

# T TRANSPORTATION

# 2021



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# TRANSPORTATION

The period between 1981 and 2001 has seen a phenomenal increase in the growth of vehicles and traffic in Delhi. Delhi has developed as a borderless city and an urban continuum comprising of a number of rapidly growing towns in Haryana and UP. It is estimated that the total trips would rise to 280 lakh by the year 2021, including 257 lakh motorized trips and 23 lakh non-motorized trips. In this context, it needs to be noted that roads already occupy 21 percent of the total area of the city, which clearly limits the potential for increase in road length.

There are special problems in specific areas, particularly the old city, which deserve special attention. Special requirements will also arise from the mega events such as the Commonwealth Games.

The following strategy is proposed in order to meet these objectives:

- (i) Preparation and operationalisation of an integrated and mutually complementary multi-modal transportation and traffic plan comprising the Road, Rail and Metro-rail network, so that work centres/residences are within a walk able distance.
- (ii) The multimodal system will be integrated with safe facilities for pedestrians. Bicyclists, disabled persons and

Intelligent Transport System (ITS) enabled taxis and three —wheeled scooter rickshaws (TSR).

Optimal use and utilization of the existing road network expansion and restructuring of the existing network through expressways, arterial roads, elevated distributors and relief roads. Planning of new road network at least for 2031. Expansion of the

### *Metro-rail network of*

- (i) phase iii & iv. Expansion and strengthening/restructuring of the Ring Rail System and sub-urban rail system which is forgotten one.
- (ii) Development an integrated relationship between the bus, rial and metro system to provide for seamless multi-modal transport, through provision of additional stations, park and ride facilities, introduction of single multi-modal ticketing, multimodal public transport system development of a comprehensive parking policy, establishment of a quick and efficient transport network between the NCR and the NCT of Delhi.
- (iii) Provision of directional Goods and Passenger Terminals with adequate infrastructure. Review of the licensing policy and systems, and effective arrangements for training of drivers/transport operators.
- (iv) Integrated multi-modal Transportation – system
- (v) Metropolitan transport authority
- (vi) Roads
- (vii) National Highways
- (viii) **Arterial Roads** : These include primary roads with access control and other primary roads. While designing roads with 30m. ROW and above, provision should also be made for public mass rapid transport system, which may include BKT. Present ring road and outer ring road to be converted to access controlled arterial roads.

**Sub Arterial Roads** : These include primary and secondary collector streets.

**Local Streets** : These are intended fro neighbourhood (or local) use on which through traffic is to be discouraged.

# DELHI METRO MAP 2010



# Legend

## Delhi Metro - Phase - I

| CORRIDOR                                    | Length (KM) |              |                | Total        |
|---|-------------|--------------|----------------|--------------|
|   | At Grade    | Elevated     | Under - Ground |              |
| <b>LINE 1</b>                               |             |              |                |              |
| Shahdara - Sithala                          | 4.5         | 17.50        | 0.0            | 22.0         |
| <b>LINE 2</b>                               |             |              |                |              |
| Central Secretariat                         | 0.0         | 0.0          | 11.0           | 11.0         |
| <b>LINE 3</b>                               |             |              |                |              |
| Barakhamba Road -<br>Connaught Place-Dwarka | 0.0         | 21.68        | 1.12           | 22.8         |
| Barakhamba Road -<br>Indraprasaha           | 0.0         | 1.75         | 1.05           | 2.8          |
| Extension of Line 3<br>into Dwarka Subcity  | 0.0         | 6.5          | 0.0            | 6.5          |
| <b>Total</b>                                | <b>4.5</b>  | <b>47.43</b> | <b>13.17</b>   | <b>65.10</b> |

