

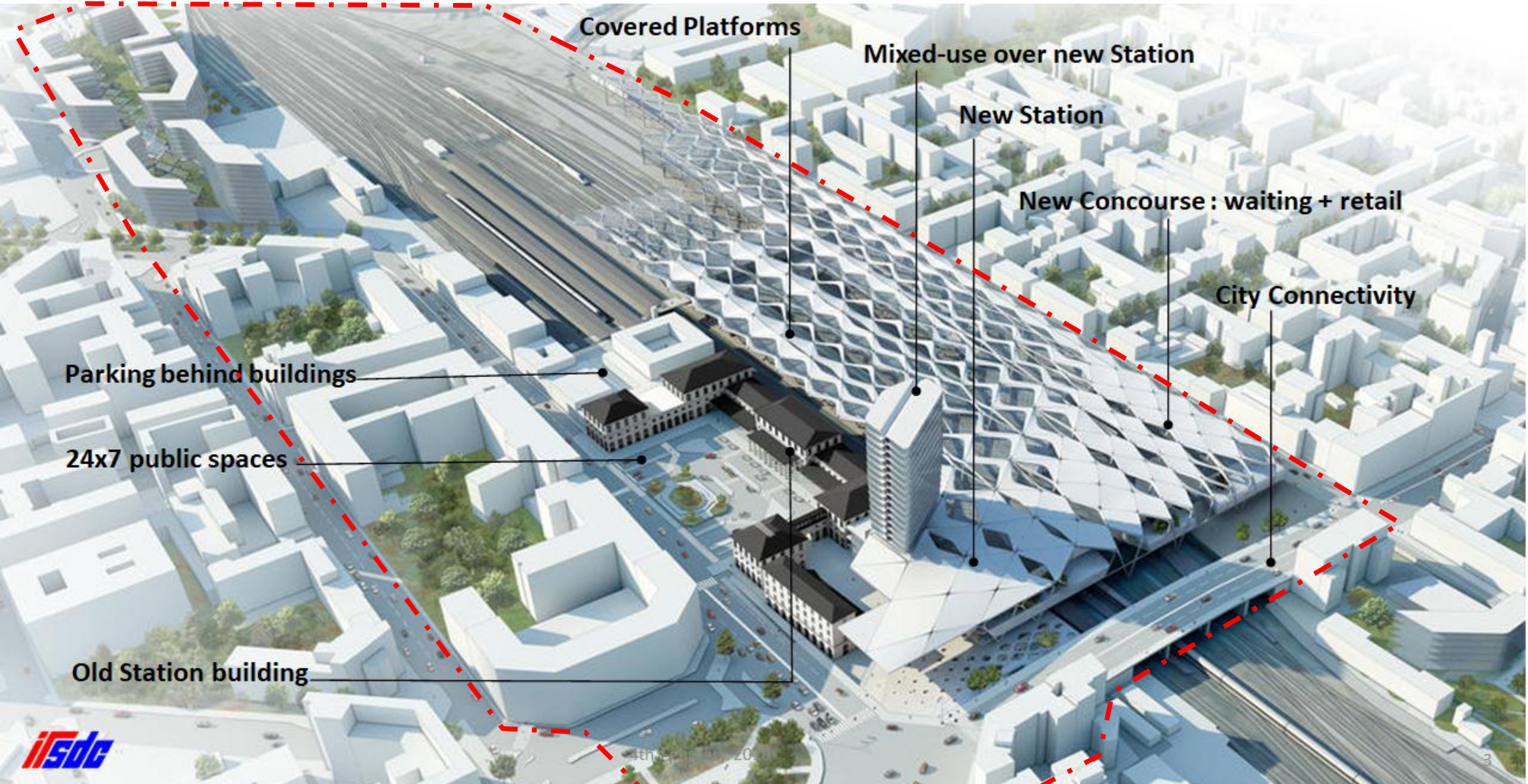
IRSDC VISION, MMI & FORM BASED CODES

“A railway station is something that can generate a city.”

Santiago Calatrava



Vision for a World Class Multi-Modal **City Centre**



Covered Platforms

Mixed-use over new Station

New Station

New Concourse : waiting + retail

City Connectivity

Parking behind buildings

24x7 public spaces

Old Station building



FOCUS POINTS AT STATIONS: SEVEN 'C's



Convergence of modes



Creating a City Center



Segregation of Arrival and Departure Passengers



Clear & Fast communication systems



Lifts & escalators for Passengers convenience



Cleanliness on priority at all places

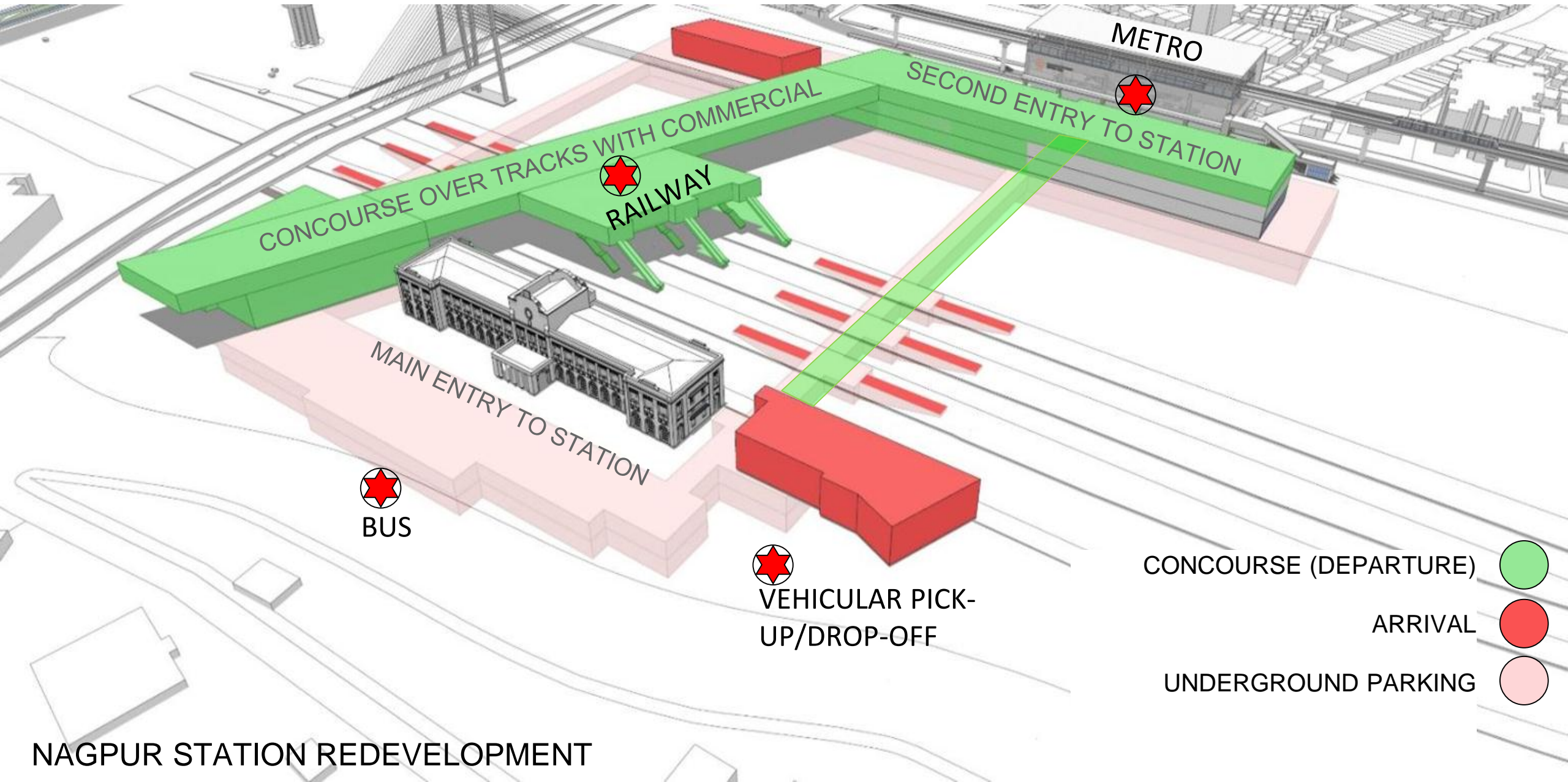


Conservation of existing natural and built environment



RAILOPOLIS: A NEW USER EXPERIENCE

1. Arrival Departure Segregation & Seamless Multi-Modal Integration



NAGPUR STATION REDEVELOPMENT

2. Common waiting Area & Retail CONCOURSE



3. Covered Platforms & Tracks



RAILOPOLIS: MULTI-MODAL INTEGRATION

Seven Keys:

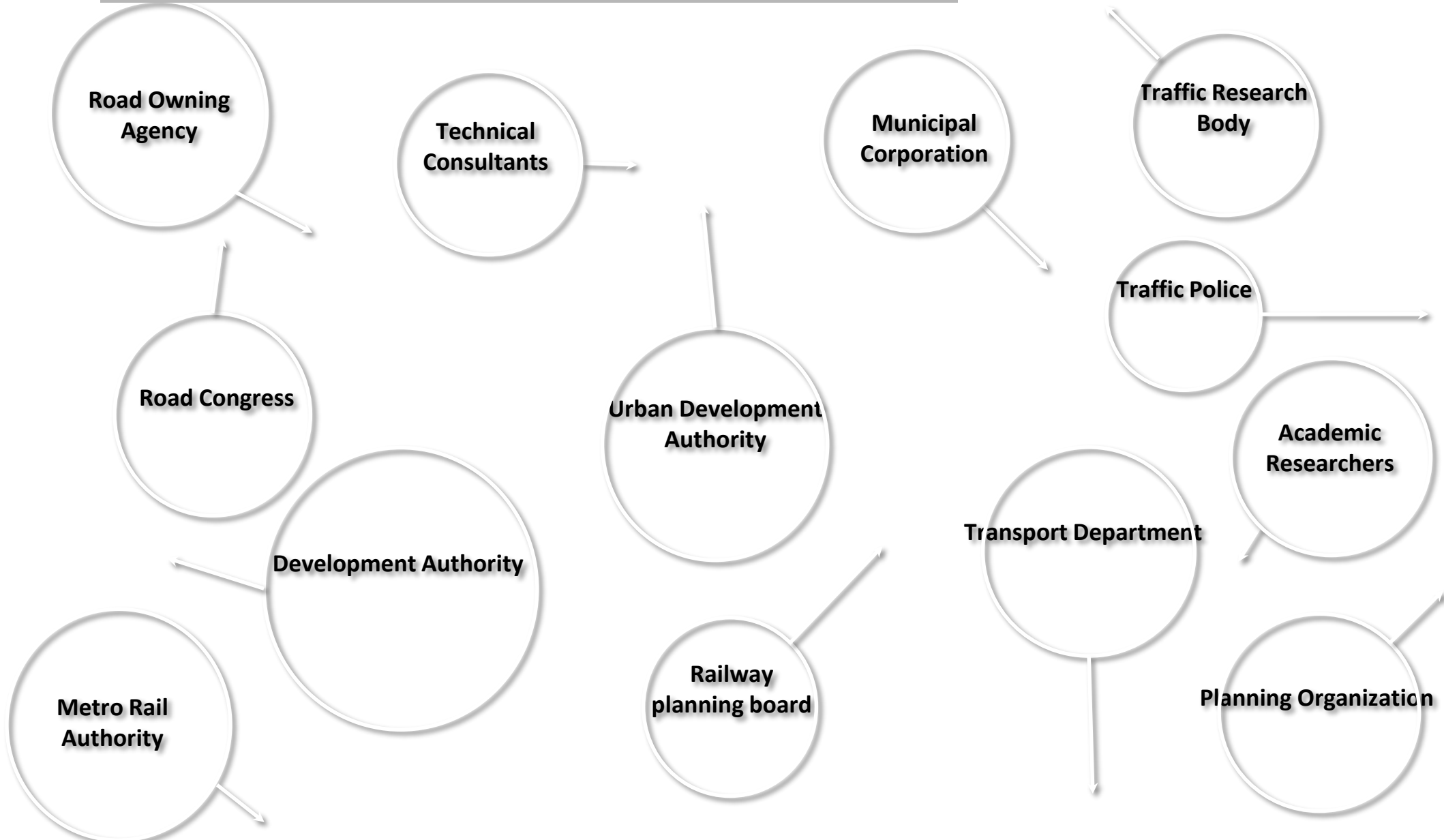
- 1. Policy** – (legislation, strategic vision, policy and guidelines, Land use and transport integration, Funding)
- 2. Institutions** – (unified authority for planning, coordination and monitoring of transport across different modes and operators)
- 3. Network Planning** – (comprehensive mobility plan for all the modes for the entire city or the urban agglomeration to ensure complementarity and integration)
- 4. Infrastructure** – (well designed stations, terminals, interchanges, pedestrian crossings, footpaths and parking near / at the stations / terminals)
- 5. Fare** – (integrated ticketing using smartcard and /or other smart technologies to allow seamless access and payment across different modes and operators)
- 6. Operations** – (well designed connections to reduce waiting time between Interchange or transfer)
- 7. Information** – (integrated information across different modes and operators for providing connectivity from origin to destination, uniform signage, real-time information to passengers on various modes regarding connectivity options, routes, schedules, etc. on vehicles, stations, Internet and mobile)

National TOD Policy: provides the broad Policy level framework to undertake Multi-Modal Integration at all levels

