

National Urban Planning & Management Conclave
Lucknow – 24th Sept. 2022

Street Networks that make Economic Sense

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Srinagar Smart City Limited

1 1/4 1 MILE 3/4 1/2 1/4 0 1/4 1/2 3/4 1 MILE 1 1/4 1 1/2 1 3/4 2 MILE 2 1/4 2 1/2 2 3/4 3 MILE

5 MINUTE WALK

(3 MPH AVG)



RADIUS - 1/4 MILE

ACRES - ~126

DWELLING UNITS - 1,000 @ 8/AC

POPULATION - 2,600 @ 2.6/UNIT

15 MINUTE WALK

(3 MPH AVG)



RADIUS - 3/4 MILE

ACRES - ~1,130

DWELLING UNITS - 9,040 @ 8/AC

POPULATION - 23,500 @ 2.6/UNIT

5 MINUTE BIKE

(12 MPH AVG)



RADIUS - 1 MILE

ACRES - ~2,010

DWELLING UNITS - 16,100 @ 8/AC

POPULATION - 41,860 @ 2.6/UNIT

5 MINUTE ELEC. VEHICLE

(20 MPH AVG)



RADIUS - 1 2/3 MILE

ACRES - ~5,580

DWELLING UNITS - 44,700 @ 8/AC

POPULATION - 116,200 @ 2.6/UNIT

15 MINUTE BIKE

(12 MPH AVG)

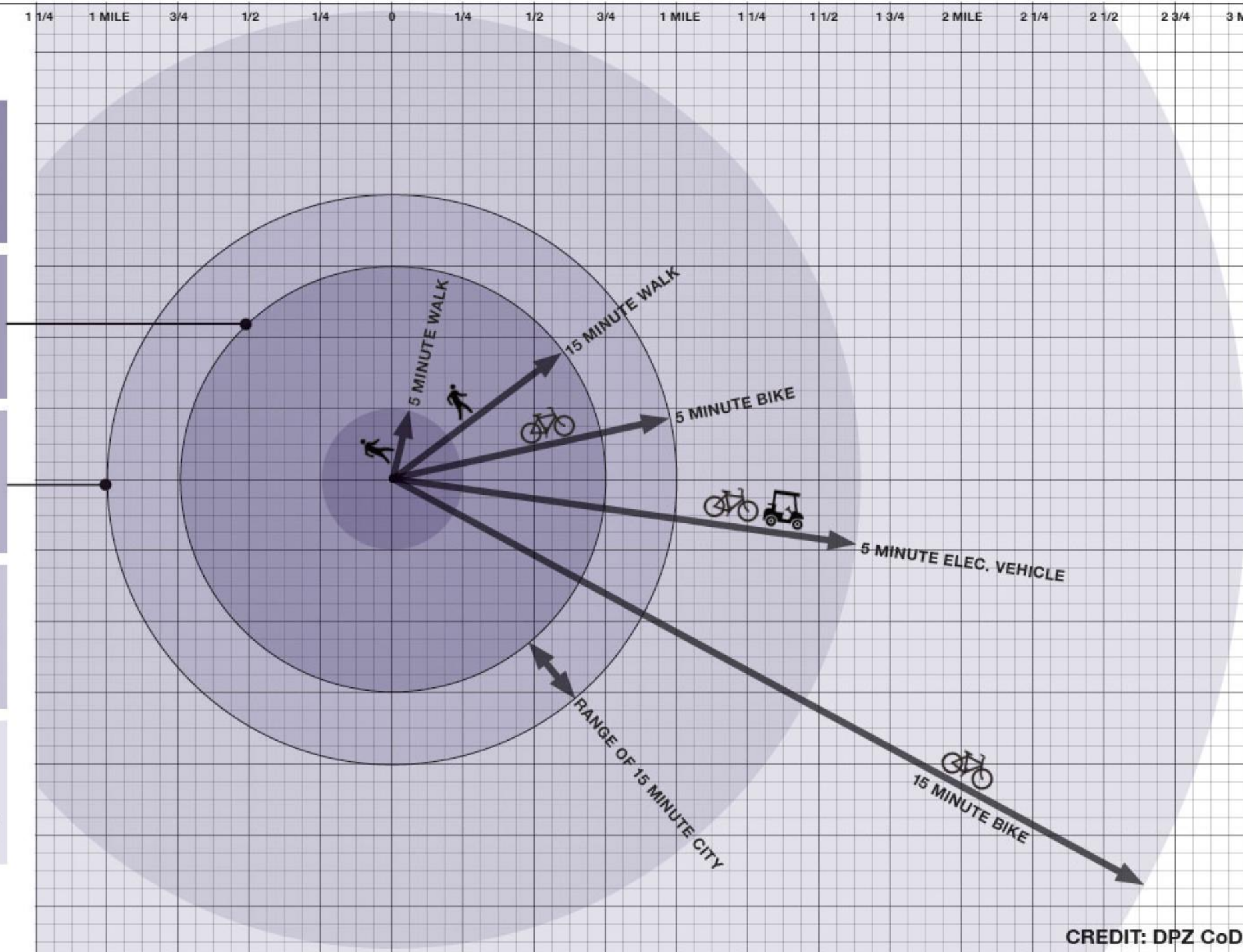


RADIUS - 3 MILE

ACRES - ~18,100

DWELLING UNITS - 144,800 @ 8/AC

POPULATION - 376,480 @ 2.6/UNIT



CREDIT: DPZ CoDesign



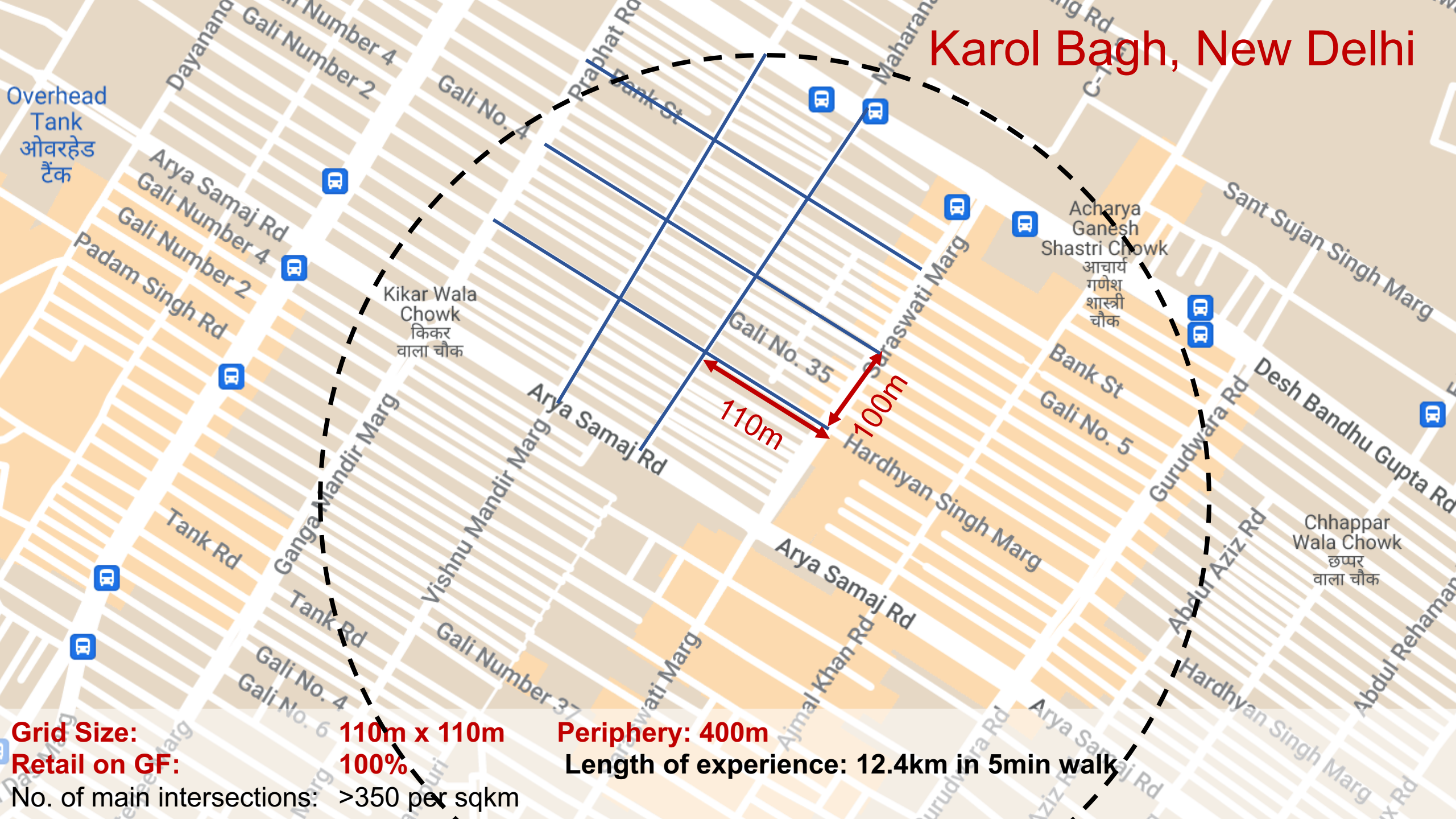






2019.04.30 11:02

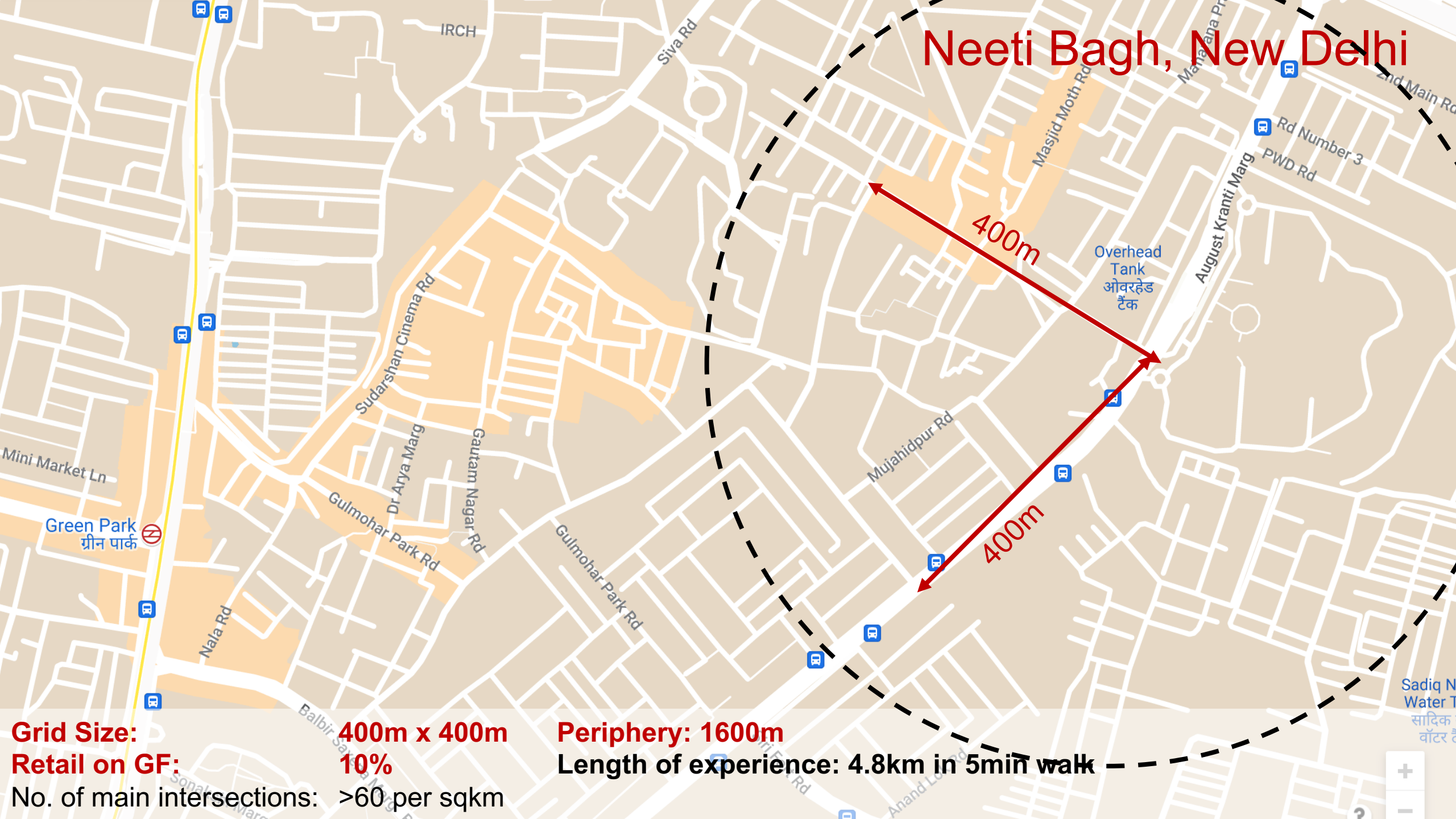
Karol Bagh, New Delhi



Grid Size: 110m x 110m
Retail on GF: 100%
No. of main intersections: >350 per sqkm

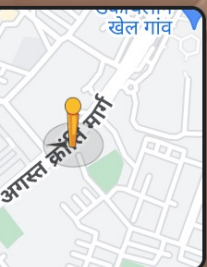
Periphery: 400m
Length of experience: 12.4km in 5min walk

Neeti Bagh, New Delhi

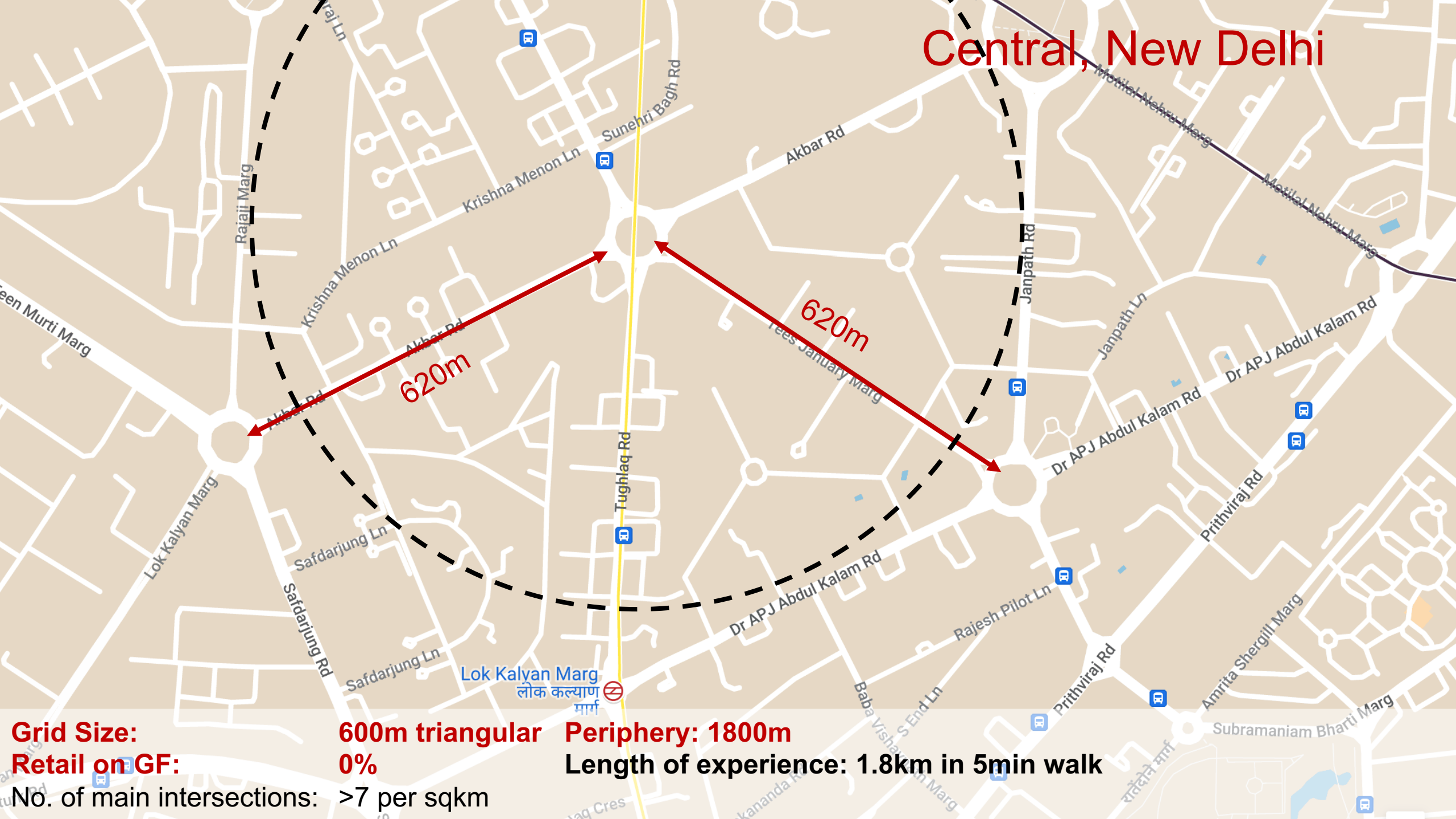


Grid Size: 400m x 400m
Retail on GF: 10%
No. of main intersections: >60 per sqkm

Periphery: 1600m
Length of experience: 4.8km in 5min walk



Central, New Delhi



Grid Size:
Retail on GF:
No. of main intersections:

