DELHI DEVELOPMENT AUTHORITY

F.1(15)/93-MP

Minutes of the Technical Committee held on 24.3.93 in the Conference Room of Vikas Sadan.

The following were present:

DELHI DEVELOPMENT AUTHORITY

1 Sh.S.P.Jakhanwal, Vice-Chairman (In chair)
2. Sh.J.C.Gambhir,Commr.(Plg.)
3. Sh.Santosh Auluck, Chief Architect
4. Sh.S.C.Gupta, Director(DC&P)
5. Shri R.G.Gupta,Director(TYA)
6. Shri P.C.Jain, Director(AP&B)
7. Shri Prakash Narain, Jt.Director(T)
8. Shri Ashok Kumar, Jt.Director(Dwarka)
9. Shri R.K.Jhingan, Sr.Landscape Architect

LAND & DEVELOPMENT OFFICE

10. Sh.L.D.Ganotra, E.O.

TOWN & COUNTRY PLANNING ORGANISATION

11. Sh.K.T.Gurumukhi, Addl.Town Planner

DELHI POLICE(TRAFFIC)

12. Sh.Roop Chand Sharma, A.C.P.

D.E.S.U.

13. Sh.D.K.Suri, S.E.(Plg.)I
14. Sh.S.M.M.Ali, E.E.(220 KVL)

SPECIAL INVITEES

IRRIGATION & FLOOD DEPTT.,DELHI ADMN.

15. Sh.R.M.Swamy, S.E. For Item No.32/93
16. Sh.A.N.Gupta, E.E. For Item No.32/93

Before starting the meeting of the Technical Committee, VC desired that (a) Action Taken Note on the decisions of the Technical Committee taken in the year 1992 be put up as first item in the next meeting, (b) Unimplemented decisions of the earlier meetings of the Technical Committee, be also put up.

1. Item No. 32/93:

Sub: Alignment Plan of proposed 45 mtr. R/W road over Palam Drain connecting Dwarka Project with the Pankha Road.

F10(42)DD-Plg.II/92/DWK

Technical Committee recommended that the r/w be kept as 45 mtr. as shown in the plan to accommodate the existing drain, three lane road on either side of the drain,

and a 4-mtr. wide 'green strip' to accommodate 220 KV electric line. Further, it was recommended that the alignment as proposed of having three lanes on either side of the existing drain be approved within the r/w and either side of the drain and the retaining wall be constructed. Cross section, of the road be drawn and shown in detail before bringing the case to the Authority.

2. Item No. 36/93:

Sub: Alignment plan of Vikas Marg from Marginal Bundh Road to Road no. 57 crossing in Trans Yamuna Area. F5(1)88-MP

Technical Committee made the following recommendations:

i. the r/w be retained as 45 mtrs. and wherever extra land is available, same be retained as 'green'

ii. Location of pedestrain sub ways one near Laxmi Nagar District Centre and other near Marginal Bundh Road, be incorporated on the alignment plan.

iii. Location of bus-bays on either side of the road be staggered.

iv. having approach from service road two to three places on either side by making a recess in the pedestrian walk, car parking lots be provided.

3. Item No.37/93

Sub : Route Alignment Plan of 220 KV double circuit tower line from Gazipur to Noida in Trans Yamuna Area.
F9(3)88-TYA

Proposed route alignment of 220 KV tower line within the road right of way of 45 mtrs. be approved within the space provided for services subject to that the route alignment be taken towards other side from the junction of Hindon Cut upto the junction with 30 mtr. wide road.

4. Item No.38/93

Preparation of Base Maps for Zonal Plans & otherwise for Delhi.
FR1(2)93-Dir.TYA

The proposal was explained by Director(TYA) and suggested to create a Department of Base Maps for Delhi. It was noted that lot of work has been done by 'Shri Lankan' Government for preparation of base maps on different scales . It was, therefore, desired by the Technical Committee that a seperate meeting be arranged with the officers of National Informatic Centre(NIC) with a presentation.

This issues with the approval of Vice-Chairman,DDA.

(ANIL BARAI)
DY.DIR.(MP)
15.4.93

Draft

DELHI DEVELOPMENT AUTHORITY

F.1(15)/93-MP

Draft minutes of the Technical Committee held on 24.3.93 in the Conference Room of Vikas Sadan.

The following were present:

DELHI DEVELOPMENT AUTHORITY

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2 Sh.J.C.Gambhir,Commr.(Plg.)
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4. Sh.S.C.Gupta, Director(DC&P)
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7. Shri Prakash Narain, Jt.Director(T)
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DELHI POLICE(TRAFFIC)

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D.E.S.U.

13. Sh.D.K.Suri, S.E.(Plg.)I
14. Sh.S.M.M.Ali, E.E.(220 KVL)

SPECIAL INVITEES

IRRIGATION & FLOOD DEPTT.,DELHI ADMN.

15. Sh.R.M.Swamy, S.E. For Item No.32/93
16. Sh.A.N.Gupta, E.E. For Item No.32/93

Before staring the meeting of the Technical Committee, VC desired that (a) in the next meeting Action Taken Note on the items of the Technical Committee held on various dates in the year 1992 be put up as first item in the next meeting, (b) as regard the items pending action of the earlier meetings of the Technical Committee the list of such items be also put up.

1. Item No.32/93 :

Sub : Alignment Plan of proposed 45 mtr. r/w road over Palam Drain connecting Dwarka Project with the Pankha Road.

F.10(42)/DD-Plg.II/92/DWK

Technical Committee recommended that the r/w be kept as 45 mtr. as shown in the plan to accommodate the existing drain three lane road on either side of the drain and a 4 mtr. wide green strip to accommodate 220 KV electric line. Further, it was recommended that the alignment as proposed of having three lanes on either side of the existing drain be approved within the r/w and either side of the drain the retaining wall be constructed.

2. Item No.36/93

Sub : Alignment Plan of Vikas Marg from Marginal Bundh Road to Road No.57 crossing in Trans Yamuna Area.

F5(1(88-MP

Technical Committee made the following recommendations:

i. the r/w be retained as 45 mtrs. and wherever extra land is available, same be retained as green.

ii. Location upto pedestrian-ways, two sub-ways one near Laxmi Nagar District Centre and other near Marginal Bund road be incorporated on the alignment plan.

iii. Location bus-bays on either side of the road be staggered.

iv. having approach from service road ~~on~~ two to three places on either side by making a recess in the pedestrian walk, car parking lots be provided.

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Proposed route alignment of 220 KV tower line within the road right of way of 45 mtrs. ~~is~~ be approved within the space provided for services subject to that the route alignment be taken towards other side from the junction of Hindon Cut upto the junction with 30 mtr. wide road.

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The proposal was explained by Director(TYA) and suggested to create a Department of Base Maps for Delhi. It was noted that lot of work has been done by 'Shri Lankan' Government for preparation of base maps on different ~~spaces~~ scales. It was, therefore, desired by the Technical Committee that a seperate meeting be arranged with the officers of National Informatic Centre(NIC) with a presentation.

