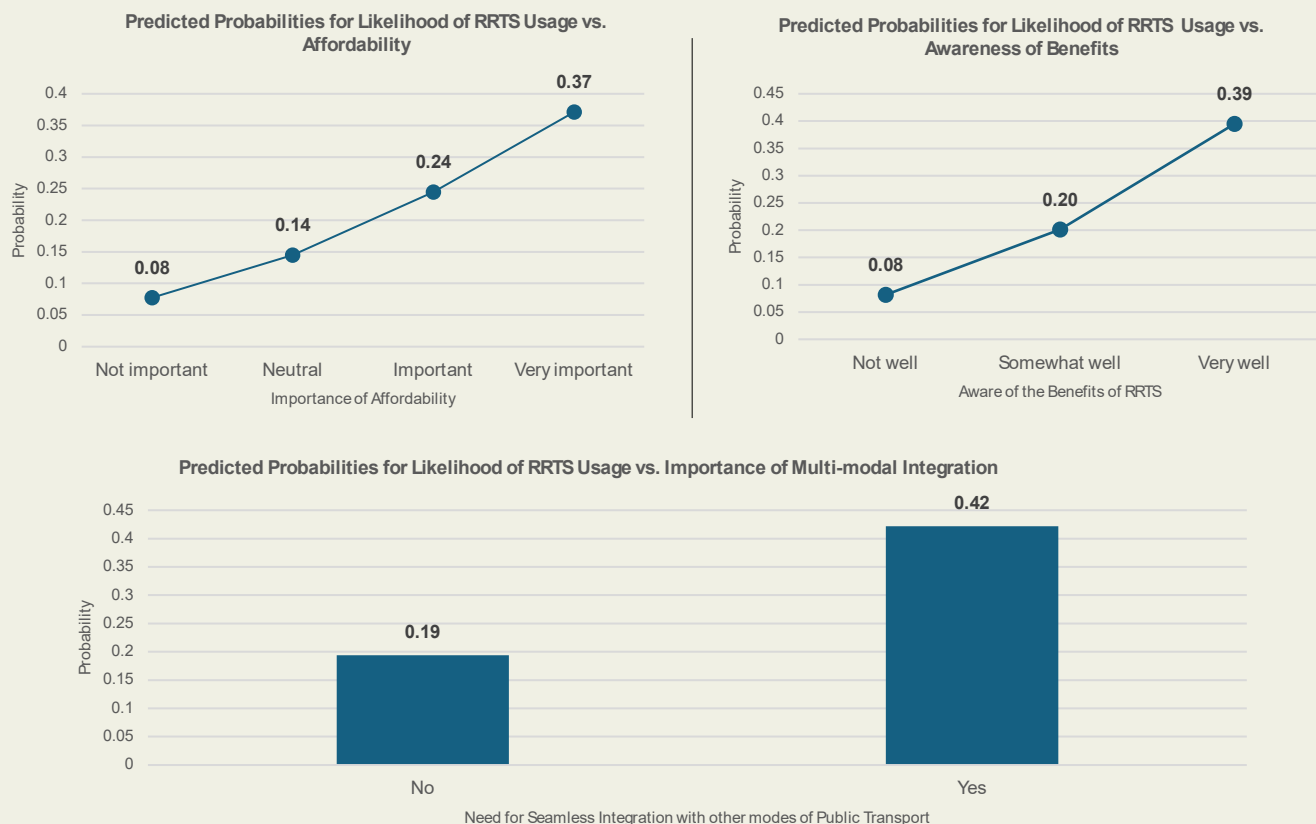
- Respondents perceiving strong integration between RRTS and other transport modes are over 4x more likely to adopt the system. This emphasizes that seamless connectivity with metro, bus, and other feeder modes will be a critical determinant of system success.
- Importance to affordability more than doubles the odds of choosing the RRTS. Maintaining a reasonable and competitive fare structure will therefore be essential for encouraging ridership across income groups.
- Respondents who are more aware of the system's advantages, such as comfort, time savings, safety, and reliability etc are over 3.3x more likely to adopt the RRTS. This highlights the importance of sustained awareness campaigns and targeted communication strategies to enhance public understanding of the system's benefits.
- Improvement in perceived connectivity raises the odds of choosing RRTS by approximately 1.24 times, suggesting that prospective users value the integration of RRTS with other urban and regional transport networks.
- Although last-mile connectivity shows a mild positive effect, it is not statistically significant. This likely reflects the pre-operational stage of the RRTS, where respondents' assessments are based on expectations rather than actual experience. Evidence from existing users shows that last-mile factors become significant once services commence, implying that their importance will likely rise as the system

becomes fully operational. Hence, proactive planning of feeder services and pedestrian access remains essential despite current insignificance.

Predicted probabilities derived from the model provide further insight into the relative strength of these factors.

- Among the aspirational users, the probability of using RRTS sharply increased to 37% when the users gave a significant level of importance to affordability.
- Respondents who are aware of the benefits of the RRTS, which include its speed, comfort, safety, etc are 39% likely to use the RRTS contingent on its connectivity in their region, as opposed to just 8% otherwise.
- The probability of using RRTS increases to 42% when the users perceive there is adequate multimodal integration.

## Affordability, Awareness & Multi-modal Integrates Increases the Probability of RRTS Usage



Source: Knight Frank Research

Therefore, multimodal integration and benefits awareness emerge as the strongest drivers of RRTS adoption among aspirational users. Unlike existing users, who prioritise speed, safety, and productivity over cost considerations, the aspirational users place greater emphasis on fare levels, underscoring the need for reasonable and competitive pricing to encourage future ridership. Although last-mile connectivity is not statistically significant at the 5% level in the current model, it remains practically important in shaping perceptions and expected experience. Its positive coefficient aligns with behavioural theory; users who are better informed about the RRTS and anticipate convenient last-mile access are more likely to adopt the system once it becomes operational.