600m triangular

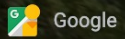
0%

Periphery: 1800m

Length of experience: 1.8km in 5min walk

>7 per sqkm

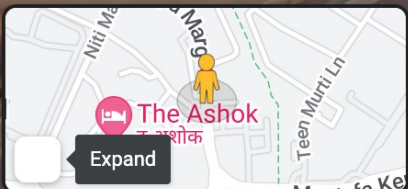
Kautilya Marg
New Delhi, Delhi



Street View - Apr 2022

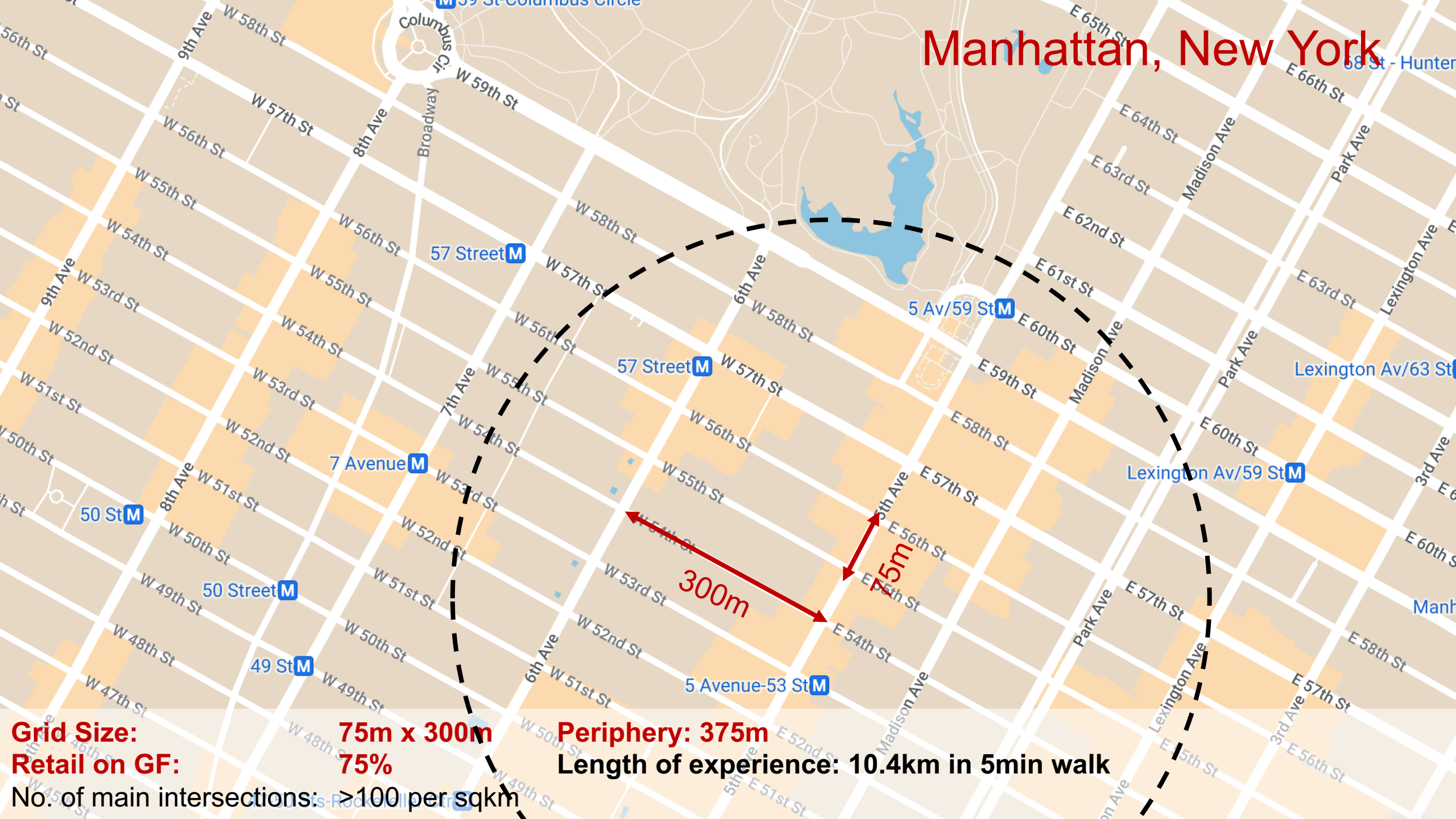
Central, New Delhi

Kautilya Marg



Google

68 St - Hunter



Grid Size: 75m x 300m
Retail on GF: 75%
No. of main intersections: >100 per sqkm

Periphery: 375m
Length of experience: 10.4km in 5min walk



Central, London

Grid Size: 150m x 50m
Retail on GF: 75%
No. of main intersections: >80 per sqkm

150m x 50m
75%

Periphery: 400m
Length of experience: 8.5km in 5min walk



Central, Barcelona

Diagram illustrating a V-shaped road layout. Two segments, each labeled 120m, meet at a central point. Below the vertex is a blue circle with the text 'Grona' and an orange diamond with the letter 'M'.

Grid Size: 120m x 120m **Periphery:** 480m
Retail on GF: 80%
No. of main intersections: >80 per sqkm



MUSEU DE CERA
WAX MUSEUM

How [street network/ economy] gets ruined!

Green Park, New Delhi

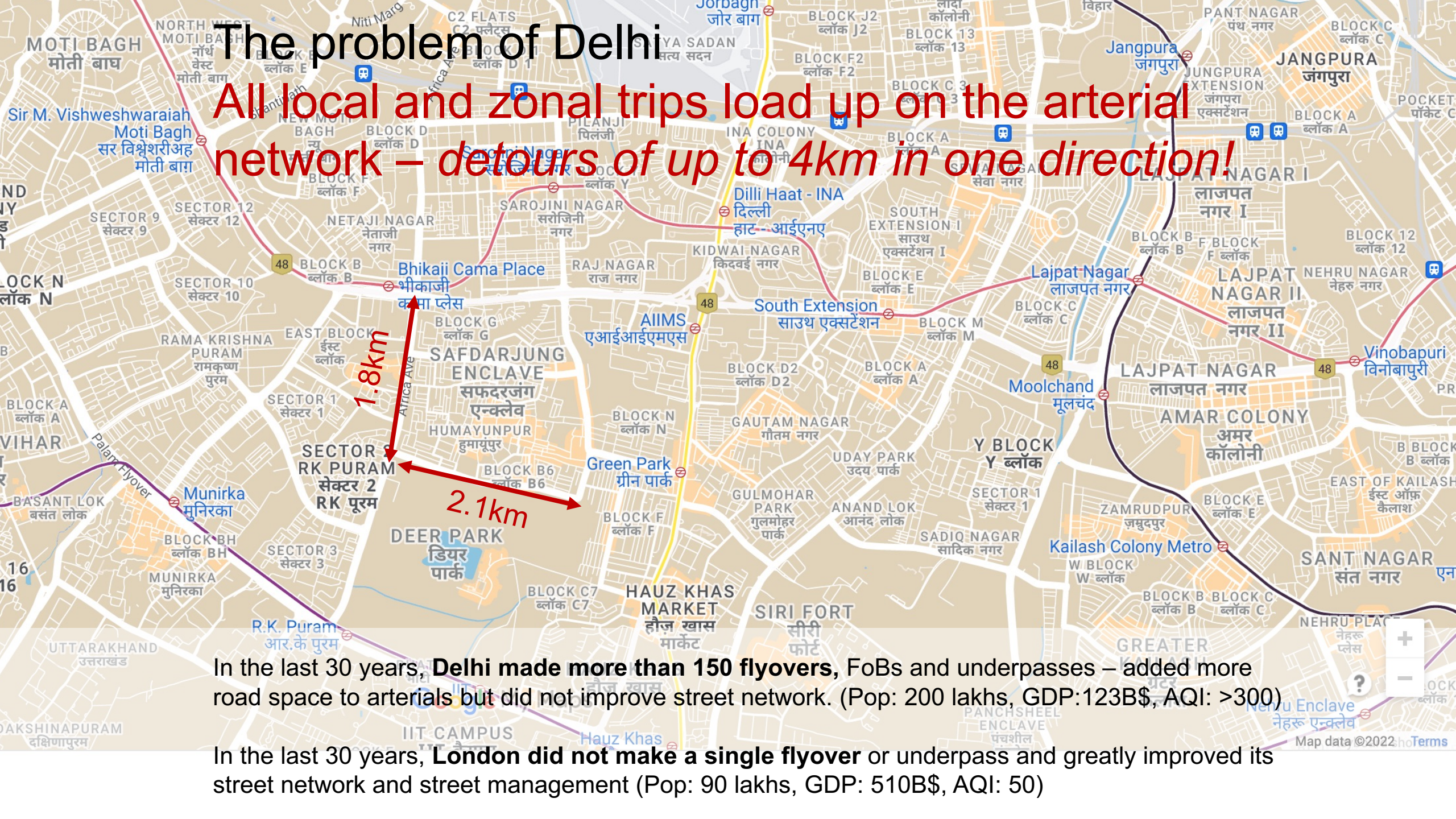






The problem of Delhi

All local and zonal trips load up on the arterial network – detours of up to 4km in one direction!



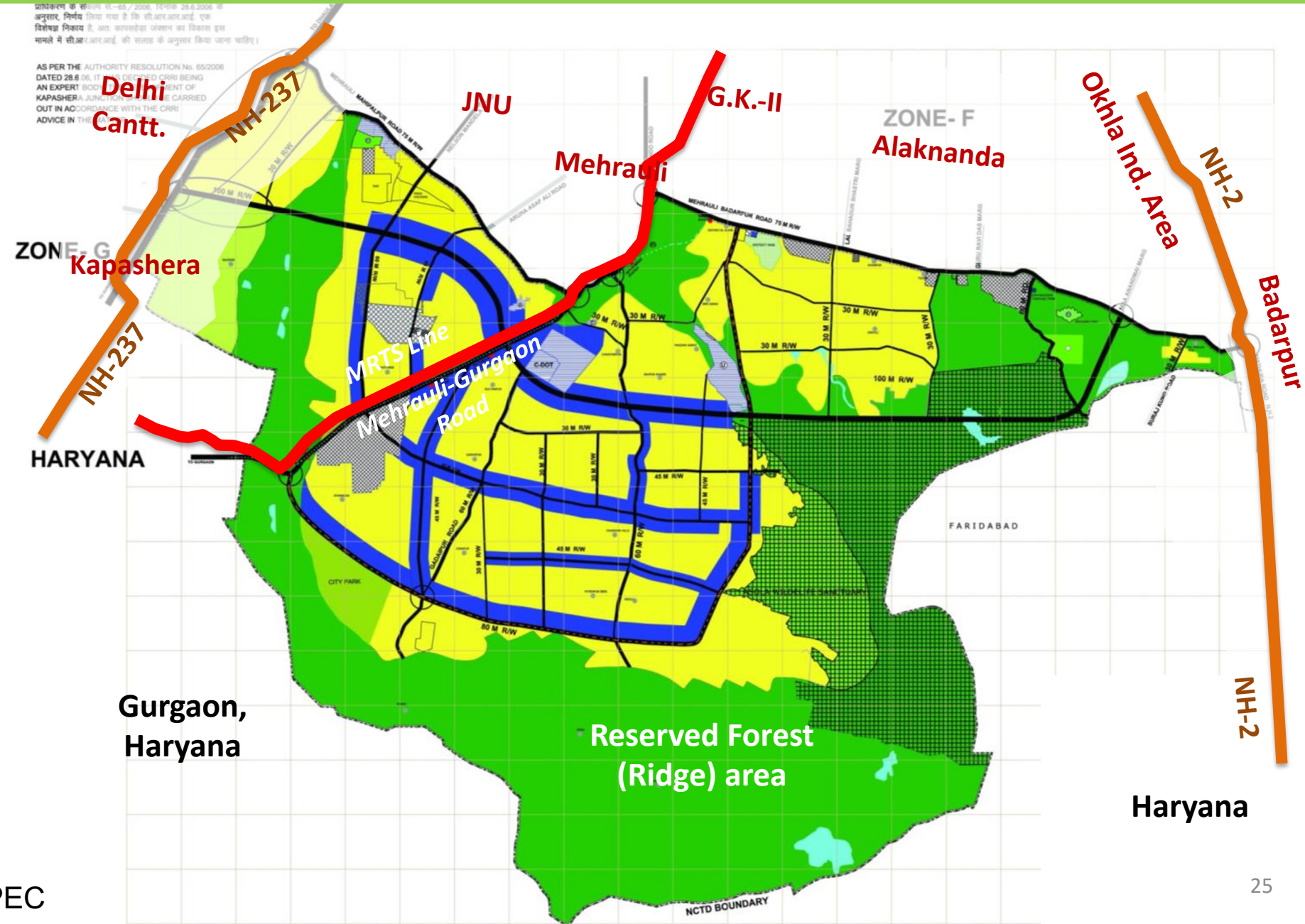
In the last 30 years, **Delhi made more than 150 flyovers, FoBs and underpasses** – added more road space to arterials but did not improve street network. (Pop: 200 lakhs, GDP:123B\$, AQI: >300)

In the last 30 years, **London did not make a single flyover** or underpass and greatly improved its street network and street management (Pop: 90 lakhs, GDP: 510B\$, AQI: 50)