DELHI DEVELOPMENT AUTHORITY

(MASTER PLAN)

No.F.1(35)92-MP

Dt.18.3.93

MEETING NOTICE

The Technical committee meeting of DDA will be held on 24.3.93 at 12.00 ~~A.M.~~ (Noon) in the Conference Room, Vikas Sadan, New Delhi.

Agenda for the meeting is enclosed herewith.

You are requested to kindly make it convenient to attend the meeting.

(Anil Barai)
Dy. Director (MP)

I N D E X

AGENDA FOR TECHNICAL COMMITTEE

Subject:- **Alignment Plan of proposed 45 mtr. r/w Road over Palam Drain connecting Dwarka Project with the Pankha Road.**

F10(42)/DD-Plg-II/92/Dwk

1. LOCATION

The proposed road is a major road connecting Dwarka Project with the Pankha Road. The road is proposed over the existing Palam Drain as there are unauthorised/unauthorised-regularised colonies on either side of the Drain.

2. STRUCTURE PLAN PROPOSALS

The Structure Plan for Dwarka Project, approved by the DUAC, proposed 4 major inter-city connections of which the said proposal is one of the connections to be constructed over the Palam Drain. This connection links Dwarka Project with north and central part of the Delhi area.

3. BACKGROUND

The site of Dwarka sub-city has number of physical constraints with regard to provision of transportation linkages. The problem for making provisions for inter-city movement is more acute as compared to the intra-city movement. This is mainly because of the fact that the entire north and north eastern part of the sub-city is already built up comprising of unauthorised/unauthorised-regularised colonies. In order to facilitate proper linkages of the project with north/central Delhi, the structure Plan for Dwarka envisages a 45 mtr. r/w road to be constructed over the Palam Drain and connecting the Pankha Road.

4. A meeting in this regard was held with Chief Engineer (Irrigation & Flood Controls), Delhi Admn. on 15.5.92. In this meeting, detailed

Dir (DEAP)

Ashok Kumar PP(Dwk)

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discussions with respect to the construction of the said road were held. The Chief Engineer (I&F) agreed to the proposal of constructing the road subject to the condition that the proposed road shall be constructed 2 mtr. elevated from Palam Drain for maintenance/cleaning of the drain.

The Chief Engineer (I&F) was also requested to make the necessary provision for construction of this road in the budget for the 8th Five Year Plan.

5. EXISTING CONDITIONS

The proposed road is having a length of 2.9 km. approx. out of which 400 mtr. length is already functioning as existing road having a r/w of 24 mtr.

Proposal

The proposed alignment of 45 mtr. r/w road has been prepared on the survey done by the Aerial photography by the National Remote Sensing Agency ~~in the year~~, Hyderabad in the year 1989-90. Conceptually, the 45 mtr. r/w road over Palam Drain has been planned in two phases. In the first phase two carriage ways of three lanes each have been proposed at ground level on either side of the Palam drain by construction of retaining walls in the drain. The second phase, a two metres raised four lane road has been proposed. The construction of the second phase will be quite time consuming hence the roads at ground level on both the sides of the drain will provide immediate access from Pankha Road side into Dwarka Project area. Thus, it has been possible to adopt approved road cross-section of 45 mtr. road for Dwarka Project from the Pankha Road upto the Palam Drain. For the remaining portion, due to site constraints and physical barrier, the cross-section of the road has been altered. In which a three lane main carriagway of 10.5 mtr., a footpath of 3.75 mtr. and service roads of 6.5 mtr. each have been

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proposed on both sides of this 45 mtr. road from Pankha Road to Sector 5 master plan green for maintaining the power grid along the Pankha Drain for sub-city.

Due to the above constraints the road cross-section has been modified when the road approaches the Palam Drain as per details given above. Bus stops at appropriate places have been propsosed.

Special treatment of inter-sections in the road alignment have been proposed. Detailed designing of the inter-sections is to be taken up after approval of the alignment plan. In the inter-section on Pankha Road there is to be a bridged rotary as stipulated by the consultants in the transportation plan for Dwarka.

The 'T' junction of this proposed 45 mtr. road and 60 mtr. road coming from Sector-1 and 2, there is no provision for right turning traffic. It has been envisaged that the traffic destinated towards Pankha Road will have to turn right from the main inter-section of this proposed 45 mtr. road with 60 mtr. road. At this junction, it is felt that it will not be appropriate to propose a trumpet junction or a deck level road inter-section here, however, this is subject to detailed designing at the time of implementation of second phase.

A green strip of three metre width has been proposed on either side of the road for the 220 KV High-Tension lines. The number of structures in the entire alignment likely to be affected are to be known subject to actual physical survey of the site.

The draft plan is to be sent to PWD for feasibility check up for indicating the numbers and types of affected physical structures/ properties like Bridges infrastructure, trees etc.

The item is placed before the Technical Committee for its consideration and approval on the following aspects:-

i) The modified road cross-section need to be approved other than standard approved road cross-section due to site constraints.

ii) To accommodate 2 nos. of 220 KV Power lines on either sides of 45 mtr. r/w road like a 3 mtr. strips of green has been reserved. For this, the existing built up area and proposed master plan sector land uses would be affected.

- In the existing built up area, 1.2 Ha. approx. land would be affected for green strips. Hence change of land use of 1.2 Nos of from Residential to green will have to be processed.
- From sector 2, 0.4 Ha. approx. land would be required for changed the land use from P/S.Public to green

iii) All inter-section has to detailed out and required signalisation.

iv) Grade-separated intersection has to be designed at the crossing of Palam Road and Pankha Road (Bridge rotary is suggested in the report of structure plan for Dwarka Sub-city Stage-II.

v) Necessary street furniture, horticulture has to be done at the time of detailed design.

Dir (DC & P)

Ashok Kumar
PP (DWK)

ITEM NO. 36/93/TC

Sub:- Alignment plan of Vikas Marg from Marginal Bundh Road to Road No.57 crossing in Trans Yamuna Area. F5(1)88-MP.

1. Location:

Vikas Marg is a Master Plan Road in continuation of I.P.Marg from Marginal Bundh Road to Road No.57 crossing. Location Plan is placed as Annexure-I.

2. Background:

Vikas Marg in the above said stretch passes between Laxmi Nagar/Shakkarpur group of unauthorised-regularised colony upto Patparganj Road crossing. Thereafter, upto Road No.57 crossing, this road is a part of the overall co-operative House Bldg.Societies Complex layout. This road also abuts the southern side of Laxmi Nagar Distt. Centre.

3. Problems:

There are four Master Plan road junction/intersections and two 24 mtrs. R/W road junction/intersections along this road, as per details given below:

(i) Master Plan Roads intersection/junctions.

a) Marginal Bundh Road/Vikas Marg crossing.

b) 'T' junction of 30 mtr. road leading to RUB 36.

c) Patparganj Road crossing.

d) Road No.57 crossing.

(ii) 24 mtrs. R/W Road junction/intersection.

a) Junction of Road between Laxmi Nagar Distt.Centre and Shankar Vihar.

b) Preet Nagar Community Centre crossing.

Geometrics of the above said intersections have to be improved along with signalisation for maintaining proper traffic discipline.

(iii) Apart from the above in the stretch between Marginal Bund Road and Patparganj Road crossing, there has been intensive misuse of properties by converting them into shops, offices etc.on both sides.