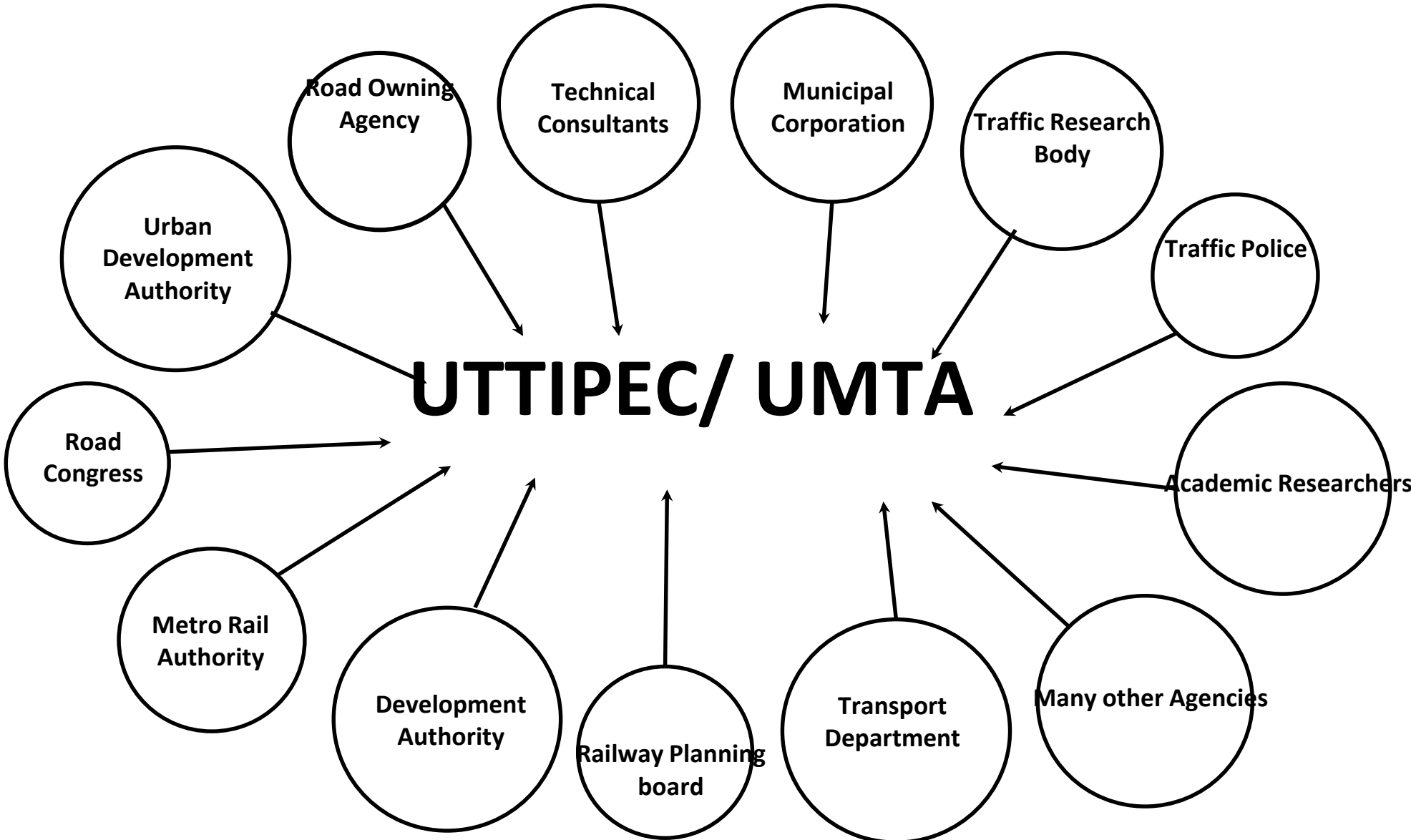
7.5. Multimodal Integration

- 7.5.1. The influence area should have high quality integrated multimodal transport system for the optimum use of the facilities by the residents/users. The system should have seamless physical connectivity, information integration and fare integration across modes so that the first and last mile connectivity does not become a bottleneck in the use of public transit systems by the citizens.
- 7.5.2. The transit system, including its stations, should be designed to provide high quality services that assure user satisfaction in terms of safety and comfort. The citizens should have barrier free access to all the required amenities in the transit system as well as around the transit centers.
- 7.5.3. The hierarchy of the facilities at the transit system should prioritize pedestrians followed by bicycle, feeder buses, drop-off facilities and park and ride facility in the given order.
- 7.5.4. The transit stations should have ample bicycle parking spaces with scope for future expansion if need arises.
- 7.5.5. Intermediate Public Transport (IPT), Non-Motorized Transport (NMT) and feeder buses perform a significant role in providing first and last mile connectivity to the populace beyond the influence zone. To ensure that the area around the transit station remain congestion free and to facilitate easy transfers, it is important to provide adequate parking and pickup/ drop-off facilities for the above modes at suitable locations at the stations and in the influence zone.

Typical Functioning of Agencies involved in MMI

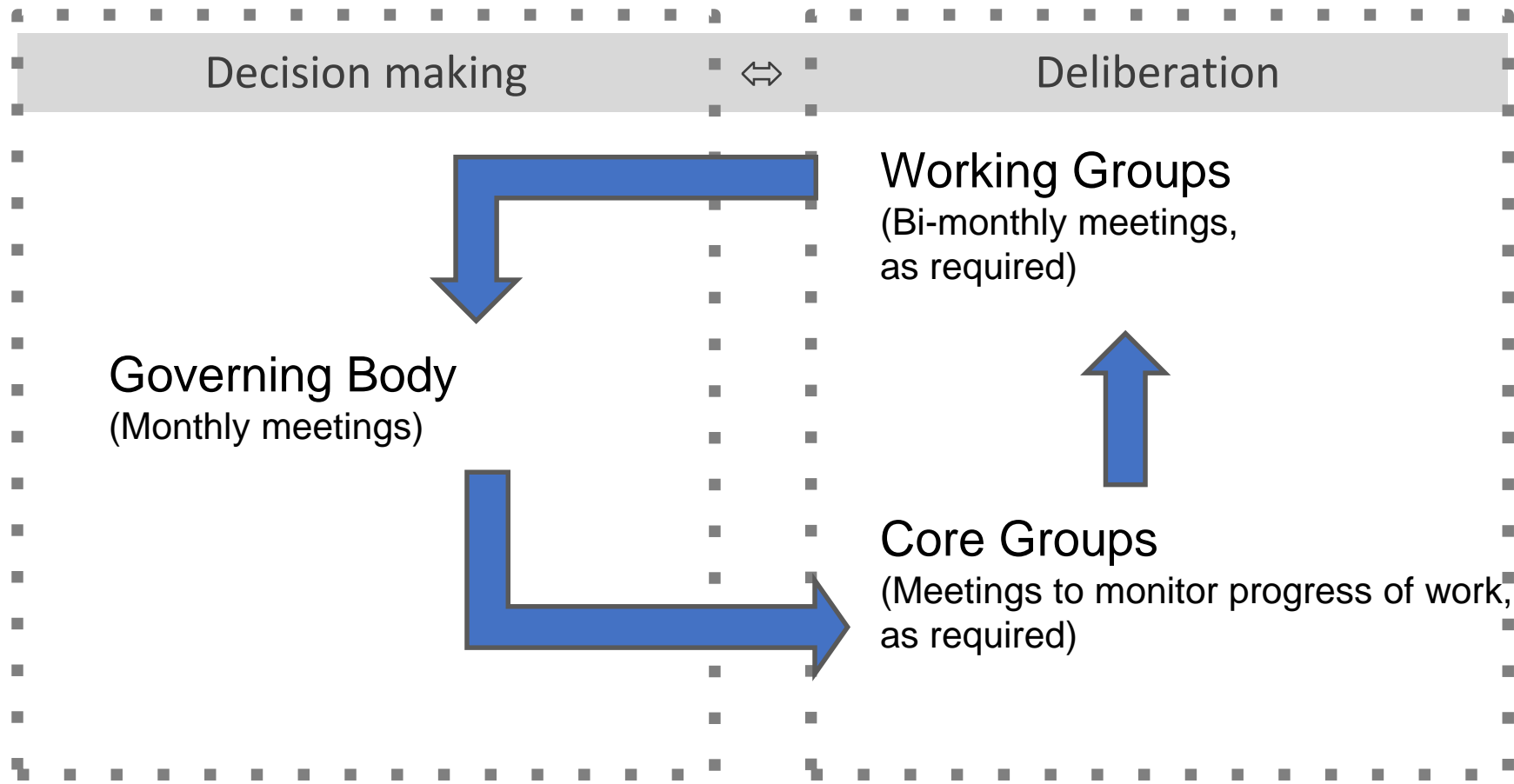


Integrated & Coordinated Evaluations & Approvals after formation of UTTIPEC



UTTIPEC's mode of Operation

**UNIFIED TRAFFIC & TRANSPORTATION
INFRASTRUCTURE (PLG. & ENGG.)
CENTRE**



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UTTIPEC

DELHI DEVELOPMENT AUTHORITY

**UNIFIED TRAFFIC & TRANSPORTATION
INFRASTRUCTURE (PLG. & ENGG.)
CENTRE**

Governing Body

Honourable LG, Delhi	Chairman
Vice-Chairman, DDA	Vice-Chairman
Engineer Member, DDA	Member
Pr. Commissioner-Cum-Secy (TPT),GNCTD	Member
OSD (MRTS), MOUD	Member
Commissioner (Plg.), DDA	Member
Secretary, Indian Roads Congress (IRC)	Member
Chief Planner,TCPO	Member
Head, Traffic & Transportation Division, CRRRI	Member
Managing Director, DIMTS	Member
Chief Town Planner, MCD	Member
Engineer-In-Chief, MCD	Member
Engineer-In-Chief, PWD	Member
Engineer-In-Chief, NDMC	Member
Chief Engineer, Northern Railway (Centre)	Member
Director (Project), DMRC	Member
Joint Commissioner of Police (Traffic)	Member
Additional Commissioner (Planning) TB & C, DDA	Member
President, AAUI	Member
Director (Plg.) UTTIPEC, DDA	Member-Secy

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INFRASTRUCTURE (PLG. & ENGG.)
CENTRE**

H

Working Groups

Module – I	INTEGRATED URBAN TRANSPORT & POLICY PLANNING
Working Group I A (Chairman-MD, DIMTS)	Development of Planning Guidelines
Working Group I B (Chairman-EM, DDA)	Planning & Engg. Norms/Standards
Working Group I C (Chairman-MD, DIMTS)	Documentation & Data Dissemination
Module – II	ROAD CAPACITY BUILDING
Working Group II A (Chairman-EM, DDA)	Processing & Evaluation of New Projects
Working Group II B (Chairman-Secretary, PWD)	Retrofitting of Existing Corridors
Module – III	TRAFFIC MANAGEMENT
Working Group III A (Chairman-Spl. Commr. Of Police (Traffic))	Real-Time Traffic Management
Working Group III B (Chairman- Secy.-cum-Commr. (Transport, GNCTD))	Regulatory Changes for Traffic Improvements
Module – IV	COMMUNITY PARTICIPATION
Working Group IV (Chairman-Pr.Commr. (Systems, DDA))	Development of Website
Module – V	QUALITY ASSURANCE/AUDIT
Working group-V (Chairman- Director (SIIR))	
TRANSIT ORIENTED DEVELOPMENT (TOD) TASK FORCE	
TOD Group (Chairman- Commr.(Plg.), DDA)	

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Submission**

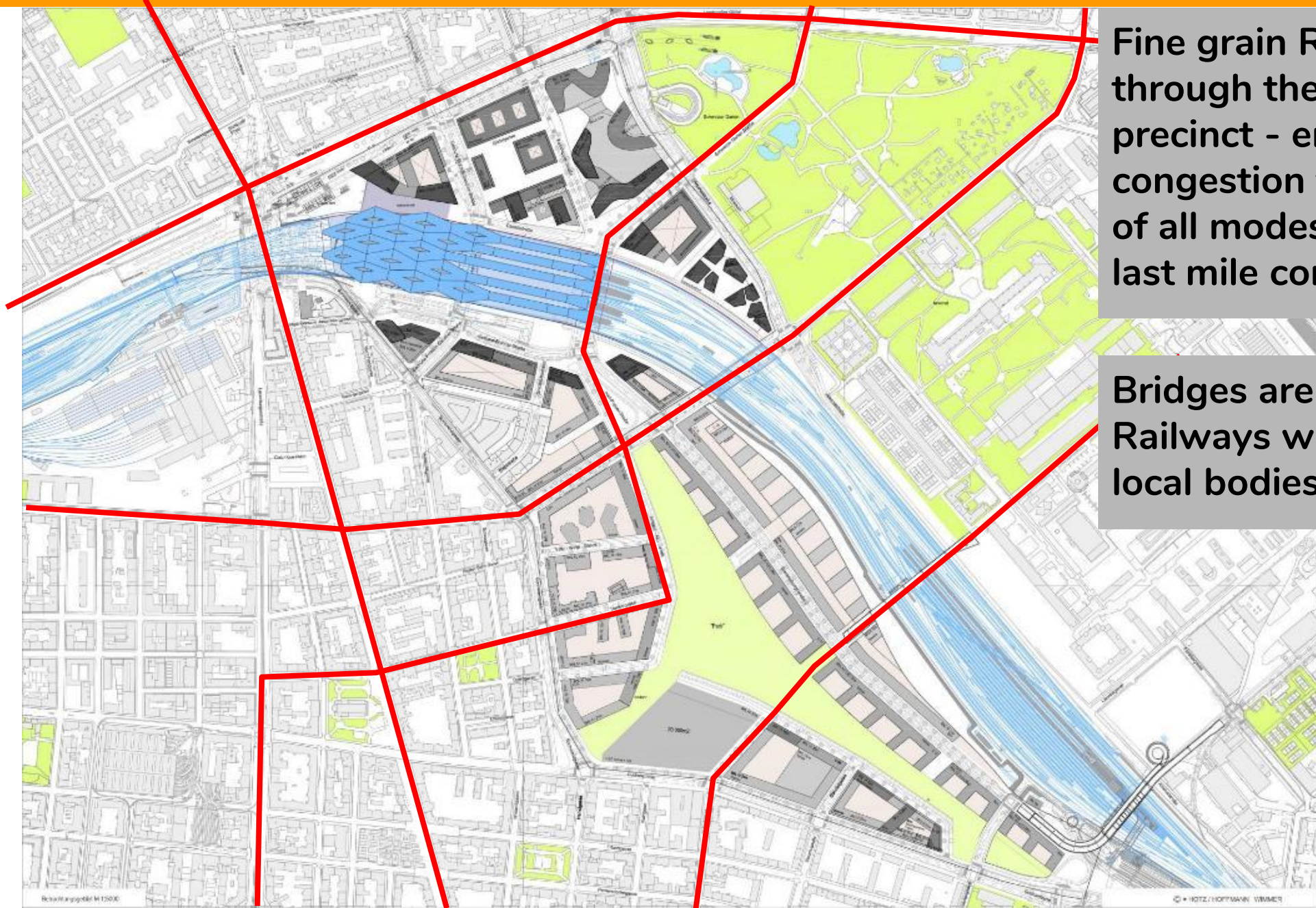
**Minutes of the Governing
Body Meeting of UTTIPEC**

FUNCTIONS:

- **Policy Creation.**
 - **Approval.**
 - **Monitoring.**



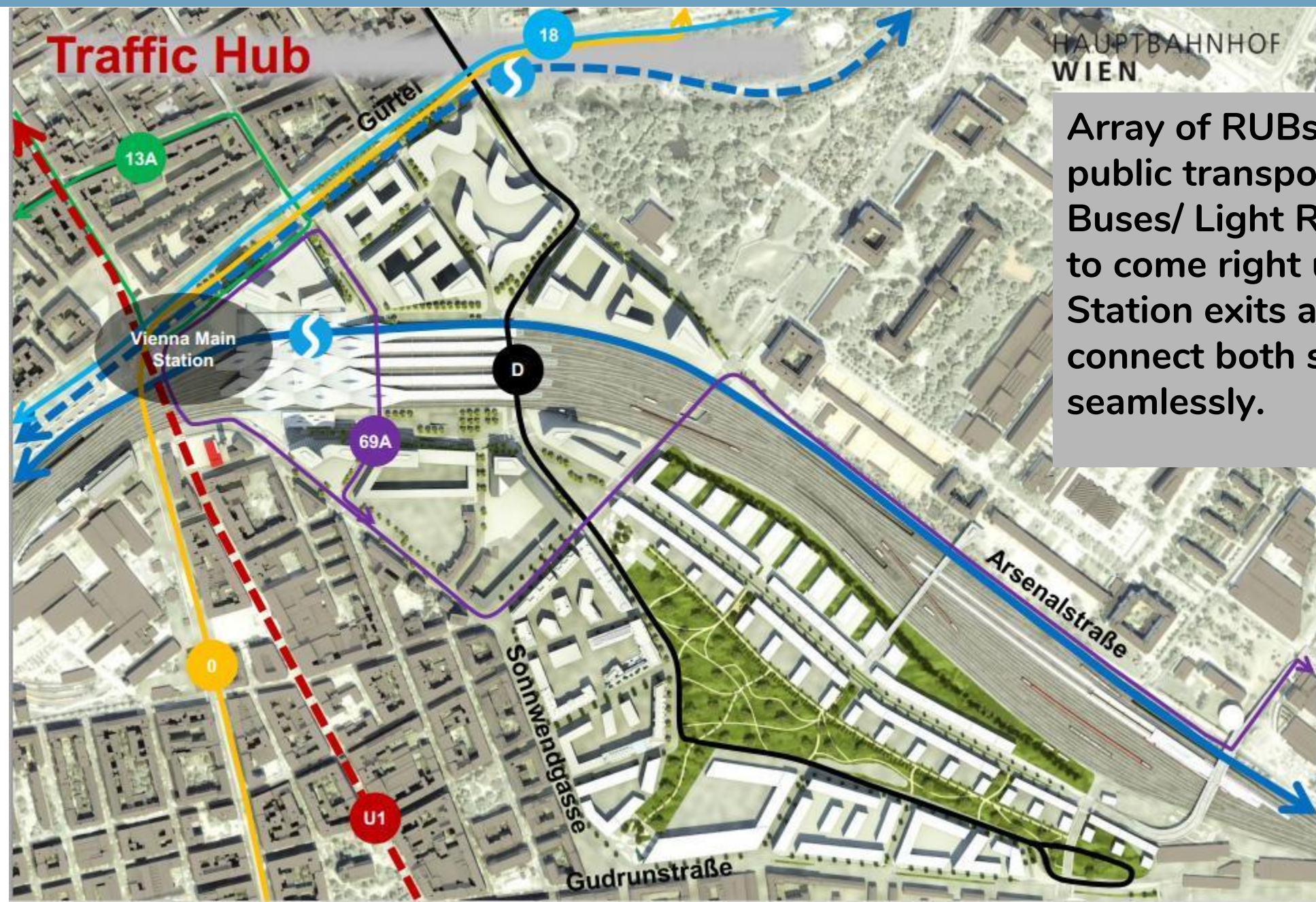
3. NETWORK PLANNING :



Fine grain Road Network through the Station Area precinct - enables congestion free movement of all modes and seamless last mile connectivity.