New Delhi

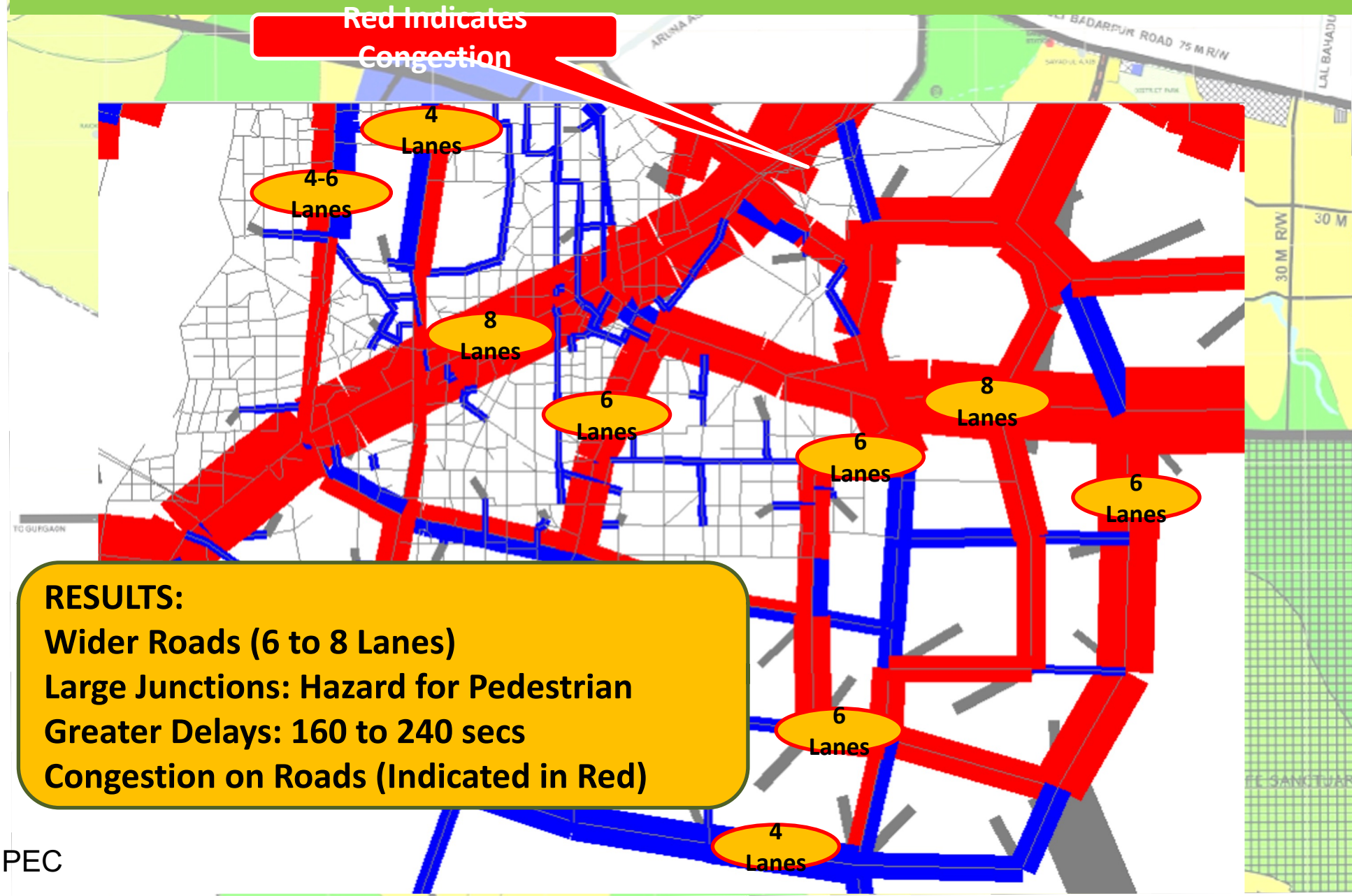


Existing Zonal Development Plan for Zone J



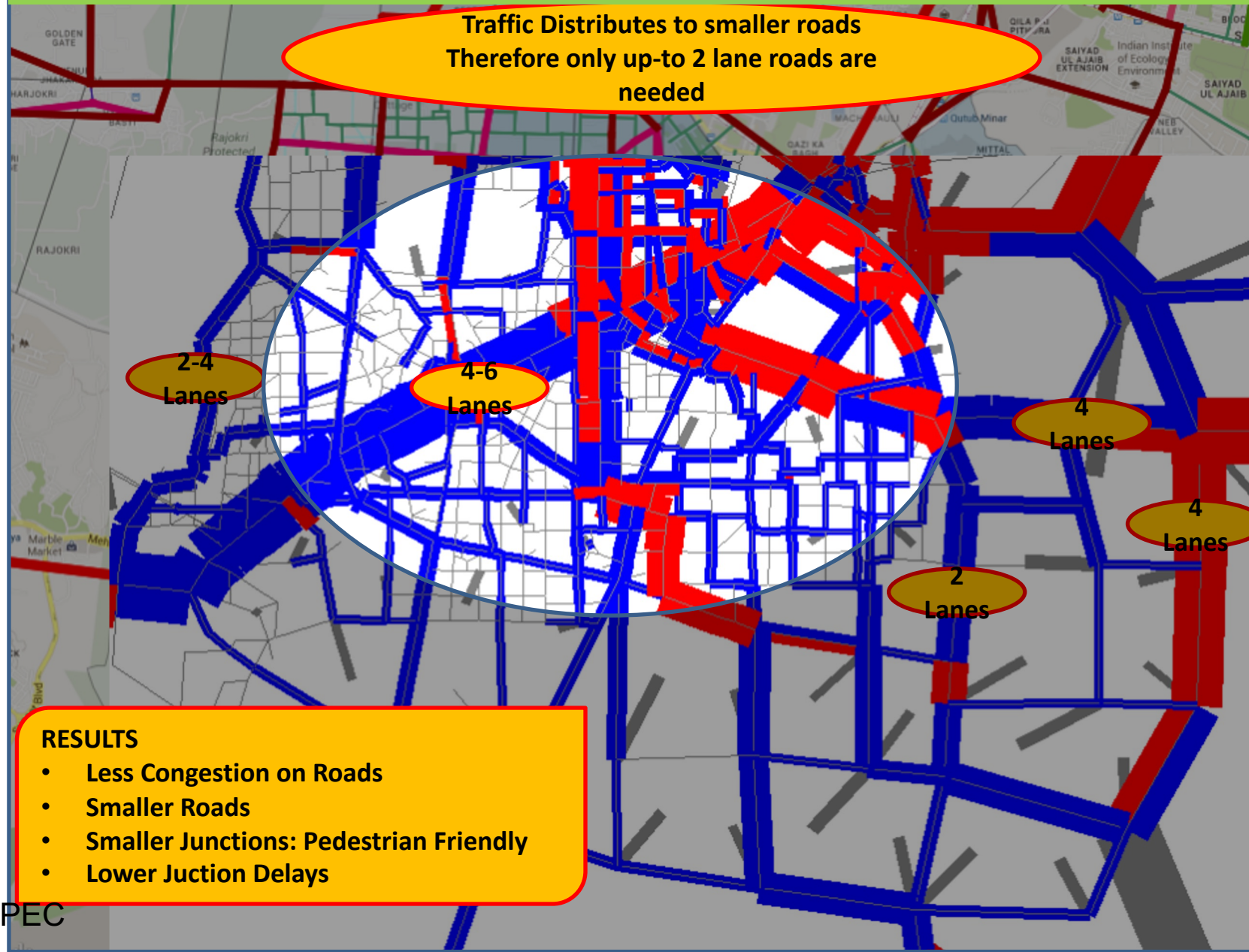
Lanes Requirement & Congestion

Without secondary and tertiary network roads



Lanes Requirement & Congestion- with road network

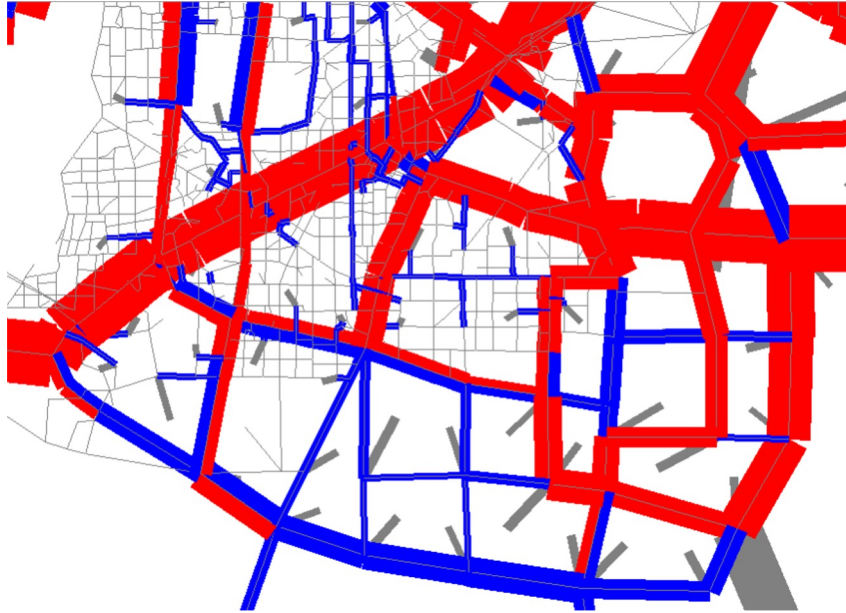
With Secondary and Tertiary network roads in place



ROW & Vehicle- Km Impacts

Conventional Approach

Few Wider Roads



VHT = 11.68 Mn Veh-hr

6-8
Lanes

183 Million
Veh. Km/yr.

Network Approach

Dense Tight Street Network



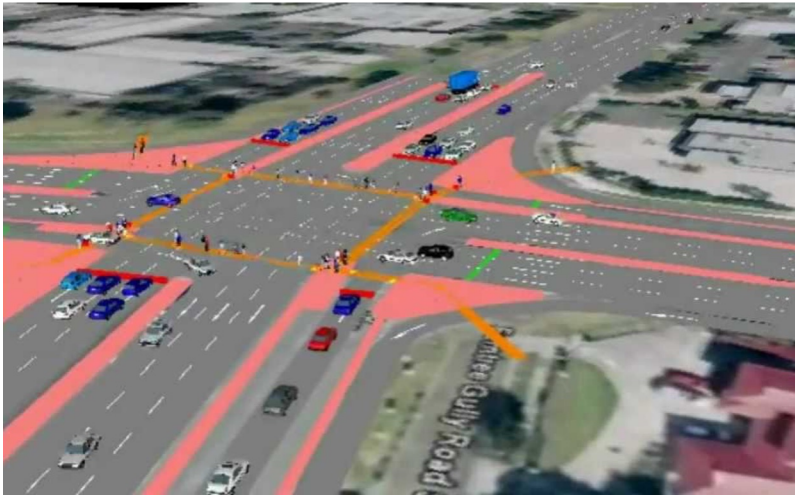
VHT = 7.2 Mn Veh- hr

2-4 Lanes

116 Million
Veh.-Km/yr.

Intersection Delay Impacts

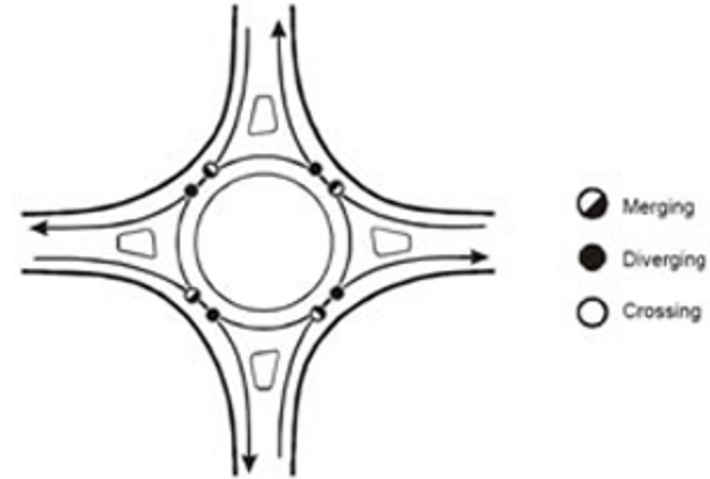
Conventional Approach



Wider Junctions :Average Delay per vehicle 200 seconds



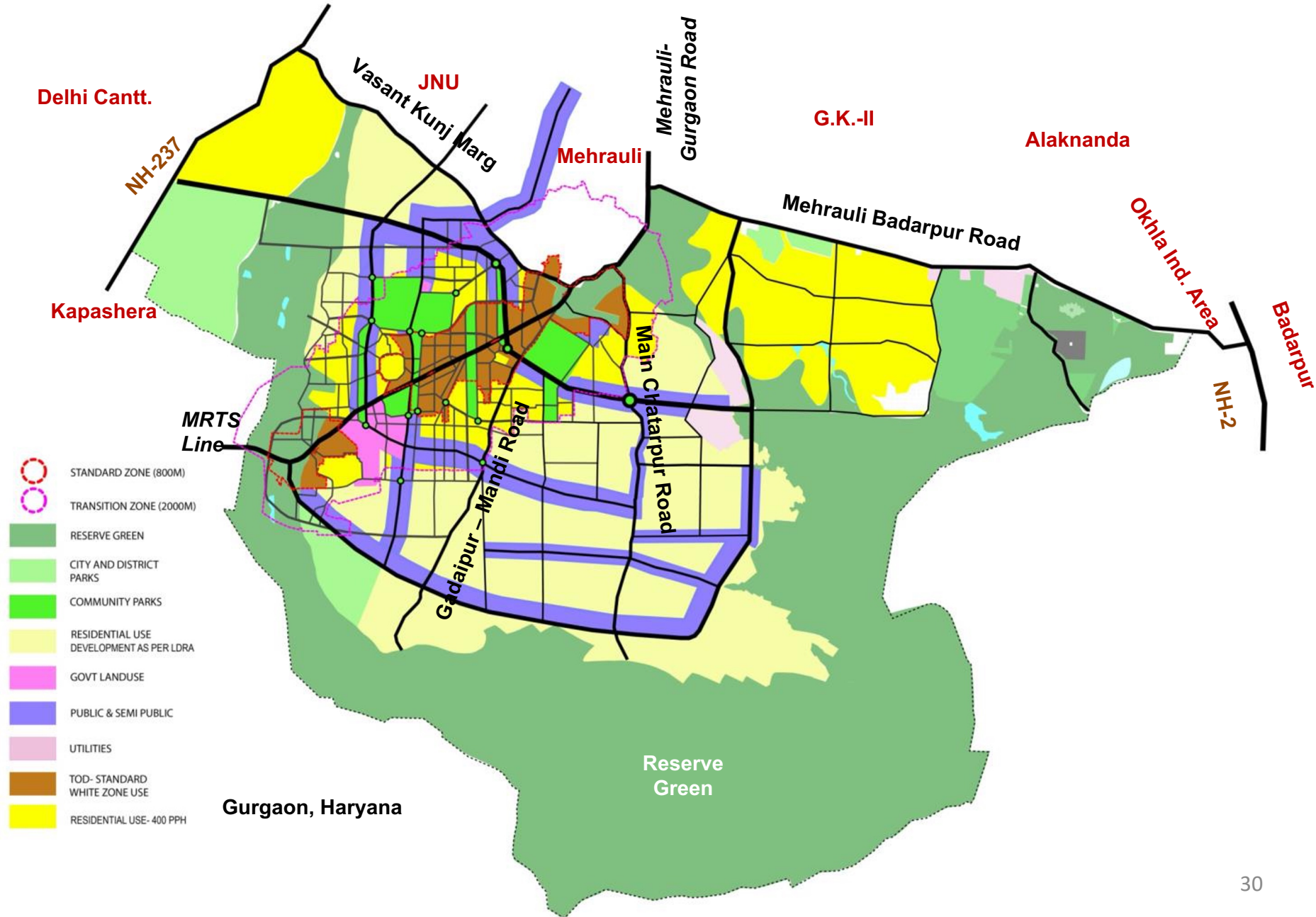
TOD-Network Approach



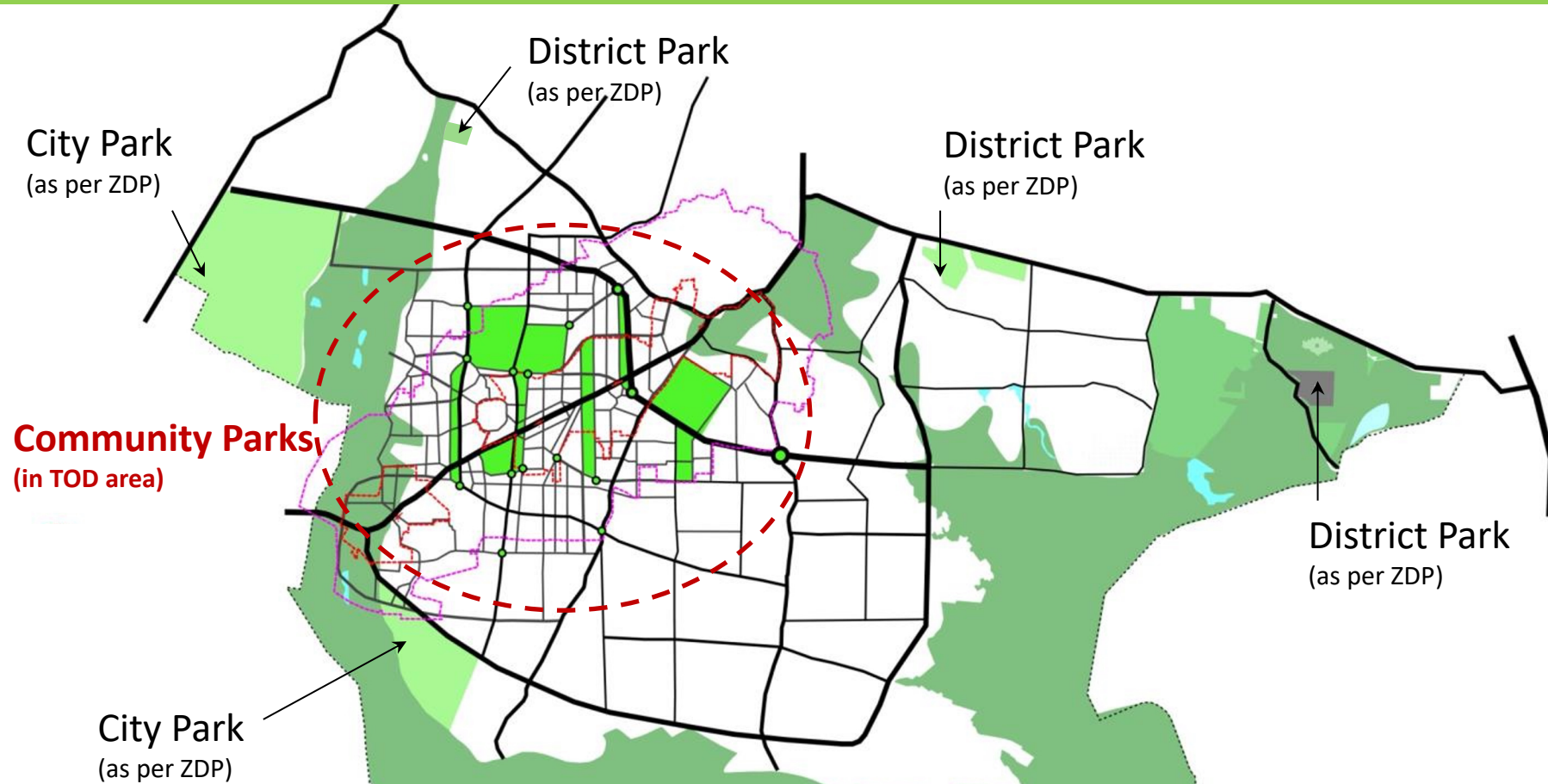
Smaller Junctions : Average Delay per vehicle 20 seconds