## Greater Interest in RRTS Usage Corresponds with Higher Openness to Relocating Farther from the City

The introduction of high-speed regional connectivity through the RRTS has the potential to reshape urban form and influence residential location choices. Improved accessibility between metropolitan cores and peripheral towns can encourage households to relocate to more affordable and less congested areas while maintaining strong economic and social ties to the city. This phenomenon, often referred to as transit-induced urban sprawl or accessibility-driven decentralization, reflects how transport infrastructure can alter spatial development dynamics.

passengers are willing to move away from the city if reliable RRTS connectivity is provided. Understanding this willingness is crucial for anticipating future growth patterns, managing land-use change, and guiding transit-oriented development along the RRTS corridor.

To understand the potential influence of RRTS connectivity on urban sprawl, respondents were asked whether they would be willing to live farther from the city if the RRTS offered a faster and more reliable commute.

In this section, the analysis explores the extent to which

Exhibit 23:

## Decentralization Potential: 38% Open to Relocating, but Social Infrastructure Holds the Key

No- I prefer staying closer to the city despite the costs



Maybe- I might consider it if other amenities also available



Not applicable/ I already live away from the city



Yes, definitely - I would prefer living with my family in a less congested area



Source: Knight Frank Research

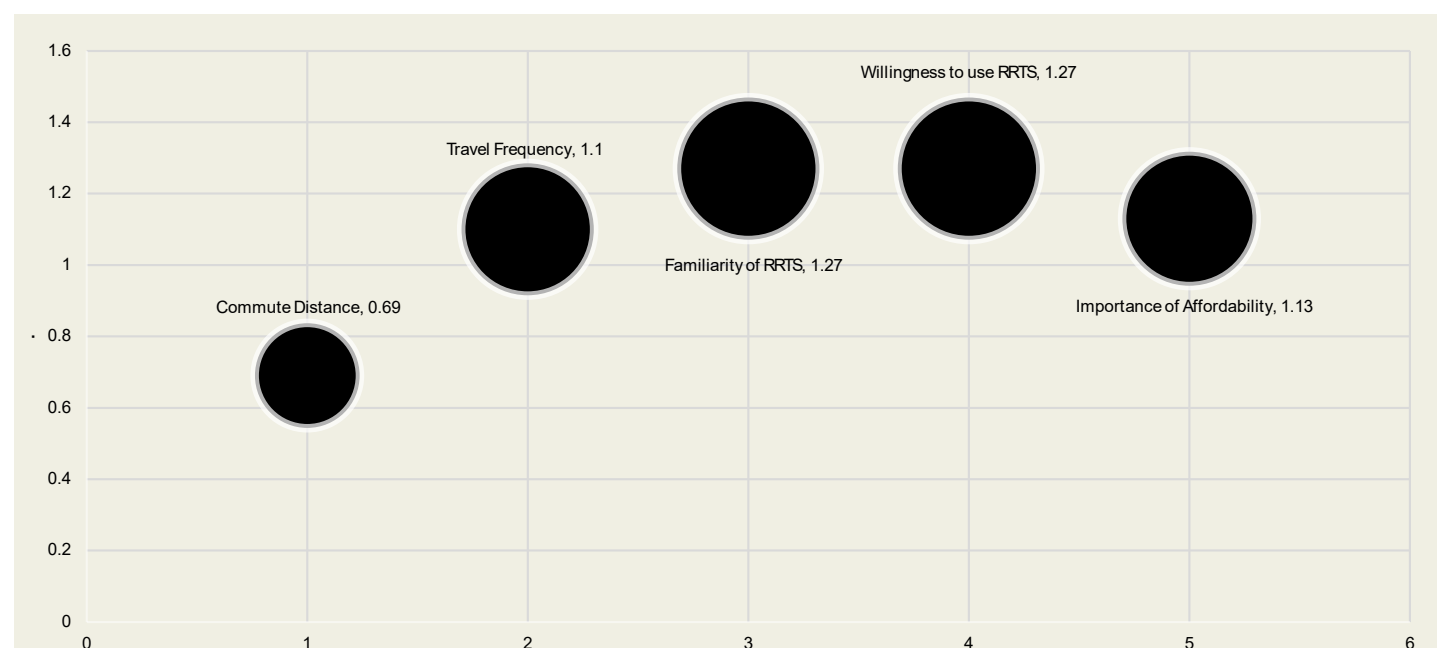
The results indicate that while nearly half of the respondents (47.7%) prefer to continue living close to the city, a notable 38% of respondents (5.9% “Yes definitely” + 32.1% “Maybe”) expressed their willingness to relocate farther if RRTS ensures a comfortable and time-efficient commute. This reflects a latent potential for accessibility driven decentralization, where enhanced transport connectivity may gradually encourage population dispersal toward suburban or peri-urban areas. However, they have also emphasised on the importance of adequate complementary amenities such as schools, healthcare, retail access etc. Thus, suggesting that transport connectivity alone may not be sufficient to trigger relocation without concurrent urban infrastructure development.

Meanwhile, about 14.3% of respondents already reside in outer regions, implying that RRTS could strengthen their existing commuting patterns rather than induce relocation.

To further substantiate, we have statistically measured the factors that can influence the likelihood to relocate to a tier 2 city contingent to availability of RRTS. The dependent variable here is the willingness to relocate with improved regional connectivity via RRTS, and the explanatory variables are – frequency of travel, distance travelled each day, familiarity with the benefits of RRTS, likelihood of usage, affordability perception etc.