## Delhi Metro - Phase - II

| CORRIDOR                            | Length (KM) |              |                | Total         |
|-------------------------------------|-------------|--------------|----------------|---------------|
|                                     | At Grade    | Elevated     | Under - Ground |               |
| Vishwavidyalaya-<br>Jahangir puri   | 0.0         | 5.42         | 0.94           | 6.36          |
| Central Secretariat-<br>Qutab Minar | 0.0         | 0.0          | 11.76          | 11.76         |
| Shahdara -<br>Dilshad Garden        | 0.0         | 3.09         | 0.0            | 3.09          |
| Indraprastha-<br>New Ashok Nagar    | 2.0         | 6.07         | 0.0            | 8.07          |
| Yamuna Bank-<br>Anand Vihar ISBT    | 0.0         | 6.17         | 0.0            | 6.17          |
| Kirti Nagar- Mundka                 | 0.0         | 18.46        | 0.0            | 18.46         |
| Dwarka Sec. 9 - 21                  | 0.0         | 2.50         | 0.0            | 2.50          |
| Qutab Minar-<br>Arjan Garh          | 0.0         | 8.70         | 0.0            | 8.70          |
| Central Secretariat-<br>Baderpur    | 0.0         | 15.0         | 5.16           | 20.16         |
| Airport Express Link                | 4.80        | 1.65         | 12.35          | 18.8          |
| Dwarka<br>Sec. 9 -Airport           | 0.0         | 1.3          | 2.7            | 4.0           |
| Arjan Garh-<br>Sushantlok (Gurgaon) | 0.0         | 7.05         | 0.0            | 7.05          |
| Delhi Border<br>Sec.32 (Noida)      | 0.0         | 7.0          | 0.0            | 7.0           |
| <b>Total</b>                        | <b>6.80</b> | <b>82.41</b> | <b>32.91</b>   | <b>122.12</b> |

|                                    |  |
|------------------------------------|--|
| Phase-I (Elevated)                 |  |
| Phase-I (U/G)                      |  |
| Phase-II (Elevated)                |  |
| Phase-II (U/G)                     |  |
| Airport Express<br>Link (Elevated) |  |
| Airport Express<br>Link (U/G)      |  |
| Station                            |  |
| Depot                              |  |
| Railway Line                       |  |

## ① C W GAMES VENUES

- 1 Jawaharlal Nehru Stadium
- 2 Maj. Dhyanchand National Stadium
- 3 I G Sports Complex
- 4 Dr Karmi Singh Shooting Range
- 5 Thyagaraj Sports Complex
- 6 Talkatora Stadium
- 7 Sirifort Sports Complex
- 8 Yamuna Sports Complex
- 9 Delhi University Ground

## PHASE - 1

1. Shahdara – Rithala 22.0 Km.;
2. Central Secretariat 11.0 Km.;
3. Barakhamba Road—Connaught Place – Dwarka and then Dwarka Subcity – 29.3 Km.,
4. Barakhamba Road- Indraprastha extension – 2.8 Km.

Total : 65.10 KM

## PHASE - 2

**Vishwavidyalaya** – Jahangirpuri – 6.36 Km; Central Secretariat – Qutab Minar – 11.76 Km. Shahdara – Dilshad Garden – 3.09Km.; Indraparastha- New Ashok Nagar- 8.07Km.; Yamuna Bank-Ananad Vihar ISBT- 6.17 Km.; Kirti Nagar-Mundka- 18.46.; Dwarka Sec. 9-21- 2.50 Km.; Qutab Minar – Arjan Garh – 8.70 Km.; Central Secretariat- Badarpur – 20.16 Km.; Airport Express Link – 18.80 Km.; Dwarka Sec. 9- Airport -4.00 Km. Arjan Garh – Sushantlok (Gurgaon) – 7.05 Km.; Delhi Border Sec. 32 (Noida) – 7.00 Km.

# METRO MEGA EXPANSION NOW

WILL ADD 70KM NETWORK; TO BE COMPLETED IN FIVE YEARS

## METRO PH III : WORK STARTS IN APRIL

- Work on phase III is expected to start in April 2011
- Detailed project report will be sent to Delhi and Central governments after including suggestions by the former
- Funding for the project yet to be decided. Phases I and II were funded by Delhi government, Centre and Japan International Co-operation Agency (JICA)
- DMRC has already started geo-technical surveys and is finalizing station designs and other preliminary work
- Phase III will have 23 interchanging stations, unlike phases I and II where interchanging stations are just two or three