ZDP and TOD Integrated Plan



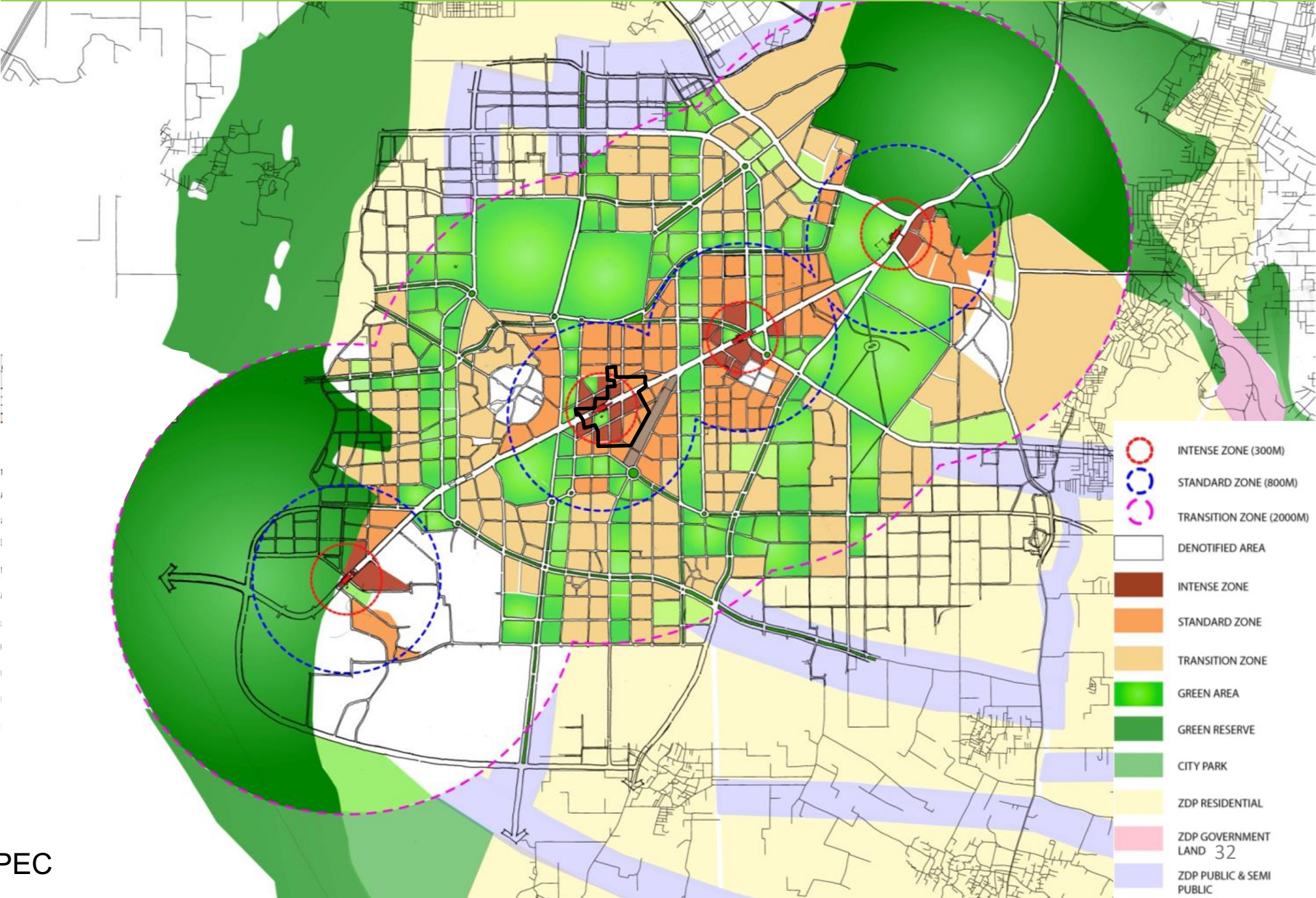
Open Space- Final Hierarchy- ZDP Level



TDR and other mechanisms to be explored to deliver Open Space and basic Service Areas.

Sl.No.	Category	Planning Norms & Standards		Total Units Required
		Population/Unit Approx.	Plot Area (Ha)	
1	City Park	10 lakh	100	2
2	District Park	5 lakh	25	4
3	Community Park	1 lakh	5	20

TOD Sector Level Plan



Courtesy: UTTIPEC

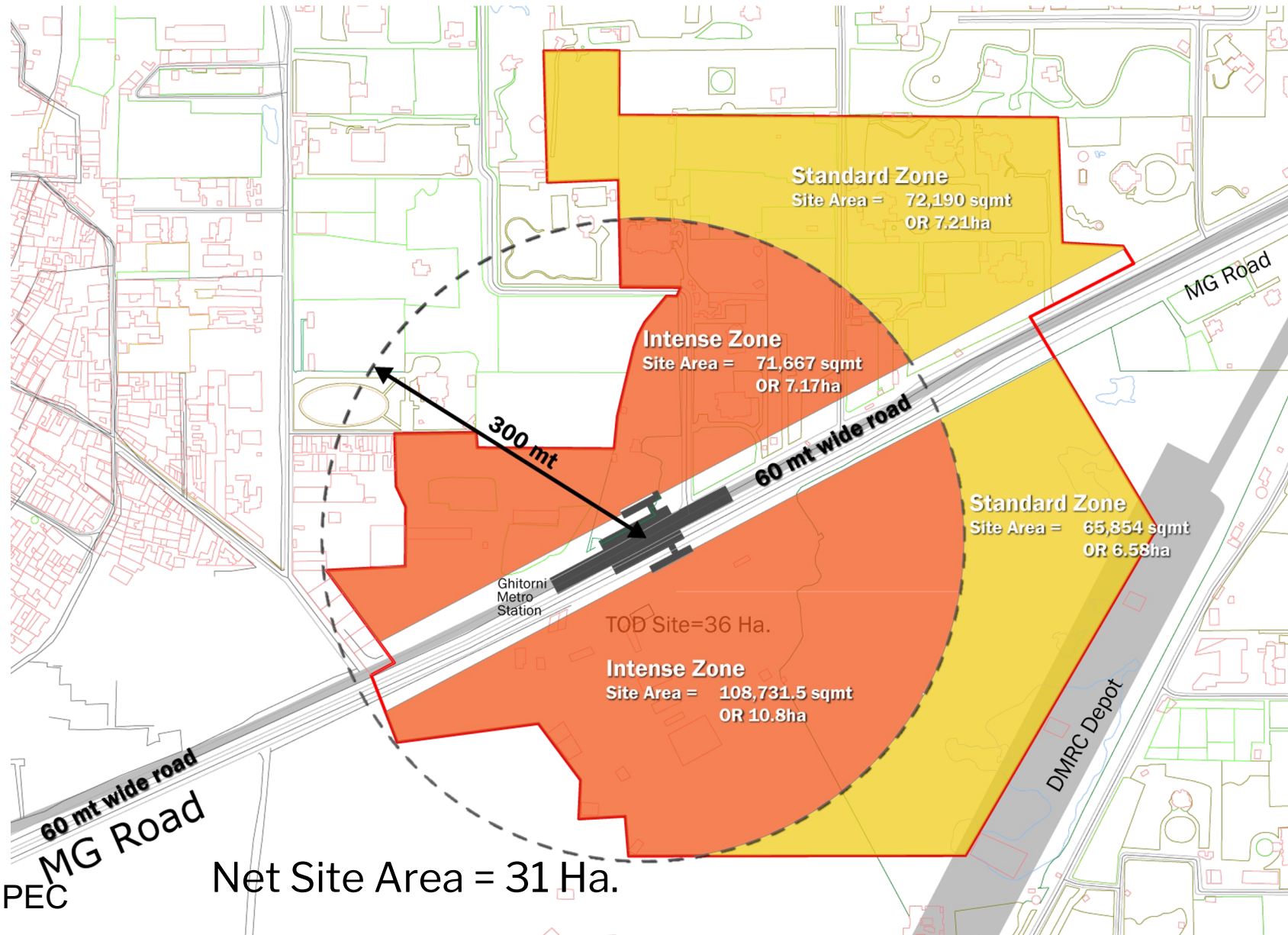
Scheme 1- Design on Test site including NBCC land at Ghitorni Station

TOD Norms tested by empanelled consultants on the test site.



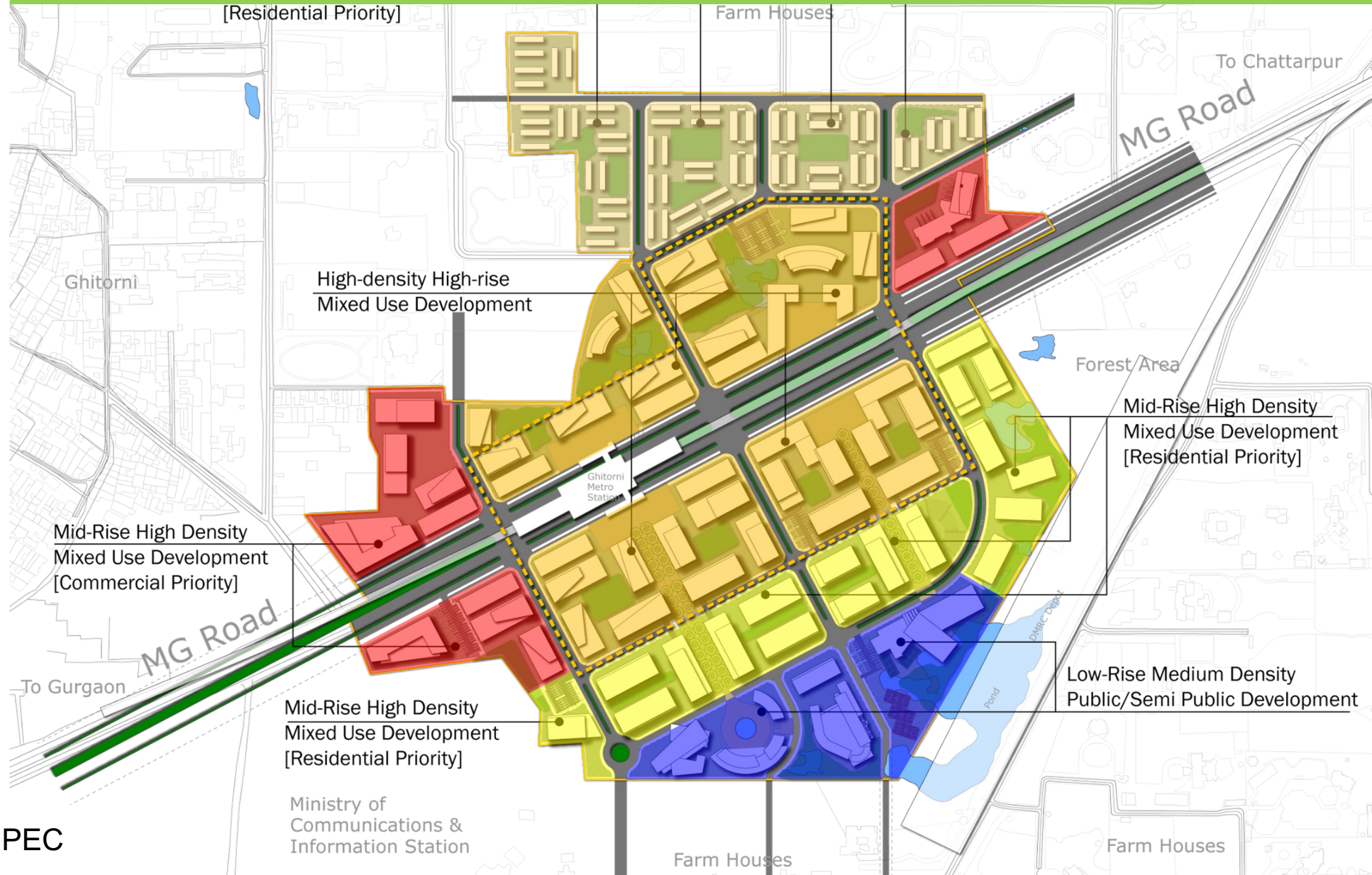
Scheme 1- Design on Test site including NBCC land at Ghitorni Station

TOD Norms tested by empanelled consultants on the test site.



Scheme 1- Design on Test site including NBCC land at Ghitorni Station

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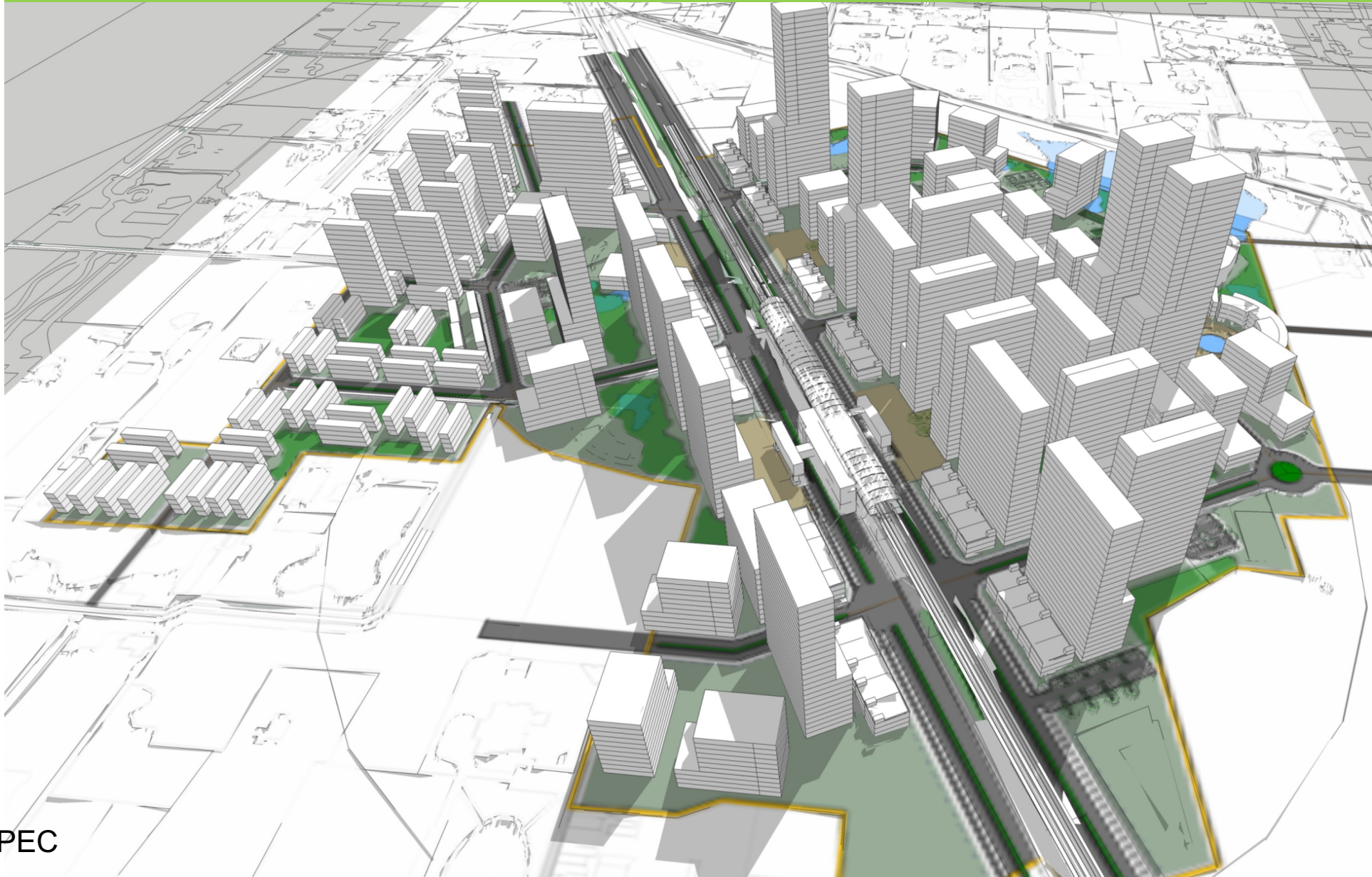
Scheme 1- Design on Test site including NBCC land at Ghitorni Station

