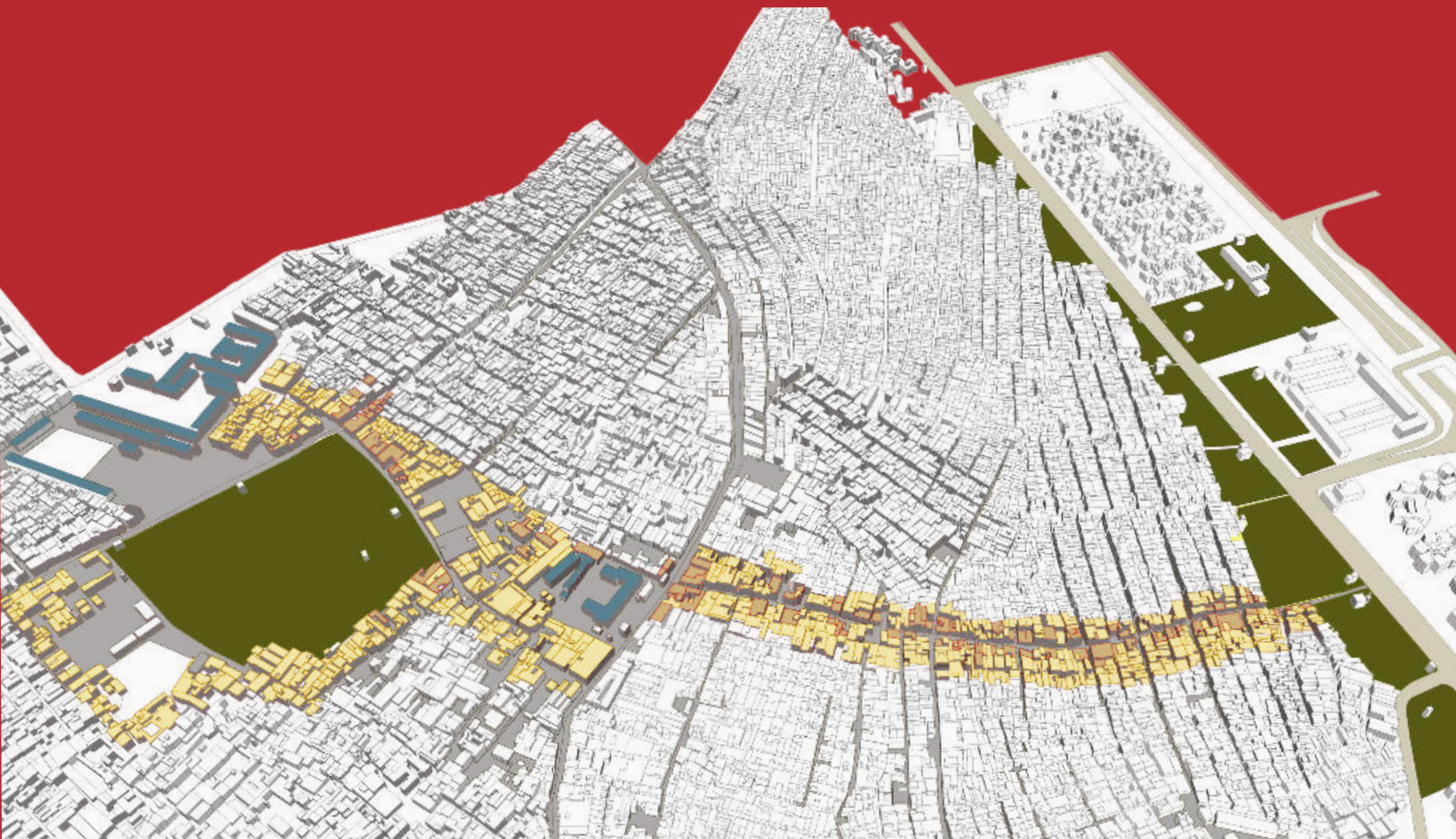




CITY LEVEL PROJECTS

WEST VINOD NAGAR AND MANDAWALI

Site Specific Design for Ward Number 217
and Ward Number 218





(An ISO 9001 : 2008 Certified Organisation)

Delhi Urban Art Commission

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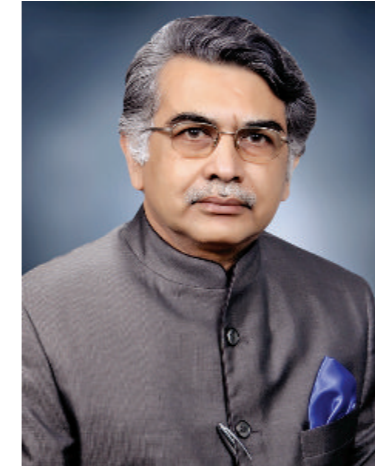
DELHI URBAN ART COMMISSION with gratitude duly acknowledges the valuable contributions of the following in making this report:

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Organisations/Others

Ministry of Urban Development, Government of India
Delhi Development Authority
Government of National Capital Territory of Delhi
North Delhi Municipal Corporation
East Delhi Municipal Corporation
South Delhi Municipal Corporation
New Delhi Municipal Council
Geospatial Delhi Limited
Delhi Metro Rail Corporation
Delhi Urban Shelter Improvement Board
BSES Rajdhani Power Limited
BSES Yamuna Power Limited
RWA

Preface



The city of Delhi, capital of this vast land of diversities, is a city laden with layers of history, a place where civilizations have lived, prospered and perished over centuries. The modern city today, built over and around a rich tapestry of heritage, presents an opportunity at every turn, to allow for co-existence of the past, present and the future. In order to understand this multidimensional urban spectrum and attempt to plan the future, various city level studies have been initiated by the DUAC. I hope that these studies will help the planners of modern day Delhi to carefully articulate urban space, structure, form and environment and sensitively address future requirements.

I convey my thanks to all the Consultants and Members of the Commission who have tirelessly worked on this research project to bring out this document. I also take this opportunity to place on record my sincere appreciation of the efforts of Secretary and other staff of DUAC for providing the necessary administrative support to make this happen.

I fondly hope that the authorities of the local, state and national government take these studies seriously and implement, in right earnest, the suggestions given herein.

March, 2015

Sd/-
Prof. Dr. P.S.N. Rao
Chairman, DUAC

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Summary

Criteria for Area Selection: Delhi is a historic city. The historicity is manifested both at the monumental and mundane level equally by outstanding monuments on the one hand and housing of the masses on the other. Housing determines the historic continuity of a place. Needless to state that a large part of this housing is informal, unregulated and unplanned. The informal physical geometry of growth is a documentation of the supply/demand equation over time. The older parts of the city illustrate this trait more strongly than the comparatively newer ones. Also the medieval texture of the older parts is a clear giveaway of the areas that have come into the ambit of **planned** Delhi very late. The east of Delhi is a very ancient part which finds mention in the Battle of Plassey.

It is natural, then to assume that the fabric of East Delhi would present an existing scenario to the planners which gives very little room for interventions of a planned nature. Organic growth has this very heartening self limiting quality – in terms of social as well as physical growth. The pressures of growth are kept in check by balancing forces – mysterious and unquantified but apparent. These, unfortunately, are way too random and unacceptable by the formal planning standards and the place is often perceived as **chaotic**.

The selected areas have all the elements of **organic growth** (very high density, narrow lanes, small plots, high ground coverage and structures of about 3-4 floors height, mixed land use and a general deficiency of infrastructure). Also the study area is very characteristic of this typical typology found uniformly scattered all over the extended boundary of Delhi.

It would not be wrong to assume that it would be impossible to apply the principles of planning normally used for newer or planned areas. These are living, pulsating areas with very little manoeuvring **space** available for planners. A slightly improved level of infrastructure services can be surgically implanted for a better quality of life for the residents by causing least inconvenience.

Or else, a completely out of the box thinking approach is required demanding the seemingly impossible resources of high capital (private investment?), land, people's participation and cooperation and timely delivery of schemes – besides running the risk of transforming the social fabric of the place for good.

Objective: The site specific study undertaken is the area of West Vinod Nagar and Mandawali (Ward no 217 and 218). Part of the study area is unauthorized regularized colonies while the rest comes under the category of unauthorized colonies. The area is a representative example of the rest of the unauthorized colonies in the city. Despite being an unauthorized colony, the area is developing fast in violation of the Master Plan. The issues that are being dealt with at this stage call for following few interventions that can be explored for the area:

- Upgradation of services
- Motivating people to come together and pool in to be part of better planning control for their area.

Methodology:

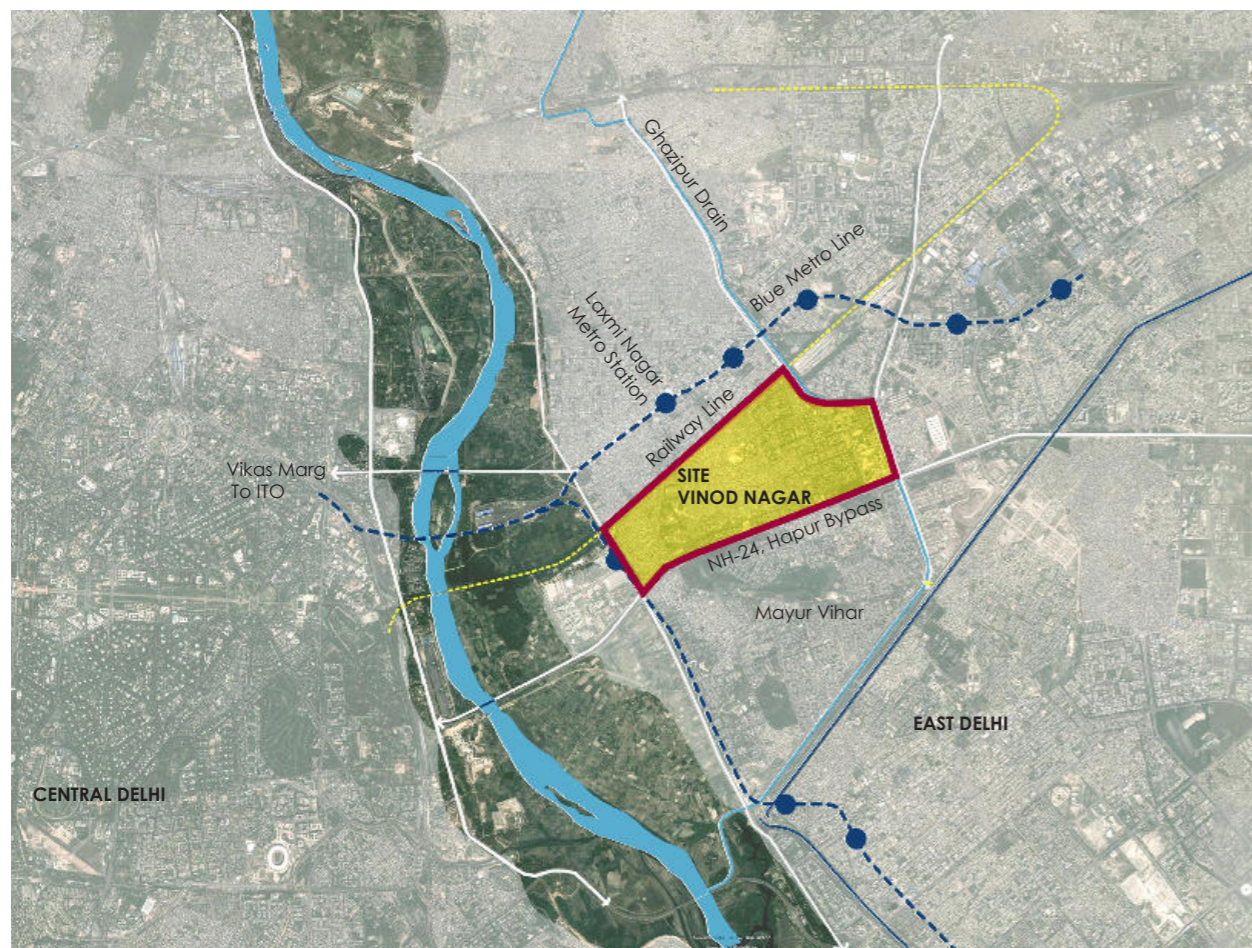
- The report represents a comprehensive overview of the area in terms of its land use, space, activities, work centres and mixed-use street areas.
- The analysis of urban transport, its network, identification of activities has been incorporated to get an overview of the issues which the area faces.
- The issues of the area have also been looked at based on the comparison of the current situation and that mentioned in Master Plan of Delhi 2021 along with the Zonal Plan.

Approach: In order to bring about a semblance of planned **order** in the area, minimal and suitable intervention by selective and specific development pockets which integrate land parcels and open spaces together, lending an identity have been proposed. The approach thus requires planning for a design strategy which can accommodate phased redevelopment and restructuring of the spaces.

Strategies are being developed to streamline transportation in the area and provide for an increased accessibility. This will represent a feasible design solution for replication in other zones of the area.

The issues resolved can help in better planning of spaces that can be carried forward for the next 100 years. The change so observed will reflect need based, locally generated monitored growth of the area, i.e. the ward. Hopefully this would also represent a model of redevelopment for all such areas in the city.

1.1 City Location



Key Map

Mandawali, in the beginning, was a typical isolated village on the outskirts of Delhi, which in the 1960s was absorbed into the jurisdiction of Delhi. The agricultural fields were acquired by DDA and proposed for various developments.

In 1980 Vinod Nagar started to develop next to Mandawali and between 1980 and 2013 it evolved as a sought-after residential area.

Mandawali and Vinod Nagar are now unplanned colonies holding people more than their anticipated capacities.

Area and Population

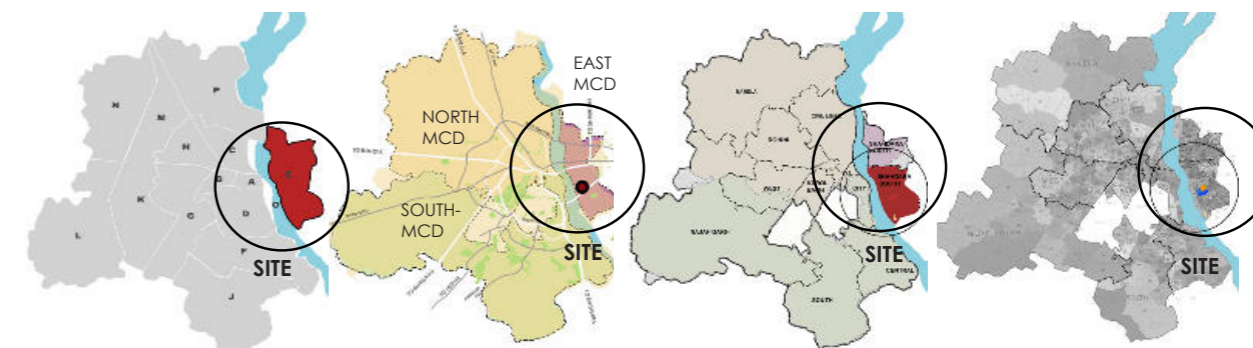
Areas of Vinod Nagar and Mandawali are 89.74 ha and 90.58 ha respectively.

Vinod Nagar and Mandawali have a population of 58,964 and 49,753 respectively (Total of 1,08,717). Source Census India: 2011



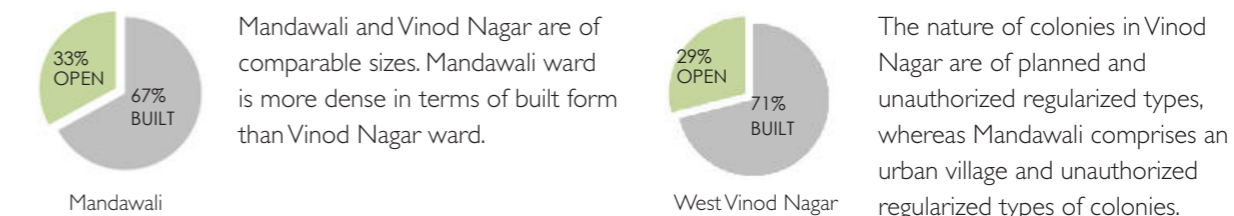
Location on Map of Delhi

Area of Study and Various Administrative Boundaries



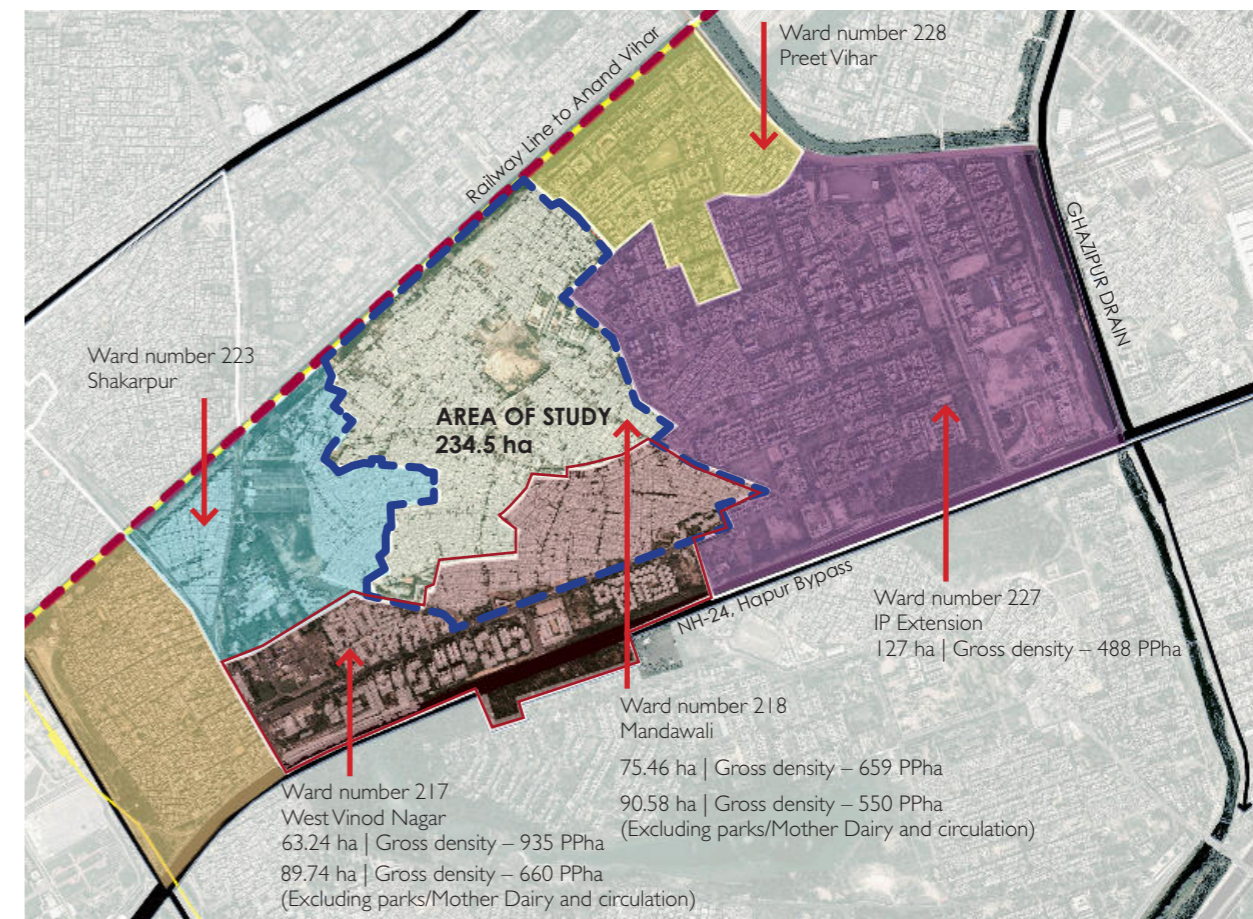
DDA ZONES IN DELHI – Area of study falls under Zone E
MCD ZONES IN DELHI – Area of study falls under East Municipal Zone
MCD SUB-ZONES IN DELHI – Area of study falls under Shahdara South Zone
WARDS IN DELHI – Area of study falls under wards 217 and 218

Comparison of built/open space between Mandawali and Vinod Nagar



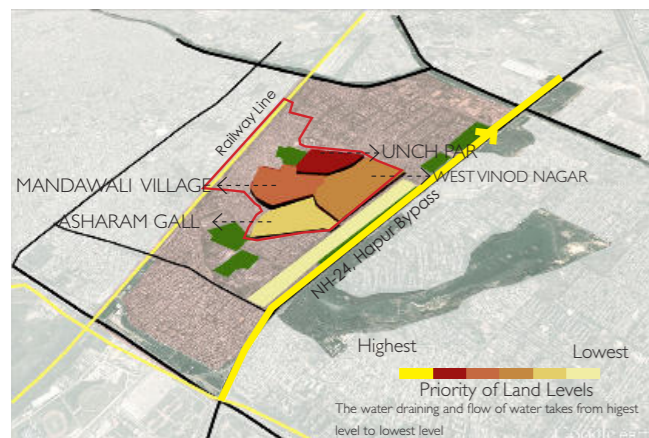
1.2 Ward Location

The site taken up for study has an area of 234.5 ha and falls under the wards of Vinod Nagar (217) and Mandawali (218). The area of Vinod Nagar and Mandawali are essentially unauthorized. The selection of area of study is based on that basis.



Key Map:Ward boundaries in and around area of study

Geography of Mandawali and West Vinod Nagar

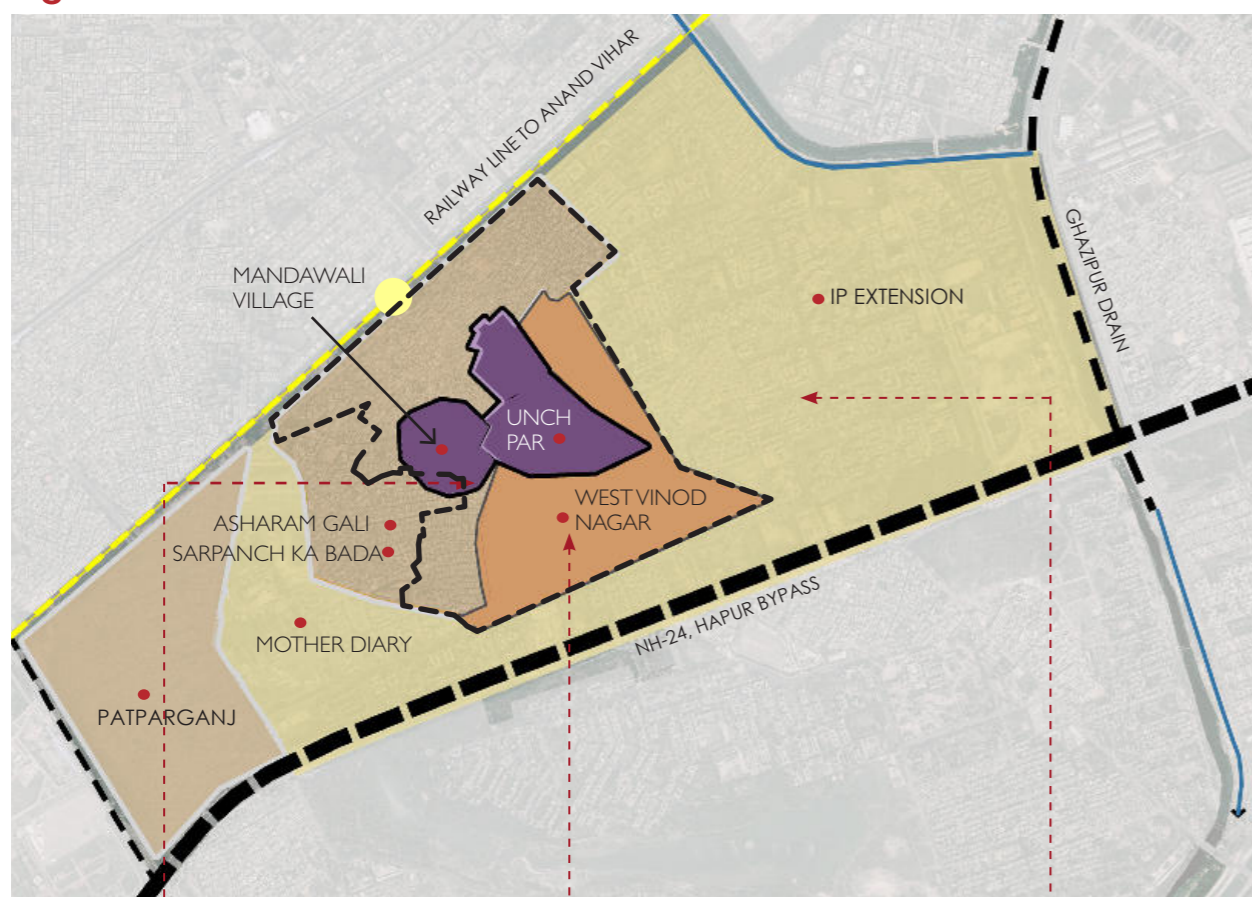


Key Map

East Delhi sewerage drains into Ghazipur drain. Due to mismanaged road levels of NH-24 the backflow of drainage happens in Vinod Nagar:

The location of the village and a few areas around it like the Sarpanch ka Bada, Asharam Gali and Unch Par were in sync with the ecological condition. With the emergence of Vinod Nagar colonies, the lack of balance in the flow of water began to happen. The houses in Vinod Nagar are built on higher plinths to deal with the backflow of water into their houses.