## SOME SUGGESTED STATIONS IN DIFFERENT CORRIDORS OF PHASE III



- Anand Vihar, Mayur Vihar, Hazrat Nizamuddin, Ashram, Lajpat Nagar, South Extension, SJ Hospital, Moti Bagh, Dhaula Kuan
- Malviya Nagar, Saket DC-GK II, Kalkaji Extension, Okhla Industria Area Jasola, Kalindi Kunj, Noida Sector 18 (Delhi section only)
- Central Secretariat-Mandi House, ITO, Delhi Gate, Darya ganj, Red Fort

## Urban Relief Roads

To identify additional/alternative links and access corridors. Subject to feasibility, along drains (including their covering). The following priority stretches for provision of urban Relief Roads have been identified.

- (i) Shankar Road – alternative elevated road may be explored.
  - (ii) Vikas Marg
  - (iii) Extension of NH-24 to join Mathura Road (near Humayun's Tomb).
  - (iv) Prem Bari Pul (Pitampura) to Outer Ring Road along disused Western Yamuna Canal.
  - (v) Road between Nehru Place and Hotel Park Royal to be extended up to Lotus Temple and towards East of Kailash, if feasible.
  - (vi) Badarpur Border entry point.
  - (vii) Karol Bagh (new Rohtak Road) – alternative alignment by extending Arya Samaj Road through Anand Parbat to connect existing roads leading to Patel Road and Shivaji Marg on ROB or RUB.
  - (viii) More bridges on river Yamuna (at Geeta Colony, Mayur vihar, etc. – alignments of Platoon Bridges can be considered.)
  - (ix) Along drains passing through Lajpat Nagar, Defence Colony, Sarai Kale Khan, Lodhi Road, etc.
- i. Sarita Vihar (Junction of Mathura Road and Road No. 13-A) to Okhla Industrial Areas (Road between Ph land Ph. II to be connected by ROB or RUB)
  - ii. Elevated road corridor between Connaught Place and East Delhi (Marginal Bundh Road)
  - iii. Missing link and Outer Ring Road from NH-8 to Najafgarh Road.

## Underground Roads :-

Vehicular traffic is a major contributor to the air pollution in Delhi. In order to reduce road congestion and the level of pollution, the possibility of having Underground Roads or Tube roads in critical areas needs to be considered. Such measures, together with provision of Metro Services will also help to make historically important areas like Connaught Place, Chandni Chowk and Karol Bagh etc. pedestrian friendly. With advancement in technology, and a better climate for private participation and investment in infrastructure development, such proposals could be explored.



#### 4 Grade Separators

#### 5 Freeways

Freeways are defined as divided arterial highways for vehicular traffic with full access control and provided generally with grade separation at intersections.

With such a network of Freeways, Highways, MRTS and Electric Multiple Units (EMUs) a 2 to 3 hour movement network can be generated which will cover entire NCR. This will encourage interaction between Delhi and NCR towns.

#### 6 Mass Rapid Transit System (MRTS)

##### Synergy Between Transport and Land Use

Development should take place according to new corridors of mass movement. This is particularly true for the Metro Rail System. In this context the Metro corridors up to a certain depth would require selective re-development and re-densification/ intensification of existing land uses based on site conditions. It is proposed that comprehensive redevelopment schemes of the influence area of MRTS stations be prepared.

8 BUS : On all roads with ROW greater than 30 m exclusive bus lanes will be planned to implement the Bus Rapid Transit System (BRTS) in a phased manner to cover the whole city.