Exhibit 24:

## Higher RRTS Usage Willingness Increases Likelihood of Relocating by 1.27x



Source: Knight Frank Research

- Respondents who currently travel longer distance are only 0.69 times likely (31% less likely) to report a higher willingness to relocate. However, distance alone cannot be treated as a decisive factor - this pattern may simply reflect that many of these respondents already live far from the city, leaving limited scope or need for further relocation.
- Higher travel frequency slightly increases willingness to relocate, but the evidence is statistically not significant.
- Familiarity with the RRTS system increases relocation likelihood by 1.27x with borderline significance, suggesting that familiar respondents are somewhat more likely to express willingness to relocate.
- Respondents showing greater willingness to use RRTS are 1.27x more likely to be willing to relocate.
- Affordability has a small, positive effect on willingness to relocate, but it is not statistically significant. In other words, concerns about cost slightly increase relocation willingness, but the impact is weak.

Overall, these findings suggest that RRTS connectivity could potentially shape residential relocation trends, particularly when supported by coordinated land-use planning and amenity development along the corridor. Respondents who express greater willingness to use the RRTS are also more open to relocating, highlighting the role of improved mobility in expanding residential choices. At the same time, unobserved factors such as the availability and quality of social infrastructure are likely to influence relocation decisions, even though they fall outside the scope of the current model. Strategic coordination between transport and spatial planning authorities will therefore be essential to ensure sustainable growth and to prevent uncontrolled urban sprawl.

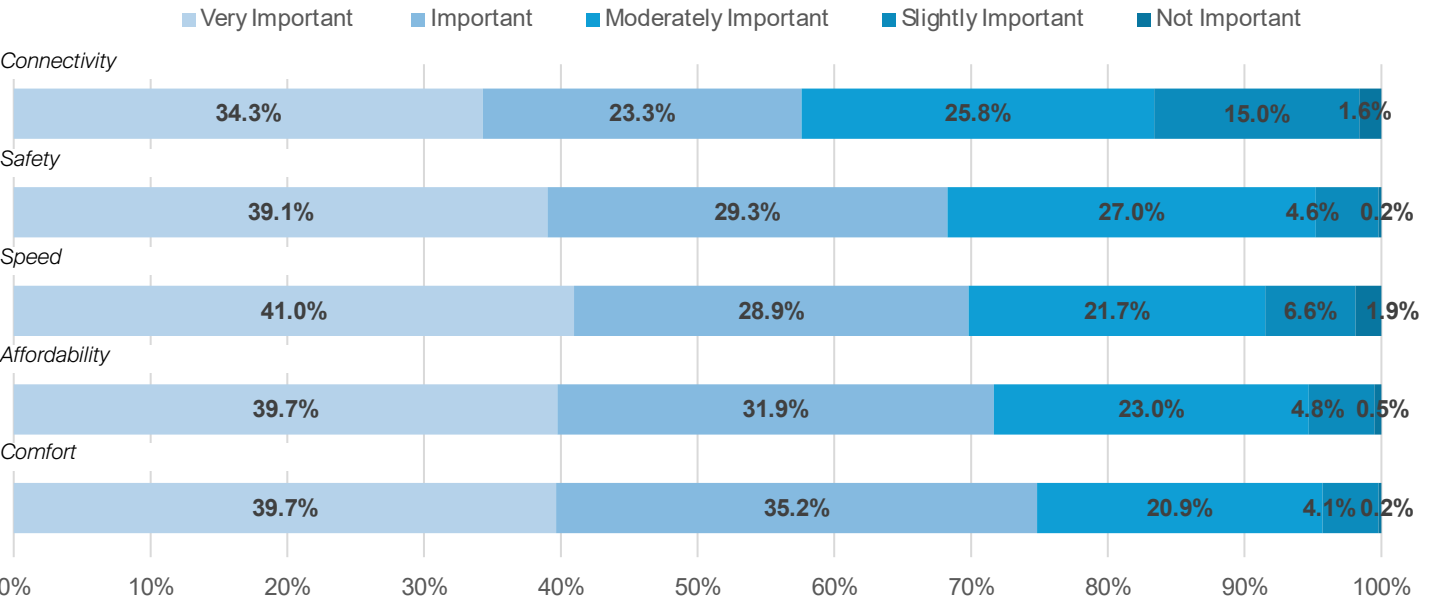
5.3. Expectations of the Aspirational Users

In this section, we have captured the key features and enhancements of the expectations of the aspirational users. The survey findings reveal that respondents hold strong expectations across multiple service dimensions, with particularly high importance placed on speed, comfort, and safety. Over two-thirds of respondents (~70%) rated these features as either Important or Very Important to influence their decision to use the RRTS.

Exhibit 25:

Comfort and Affordability Emerge as Most Valued Features of RRTS

Importance Level of Expected Features



Source: Knight Frank Research

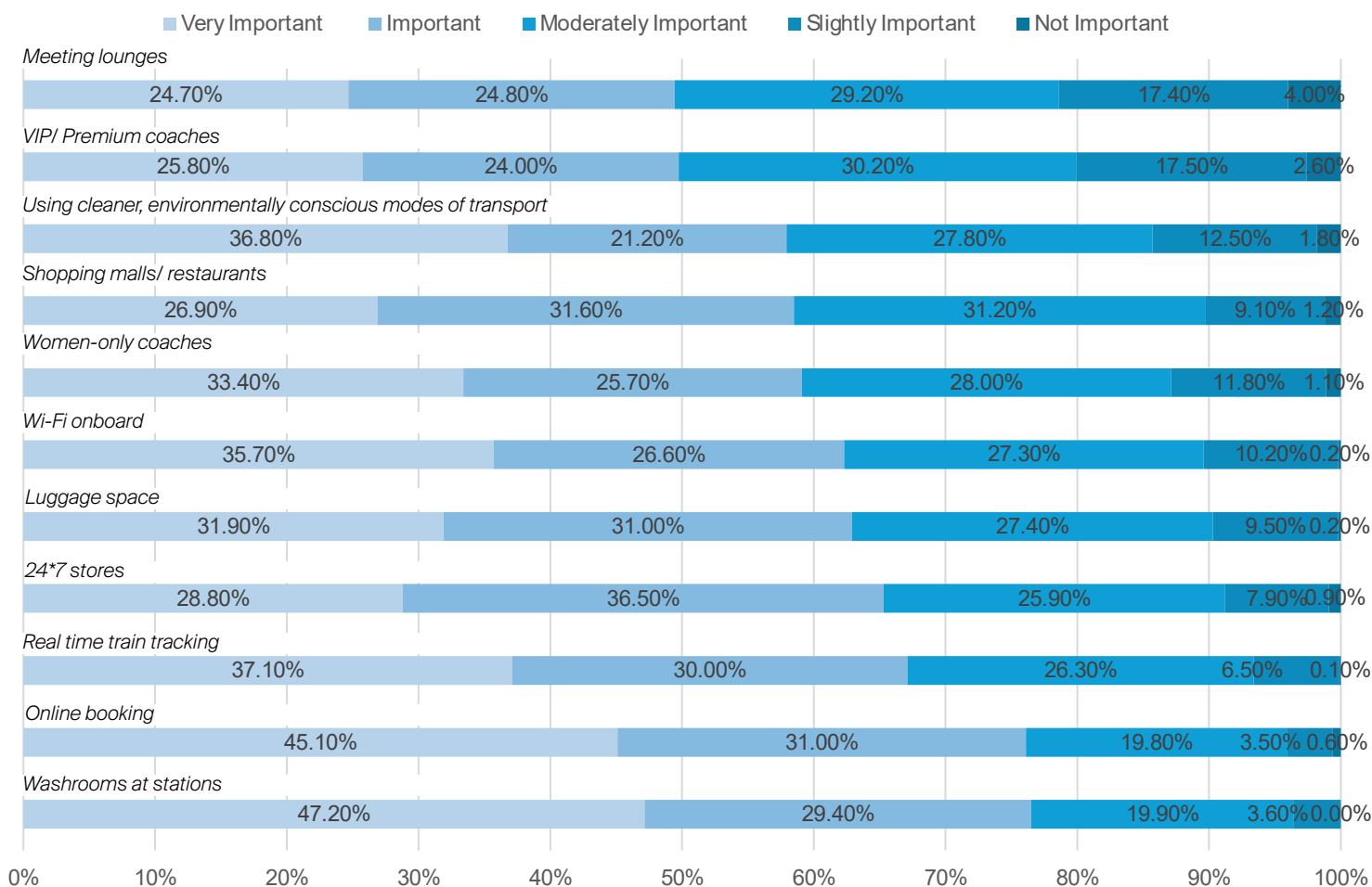
- Comfort (75%) emerged as the most valued feature, underscoring public preference for a modern, convenient, and stress-free commuting experience.
- Affordability (72%) remains a central consideration, reinforcing that while speed and comfort are attractive, cost accessibility must remain a core design and policy principle.
- The importance to speed (70%) reflects commuters' demand for significant travel time savings compared to existing public transport modes.
- Safety (68%) also featured prominently, signalling that security, surveillance, and well-managed station environments will be key to sustaining public trust and encouraging ridership.
- Connectivity (58%) received slightly lower but still substantial positive responses, indicating that first- and last-mile integration—through feeder services, shared mobility, and pedestrian linkages—will play a decisive role in actual system uptake.

In addition to the above-mentioned core features of the RRTS, the influence of additional enhancements which can service quality features as well have a significant influence which can enable seamless adoption of RRTS. The most influential features are:

Exhibit 26:

## Tech Enabled Services and Basic Amenities Emerge as Key Expected Enhancements

### Rankings for Expected Features of RRTS



Source: Knight Frank Research

- Online booking (76%) and washrooms at stations (76.5%), both of which received the highest level of importance. These reflect commuter expectations for digital accessibility and user comfort, aligning with modern service standards in metropolitan transport systems.
- Real-time train tracking (67%) was also highly valued, underscoring the importance of information transparency and predictability in travel planning.
- Retail facilities (65%) and Wi-Fi onboard (62%) further reinforce expectations for a tech-enabled, commuter-friendly environment.
- Women-only coaches (59%) highlight a critical demand for safety and inclusivity measures, particularly relevant for gender-sensitive mobility planning.
- Shopping malls and restaurants (59%) received moderate positive responses, they nonetheless signal a public interest in transit-oriented amenities that make stations more than just transit points.
- The positive responses to cleaner and environmentally conscious operations (58%) demonstrate a growing public preference for sustainable transport solutions, which aligns with broader climate and policy objectives.
- Meanwhile, features such as VIP/premium coaches (50%) and meeting lounges (51%) attracted more neutral responses, suggesting that while such premium amenities are appreciated, they are not core determinants of ridership intent.



# Unlocking the Ridership Potential: Converting Commuter Willingness into System Efficiency

The Delhi-Meerut Regional Rapid Transit System (RRTS) represents a transformative shift in regional mobility, designed to reduce travel times, enhance safety, and provide a high-capacity, low-emission alternative to road-based travel. With 55 km currently operational and strong projected ridership expectations, the system has the potential to reshape commuting patterns across the National Capital Region (NCR).

Findings from the commuter survey in the preceding sections, reveal that users- both existing and aspirational- are willing to use the RRTS. Respondents consistently highlighted the system's speed, reliability, and comfort as key advantages compared to existing modes. However, the survey also surfaced several structural and ecosystem-level constraints that limit the conversion of this positive sentiment into sustained, high-volume ridership.

These constraints are not merely operational shortcomings; they represent gaps in integration, land-use alignment, and regulatory support. The RRTS can deliver its intended mobility and socio-economic benefits only if these ecosystem gaps are addressed through deliberate, coordinated policymaking. Below are some of the key points that are restricting the passenger traffic of the RRTS, and the policy measures that can be adopted to resolve the same.