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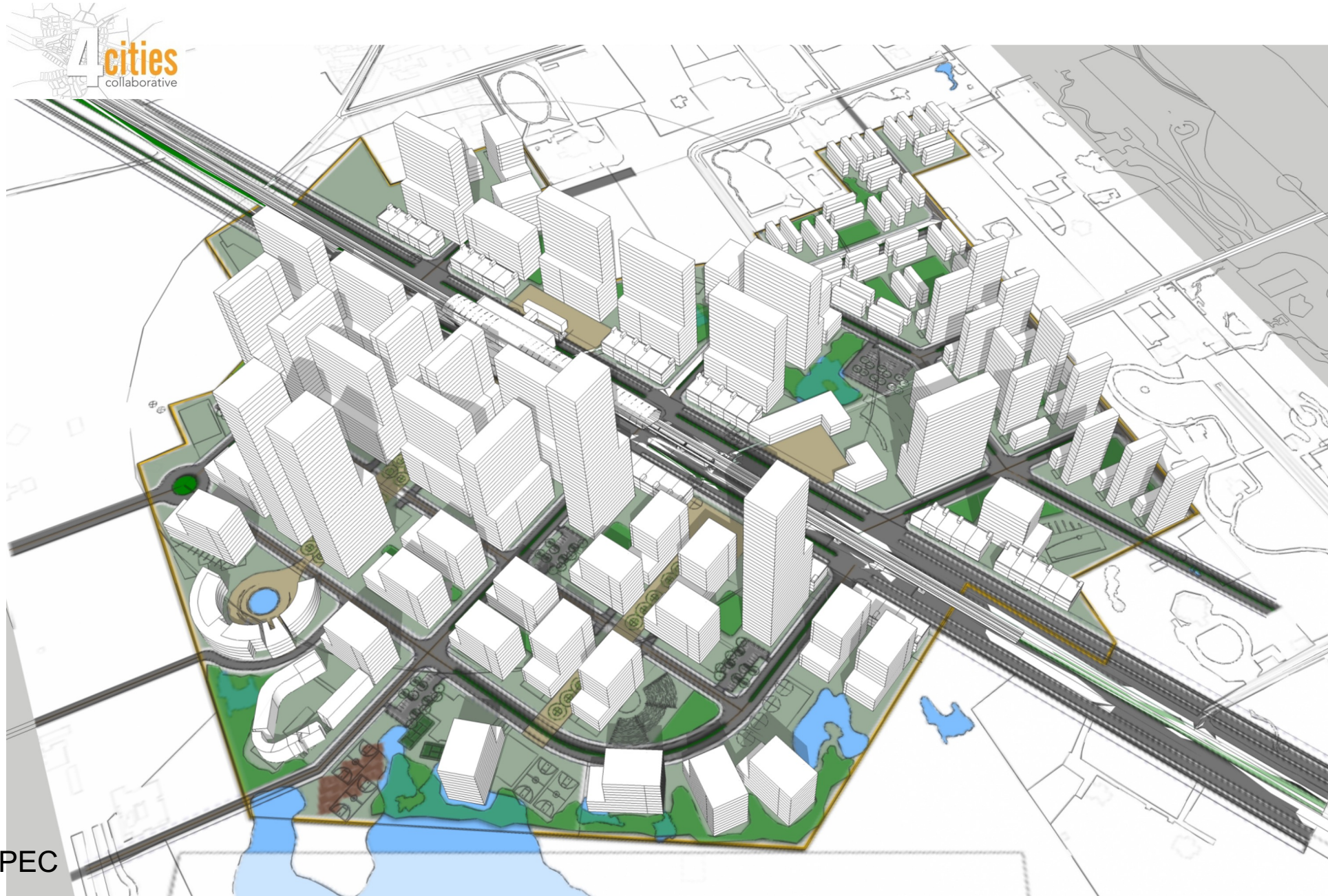
Scheme 1- Design on Test site including NBCC land at Ghitorni Station

TOD Norms tested by empanelled consultants on the test site.



Scheme 1- Sample Drawing

Built Massing



New York today



Courtesy: HCP

New York in 1782



New York in 1807





New York today

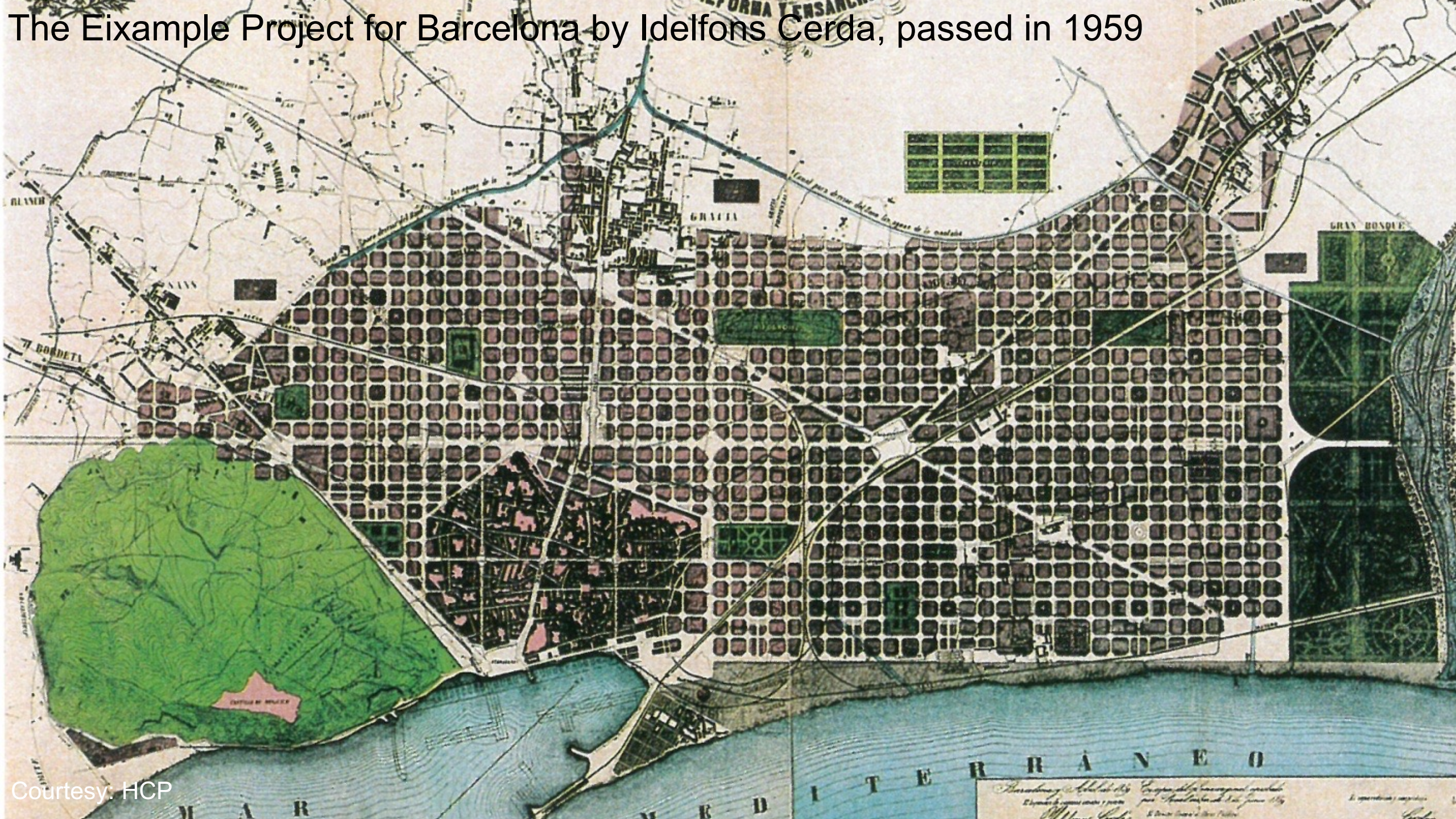
Courtesy: HCP

Barcelona Walled Town, View from the Farmland, 19th Century



View of the walled town at the start of the 19th century

The Eixample Project for Barcelona by Idelfons Cerda, passed in 1959

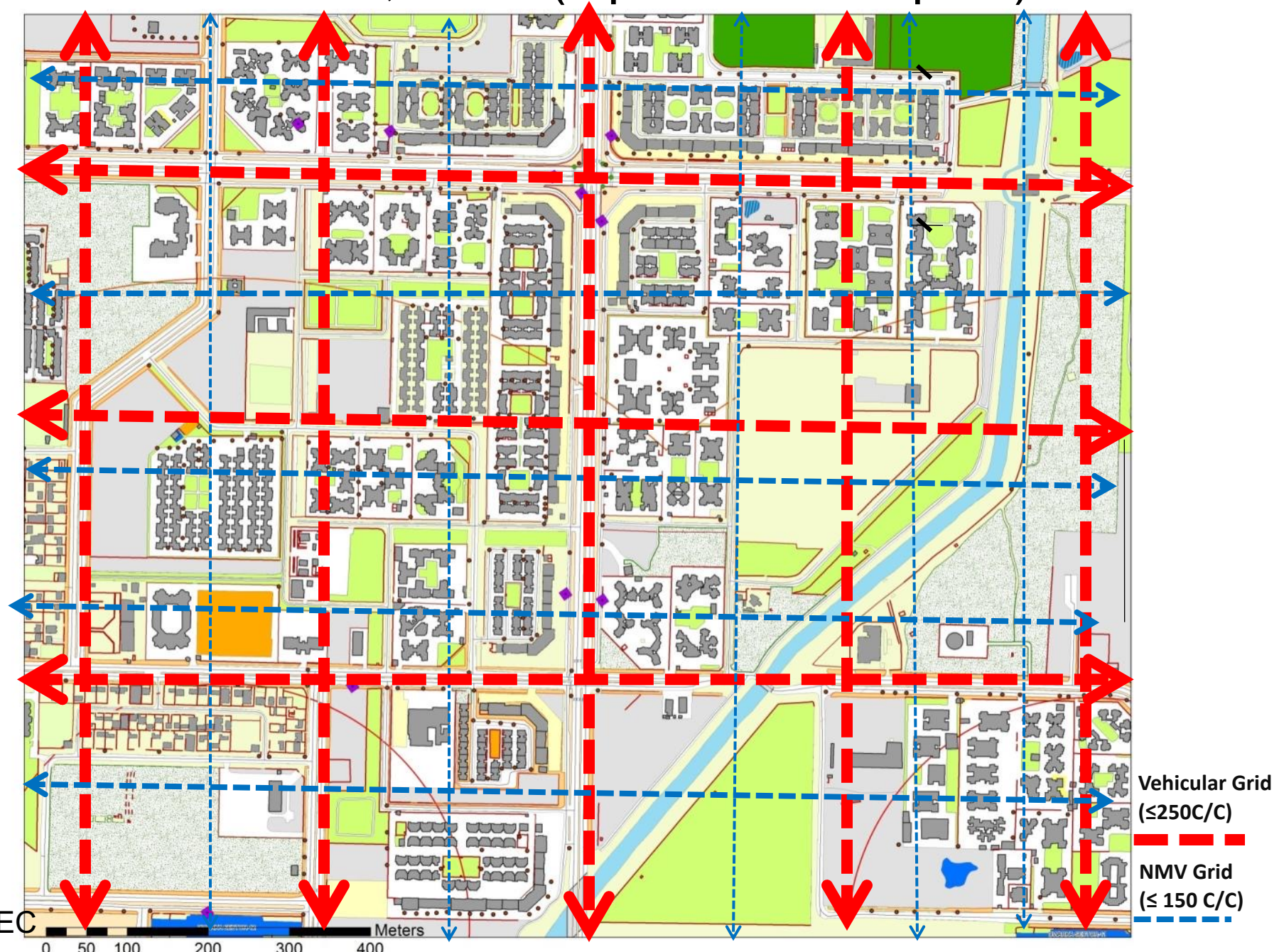




Barcelona today

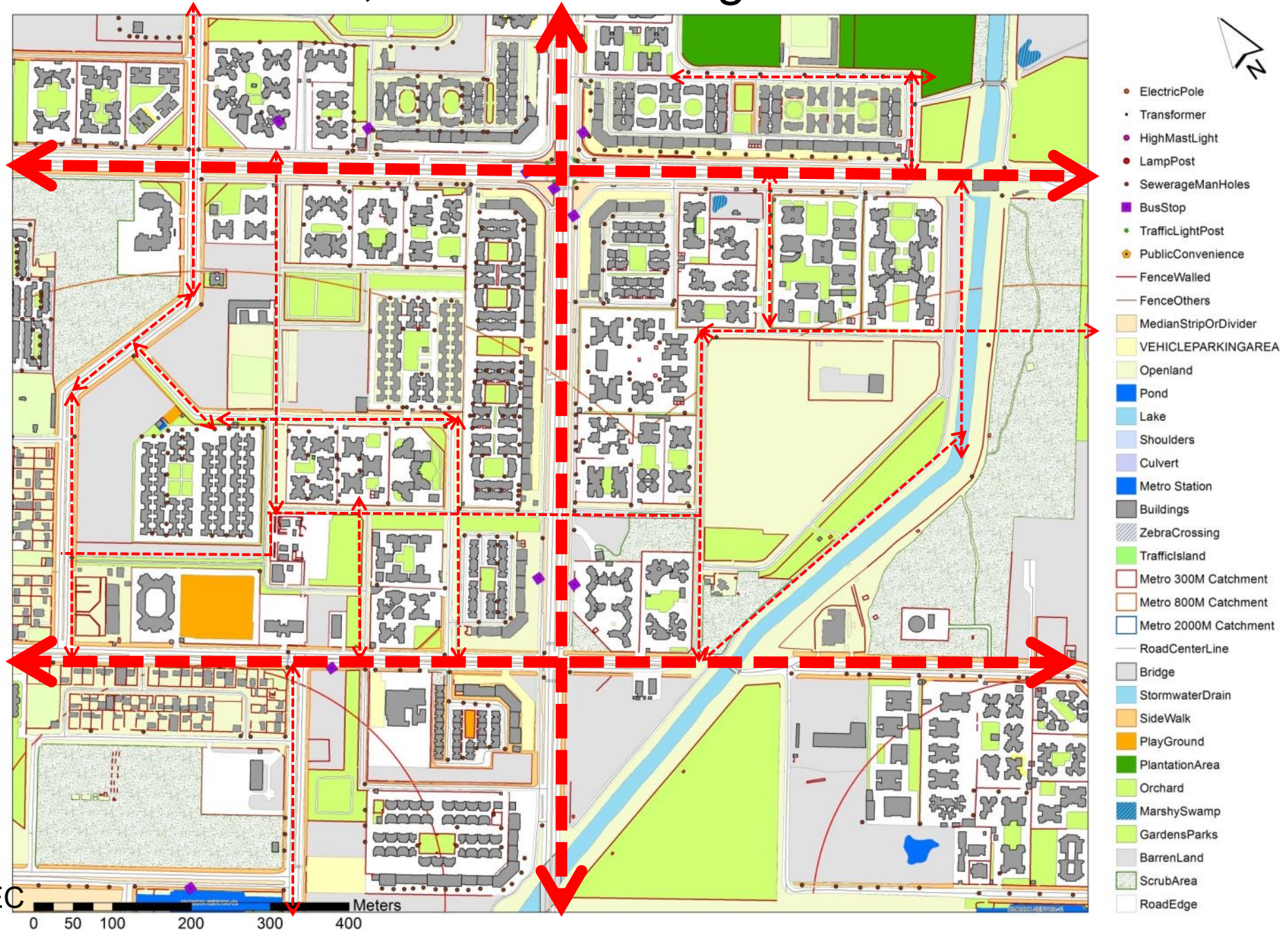
Courtesy: HCP

Dwarka, Delhi (Optimal street plan)

