

10 COST ESTIMATE

10.1 INTRODUCTION

The capital expenditure for the project has been assessed for the corridor (Panvel – Kopar – Vasai Road – Virar) including proposed Depot for a total length 70.14 Km from proposed buffer end at Panvel to Virar Railway station. The proposed corridor consists of 16.277 Km elevated (including 3.35 Km ramp portion) and 53.863 Km (including major bridges on rivers, highways and Railway crossings) At-grade section. A total of 24 stations are proposed (5 Elevated and 19 at-grade).

10.2 CAPITAL COST ESTIMATES

The cost estimates have been prepared covering Civil, Electrical, Signalling and Tele Communication works, Rolling stock, Environmental protection, Rehabilitation works, etc. The cost estimates are worked out at Jan'13 price level.

- The proposed elevated Fast Corridor alignment has been found feasible as a combination of elevated and At-grade, in different sections:
- At grade: from Panvel to North of Nilaje Railway Station (20.84 Km length)
- Elevated: from Nilaje to Koper including bridges over Panvel-Diva line (between Nilje-Dantivali section), connecting loop and Diva-Kalyan Main line.
- At-grade from Kopar to Juchandra Railway station (32.698 Km length including major bridges on Kaman river, Ulhas river and RUB/ROB over highways).
- Elevated from Vasai Road station and continued parallel to Western railway tracks up to Virar Railway station. (9.75Km).
- An area of approx 33 hect. for car depot is proposed at Kalwar.

While preparing the capital cost estimates, various items have been grouped under three major heads on the basis of (i) route km length of alignment, (ii) number of units of that item and (iii) item being an independent entity. All items related with alignment, whether elevated or at-grade construction, Permanent way, OHE, Signalling and telecommunication, whether in main lines or in maintenance depot, have been estimated at rate per route km basis. Few items like Rolling stock have been estimated in terms of number of units required.

The rates of various items have been adopted on the basis of reports for Elevated Corridor from Churchgate – Virar , CSTM-Panvel and Virar –Dahanu Road submitted by M/s RITES and comparable rates of other projects.

The capital cost worked out for proposed Corridor is presented in Table 10.1 (for PNVL-Virar corridor) .

The overall capital cost amounts to Rs. 6506.61 Crore at Mar'13 price level including design charges @ 2%, general consultancy charges @ 6% on all items and 5% contingencies on all items. These costs cover all taxes, like excise duty, custom duty, VAT, etc.

10.3 CIVIL ENGINEERING WORKS

10.3.1 Land

(i) Total Land requirement has been worked out to be 64.36 ha. including for the depot:

Govt. land	= 7.59 ha
Private land	= 23.6 ha.
Depot land	= 33.15 ha.

(ii) Cost of private land has been worked out area wise based on prevailing rates for commercial / residential properties as per Ready Reckoner published by Architects Publishing Corp. of India Mumbai (2011 edition) suitably increasing the same for proposed enhanced compensation based on land acquisition act. For depot land, where major area is involved, rates adopted are based on land rates given in revenue department booklet, duly increased on similar lines. However this still will be an approximate assessment as actual compensation may vary based on negotiations and sale deeds in the area.

(iii) For Govt. / Municipal land, rates adopted are based on feasibility / DPR reports of Elevated corridor from Churchgate to Virar project, as well as rates given in revenue department booklet.

10.3.2 Formation and Alignment

(i) Elevated section

(a) In Virar to Vasai Road section, proposed Corridor will be elevated. The rates adopted are based on Elevated corridor from Churchgate to Virar project rates.

(b) Extra provision has been made for crossing over the existing railway tracks from east to west or vice versa, required due to site conditions.

(c) Separate provision for ramps has been made, as the elevated corridor has to be taken to ground level and from ground level to elevated at a number of locations due to availability of land and other site conditions.

(ii) At grade section

Cost of at-grade section has been assessed considering height of embankment, blanketing, provision of boundary wall with fencing etc., utilities like minor bridges, protection work required, etc.