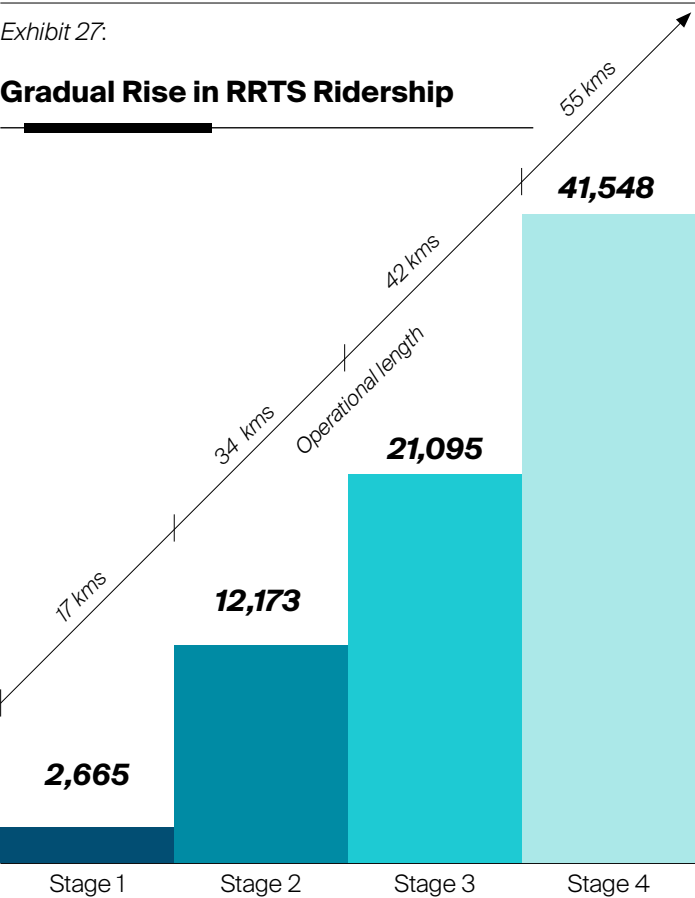
1. Gradual Increase in Ridership While the Corridor Awaits Full Operation

The Delhi–Meerut RRTS corridor has been implemented in multiple phases, and this phased rollout has directly influenced passenger uptake. Operations began in October 2023 with a 17 km priority section between Sahibabad and Duhai Depot, which initially recorded an average ridership of about 2,000 passengers per day. Over the next two stages, the operational network expanded to 55 km, though the remaining portion of the planned 82 km corridor is still awaiting completion. As the network length increased, ridership also showed steady growth, reaching an average of ~50,000 passengers per day by October 2025. While this upward trend reflects growing acceptance and usage, it remains significantly below the system's long-term potential.

Currently, an absence of full corridor connectivity continues to be a major constraint. Passengers traveling longer distances still face incomplete trips and must depend on alternative modes for segments of their journey, reducing convenience and undermining the appeal of the RRTS. Achieving full connectivity would enable seamless, end-to-end high-speed travel between Delhi and Meerut, and strengthen integration with feeder services, metro lines, and local transportation networks. This is essential for enhancing accessibility, improving user experience, and unlocking the corridor's full ridership potential.

Exhibit 27:

Gradual Rise in RRTS Ridership



Source: NCRTC

This would also provide a strong foundation for Transit-Oriented Development (TOD) around station areas. By promoting mixed-use residential, commercial, and office developments near RRTS stations, TOD can significantly increase the number of commuters who live or work within walking distance, thereby expanding the system's catchment area and supporting more consistent ridership. Moreover, full corridor connectivity enables smoother integration with feeder services, metro networks, and local transport hubs, reducing overall travel time and making public transport a more attractive alternative to private vehicles. Achieving complete connectivity is therefore critical not only for improving operational efficiency but also for building a sustainable, commuter-centric ecosystem capable of supporting the corridor's projected passenger traffic.

2. First- and Last-Mile Connectivity Gaps & Policy Interventions

Despite strong commuter willingness, inadequate first- and last-mile access remains one of the most significant barriers to regular RRTS use. Many stations still lack reliable feeder options such as e-rickshaws, e-buses, shared micro-mobility, designated pick-up zones, and safe pedestrian or cycling pathways, thus reducing station accessibility and diminishing the time-saving advantage of the RRTS journey. Based on our survey responses, 24% of the respondents also cite the lack of first and last mile connectivity as a key challenge in accessing the station. International models such as Hamburg's StadtRAD system and the Netherlands' extensive bicycle-parking infrastructure show that these gaps are fully solvable with the right regulatory and institutional frameworks. Also, a notable example is Copenhagen's pedestrian and cycling infrastructure around the Nørreport transit hub, the busiest station in Denmark, where the station was designed with a specific thought directed to the flow and needs of cyclists and pedestrians. Thus, demonstrating that high-quality, accessible footpaths directly increase station catchment and commuter adoption.

To replicate these successes for the RRTS, policymakers should establish a unified last-mile mobility framework enabling regulated e-auto fleets, electric feeder buses, shared bikes, and service-area mandates backed by performance-linked contracts. Integrated station-area mobility hubs, with co-located bus bays, taxi stands, and universal-access pedestrian zones, should be developed, supported by non-motorised transport (NMT) corridors such as protected footpaths, cycle tracks, and secure bicycle parking within a 1–2 km radius to expand the RRTS catchment and encourage sustainable access.

3. Competition from Established Transport Modes

The Delhi–Meerut corridor is dominated by a well-established road-based modes, including private vehicles, intercity AC buses, etc that provide flexible, end to end frequent connectivity. This competition has intensified with the development of the Delhi–Meerut Expressway, which enables end-to-end travel in 45–60

minutes during off-peak hours, offering predictable conditions, high comfort options, and, which resolves the inconvenience of first and last mile connectivity, which is limiting the passenger uptake of the current RRTS ecosystem. From the survey conducted, merely 9% of the existing users have shifted from cars to RRTS. While the commuters appreciate the speed and comfort of the RRTS, the expressway's direct accessibility, flexible routing, and lack of transfer requirements often outweigh the benefits of shifting to rail—especially when last-mile connectivity to RRTS stations remains weak.