Bridges are built by Railways with support of local bodies

3. NETWORK PLANNING :



Array of RUBs/ROBs permit public transport modes e.g. Buses/ Light Rail/ Metro/ etc. to come right up to the Station exits and also connect both sides of the city seamlessly.

4. INFRASTRUCTURE :



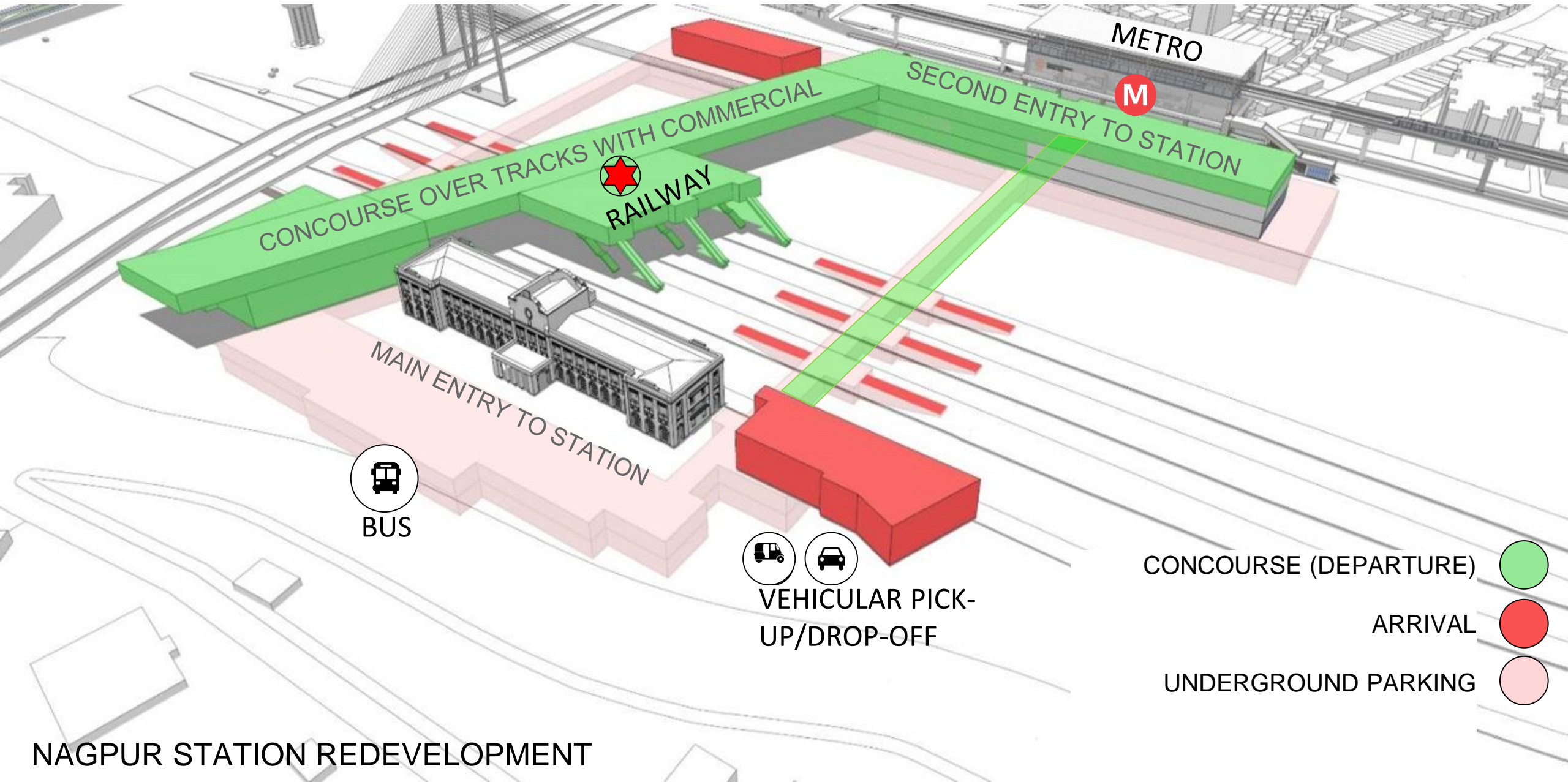
Horizontal Integration of Modes at Utrecht Rail Station with Connections to Bus, Metro, Ferry & NMT



4. INFRASTRUCTURE :

Vertical Integration of Modes at Berlin Central Station





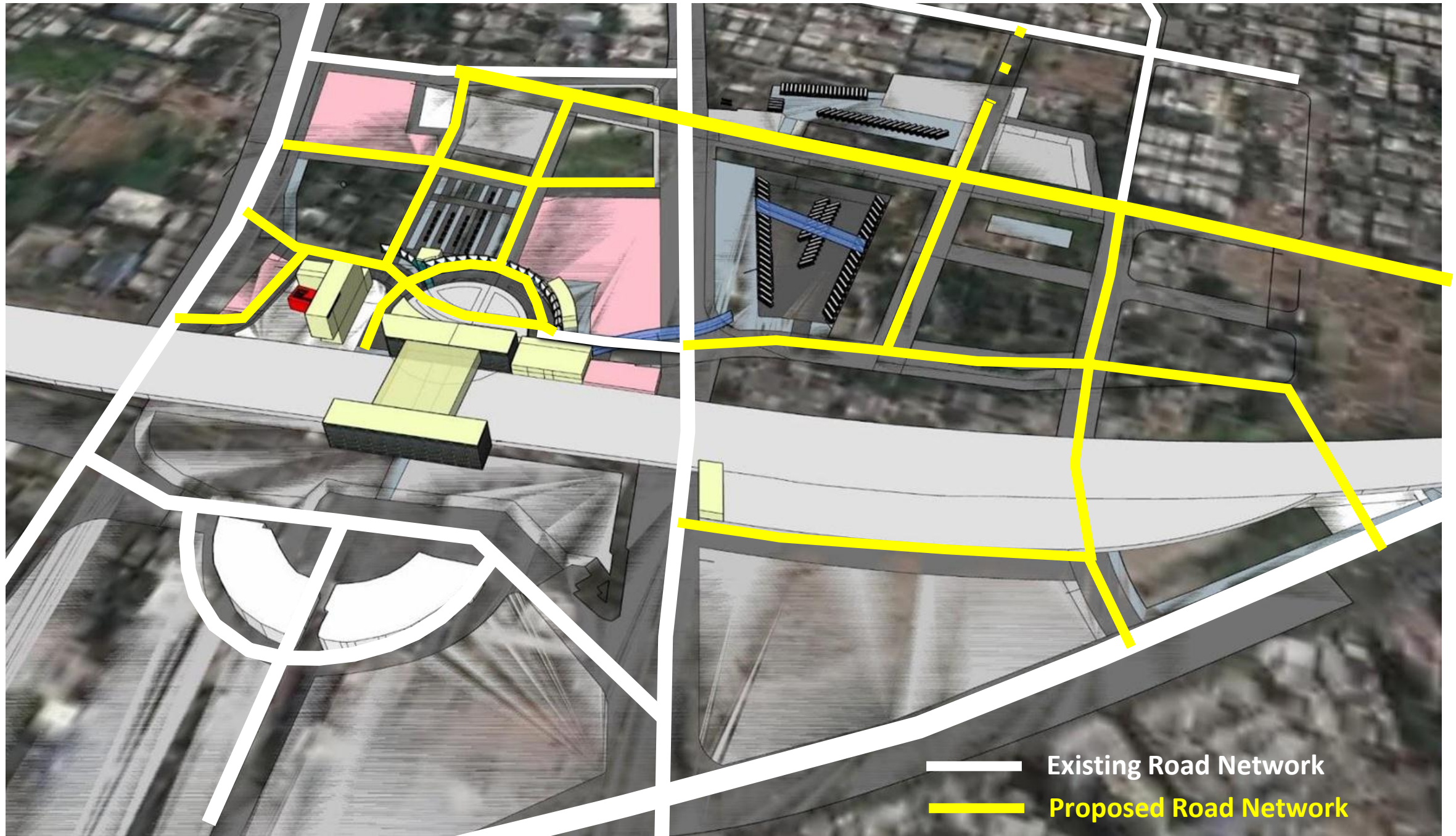
NAGPUR STATION REDEVELOPMENT

Surat Multi-Modal Hub

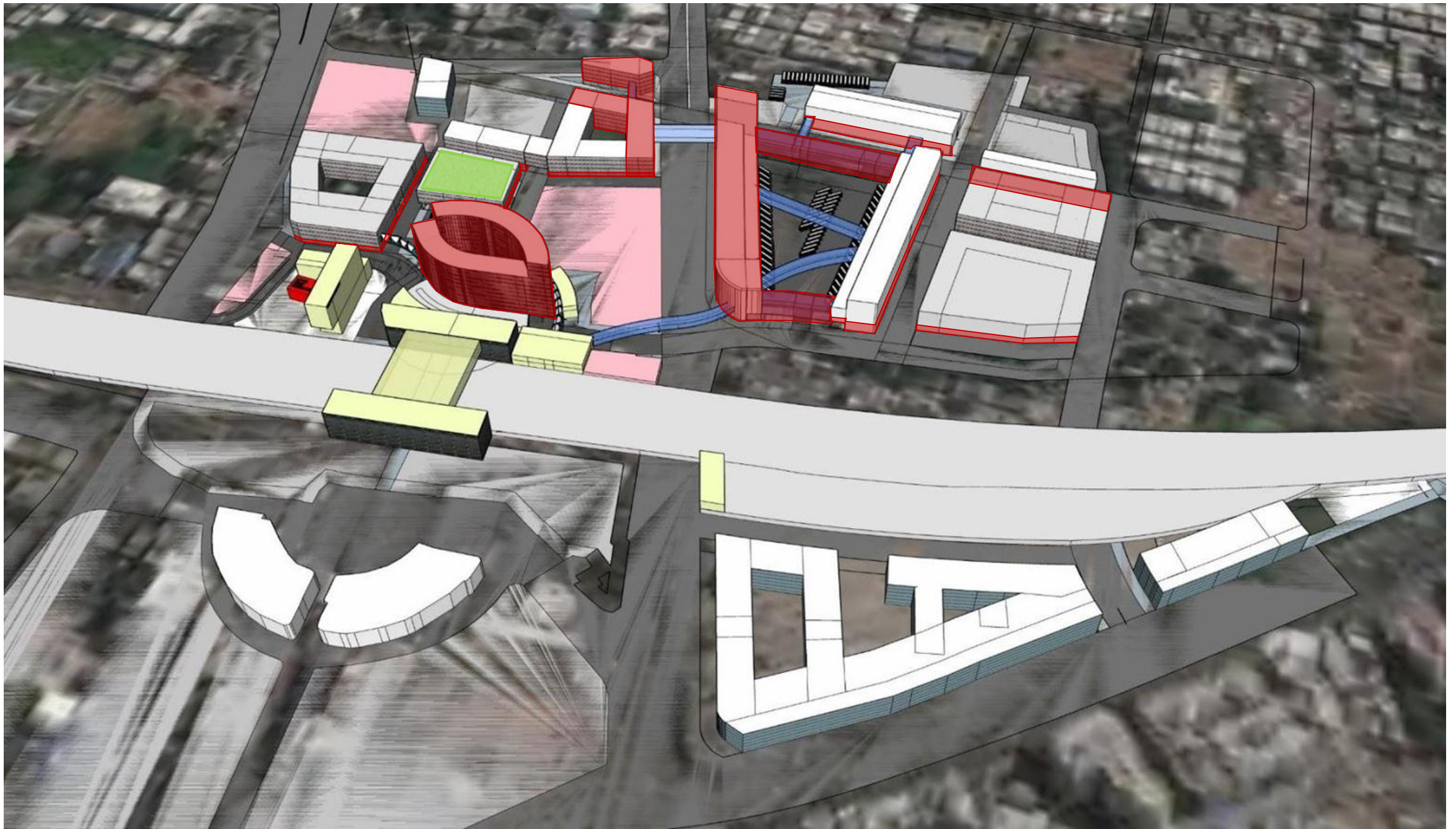
Live . Work . Play . Ride .