10.3.3 Station Buildings

(i) Elevated stations

- (a) Civil works include special design stations with 270 m length. Cost also covers the viaduct length in station.
- (b) Separate provision for E & M works has been made for elevated stations, based on Elevated corridor from Churchgate to Virar project and duly updated.

(ii) At grade stations

Civil works costs for at-grade stations has been assessed excluding alignment length, lifts and escalators, Permanent way, E & M works. Cost of E & M work excludes O.H.E. but covers escalators, lifts and other E & M items.

10.3.4 Permanent Way

For elevated sections, as well as for at-grade section, ballasted track has been proposed.

For ballasted track, the rates adopted are based on IR rates.

10.3.5 Depot at Kalwar

Cost of depot is worked out based on facilities required to be provided initially. Cost of land has also been included in cost estimates.

10.3.6 Traction and Power Supply

Provisions have been made to cover the following subheads:

- OHE (Flexible/ OHE Rigid).
- Receiving – cum Traction Sub – stations including cables, etc.
- ASS for elevated at-grade / underground stations
- Service connection charges for Receiving Sub-station
- SCADA
- Centenary's maintenance vehicle
- Miscellaneous items e.g. illumination, lifting TandP, etc.

Rates adopted for various items are based on costs of work being done for Delhi Metro.

10.3.7 Electrical Services at Stations

These are included in estimated costs of stations for underground / elevated / at grade alignment section separately. Costs of escalators, lifts for elevated / at grade stations have not been included in station E & M costs

10.3.8 Signaling and Telecommunication Works

Rates adopted are based on rates of comparable sections of other DPRs of Railway Projects undertaken by RITES. These rates include Design, manufacture and supply of equipment and their installation at site.

10.3.9 Rolling Stock

The rolling stock cost is based on rates for supply of comparable AC coaches.

10.3.10 Utility Diversions

Main Sewers / Water pipe lines are generally running across the existing Corridors. These are therefore, generally not affected and do not need diversion. Column locations of the elevated Corridor may need to be adjusted at the time of construction.

For at-grade section, Sewer and Water lines will not be affected; only drains running parallel may need diversion, provision for which has been made.

Along the existing Corridors, electrical / signal cables may need diversion / provision of new cables. To avoid interruption to the existing system, new cables will have to be laid. Provision for the same has been made.

Other important utility works required include road diversion / traffic diversions. As regards other utilities like over head electrical crossings, relocation of electrical S.Ps, old T.S.S., etc. specific provision has been assessed for each item and shown in the estimate. Provision for all other utility works has been made on route km basis.

10.3.11 Environmental Impact

Provision for environmental impacts of this Corridor has been made to cover various protection works, additional compensatory measures, compensation for loss of trees, compensatory deforestation and fencing, monitoring of water quality, air / noise pollution during construction, establishment of Environmental Division, etc.

Rehabilitation and Resettlement

Private structures – Provision towards compensation/rehabilitation of these structures likely to be affected has been assessed after site inspection. Adequate provision has been made to cover cost of hutments and other structures. Provision for cost of relocation of hutments on Govt. land has also been made.

Provision for relocation cost of railway structures has also been made and shown separately.

10.3.12 Inter Modal Integration and Dispersal Facilities

The Transport Integration measures are proposed to facilitate efficient transfer/ dispersal of passengers from/ to the proposed system and effective inter-modal interchange of the passengers with the feeder modes including walk. These measures also aim to provide the proposed system's integration with the entry/ exits of existing suburban system and upcoming transport infrastructure.

The suggested measures aim to augment the present transport infrastructure and dispersal facilities to handle the additional traffic volumes. These include traffic management, removal of soft encroachments, up-gradation/ widening of walkways, pedestrian cross-over facilities, new/ augmented bus/ IPT stands, planned pick-up/ drop-off areas and parking facilities.

The exercise for planning of the inter-modal integration and dispersal facilities has been carried out for all the proposed 24 stations. These are in addition to the station dispersal facilities described as part of the architectural report. Block cost estimates of these proposed measures have been worked out based on similar recent works in Mumbai.