1.3 Area Evolution



Evolution of the area of study

1960

1970

1980

ZONE E till 1960 was a small area like Shahdara, connected to other parts of the National Capital Territory by only one road-cum-railway bridge near Red Fort.

Mandawali in 1960 was a small village area, which presently has been demarcated by a Lal Dora boundary.

At the beginning of the implementation of the Master Plan in 1962, East Zone was planned for a balanced development for about 7.5 lakh population.

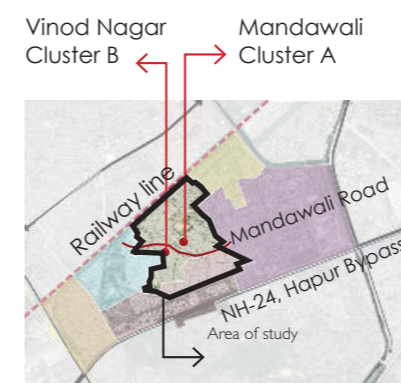
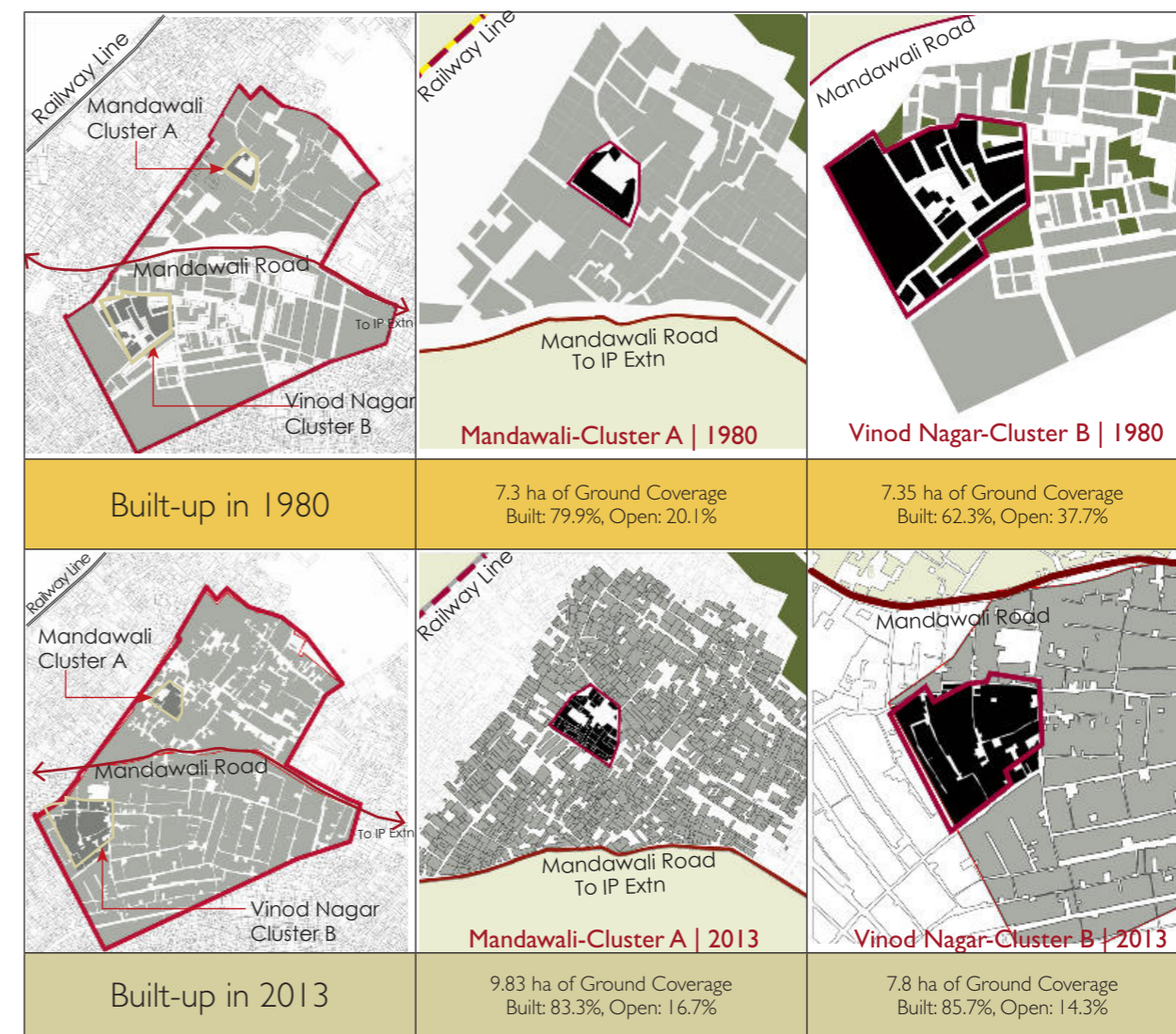
Due to its proximity to Connaught Place, a large number of unauthorized colonies like Vinod Nagar had developed near various bridges. Redevelopment proposals for these colonies have been given.

Due to massive urban development and expansion, DDA embarked upon provision of sites for cooperative house building societies.

The scenario that thus emerged for Zone E was that of planned colonies that stood distinctly within large-scale unauthorized colonies.

It was during this time that 157 ha of land was developed as IP Extension.

Area Evolution and Expansion Between 1980 and 2013



Key Map

Vinod Nagar has witnessed a constant fluctuation of densities. Due to its locational advantages like proximity to NH-24 and planned areas of Patparganj and IP Extension, it is becoming a favourable residential destination.

Growth of Mandawali

The Mandawali area has remained almost similar in terms of built-up to open space ratio. The built-up footprint has gone up by 0.5 ha between 1980 and 2013, mostly as encroachments on the main Mandawali Road. However the area has witnessed increase in density in terms of PPha with a single plot being divided into a number of dwelling units.

Plot Sizes

The plots are of many sizes ranging between 99 and 3600 sq ft most of them are of following sizes
83 sq m (900 sq ft)
125 sq m (1350 sq ft)
250 sq m (2700 sq ft)
334 sq m (3600 sq ft)

Growth of Vinod Nagar

Between 1980 and 2013, Vinod Nagar area has not remained the same in terms of built-up.

The area has grown in terms of density in various ways. Small plot sizes, subdivision of bigger plots into smaller ones, encroachment on roads and open spaces are the ways used by residents to increase built-up areas.

Plot Sizes

The plots are of many sizes ranging between 99 and 3600 sq ft

2.1 City Connectivity and Local Transport Nodes

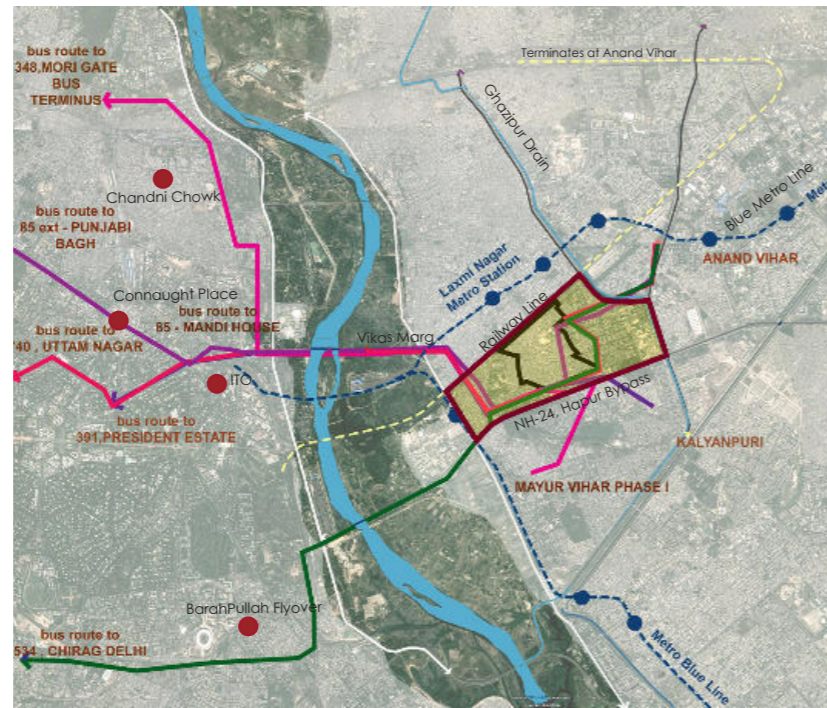
Roads

The area of Vinod Nagar is located in eastern Delhi across the Yamuna. It lies between two city level roads – **Vikas Marg** and **NH-24, Hapur Bypass**.

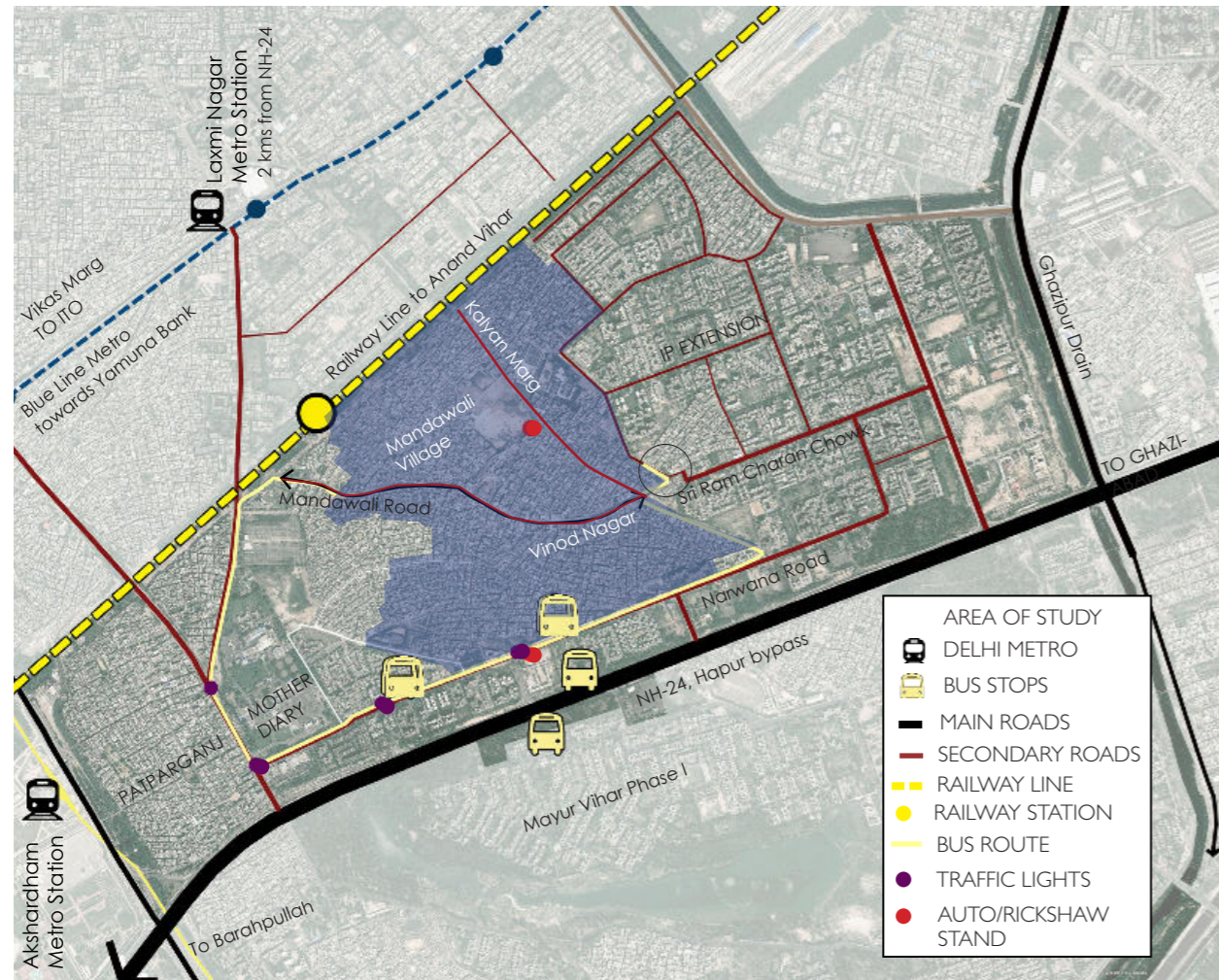
While **Vikas Marg** connects the area to ITO Delhi, Connaught Place and India Gate, **Hapur Bypass** connects the area to Ghaziabad and Barapullah Nullah flyover. Vikas Marg also becomes the crucial road link to Chandni Chowk.

Metro and Railway Link

The area is also connected by **Metro and railway**. The closest Metro stations are at **Akshardham** and **Laxmi Nagar**, each being at a distance of 2 kms from NH-24, Hapur Bypass Road. The railway line is an inter-city line between New Delhi and Anand Vihar.



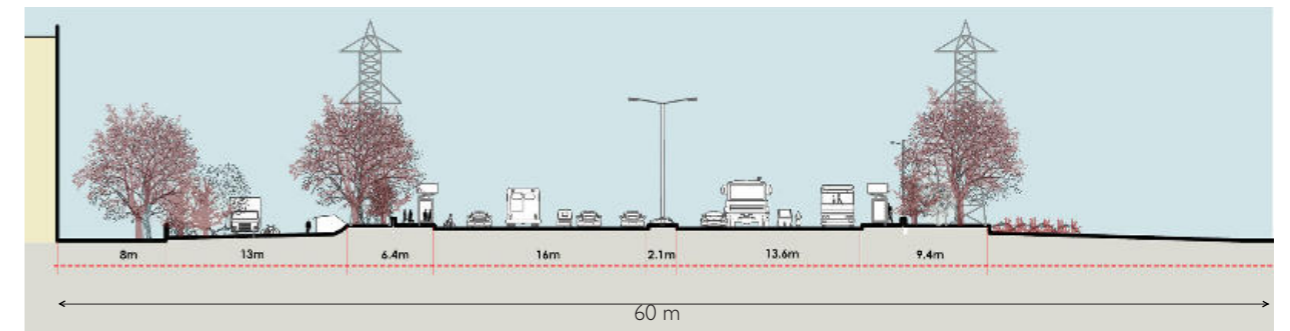
Bus routes connecting area to the city



Local Transport Modes

2.2 Existing Road Hierarchy

2.2.1 NH-24, Hapur Bypass



Section AA'



Key Map



1. View of highway



2. Bus stop on NH-24



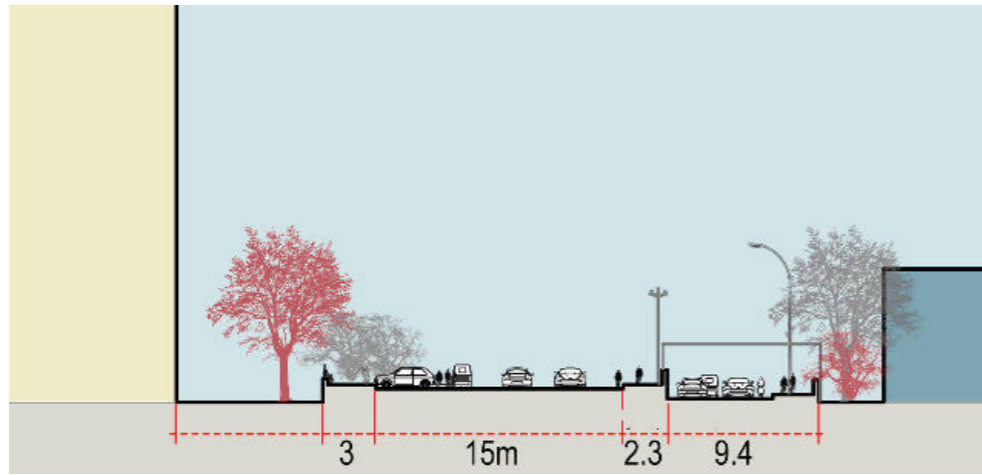
3. View of green belt from the highway edge



View of underpass and Narwana Road

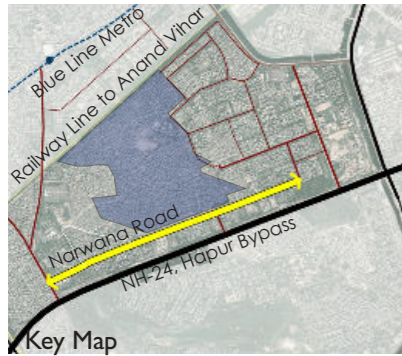
2.2.2 Narwana Road

Narwana Road runs between the unplanned Vinod Nagar and the planned colonies of IP Extension. Being a road on the periphery and a space crunch within Vinod Nagar, all bus stops and are located on this movement line.

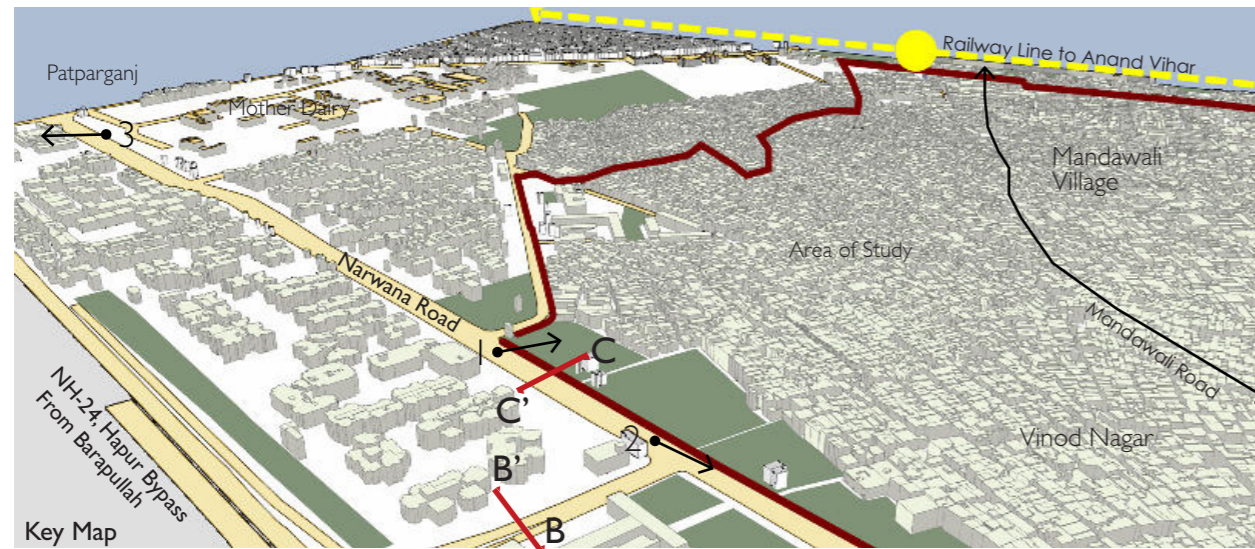


Section BB'

The edge of the road changes along its length. From the organized road sections near Mother Dairy to the sporadic edge character of Vinod Nagar.



Section CC'



Key Map



1. View towards Shanti Marg

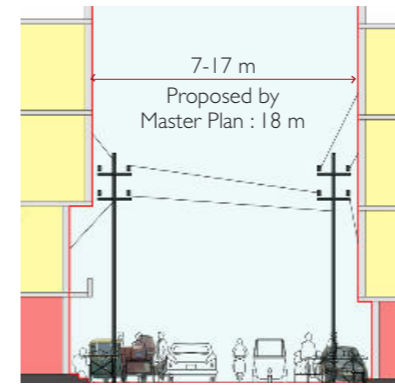


2. The edge of the open spaces near Block E

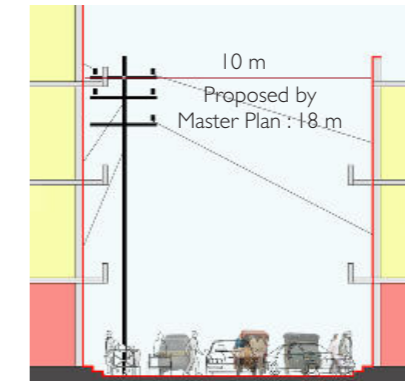


3. Looking towards the commercial block near Mother Dairy

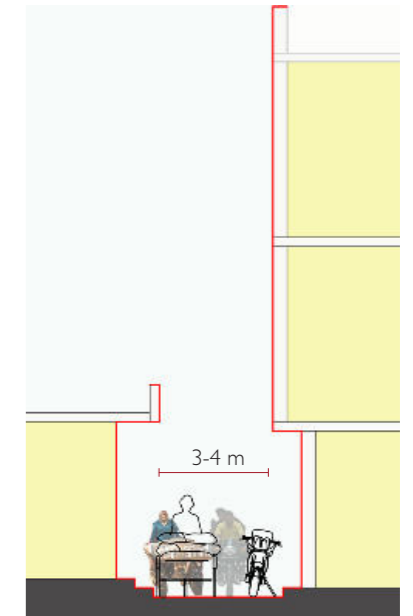
2.2.3 Mandawali Road, Kalyan Marg and Residential Lanes



Typical Section: Mandawali Road



Typical Section: Kalyan Marg



Typical Section: Residential Lane



View of Mandawali Road



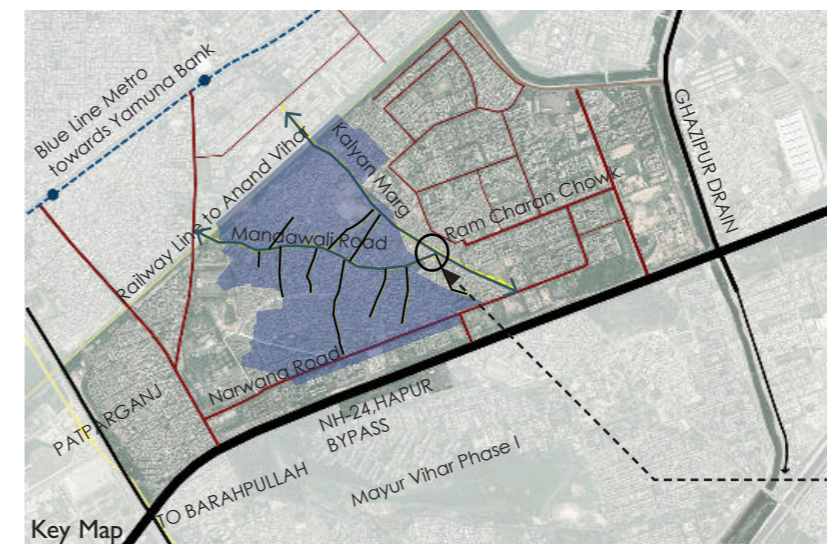
View of Kalyan Marg



A typical residential lane: Vinod Nagar

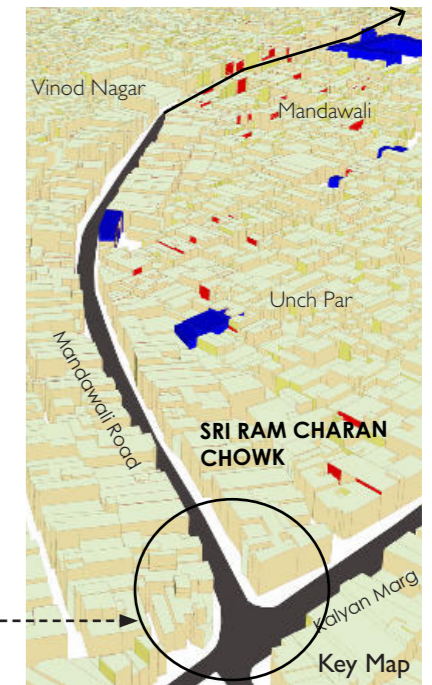
Modes of transport within Vinod Nagar

The choice of modes of movement within the residential colonies in Vinod Nagar depends upon following factors: **SIZE** and **PACE** of movement. The neighbourhood unit in a colony of this density is a self-sufficient entity. Since all facilities are located nearby, **smaller modes of transport become most suitable** for use. **Two-wheelers** are what people find convenient to use and own in the colonies. Since all facilities are close by in the neighbourhood, walking is the ideal mode of movement. **Rickshaws are ideal** for public movement pace wise. **Phut-phuts and 'thelas'** become the means to service dense colonies due to their size.