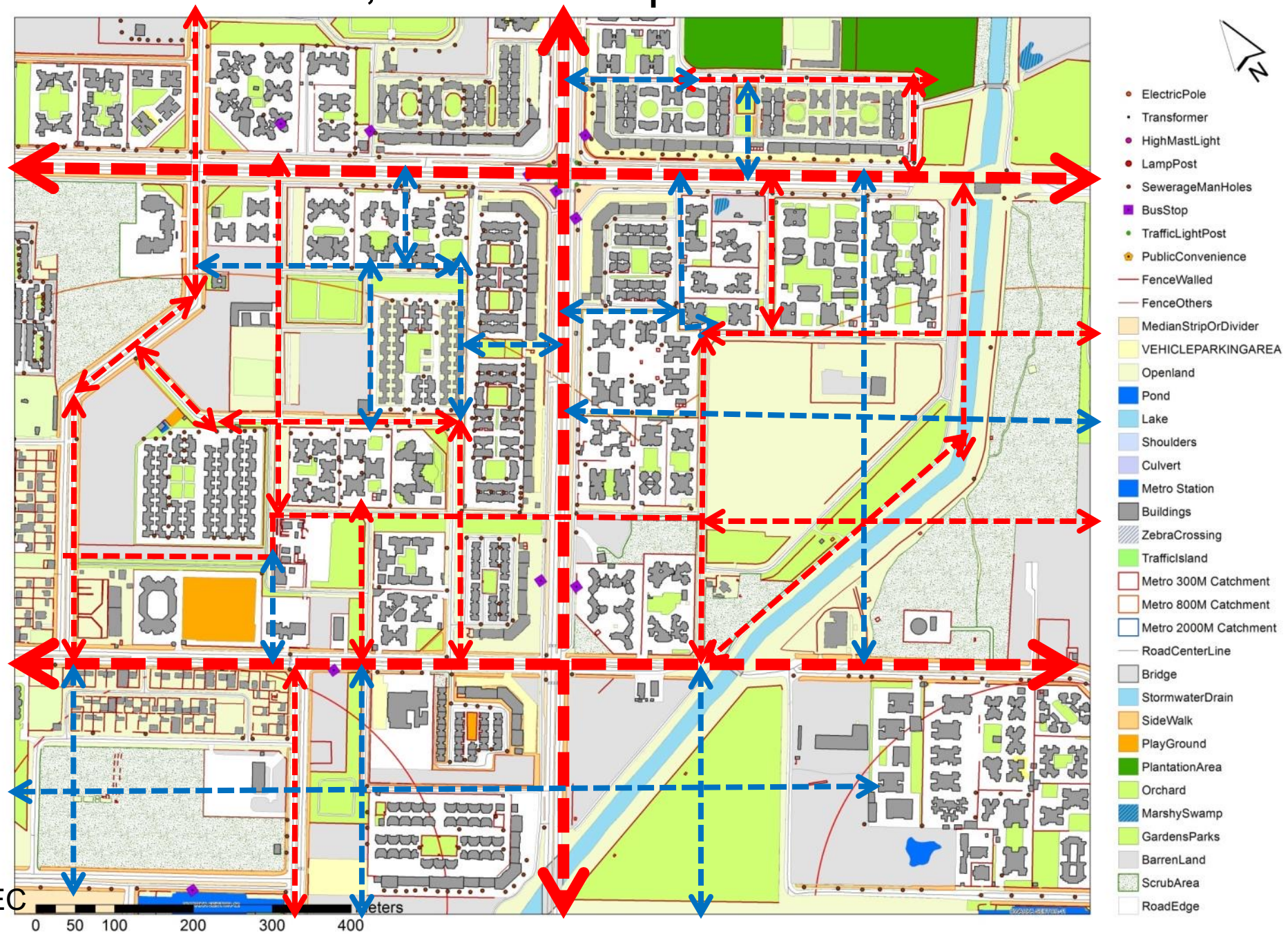


Courtesy: UTTIPEC

Dwarka, Delhi – Existing Plan



Dwarka, Delhi – Proposed Network



Policy & Regulations

National TOD Policy

“Care needs to be taken that the amalgamated plots are redesigned to allow finer network of streets and dispersion of open spaces.”

IRC SP-118:2018 Manual for Planning and Development of Urban Roads and Streets

Network of 125m x 125m

Spacing for NMT streets to be less than 125m

Transit Oriented Development Policy – Gazette Notification 30th July 2021 | CG-DL-E-30072021-228596

Network of 80-100m for NMT

Spacing of vehicular streets 250m x 250m

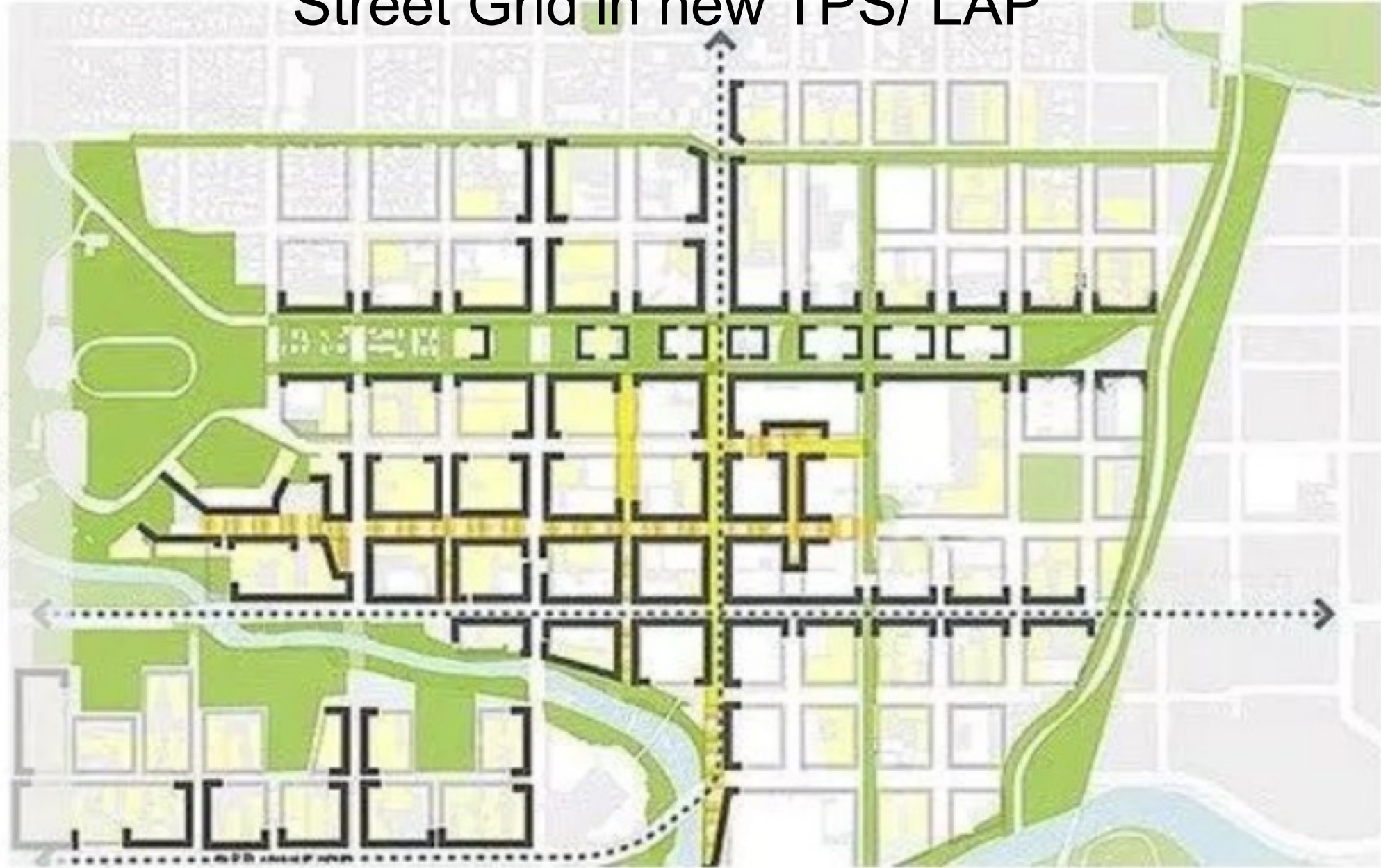
For Greenfield Development

- Roads/ Street Network to be planned and executed first.

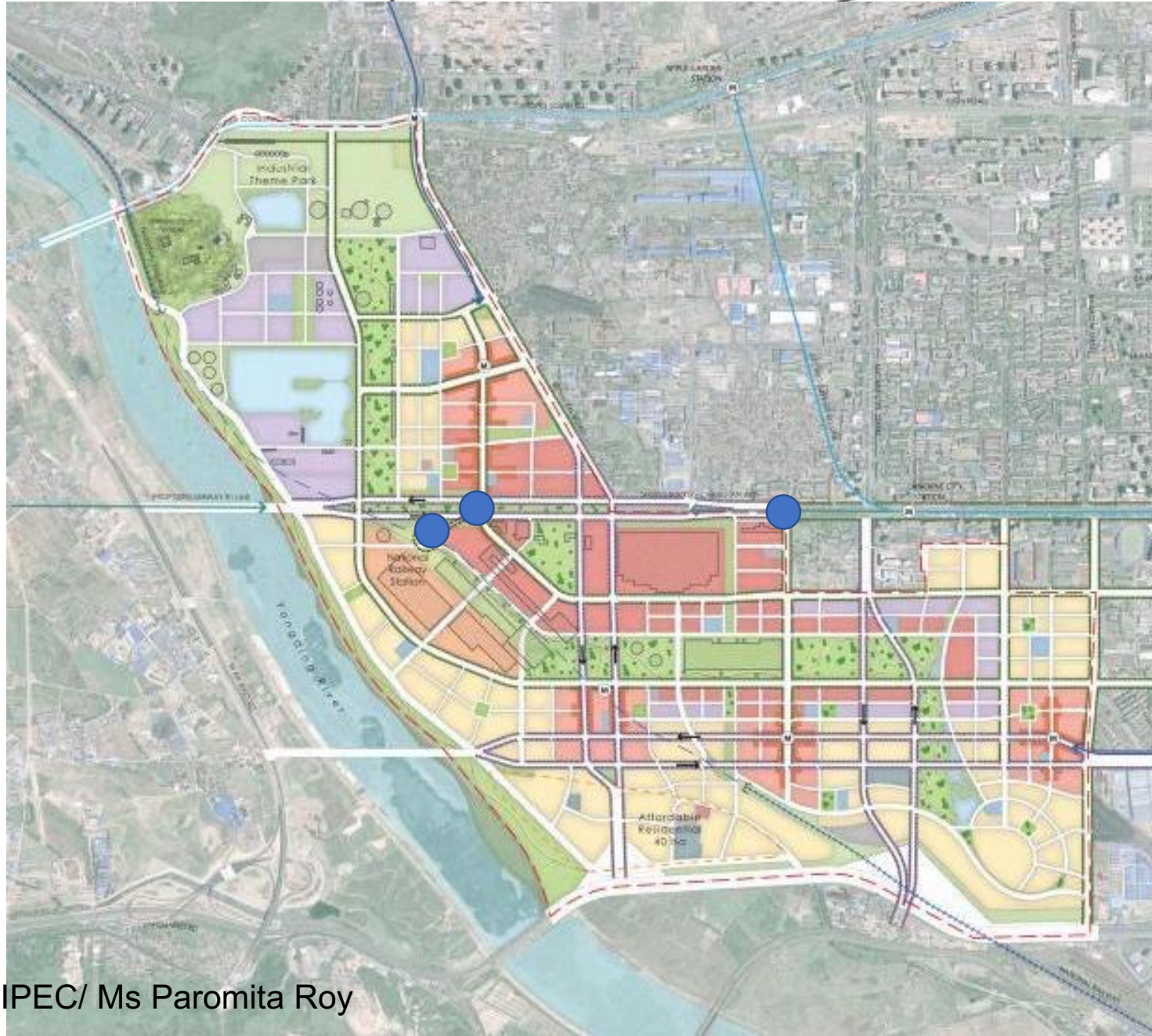
For Brownfield Development

- Through Local Area Plans & Form-based Codes
- Barter incentives for making new streets or completing missing links

Street Grid in new TPS/ LAP



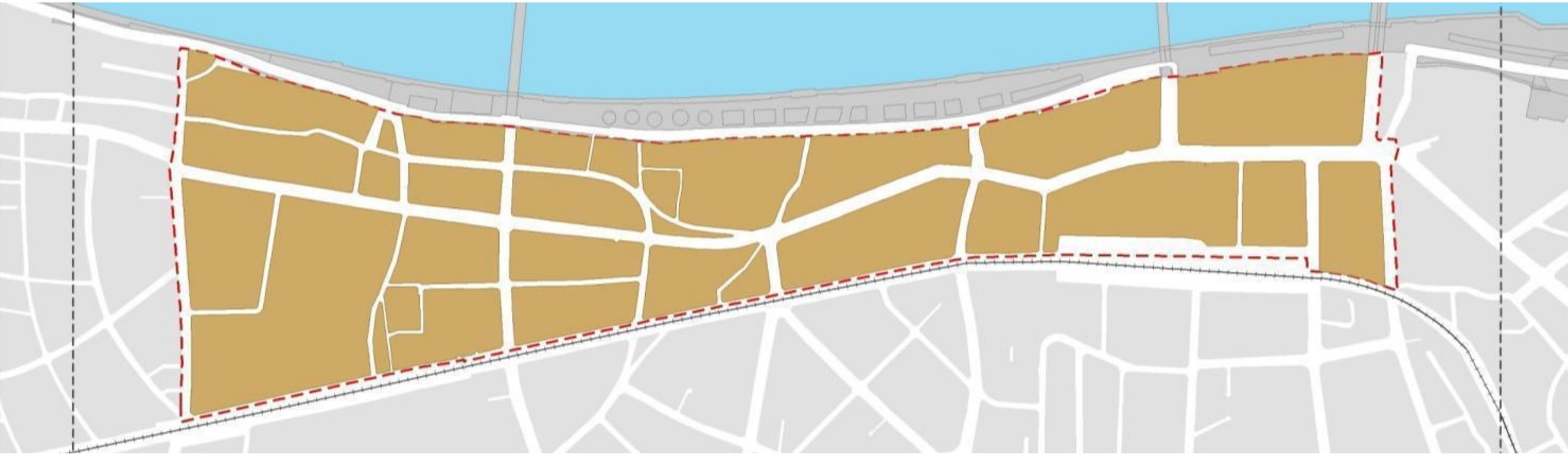
INFLUENCE ZONE PLAN (LAP around Metro Stations)



A Detailed Influence Zone Plan is a framework that provides a **framework and vision for future TOD development.**

Any public or private development within the Influence Zone Plan Areas must adhere to the overall strategies, framework and benchmarks provided by the Plan.