To address this challenge, the policy makers in collaboration with various governing authorities must adopt a dual strategy of enhancing RRTS competitiveness through stronger multimodal integration, feeder connectivity, and dynamic fare strategies (return-trip passes, off-peak discounts, and unified multimodal passes), while simultaneously introducing calibrated road-demand management tools along the expressway—such as peak-hour toll adjustments, controlled bus-lane enforcement, and incentives for switching to transit. These interventions can help rebalance modal choice, making RRTS a more attractive and time-competitive option relative to expressway-based travel.

For upcoming RRTS lines, lessons from Delhi–Meerut highlight the importance of proactive policy planning to counter road-based competition. Dynamic fare strategies, early deployment of feeder services, and coordinated traffic management along parallel highways should be implemented before operations begin. By ensuring a convenient, continuous, and time-competitive rail service early on, the future corridors can reduce the modal advantage of private vehicles and expressways, accelerate adoption, and prevent the slow ridership growth observed in the current corridor.

#### ***4. Stimulating Economic Activities to Support Two-Way Commuting***

One of the key factors influencing RRTS ridership is the presence of employment and commercial hubs at both ends of the corridor. In the case of the Delhi–Meerut RRTS line, while Delhi and its surrounding NCR areas host dense employment centres, Meerut remains primarily a residential city with small-to-medium industrial activity and limited large-scale commercial, IT, or corporate office clusters. This imbalance reduces the incentive for reverse commuting, i.e., residents of Delhi–NCR traveling to Meerut for work, thus, resulting in a predominantly one-way passenger flow that limits the overall utilization of the RRTS.

To encourage sustained two-way commuting, there is a need to stimulate economic activity in Meerut. Strategic interventions could include industrial modernization, development of large-scale manufacturing clusters, and focused promotion of tourism. These initiatives can leverage local strengths while fostering service-oriented sectors that do not directly compete with Delhi–NCR's corporate hubs.

Additional measures may include supporting small and medium enterprises (SMEs) and startups through tax incentives,

incubators, and infrastructure support. Creating transit-oriented commercial zones connected to RRTS stations within the Meerut region can further boost employment, ultimately enhancing the efficiency of the RRTS system.

Beyond employment generation, strengthening social infrastructure, such as educational institutions, hospitals, utilities, and entertainment facilities etc are crucial to attract migration from dense metropolitan regions like NCR to emerging cities like Meerut. According to our survey, among aspirational RRTS users currently living and working in the NCR region, 32% are willing to relocate to a smaller city if it has RRTS connectivity, provided there are necessary amenities.

International experience reinforces the value of such an approach. Along Germany's Cologne–Frankfurt ICE corridor, regional offices, industrial parks, and new residential developments in smaller towns fostered strong two-way commuter flows. In Japan, Shinkansen towns such as Kanazawa and Nagano developed light industries, tourism, and service sectors that complemented employment centres in Tokyo and Osaka. Similarly, along France's TGV corridors, cities like Lyon, Avignon, and Rennes promoted research parks, cultural hubs, and SMEs that created distinct regional economic niches.

Applying these principles in Meerut like regions can stimulate balanced two-way commuting, improve RRTS operational efficiency, and maximize the corridor's economic and social impact.

## ***Conclusion***

The RRTS marks a major step in India's pursuit of faster, more efficient, and better-integrated regional mobility. Insights from the commuter survey conducted as part of this study reveal that both existing users and the aspirational users strongly support this new form of regional connectivity, with users increasingly shifting from cost-driven choices to value- and service-quality considerations. Aspirational users, while more price-sensitive, prioritise multimodal integration, familiarity, and awareness—highlighting the need for seamless last-mile access and stronger communication.

Though still in its early stages, the need to replicate and scale the RRTS model across major metros is evident. Cities like Delhi, Mumbai, Bengaluru, and Chennai face severe congestion, soaring real estate pressure, and mounting infrastructure strain. As these urban centres continue to absorb disproportionate population and economic growth, regional disparities deepen and quality of life declines. In this context, high-speed regional transit becomes not just a mobility upgrade but a structural intervention in India's urban growth dynamics. Its long-term success, however, hinges on more than infrastructure delivery—it requires coordinated efforts to expand economic opportunities, strengthen social and physical infrastructure, ensure affordable housing, and activate development around emerging hubs. Behavioural insights further highlight existing gaps along the Delhi-Meerut corridor, such as, weak last-mile connectivity, incomplete network links, competition from road-based modes, and limited economic activity- which must be addressed through network completion, stronger multimodal integration, targeted fares, and deliberate economic activation.

Ultimately, the RRTS offers India a powerful opportunity to redefine the relationship between megacities and their regions. With strategic planning and supportive policies, it can drive economic diversification, enhance regional competitiveness, and support more resilient, inclusive national growth.