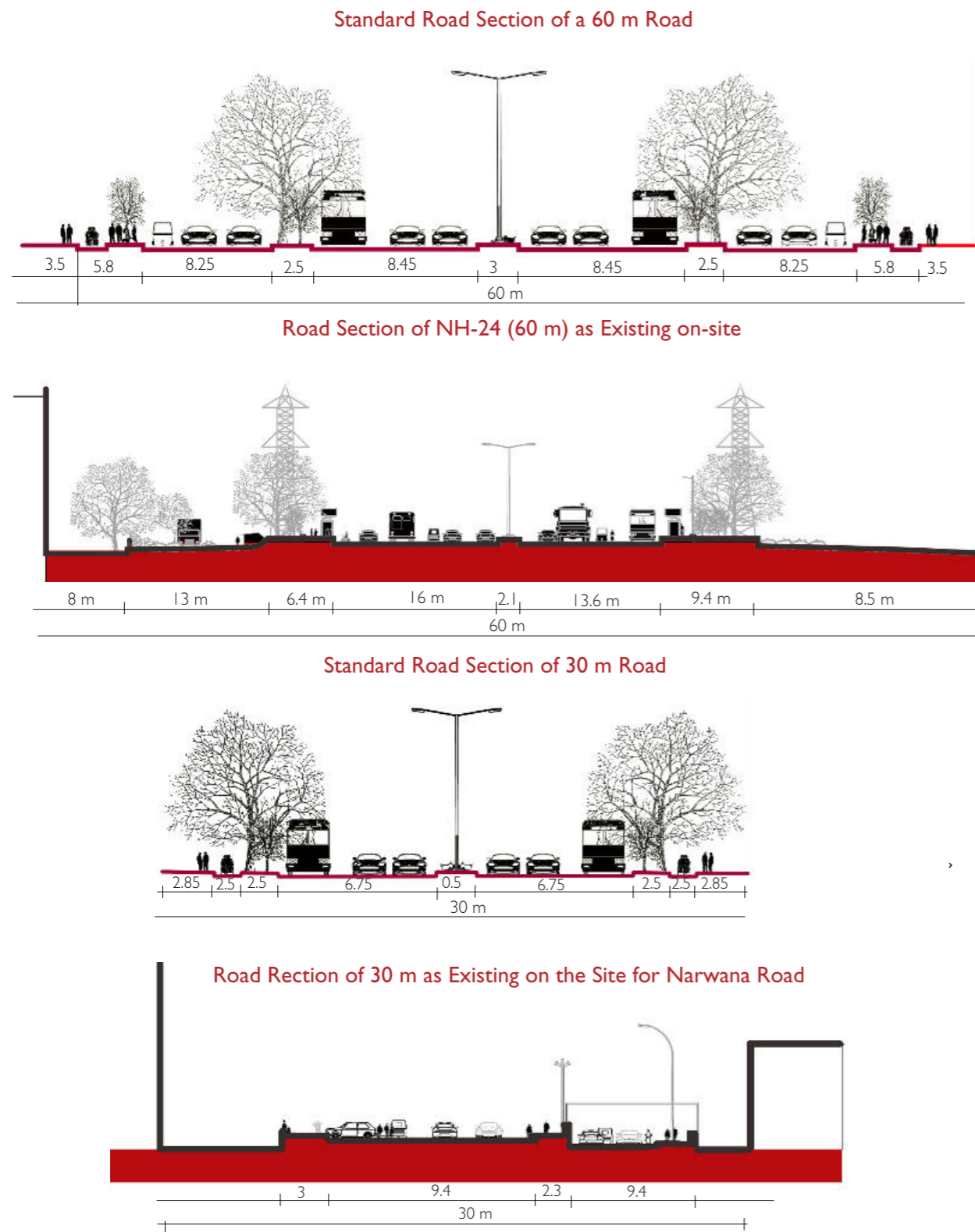
Key Map

Sri Ram Charan Chowk: Kalyan Marg



Key Map

2.2.4 Comparison of Road ROWs between Standards and those Existing on-site

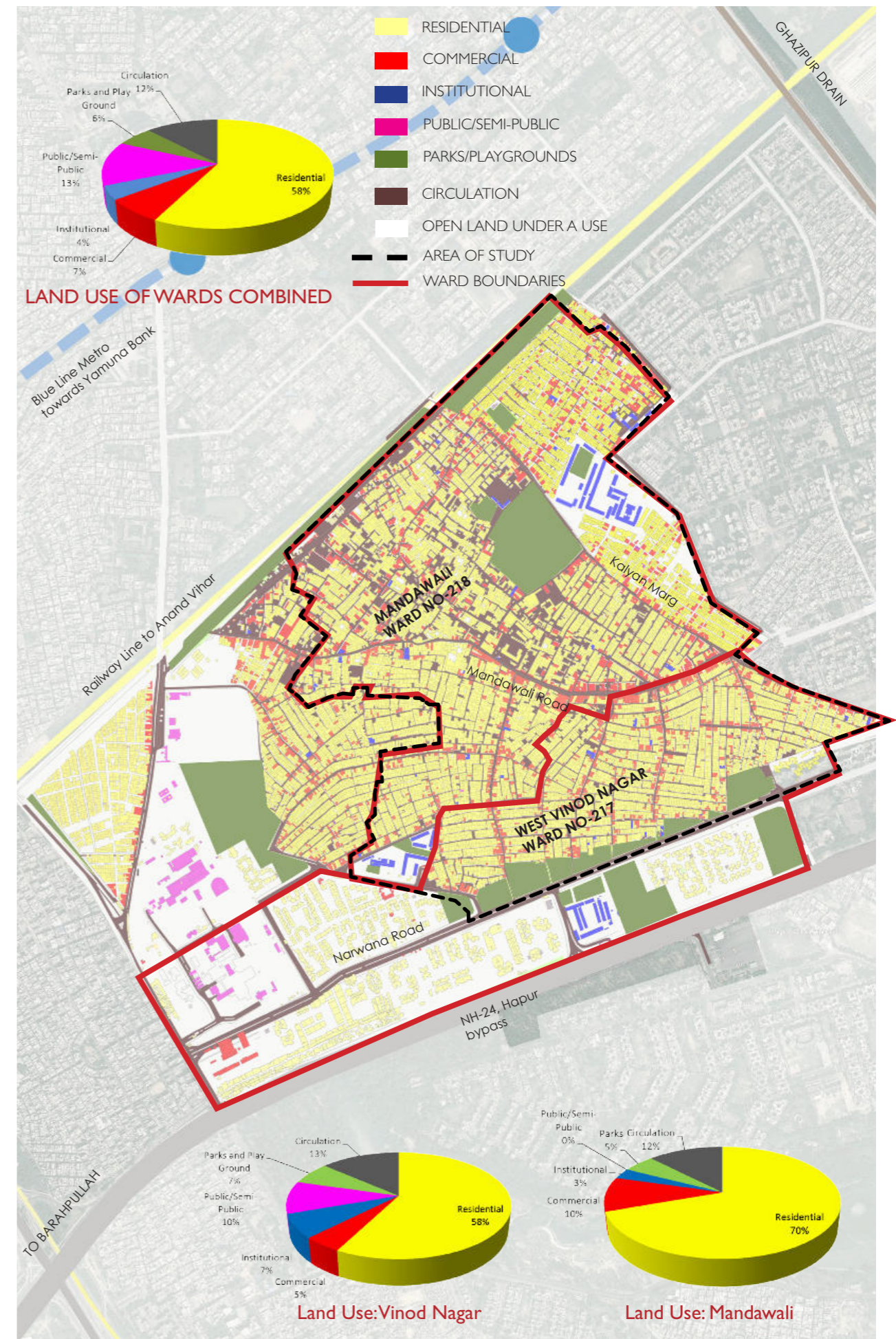


Vinod Nagar can be accessed by private vehicles, autos and cycle-rickshaws. NH-24 and Narwana Road are connected by roads at two places. Limited access roads create congested traffic situations at peak hours. Narwana Road is where all modes of transport can be accessed. The parking spills on to the road in an unorganized manner.

Rickshaws are currently the mode of transport adopted to access public transport. They cater to the localities of Mandawali, Railway Colony and Preet Vihar and very recently have extended their reach to the Mandawali railway station and Akshardham Metro station.

Intensification of commercial function on road edges has led to the point of saturation and encroachments have limited the use of ROWs. Increasing pressure of vehicles on these roads leads to massive traffic congested conditions during morning and evening peak times.

2.3 Land Use of Vinod Nagar and Mandawali



2.4 Residential Colonies by MCD in Vinod Nagar

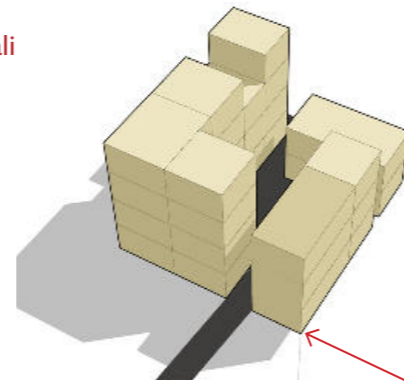
Growth of Urban Form

Subdivision of plots and changes in activity over a period of time has resulted in increase in density of the area with more holding capacity of the same plot. With mixed-use observed in various parts, the intensity of the activity has increased resulting in limitation of Right of Ways which can sustain only non-motorized vehicles and pedestrian movement. The accessibility to these subdivided plot thus remains limited.

Subdivision of plots in Asharam Gali



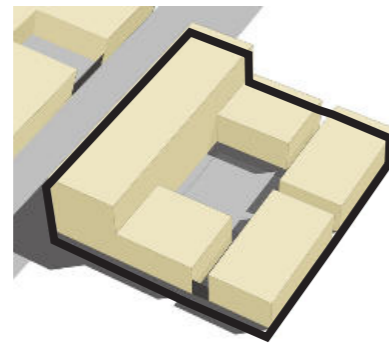
Typical cross-section for original layout of 750 sq yd plot and plot after subdivision



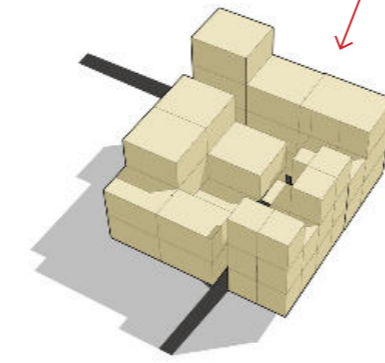
The plots and the compromised access within the plot after division

Subdivision of Plots: a Major Factor of Residential Colonies

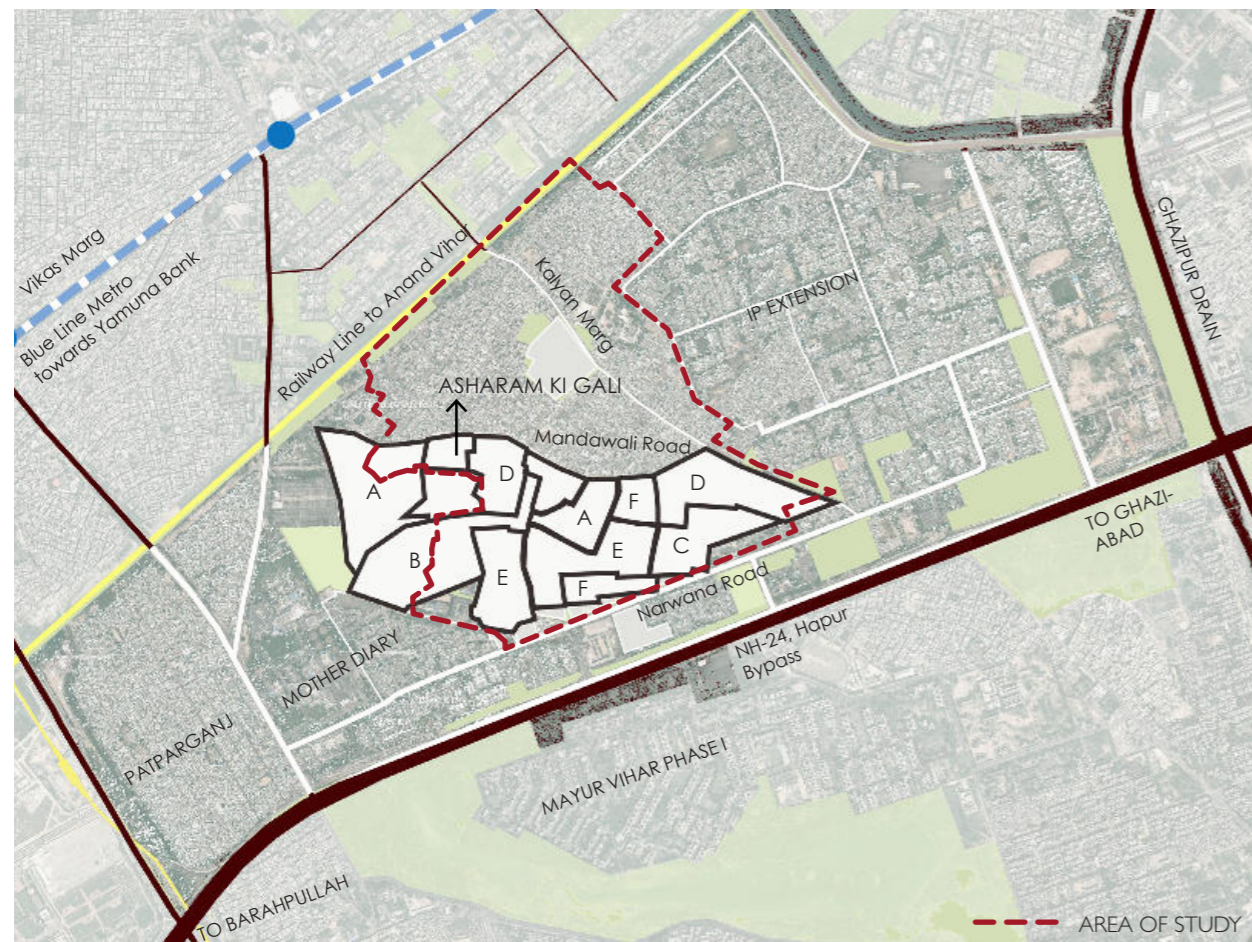
The present day urban form has resulted from the subdivision of larger plots. The bigger plots initially with individual access were divided into smaller plots with access cut through their plot area. This unstructured planning has led to the smaller 'galis' that exist today. The resulted urban form has led to the formation of cul-de-sac and small-scale open public space.



The undivided plot

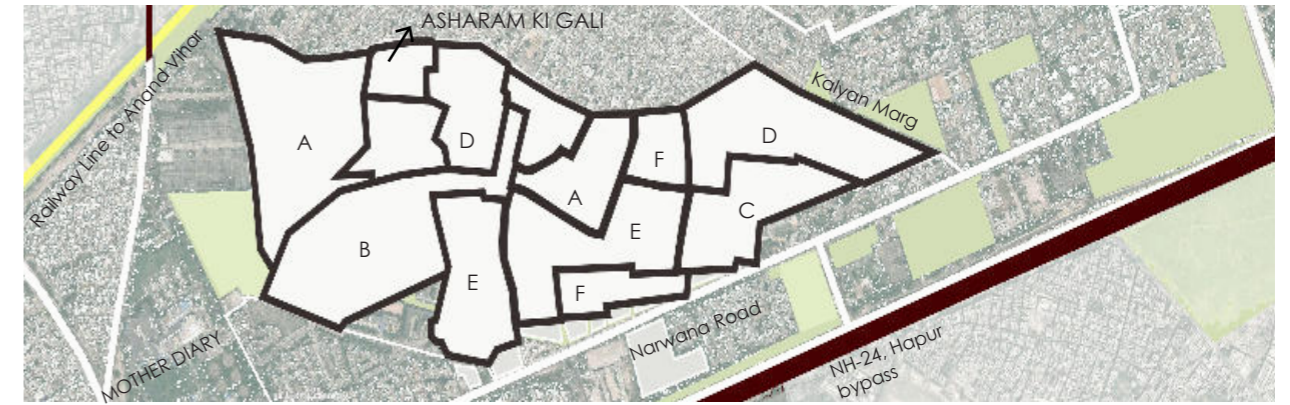


The plots and the compromised access within the plot after division

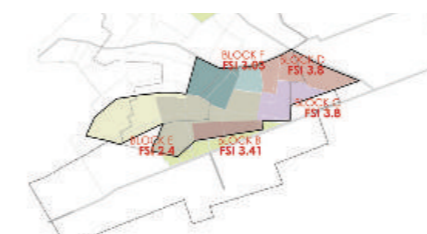


Key Map: Residential Colonies as Specified by MCD in West Vinod Nagar

2.4.1 Density Studies: Residential Colonies in West Vinod Nagar



BLOCK D	BLOCK C	BLOCK F	BLOCK B	BLOCK A	BLOCK E
LEGAL STATUS					
Unauthorized Regularized	Unauthorized	Unauthorized Regularized	Unauthorized	Unauthorized Regularized	Unauthorized
DENSITY PPha - BY ELECTORAL COUNT					
983	618	1186	1475	1351	1101
BUILT-UP AREA (in ha)					
7.2	4.0	1.8	3.4	11.01	10.50
DENSITY DU/ha (ASSUMED NO OF FLOORS: G + 2) BY GIS MAP					
NO. OF DUs 1590 220 DU/ha	NO. OF DUs 220 55 DU/ha	NO. OF DUs 480 266 DU/ha	NO. OF DUs 590 173 DU/ha	NO. OF DUs 3340 303 DU/ha	NO. OF DUs 2600 247 DU/ha
DENSITY DU/ha (ASSUMED NO OF FLOORS: G + 3)					
NO. OF DUs 2125 2950 DU/ha	NO. OF DUs 2920 730 DU/ha	NO. OF DUs 640 355 DU/ha	NO. OF DUs 796 234 DU/ha	NO. OF DUs 4465 405 DU/ha	NO. OF DUs 3470 330 DU/ha
DENSITY PPha (ASSUMED NO OF FLOORS: G + 3)					
1311	3248	1582	1966	1801	1467



Densities are in following categories
 <600 PPha
 600-1000 PPha
 1000-1200 PPha
 >1200 PPha

Densities of DUs are in following categories
 <250 DU/ha
 250-300 DU/ha
 >300 DU/ha

■ MINIMUM VALUE
 ■ MAXIMUM VALUE

2.4.2 Residential Typologies in West Vinod Nagar



Key Map

Courtyard Housing

Mandawali, an urban village, mostly has a typology of courtyard housing because of the larger plot sizes. The courtyards allow for the open spaces in the area.



Detail Cluster A: in Mandawali



Common spaces to access houses in Mandawali

Subdivided Plotted Housing

These housing types are the result of dividing bigger plots into small sizes as per need basis, which then define the street pattern as well.



Detail Cluster B: in Vinod Nagar



Subdivided plots in residential colonies of Vinod Nagar

Row Housing

This typology can be seen in West Vinod Nagar with back-to-back housing stacked in a row and with about 90% built-up area. The area circulation forms part of the open space system for the area.



Detail Cluster C: in Vinod Nagar



Planned Cluster Housing

Saraswati Kunj, is a planned development with fixed plot sizes and structured open areas.

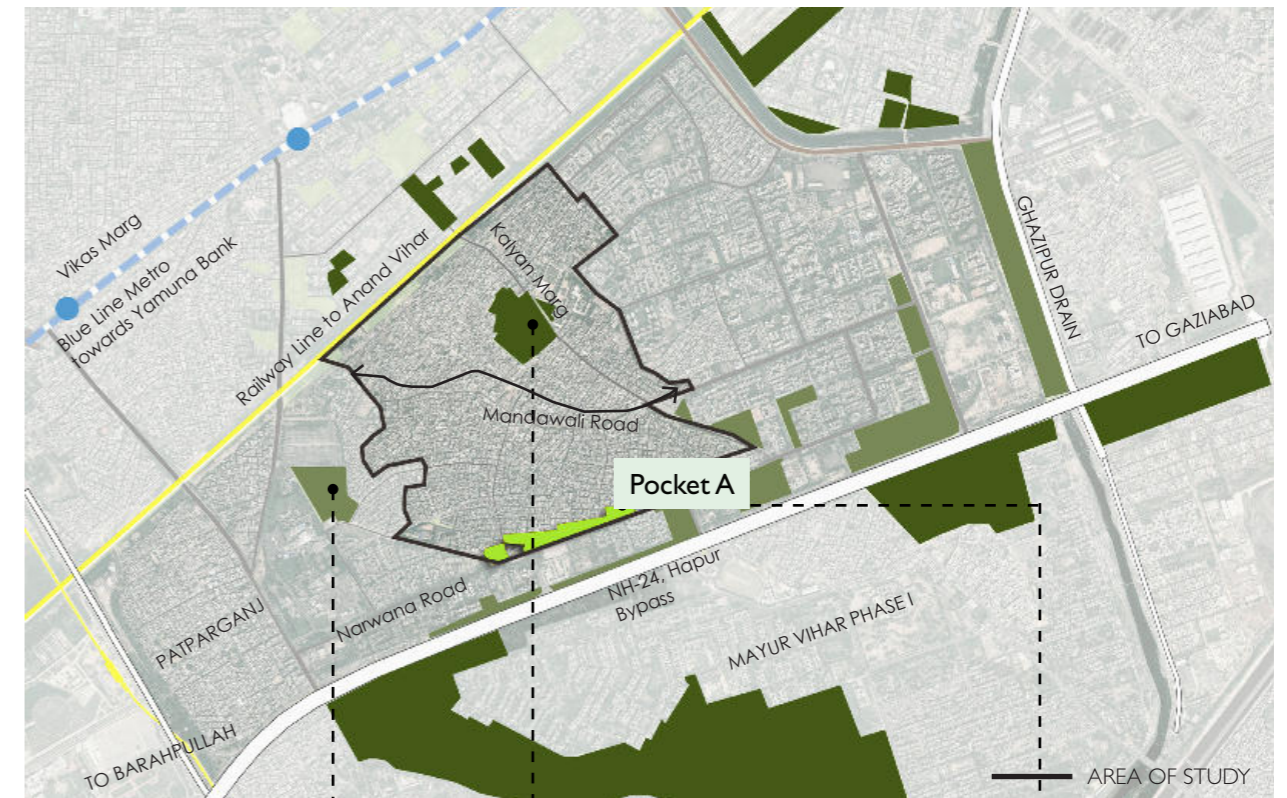


Detail Cluster D: Planned Sectors



Plotted development on Narwana Road and IP Extension

2.5 Open Spaces, Park and Playgrounds in Area of Study



Key Map

DDA Ownership Area 3.4 ha

The open space is a low point and thus a source for water collection. It has been observed that density and intensity patterns of all unauthorized areas in Delhi seem to be similar. The density of areas gravitate to the higher end of PPha which is in a range of 900 to 1250 PPha. The built open area ratios seem to be around 15% to 20%: 80-85% of entire area.



1. The green parks on the edge of Narwana Road

Village Ownership Pocket B: Area 3.4 ha

Originally a Johar, the space is now a park. Initially the water from village emptied itself here.

0.9% (10.6 ha) of Mandawali and Vinod Nagar together is under open spaces. These are generally incidental vacant spaces.