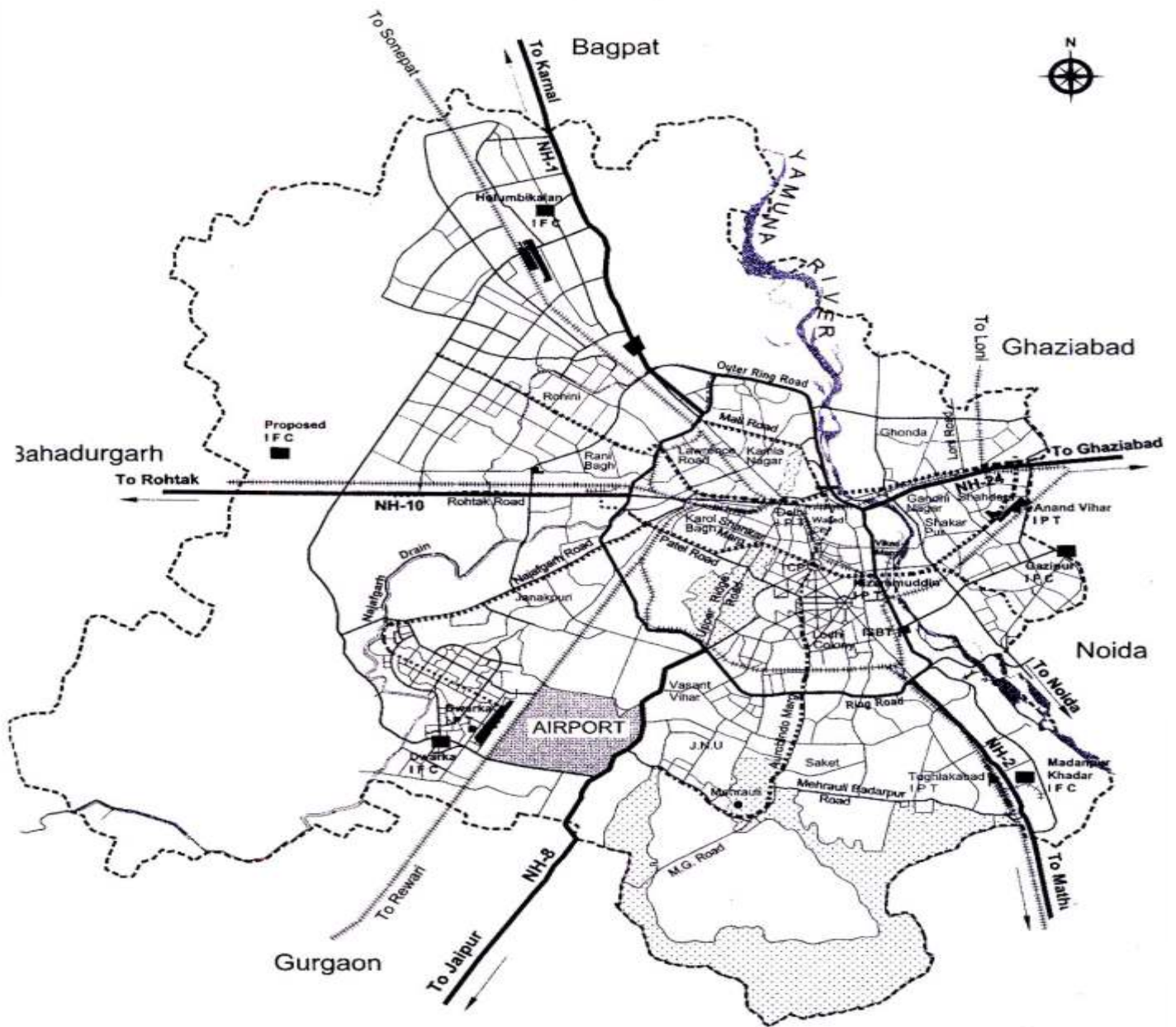
#### 9 BICYCLE / CYCLE-RICKSHAW

1. On all arterial roads fully segregated cycle tracks should be provided with provision for safe parking in park and ride lots.
2. In urban extension, cycle tracks should be provided at the sub-arterial and local level roads and streets.
3. In specific areas, like the Walled City/Chandni Chowk/Sadar Bazar/Karol Bagh/ Lajpat Nagar and Trans Yamuna Area, the use of cycles/rickshaw as a non-motorised mode of transport should be consciously planned along with pedestrianisation.

