

7.9.1 Functional Hierarchy

In the existing road network, except for defining National Highways no other road has been specifically defined according to its functions. The Master Plan 2015 has broadly defined them as under:

- Ring Roads – Core Ring Road (CRR), Outer Ring Road (ORR), Peripheral Ring Road (PRR), Intermediate Ring Road (IRR), Satellite Township Ring Road (STRR)
- Expressways– Airport Link Road
- Highways – National Highways, State Highways
- Arterial Roads
- Sub-arterial roads
- Other link roads

It is however suggested that for new roads, we may clearly define them as shown in the **Table 7.7** below and provide them with adequate protective green belt beyond their right of way in order control direct access and avoid ribbon development:

Table 7.7 Functional Hierarchy of Roads

Road Nomenclature	Functional Characteristics	Minimum Suggested Right of Way (ROW)	Restricted green belt beyond the ROW
R-1	Access controlled Expressway with proper service roads like Peripheral Ring Road, Expressway linking the Town with New airport, Other Regional Roads like the Intermediate Ring Road and the Satellite Towns Ring Road etc.	100 Mts	30 Mts.
R-2	Arterial Roads	80 Mts	15 Mts
R-3	Secondary Roads/ Sub-Arterial Road providing main internal access in functional areas– Industrial, residential, institutional and commercial areas.	45 Mts	
R-4	Access Roads providing access to individual properties. No kerb parking is to be provided	20 Mts.	

The suggested cross-sections for the above categories of roads are shown in **Figure 7.3**. It is suggested that in order to control the development along R-1 & R-2 roads, legislation similar to the ‘the Punjab Scheduled Roads and Controlled Areas Restriction of Unregulated Development Act, 1963’ may be enacted.

7.9.2 Major Road Proposals

7.9.2.1 Ring Roads

The City would be looking at significantly altering the radial, “through the core” traffic pattern by improving / developing key “rings,” in the BBMP, BDA, and BMRDA jurisdictions:

- **Core Ring Road (CRR):** Of about 30 km length, around the core area, this would form the primary “bypass” to the inner core BBMP area. This road may be constructed as an elevated corridor, to minimize land acquisition. The ground level carriageways may be reserved for public transport i.e. BRT, while the private vehicles and Para transit vehicles should use the elevated deck. However this proposal will also entail improvement to the radials meeting it and their junctions with the CRR.
- **Outer Ring Road (ORR):** Is at a radius of 7 to 10 km from the city center. The outer ring road covers a total length of 62 km and connects all major roads and highways in and around Bangalore. However, by efflux of time, the ORR has almost become a city road, with local traffic and many signaled intersections, and development all around. At present this road has a number of bottlenecks and kinks. Infact near Pantarapalya on Mysore for about 6.5 Kms the ORR follows the Mysore Road radial corridor only. The proposals consist of realigning the ORR at a couple of points and providing 2 fly-overs where the ORR has some common portions with Sarjapur Road and Bannerghatta Road. These proposals are to be carried in small lengths totaling up to about 16.6 Kms and are indicated in the Table 7.8 below. On the eastern crescent of this road, BRT corridor with exclusive segregated lanes and allied facilities for operating high capacity buses has been proposed, while on its western crescent Monorail / LRT has been proposed.

Table 7.8 Outer Ring Road Re-alignment

S. No	Stretch	Length km
1	Elevated road along Bangalore University Road	2.5
2	Realigning ORR between Magadi Road and Pipe Line Road	1.9
3	Realigning ORR at Tumkur Road through CMTI	1.2
4	Realigning ORR from Kasturi Nagar to Mahadevapura along Selam railway line	5
5	Elevating ORR along common portion with Sarjapur Road	2
6	Elevating ORR along common portion with Bannerghatta Road	1
7	PESIT to Janabharti Entrance Bangalore University	3
	Total	16.6

- **Peripheral Ring Road (PRR):** The Master Plan 2015 has proposed a Peripheral Ring Road of around 114 km around Bangalore at a radial distance of 2.80 to 11.50 km from the existing outer ring road. On the western side of the city just about 1 to 5 Kms inside the PRR an access-controlled expressway is already being constructed under the auspices of the Bangalore Mysore Infrastructure Corridor Area Planning Authority (BMICAPA) through Private Sector. This Expressway connects NH-7 (Hosur Road) and NH-4 (Tumkur Road) covering approx. 41 Kms. The Eastern Portion of the PRR between NH-4 & NH-7 via Old Madras Road, Airport Road should be taken up immediately to be followed by implementation of the western portion. The entire PRR should have exclusive segregated lanes and allied facilities for operating high capacity buses as BRT system. Along this Ring Road at its Junctions with Hosur Road (NH-7), White Field Road, Old Madras Road (NH-4), Bellary Road, Tumkur Road and Mysore Road, six Integrated Freight Complexes (IFC) have been proposed for handling entire freight traffic. These IFCs are indicated in **Figure 7.4**. Since it is proposed not to allow the HCV's to enter the town inside the PRR, the junctions will have to be grade separated at these points. This road should be treated as R-1 and have the 30 meters restricted belt on either side beyond the ROW.