2. The children's park on the edge of Narwana Road

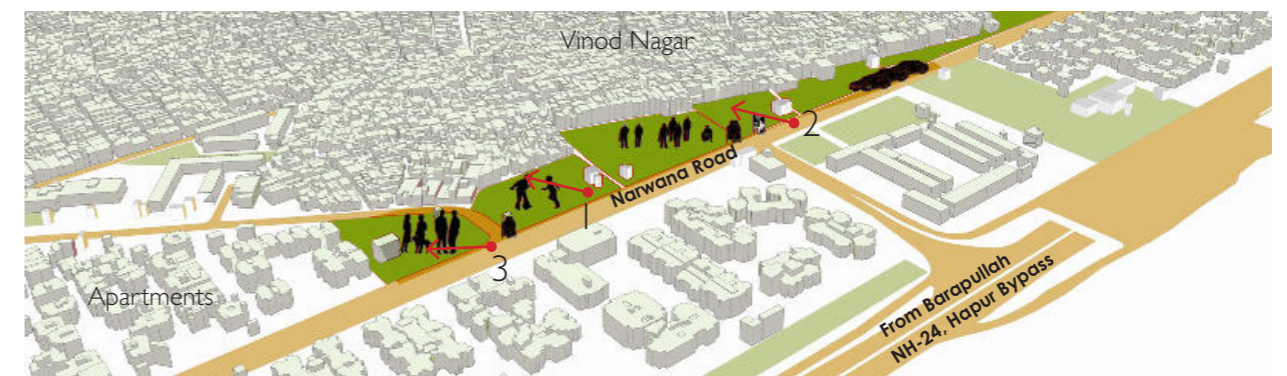
MCD Ownership Pocket A: Area 1.2 ha

The spaces are currently used as multi-purpose grounds especially during the marriage seasons and for banquets.

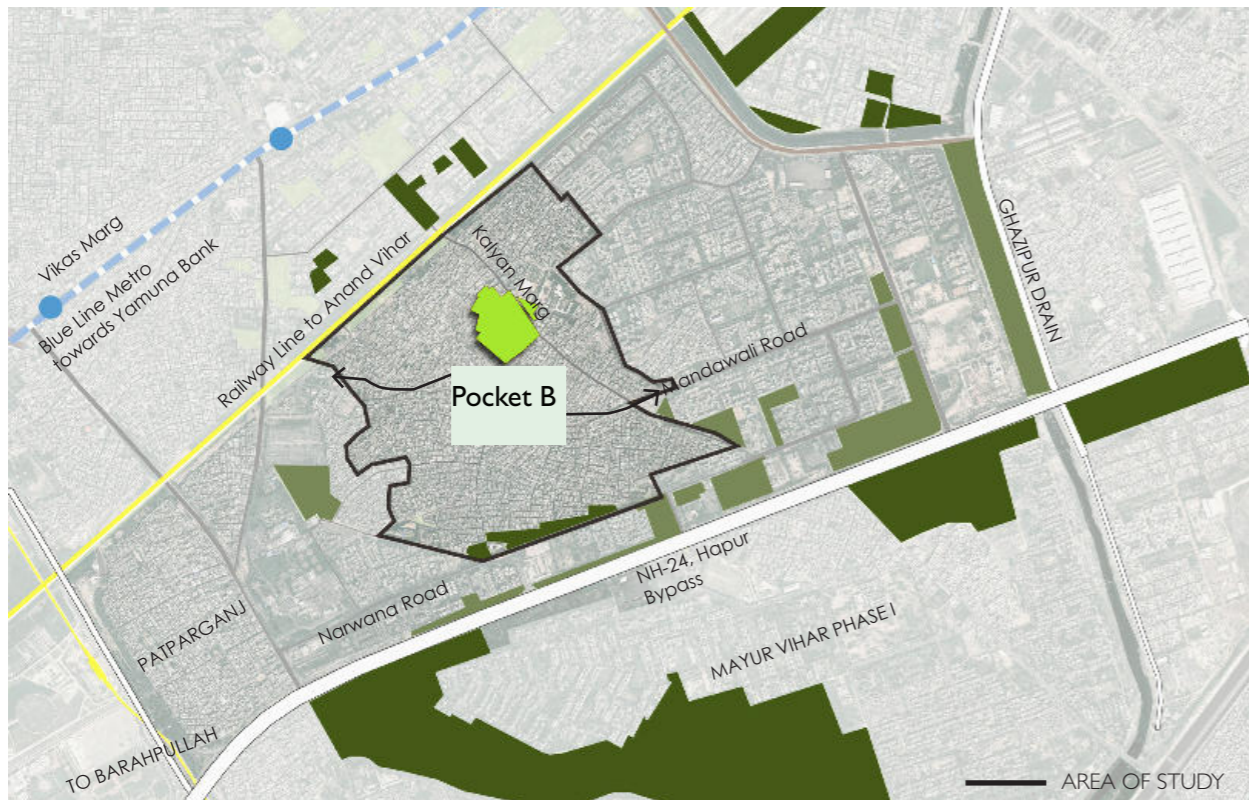
5% (4.44 ha) of Mandawali ward is under open spaces and 7% (6.2 ha) of Vinod Nagar ward is under open spaces.



3. The open spaces on the edge of Narwana Road



Key Map: Pocket A - Open Space Pockets on Narwana Road



Key Map

2.6 Social Infrastructure



Key Map: Formal and Informal Social Institutions in the Area



1. Water body on edge of Vinod Nagar



2. View of Kalyan Road on edge of Johar



3. Kids playing in Johar area



4. View of Johar



The MCD school on the edge of West Vinod Nagar



The community centre on the edge of Vinod Nagar



Regularized school

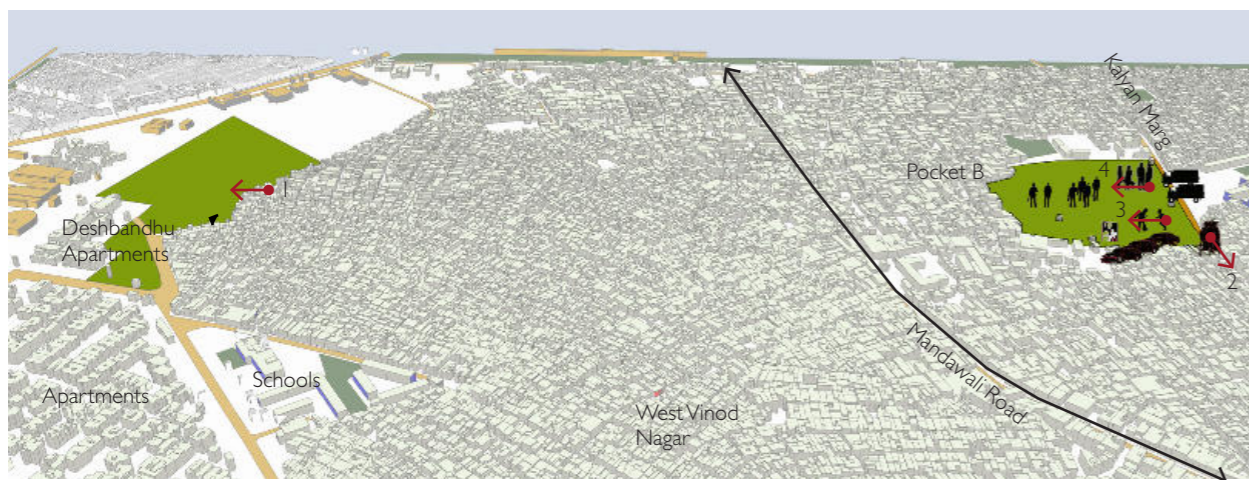
Area Under Formal and Informal Schools

Out of a total site area of 0.6%, 1.6 ha (8 Schools) are under government MCD schools and 0.6 ha are under informal private schools.

Other than private schools, the area has seen an upsurge of functions like play schools, coaching and tuition centres. These along with training centres for computers, English-speaking classes form the informal base for skill enhancement in the area.

Area Under Hospitals

0.97 ha are under private health facilities. The area has only two private facility hospitals and thus there is a shortage of hospital facilities.



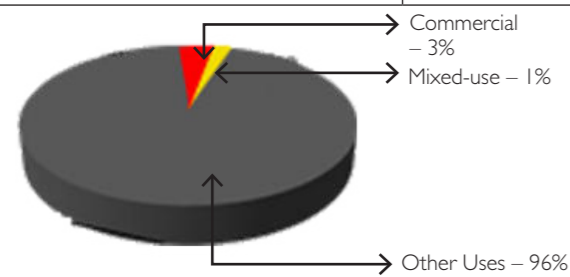
Key Map - Pocket B: Johar and the open space near grid



Informal School Typologies

2.7 The Commercial Typologies in the Area of Study

Typologies	Areas	Observations
<p>Individual Plots</p>	<p>Mixed-use on Mandawali Road</p>	<p>In Vinod Nagar area, the standard size of the shops is around 30 sq m. In Mandawali area, the shops are privately owned. There is no DDA owned commercial complex, however there is a private commercial complex of an area of 1000 sq m. The commercial complex is a result of plot amalgamation.</p>
<p>Private Commercial Complex</p>	<p>Complete commercial complexes along roads</p>	
<p>Local Convenient Shopping Centre</p>	<p>Pradhan Complex on Mandawali Road</p>	<p>Under mixed-use The shops are in varying sizes depending on the plot sizes. The variation is in the range of 7.5 sq m to 12.5 sq m. The warehouses sizes range up to 100 sq m.</p>

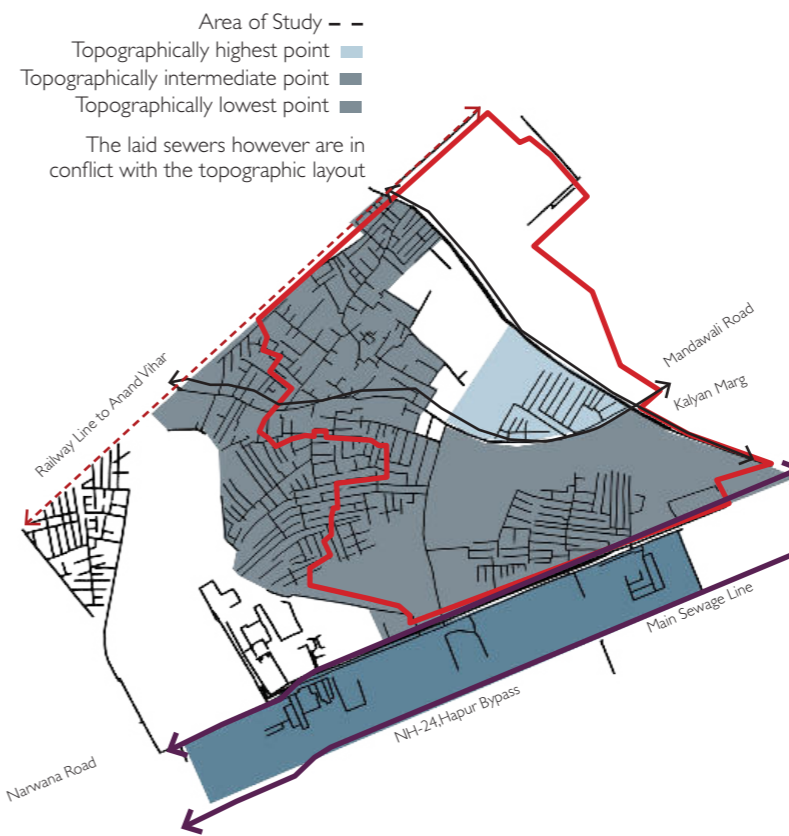


AS PER MASTER PLAN 2021
Netaji Subash Chandra market is a major notified commercial street with 9 metres ROW along with Shanti Marg (7 metres ROW), with activities like local convenience, hardware shops and garment stores. The area also has informal activities along the main Mandawali Road and Kalyan Marg.



Key Map: Commercial and Mixed-use in the area

Sewerage System in the Area of Study



2.8 Services

History

Sewer lines in the area were laid out in 1980 when Vinod Nagar was established. Work for laying sewers in the unconnected parts of Vinod Nagar is still ongoing. Open drains that run through the colonies often get flooded during the monsoon due to a backflow as a result of difference in terrain.

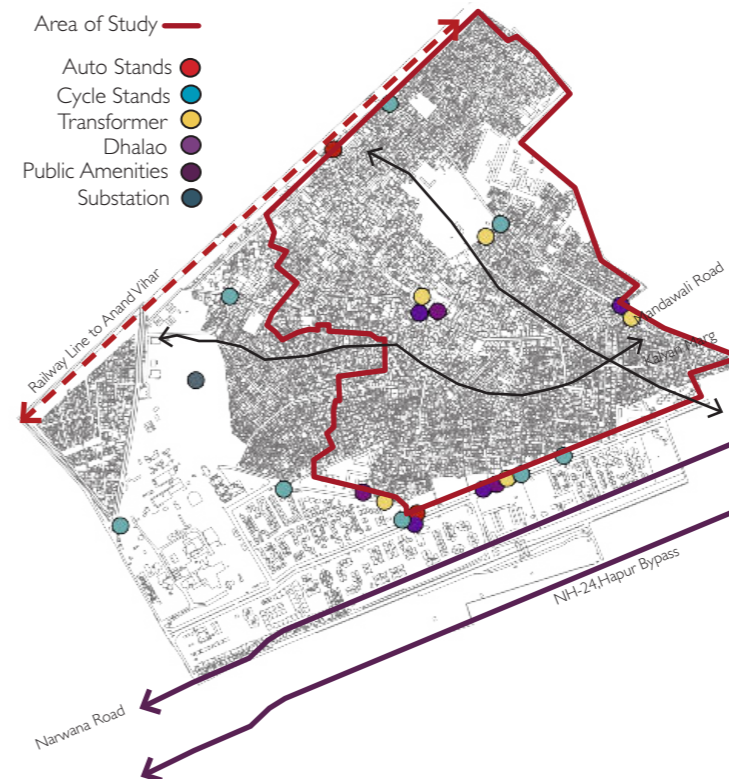
Disposal of sewerage

The collected sewage of Vinod Nagar and Mandawali goes through Yamuna Vihar Treatment plant which is then released into Shahdara Drain. The treated waste is then finally transferred into River Yamuna.

Sewerage in Vinod Nagar

Much of Block A and North Block of Vinod Nagar has a sewerage system. For other residential colonies, the sewer system is non-existent and the sewerage is discharged directly into the main trunk line.

Utilities in the area of study



The runoff in the area is not harvested within the area

Area of Study
Areas with segregated system for stormwater
Areas with no segregated system for stormwater

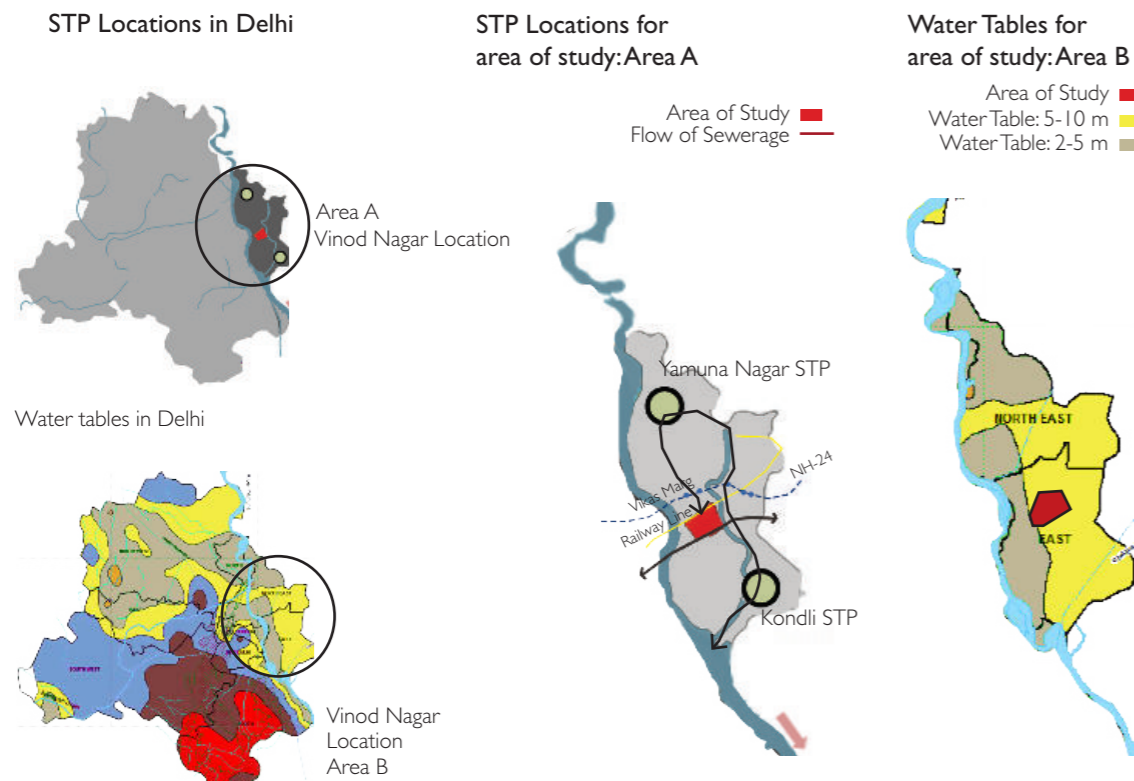
Sewerage in Mandawali

Mandawali has a broken sewerage network system.

Sewerage in Housing Societies

The Group housing societies discharge their sewerage into the main trunk line without treating it.

2.8.1 STP Location and Water Table Characteristics



The colonies of Vinod Nagar and Mandawali are of a type that can be classified as unauthorized.

Due to their sporadic nature of growth, the colonies **have no segregated system for sewerage and stormwater discharge.** This results in mixing up grey and black water in the same system. The entire area is served through an open channel system.

54.46% of the area has an open stormwater drainage system, therefore the **runoff goes unutilized** in the area; 53.46% of the waste goes untreated. 46.54% of the area is connected by sewer lines.

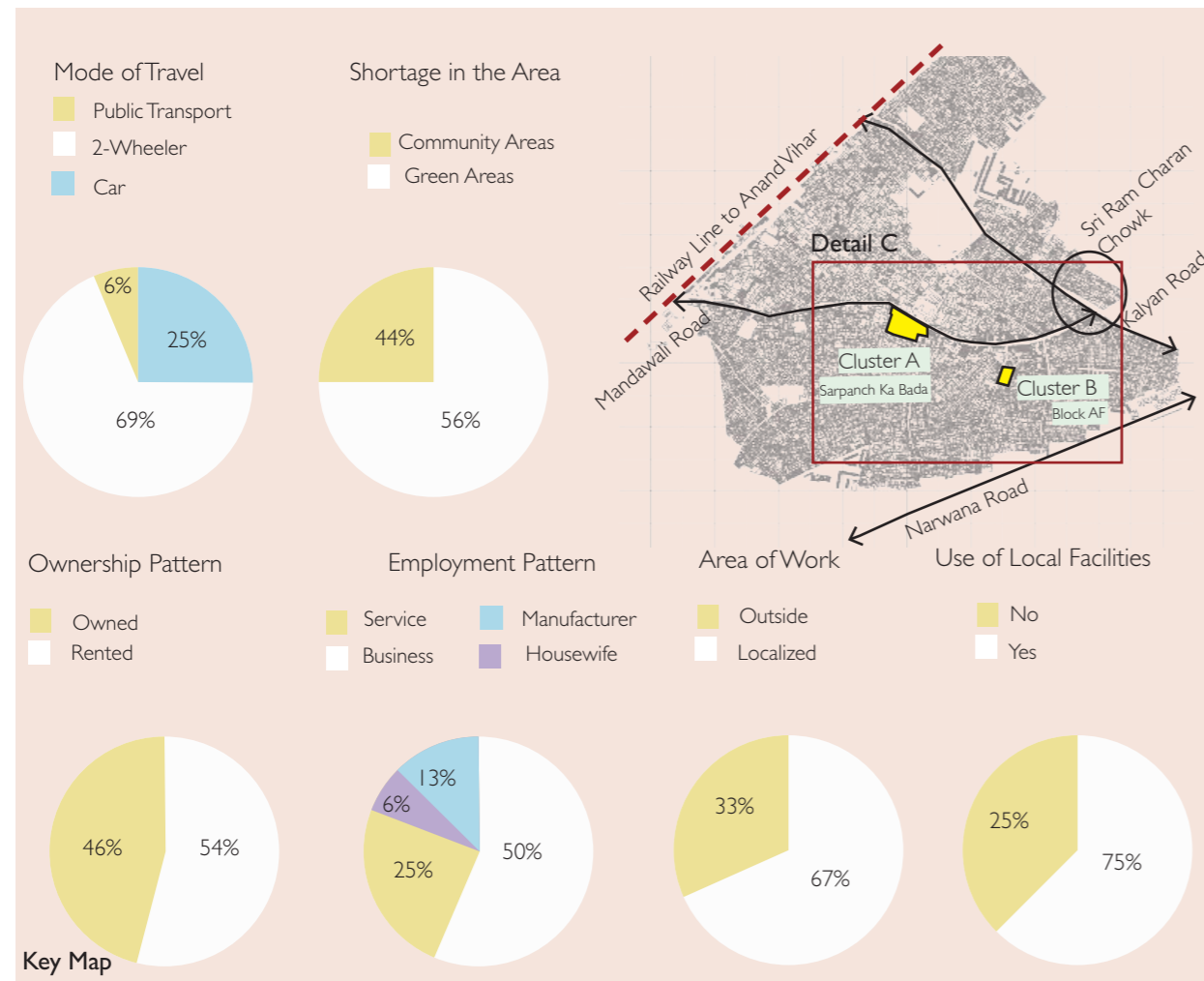
2.9 Patterns of Rentals in the Area

Rental and Property prices are dependent upon building use					
Commercial					
Size		Location			
Prices (in Rs.)	Plot sizes	Location		Price Preference	
<= Rs. 10,000	20 sq. yards	Near Phatak		Lowest	
>= Rs. 75,000	90 sq. yards	Near Sri Ram Charan Chowk			
		Mandawali Road		Highest	
Residential					
Size		Location		Colony Type	
Prices (in Rs.)	Plot sizes (sq m)	Location	Price Preference	Colony Type	Prices
<= Rs. 20 lakh	41.8 sq m	near open spaces	lowest	regularized	<= Rs. 10000
>= Rs. 50 lakh	100.32 sq m	near facilities		unregularized	>= Rs. 30000
		near markets			
		Near accessible roads	highest		

2.10 Comparison of Area of Study with Other Ward Characteristics

<p>West Vinod Nagar and Mandawali</p>	Area	131.56 ha
	Percentage of Mixed-use	10.6%
	Population Density	935 PPha
	Open Built	18 : 82
<p>Govindpuri</p>	Area	40.48 ha
	Percentage of Mixed-use	8.6%
	Population Density	900 PPha
	Open Built	15 : 85
<p>Ashok Nagar</p>	Area	81.03 ha
	Percentage of Mixed-use	9%
	Population Density	828 PPha
	Open Built	15 : 85