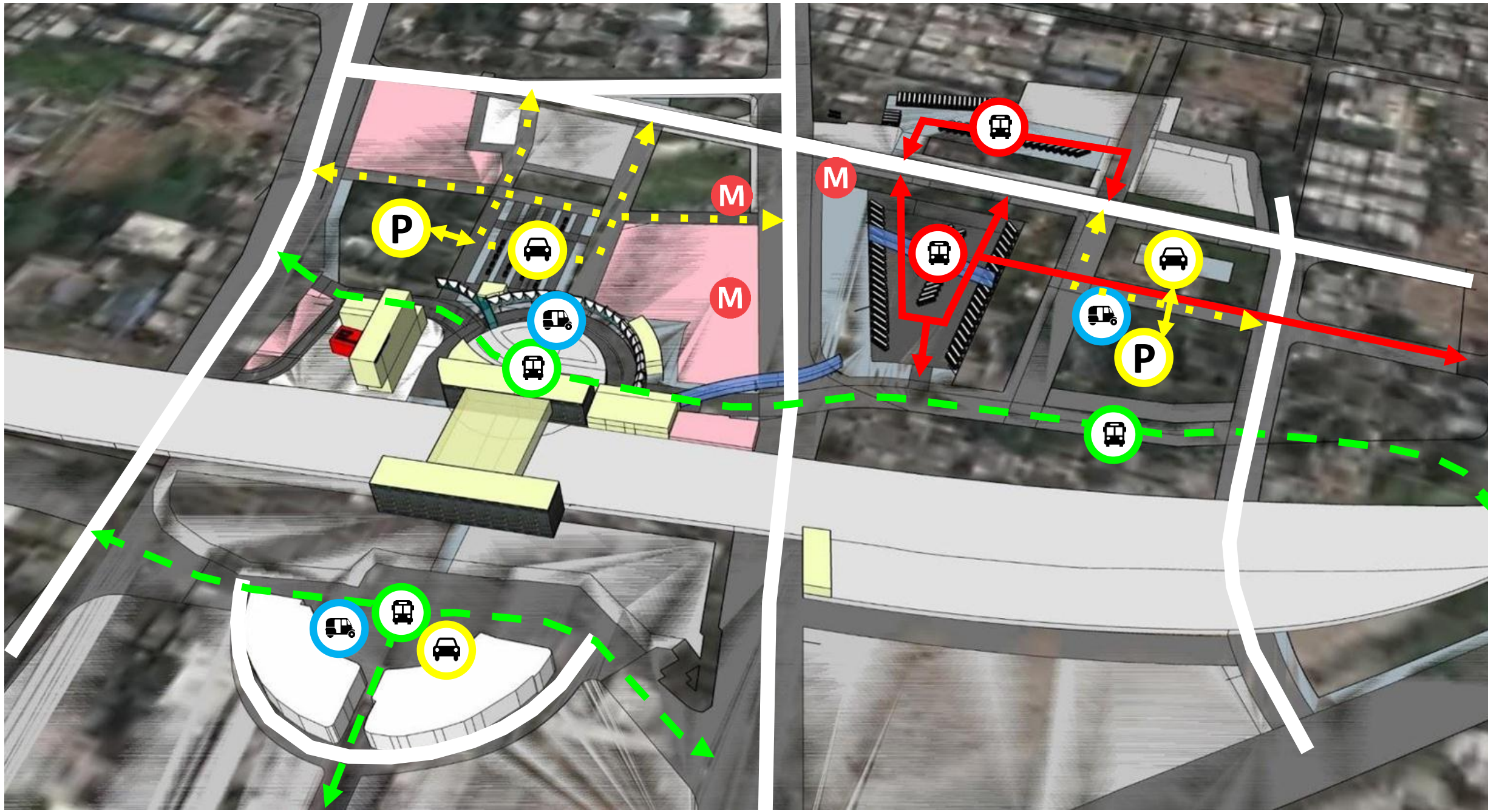
Road Network Plan



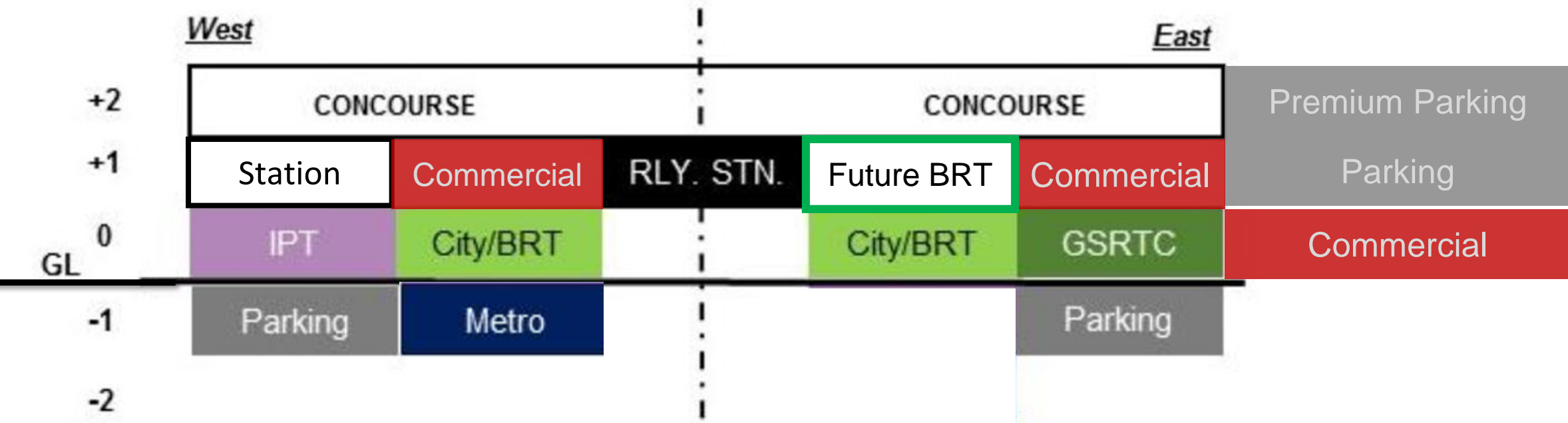
Development above seamless network of Roads



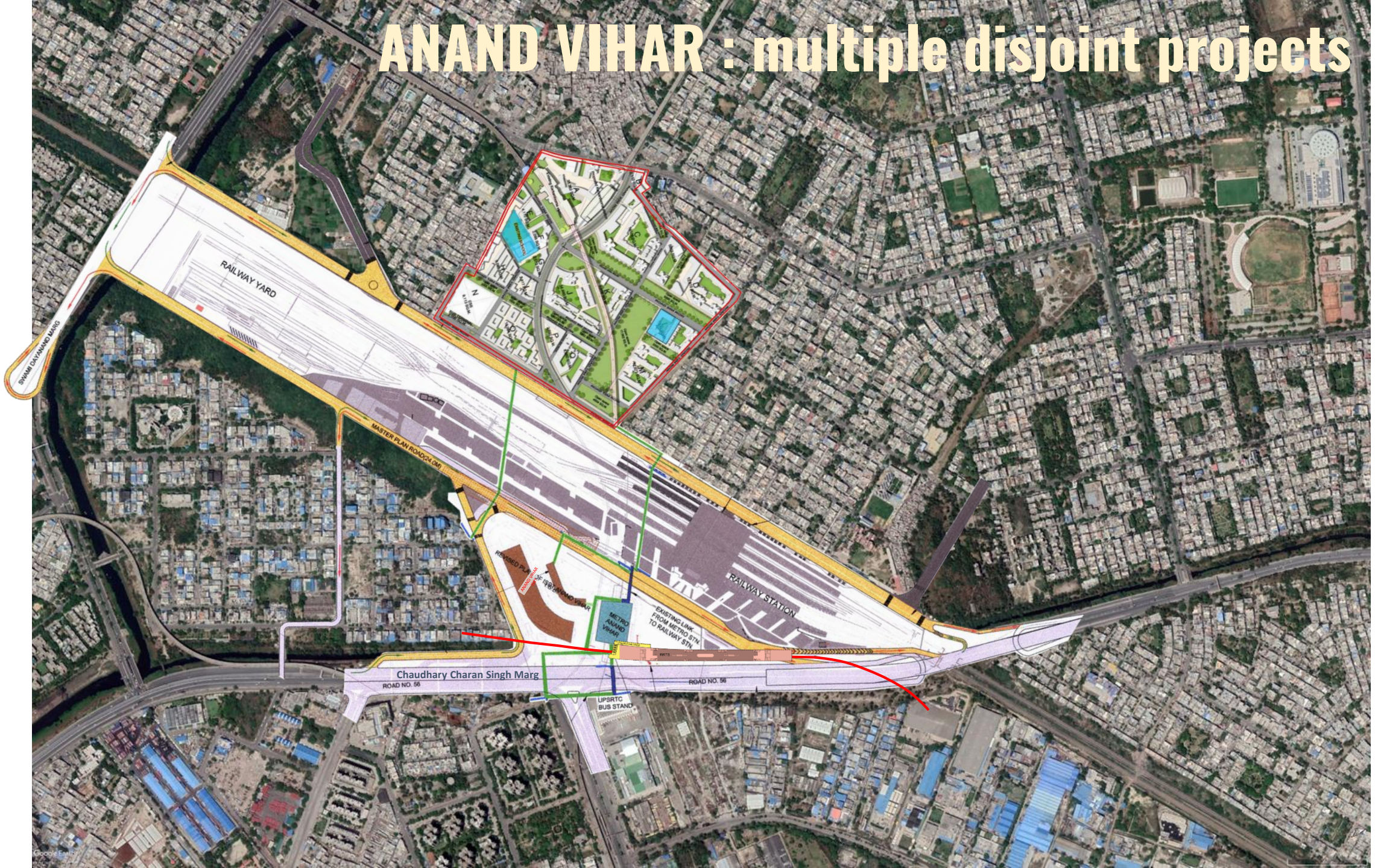
Multi-Modal Integration Concept



Proposed Multi-Modal Integration Concept



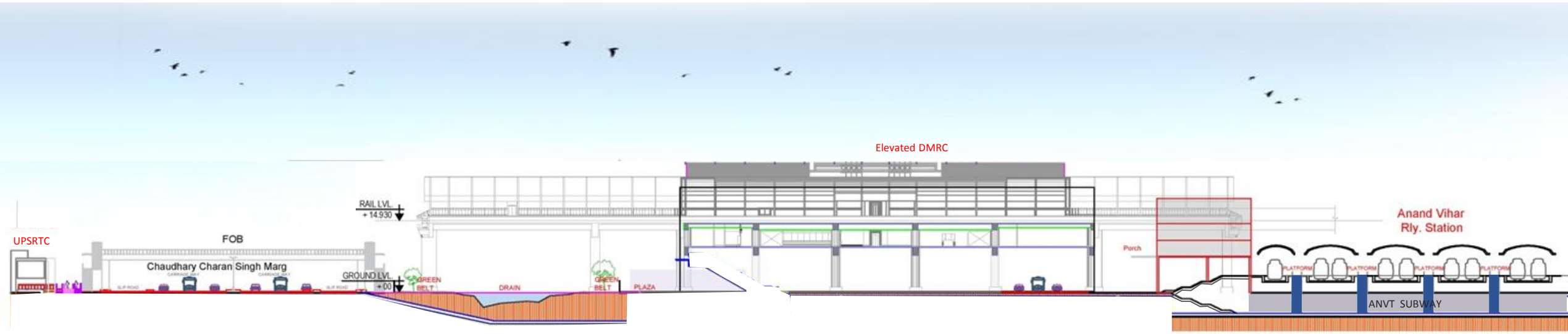
ANAND VIHAR : multiple disjoint projects



RRTS Proposal for development at Anand Vihar

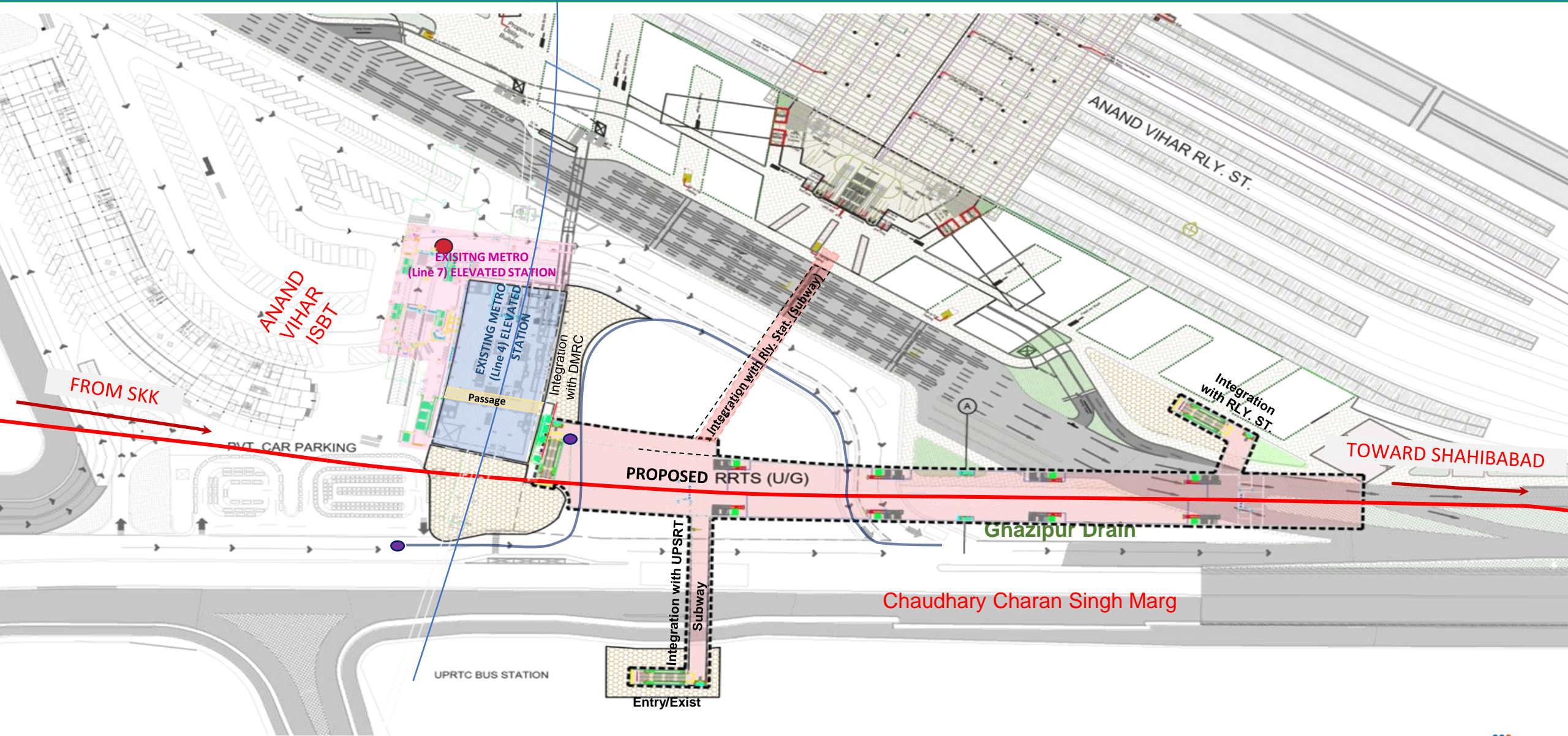


Multi Modal Integration at Anand Vihar- (Segregation of passengers flow at different levels)