7.9.2.2 Air Port Link Road (Expressway)

An expressway has been proposed in the Mater Plan 2015 to connect the New International Airport at Devanahalli to the city. At the moment the International airport site is only approachable through the Bellary Road which being a National Highway (NH-7) carries large interstate traffic. In order to provide uninterrupted approach to the upcoming International Airport likely to be operational next year, it will be desirable that this expressway should come up early and be commissioned simultaneous with the opening of the International Airport.

7.9.2.3 Other New Roads / Missing Links

In addition to the above roads, a few small links are required to cater to the important activity areas from the major existing Network and under implementation.

Accordingly the new roads (including elevated CRR, PRR, A.P. Link Expressway and other new links proposed to be taken up are as listed in **Table 7.9** below.

Table 7.9 New Roads / Missing Links

SNo	Corridor	Length km
1	Core Ring Road (CRR) (elevated)	30
2	Arterial Roads crossing CRR	30
3	Peenya Industrial Area To Bangalore Mysore Expressway	2.2
4	Peripheral Ring Road (PRR)	114
5	Air Port Link Road (Expressway) Upto ORR	26

SNo	Corridor	Length km
6	Link from Tigalarapalaya Main Road to Nelagadarahanahalli (included in Item 42 of Parallel Ring Road (Table 7.10))	1.23
7	Link from Hesargatta Main Road to Shettihelli and Madarahelli to Mohammed Sabi Palaya (included in Item 43 of parallel ring road (Table 7.10))	4.02 (1.38 + 2.64)
8	Link from Sampigehalli to CRPF parade ground (included in Item 25 of parallel ring road (Table 7.10))	1.72
	Total	209.17

7.9.2.4 Road Improvements

The entire traffic from the BMA, the Region and even beyond converges on to the Center of Bangalore and the work areas along the radial corridors and gets dispersed through the ring roads. Most of the radials roads suffer from congestion because of their over utilization of their limited capacity. In addition the limited carriageway, the inefficiency of the junctions and their incapability to handle the volumes of traffic further reduces the capacity of the road systems. Accordingly it has found necessary that quite a few roads listed in the **Table 7.10** below will require improvement through widening 4 – 6 lane carriageway in order to cater to projected road traffic up to the year 2025. In addition at some of the critical junctions where normal signaling cannot effectively manage the traffic volumes, grade separators & flyovers will be necessary. Also at road crossings with railway lines, at some places Road Over bridges & or Road Under Bridges will be necessary. Along a few of the roads where the traffic demand far exceeds the capacity and at grade expansion is not possible due to restriction of available carriageway, elevated roads e.g. along Mysore road and Hosur Road have been provided. Accordingly the roads, both inside the ORR and out side the ORR have been identified for their improvements in terms of widening of carriageway, provision of drainage, surface improvement, foot-path etc. are listed in **Table 7.10** below. The Junctions & Road stretches requiring grade separators, ROB's and RUBs are indicated in **Table 7.11** below.

Table 7.10 Road Improvements

SNo	Name of Road	Length km
Road Improvements (Inside ORR)		
1	Bellary Rd	7.60
2	Palace Road	1.75
3	Sheshadri Road	0.50
4	Nrupatunga Road	1.10
5	Vidhana Veedhi	0.20
6	Mission Road	1.00
7	Devanga Hostel Road	0.50
8	Sankey Road	3.40
9	Lalbagh Road	0.41

SNo	Name of Road	Length km
10	Jaymahal Road	2.80
11	Hosur Road	1.60
12	Hosur Laskar Road	4.30
13	Victoria Road	1.60
14	Lower Agaram Road	2.40
15	Sarjapur Road	3.35
16	Hosur Road	4.30
17	Bannerghatta Road	4.11
18	80' Koramangala	4.00
19	Dickenson Road	0.30
20	Ulsoor Road	0.60
21	Kensington Road	0.32
22	Murphy Road	1.70
23	Old Madras Road	1.70
24	Richmond Road	5.20
25	Airport Road	5.20
26	Goods shed Road	1.35
27	Cottonpet Main Road	1.20
28	17th Main J CNagar in ward13	1.50
29	5th cross Malleshwaram	1.00
30	Commissariat Road	0.74
31	A M Road	0.75
32	Lalbagh Fort Road	1.35
33	Race Course Road	1.66
34	Kasturba Road	0.77
35	A S char street & BVK Iyengar Road	1.21
36	Vanivilas Road	0.85
37	Suranjan Das Road	3.85
38	Mysore Road	3.90
39	Mt joy Road & Kattriguppe main Road via Vidyapeeta circle	3.00
40	Mahalakshmi Layout & Nandini Layout Road via Ayyappa Temple & Singapore Layout	2.70
41	Dinnur Main Road and Kavalbyrasandra Road (via Ganganagar Sulthan Palya)	4.50
42	Hoskerehalli main Road (via Girinagar)	2.05
43	Vasanth Nagar Main Road	0.62
44	K R Road	1.16
45	Sulthan Road	0.42
46	1st main Chamrajpet	0.15
47	3rd cross Chamrajpet & Bull temple Road	1.00
48	Link Road	0.63
49	Padarayanapura Main Road	1.86