10.3.13 Road Traffic Diversion

The proposed measures include the construction of traffic diversion roads/ footpaths, temporary shifting of IPT/ Bus stands and associated barricading.

10.3.14 Public Awareness and Education Campaign

Public awareness and education campaign will be done through newspapers, electronic media, workshops, etc for the implementation of the traffic diversion and transport integration.

10.4 COST ESTIMATE

The Capital cost estimates under various heads are presented at **Table 10.1**



Table: 10.1 Capital Cost Estimate

Mar'13 Price Level

Start Chainage = (-) 0.140 Km, End Chainage = 70.0 Km, Total length of corridor = 70.14 Km

Elevated =16.277 km, At Grade = 48.326 Km, and Bridge length = 5.537 Km

Total Station = 24 No.s, Elevated = 05 No.s at Grade= 19 No.s

S. No.	Item	Unit	Qty.	Rate (Rs . Cr)	Amount (Rs.Cr.)
1	Land and structures				
	Govt	Hac	7.5978	As per	105.35
	Private	Hac	54.6305	RR and LA Act	683.41
	Sub Total (1)				788.76
2	Alignment and Formation				
2.1	Elevated section excluding viaduct length in station	Route. Km.	14.93	60.0	895.80
2.2	At Grade section including Station length excluding bridges length.	Route. Km.	48.326	7.20	347.95
2.3	Bridge length	RM	5537	0.16	885.92
2.4	Provision of Box under ROB	Each	1.00	5.0	5.0
	Sub Total (2)				2134.67
3	Station Buildings				
3.1	Elevated stations 270 m length Including Viaduct (for 12 cars)				
a	Civil works	Each	3	58.00	174.00
b	EM works etc. including lifts,escalators & DG set	Each	3	7.18	21.54
3.2	Terminal Stations (Elevated) at Virar				
a	Civil Works including viaduct length	Each	1	68.70	68.70
b	EM works etc. including lifts,escalators & DG set	Each	1	8.54	8.54
3.3	At Grade Stations				
a	Civil works	Each	19	10.00	190.00
b	EM works etc. including lifts,escalators & DG set	Each	19	5.00	95.00
3.4	Terminal Station (At Grade) Stations at Panvel				
a	Civil works	Each	1	20.00	20.00
b	EM works etc. including lifts,escalators & DG set	Each	1	5.00	5.00
	Sub Total (3)				582.78
4	P-Way				
4.1	Ballasted track for main line track	Route. Km.	70.14	3.58	251.10
4.2	Ballasted track for loops, sidings	Km.	6	2.82	16.92
	Sub total (4)				268.02
6	Traction & power supply incl. OHE, ASS etc.				
6.1	OHE	R.Km.	70.14	1.00	70.14
6.2	TSS	LS	2.00	30.00	60.00
6.3	GS	LS	1.00	20.00	20.00



6.4	SP/SSP	No	3	10.0	30.0
6.5	SCADA	no	1.00	5.00	5.00
6.6	M&P Items	LS	1.00	30.00	30.00
	Sub total (6)				215.14
7	Signalling and Telecom.				
7.1	Signaling & Telecommunications System	Route. Km.	70.14	3.50	245.49
	Sub Total (7)				245.49
8	Relocation of Govt. Structures	LS			50.00
	Sub Total (8)				50.00
9	Environmental, R&R (Hutments)				
a	Environmental				9.72
b	Social cost of R&R (Hutments)				1.62
c	Misc. items @ 10% of sub total	LS			1.13
	Sub Total (9)				12.47
10	Utilities				
10.1	OHE modifications	LS			20.00
10.2	Modification of Electrical crossing	R. Km.	70.14	0.50	35.07
10.3	Modification of Signal and Telecommunications Cables including provision of cable duct	LS			20.00
10.4	Relocation of Elect & Signal Building including Provision equipment like Sub Station, SSP,SP etc.	LS			5.00
10.5	Other Utilities diversion/modification	R. Km.	70.14	1.00	70.14
	Sub Total (10)				150.21
11	Development of Traffic Integrations and dispersal facilities				
11.1	Inter Model integration & dispersal facilities, Traffic Diversion During construction				110.00
	Sub Total (11)				110.00
12	Depot				
12.1	Works (Civil & E/M, M&P)	LS			300.00
	Sub total (12)				300.00
13	Total of all items (2 to12) except Land				4068.78
14	Design charges @ 2 % on all items except land				81.38
15	D & G Charges @ 8.5% on all items except land				345.85
16	Total of all items including Design and D & G Charges (excluding Land)				4496.0
17	Rolling Stock	Each	228	4.00	912.00
	Total of item 17 & 18				5408.00
18	Total Cost including land				6196.77
19	Contingencies @ 5 %				309.84
20	Gross Total				6506.61