Such a use is neither envisaged in Master Plan/ Zonal Plan nor in the unauthorised/regularised colonies plan. This area has been shown as residential in MPD-2001. Due to the existing non-confirming uses the existing service roads are

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mainly used for parking of vehicles. Further due to encroachments and parking on service roads / movement shops become very difficult.

iv) One of the existing bus stand is located very near to the junction of road leading to ROB-36 which creates traffic bottlenecks.

4. Proposals, junction/intersection designs.

Fixing of R/W line: Between Marginal Bundh Road crossing and Patparganj road crossing the R/W line is taken between the built up area of Shakkarpur/Laxmi Nagar unauthorised-regularised colonies. In this stretch the R/W is varying between 40 mtrs. to 45 mtrs. as the master plan R/W is of 45 mtrs. Between Patparganj Road crossing and Road No.57 crossing the R/W line is taken as the boundary wall of the approved plots of the colonies abutting on either sides. In this stretch generally the 45 mtr. R/W is available, wherever additional space is available, same has been included in the R/W.

(i) The intersection/'T' junction designs of Marginal Bund Road crossing, junction with the road leading to ROB 36 and Road No.57 crossing designs are as per the plans for which the details have already been prepared in their respective road alignments. Intersection design of Patparganj Road crossing has been prepared with the slip roads for left turning. Chempering of corners for proper sight lines and channelisers for safe movement of traffic in different directions has been done as shown in the plan.

ii) In the entire stretch 6 lane divided carriageways (11 mtrs. on either side of the central verge) is proposed with 2.0 mtrs. to 3.50 mtrs. wide inner footpaths and 5 mtrs. to 7 mtrs. wide service roads and 1 mtr. to 1.5 mtr. wide outer footpaths.

iii) Street lighting is proposed in the central verge. Trees shall be planted in the inner footpath. Recessed bus bays have been provided at suitable locations so as to have better C/A efficiency.

iv) As per the decision by Chief Secy., Delhi Administration

in VIII five year plan as grade separation ~~is proposed~~ has been envisaged on this road. The PWD(YBP) is studying the impact of widening of yamuna bridge at ITO & has been requested to submit the integrated circulation proposal for this bridge. The decision/implementation is likely to take considerable time. In view of this it is recommended that as an immediate phase the surface level improvement be made.

v) The layout plan proposals of Laxmi Nagar District Centre and Preet Vihar Community Centre abutting Vikas Marg have been integrated in the alignment. The surface level improvements of Vikas Marg/Patparganj road intersection, junction of 24 mtr. R/W road from the Preet Vihar, Community Centre and Busbays have been adjusted in the alignment.

5. Feasibility study.

As per the feasibility study report submitted by EE, PWD(DA), Divn.23, two street poles/two DPC of 11KV lines, 86 sq.mtr./3 sq.mtr. areas of 2 existing temples are affected in the alignment. Existing Petrol Pump in Preet Vihar Community Centre is not affected. Feasibility report is placed as Annexure II.

A copy each the plan was sent to DCP(Traffic), DTC, Dir.(TYA) & Chief Architect, DDA for their comments while no comments have been received from DCP(Traffic)& DTC, the surface level modifications suggested by Dir.(TYA) & Chief Architect, DDA have been made to the extent possible. Observations of Dir.(TYA) & Chief Architect are placed as Annexure III & IV.

6. The case is put up to the Technical Committee for consideration of:

i) Approval of the composite alignment plan of the road prepared vide drawing No. TT-32/PPW-93.

ii) Whether 45 mtr. R/W as per master plan in the stretch between Marginal bund road & Patparganj crossing be insisted or the existing available R/W be taken as final R/W.

iii) PWD(DA) shall maintain the R/W of the road as per alignment plan.

iv) Taking affected area of two temples falling in the road alignment & shifting of other services in consultation with the respective departments.

v) Any tree cutting if required may be done with the prior approval of the Competent Authority.& new plantation be made as per guidelines issued from time to time.

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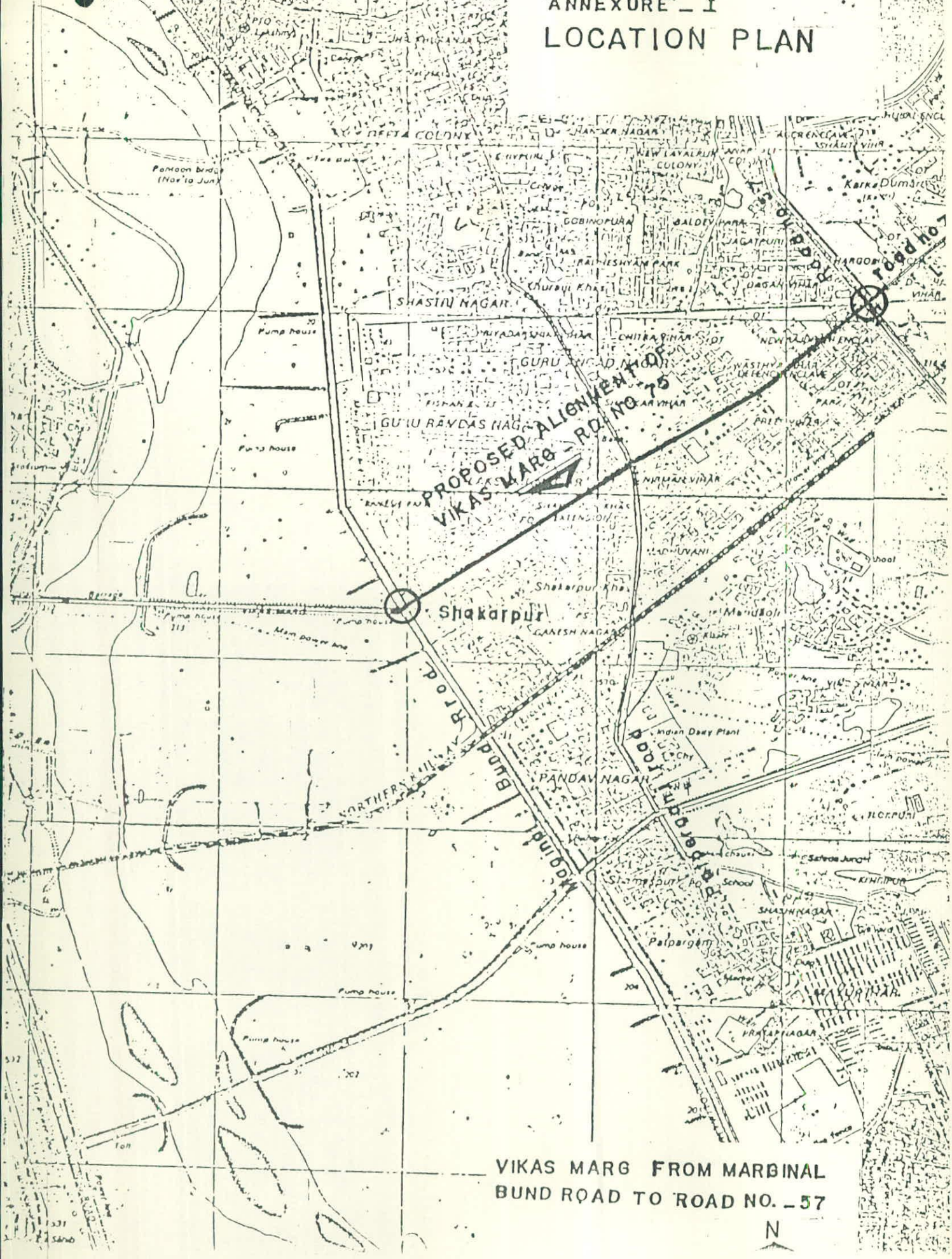
ANNEXURE - I