2.11 People Survey

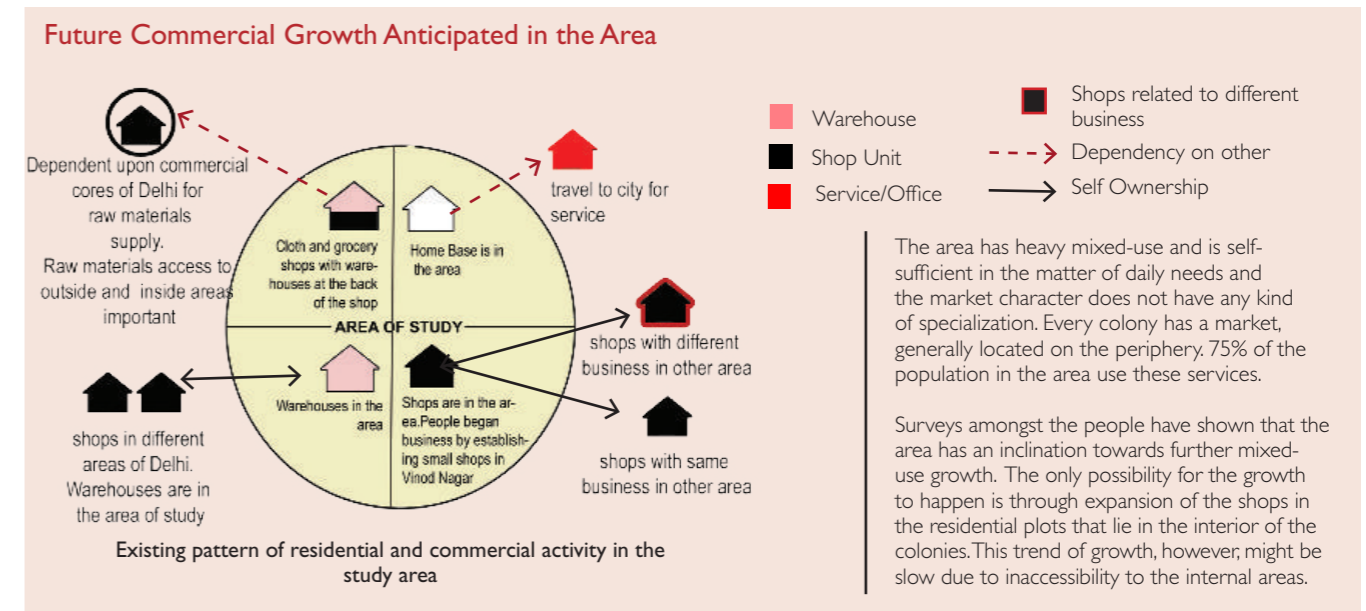


People Survey: Identification of Sample Pockets and People's Preferences

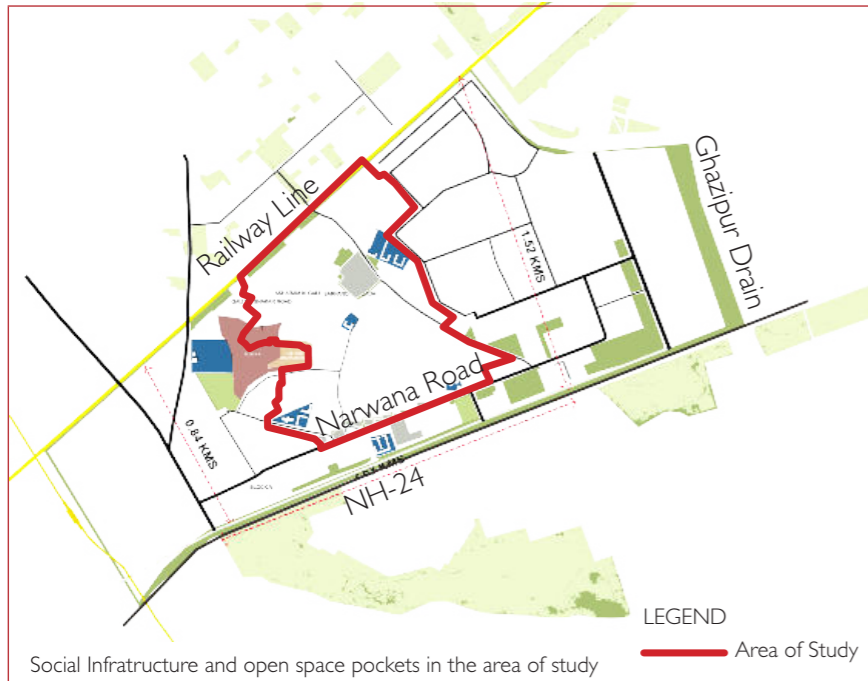


Map: Detail 'C'

2.12 Observations on Growth Trends in Area of Study



2.13 Issues in Area of Study



Observations From People Survey

Sarpanch Ka Bada	Open Spaces
3 out of 10 people have rented out the space which they own.	There is an absolute shortage of open spaces within Vinod Nagar. All the planned green pockets are located on the periphery of the area. However only 33% expressed concern about shortage of open spaces. Open spaces thus hold a lower priority in people's choice of facilities.
People residing here mainly own a local business in the area.	Educational Institutions
The residents prefer private vehicles for their local transportation needs instead of NMTs or other public modes of travel.	The area has sufficient number of schools. The regularization of private schools would help to make up for the deficit of schools. There is a potential for further growth of vocational training centres and similar training institutions as mixed-use in the area.
4 out of 10 people prefer to use private healthcare facilities outside the ward area citing inadequacy in the study area.	Healthcare
Vinod Nagar	Private clinics are in abundance in the area but they are an expensive solution for treatment. Public healthcare facilities are therefore essential in the area.
2 out of 10 households have rented out their spaces for residential use.	Transportation
3 out of 10 people work outside the area and use private modes of travel.	Two-wheelers are the preferred mode of transport. However, the reach of public transport in the area is restrictive. People expressed the need to restructure Mandawali Road.
1 out of 10 people prefer using public transport.	
Majority of the residents cite lack of Baarat Ghars and other community areas where social functions could be organized, as a reason of concern.	

Movement within the colony is either non-existent or unorganized and chaotic.
The thoroughfare roads (Shanti Marg, Mandawali Road and Kalyan Marg) are congested due to mixing of traffic and other activities. People often complain of congestion due to inadequate movement space on road.

Open spaces have been developed on peripheries and are underutilized, bounded by fences and with no clear access.
The edges have heavy informal activities and parking which makes these spaces even more difficult to access.

Inefficient stormwater management and lack of water conservation.
The nallis are covered and therefore the water gets collected on the road.

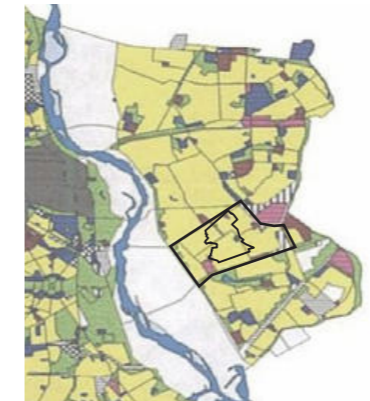
Higher densities than anticipated and smaller plot sizes.
This causes lack of sunlight and ventilation in the dwelling units.

Growing mixed-use in the area.
There has been a consistent rise of mixed-use in the area. This is creating pressure on the area and with the increasing numbers of vehicles and supporting amenities, necessary conditions like comfortable environment for pedestrians is missing.

3.1 Location on Master and Zonal Plans



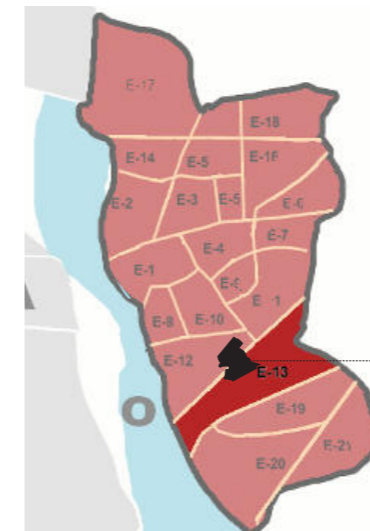
East Delhi in Master Plan Delhi 1962



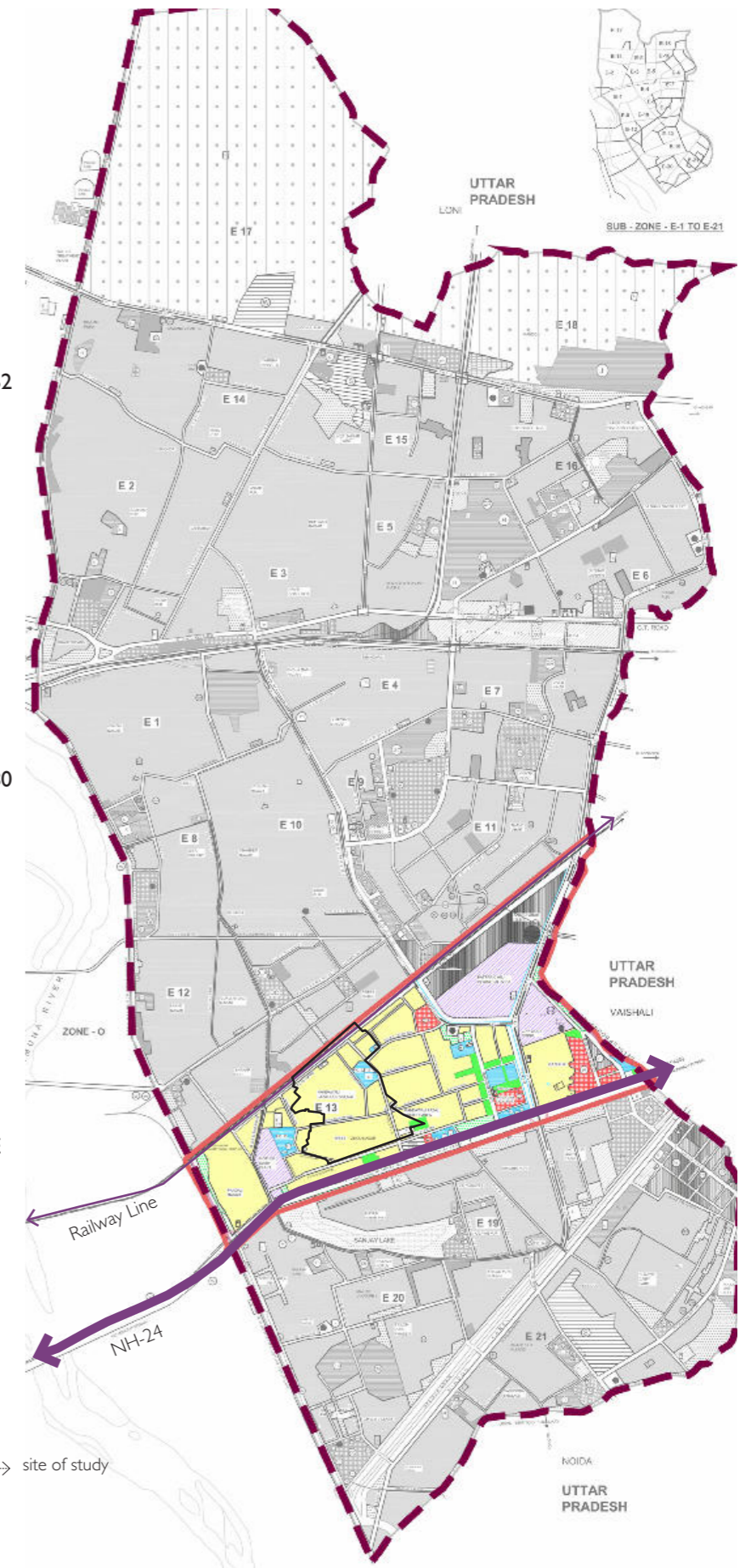
East Delhi in Master Plan Delhi 1980



DDA Classifies Area Under Zone E

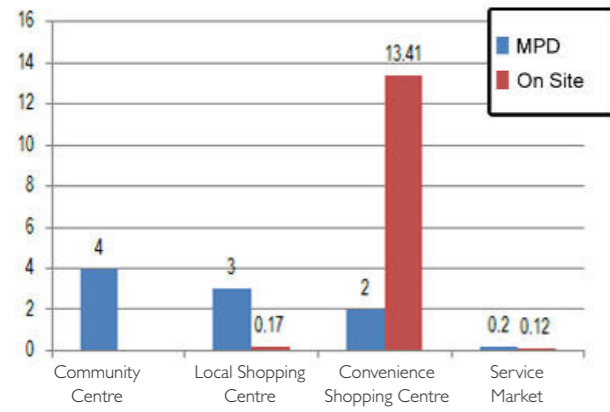


DDA Classifies Area Under Sub-Zone E-13



Detailed Zonal Plans for Zone E

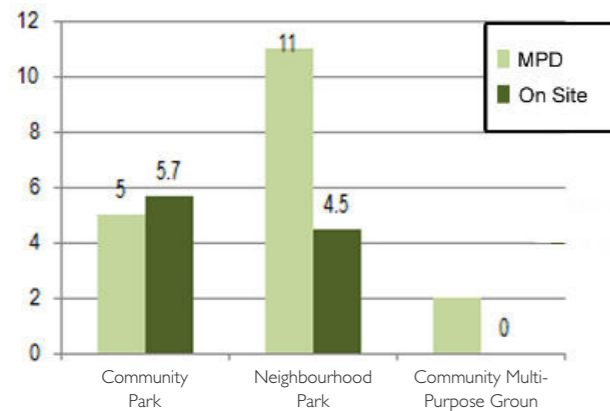
3.2 Comparisons with Master Plan



Commercial Use/Activity

- The area of convenience shopping existing on-site exceeds Master Plan numbers by six times. There is absence of a community centre for larger services.
- The area is also served by a weekly market, though no separate area is reserved for this activity.

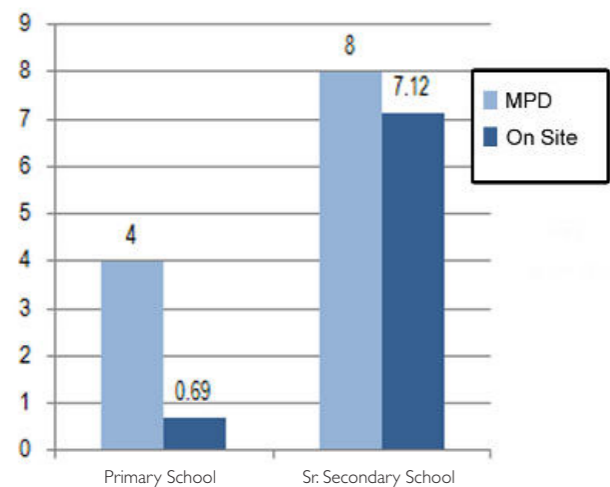
Condition on-site – Area on-site = 13.7 ha
 Master Plan requirements for the area = 9.2 ha



Recreational Greens

- The area of study has greens, but with shortages ranging from 65% for a neighbourhood park and an excess of 11.4% for a community park.
- The Master Plan stipulates provision for a community multipurpose ground for social gatherings, which is missing on-site.

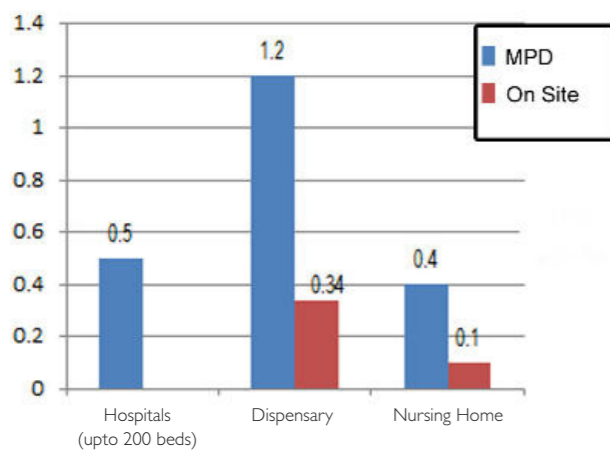
Condition on-site – Area on-site = 12 ha
 Master Plan requirements for the area = 11.54 ha



Education Facilities

- The area under study has sufficient schools in comparison to standards prescribed by MPD (an deficit of 11% on-site).The area lacks primary schools with a deficit of 82%.
- The study area has no colleges and vocational training centres, play schools, school for physically and mentally challenged. These facilities have to be accessed outside the ward.

Condition on-site – Area on-site = 12 ha
 Master Plan requirements for the area = 7.81 ha

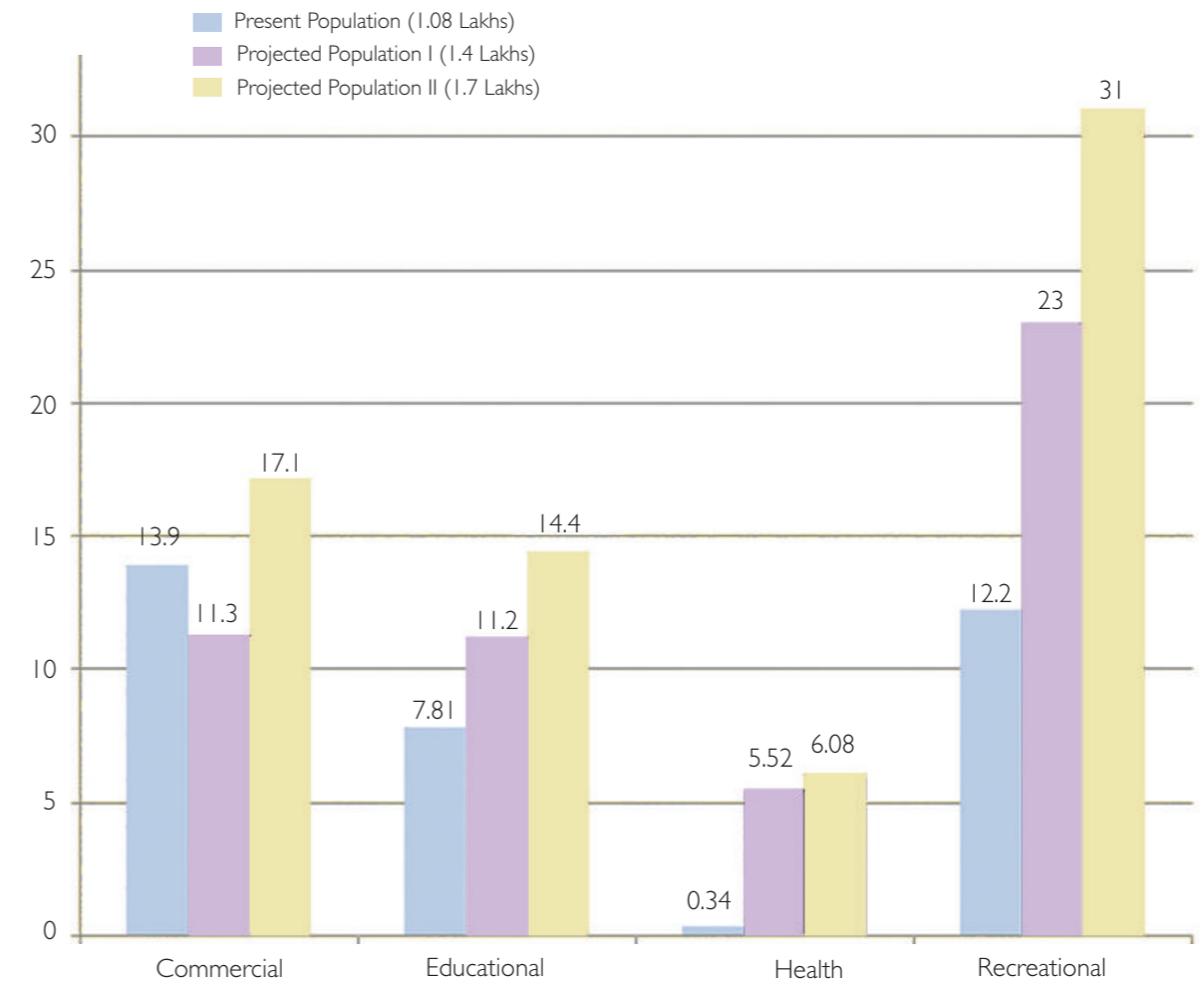


Health Facilities

- The area of study has no bedded hospitals and lacks in facilities like dispensaries with almost 71.6% deficit.
- The area is catered well by private clinics which are expensive for lower income class people.

Condition on-site – Area on-site = 0.44 ha
 Master Plan requirements for the area = 2.1 ha

3.3 Population Projections for Area of Study



Population Projections Varying with Number of Floors

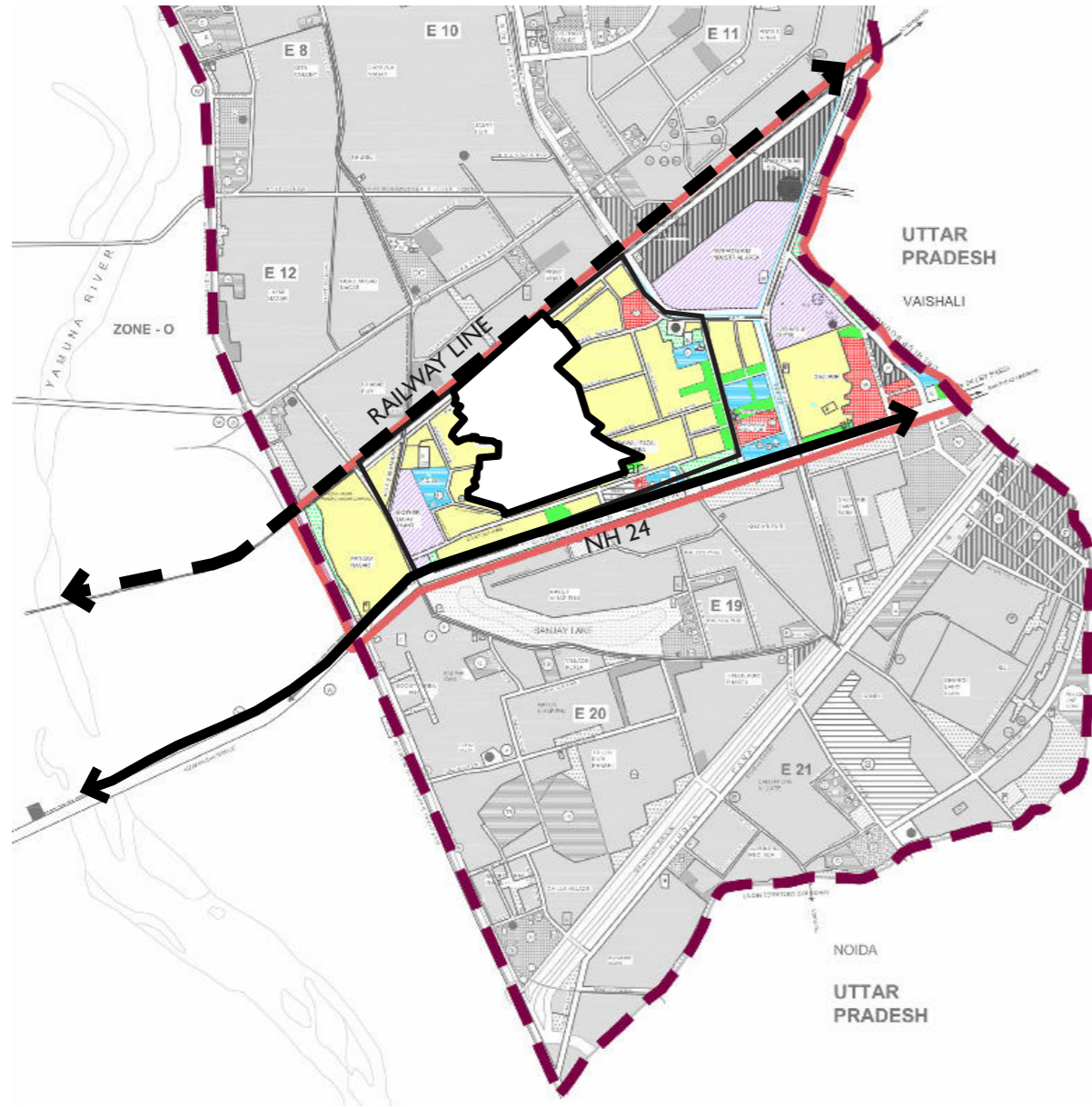
- The commercial component for the study area needs upgradation along with provisions for a community centre to serve at a larger level and catering to services like:
 - High-end retails
 - Commercial offices
 - Banks
 - Cineplex etc.
 At projected population size, the area would require one extra community centre to cater to Zone E 13.
- The area is in need of restructuring of educational facilities serving the current population. The area requires services like vocational training centres, formal nursery schools and play schools.
- The area is in need of more medical facilities, which otherwise suffers from lack of:
 - Government dispensaries
 - Nursing homes
 - Hospitals (with bedded facilities)
 The people of the area, in absence of alternatives, use facilities outside the ward.
- Area under open spaces, as per area requirement of the Master Plan, fulfills the requirement, but at projected growth the requirement would increase by about 3 times.

Population Projections Varying with Number of Floors

Category of Land Use	Present Population	Projected Population (1.4 Lakhs)	Projected Population (1.7 Lakhs)
Commercial	13.9	11.3	17.1
Educational	7.81	11.2	14.4
Health	0.44	5.52	6.08
Recreational Greens	12.2	23	31

Demand for Land Required for Different Population Scenarios

4.1 Redevelopment as Defined in Master Plan



Zonal and Master Plans have proposed redevelopment as an alternative to healthy environment for various areas in Delhi.

Aims of Redevelopment

- Redevelopment proposes optimum utilization of existing urban land in planned and unplanned areas.
- This would have to be based upon provisions of infrastructure required in the area.
- To encourage redevelopment possible incentives and modalities, pooling of properties, provision of social infrastructure through TDR, enhanced FAR etc., could be implemented wherever possible.