The street network today



No. of existing blocks - 31
Area under public domain (streets) = **22%**
Average block perimeter = 743m

The street network after the area is redeveloped



No. of proposed blocks - 76
Area under public domain (streets) = **40%**
Average block perimeter = 361m

Vision for a new 24x7 City Centre

Mix of Uses

24x7 City centre

Promote **Pedestrian and NMT**

24x7 City active streets with high-density above

Large Green areas for Value creation & Quality of Life

Eyes on the Street

Vision:

24x7 City centres with **Eyes on the Street**



Vision:

24x7 Active frontages with medium density



Vision:

24x7 Active frontages with high-density above



Vision:

24x7 City centres with Climatic Comfort



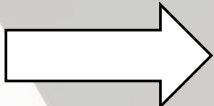
Vision:

24x7 City centres with **Mix of Uses**



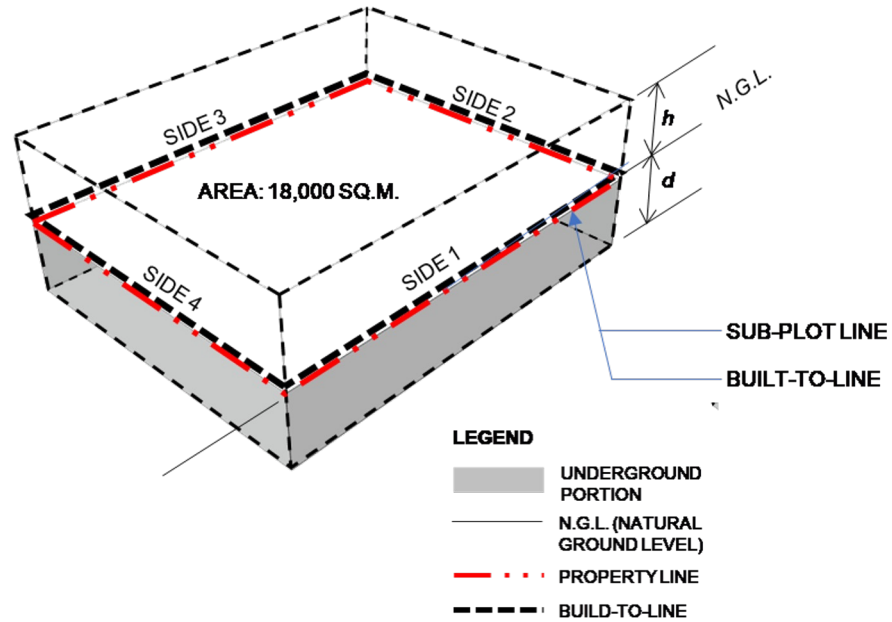
Vision: Shared large Green areas for **Value creation & Quality of Life**



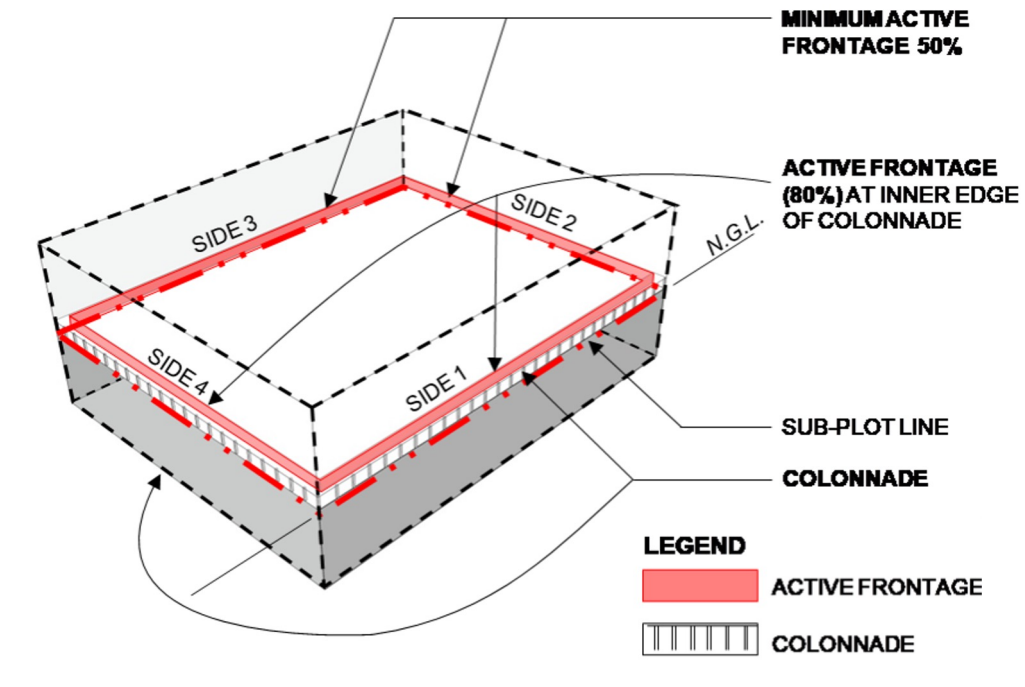
- **Form Based Codes**  **Buildable Volume Cards**
for every sub-plot, **with 5 parameters:**



Volumetric Parameters

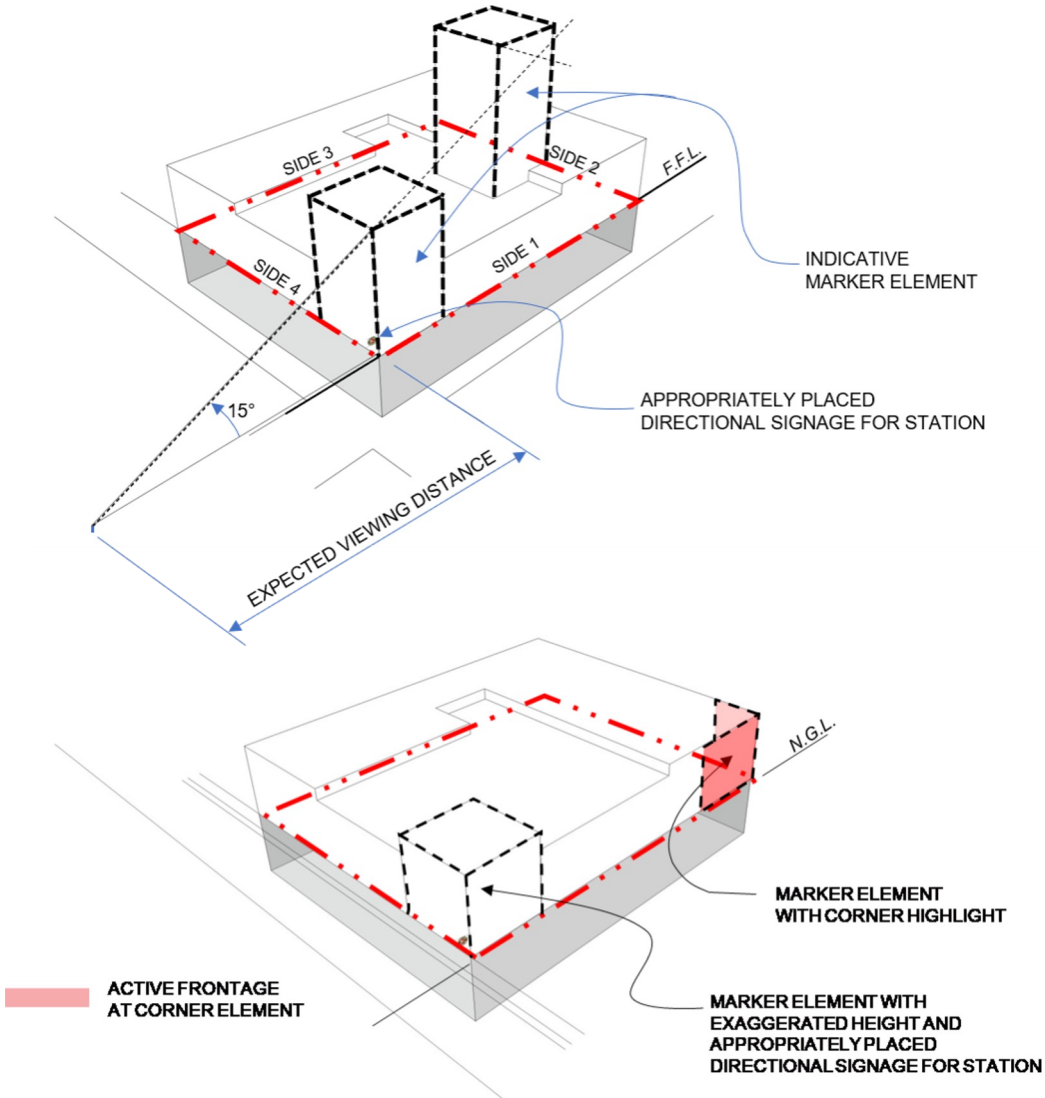


Edge Conditions

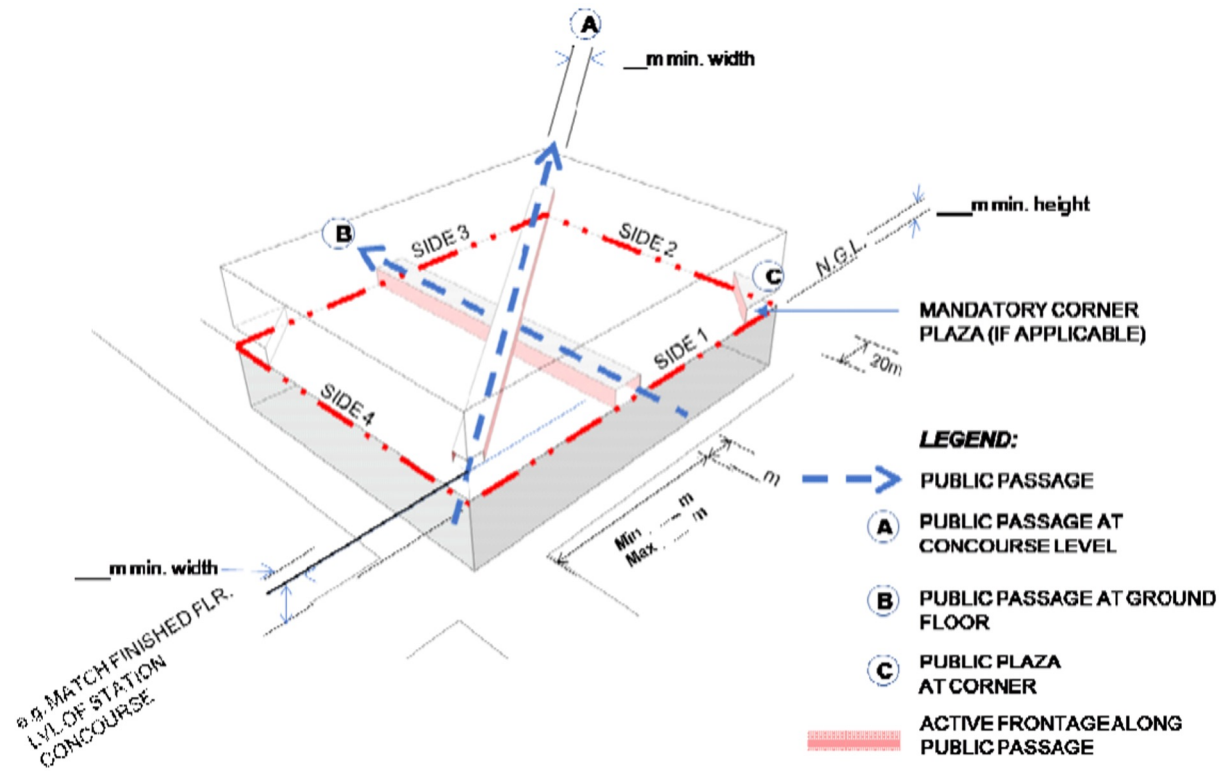




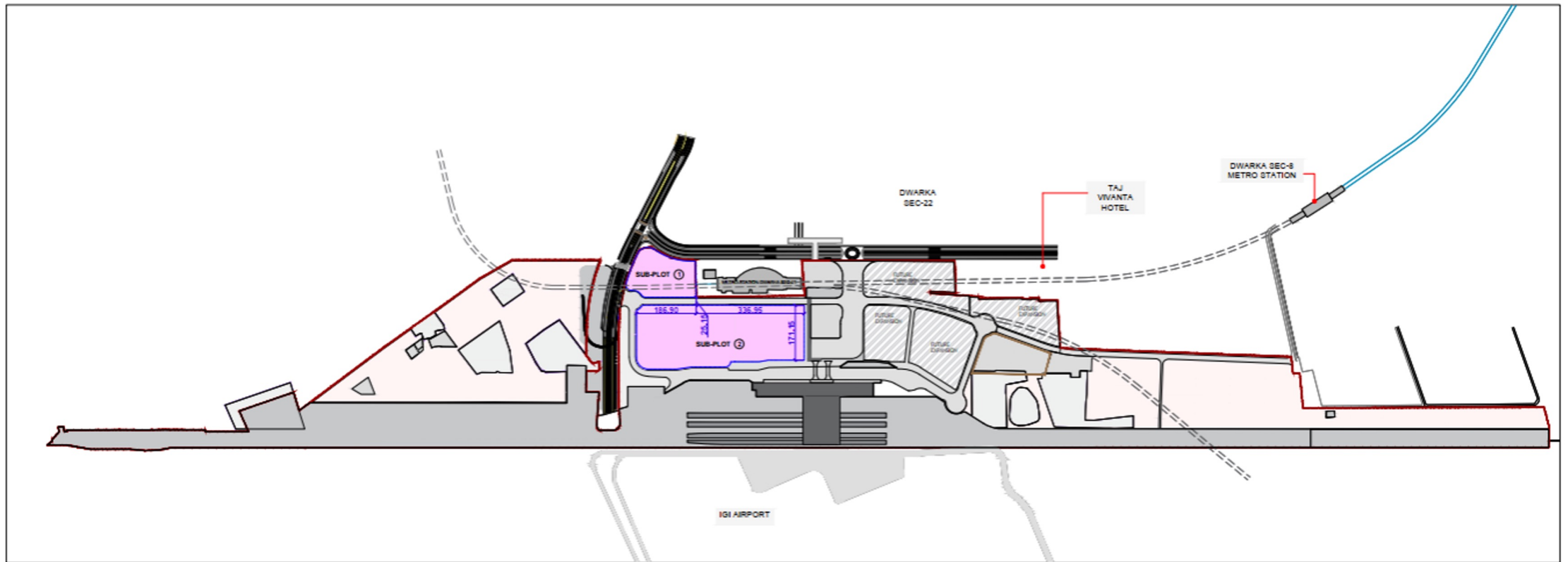
Way- Finding Features



Public area Reservations within Sub-plot



Plots for Commercial Monetisation at Bijwasan



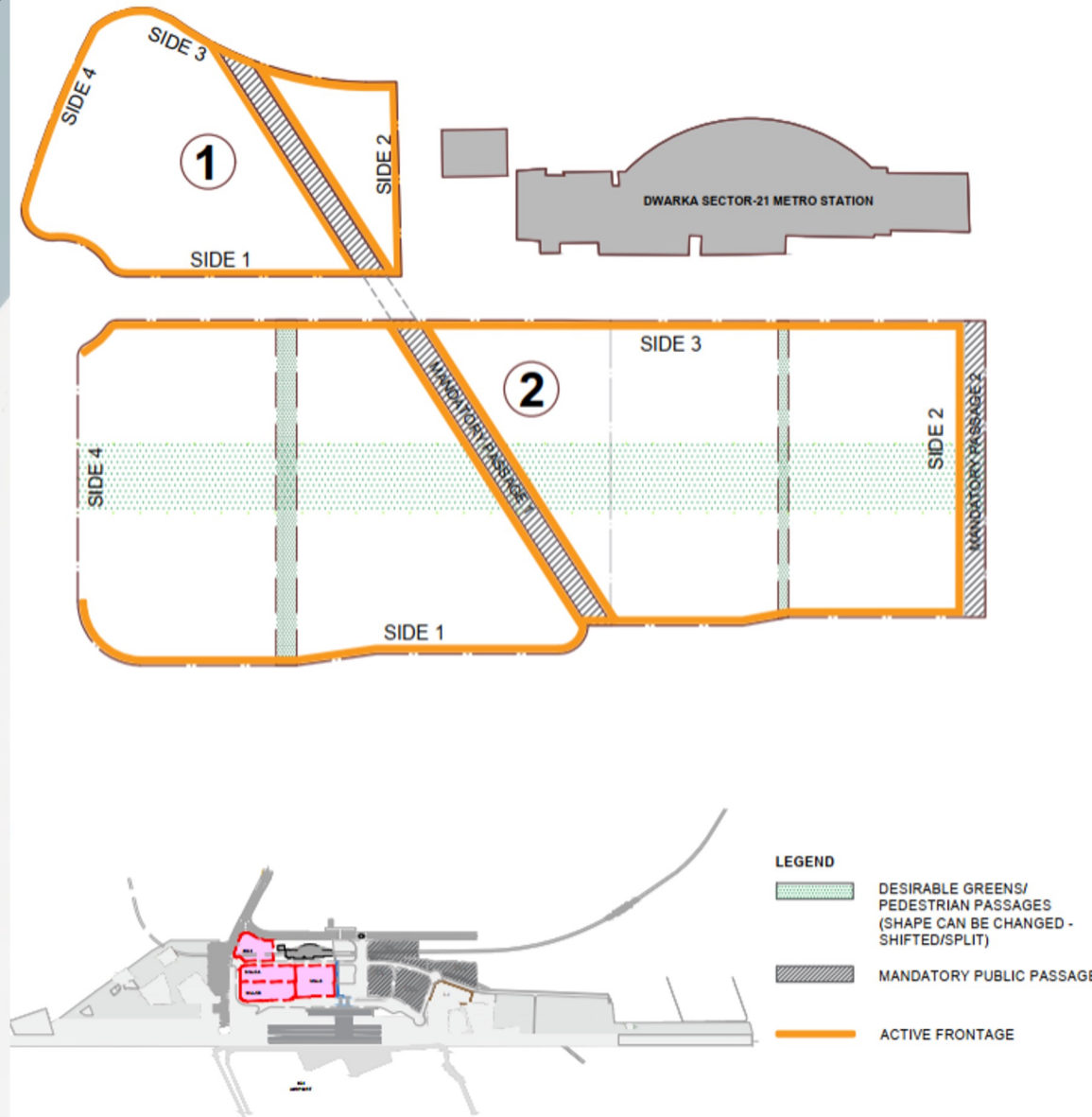
MIXED-USE DEVELOPMENT

LEGEND	SUB-PLOTS	PLOT NO. AS INDICATED IN APPROVED MASTER PLAN NO. BWSN-F-07-(08-01-2015)	AREA(in sq.m)	
	1	MU4	26,172.00	
	2	MU5	27,908.00	
				31,640.00
		MU6	37,460.00	
SUB TOTAL			1,23,180.00	