LOCATION PLAN



VIKAS MARG FROM MARGINAL BUND ROAD TO ROAD NO. - 57

Annexure II

Page 1

Feasibility Report proforma

1.	Name of the road.	Feasibility Report of Alignment plan of Vikas Marg from M.B.Road to Road No.57 crossing.
2.	Details of affected structures/ properties in the road R/W.	Pucca S/S D/S T/S Semi Pucca Kutcha
a)	Total No.of structures/ properties affected in the alignment.	(a) About 1.5 mtr. to 2.50 mtr.width of properties on either sides shall be affected in the structures abutting Laxmi Nagar & Shakarpur if 45 mtr.R/W is to be maintained.
b)	No.of properties with boundary wall and set-backs only affected in the alignment.	(b) Corners of building located on the junction of 30 mtr. R/W road leading to Kondli shall be affected for sight lines.
c)	Width of properties affected in road R/W.	(c) 1.5 mtr. to 2.5 mtr.on either sides Landuse-Shopping(commercial).
d)	No.of shops affected.	-do-
3.	Is there any deviation in the approved alignment prepared by TCPO earlier. If yes, give details.	Not Applicable.
4.	Whether the alignment confirms to the R/W as shown in the approved layout plans & regularisation plans of the colonies abutting this road. If no, give details.	Yes. R/W in the stretch abutting Laxmi Nagar & Shakarpur is varying between 40 mtrs. to 45 mtrs.
5.	Details of affected services.	
a)	Overhead high tensionlines:	220KV lines — Length in mtr. 66KV lines 33KV lines 11KV lines — 2 Nos.DFs & 2 Nos.SFs
b)	Underground lines:	220KV lines — Nil 66KV lines 33KV lines 11KV lines
c)	Underground sewerage lines	Nil — Length of depth of the lines. — No.of manholes affected.
d)	Underground water supply lines	Nil — Length — No.of sluice valve chambers affected.
e)	Storm water drainage lines	Nil Length
f)	No.of electric poles	2 Nos.DFs and 2 Nos.SFs near Madhuban Jn.
g)	No.of telephone poles	Nil
6.	Details of affected trees	

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	Total Nos. Nil	Girth No.
	Species	
7.	Other miscellaneous affected structures	
	Temple, Mosque/Church/ Gurudwara Petrol Pump (specific location be mentioned).	Temple 2No (one near Laxmi Nagar Bus Stop LAS and another near Radhu Palace crossing of approx. area 86 m^2 and 3 m^2 respectively.
	Milk Booth	
	Bus stand	
	Taxi stand	
	Developed part with or railing pump mounted S/Stn.	
8.	Following details may be given for existing petrol pumps along the proposed alignment plan.	One petrol pump exist in the Preet Vihar Community Centre.
i)	Existing Status - Filling Station or Filling cum Service Station.	One
ii)	Title of land ownership DDA/Govt./Dealer.	Nil
iii)	Whether affected in the proposed R/W shown in the alignment as per original allotment.	Yes/No
iv)	If affected the length & width may be mentioned.	-
v)	Size of Petrol Pump after leaving the proposed R/W.	-
vi)	Whether land acquisition proceedings havebeen initiated.	-
9.	General comments about the feasibility to implement the alignment proposal.	This road has been already widened from 4 lanes to 6 lanes from ROB-36 'T' junction to Road No.57 junction. From Marginal Bundh Road crossing to 30 mtr. road. The LHS carriageway is of 2 lanes width can be widened only after the removal of 27 Nos.Katchi Jhuggies. The RHS carriageway is of 4 lanes width.

(DINESH KUMAR)
EXECUTIVE ENGINEER
PWD(DA), Divn.XXIII.

कार्यपालक इंजीनियर
लोक निर्माण विभाग मंडल सं.-23
दिल्ली प्रशासन नई दिल्ली

-1/-
A.E.(IV).

Annexure-III

COMMENTS ON "ALIGNMENT OF VIKAS MARG" By Dir(TYA).

Alignment plan prepared by 'Transport Planning Unit' DDA has been studied and following are the comments of the undersigned.

1. For planning purposes, Vikas Marg should be taken from the crossing of I.P. Marg with Bahadur Shah Zaffar Marg upto Karkari Mode (Junction of Vikas Marg with Road No.57). In this stretch, there would be fly over - i) crossing of I.P. Marg and Bahadur Shah Zaffar Marg; ii) integration with railway line at Hardindge Bridge; iii) Half Clover leafs with ring road fly over and I.P. barrage; iv) fly-over at the crossing of Vikas Marg and road along river yamuna bund; v) grade separator between Vikas Marg and Road No.57 (Karkari Mod). All these flyovers may be in the final phase.

2. The entire proposal should be divided into the following two phases:-

i) Phase-I; Short term plans: Important Plans.

ii) Phase-II; Long term plans: with grade separators and integration with railway system.

2.i) Phase I; Short term plans: Improvement Plans.

a) Cross-section of 45 mt. wide Vikas Marg should be held as under and not as shown in the plan.

- 1 mt. for central verge.
- 11 mt. on either side of the central verge for fast moving traffic.
- 5 mt. on either side for parking purposes with entries and exits of vehicles from service road. This portion would also have underground services and also tree-plantation at suitable distances.
- 5 mt. service roads on either sides for local vehicles to serve shops. This should also have provision of cycle movements.
- 1 mt. on either side for foot paths.

Total - 45 mts.

b) 10 bus-ways have been provided and should be reduced 6 in nos. at suitable locations.

Annexure-III
page-2

c) Large green areas within r/w of Vikas Marg have been shown between intersection of Vikas Marg with bund road and T-Junction with Vikas Marg of ROB-36. This green area should be used for the purpose of parking, which is very much deficient in this area.

d) Laxmi Nagar District Centre has hardly 50% of the parking norms, than given in MPD-62 or MPD-2001. To fulfil the deficiency, parking spaces should be provided at suitable places.

e) Details may be given of affected properties including street furniture, namely - trees, tree-guards, lamp-posts etc.

f) A project report should also be prepared giving flow of traffic in different directions of roads including at intersection points.

2.ii) Phase-II; Long term plans with grade separators and integration with railway system.

a) In this case, cross-section of Vikas Marg from the crossing with bund road upto district centre boundary may be as under:-

- 3 lanes (12 mt.) for fast moving regional traffic at +3.5 mt. level. The bridge should be with central single column support.

- 3 lanes (each of 10 mts.) on either side for local traffic. This will serve the purpose of service road also.

- 5.5 mt. on either side for parking of vehicles at local level road.