10.5 OPERATION AND MAINTENANCE COST

The Operation and Maintenance costs are worked under three major heads:

- Staff costs
- Maintenance cost which includes expenditure towards upkeep and maintenance of the system and consumables and
- Energy costs

The estimation of cost for Additional Rolling Stock and Replacement of assets are considered and worked out in the subsequent years.

10.5.1 Staff Cost

The O&M staffs is assumed to be provided @ 35 persons per kilometer and the annual cost on this account for the Virar- Panvel section is estimated at Rs 163.76 crores at 2021 prices. The escalation factor used for staff costs is 5% per annum to provide for growth in salaries.

10.5.2 Maintenance Expenses

Maintenance expenses are taken @ Rs.1.5 crores/km. based on the maintenance unit cost of Delhi Metro Phase-I and Phase-II projects and Delhi Metro Phase-III Detailed Project Report. The maintenance cost for Virar- Panvel section Rs. 163.22 crores at 2021 prices. These costs have been escalated @5% p.a.

10.5.3 Energy Charges

The cost of electricity is estimated to be a significant part of O&M charges, constituting about 40% of total annual working cost. The traction power tariff of Tata Power Corp. / MSEDCL in Mumbai is about Rs 5.50 per unit in the year 2012. Energy consumption in inception year 2021 is estimated as 78.60 million units and by assuming escalation of 5%, per unit rate in 2021-22 be around Rs 8.53 and total energy cost will be about Rs 67.06 crores in 2021. It is assumed that after 2021 energy rates are increased by 5% after every two years. Projected energy cost in year 2026, 2031 and 2041 is summarized as under;

Year	2021	2026	2031	2041
No. of Cars / Train	12	12	12	12
Headway in min	15	10	8	5
Energy Consumption in Million units	78.60	113.96	134.90	206.02
Unit Cost of energy in Rs	8.53	9.41	10.89	13.24
Updated cost @ 5% per	67.06	107.20	146.90	272.69

annum escalation				
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10.5.3.1 Additional Investment

To meet the traffic growth, procurement of additional rolling stock will be required in year 2021, 2026, 2031 and 2041 as under;

Year	2021	2026	2031	2041
No. of Cars / Train	12	12	12	12
Headway in min	15	10	8	5
Total Rakes	19	21	33	48
Total Coaches	228	252	396	576
Addl Coaches	---	24	144	180
Cost in Rs. Cr at 2012 prices	912	96	576	720

Initial investment for rolling stock is taken as Rs 912 Cr at 2012 prices for 228 coaches. Requirement for Rolling Stock will increase to 252 coaches in 2026, 396 coaches in 2031 and 576 coaches in year 2041. Incremental investment will be required to cope up with growth in traffic for purchase of 24 coaches in 2026 costing Rs. 190.07 crores, Rs. 1455.52 crores in 2031 for purchase of 144 coaches and Rs. 3267.39 crores in 2041 for purchase of 180 coaches. The cost figures are updated to prices of year of purchase (i.e. 2026 or 2031 Or 2041) considering an escalation factor of 5% p.a. These costs have been provided to take care of increased requirement of Rolling Stock and related equipments to take care of the increased traffic as the existing rolling stock would not be sufficient to carry the projected traffic.