NOTE:

1. All dimensions are in Meters.

Buildable Volume Card for Bijwasan



NOTES:

- THIS BVC SHALL BE READ IN CONJUNCTION TO DWG. NO. BWSN-MP-KD4-ARC-PLN-103/T

SUB-PLOT 1 (INCLUDING MU4)

A. VOLUMETRIC PARAMETERS	MEASUREMENTS			
A.1. Maximum permissible Depth of underground structure	As per restrictions of Obligatory Structures (if any)			
A.2. Build-to-Line	Side 1	Side 2	Side 3	Side 4
	Set back 0 m from Property Line	--	Set back 0 m from Property Line	Set back 0 m from Property Line

B. EDGE CONDITIONS	Side 1	Side 2	Side 3	Side 4
B.1. Active Frontage	Mandatory	Optional	Mandatory	Mandatory
B.2. Colonnade	Optional	Optional	Optional	Optional
B.3. Pedestrian entry	Mandatory	Optional	Mandatory	Optional
B.4. Vehicular Entry	Optional	Optional	Optional	Optional

C. PROJECTIONS PERMITTED BEYOND SUB-PLOT EDGE	Side 1	Side 2	Side 3	Side 4
C.1. Projection beyond sub-plot edge	Permitted	--	--	--

D. PUBLIC AREA RESERVATIONS WITHIN SUB-PLOT	Side 1	Side 2	Side 3	Side 4
D.1. Entry of MPP	Mandatory	Optional	Mandatory	Optional
D.2. Public Plazas	Optional	Optional	Optional	Optional

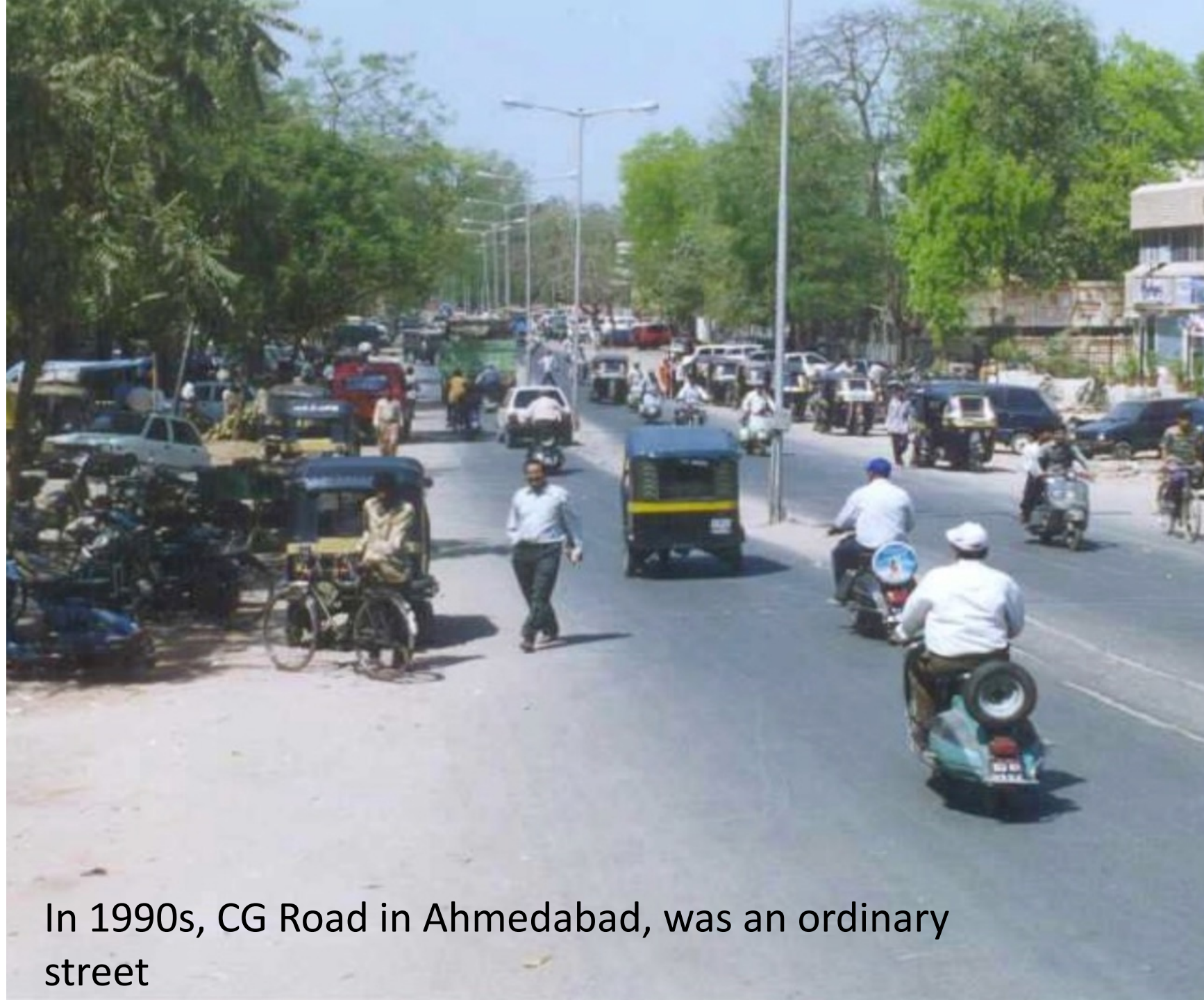
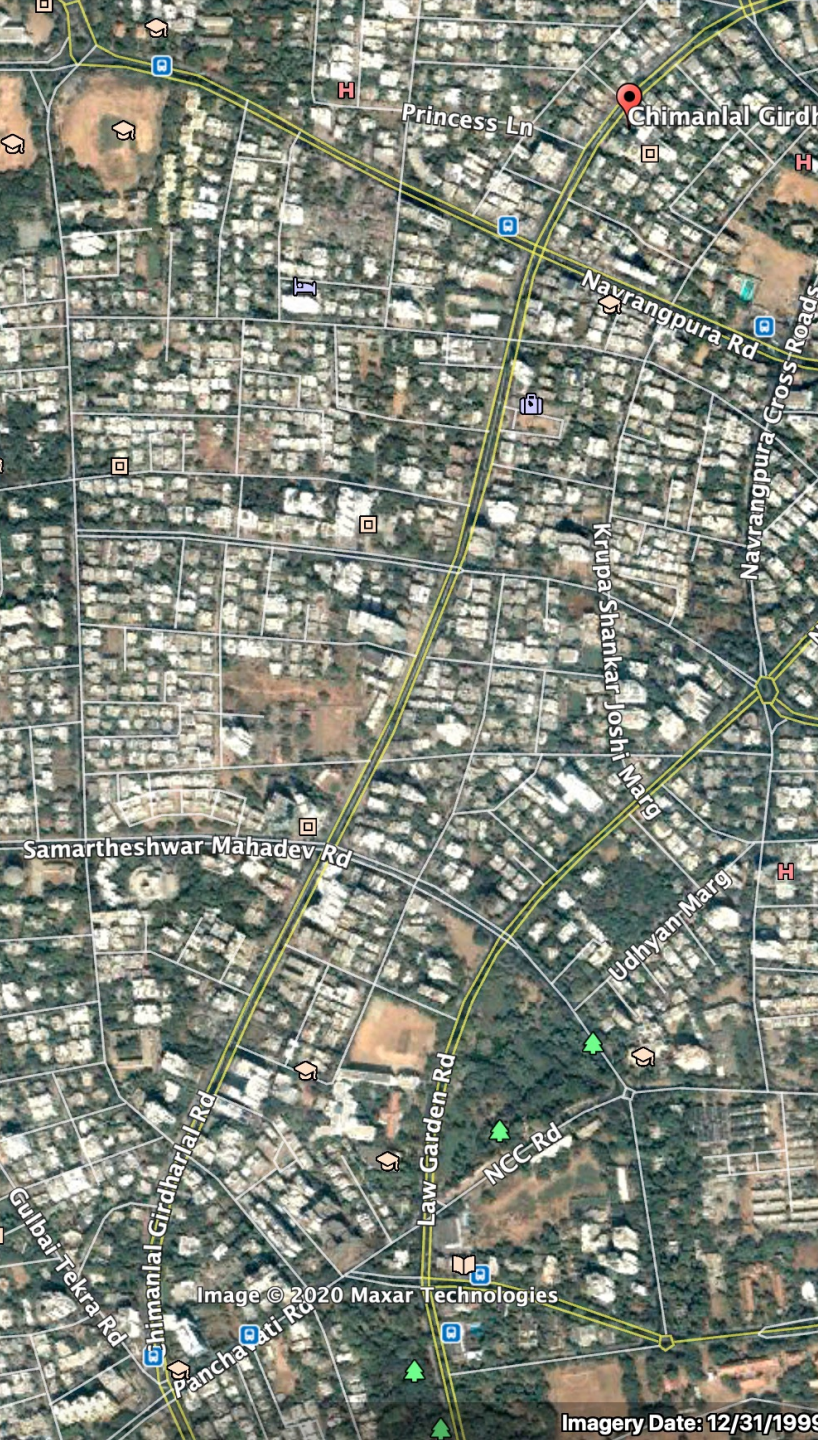
SUB-PLOT 2 (INCLUDING MU5 & MU6)

A. VOLUMETRIC PARAMETERS	MEASUREMENTS			
A.1. Maximum permissible Depth of underground structure	As per restrictions of Obligatory Structures (if any)			
A.2. Build-to-Line	Side 1	Side 2	Side 3	Side 4
	Set back 0 m from Property Line	Set back 0 m from Property Line	Set back 0 m from Property Line	Set back 0 m from Property Line

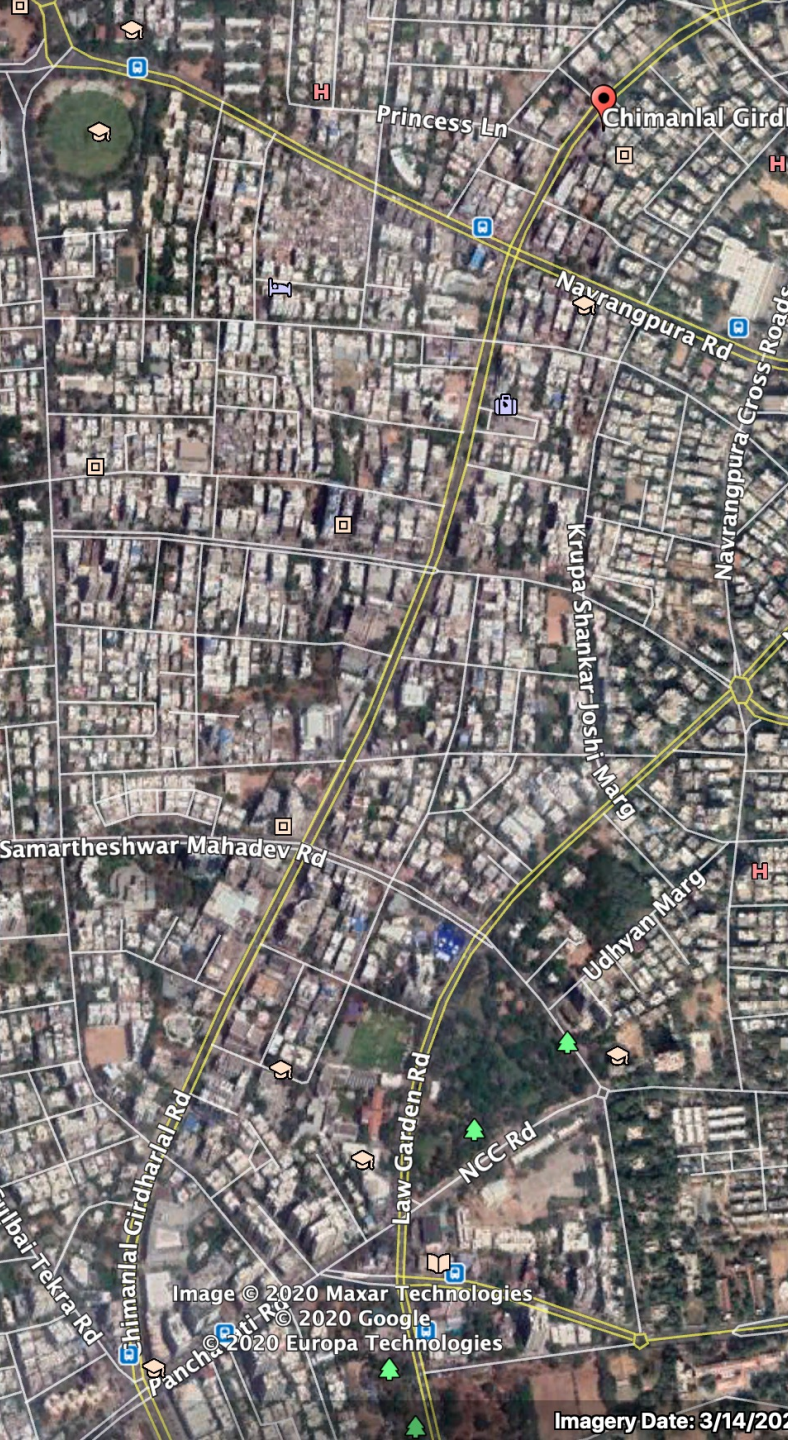
B. EDGE CONDITIONS	Side 1	Side 2	Side 3	Side 4
B.1. Active Frontage	Mandatory	Mandatory	Mandatory	Optional
B.2. Colonnade	Optional	Mandatory	Optional	Optional
B.3. Pedestrian entry	Mandatory	Mandatory	Mandatory	Mandatory
B.4. Vehicular Entry	Optional	Optional	Optional	Optional

C. PROJECTIONS PERMITTED BEYOND SUB-PLOT EDGE	Side 1	Side 2	Side 3	Side 4
C.1. Projection beyond sub-plot edge	Permitted	Permitted	Permitted	--

D. PUBLIC AREA RESERVATIONS WITHIN SUB-PLOT	Side 1	Side 2	Side 3	Side 4
D.1. Entry of MPP	Mandatory	Mandatory	Mandatory	Mandatory
D.2. Public Plazas	Optional	Optional	Optional	Optional



In 1990s, CG Road in Ahmedabad, was an ordinary street



Urban infrastructure work on CG Road in late 1990s transformed it



CG Road is now **city's High Street** and the most important, vibrant commercial, business and finance address. The entire area has transformed into **high value mixed-use neighborhood** with the best brands located on it.

Complete Streets in CBD of Srinagar



BEFORE

CP PLUS

Rising with the Sun



AFTER



BEFORE



AFTER

Boulevard-Foreshore Road Redesign | BEFORE



Boulevard-Foreshore Road Redesign | AFTER



Boulevard-Foreshore Road Redesign | BEFORE



Boulevard-Foreshore Road Redesign | AFTER





Sabarmati Riverfront

Reconnecting Ahmedabad to its River

Sabarmati River Front Development Corporation Ltd.

2nd Floor, "Riverfront House", B/h. H.K. Arts College, Between Gandhi & Nehru Bridge, Puja Pramukh Swami Marg (River Front Road - West), Ahmedabad - 380009.

Tel: +91 (079) 26580430 | www.sabarmatiriverfront.com

Sabarmati Riverfront Development Corporation Limited (SRFDCL)

May 1997 marked one of the golden chapters in the history of Ahmedabad. The Ahmedabad Municipal Corporation launched a Special Purpose Vehicle (SPV) - the Sabarmati Riverfront Development Corporation Limited (SRFDCL). It was entrusted with the responsibility of developing a World-class Riverfront.

Ahmedabad Municipal Corporation (AMC)

The Ahmedabad Municipal Corporation (AMC), established in July 1950 under the Bombay Provincial Corporation Act, 1949, is responsible for the civic infrastructure and the administration of the city of Ahmedabad.