- 1 mt. on either side for foot-paths.

Total - 45 mts.

b) Cost of this proportion is high, but part of it may be collected as development charges/betterment levies from the shopkeepers of Vikas Marg after regularising their shops.

c) Details of grade separators may be discussed separately.

(R.G. GUPTA)
Director (TYA)
22.10.92

ANNEXURE III

Observations on the comments of Dir.(TYA) on the alignment plan of Vikas Marg.

1. Separate schemes have been prepared between I.P.Marg/Bahadur Shah Zafar Marg crossing upto Marginal Bundh Road. These schemes are at various stages of processing. The proposal under reference between Marginal Bundh Road to Road No.57 crossing has been prepared in continuation of the proposed eight lane bridge(4 lanes existing & 4 lanes proposed) on river yamuna.

2.i)& ii) The entire proposal consists of surface level improvements. Once these are implemented only then an appraisal of the grade separated developments along this stretch could be studied.

2. i.a) The R/W of Vikas Marg in this stretch is varying between 40 mtrs. to 50 mtrs. Therefore a uniform section for the entire stretch of the R/W as suggested is not possible. In the suggestion given by Director(TYA) inner footpath has not been considered which is very essential. The width of inner footpath may vary between 2.5 mtrs. to 3.5 mtrs. in width depending upon site conditions.

b) This has been taken modified as per the site conditions.

c) The entire road stretch is extremely barren and if this is also converted into parking area it shall attract further commercialisation of the adjoining properties.

d) Distt.Centre parking should not be fulfilled from R/W space.

e) Feasibility report has been given by EE, PWD(DA), Divn.XXIII, same is placed as Annexure-II.

f) Agenda for the TC takes into accounts the various aspects of the alignment proposal. As only surface level improvements are proposed there is no need for detailed traffic flow at this stage.

2. ii) This has already been explained under para 2 above.

Annexure IV
Page 1

Comments of Sr.Architect on the alignment plan of Vikas Marg.

1) The road on the west side of Preet Vihar Community Centre is 13.5 mtrs. in the approved plan of shopping centre, whereas it is not shown of the same r/w in the alignment plan.

2) There is a vehicular entry to the Preet Vihar Comm. Centre on the west side of petrol pump, which may also be seen.

3) Provision of parking directly on the carriageway on the east side of the petrol pump of Preet Vihar Com. Centre may be seen.

4) The approach to the New Rajdhani Local Shopping Centre has been proposed from the service lane which may be seen. Even the service lane does not have an entry on the west side of the shopping centre and the vehicles will have to take a 'U' to go to this shopping centre which is not desirable. An opening is therefore, necessary on the service lane near the New Rajdhani Shopping Centre.

5) In the Laxmi Nagar Distt. Centre plan, the bus terminal has been provided which has not been incorporated in the same manner in the alignment plan.

6) The cinema plot in the Laxmi Nagar Distt. Centre has an entry and exit points on Guru Angad Nagar Marg, by increasing the existing carraigeway of this road, the volume of traffic which will come out on this point may be seen in relation to the width of the carriageway.

7) 80' r/w road on the east side of Laxmi Nagar Distt. Centre is at an acute angle and not at the right angle, as shown in the alignment plan.

The slip road provided on the corner may therefore, be seen for its radius and easy movement pattern.

Annexure IV

Observations on the comments of Senior Architect on the alignment plan of Vikas Marg.

Comments of Sr.Architect.

1. This has been shown as 13.5 mtr. R/W.
2. Vehicular entry to the Preet Vihar community centre on the west side of Petrol Pump has been shown.
3. Parking provision eastern side of the Petrol pump has been examined and proposed accordingly.
4. Gap in verges in inner footpath & central verge has been proposed for entry into the Rajdhani Enclave, Local Shopping Centre.
5. Proposed Bus Terminal within District Centre has been incorporated in the alignment plan.
6. Width of carriageway & intersection design are with maximum efficiency possible within the proposed R/W's.
7. The 24 mtrs. R/W along the District Centre has been integrated in the alignment plan of Vikas Marg without the service road.

ITEM NO. 37/93/TC

ITEM AGENDA FOR TECHNICAL COMMITTEE

Sub: Alignment Plan of 220 KV double circuit tower line from Gazipur to NOIDA in Trans Yamuna Area. F9(3)88-T7A

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Superintending Engineer, DESU vide their letter dated 2.3.93 has sent a proposal on the subject cited above for the construction of an additional 220 KV single circuit tower line between Badarpur Thermal Power Station and 220 KV sub-station located at Gazipur. S.E. (Plg) DESU has given justifications of the line as details given under:-

"At present, there is a 220 KV Single Circuit Tower Line between Badarpur Thermal Power Station and our 220 KV Sub-Station Patparganj in East Delhi. This 220 KV tower line belongs to U.P.S.E.B. and is presently connected to one circuit of Sahibabad Partparganj tower line. DESU had planned to construct a 220 KV sub-station in Gazipur and this line happens to pass over the site of the Gazipur 220 KV sub-station under construction and was required to be looped in and looped out to feed power to Gazipur sub-station. The UPSEB intended to loop in loop out this line at their NOIDA 220 KV sub-station. Since, DESU has the first right on the availability of the power in Badarpur Thermal Power Station, as such, DESU objected to this direct connection from Badarpur to NOIDA as this would deprive DESU of the required availability of power from Badarpur at Gazipur and Patparganj 220 sub-stations. Accordingly, this matter was referred to Central Electricity Authority and CEA in a meeting held on 10th July'1992 in the office of Member (PS) called the representatives of DESU, CEA, UPSEB & Northern Regional Electricity Board. During the course of the discussions, it was decided that DESU will construct a 220 KV line from Badarpur to Noida, which will be further connected to BTPS using the single circuit line portion beyond NOIDA thereby making a direct link available between Badarpur and Gazipur and also Gazipur and Patparganj.

DESU will release the single circuit line portion between Gazipur to NOIDA to UPSEB, which will be further utilised by UPSEB for connecting to their Sahibabad 220 KV Sub-station over the existing 220 KV tower line, thus giving a direct link between Sahibabad & NOIDA. Also, DESU will provide one link between NOIDA and Gazipur over a single circuit line, thus the construction of the proposed 220 KV tower line is essential for implementation of the decision, arrived at the Central Electricity Authority."

2. The case is placed before the Technical Committee of the DDA to approve the alignment shown by red of 220 KV double circuit tower line from Gazipur to NOIDA. This line would be i) in the

north of Hindon Cut from 220 KV sub-station to Delhi U.P. boundary; ii) Along proposed/existing in the north of 45 mtr. wide road in the scheme of Kondli Gharoli Complex; iii) From the junction of two 45 mtr. wide roads upto the boundary of National Capital Territory of Delhi and then along the road of NOIDA and iv) finally, meeting 220 KV sub-station in NOIDA.

3. The proposed alignment shown by red may be approved subject to a change that part of the portion at (ii) the line may be taken towards other side of 45 mtr. wide road from the junction of Hindon Cut upto the junction with 30 mtr. wide road.