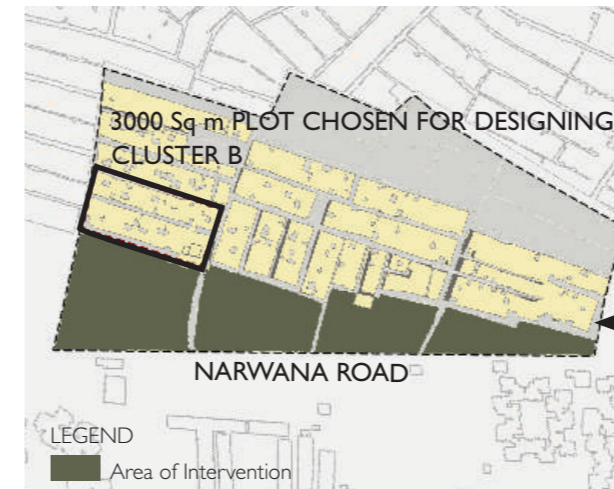
Clauses of Redevelopment as per Master Plan

The following are the clauses for redevelopment as stated in the Master Plan:

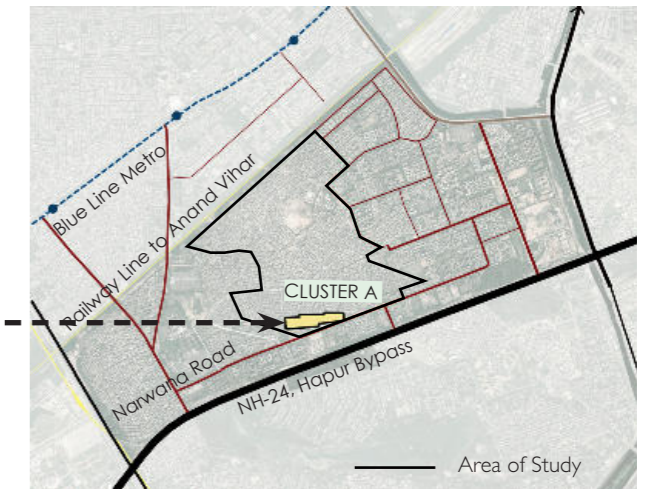
- 30% of area should be used as common green/soft parking besides circulation area.
- To incentivize the redevelopment, a maximum overall FAR of 50% over and above the existing permissible FAR on individual plots subject to a maximum of 400 shall be permissible.
- Maximum ground coverage is 33.3%. Ground coverage up to 40% may be allowed to achieve low-rise high density housing without lifts.
- The density for different units is as follows :
 1. Category I (up to 40 sq m) – 500 DUs/ha
 2. Category II (40-80 sq m) – 250 DUs/ha
 3. Category III (up to 80 sq m) – 175 DUs/ha

4.2 Exploring Possibility of Redevelopment in Vinod Nagar

4.2.1 Existing Characteristics of Cluster (3000 sq m) on External Periphery of Vinod Nagar



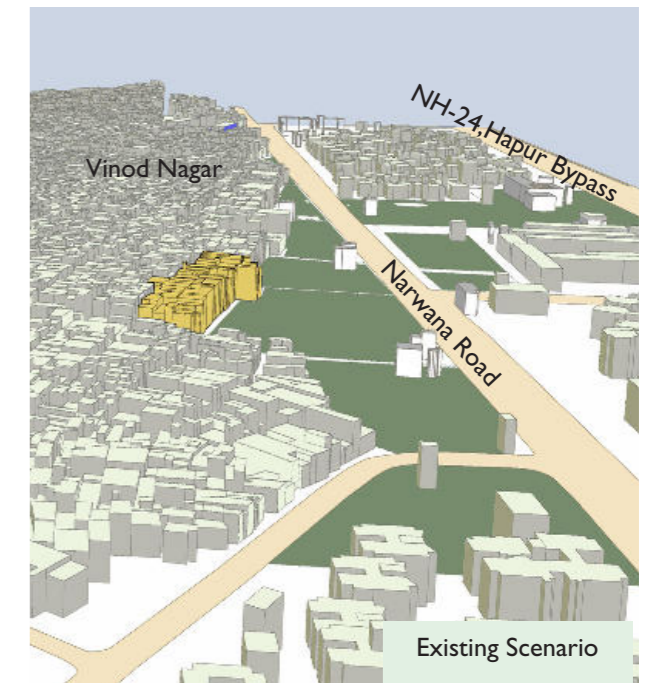
Detail of Cluster A



Key Map for selected cluster

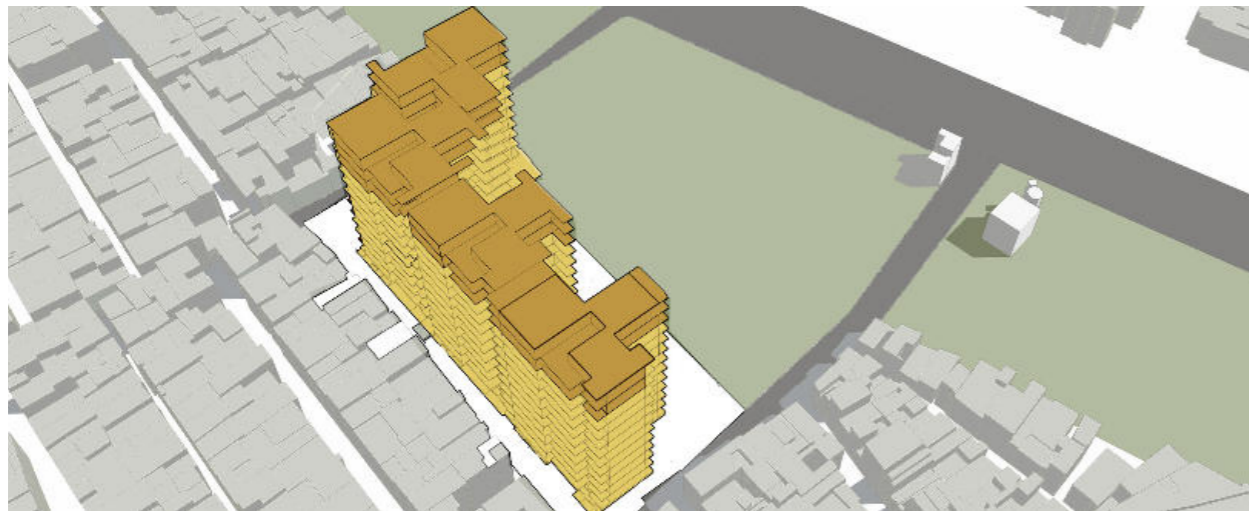
The smallest cluster that the Master Plan considers of viable is 3000 sq m. A 3000 sq m plot (identified as site in above) has the following important characteristics

Parking requirement for the plot	
110 Bikes	37 Cars
The area currently open and available is 660 sq m	Space required for parking is 1550 sq m which is more than double the available circulation space



Other Parameters	
Stakeholders	Open Space Ratio
468	85:15
FSI	Number of plots/dwelling units
3.14	37/117

4.2.2 Proposed Development of Cluster on External Periphery of Vinod Nagar as per MPD: Scenario I



Aerial View of the Proposed Housing



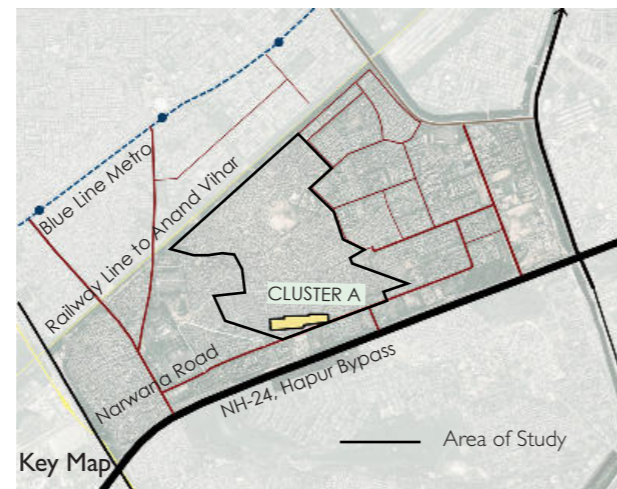
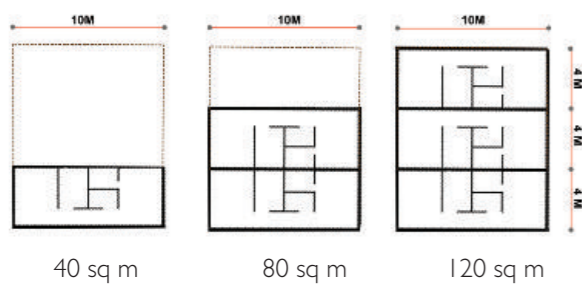
Layout of the Proposed Housing

Unit Plans and Area Programme

Total Site Area	4400 sq m
% of Open	73.7%
Ground Coverage	26.3%
FAR	4
Proposed Gross Built-up	17600 sq m
Existing Gross Built-up	15012 sq m
No. of DUs	183

Parking required @ 2 ECS per 100 sq m: 215. Parking provision: 317

The option proposes units of three sizes: 40 sq m, 80 sq m and 120 sq m. The 80 sq m and 120 sq m units can be achieved by the combining of two or three 40 sq m units. The existing unit sizes on the site currently vary and this arrangement would give flexibility in allotment of units to the stakeholder.



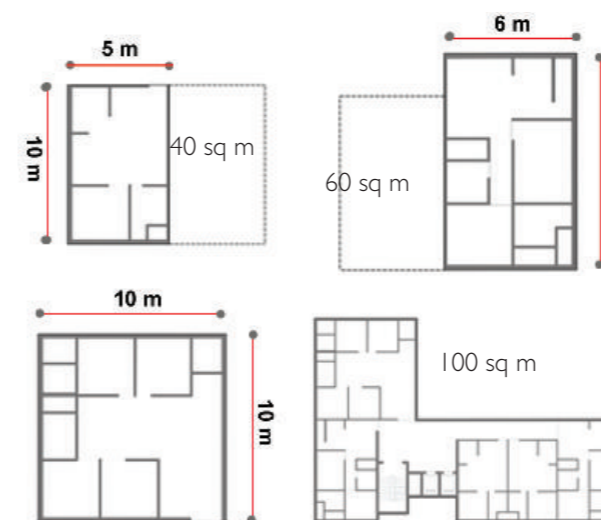
4.2.3 Proposed Development of Cluster on External Periphery of Vinod Nagar as per MPD: Scenario II



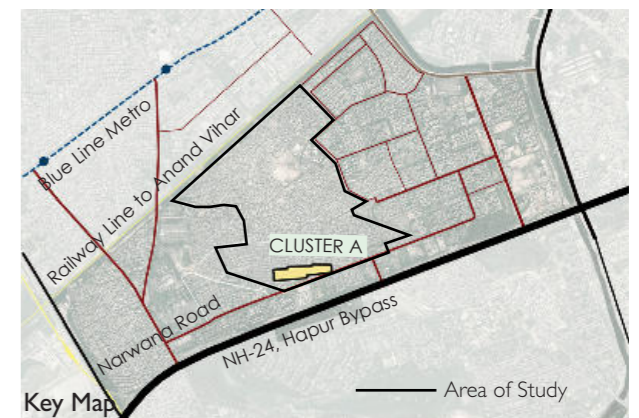
Aerial View of the Proposed Housing



Layout of the Proposed Housing



By MPD standards maximum ground coverage is 33.3%. Ground coverage up to 40% may be allowed to achieve low-rise high density housing without elevators.



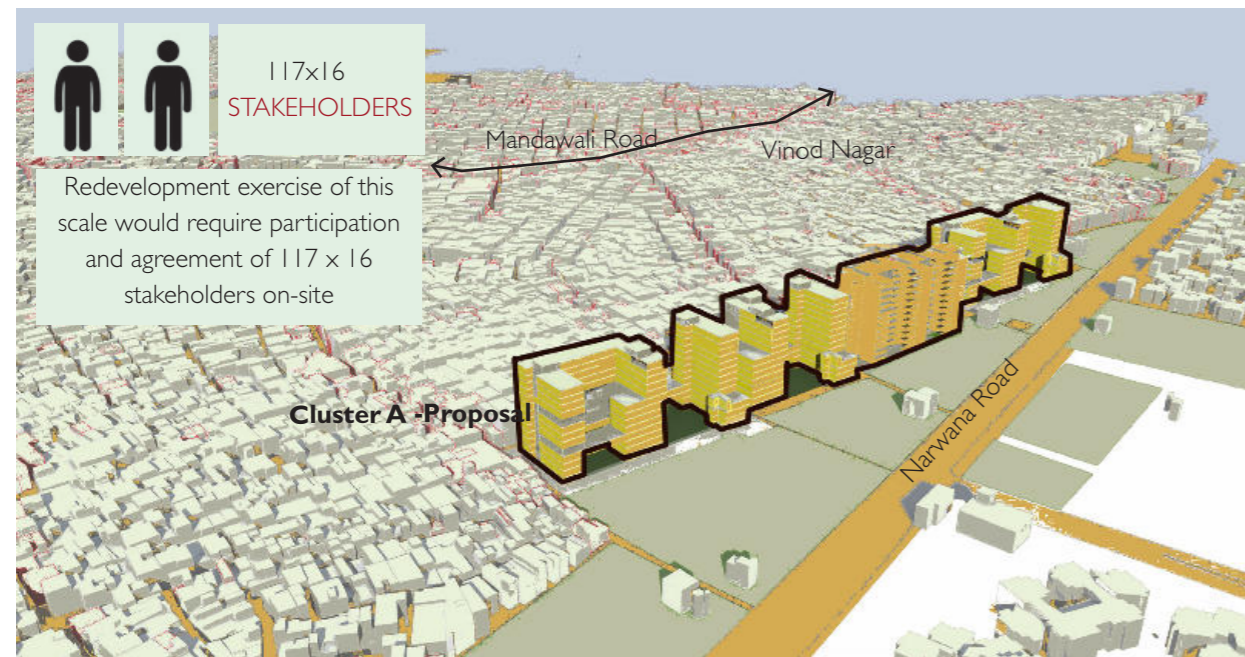
Area Programme For Proposed Scenario II

Existing Programme

Total Site Area	4400 sq m
% of Open	15%
Ground Coverage	85%
FAR (avg ht. G+3)	3.41
Gross Built-up	15012 sq m
No of DUs	117

Proposed Program

Total Site Area	4400 sq m
% of Open	66%
Ground Coverage	34%
FAR	4
Gross Built-up	17600 sq m
No. of DUs	183

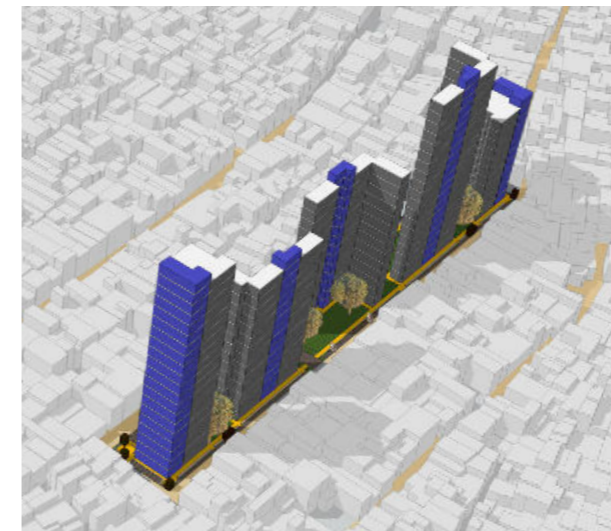


Proposed Scenario:View of a Complete Developed Edge



BEFORE EXISTING SCENARIO

4.2.4 Proposed Development of 3000 sq m Cluster within Vinod Nagar: Scenario III



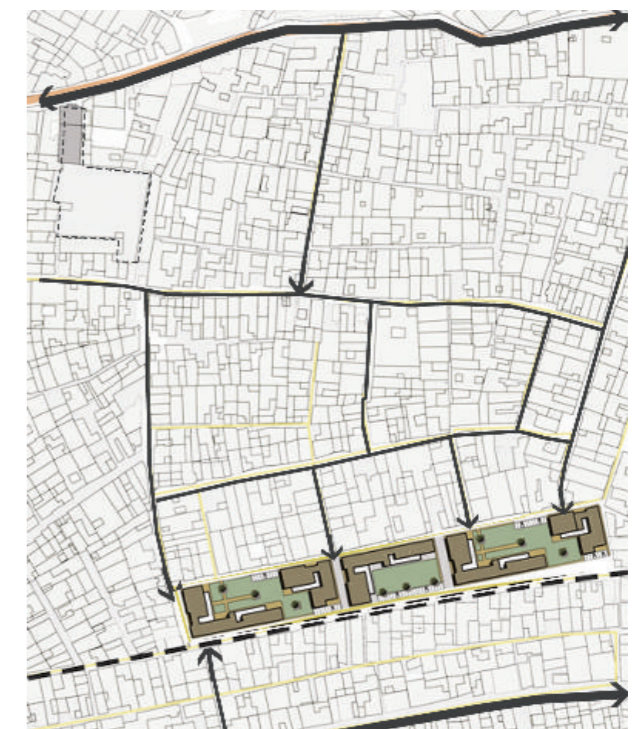
View Cluster A: Option with Setbacks



View Cluster A: Option without Setbacks



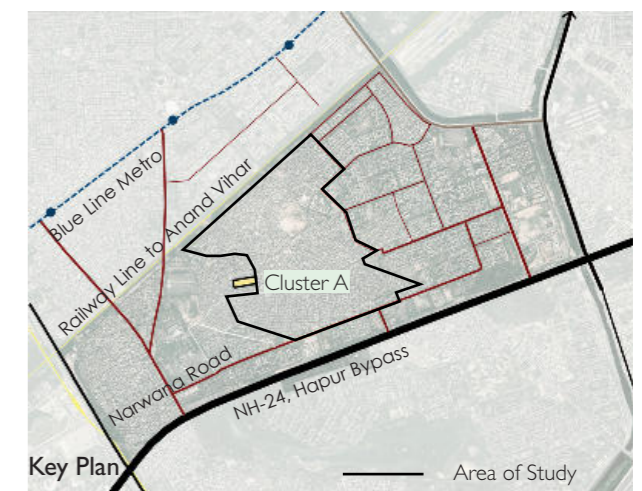
Plan Cluster A: Option with Setbacks



Plan Cluster A: Option without Setbacks

Total Site Area	4600 sq m
% of Open	65.56%
FAR	3
Gross Built-Up	13800 sq m
No. of DUs	280 sq m
Parking required @ 2 ECS per 100 sq m: 215. Parking provision : 317	

- Freeing up existing built-up space in order to increase permeability of the site.
- Dwelling units are designed in module form to make transition easier, i.e. 40 sq m, 80 sq m and 120 sq m
- Consolidated open spaces for community use.



Key Plan

Area of Study

Feasibility of the Redevelopment exercise:

The incentive that a builder would receive are almost similar to the incentive with a meager profit margin. The costs included have been taken approximately based on the surveys from the site.

A: Investment for 3000 sq m plot

Item	Standard		Proposed Amount
1 Lifts	Rs. 10 lakh/ lift	10 lakhs x 3	3000000
2 Rent for displaced people for a period of two years	20000/2 bhk	20000 x 37 families x 2 years	17760000
3 Construction cost	1300/sq ft	1300 x 189444.9 (17500 sq ft)	246278370
plinth area	26.3% of 4400 sq m	1157 x 15=17600	
4 Site development	5 lakh/acre	.80 x 500000	400000
site area	73.7% of 4400 sq m	3242 sq m (.80 acres)	
5 Cost of development for basement	Rs. 2200/sq ft	1157	27398360
			277076730
Final amount for investment			Rs.27 cr

A: Investment for 3000x6 = 18000 sq m plot

Item	Standard		Proposed Amount
1 Lifts	Rs. 10 lakh/ lift	10 lakhs x 18	18000000
2 Rent for displaced people for a period of two years	20000/2 bhk	20000 x 222 families x 2 years	106560000
3 Construction cost	1300/sq ft	1300 x 189444.9 (17500 sq ft)	1477670220
plinth area	26.3% of 4400 sq m	1157 x 15=17600	
4 Site development	5 lakh/acre	.80 x 500000	2400000
site area	73.7% of 4400 sq m	3242 sq m (.80 acres)	
5 Cost of development for basement	Rs. 2200/sq ft	1157	164390160
			1662460380
Final amount for investment			Rs.166 cr

B - Incentive to the builder

Item	Standard		Proposed Amount
1 Commercial Area as incentive	3471 sq m/ 37361.52 sq ft	8000/ sq ft	298892160
2 Residential Area as incentive		4200/ sq ft	
			298892160
Final amount for investment			Rs.29.88 cr

B - Incentive to the builder

Item	Standard		Proposed Amount
1 Commercial Area as incentive	3471 sq m/ 37361.52 sq ft	8000/ sq ft	1793352960
2 Residential Area as incentive		4200/ sq ft	
			1793352960
Final amount for investment			Rs.179 cr

- Cost to be accommodated by DDA
- All incentive components to be sold as commercial by the builder

Source: As per data collected on site (July 2014)

Advantages for Physical Environment

- Land will be optimally utilized releasing more open spaces and allowing for provision of amenities/facilities
- Orderly development would help in traffic movement and parking spaces
- The area will get a social and physical identity
- The process of spatial engineering would enhance the neighbourhood spirit by a socialistic process

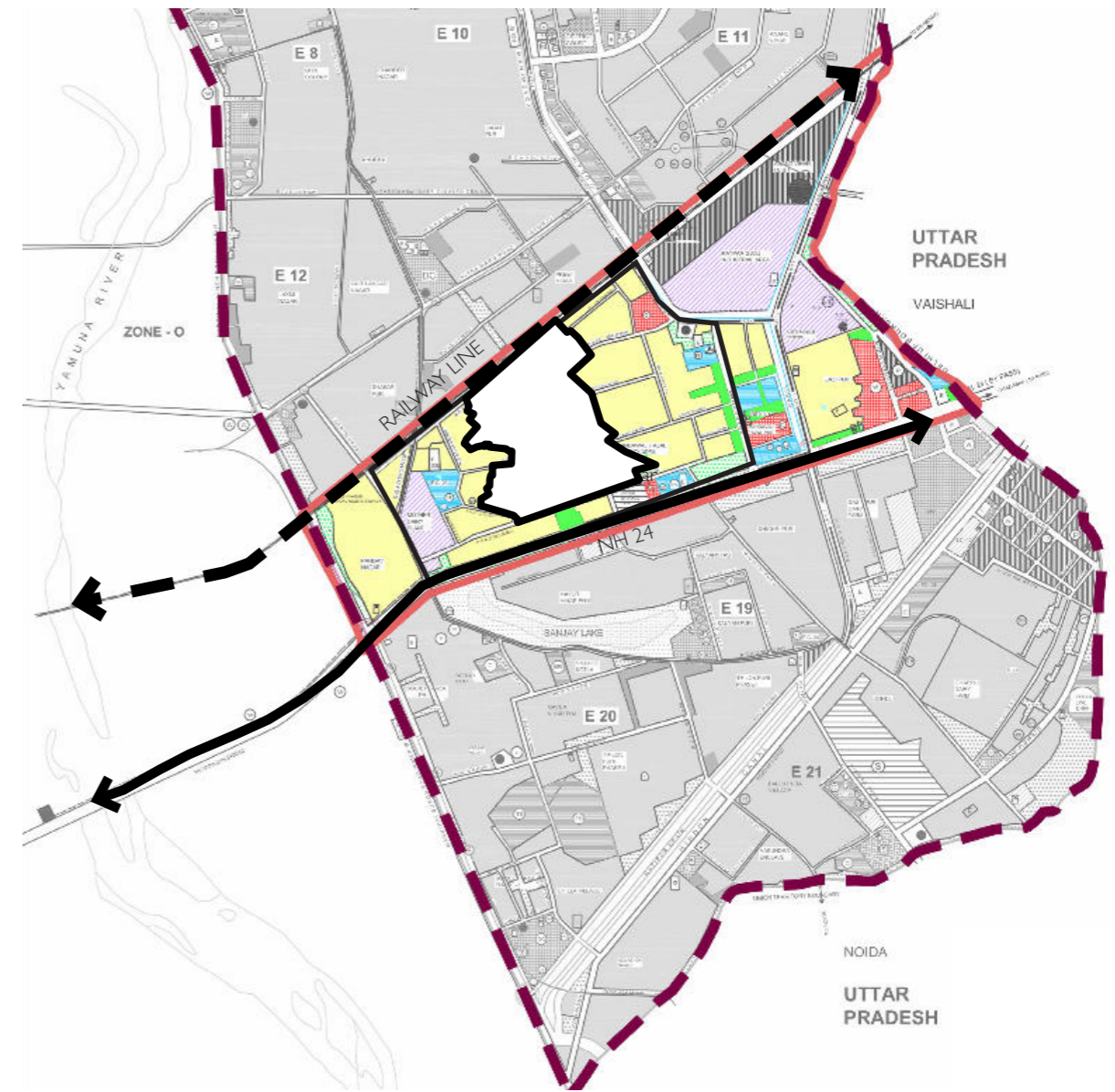
However there are Crucial Questions:

- The development of Vinod Nagar (typical of most such colonies) reflects an equilibrium attained with respect to lifestyles and aspirations of the people. Would redevelopment justify negating the investment the residents have made in the present development?
- A plot amalgamation exercise would require active participation of all owners and residents. In this situation approximately 1800 owners of MIGs would be involved.