SNo	Name of Road	Length km
50	Bull Temple Road via N R Colony, Chennamma Tank bed & 30th main BSK 3rd stage	1.10
51	Infantry Road	1.83
52	Park Road	0.50
53	Hospital Road	1.10
54	Dispensary Road	0.50
55	K Kamraj Road	1.25
56	Dharmaraj Road	0.40
57	Chandini chowk	0.45
58	Meenakshi Koil Street	0.60
59	Thimmaiah Road	2.10
60	Old Poor House Road-Haine's Road	1.00
61	Millers Tank Bund Road	0.52
62	Station Road	1.30
63	Queen's Road	0.95
64	Millers Road	1.42
65	Cunningham Road	0.80
66	Road in front of Russel market	0.25
67	Dr. Ambedkar Road (Tannery Road)	4.43
68	Hennur Road	3.62
69	Banaswadi Road & Wheelers Road (via Banaswadi)	6.35
70	Hare Krishna Road	0.70
71	HMT main Road	2.10
72	Magadi Road	2.40
73	Baiyyappanahalli Main Road	3.35
74	Bapujinagar Cross Road	0.80
75	Kumaraswamy Layout Main Road	1.75
76	South Link Road	0.50
77	MTB Road	0.50
78	Kurubarahalli Main Road in ward 16	1.00
	Total	141.73
Road Improvements (Outside ORR)		
Radial Roads		
1	From Peenya II Stage to Andrahalli (via Peenya II Stage, Industrial area, Andrahalli)	4.00
2	Tumkur Road–NH4	8.80
3	New BEL Road	3.40
4	Jalahalli Main Road to Attur via Yelahanka	28.00
5	Yeshwantpur to Yelahanka	20.00
6	Doddaballapur Road.	6.00
7	Devanahalli – Hebbal Bellary Road	25.00
8	NH-7 Kogilu Junction to Nagavara Main Road	8.00
9	Dasarahalli Main Road	16.00

SNo	Name of Road	Length km
10	HBR Ring Road to Nagavara Main Road leading to Jakkur	20.00
11	HBR Ring Road to Hennur Main Road	16.00
12	Old Madras Road	5.25
13	ITPL Road from Ring Road to Hope farm	8.50
14	Varthur Road from Marathalli to Varthur Kodi	5.00
15	Varthur to Outer Ring Road via Belegere and Panathur	6.50
16	Kaigondanahalli to Sarjapur	10.00
17	Bannerghatta Road – ORR to National Park	8.60
18	Bannerghatta Road – National Park to PRR	2.40
19	Begur Road from Hosur Road to Begur	7.00
20	Kanakapura Road.	10.40
21	Ring Road to Kanakapura Road (via Ittumadu)	7.00
22	Rajarajeshwari Nagar Arch to PRR	10.00
Connector Roads		
23	From Magadi Road to NH 4(Via Sunkadakatte, Hegganahalli Main Road, Peenya II Stage, NTT circle, KIADB Main Road)	6.00
24	Peenya II Stage to Ring Road (via Peenya II Stage Bus stop, Rajgopal Nagar Main Road, Peenya Industrial Area)	3.00
25	NH-7 to Nagavara Main Road through Jakkur	16.00
26	NH-7 to Nagavara Main Road	12.00
27	Hennur Main Road to Hoskote Ring Road	10.00
28	Horamavu-Agara to HBR Ring Road	4.00
29	Horamavu Road from Outer Ring Road to Kalkere	4.20
30	T C Palya main Road from ORR to Anandapura	5.50
31	Devasandra main road from NH 4 to Basavanapura Road	1.70
32	Kundalahalli Road from Devasandra main Road to Kundalahalli gate via Hoodi	7.00
33	ITPL Road to Varthur Road via Pattanadur Agrahara & Nellurahalli	4.00
34	Sarjapur Road to Ring Road(near Devarabisanahalli)	7.00
35	Nagarthapura to Matha Amruthamayee College	5.00
36	Hosur Road to Nagarthapura (Hosur Road)	4.00
37	Begur to Hosur Road (via Begur tank Bund, Chikkabegur and Manipal County)	7.00
38	Bannerghatta Road to Begur (via Doddakammanahalli, Yelenahalli)	8.00
39	Kottur Dinne to Bannerghatta Road	5.00
40	Harinagar to Kottanur Dinne	4.00
41	Corporation Bank to Ring Road via Javaraiana doddi	4.00
Parallel Ring Road		
42	From Magadi Road to NH 4(Via Herohalli, karivobanahalli, Andrahalli, Tigalarapalya, Nelagadaranahalli, Nagasandra)	8.00