4. The item is placed before the Technical Committee of the D.D.A.

(R.G. GUPTA)
DIRECTOR (TYA) DDA
9.3.93

ITEM NO. 38/93/TC

ITEM NO. /93

ITEM AGENDA FOR TECHNICAL COMMITTEE

Sub: PREPARATION OF BASE MAPS FOR ZONAL PLANS & OTHERWISE FOR DELHI

FR-1(2)/93-Div.(TYA).

1.1	Concept of preparation of base maps.
1.2	Scale of maps and their use.
1.2.1	Small scale maps
1.2.2	Medium scale maps
1.2.3	Large scale maps
1.2.4	Very large scale maps
1.3	Proposals given by National Remote Sensing Agency, Hyderabad (NRSA) and Norweighen Agency for Development Corporation (NORAD) for Delhi.
1.3.1	Satellite Remote Sensing data and its processing for National Capital Region in a scale of 1:50,000.
1.3.2	Satellite Remote Sensing data and its processing for Delhi Metropolitan Area in a scale of 1:20,000.
1.3.3	Aerial photography and photogrammetric mapping of UT of Delhi in a scale of 1:5000 and 1:1000.
1.3.4	Storing and processing of data.
1.3.5	Setting up of 'digital photogrammetric system' and 'geographical information system' for Delhi.
1.4	Brief of the proposal given by Norwegian Agency for Development Studies (NORAD) about utility mapping.
1.4.1	Organisations which are concerned and would be included in the preparation of utility maps.
1.4.2	Important Findings.
1.5	Important surveys for Delhi.
1.5.1	Surveys of Delhi Metropolitan Area.
1.5.2	Large scale mapping for the entire Union Territory of Delhi.
1.6	Creation of a Department of 'Preparation of Base Maps' for Delhi.
1.6.1	Structure of the Department
1.6.2	Functions
1.6.3	Office Building:
1.6.4	Sources of Funds.
1.7	Pilot project of preparation of base maps of Trans-Yamuna Area alongwith river Yamuna bed.
1.7.1	Basic Factors
1.7.2	Items of large scale mapping
1.7.3	Final output of photography and line maps
1.7.4	Duration of the Project
1.7.5	Updating of line Maps
1.7.6	Cost of the Project

1.1 Concept of preparation of base maps

Base maps are the basic inputs for the preparation of spatial maps, whether at the national level, state (region) level, district (sub-region) level, metropolitan city, large, medium, small city; large, medium, small town, rural settlements levels; Plan of services namely - water, sewerage, drainage, power, flood protection and storm water drainage, tele-communication, gas supply, circulation system, roads, rails, location of economic activities. There cannot be any meaningful plan which does not require base maps. No plan, whether Master Plan, Structure Plan, Policy Plan, Zonal or Sector Plan can be prepared without a proper base map.

The importance of base maps should not be underestimated as being done so far, since without these, no proper plans can be prepared. The total cost of preparation of base maps with all the details as given, is Rs.800 per hect. i.e. Rs.0.08 per sq.mt. which is negligible in comparison to cost of actual development and construction of urban spaces per sq.mt.

To prepare base maps, decisions on the following points are required:-

i) Scale: It usually varies from 1:25,000 to 1:1000.

ii) Base Year: To take aerial photographs and then of updating base maps after every three years.

iii) Cost of the system: Preparation of base maps requires a lot of expenditure. For Delhi alone, an amount of Rs.180 million would be required based on 1990 cost index.

Dimensions of Delhi with reference to types of base map available.

The area of National Capital Territory of Delhi is 1487 sq.km., of Delhi Metropolitan Area 3,000 sq.km. and National Capital Region 30242 sq.km. The actual area covered during aerial photography is more and will be 2019 sq.km. for the National Capital Territory of Delhi, 3300 sq.km. for Delhi Metropolitan Area and 32000 sq.km. for NCR. This will be due to photography of adjoining pockets in a particular rectangular grid. Different types of base maps required with the help of remote sensing/aerial photography and otherwise can be divided into the four categories:

i) **Small scale maps** in the scale of 1:250,000, 1:100,000, 1:50,000 and 1:25,000.

ii) **Medium scale maps** in the scale of 1:20,000, 1:15,000, 1:10,000 and 1:6000.

iii) **Large scale maps** in the scale of 1:5000, 1:25,00, 1:1000 and 1:500.

iv) **Very large scale maps** in the scale of 1:200, and 1:100

1.2 Scale of maps and their uses:

Base maps, whether small, medium, large or of very large scales, are used for the following purposes:-

1.2.1 Small scale maps

Small scale maps are used for macro landuse planning, location of settlements, inter-city roads, railway traffic systems, Master Plan of physical infrastructure, viz. water, sewerage, drainage and power, gas supply, plans of provincial, regional level, metropolitan level (DMA) and plans of agriculture, forestry, water resources at macro level.

1.2.2 Medium scale maps

Medium scale maps are used to prepare divisional maps, sector maps, zonal maps and detailed meso level plans of agriculture, forestry, and water resources, plans at sub-regional level, plans of agglomeration of super metropolitan cities like Bombay, Delhi, Madras and Calcutta.

1.2.3 Large scale map

Large scale maps are used for landuse atlas, land ownership atlas, intra traffic and transportation systems, planning of sub-standard areas namely - shanties (jhuggies) clusters, unauthorised colonies, urban villages, rural villages, slum areas and resettlement colonies, general layout plans, implementation plans of residential, industrial, institutional and commercial area, utility maps namely - water, sewerage, storm water drainage, power, gas and tele-communication, implementation plans of any type.

1.2.4 Very large scale maps

These are used for the purpose of detailing of projects and are prepared manually with the help of plain table surveys, theodolites etc.

It is clarified that not only proper base maps are required, but their updating from time to time, generally once in three years, is also required. These base maps are required not only for Delhi Development Authority, but to other authorities, undertakings too, namely - Delhi Water Supply & Sewage Disposal Undertaking, Delhi Electric Supply Undertaking; PWD, Delhi Admn., Traffic Police, Irrigation & Flood Deptt., Delhi Admn, General Wing, Municipal Corporation of Delhi, New Delhi Municipal Committee, RITES, Department of Urban Improvement, Department of Agriculture & Forestry, Traffic Deptt., Delhi Admn, Slum Wing, DDA, School of Planning & Architecture and Town & Country Planning Organisation.

Small scale maps can be prepared with imageries from - i) LANDSAT-5, MSS & TM; ii) SPOT-1A; iii) IRS-1A in 30 mt., 10mt. & 72.5 mt. resolutions respectively. These imageries can be procured from National Remote Agency, Hyderabad. Medium scale maps are available for Delhi as well as for many cities, but of 10-15 years old. Large scale maps are the most important one but not available in Delhi. Due attention should be paid for their preparation since these are urgently required for all metropolitan cities to prepare different types of maps.

1.3 proposals given by National Remote Sensing Agency, Hyderabad (NRSA) for the preparation of different types of base maps for Delhi.