#### 10 TRANSPORTATION FOR SPECIAL AREAS

In order to manage the additional traffic of Metro stations at Old Delhi, Chandni Chowk and Chawri Bazar, the following management measures are required to be taken:-

# TRANSPORTATION : ROAD, RAIN, & MRTS NETWORK



## Legend

|  |                  |  |                |  |                                     |
|--|------------------|--|----------------|--|-------------------------------------|
|  | Road 90m. R.O.W. |  | Railway Line   |  | Integrated Passenger Terminal (IPT) |
|  | Road 60m. R.O.W. |  | M.R.T.S.       |  | Integrated Bus Terminal (IBT)       |
|  | Road 45m. R.O.W. |  | State Boundary |  | Integrated Freight Corridor (IFC)   |
|  | Road 30m. R.O.W. |  | River Yamuna   |  |                                     |

... particularly with ... meets individual ... g and non-polluting

- i. Need based Traffic circulation schemes integrating various modes.
- ii. Improvement of major road stretches and intersections like Ajmeri Gate, Fountain Chowk, Fatehpuri Chowk, Kaudia Pul, Khari Baoli, etc.
- iii. Removal of encroachments from footpaths to facilitate smooth movement.
- iv. The movement of heavy vehicles will continue to be banned in the Walled City. However, for the services of this area Light Commercial goods vehicles may be allowed during the night.

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#### RAIL:

In the National Capital Territory of Delhi both intercity and intra-city passenger movements are being catered to by the existing rail network comprising the Regional and Ring Systems respectively.

In order to improve the rider-ship on Ring Rail, the following is proposed.

- a) Intensive land use around the following :
  1. Anand Parbat
  2. INA Colony
  3. Pusa Institute,
  4. Kirti Nagar,
- b) Accessibility improvement and augmentation of infrastructure on ring rail stations :
  - i. Shivaji Bridge
  - ii. Bhairon Marg,
  - iii. Kasturba Nagar (Sewa Nagar)
  - iv. Lajpat Nagar
  - v. Kirti Nagar
  - vi. Shakur Basti
- c) Provision of Halt Stations on ring rail at the following locations:
  - i. Moti Bagh
  - ii. Bhairon Road
  - iii. Hans Bhawan (ITO)
  - iv. Ganesh Nagar
  - v. Preet Vihar
  - vi. Shyamlal College

The interchange points of Regional Road, MRTS, Ring Rail and any other future rail network should be developed as interchange stations/convergence zone. The change over facilities should include approach roads, pedestrian walkways, shuttle services, wherever feasible parking, areas for various modes including feeder buses, and adequate public conveniences, etc.

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#### Intercity Passenger Movement

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**Rail :**

At present there are 43 railway stations in Delhi. The total passengers catered to at these stations in 2001 are 12.08 lakh/day including about 9.06 lakh commuters. Out of these stations, major stations category more than 1.0 lakh passengers per day are:

|                |           |
|----------------|-----------|
| Delhi Junction | 2.72 lakh |
| New Delhi      | 3.19 lakh |
| Nizamuddin     | 128 lakh  |
| Sadar Bazar    | 1.00 lakh |

Five directional Metropolitan Passenger Terminals (MPT) have been proposed to decongest the central area. These are:

- i. Anand Vihar, East Delhi
- ii. Bhartal in Dwarka, South-West Delhi
- iii. Holumbi Kalan in Narela, North Delhi
- iv. Tikri Kalan, West Delhi
- v. Hazrat Nizamuddin, South West Delhi

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**Bus :**

In order to cater to the additional passenger requirements, it is proposed to develop the following IBTs (10 Ha each ) along the Metropolitan Passenger Terminals.

- I. At Bhartal, Dwarka
- ii. At Holambi Kalan, Narela Subcity.
- iii. At Sarai Kale Khan, the existing Bus terminal should be upgraded and be linked to hazrat Nizamuddin Railway Station.
- iv. At Tikri Kalan.

Apart from above ISBT, it is proposed to identify exclusive bus terminal sites at the intersection points of NH and outer ring road/ ring road to cater to the passenger movement.