10.5.3.2 Replacement Cost

The replacement costs are provided for meeting the cost on account of replacement of equipment due to wear and tear. With the nature of equipment to be provided for the corridor, it is expected that only 10% of the equipment comprising Electrical, P-way and signaling & Telecom would require replacement/ rehabilitation after 20 years. Further 25% of project cost comprising of Rolling stock and traction is expected to have a life of 30 years after which it shall required to be replaced. Accordingly, provision of Rs1547.55 cr and Rs 6302.01cr has been made in year 2041 and 2051 respectively by applying escalation @ of 5% per annum for replacement of rolling stock. Similarly replacement cost of other assets excluding land corresponding to 10% (Rs 566.87 cr) and 25% (Rs 1417.19 cr) of the project cost has been taken. The year wise total Operation and Maintenance cost for the Virar to Panvel is given in **Table 10.2**.

Table 10.2: Operation and Maintenance Cost (PNVL -VIRAR Section)

O&M COST FOR PANVEL –VIRAR LINE



Year	Staff Cost	Maintenance Expenses	Energy Charges	Total O&M cost	Addition/ Replacement Cost
2021	163.76	163.22	67.06	394.04	
2022	171.95	171.38	67.06	410.38	
2023	180.54	179.94	70.41	430.90	
2024	189.57	188.94	70.41	448.93	
2025	199.05	198.39	73.93	471.37	
2026	209.00	208.31	107.20	524.52	190.07
2027	219.45	218.72	112.56	550.74	
2028	230.43	229.66	112.56	572.65	
2029	241.95	241.14	118.19	601.28	
2030	254.04	253.20	118.19	625.44	
2031	266.75	265.86	146.90	679.50	1455.52
2032	280.08	279.15	146.90	706.13	
2033	294.09	293.11	154.24	741.44	
2034	308.79	307.77	154.24	770.80	
2035	324.23	323.16	154.24	801.63	
2036	340.44	339.31	161.95	841.71	
2037	357.47	356.28	161.95	875.70	
2038	375.34	374.09	170.05	919.48	
2039	394.11	392.80	170.05	956.95	
2040	413.81	412.44	178.55	1004.80	
2041	434.50	433.06	272.69	1140.26	3267.39
2042	456.23	454.71	272.69	1183.63	2449.99
2043	479.04	477.45	286.33	1242.82	
2044	502.99	501.32	286.33	1290.64	
2045	528.14	526.39	300.65	1355.17	
2046	554.55	552.70	300.65	1407.90	
2047	582.27	580.34	315.68	1478.29	
2048	611.39	609.36	315.68	1536.42	
2049	641.96	639.82	315.68	1597.46	
2050	674.06	671.82	331.46	1677.33	
2051	707.76	705.41	331.46	1744.63	9501.87



Annexure 10.1: Cost of govt. Land and Govt. properties other than Rly. For Running Section for VR-PNVL

S. No.	Section	Chainage	Vacant Land in sqm	Property affected	No of floor	Type of property	Area of GF	Total area of Building	Rate per sqm	Cost in Lacs	Ready Reckoner No.Thane District-2012	Remarks
1	Panvel-New Panvel	864.271-1127.746	3385						26300	890.255	Pg.238	CIDCO
3	Panvel-New Panvel	1195.729-1330.918	2473						26300	650.399	Pg.238	CIDCO
4	New Panval	1330.918-1615	10371						26300	2727.57	Pg.238	CIDCO
5	New Panvel-Tembode	1615.00-1793.298	4282-90.036	Less area of Str.					26300	1102.486	Pg.238	CIDCO
6	New Panvel-Tembode	1615.00-1793.298		Educational		Pvt	90.036	90.036	53500	48.169	Pg.238	Govt.
7	New Panvel-Tembode	2193.062-2343.067	4219						3900	164.541	Pg.125	CIDCO open land
8	Tembode	2343.067-2619.661	8950						3900	349.05	Pg.125	CIDCO land
10	Tembode-kalamboli	3991.384-4418.121	3527						18900	666.603	Pg.238	FCI land
11	Kalamboli	4941.712-4979	340.920						18900	64.433	Pg.238	FCI land
12	Kolamboli-Navade Road	5546.465-5838.688	5598						18900	1058.022	Pg.238	FCI land
13	Kolamboli-Navade Road	5838.688-5900	1145						18900	216.405	Pg.238	FCI land
14	Kolamboli-Navade Road	5900-6248.401	6011						8010	481.481	Pg.253	FCI land