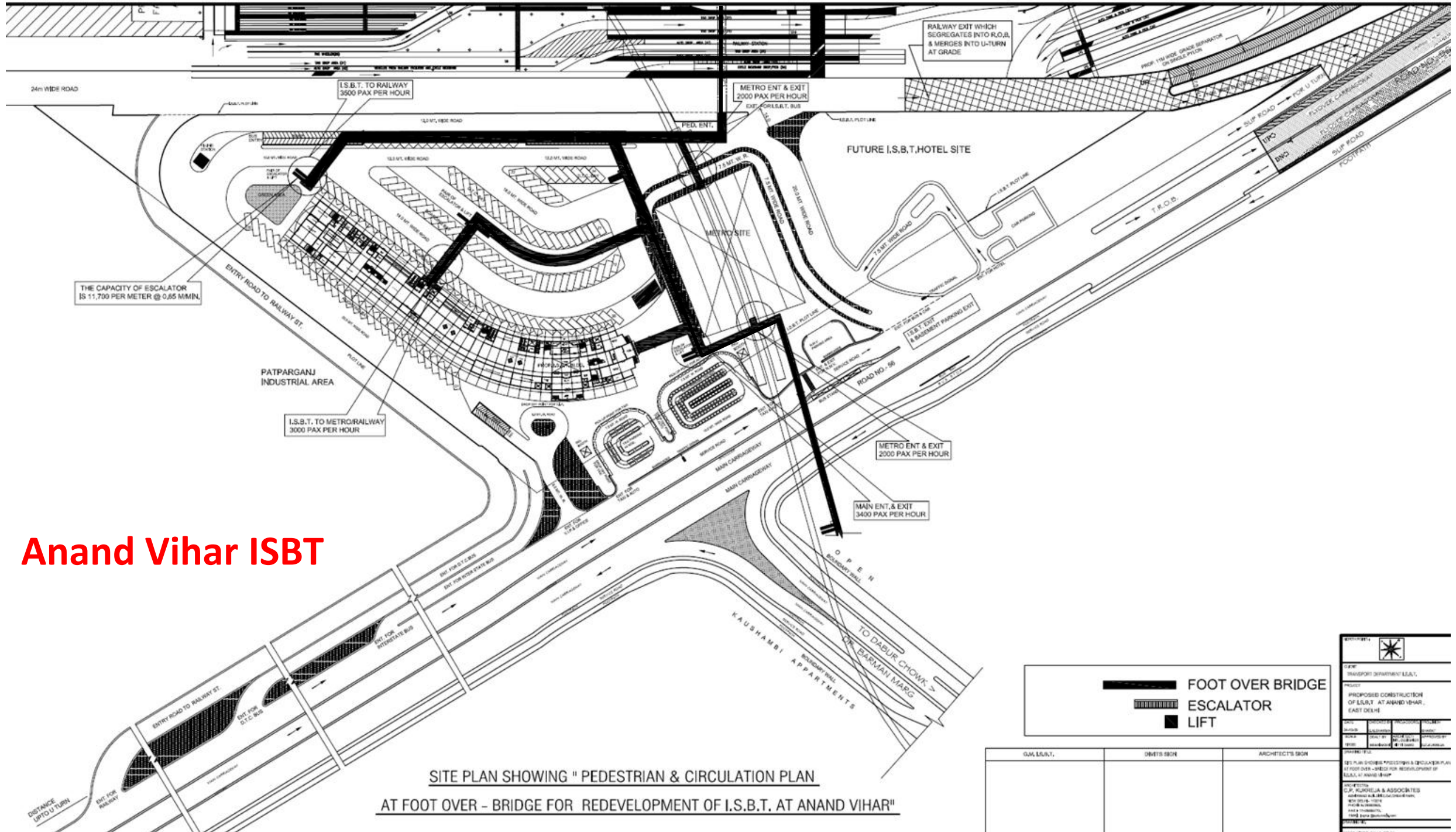


CROSS SECTION

Multi Modal Integration at Anand Vihar- (Segregation of passengers flow at different levels)



Anand Vihar ISBT



SITE PLAN SHOWING " PEDESTRIAN & CIRCULATION PLAN
AT FOOT OVER - BRIDGE FOR REDEVELOPMENT OF I.S.B.T. AT ANAND VIHAR"

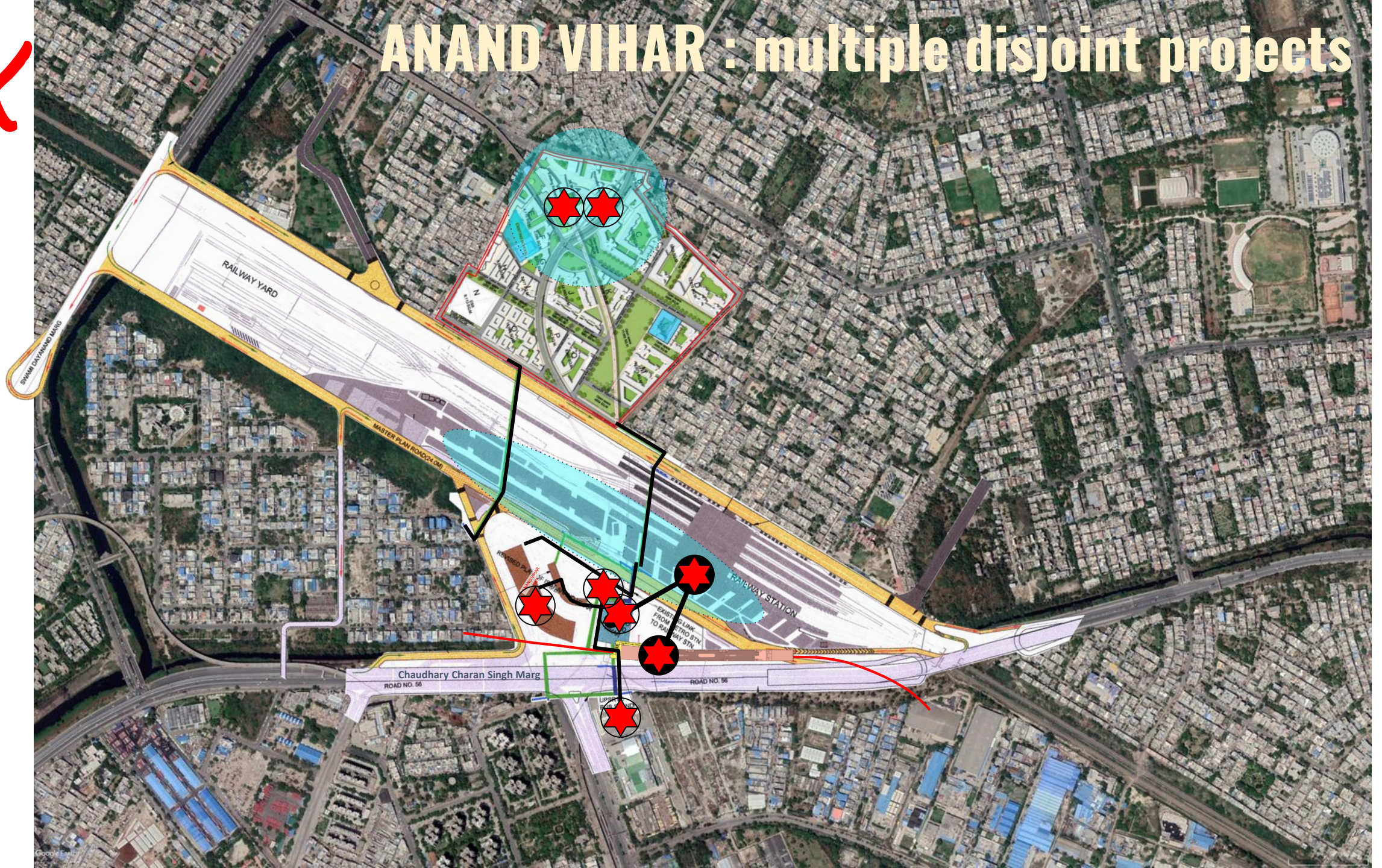
- FOOT OVER BRIDGE
- ESCALATOR
- LIFT

SCALE	DATE	BY	CHECKED	APPROVED
SCALE	DATE	BY	CHECKED	APPROVED
SCALE	DATE	BY	CHECKED	APPROVED
SCALE	DATE	BY	CHECKED	APPROVED

TRANSPORT DEPARTMENT/ISBT	
PROPOSED CONSTRUCTION OF ESBLAT AT ANAND VIHAR, (EAST DELHI)	
DATE	SCALE
DATE	SCALE
DATE	SCALE
PROJECT TITLE:	
03 PLAN SHOWING PEDESTRIAN & CIRCULATION PLAN AT FOOT OVER - BRIDGE FOR REDEVELOPMENT OF ISBT, AT ANAND VIHAR	
ARCHITECTS:	
C.P. KUMARIA & ASSOCIATES	
ADDRESS: 15, BANGALORE ROAD, NEW DELHI - 110044	
PHONE: 26101001	
FAX: 26101002	
EMAIL: cpk@cpk.com	
PROJECT NO.	
SHEET NO.	
DATE:	

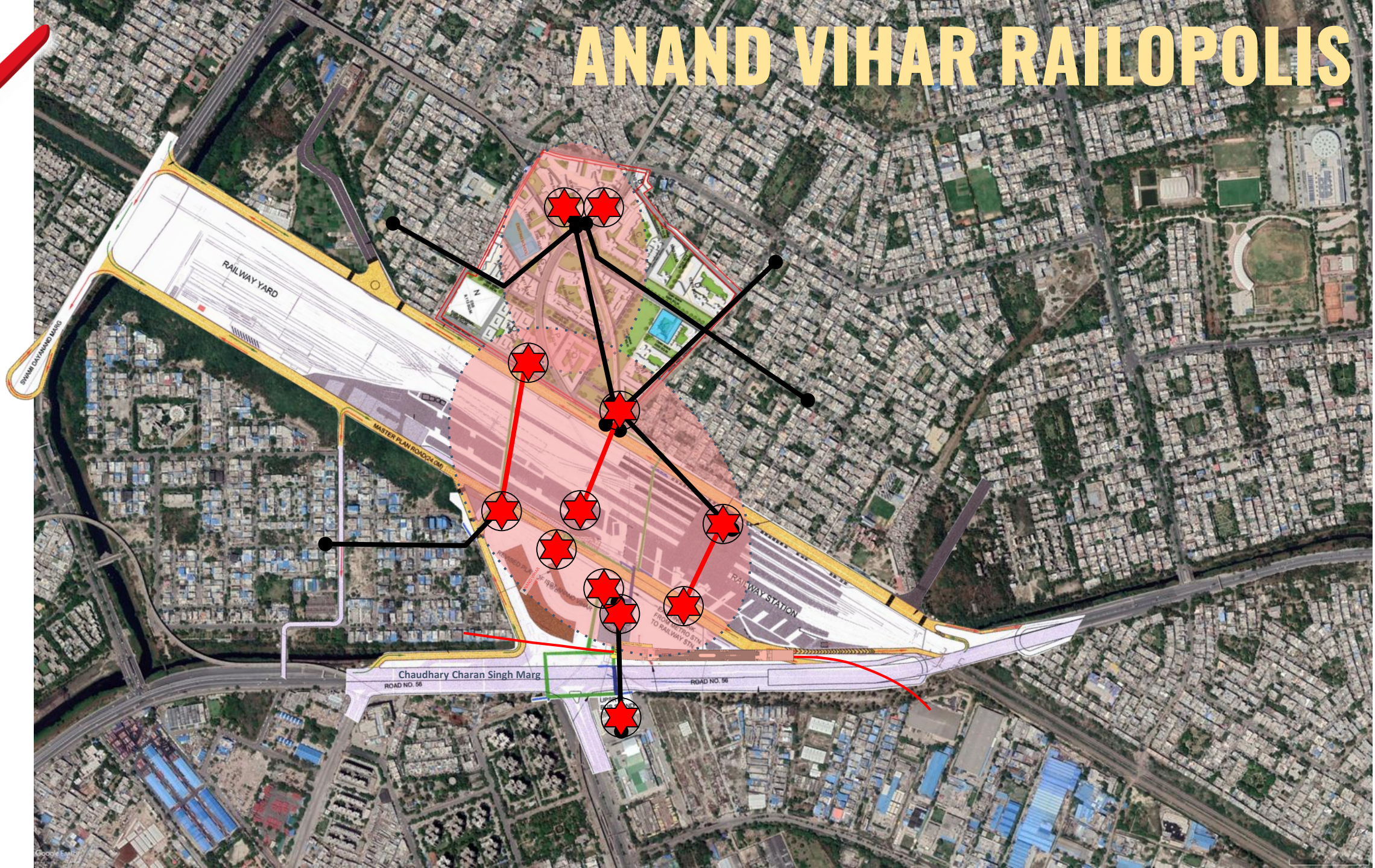


ANAND VIHAR : multiple disjoint projects





ANAND VIHAR RAILOPOLIS



X

KARKARDOOMA



ISBT

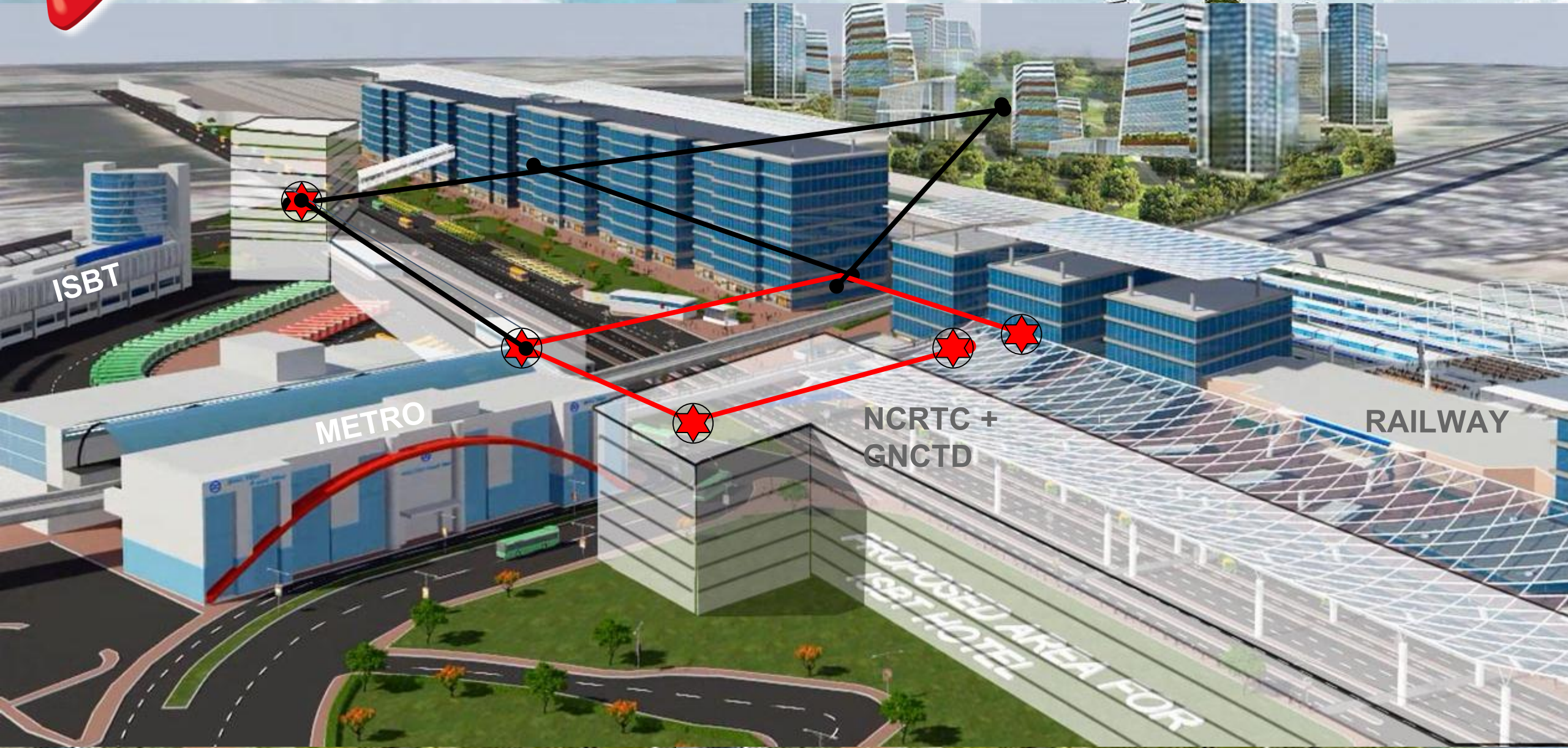
METRO

RAILWAY

PROPOSED AREA FOR
ISBT HOTEL



KARKARDOOMA





ANAND VIHAR INTEGRATED RAILOPOLIS



Representative Image

PM Modi Launches National Common Mobility Card

Furthering Ease of Living, Unifying Urban Mobility



India's 1st indigenously developed automatic fare collection system



Inter-operable card, work seamlessly across Metro, City Bus, Railways, Parking, Toll, etc.