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**Goods Movements**

- i. Goods movements by Rail

Presently the goods are terminating as below:-

|                       |   |   |
|-----------------------|---|---|
| Iron and Steel        | — | Tuglaqabad (Bahadurgarh) Thereafter by road to Naraina. |
| Food Grains           | — | Delhi Cantt. Narela, Ghevra                             |
| Coal                  | — | Badarpur Border, Rajghat, I.P. Thermal Power Station.   |
| Fruits and Vegetables | — | Naya Azadpur  |
| Fuel                  | — | Shakur Basti, Naya Azadpur, Safdarjung Rai siding.      |

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## Goods Movement by Road

Major share is handled by the points at NH-8, NH-1, NH-24 and Kalindi Kunj, On an average day in 2001, About 68,808 goods vehicles were entering and /or leaving Delhi in 2001.

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## Integrated freight complexes

- i. Madanpur Khadar (NH-2)
- ii. Gazipur (NH-24)
- iii. Narela (NH-1)
- iv. Dwarka (NH-8)
- v. New site in Urban Extension (Rohtak Road) Tikri Kalan

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## Development Control Norms and Permissibility

- i. Fuel stations shall be located on roads of minimum 30m ROW.
- ii. The plot size for fuel stations shall be minimum of 30m X 36m and maximum of 33m X 45m (75m X 40m for CNG mother station as per requirement).

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## CNG Service Stations :

While finalizing Zonal Plans, efforts may be made to integrate such service stations in the Plan.

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## Parking :

- i. Along streets, which are commercialised.
- ii. In planned commercial centres.
- iii. In residential colonies.
- iv. In the large institutional complexes following steps would be necessary.  
All existing areas concentration of business/ commercial activity.

Major corridors along which commercial activity

In all new Commercial/ Business/Industrial centres.

The development of multi level parking facilities may be taken up, wherever, feasible in a public private partnership framework, with private sector investment and involvement, for which incentives may be provided by way of land use and FAR etc.

The use of basement wherever provided for parking, must be strictly adhered to.

All encroachments on land earmarked for public parking should be removed. Wherever feasible, space on roofs, under stairs and basements should be exploited to the optimum for parking so as to reserve the max, ground space for landscape development, pedestrian movement etc.

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## Parking Facilities in DTC Depots

The use of DTC terminals and depots for development of public parking along with parking of DTC buses, private buses and Chartered buses, should be explored and specific projects development.

## 22 Underground Parking

## 23 Parking in Residential Areas

- (i) All the encroachments on residential streets in the form of kitchen gardens/ roadside private greens, large projections/ ramps, etc. need to be removed.
- (ii) Road cross sections may be redesigned wherever possible to accommodate planned car parking along the residential streets, and also creating more surface movement space.
- (iii) Other options, in selected areas, such as creation of underground parking below parks and open spaces will also have to be considered.
- (iv) Resident Welfare Associations will have to be called upon participate in this process by raising contributions from the residents on the basis of objective criteria such as number of cars owned, etc.
- (v) Problem of congestion arising on account of the traffic generated by schools have to be specifically addressed, and the main responsibility for putting up the required additional facilities has to be borne by the schools themselves. Policy guidelines will have to be evolved for this purpose.

## 24 Parking Standards

## 25 Multi Level Parking

- (i) Minimum Plot Size – 1000 sqm.
- (ii) In order to compensate the cost of Multi-level parking and also to fulfill the growing need to parking spaces within urban area, a maximum of 25% of gross floor area may be utilized as commercial / office space.

## 26 Development Control for Transportation. Proposed Multi-Level Parking Sites

## NDMC

- i. Baba Kharag Singh Marg
- ii. Behind Hindustan Times Building, Kasturba Gandhi Marg
- iii. Sarojini Nagar

## MCD

- i. Hamilton Road
- ii. Lajpat Nagar
- iii. Bahadur Shah Zafar Marg
- iv. Green Park
- v. Rajinder Nagar
- vi. Anupam PVR, Saket
- vii. Rajouri Garden
- viii. Sant Nagar, Ravi Bagh Market
- ix. Parade Ground
- x. Kamla Nagar
- xi. Ramlila Ground
- xii. South Extension Part- I
- xiii. South Extension Part – II
- xiv. Mehrauli
- xv. Greater Kailash
- xvi. Shastri Park, Karol Bagh

## DDA

- i. Nehru Place district Centre
- ii. Mangalam Place District Centre

### NOTE

In addition to above, the concerned agencies shall finalise other sites from time to time.