S. No.	Section	Chainage	Vacant Land in sqm	Property affected	No of floor	Type of property	Area of GF	Total area of Building	Rate per sqm	Cost in Lacs	Ready Reckoner No.Thane District-2012	Remarks
23	Taloja-Nighu	13100		FCI factory	1	Commercial	418.374	418.374	41000	171.533	Pg.251	Govt.
76	Juchandra-Vasai road	61567.252-61970.335	4949						5000	247.450	Pg.201	Govt. land (salt pan)
77	Juchandra-Vasai road	61970.335-62195	2981						5000	149.050	Pg.201	Govt land (salt pan)
82	Vasai road	62500-62575	459						5000	22.95	Pg.201	V.V.M.C land
83	Vasai road	62669.136-62843.808	2983						5000	149.15	Pg.201	V.V.M.C land
85	Vasai Road-Nalasopara	65561.608-65755.50	388						5000	19.40	Pg.201	V.V.M.C land
86	Vasai Road-Nalasopara	65755.50-66100	2844						5000	142.200	Pg.201	V.V.M.C land
87	Vasai Road-Nalasopara	66100-66600	5319						10900	579.771	Pg.206	V.V.M.C land
105	Nalasopara-Virar	68400-69064	4959						10400	515.736	Pg.208	V.V.M.c land
106	Virar	69064.834-69334.834	1135						10400	118.04	Pg.208	V.V.M.c land
Total Cost in lakhs										10534.694	Say	105.346 cr.

Total Govt. Land Cost = 103.149 Cr.
 Total Govt. Structure Cost = 2.197 Cr.
 Total Cost (Govt. land +Govt. str.) = 105.346 Cr.

Annexure 10.2: Cost of Private Land and Properties for Running Section for VR-PNVL

TECHNO-ECONOMIC SURVEY AND PREPARATION OF DPR FOR PANVEL-DIVA-VASAI-VIRAR CORRIDOR



S. No.	Section	Chainage	Vacant Land in sqm	Property affected	No of floor	Type of property	Area of GF	Total area of Building	Rate per sqm	Cost in Lacs	Ready Reckoner No.Thane District-2012	Remarks
1	Navade Road	7294.837-7570.192	6570						8010	526.257	Pg.253	Pvt land
2	Navade Road-Pindhar	8621.000-8713.830	1947						8010	155.95	Pg.253	Pvt land
3	Pindhar	8713.830-8758.783	1698						8010	136.00	Pg.253	Pvt. land
4	Taloja-Nighu	11278.235-11517.000	4504						12000	540.480	Pg.253	Pvt. land
5	Taloja-Nighu	11517.000-11738.202	6847						12000	821.640	Pg.253	Pvt. land
6	Taloja-Nighu	12043.480-12126.134	1312						12000	157.44	Pg.253	Pvt. land
7	Taloja-Nighu	12126.134-12600	6441						12000	772.920	Pg.253	Pvt. land
8	Taloja-Nighu	13800.000-14481.756	12683						8100	1027.323	Pg.129	Pvt. land
9	Nighu	14732-15039.841	4737						8100	383.67	Pg.129	Pvt. land
10	Narivali	16592.467-16869.507	4265						3600	153.54	Pg.188	Pvt. land
11	Narivali-Nilaje	17072.385-17684.444	10837						3600	390.013	Pg.188	Pvt. land
	Nilaje-	19392.665-19494.29	2175						13200	287.10	Pg.107	Pvt.
12	Nilaje-Nandivali(Elev)	19813.804-20271.161	2868-353.102	Net open land cost= Total land-less str. area					13200	321.966	Pg.107	Pvt. land
13		20100.00-		House	1	Residential	87.542	87.542	36500	31.95	Pg.107	Pvt. land