A bank-issued debit/credit/prepaid card product platform

Redeveloped stations shall provide for machine readability of the tickets, QR codes for Platform tickets, parking tickets to enable fare integration



No need for separate Ticketing for any mode, or separate Credit card for payment



Not within the direct domain of the Developer but the operators of different modes. However developer shall facilitate end to end connectivity through shared transport



7. INFORMATION :

Common Concourse may provide information of all Modes in the same Waiting Area



- **Data standards** - development of common global standards such as General Transit Feed specifications (GTFS)
- **Technology advancements**- GPS, GPRS, I-ways (information ways), real time vehicle tracking, real time information in the vehicle, at stations, on the mobile and web, smart phones at affordable costs.
- **Integrated payment systems**- through Smart cards, mobile phones, contactless cards
- **Role of major technology companies**- investments by companies such as IBM, Google, Siemens to promote smart cities and smart urban mobility. Google transit service is available in more than 250 cities for multimodal transit planning
- **Role of application developers** – for multimodal trip planning and making it available free of cost

Delivering the Railopolis

Live . Work . Play . Ride .



Vision for a 24x7 City Centre

Mix of Uses

Prioritize **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 City centres with active frontages



Vision:

24x7 City active streets with high-density above



Vision:

24x7 City centres with Climatic Comfort



External Colonnades



Pedestrian Passages through Sub-Plots

Vision:

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



Streets as Public Spaces

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



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



Shared Sports facilities above Parking Podiums



We Need: ACTIVE FRONTAGES for Safety of Women/children

Zero-setbacks, “eyes on the street”, street facing entries



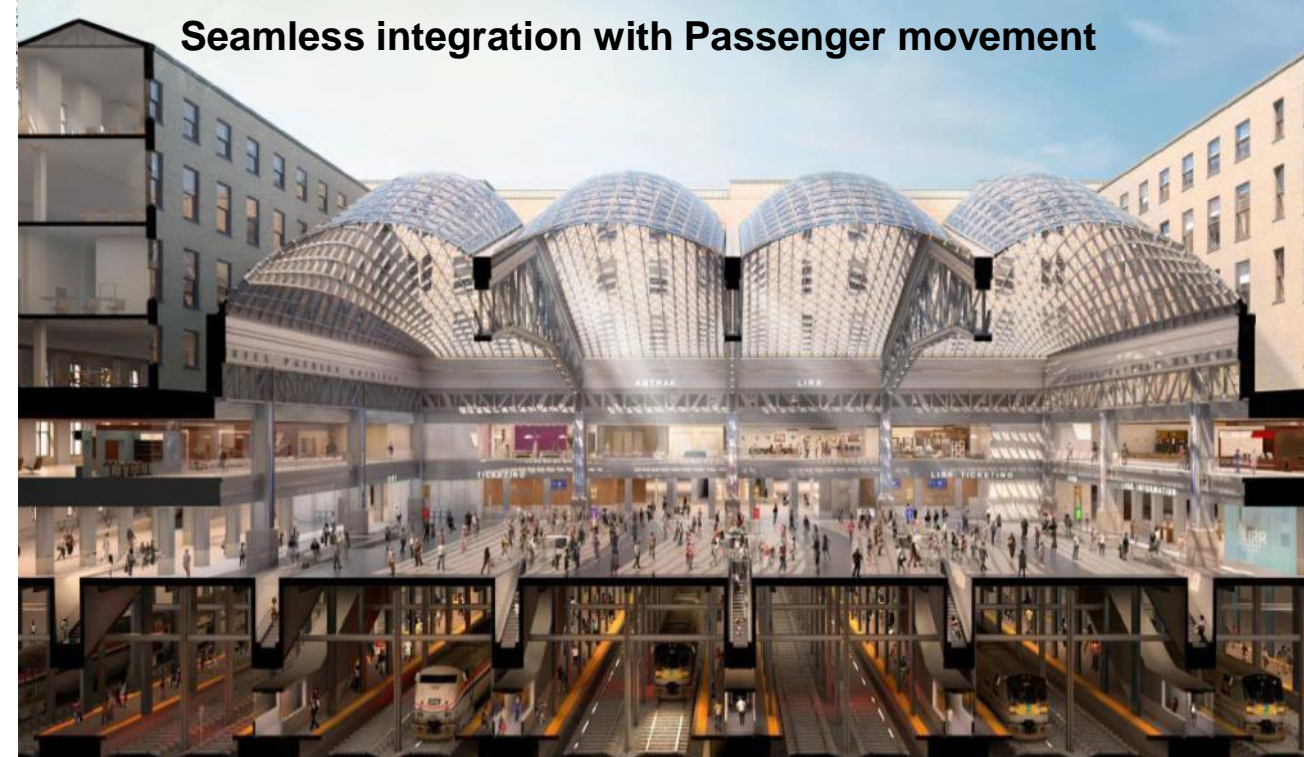
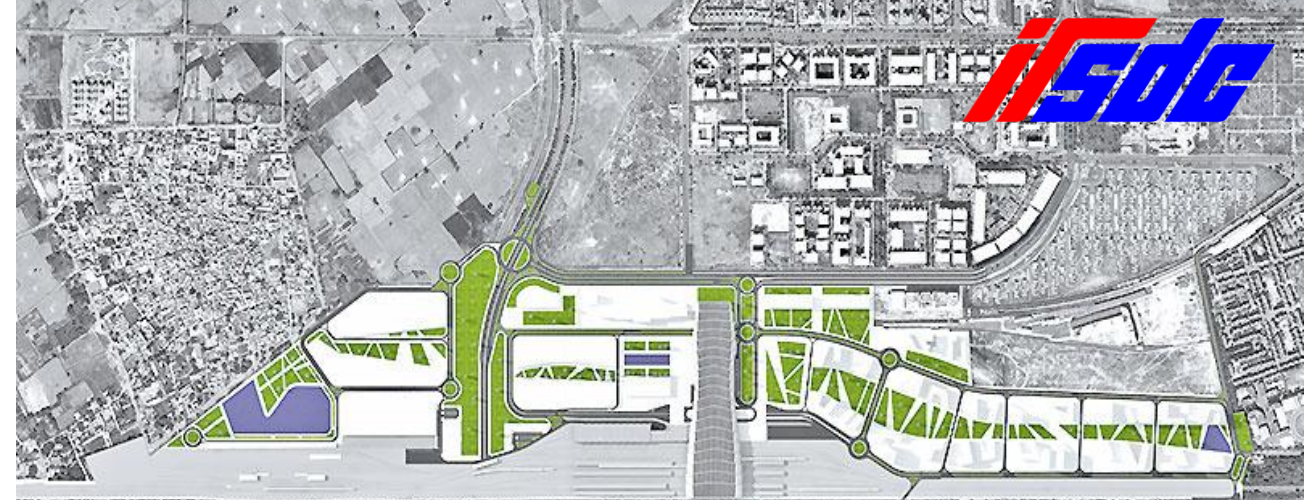
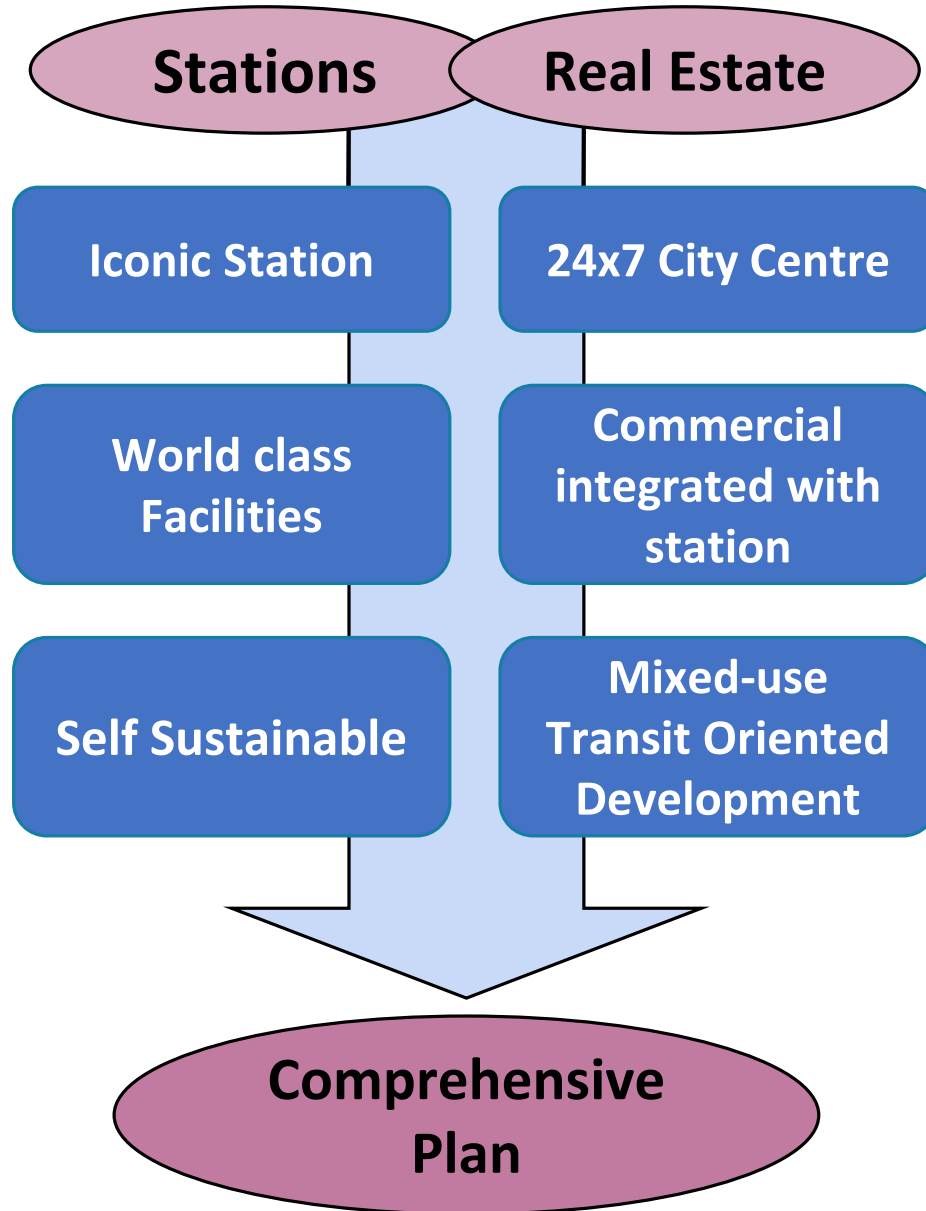
We Need: Active Frontages with Secure (gated) Civic Complexes behind



We Need: Active Frontages with Secure (gated) Residential Complexes behind



Components of RAILOPOLIS:



Railway Station Multimodal Hub Project, Bhubaneswar



PROPOSED
RAILWAY STATION

PROPOSED
MIXED USE TOWER

PROPOSED
CONVENTION/RETAIL

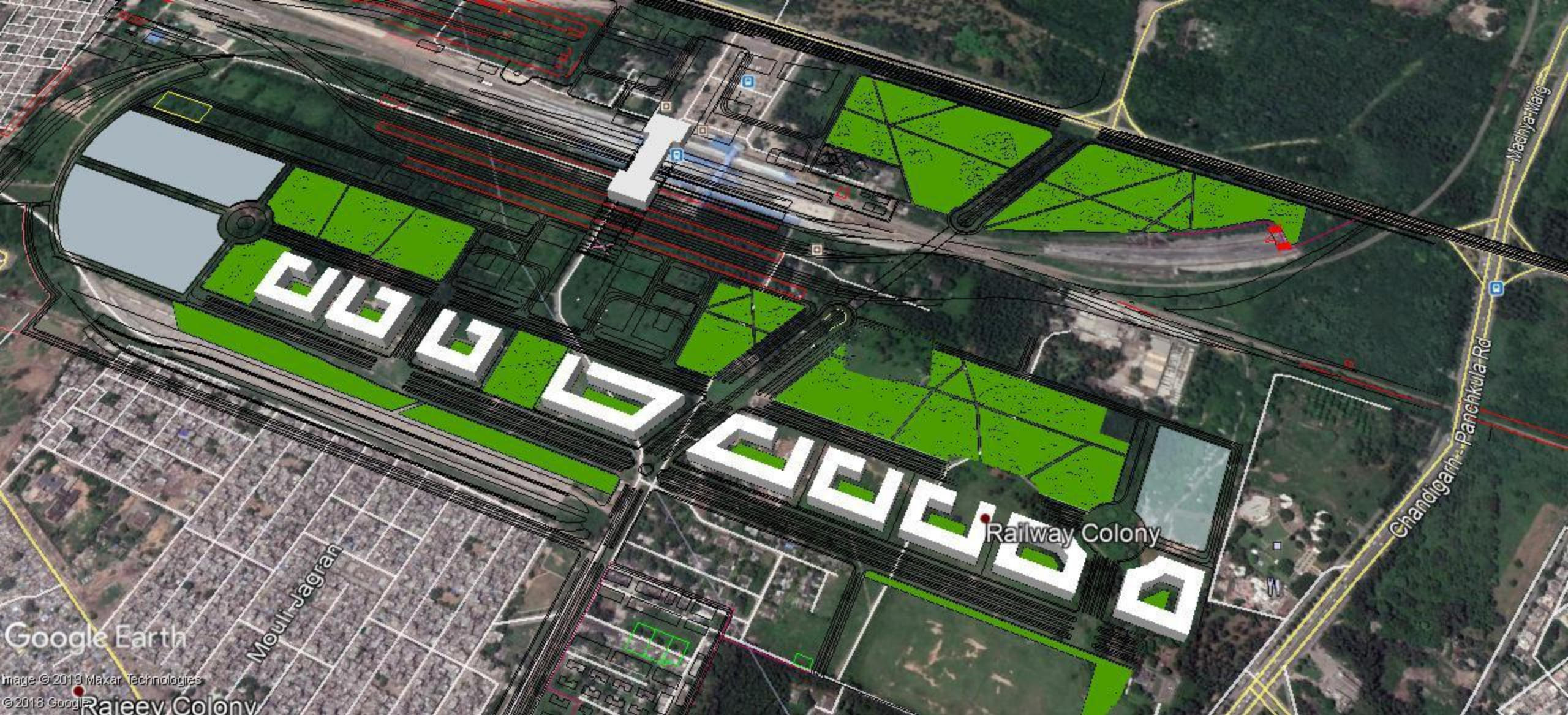
PROPOSED
PUBLIC PLAZA





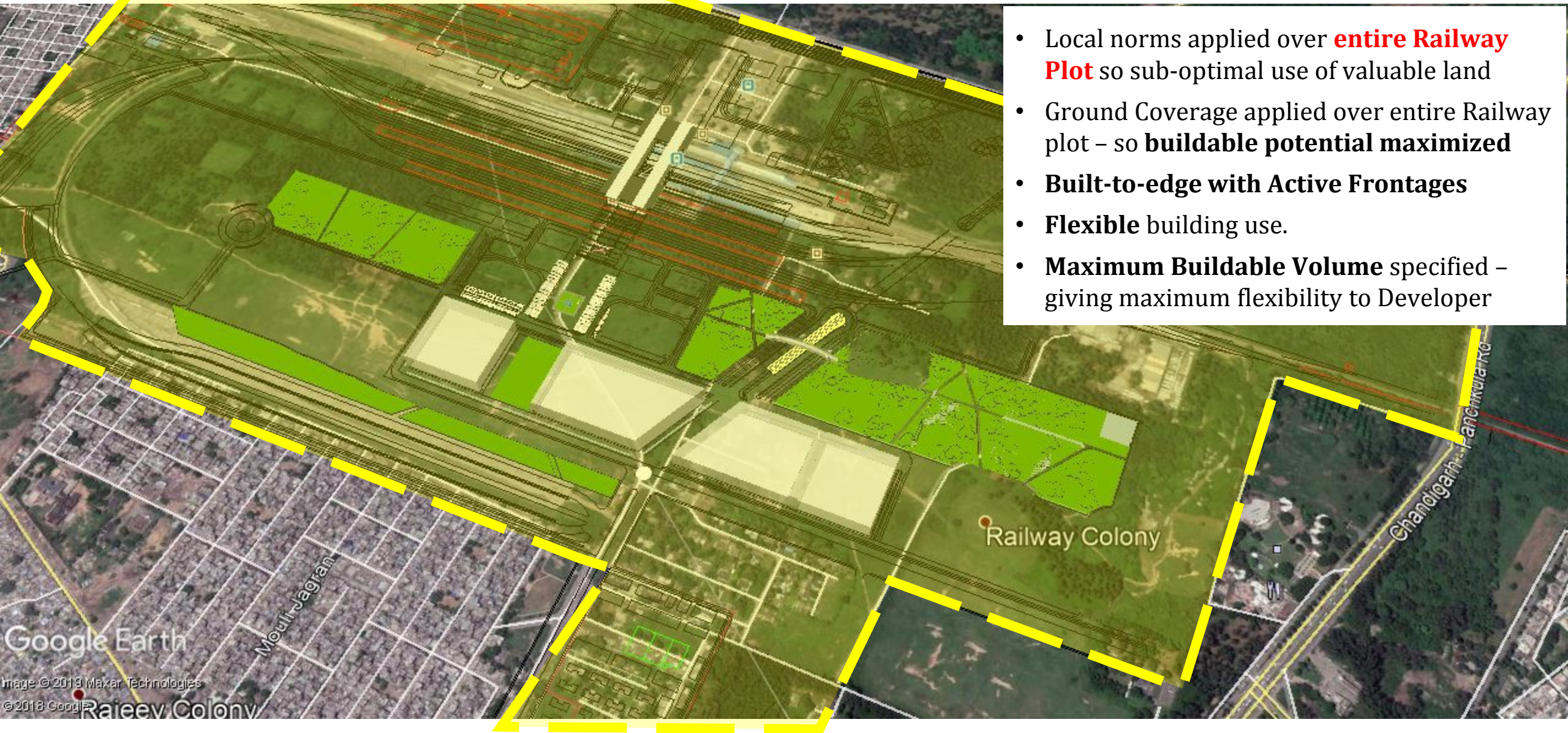
How to achieve Our Vision?

Local Norms : Challenging to Achieve **Vision**



Compact Development: Efficient Use of Land + Flexibility of Use

- Local norms applied over **entire Railway Plot** so sub-optimal use of valuable land
- Ground Coverage applied over entire Railway plot – so **buildable potential maximized**
- **Built-to-edge with Active Frontages**
- **Flexible** building use.
- **Maximum Buildable Volume** specified – giving maximum flexibility to Developer



Compact Development: Efficient Use of Land + Flexibility of Use



More BUA

Less Land

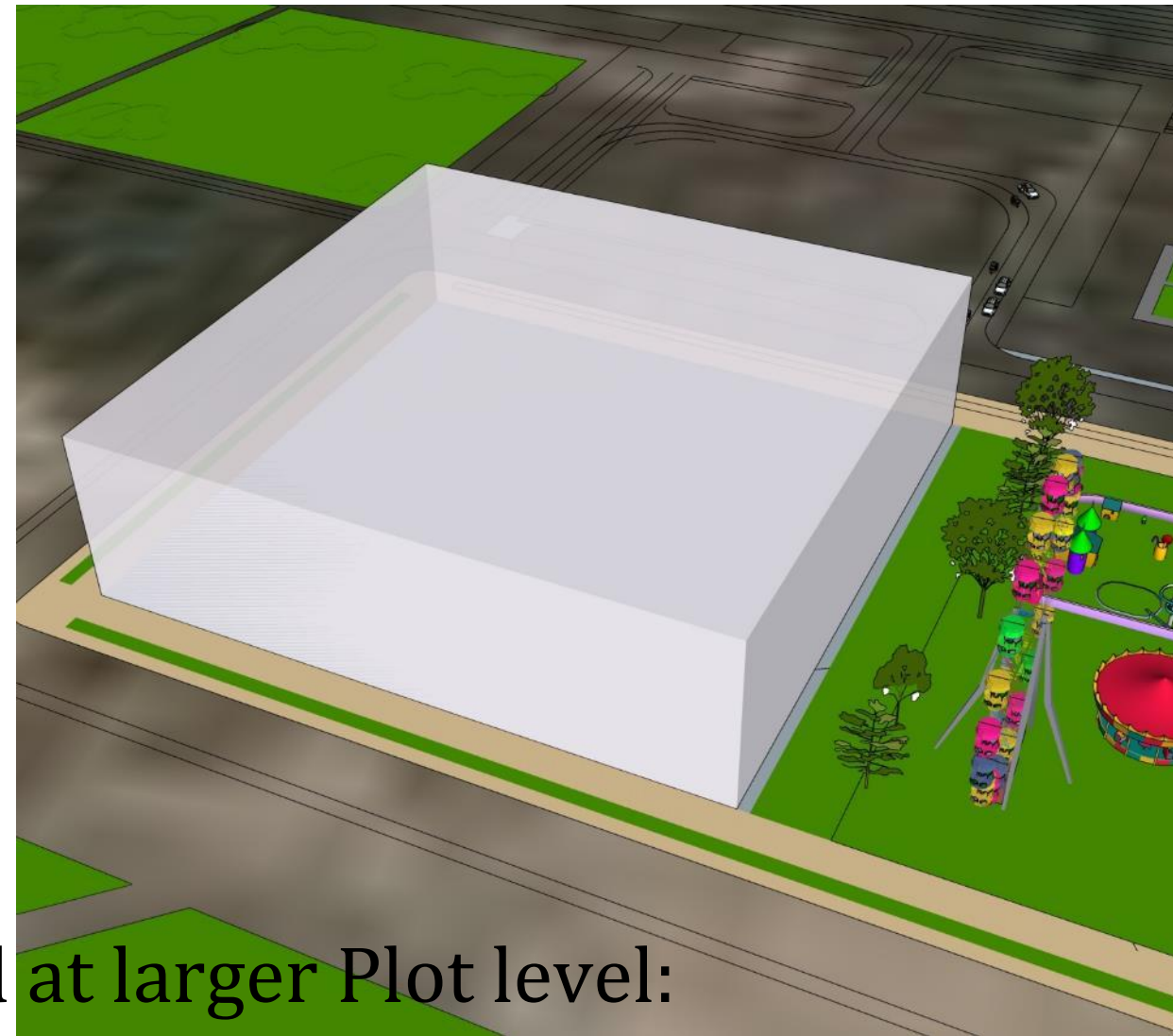
More saleability

More Flexibility to Developer with: Flexibility in Use premises



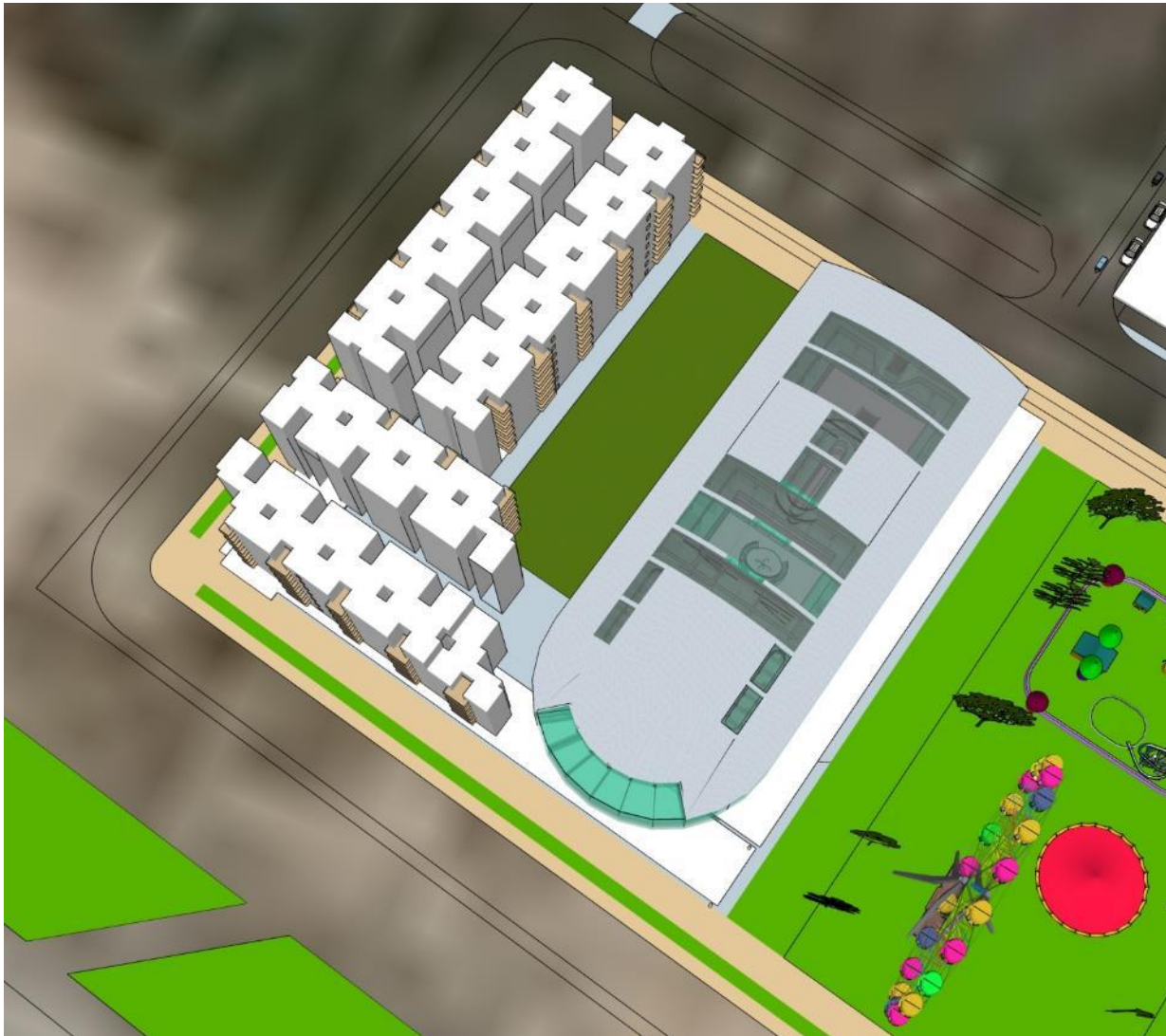
Local norms applied at larger Plot level:

- Building Envelop Maximized; Use & Ground Coverage Flexible



More Safety & Vibrancy with :

Built-to-Edge Buildings and Flexibility in GC & Use premises



Longer Retail Perimeter available at Ground

- Flexibility in Use, Building type & Building design



Plot surrounded by Boundary wall
- separated from Footpath!



Building at Plot line
- Active Frontage at Footpath

Local Norms

Proposed Railway Norms: 0 setback



36% Land lost to Setbacks!

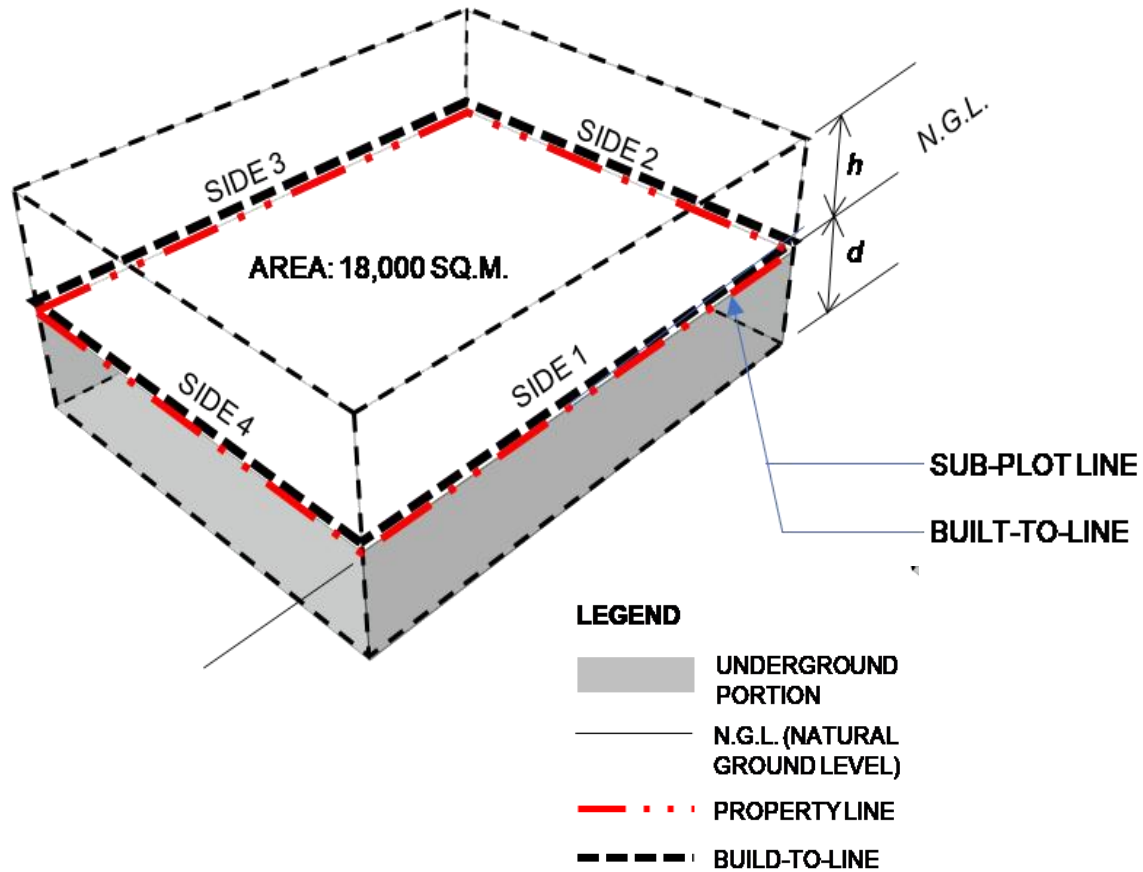


3-times More Usable Green Space.