# Annexure – I

## 1.1 Descriptive Statistics: RRTS Existing User Survey

<i>Demographic Variables</i>		<i>Frequency</i>	<i>%</i>
<i>Age</i>	18 – 24 yrs	293	41.7%
	25 – 34 yrs	324	46.2%
	35 – 44 yrs	71	10.1%
	45 – 54 yrs	10	1.4%
	55 – 59 yrs	3	0.4%
	60 yrs or above	1	0.1%
<i>Gender</i>	Female	263	37.5%
	Male	439	62.5%
<i>Occupation</i>	Non-working	97	13.8%
	Working	385	54.8%
	Student	220	31.3%
<i>Living from nearest RRTS</i>	Under 1 kms	134	19.1%
	1 – 2 kms	142	20.2%
	2 – 5 kms	326	46.4%
	Above 5 kms	100	14.3%
<i>Working from nearest RRTS</i>	Under 1 kms	182	25.9%
	1 – 2 kms	167	23.8%
	2 – 5 kms	253	36.0%
	Above 5 kms	100	14.3%
n = 700			
<i>RRTS Usage</i>		<i>Frequency</i>	<i>%</i>
<i>Frequency of usage</i>	Daily	536	76.4%
	Weekly	91	13.0%
	Monthly	44	6.3%
	Rarely	31	4.4%
<i>Mode wise shift to RRTS</i>	Bus	457	65.1%
	Metro	54	7.7%
	Train	4	0.6%
	Car	34	4.8%
	Two-wheeler	105	15.0%
	Auto Rickshaw	4	0.6%
	E – Rikshaw	15	2.1%
	Cab (Taxi, Ola, Uber)	29	4.1%
<i>Distance Travelled (km)</i>		4.3 (min)	26.37 (mean)
		51.5 (max)	25.2 (median)

<i><b>RRTS Stations</b></i>	<i><b>Boarded</b></i>		<i><b>Alighted</b></i>	
	<b>Freq</b>	<b>%</b>	<b>Freq</b>	<b>%</b>
Anand Vihar	13	1.8%	23	3.2%
Duhai	31	4.4%	52	7.4%
Duhai Depot	2	0.2%	15	2.1%
Ghaziabad	109	15.5%	114	16.2%
Guldhar	30	4.2%	42	5.9%
Meerut South	150	21.3%	151	21.5%
Modi Nagar North	55	7.8%	63	8.9%
Modi Nagar South	15	2.1%	32	4.5%
Muradnagar	32	4.5%	46	6.5%
New Ashok Nagar	178	25.3%	96	13.6%
Sahibabad	87	12.3%	68	9.6%

n = 700

<i><b>Perception Variables</b></i>		<i><b>Frequency</b></i>	<i><b>%</b></i>
<i>RRTS Cost Perception</i>	More affordable	168	23.9%
	About the same	177	25.2%
	Not sure	43	6.1%
	More expensive	314	44.7%
<i>Change in Time Travelled</i>	Decreased by > 30 min	353	32.9%
	Decreased by 15-30 min	97	50.3%
	Decreased by < 15 min	97	13.8%
	No Change	17	2.4%
	Increased	4	0.6%
<i>Connectivity and suitability of station location</i>	Strongly Agree	231	32.9%
	Agree	337	48.0%
	Neutral	72	10.3%
	Disagree	30	4.3%
	Strongly Disagree	32	4.6%
<i>Economic opportunity improvement due to RRTS</i>	Strongly Agree	173	25.6%
	Agree	390	55.6%
	Neutral	99	14.1%
	Disagree	26	3.7%
	Strongly Disagree	14	2.0%
<i>Commercial Development</i>	Yes	532	24.2%
	No	170	75.8%
<i>Decision to invest in property along corridor</i>	Yes	339	51.7%
	No	363	48.3%
<i>Improvement in productivity due to reduced travel time</i>	Strongly Agree	246	35.0%
	Agree	312	44.4%
	Neutral	107	15.2%
	Disagree	21	3.0%
	Strongly Disagree	16	2.3%
<i>Safety</i>	Yes	621	88.5%
	No	52	7.4%
	Neutral	29	4.1%

<i>Perception Variables</i>		<i>Frequency</i>	<i>%</i>
<i>Change in Property Prices along corridor</i>	Decreased by > 10%	1	0.1%
	Decreased by 10%	15	2.3%
	Decreased by 5%	15	2.1%
	No Change	183	26.1%
	Increased by 5%	323	46.0%
	Increased by 10%	102	14.5%
	Increased by > 10%	62	8.8%
<i>Real Estate Development along corridor</i>	Yes	545	77.6%
	No	157	22.4%
<i>Accessibility challenges</i>	Yes	46	6.6%
	No	656	93.5%
<i>Satisfaction level</i>	Very satisfied	275	39.2%
	Satisfied	307	43.7%
	Neutral	87	12.4%
	Dissatisfied	21	3.0%
	Very dissatisfied	12	1.7%

n = 700

1.2 Descriptive Statistics: RRTS Aspirational User Survey

<i>Demographic Variables</i>		<i>Frequency</i>	<i>%</i>
<i>Age</i>	Less than 18 yrs	1	0.1%
	18 – 24 yrs	175	25.0%
	25 – 34 yrs	344	49.1%
	35 – 44 yrs	131	0.2%
	45 – 54 yrs	37	0.1%
	55 – 59 yrs	9	0.0%
	60 yrs or above	3	0.0%
<i>Gender</i>	Female	246	35.1%
	Male	454	64.9%
<i>Occupation</i>	Non-working	93	13.3%
	Working	482	68.9%
	Student	125	17.9%

n = 700

<b>Public Transport Usage and Perception</b>		<b>Frequency</b>	<b>%</b>
<i>Frequency of public transport usage</i>	Daily	464	66.3%
	Weekly	55	13.0%
	Monthly	90	7.9%
	Rarely	91	12.9%
<i>Primary mode of travel</i>	Bus	513	73.3%
	Train	186	26.6%
	Metro	1	14.3%
<i>Distance Travelled (km)</i>	Less than 5 km	33	4.7%
	5 – 10 km	49	7.0%
	10 – 20 km	99	14.1%
	More than 20 km	519	74.1%
<i>Perception</i>	Reliable and safe	102	14.6%
	Environmentally friendly	33	4.7%
	Affordable but inconvenient	253	36.1%
	Only suitable for those without car/bike	57	8.1%
	Crowded and unpleasant	255	36.4%