TECHNO-ECONOMIC SURVEY AND PREPARATION OF DPR FOR PANVEL-DIVA-VASAI-VIRAR CORRIDOR



S. No.	Section	Chainage	Vacant Land in sqm	Property affected	No of floor	Type of property	Area of GF	Total area of Building	Rate per sqm	Cost in Lacs	Ready Reckoner No.Thane District-2012	Remarks
		20200.00										
14		20100.00-20200.00		House	1	Residential	51.907	51.907	36500	18.95	Pg.107	Pvt. land
15		20100.00-20200.00		House	1	Residential	24.562	24.562	36500	8.96	Pg.107	Pvt. land
16		20100.00-20200.00		House	1	Residential	65.893	65.893	36500	24.05	Pg.107	Pvt. land
17		20100.00-20200.00		Residential Bldg.	3	Residential	136.198	408.594	36500	149.13	Pg.107	Pvt. land
18				Ttal G.F area			353.102					Pvt. land
19	Nilaje-Nandivali(Elev)	22942.000-24679.265	37821-51.62	Net open land cost= Total land-less str. area					13900	5249.943	Pg.106	Pvt land
20	Nilaje-Nandivali	23252.114		Maruti welding shop	1	Commercial	35.449	35.449	56000	19.85	Pg.106	Pvt. land
21	Nilaje-Nandivali	23252.114		Sai ricksaw service center	1	commercial	16.171	16.171	56000	9.055	Pg.106	Pvt. land
22	Nandivali	24679.265-24949.265	14765-114.175	Net open land cost= Total land-less str. area					13900	2036.464	Pg.106	Pvt. land
23	Nandivali(Elev)-Kopar (Elev)	24930.00		Store room	1	Commercial	114.175	114.175	56000	63.94	Pg.106	Pvt. land
24	Nandivali(Elev)-Kopar (Elev)			Total G.F area			114.175					Pvt. land
25	Nandivali(Elev)-Kopar (Elev)	24949.265-25648.000	14913-236.542	Net open land cost= Total land-less str. area					13900	2040.027	Pg.106	Pvt. land
26	Nandivali(Elev)-Kopar (Elev)	25300.000		House	1	Residential	78.58	78.58	37100	29.15	Pg.106	Pvt. land

TECHNO-ECONOMIC SURVEY AND PREPARATION OF DPR FOR PANVEL-DIVA-VASAI-VIRAR CORRIDOR



S. No.	Section	Chainage	Vacant Land in sqm	Property affected	No of floor	Type of property	Area of GF	Total area of Building	Rate per sqm	Cost in Lacs	Ready Reckoner No.Thane District-2012	Remarks
27	Nandivali(Elev) -Kopar (Elev)	25400.00		House	1	Residential	65.491	65.491	37100	24.30	Pg.106	Pvt. land
28	Nandivali(Elev) -Kopar (Elev)	25400.00- 25500.00		House	1	Residential	92.471	92.471	37100	34.30	Pg.106	Pvt. land
29	Nandivali(Elev) -Kopar (Elev)			Total G.F area			236.542					Pvt. land
30	Kalwar depot	38523- 39900	348000	Rates for Kaman road area is considred					2760	9604.80	Pg.224	Pvt land for kalwar depot
31	Dunge- Kharbao	43049.916- 43176.201	2634						2760	72.69	Pg.224	Pvt. land
32	Kharbao	43176.201- 43425.585	7732						2760	213.403	Pg.224	Pvt. land
33	Kharbao- Payegaon	43765.822- 44858.043	26911						2760	742.74	Pg.224	Pvt. land
34	Kharbao- Payegaon	44858.043- 44900.000	277						2760	7.64	Pg.224	Pvt. land
35	Kaman Road	51529.455- 51799.455	4662						2760	128.671	Pg.224	Pvt. land
36	Juichandra	57144.226- 57414.226	6869						7900	542.651	Pg.213	Pvt. land
37	Juchandra- Vasai road	62195- 62383.182	2185- 476.283	Net open land cost= Total land-less str. area					5000	85.435	Pg.201	Pvt. land
38	Juchandra- Vasai road	62200- 62300		Mandir	1	Temple	410.556	410.556	22000	90.32	Pg.201	Pvt. land
39	Juchandra- Vasai road	62200- 62300		New Maria Apartment	3	residential	65.727	197.181	22000	43.38	Pg.201	Pvt. land
40	Juchandra-			Total G.F area			476.283					Pvt. land