Who, then would be entrusted with the ownership of implementation of development on this scale? Who would finance it and why?

- These issues need serious introspection.

4.3 Upgradation as Defined in Master Plan



Zonal and Master Plans have proposed upgradation of residential colonies as an alternative strategy to the redevelopment of various areas in Delhi.

Aims of Upgradation

- Restructuring and upgradation in Zonal Plan has been outlined as redevelopment of the existing areas to **accommodate infrastructure services, community facilities, ensure sub-optimal utilization of land and ease congestion**, in consultation with RWAs
- Zonal Plan **proposes regularization of unauthorized colonies** as per government guidelines.
- Zonal Plan has a **declared list of mixed-use streets/commercial streets** in East Delhi.

Zonal Plan Suggests the Following Standards:

- 72 hospitals for a population of 28 lakhs
- 56 polyclinics/nursing homes for 28 lakh population
- One technical centre for a population of 10 lakhs
- 280 senior secondary schools for a population of 28 lakhs
- 1 telephone exchange for 10 lakh population
- One post office per 10 lakh population
- 3 fire stations for a population of 5 lakhs
- 84 godowns for a population of 28 lakhs

4.3.1 Structure Plan for Upgradation

Context

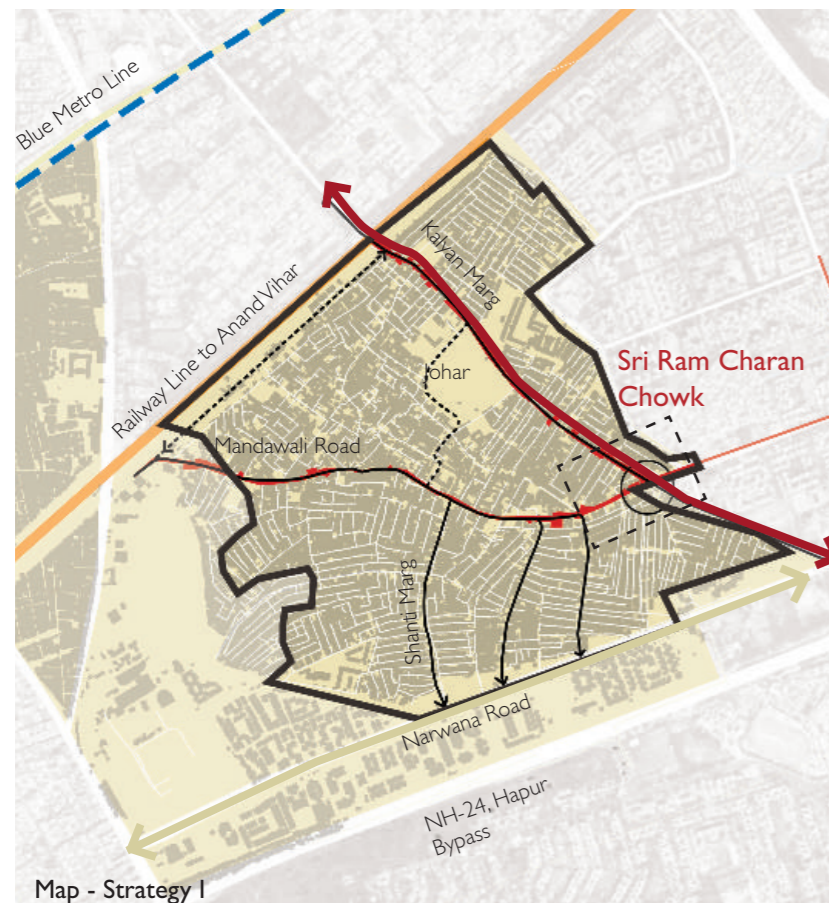
- Vinod Nagar is a colony that has been witnessing change in densities.
- There is an upward movement of families in terms of economic status.
- The number of four-wheelers are increasing in the area.
- The infrastructure of roads are not designed to take the growing pressure.
- The reason is that the roads cater to many other functions other than movement, like hawking, parking, and movement of transport modes of varying pace.
- The colony remains disconnected from public transport.
- Apart from this, the open space pockets are inaccessible, disconnected and chaotic on edges.



Key Map

Strategy I : Reorganizing Movement Networks

Clarifying vehicle thoroughfare roads and strengthening them to ensure better connectivity to Metro and public transport modes



Map - Strategy I

Sub-Strategies

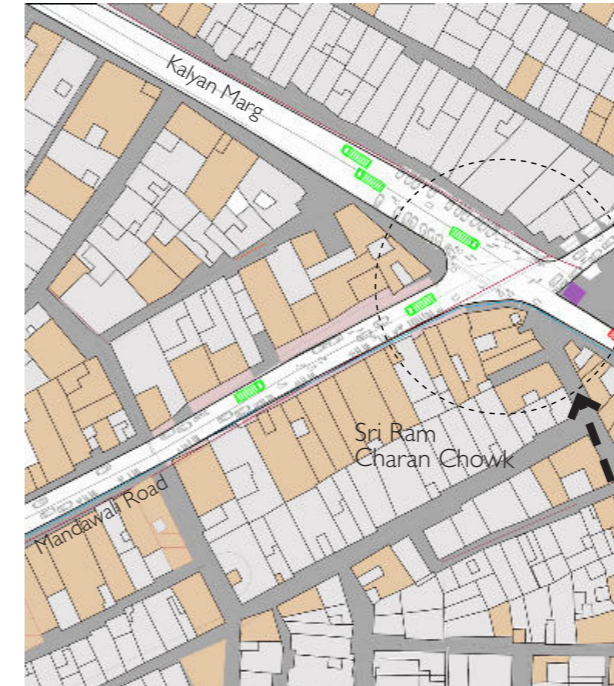
Creating crosslink roads between Kalyan Marg and Narwana Road by identifying thoroughfare roads like Shanti Marg

Creating road edge around Johar

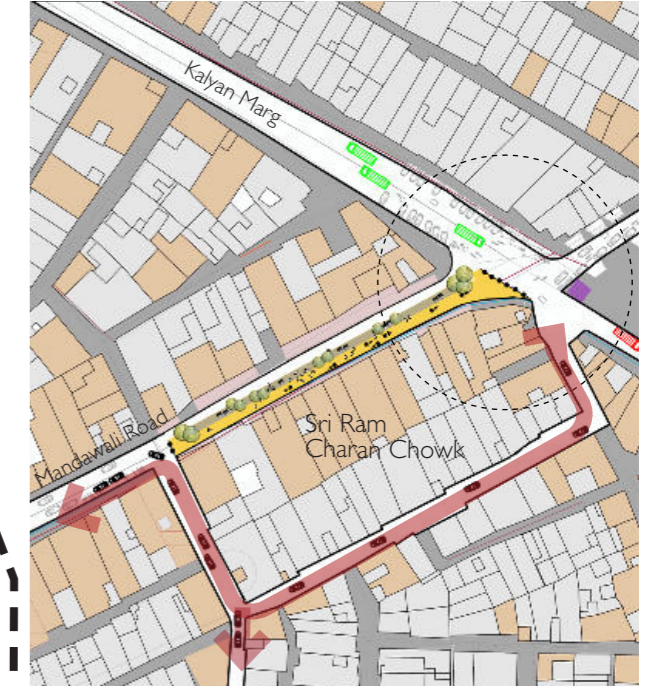
Future scope for identifying possibilities for stretches exclusive to pedestrians with suitable amenities, and modified sections could be explored.

- Area of Study
- Congested roads in present context
- Proposed roads
- Proposed rickshaw routes
- Proposed vehicular routes with interventions
- Cul-de-sacs proposed as nodes

Demonstration of Strategy to Create Brief Pedestrian Spans



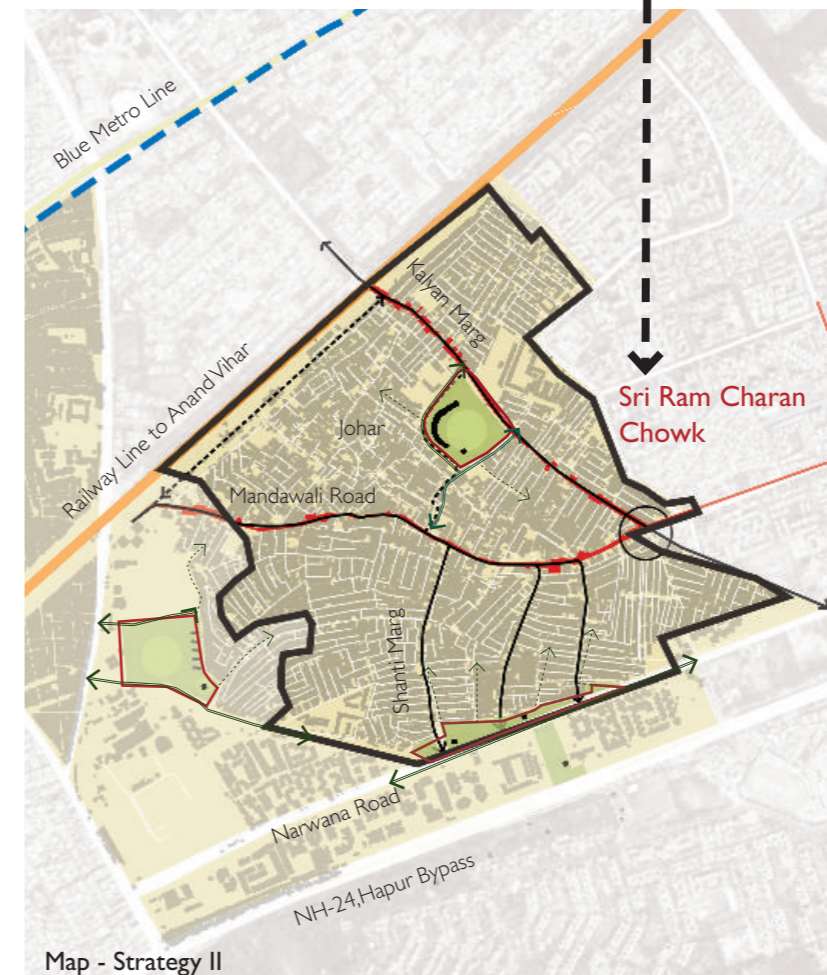
Existing Condition of Sri Ram Charan Chowk



Proposed Condition of Sri Ram Charan Chowk

Strategy II : Restructuring the Open Space Network

Introducing the functions to improve the usage of open spaces and making them multifunctional.



Map - Strategy II

Sub-Strategies

Creating access to the open spaces from the main roads

Organization of activities within the green spaces to make them multipurpose in nature

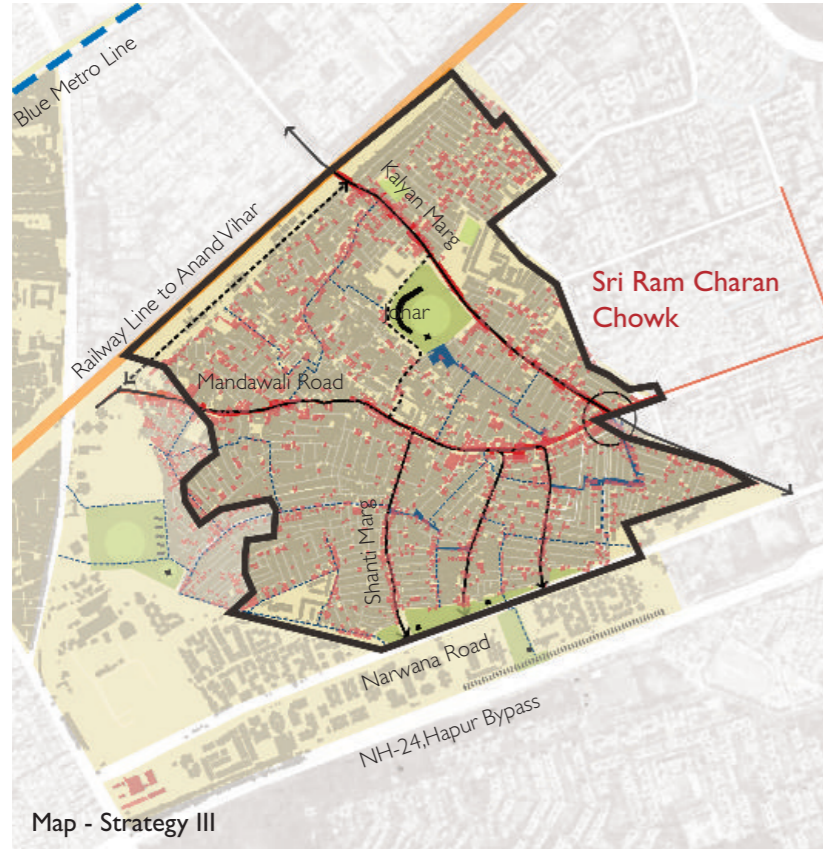
Organizing pedestrian movement around the open space streets

Designing park edges to accommodate variety of functions like people spaces, pause spaces, parking spaces, activity spaces etc., to make them more responsive to their local and immediate contexts

- Area of study
- Congested roads in present context
- Proposed roads
- Proposed access to open spaces
- Proposed vehicular routes with interventions
- Streets to be improved for pedestrianization
- Programming greens to make them usable and multipurpose

Strategy III : Introducing the NMV Network

A good rickshaw system would ensure greater permeability to the fabric. Connecting it with existing movement systems would create better accessibility to public transport systems like the buses and the Metro stations

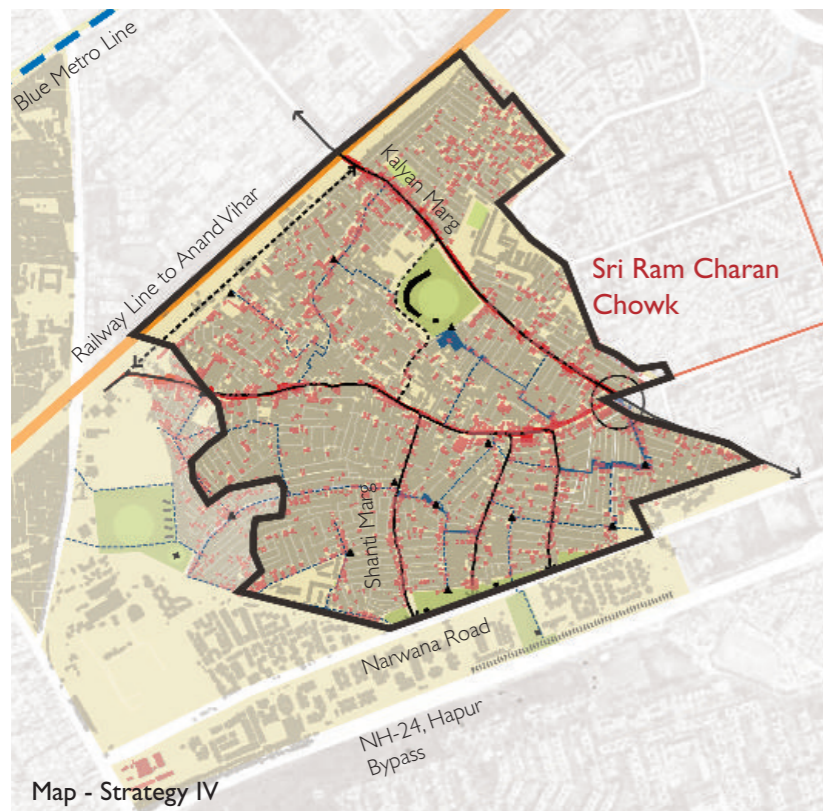


Sub-Strategies

- Identification of residential lanes and secondary lanes that can be made suitable for NMV movement
- Interconnecting them to existing networks
- Organization of stands for rickshaws and autos and parking systems

- Area of study
- Congested roads in present context
- Proposed roads
- Proposed rickshaw routes
- Proposed vehicular routes with intervention
- Cul-d- sacs proposed as nodes
- Programming greens to make them usable and multipurpose

Strategy IV : Creating Nodes and Amenities

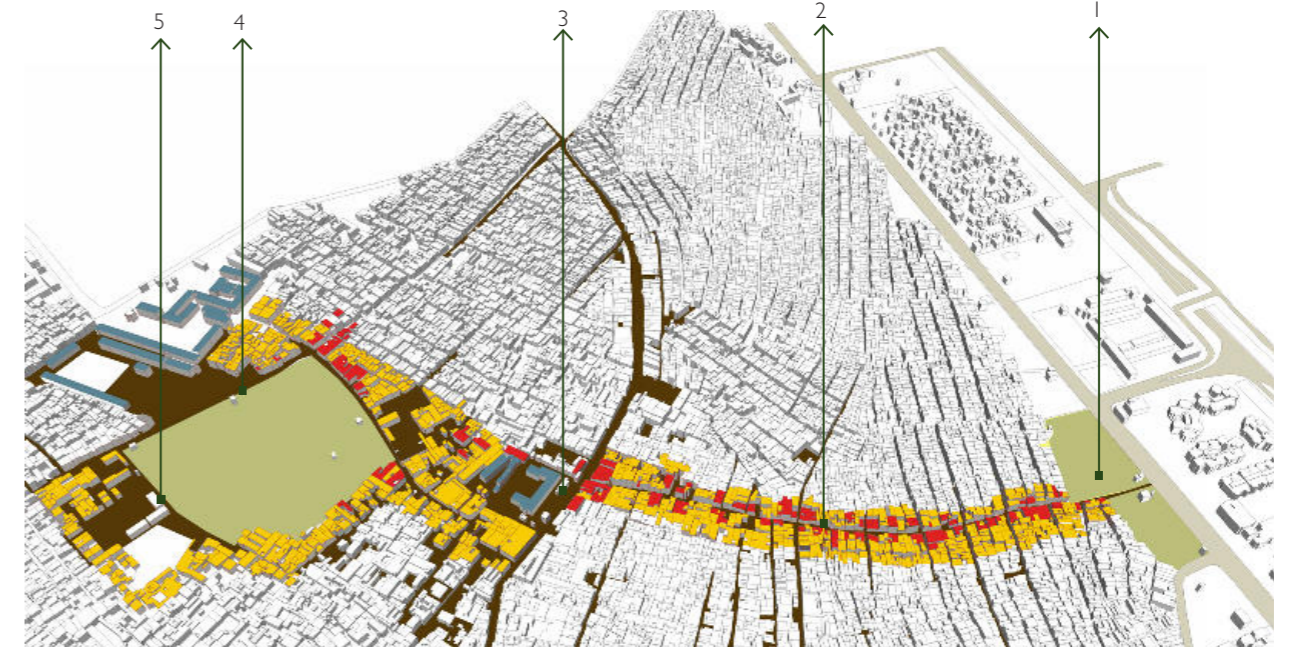


Sub-Strategies

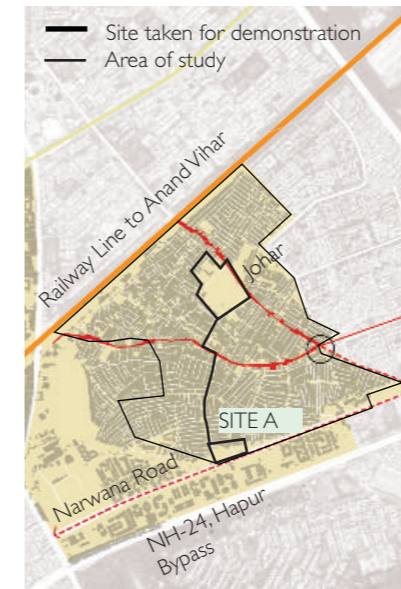
Upgrading of intersections to accommodate amenities wherever possible.

- Area of Study
- Congested roads in present context
- Proposed roads
- Proposed rickshaw routes
- Proposed vehicular routes with interventions
- Cul-de-sacs proposed as nodes
- Programming greens to make them usable and multipurpose

4.3.2 Demonstration on-site: Issues on the Chosen Site



Details of Site A: Site Chosen for Demonstration



Key Map

The open space pockets on Narwana Road are dead and impossible to use during the day.

The entry to Shanti Marg is narrow, congested and chaotic because of unorganized parking and vehicular movement.



1. Open Space Pockets



4. The Junction and MCD School on Mandawali Road

Shanti Marg is one of the few thoroughfare roads that Vinod Nagar has. The road is a combination of residential and commercial units.

Simultaneous use of Right of Way by various modes of transport, hawking, parking and overspill of shops, encroachment and pedestrian use causes chaos.



2. Chaos on Shanti Marg



5. Edge of Johar

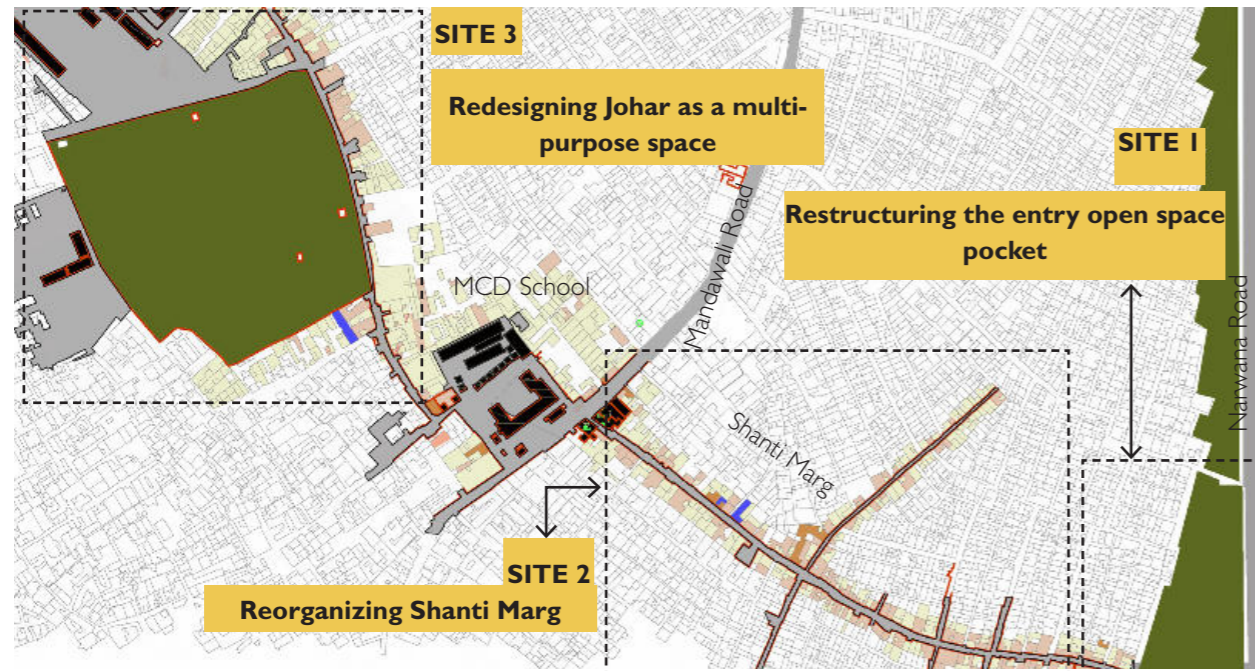
Intersections like the intersection of Shanti Marg and Mandawali Road could be transformed into nodes for potential pause spaces.

The green space was once a recharge point for the area. It is the biggest open space in the area. Now it lies deserted with no access. The green open space pockets lie disconnected with the surrounding functions.