National Remote Sensing Agency (NRSA), Hyderabad and Indian Institute of Remote Sensing (IIRS), Dehradun sent a detailed proposal of preparation of base maps for National Capital Region, Delhi Metropolitan Area and National Capital Territory of Delhi, in April, 1990 as per outlines given in the following five paragraphs:

1.3.1 Remote Sensing Surveys and final output for National Capital Region (NCR):

The survey will cover an area of 3200 sq.km. with images of 10 mt. resolution in a scale of 1:50,000 with following components expected to be completed in two years. The following figures include expenditure on man-power and equipment, but do not include cost of printing of maps and reports:

i. Total spot FCC (False Colour Composite) scenes required : 90

ii. Man months requirements

a. Total man months required for interpretation of all the 90 FCC scenes @ one man-month per scene. : 90

b. Total man-months required for cartogaphy work for all the scenes @ two man-months per scene : 180

c. Total man-months required per scene : 270

iii. Man-power requirements (nos.)

a. Urban Planners : 4

b. Catographers/Draftsmen : 8

c. Statistician : 1

Total : 13

iv. Total expenditure for the entire National Capital Region (NCR) in a scale of 1:50,000 at 1990 price level. : Rs.4.7 million

1.3.2 Remote Sensing Surveys and final output for Delhi Metropolitan Area.

This survey will cover an area of 3182 sq.km. including Delhi, NOIDA controlled area, Gurgaon, Bahadurgarh, Loni, Faridabad, Ballabhgarh, Kundli, Sonepat etc. The scale would be 1:20,000 and the project is expected to be completed in a period of two years. It would have 55 spot FCC scenes with the following output and cost:-

i) Man-power requirements:

a. Man-months required for interpretation of all scenes @ one man-month per scene 55

b. Man-months required for cartography work for all scenes @ two man-months per scene 110

c. Man-months required 165

ii) Man power requirements

a. Urban Planners 3

b. Cartographers/Draftsmen 5

c. Statistician 1

Total 9

The total cost of this project at 1990 price level would be Rs.3.5 million including cost of man power and machines. This does not include cost towards printing of maps and reports.

1.3.3 Large scale mapping of the entire Union Territory of Delhi in scales of 1:5000 and 1:1250 or 1:1000 with 70% forward and 30% lateral overlaps.

The survey would have the following 9 activities with cost component as given in Table No.1:

Table No.1
Components of large size maps along with cost of each component at 1990 price level

Sl.No.	Item	Total cost (Rs.million)	Cost/hect. (Rs.)
1.	Aerial Photography	4.265	21
2.	Ground control (Planemetric)	1.5	7.5
3.	Ground control (height)	10.266	51
4.	Monumentation of control points on the grid	0.16	0.8
5.	Control expansion by Photo-grammetric	9.046	45
6.	Photogrammetric map preparation	105.272	526
7.	Rectification & enlargement (optional)	4.57	22.85
8.	Field verification	15.061	75
9.	Fair mapping	9.023	45
	Total	159.163	800

ii) Time taken to complete the project for mapping of entire Delhi would be approximately 10 years.

iii) Final output products would be as under:

a) One set of contact prints on glossy paper in 1:5000 scale

b) List of control data (both height & plan control)

c) List of monumented control data

d) Rectified enlarged aerial photos on 1:1250 or 1:1000 scale

e) Digital base map data on Compatible Computer Tape (CCT) or on Magnetic tape

f) Photogrammetrically plotted maps duly verified with the ground data (original plus ammonia copies).

1.3.4 Storing & Processing of Data.

So far the system of storing and processing of data as and when reproduction is required is not easily available, and for this, system has to be evolved. The cost of keeping records and using them for purposes of updating has to be worked out. This matter was discussed with the officers of National Informatic Centre, Planning Commission, Govt. of India, who estimated the cost would be between Rs.25-30 million for the entire system at 1990 price level.

1.3.5 Proposal for setting up of Digital Photogrammetry Systems and Geographical Information System (GIS) for entire Delhi.

For setting up the systems, the following 8 activities are required and would cost a total of Rs.3 million on 1989 price levels at given in Table No.2.

Table No.2
Requirements of setting up of digital photogrammetry system and GIS system for Delhi

	Name of the Activity	Rs. (million)
i)	Microphotogrammetric system	0.60
ii)	P.C. based image processing system	1.00
iii)	Colour inkjet printer	0.15
iv)	Magnetic tape drive	0.20
v)	Digitizer	0.30
vi)	Plotter	0.30
vii)	GIS Software	0.30
viii)	Consultancy charges for NRSA expertise TA/DA etc. (adhoc)	0.15
	Total	3.00

1.4 Brief of the proposals given by Norwegian Agency for Development Studies (NORAD) about utility mapping.

Norwegian Agency for Development Corporation (NORAD) was requested to conduct and finance a study of 'Utility Mapping' system for Delhi. NORAD submitted a report in March, 1990 with recommendations, of which the important ones are given below:

1.4.1 Names of 15 organisations which are concerned with the preparation of utility maps.

i) NIC (National Informatic Centre), Planning Commission, Govt. of India.

ii) Survey of India, Govt. of India.

iii) Delhi Development Authority

a) Establishment of suitable grid
b) Large scale mapping
c) Interpretation and updating of base maps.

iv) Delhi Water Supply & Sewage Disposal Undertaking for water, sewerage and urban drainage.

v) Delhi Electric Supply Undertaking for power.

vi) Irrigation & Flood Deptt., Delhi Admn. for planning of flood protections and control works.

vii) Mahanagar Telephone Nigam Ltd. for tele-communication.

viii) Delhi Fire Service - for fire safety.

ix) Slum Wing, DDA for development of part of sub-standard areas.

x) Delhi Transport Corporation for planning of new routes.

xi) Rail India Technical & Economic Services (RITES) for underground railways.

xii) General Wing, MCD for development of part of sub-standard areas.

xiii) DDA/Delhi Administration for environmental planning.

xiv) Delhi Administration for planning of social services & infrastructure.

xv) Delhi Administration - Police Department.

1.4.2 **Important findings.**

The following are the important findings of the proposals given by NORAD:

i) A national grid should be established in Delhi and large scale base maps should be produced only for 'urban areas' of Delhi as well as of extensions to urban areas.

ii) The feasibility study for 'Planning of utility mapping system' should be carried out by taking one pilot project.

iii) At present, there are no proper ground control points for Delhi of acceptable quality for large scale mapping. A grid of sufficient accuracy must be established with an accuracy of + 0.5 mt. The number of ground control points in new grid should be one in 10 sq.km. for existing urban areas and one in 20 sq.km. in rural areas and urban extensions areas.

iv) Digital maps should be used, inspite of their more cost. Due to several benefits, the most important being that there is no limitation of scale of map and sheets can be reproduced in many scales, as and when desired.

v) A local organisation with its office in Delhi should be responsible for continuously updating of the maps. The guidelines should be worked out in a way which ensures use both in manual and computerized utility mapping systems. A new organisation should be set up with a seed capital of Rs.50 million in a separate building. Since the maps have to be updated every three years, so this would be a permanent organisation.

vi) It is envisaged that NORAD support to the project will be required over 5 years; 2.5 years for a Pilot Project and following 2.5 years, with reduced technical assistance support to the continued utility mapping and institution building in Delhi. The study should be carried out by a joint Indian and Norwegian team. The team would arrange regular training sessions on Utility Mapping System (UMS) for the participating organisations during the study.

vii) The expenditure on the project would be borne by India, except the technical assistance from the Norwegian team. Software in the Utility Mapping System and some important equipments which are not available in India and that too for Pilot Project would be supplied by Norwegian team. Technical assistance will be for the Pilot Project and for a follow up period of 2.5 years. The total technical assistance may be of 20 million Norwegian Marks.