TECHNO-ECONOMIC SURVEY AND PREPARATION OF DPR FOR PANVEL-DIVA-VASAI-VIRAR CORRIDOR



S. No.	Section	Chainage	Vacant Land in sqm	Property affected	No of floor	Type of property	Area of GF	Total area of Building	Rate per sqm	Cost in Lacs	Ready Reckoner No.Thane District-2012	Remarks
	Vasai road											
41	Vasai Road-Nalasopara	62972.383-63045.817	569						5000	28.45	Pg.201	Pvt. land
42	Vasai Road-Nalasopara	66600.000-66882.611	4290-2.60	Net open land cost= Total land-less str. area					10400	445.889		Pvt land
43	Vasai Road-Nalasopara	66700		temple	1	religious	2.60	2.60	29600	0.77	Pg.206	Pvt. land
44	Vasai Road-Nalasopara	66837-66948		Temp. Shops	1	commercial	22.927	22.927	44500	10.20	Pg.206	Pvt. land
45	Vasai Road-Nalasopara	66869-66936.5		Suresh Dubey Shoping centre	2	commercial	889.311	1778.311	44500	791.35	Pg.206	Pvt. land
46	Vasai Road-Nalasopara			Tiled houses	1	residential	21.378	21.378	29600	6.33	Pg.206	Pvt. land
47	Nalasopara	66882.611-66972.520	2028-953.281	Net open land cost= Total land-less str. area					10900	117.144	Pg.206	Pvt. land
48	Nalasopara-Virar	66936.5-66948		Temp Shops	1	commercial	69.137	69.137	44500	30.76	Pg.206	Pvt. land
49	Nalasopara-Virar	66972		Temple	1	religiuos	19.965	19.965	29600	5.90	Pg.206	Pvt. land
50	Nalasopara-Virar			Total G.F area			953.281					Pvt. land
51	Nalasopara-Virar	67156-67265	419						10900	45.671	Pg.206	Pvt. land
52	Nalasopara-Virar	67265.233-67732.431	2070-5.739						10400	214.683	Pg.208	Pvt. land
53	Nalasopara-	67265-		shed	1	Commerc	5.739	5.739	10400	0.596	Pg.208	Pvt.

TECHNO-ECONOMIC SURVEY AND PREPARATION OF DPR FOR PANVEL-DIVA-VASAI-VIRAR CORRIDOR



S. No.	Section	Chainage	Vacant Land in sqm	Property affected	No of floor	Type of property	Area of GF	Total area of Building	Rate per sqm	Cost in Lacs	Ready Reckoner No.Thane District-2012	Remarks
	Virar	67700				ial						
54	Nalasopara-Virar	67732.431-68237.50	2269						10400	235.976	Pg.208	Pvt. land
55	After Virar station	69800-70009	935-238.402	Net vacant land=open land-Less G.F area of str.					10400	72.446	Pg.208	Pvt land
56	After Virar station	69900		shed	1	Commercial	32.908	32.908	39500	12.998	Pg.208	Pvt. land
57	After Virar station	69931-70009.907		houses	1	residential	205.494	205.494	31500	64.730	Pg.208	Pvt. land
							Total Cost			29029.991	say	290.30 Cr.

Total Pvt. Structure Cost = 14.709 Cr.
 Total Pvt. Land Cost as per RR = 179.541 cr.
 Kalwar Depot Land cost as per RR = 96.05 Cr.
 Total (land Cost Pvt + Pvt. Str. Cost) = 290.3Cr.
 Gross Total Cost considering enhanced compensation
 And market sale deeds as well as provision for
 Solatium and interest (approx) = 683.41 Cr.