SNo	Name of Road	Length km
43	Hesaraghatta Main Road to SM Road (via Mallasandra, Shetty halli, Abbigere, Kammagondanahalli main Road, Gangammagudi Circle)	6.00
44	Vidyaranya Main Road to Hennur main Road	35.00
45	Nagavara Main Road to Kalkere Junction	8.00
46	Sarjapura Road to Kalkere via Chikkaballapur, Gujarpalya, Varthur, Hope farm, Kadugodi, Sadaramangala, Kodigehalli, Basavanapura, T.C.Palya	31.00
47	Matha Amruthamayee to Sarjapura Road(Kaigondanahalli)	5.00
48	Kanakapura Road-Amruthnagar to Harinagar	4.50
49	Kengeri to Konanakunte via Uttarahalli(end of Kanakapura Road)	13.50
50	Kengeri 80' Ring Road to Ullalu Main Road via Matha Mata	10.50
51	Begur Road to Hosur Road and Kudlu	6.00
52	B G Road to Begur Road(via BTM Layout, Kodichikkanahalli)	5.00
53	Churchaghatta Road to B G Road	6.00
54	GnanaBharati Circle to Magadi Road	11.00
	Total	502.75
	Grand Total	644.48

Table 7.11 List of Grade Separators

SNo	Location / Road
Grade Separators-Roads	
1	Hudson Circle- N.R.Road Under pass
2	Cauvery Theatre Junction-Bellary Road Grade separator
3	Minerva circle-J.C.Road Fly over
4	Nagavara Junction Along ORR Flyover
5	Hennur Banasvadi along ORR underpass
6	Sarjapur Road & ORR Jn. Along ORR flyover near Ibbalur
7	On ORR Jn. Along ORR near Agara flyover
8	Flyover along Hosur Road near Check post
9	Hosur Road-Inner Ring Road along Hosur Road fly over
10	Additional slip road at CSB intersection
11	Hosur Road Grade separator @ Attibelle
12	Along 16 main BTM Layout underpass
13	Puttenahalli along ORR underpass
14	Kanakapura Road & ORR Jn. Along ORR flyover
15	Kadirenahalli Road & ORR Jn. along ORR flyover
16	Flyover on RV road near RV Teacher College

SNo	Location / Road
17	Tagore Circle underpass on Gandhi Bazaar Main Road
18	Tumkur Road & ORR Junction along ORR Grade separator
19	Flyover along NH 4 at Jalahalli Cross
20	Underpass along pipeline road near Ayyappa Temple
21	Grade separator along Guttahalli Main Road near Guttahalli Circle
22	Grade separator at Yeshwantpur Circle near Bus Station
23	Bridge at Gali Anjaneya Junction
24	Grade separator at Malleshwaram Circle
25	Underpass at Prof. CN Rao Circle
26	Underpass along Chord Road at Magadi Road & Chord Road Junction
27	Underpass along ORR at ORR and Banaswadi Ramamurthy Nagar Road Junction
28	Grade separator at ORR & Magadi Road Junction
Road Over Bridges / RUBs–Rail	
29	ROB along MES Road near Jalahalli
30	Underpass along Link Road Connecting D Rajagopal Road & Kodigehalli Road
31	Ashoka Theatre – Pottery Road
32	Nagavara–Arabic College Road
33	Kasturinagar–Chikka–Banaswadi Road
34	Baiyyappanahalli Road
35	Kadugondanahalli Railway line along Nagavara Main Road
36	Hudi Main Road near Whitefield Railway Station
37	Construction of ORR connecting Mysore Road to Magadi Road including underpass across Bangalore Mysore Rly Line
38	Along settihalli main Road
39	Along S M Road near Gurudwara
40	Along Koigehalli Main Road near Kodigehalli Rly Stn
41	Along Hesaraghatta Main Road
42	Near Tanisandra Rly Stn
43	Along Kundalahalli Road at Kundalahalli gate.
44	Along Varthur Road near Lakshmi Layout
45	Along Panathur Main Road near Bellandur Rly Stn
46	Along Sarjapur Road
Elevated Roads	
47	Elevated Road From Sirsi Circle to ORR on Mysore Road (6.0 Km)
48	Elevated Road on Hosur Road (10.5 Km)

The above proposals are shown in **Figure 7.4**