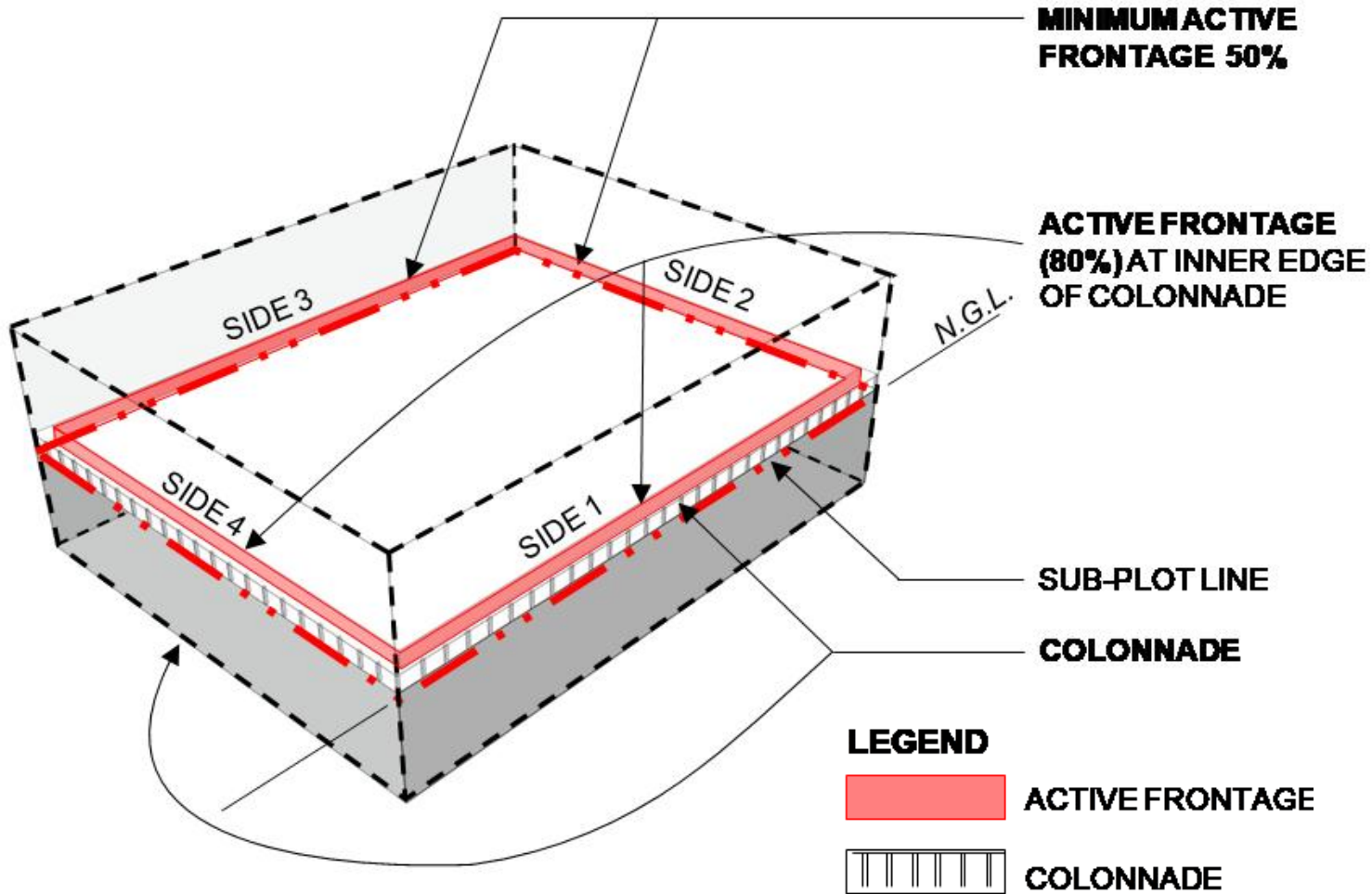
Sub-plot Area = 11347 sq.m. (1.1 Ha)
Land area under **Setbacks (unused)** = 36%
Land Area under **internal Roads** = 18%
Land area left of **Green** = 6%
Footprint Area = 40% (max.)

Sub-plot Area = 11347 sq.m. (1.1 Ha)
Land area under **internal Roads** = 18%
Land area under **Green** = 21%
Footprint Area = 61% (flexible)

Volumetric Parameters



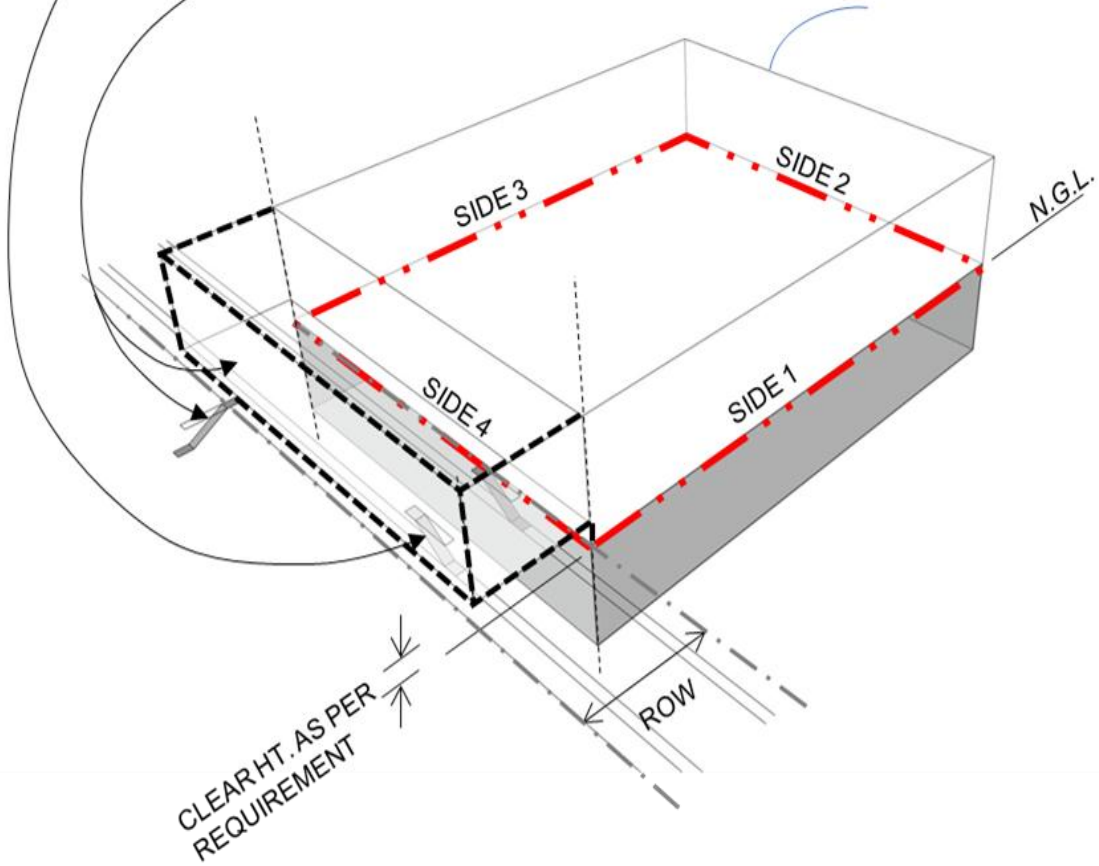
Edge Conditions



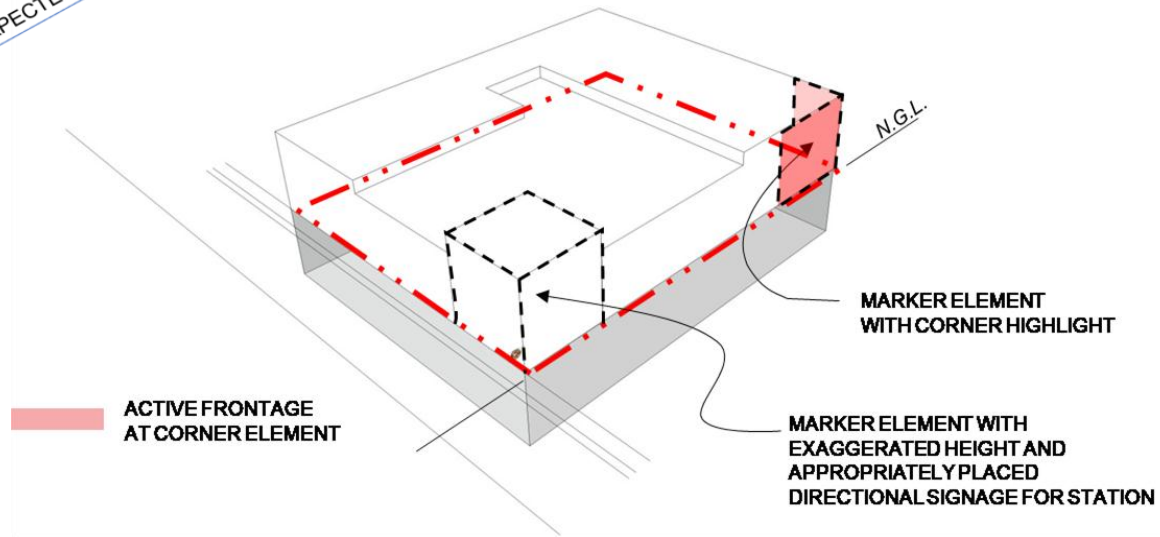
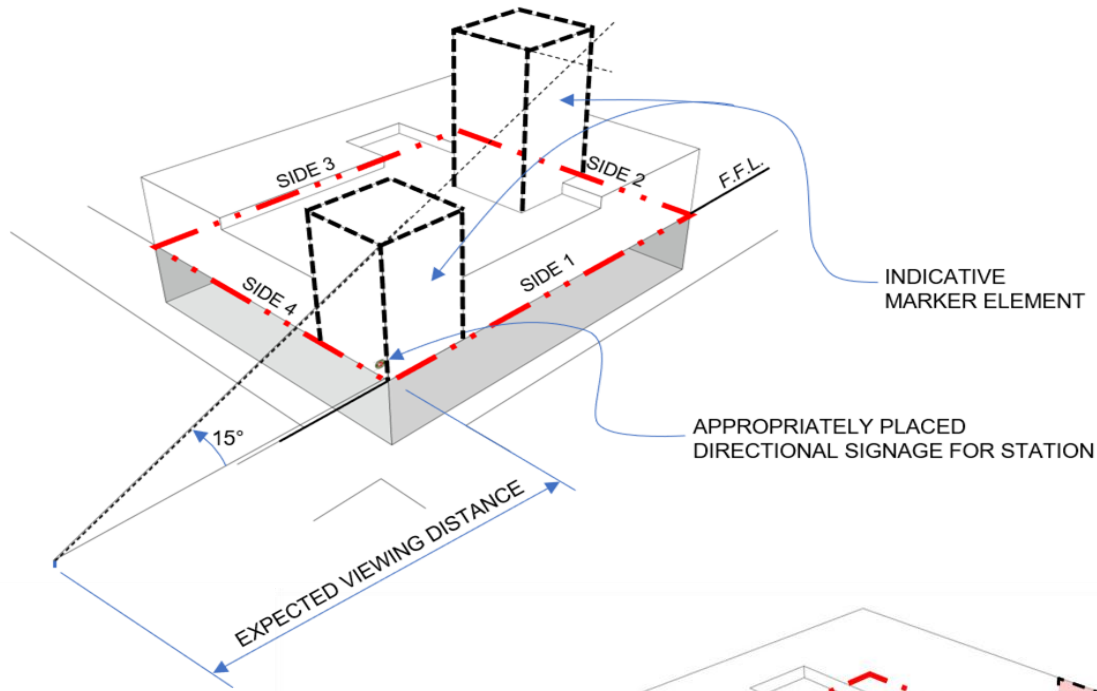
Projections Permitted Beyond Sub-plot Edge

LANDING OF ESCALATORS AND LIFTS
WITHIN MFZ OF ROW SHALL BE
PERMITTED

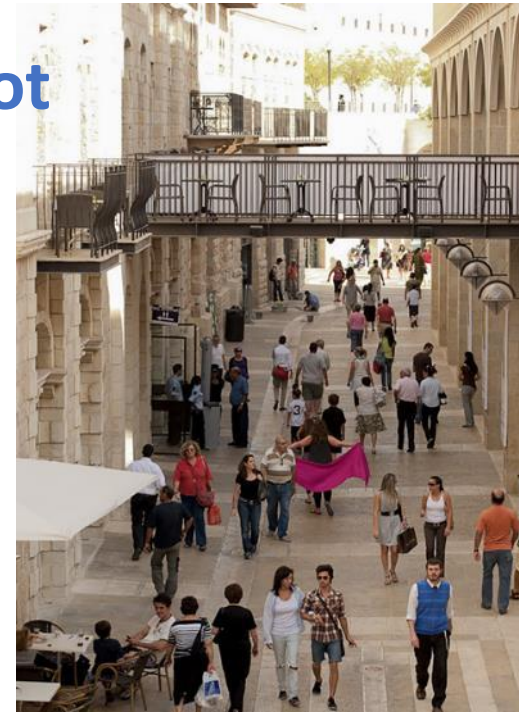
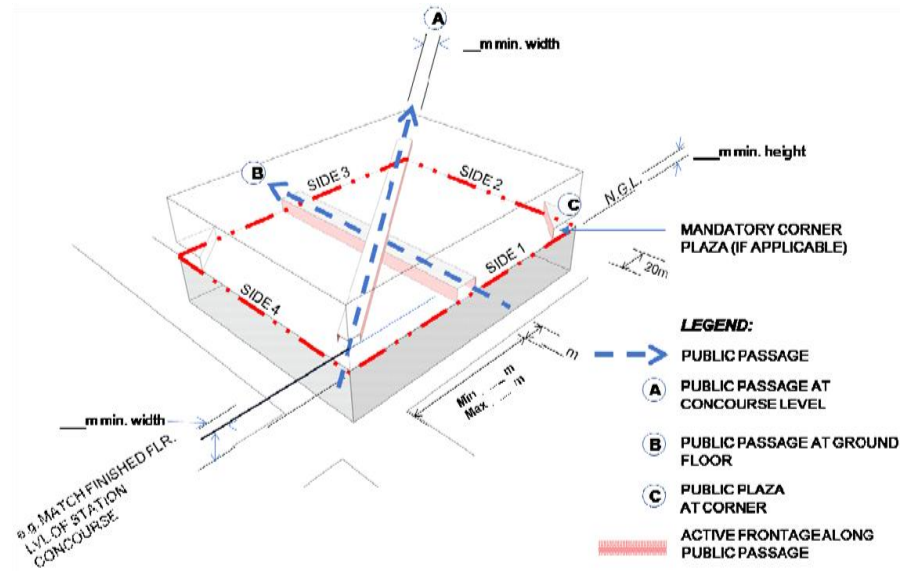
DIRECT CONNECTION MAY BE GIVEN
WITH ADJOINING PLOT SUBJECT TO NOC.



Way-Finding Features



Public area Reservations within Sub-plot



“A railway station is something that can generate a city.

Santiago Calatrava



Thanks...