n = 700

<b>RRTS Usage and Perception</b>		<b>Frequency</b>	<b>%</b>
<i>Familiarity with RRTS</i>	Very familiar	329	47.0%
	Somewhat familiar	304	43.4%
	Not familiar	67	9.6%
<i>Aware of the benefits of RRTS</i>	Very well	296	42.3%
	Somewhat well	322	46.0%
	Not well	82	11.7%
<i>Likelihood of using RRTS</i>	Unlikely	56	8.0%
	Neutral	144	20.6%
	Likely	298	42.6%
	Very Likely	202	28.9%
<i>Willingness to pay higher fare for faster travel</i>	Yes	220	31.4%
	No	352	50.3%
	Maybe	128	18.3%
<i>Enhancements that would influence the decision to choose RRTS</i>	Retail facilities	85	12.1%
	Last mile connectivity	185	26.4%
	Parking availability	40	5.7%
	Convenient walking access	144	20.6%
	Integration with other public transport	245	35.0%
	Others		
<i>Willingness to pay for parking facilities</i>	Less than Rs. 20	1	0.1%
	Rs 21 – Rs 50	427	61.0%
	Rs 51 – Rs 75	208	29.7%
	Rs 76 – Rs 100	51	7.3%
	Rs 101 – Rs 200	8	1.1%

<i>Willingness to live farther if RRTS improves commute</i>	Yes definitely	6	5.9%
	No – prefer staying close to city	41	47.7%
	Maybe – if other amenities are also available	334	32.1
	Not applicable – already live away from city		14.3%

# Annexure – 2

## Statistical Output of Ordinal Logistic/Logit Models:

### 2.1: Models under Existing User Survey

<i>Model 1: Ordinal Logistic Regression Model with Satisfaction as Dependent Variable:</i>				
<i>Independent Variables</i>	<i>Coef (B)</i>	<i>Odds Ratio</i>	<i>P value</i>	<i>Key Interpretation</i>
Changes in commute time	0.63	1.89	0.003	Highly Significant
Connectivity	0.30	1.36	0.00	Highly Significant
Cost perception	-0.06	0.93	0.24	Not Significant
Changes in productivity	0.54	1.72	0.00	Highly Significant
Safety perception	0.52	1.68	0.00	Highly Significant
Travel frequency	0.17	1.19	0.061	Moderately Significant
<i>Model 2: Ordinal Logistic Model with Economic Opportunity Perception as Dependent Variable</i>				
<i>Independent Variables</i>	<i>Coef (B)</i>	<i>Odds Ratio</i>	<i>P value</i>	<i>Key Interpretation</i>
Infrastructure development	0.81	2.25	0	Highly Significant
Connectivity	0.40	1.49	0.243743	Not Significant
Increase in Property Prices	0.08	1.08	0.271	Not Significant
Increase in Commercial Activities	0.56	1.74	0.002	Highly Significant
Real Estate Development	0.43	1.53	0.017	Significant
<i>Model 3: Logit Regression Model with Willingness to Invest Along Corridor as Dependent Variable</i>				
<i>Independent Variables</i>	<i>Coef (B)</i>	<i>Odds Ratio</i>	<i>P value</i>	<i>Key Interpretation</i>
Increase Commercial Activities	2.32	10.19	0	Highly Significant
Property Price* Infrastructure development				
Low Property price* developed infrastructure	0.46	1.58	0.024	Significant
High Property price * unchanged infrastructure	-0.61	0.54	0.513	Not Significant
Infrastructure Development	-0.58	0.56	0.363	Not Significant
Real Estate Development	2.04	7.66	0	Highly Significant
Real Estate Investment Attractiveness	0.32	1.37	0.001	Highly Significant

2.2 Models Under Aspirational User Survey

Model 1: Ordinal Logit Model with Likelihood of RRTS Usage as Dependent variable				
Independent Variables	Coef (B)	Odds Ratio	P value	Key Interpretation
Affordability	0.78	2.19	0.00	Highly Significant
Benefits Awareness	1.21	3.35	0.00	Highly Significant
Expectation of Connectivity	0.21	1.24	0.00	Highly Significant
Multimodal Integration	1.42	4.14	0.00	Highly Significant
Last mile Connectivity	0.26	1.3	0.01	Highly Significant

Model 2: Ordinal Logit Model with Willingness to Relocate as Dependent Variable				
Independent Variables	Coef (B)	Odds Ratio	P value	Key Interpretation
Affordability	0.78	2.19	0.00	Highly Significant
Benefits Awareness	1.21	3.35	0.00	Highly Significant
Expectation of Connectivity	0.21	1.24	0.00	Highly Significant
Multimodal Integration	1.42	4.14	0.00	Highly Significant
Last mile Connectivity	0.26	1.3	0.01	Highly Significant



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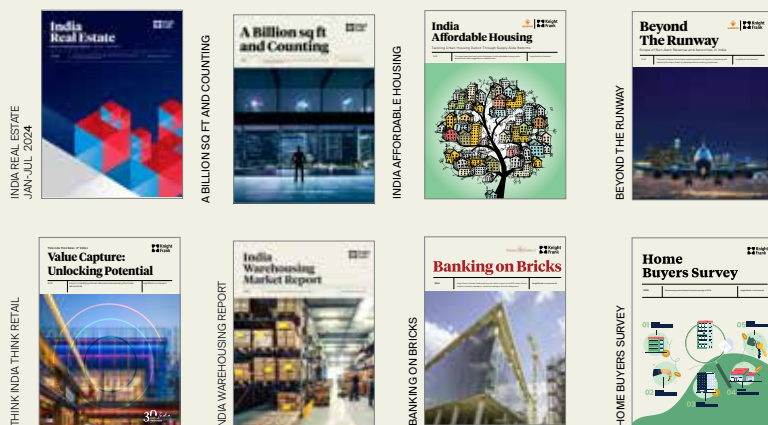
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