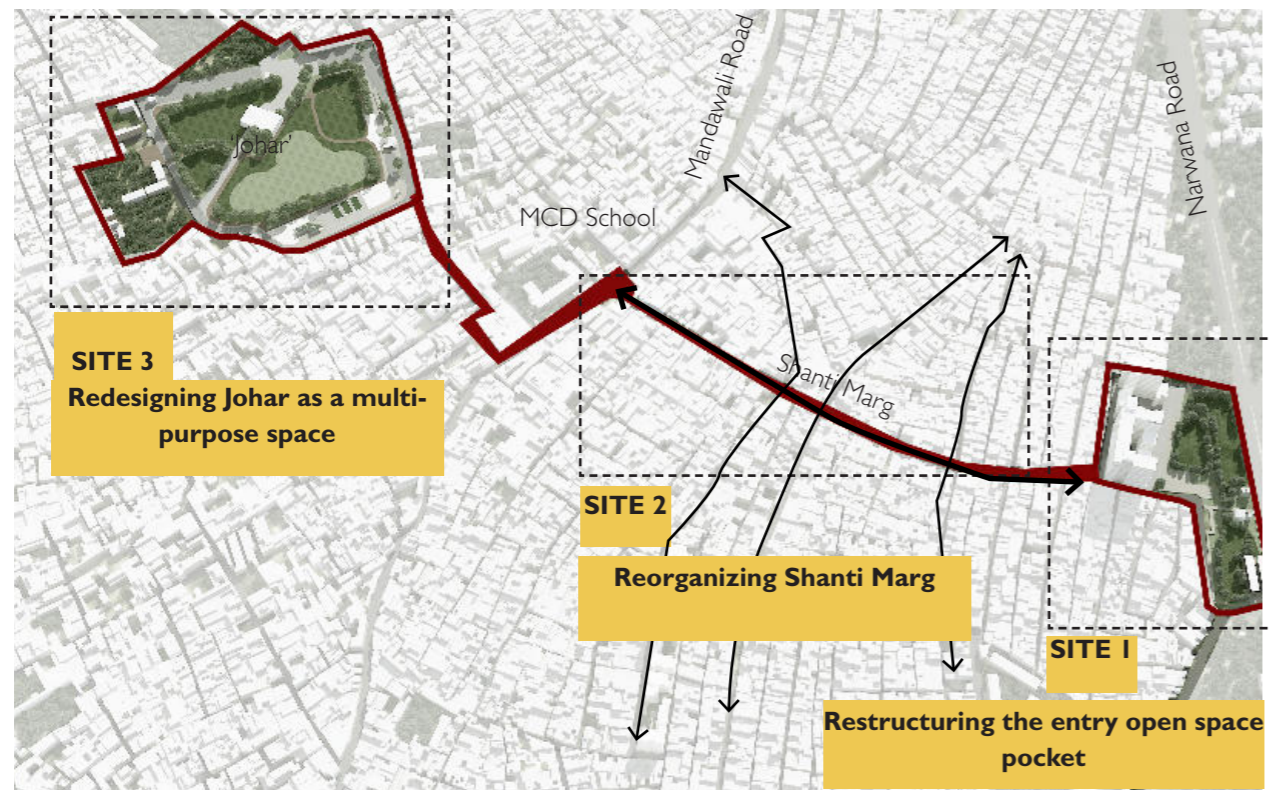


3. Bounded Edge of Johar near Primary School

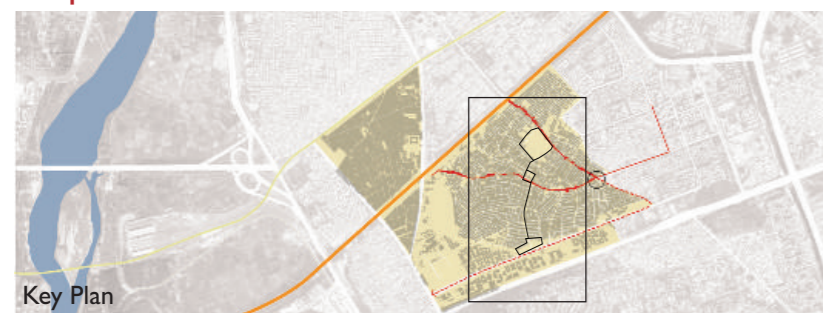
Structure Plan for Site A: Site for Demonstration



Existing Conditions on-site

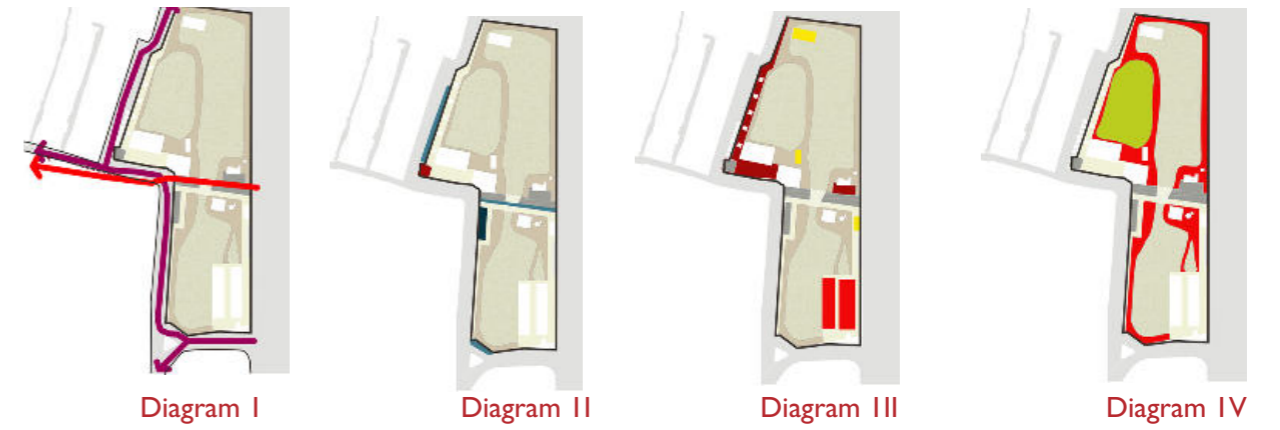


Proposed Conditions On-site



Key Plan

4.3.3 Proposal for Site I: Restructuring the Entry Open Space Pocket



- Vehicular Movement
- - Rickshaw Parking
- Pedestrian Movement
- 2-wheeler Parking
- Hawker Zones
- Retail Space
- Walking Trail

Diagram I Rerouting of vehicular traffic and organization of convenient pedestrian movement

Diagram II Organization of rickshaw, two-wheeler and vehicular parking

Diagram III Creation of pedestrian realms and retail kiosks to ensure around the clock activity

Diagram IV Space for kids and other age groups. Facilities like walking trail to ensure around the clock usage

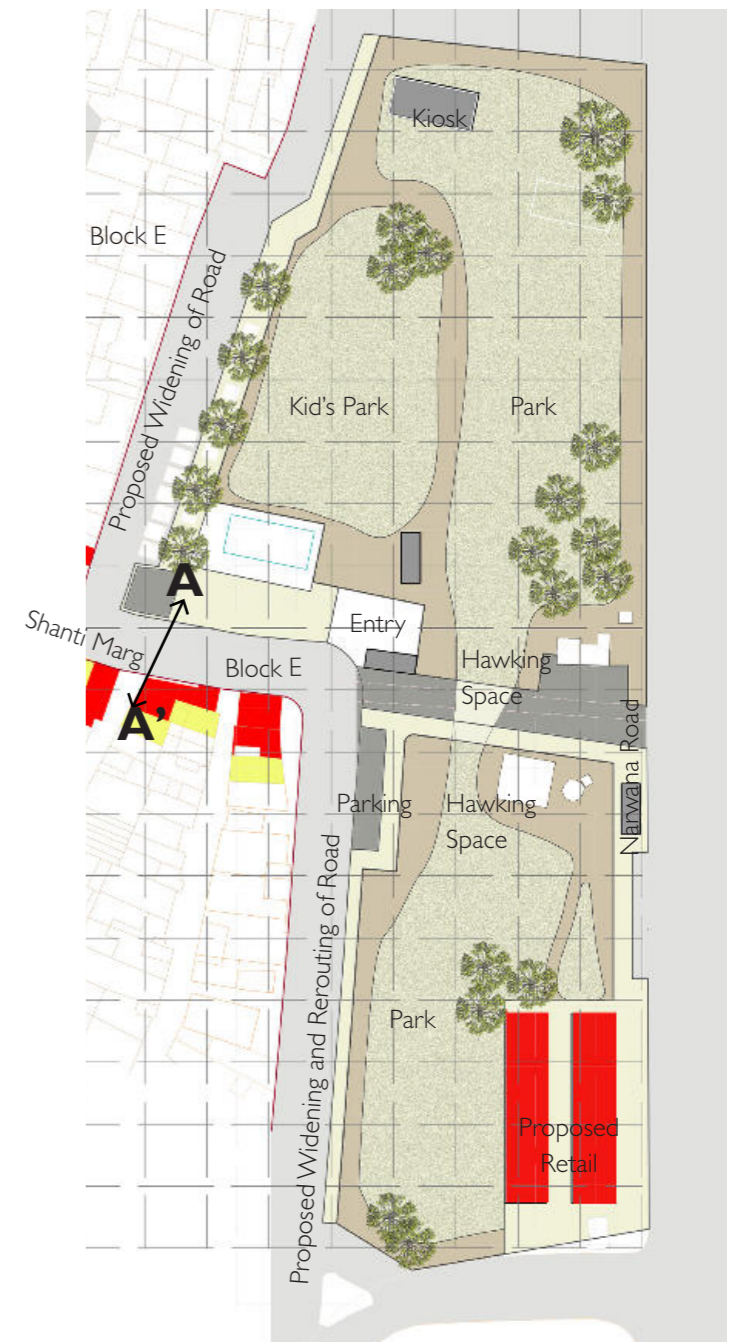


Proposed Section for AA'



Existing Section of Road with Bounded Open Space (AA')

Proposed Layout of Open Space Pocket



Grid 5 m x 5 m

Proposal for **Site I**: Restructuring the Entry Open Space Pocket



Before: Existing Conditions On-site I



After: Proposed Conditions On-site I

Proposal for **Site I**: Restructuring the Entry Open Space Pocket

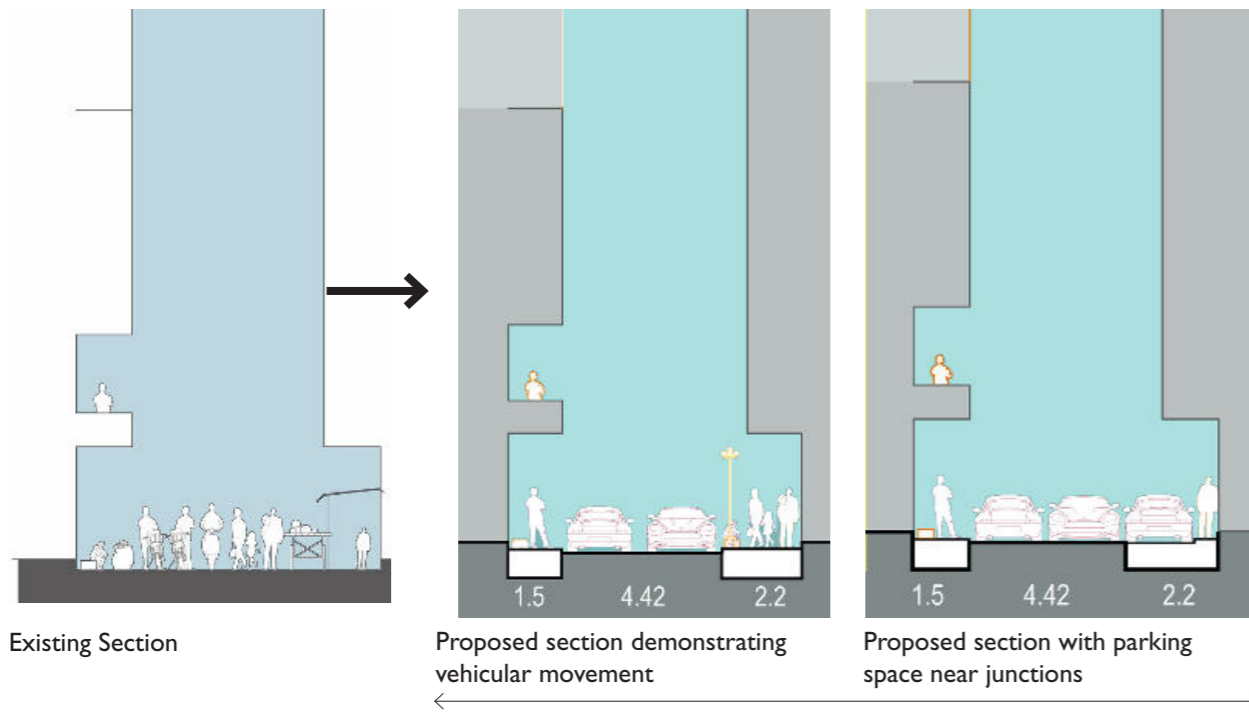


Before: Existing Conditions On-site I

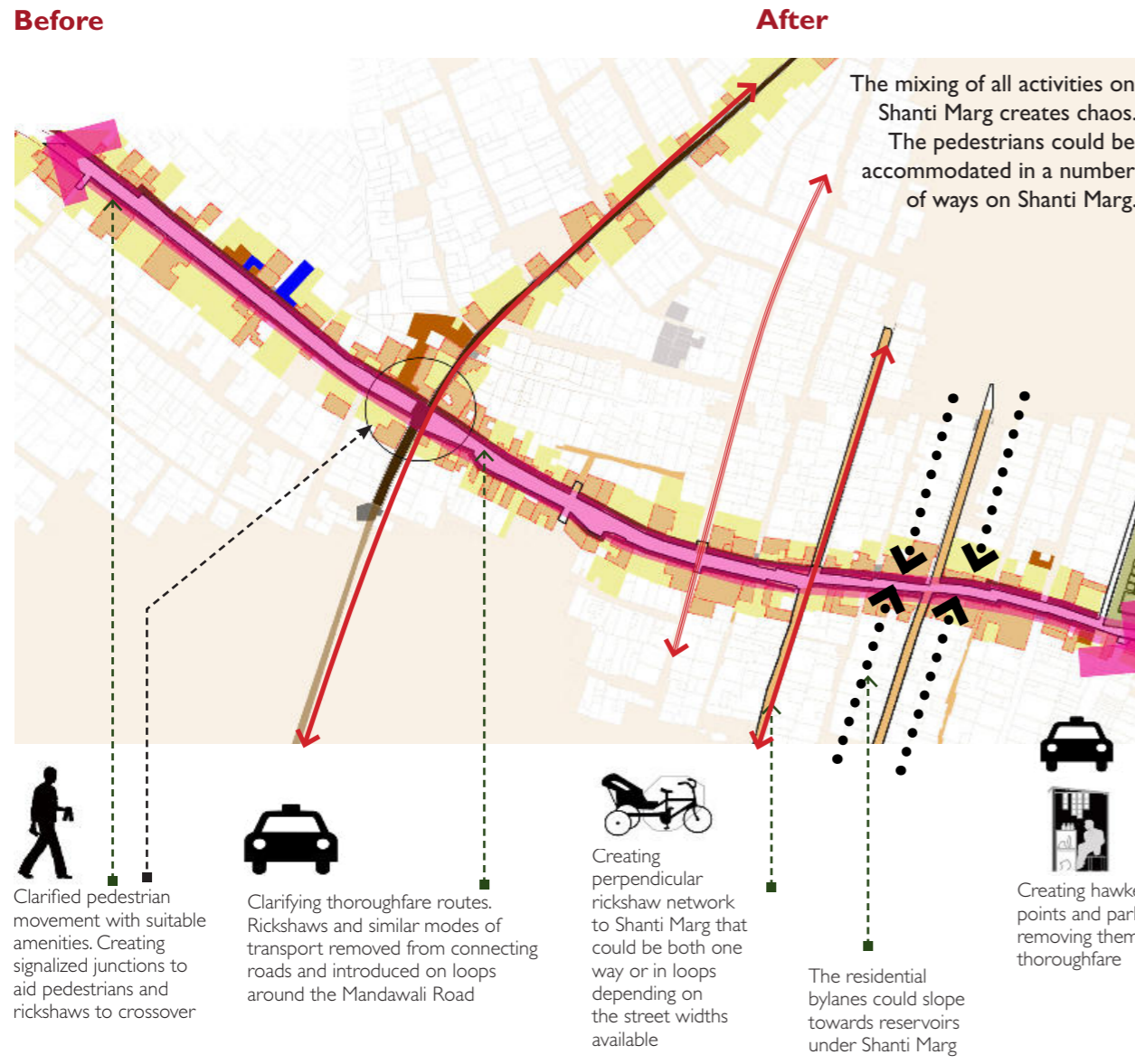


After: Proposed Conditions On-site I

4.3.4 Proposal for Site II: Reorganizing Shanti Marg

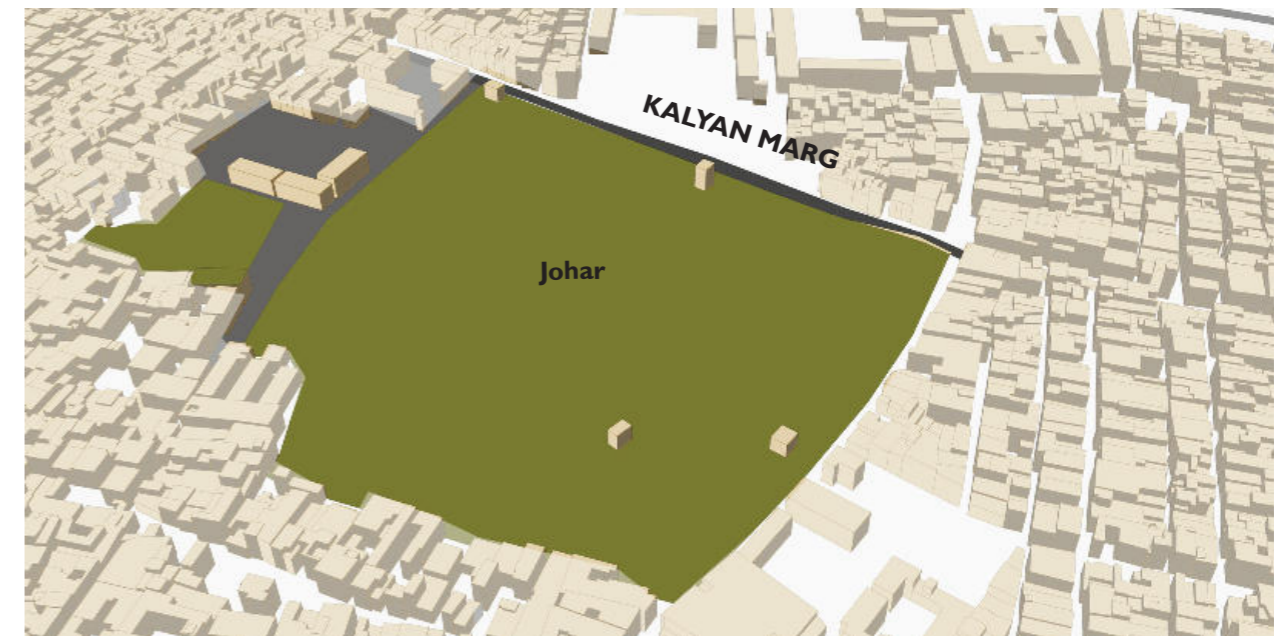


Existing Section Proposed section demonstrating vehicular movement Proposed section with parking space near junctions



Key Map Site taken for demonstration Area of study

4.3.5 Proposal for Site III: Redesigning Johar as a Multipurpose Space



Before: Existing Conditions on-site III

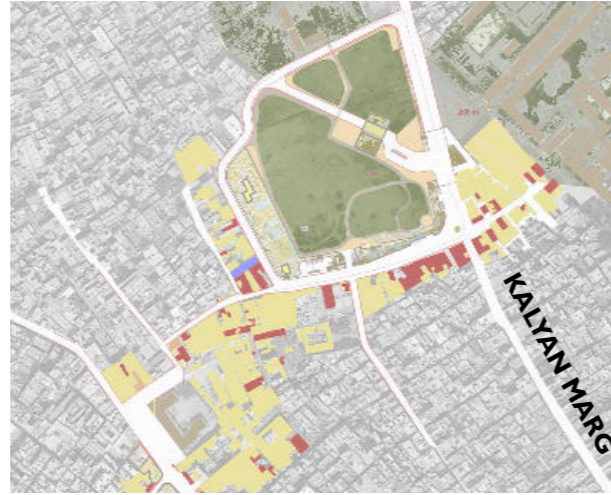


After: Proposed Conditions on-site III

Proposal for Site III: Redesigning Johar as a Multipurpose Space



Before: Existing Condition around the Park



After: Proposed Condition around the Park



Before: Existing Conditions On-site III



After: Proposed Conditions On-site

Proposal for Site III: Redesigning Johar as a Multipurpose Space



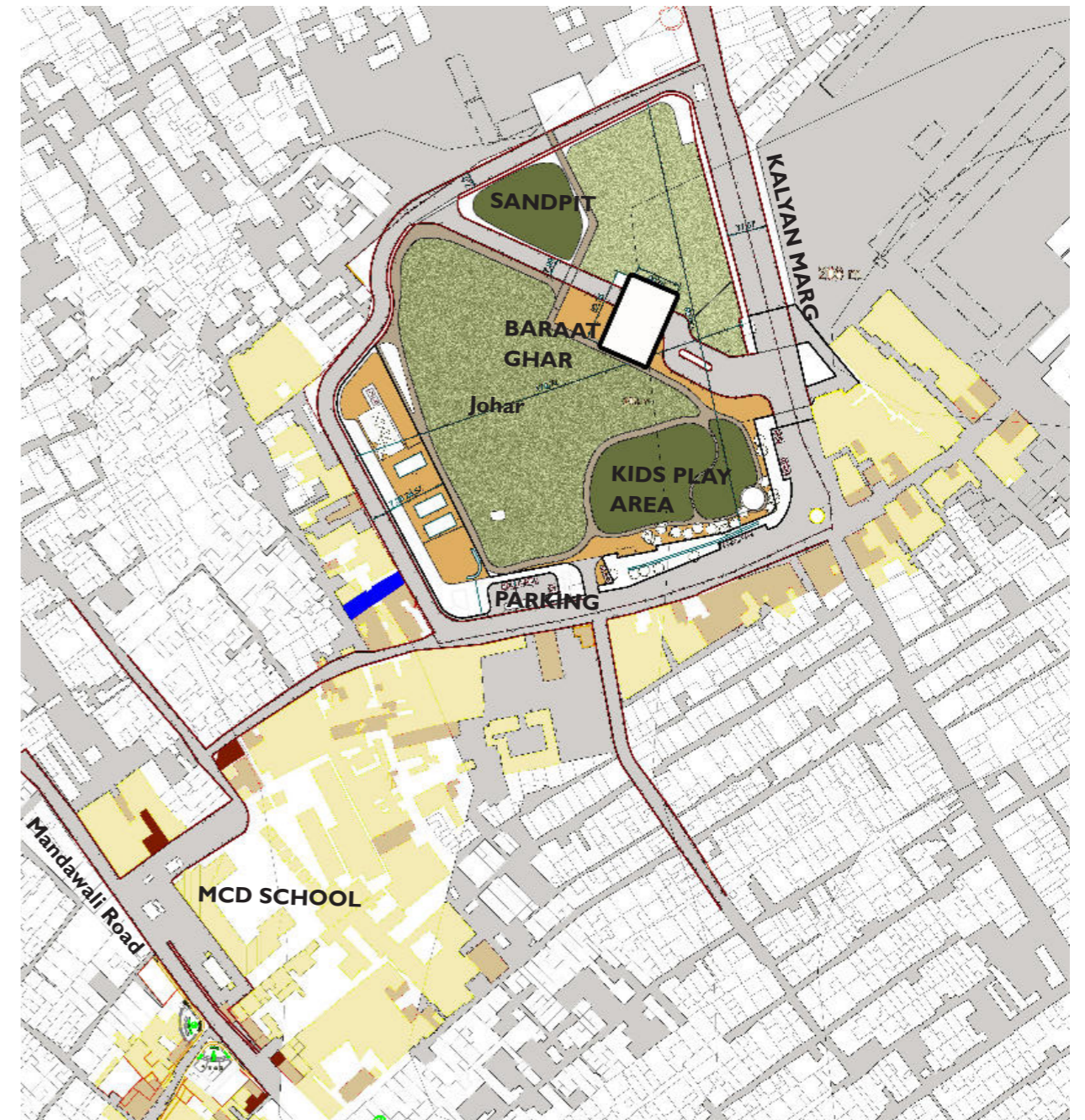
Edges to organize different activities like parking, entry and spaces for pedestrians



Organization of vehicular movement around park edges



Introduction of functions deficit in area with organized accessibility



Proposed Condition around the Park



(An ISO 9001 : 2008 Certified Organisation)

Delhi Urban Art Commission

The Delhi Urban Art Commission was set up by an Act of Parliament in 1973 to “advise the Government of India in the matter of preserving, developing and maintaining the aesthetic quality of urban and environmental design within Delhi and to provide advice and guidance to any local body in respect of any project of building operations or engineering operations or any development proposal which affects or is like to affect the skyline or the aesthetic quality of the surroundings or any public amenity provided therein”.



(An ISO 9001 : 2008 Certified Organisation)

Delhi Urban Art Commission

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