1.5 Important Surveys for Delhi

1.5.1 Surveys of Delhi Metropolitan Area.

It is proposed to have surveys in a scale of 1:25000 or 1:20000 of 3182 sq.km. including all priority towns in the first ring of National Capital Region. Names of priority towns in the first ring are - Mohan Nagar, Sahibabad, Ghaziabad, Loni, Noida, Faridabad, Ballabhgarh, Bahadurgarh, Gurgaon, Sonepat, etc. with imageries to be procured from National Remote Sensing Agency, Hyderbad. The total cost of the project is Rs.3.5 million and it would be completed in a period of two years. These would be important base maps to prepare sub-regional plans of Union Territory of Delhi and settlements in the first Ring.

1.5.2 Large scale mapping for the entire National Capital Territory of Delhi.

Aerial photography would cover an area of 2019 sq.mt.in a scale of 1:5000; enlargements after rectifications from ground surveys in a scale of 1:1250 or 1:1000 with 70% forward and 30% lateral overlaps, photography with 30 cm. focal length camera.

Final output would be as under:

i) One set of contact prints in a scale of 1:5000 on glossy paper.

ii) One set of dia-positive on polyster base material in a scale of 1:5000.

iii) One set of coloured photos of important areas only in a scale of 1:5000.

iv) One set of contact prints on glossy paper in a scale of 1:1250 or 1:1000.

v) One set of coloured photos only of important limited pockets in a scale of 1:1000.

vi) Digital base map data in Compatible Computer Tapes (CCT) Magnetic Tape.

vii) Photogrammetrically plotted maps duly verified on the ground.

NRSA, Hyderabad has quantified 9 activities namely - i) Aerial Photography ii) Ground Controls (Planemetrics) iii) Ground Controls (Height) iv) Monumentation of control points on the grid v) Control expansion by Photogrammetric vi) Photogrammetric map preparation vii) Rectification & enlargement viii) Field verification and ix) Fair mapping. Out of these activities, it is proposed that ii),iii), iv), v), vi) & ix) can be done by a Development Authority, of course, in consultation/training from Indian Institute of Remote Sensing - Human Settlement Analysis Centre, Dehradun and NRSA, Hyderabad.

1.6 **Creation of a Department of "Preparation of Base Maps" for Delhi**

1.6.1 **Structure of the Department:**

DDA/DELHI ADMINISTRATION
(Nodal Agency)

Advisors	Users Department
National Informatic Centre, National Remote Sensing Agency,	All the departments of Delhi Administration,

Indian Institute of Remote Sensing, Survey of India, Govt. of India, Town & Country Planning Organisation, Ministry of Works & Housing.

Municipal Corporation of Delhi; New Delhi Municipal Committee, Mahanagar Telephone Ltd., RITES, Delhi Development Authority.

1.6.2 Functions

i) Preparation of base maps in various scales of different parts as well as of entire Union Territory of Delhi.

ii) Updating of base maps with the help of 'Small Format Aerial Photography' (SFAP).

iii) Mapping of utilities, water, sewerage, drainage, power, gas, communication, traffic and transportation, location of economic activities.

iv) Preparation of land use maps, land ownership maps.

1.6.3 Office Building: 500 sq.mt. floor area.

1.6.4 Sources of Funds:

i) Non-recurring expenditure (one-time cost); 50% grant from Central Funds and 50% loan from Plan Funds of Delhi Admn.

ii) Recurring expenditure: Partly by Delhi Development Authority and the balance by user departments, on the following pattern to be adopted:

a) Cost of depreciation of machines, equipment and other fixtures

b) Cost of maintenance and replacement of machines and equipment and their parts

c) Cost of printing and stationery

d) Interest on capital expenditure

e) Cost of 'Small Format Aerial Photography' (SFAP) and

f) Cost of services, specially electricity

1.7 Pilot Project of preparation of base maps of Trans-Yamuna Area along with river Yamuna bed.

1.7.1 Basic Factors

i) Boundary of the Scheme and Dimensions

The Complex is bounded by Delhi-UP Border in the north, east and south and Ring Road/Right Marginal Bund of river Yamuna in the west. Total area of the Complex is 88 sq.km. of Trans-Yamuna Area and 100 sq.km. of river Yamuna bed. Population of Trans-Yamuna Area was 438,000 in 1971; 964,000 in 1981; 1.93 million in 1990; 2.13 million in 1995 and 2.2 million in 2001. The area has all types of development starting from shanty clusters, unauthorised colonies, unauthorised regularised colonies, urban villages, rural villages, 43 Cooperative Plotted House Building Societies, 250 Cooperative Group Housing Societies, few residential and industrial colonies developed by DDA, many group housing pockets constructed by DDA. Most of the areas of Trans-Yamuna Area are sub-standard in nature and it is about 80% unplanned and hardly 20% planned one.

ii) Scales

Base Maps are required in a scale of 1:10000 of the entire area, 1:5000 of built up area and 1:1000 of the area where projects have to be planned, developed and constructed jupon.

iii) Extended boundary to fly for the preparation of aerial photography

Total area would be more than 200 sq.km. and exact boundary would be earmarked on a plan in the scale of 1:50,000, after discussions with National Remote Sensing Agency, Hyderabad and Indian Institute of Remote Sensing, Dehradun.

1.7.2 Items of large scale mapping

1. Aerial Photography by NRSA - Hyderabad.
2. Ground control (Plannemetric) by DDA.
3. Ground control (height) by DDA.
4. Monumentation of control points on the grid by Survey of India, DDA.
5. Control expansion by photogrammetric.
6. Photogrammetric map preparation by NRSA, Hyderabad.
7. Rectification & enlargement (optional) by NRSA, Hyderabad
8. Field verification - NRSA, Hyderabad.
9. Fair mapping - NRSA, Hyderabad or DDA.

1.7.3 Final output of photography and line maps are required in the shape as details given under:-

1. One set of contact prints on glossy paper in the scale of 1:5000.

2. List of controlled data, both in height & plan control

3. List of monumented control data.

4. Rectified enlarged aerial photos in 1:1250 scale.

5. Digital base map data on compatible computer tap (CCT)/Magnetic Tape.

6. Photogrammetrically plotted maps duly verified on the ground (original plus ammonia copies).

1.7.4 **Duration of the Project**

The entire exercise should be completed in a period of two years after the work order is awarded for aerial photography.

1.7.5 **Updating of line maps**

Planned and unplanned construction in any urban area has become a continuous activity: At all the times some sort of unauthorised construction or squatting by shanties is taking place. To know the position from time to time, it is necessary to update the maps after every two or three years with the help of 'Small Format Aerial Photography' (SFAP) and Computer System.

1.7.6 **Cost of the Project**

It is expected that cost of the project would be Rs.20 million.

(R.G. GUPTA)
DIRECTOR (TYA) DDA
22.2.93