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1. Introduction

1.1. Understanding of the Project

The Mehrauli Village located behind the Qutub Complex is an Urbanized Village which has outgrown its rural characteristics to adopt urban features without upgradation of infrastructure. The village has seen a growth in high end commercial activities such as restaurants, retail stores and workshops for international and national designers and artists. Of the main utilities, transport is a sector which needs to be looked into immediately since a consequence of increase in commercial activity would be increase in traffic. As a result a need is felt to improve the connectivity of the village to the surrounding roads.

The project of topographic survey and collection of data in respect of planning to improve connectivity of the Mehrauli Village had been initiated by the Public Works Department. The project has been conceived in 2 parts as follows:

1) **Connectivity between Mehrauli Bus Terminal to M.B. Road** - The potential of presence of Anuvrat Marg continuing into Sri Aurobindo Marg is to be used to develop a possibility of creating a free flow between the village and the main road.

2) **Connectivity between Idgah to Neela Huaz Road** - The possibility of connecting the village from the Ambavata Complex Junction to Aruna Asaf Ali Marg near Neela Hauz has to be explored.

Phoenix Planning Studioz Pvt. Ltd. has been entrusted with providing consultancy service for pre-feasibility study to explore the possibilities of improving road connectivity of Mehrauli Village, New Delhi.

1.2. Background of the existing Alignment (Zonal context and recommendations in the zonal Plan)

The present alignment provides connectivity to the north-eastern part of Mehrauli to South Delhi. The present alignment if followed connects the Mehrauli Bus Terminal to M.B. Road, which is around 1.5km apart via Kalu Ram Road and Sri Aurobindo Marg. The width of the road varies between 9m - 15m another 29m road, Kalka Das Road joins the Kalu Ram Road at the entrance of the Qutub Complex and is also an important link to the village. The road was earlier of rural
character which was developed to facilitate accessibility to the Qutub Complex. A walking trail connects the bus terminal to the main road passing through the Archeological park. It is used for organizing heritage walks and for other leisure social activities.

Map 1: Existing Alignment

Source: Google Map, Phoenix Planning Studioz, July 2013

The site falls in zone F (Sub-Zone F-15), under the Master Plan, Delhi, 2021. To preserve and enhance the green character of the South Delhi Ridge and identify and conserve the historical monuments in the zone were few of the main objectives of the Zonal Development Plan. Under the MPD, 2021 the proposals for this zone were as follows:

- The ridge is to be conserved with utmost care and is to be preserved in pristine form.
- The whole area is demarcated as a conservation area due to its heritage value and potential to attract tourists.
- Mixed use can be developed only as per Urban Renewal Schemes that will be developed following development control norms as per the MPD, 2021.
• It is recommended that in areas adjacent to important conservation zones, heritage zones and monuments the transportation network may run underground.

• Under the conservation proposals, following the Forest Act, areas identified as the ‘Reserved Forests’ shall be retained as such, where no construction, temporary or permanent will be permitted. Mehrauli Area has been identified as reserve forest.

• As per ASI area up to 100m around any listed monument is identified as a prohibited zone, where no building activity is allowed. Up to 200m, the area is defined as a regulated zone where building activity shall be done only after seeking permission from ASI.

• No allotments are to be made in the ridge area.

1.3. Importance of the existing alignment

The existing alignment is important as it provides accessibility to the landmark Qutub Complex and further ahead is the arterial link of the village to the main road of Sri Aurobindo Marg or Mehrauli Badarpur Road. As the village lacks in public amenities and utilities maximum people access the surrounding area for the same. The only link they have to the surrounding areas is through the existing alignment. It is also a crucial link to important workplaces such as Chattarpur, Munirka, Nehru Place, Hauz Khas, AIIMS etc.

1.4 Justification for a new alignment

At present the travel distance on the existing alignment is of 1.5 Km. Running Speed is a slow as 20Km/Hr. However, due to congestion delays occur of almost 25-45 min. Delays occur due to

• Movement of buses at the narrow entry/exit gate of the bus terminal

• Large number of tourist buses entering the area during peak tourist seasons

• On street parking due to commercial activity

Keeping in mind the importance of the link it is crucial to develop alternate connection between the Mehrauli Bus Stand and M.B Road as mobility on the present road is greatly reduced. Also the commercial activity, leading to on street parking and informal commercial set ups, further congests and slows down the traffic. The present alignment caters to a population of almost 3 lakh and is the most important link for northern Mehrauli. Few of the problems assessed were:
• Very frequent traffic jams which take over 45 minutes to clear up

• The existing road is used as a 2 way road but its width varies greatly from 9m to 15m throughout its length. As a result it becomes difficult for large vehicles to ply on it.

• The road has a number of turnings, making navigation even more difficult

• On street parking further reduces the carriageway

• The road has no provisions for safe pedestrian movement

• Commercial activity along adjacent to the road attracts traffic of pedestrians as well as vehicle, further increasing congestion

• The road further leads to the lanes within the settlement, which are only as wide as 2-4m. In case of fire or other emergencies it becomes difficult for Fire Engines or Ambulances
to reach close to the settlement. Many such incidences were reported by the inhabitants of the village.

Thus it is established that a direct link to M.B.Road would increase accessibility to the village thus making it safer, well connected and would increase its potential for development.

1.5 Objectives

- Understanding the background of the existing alignment and establishing its importance
- Developing alignment alternatives
- Studying the detailed land use and land ownership of the proposed corridors
- SWOT analysis in terms of legal, technical, physical, socio-economic and cultural feasibility of all the options

1.6 Scope of Work

i. The work would entail:
ii. Conducting Topographical survey
iii. Collecting data and assessing the existing physical conditions, natural setting, existing infrastructure, social and economic characteristics of the surrounding, cultural importance, land availability and optimized utilization
iv. Studying the legal framework to be followed for developing alternatives
v. Identifying potentials and constraints of the site
vi. Development of alternatives with information of land-use and land ownership patterns.

Understanding of the Consultant: Assistance shall be provided by the Client to facilitate availability of this data in forms of request letters to appropriate authorities and guidance.

i. Establishing feasibility of the alternatives by means of SWOT analysis with respect to legal, physical, technical, socio-economic and cultural aspects.

Understanding of the Consultant: Financial aspects shall not be dealt with at all.
1.7. Methodology

- **SECONDARY DATA COLLECTION FROM ASSOCIATED OFFICES**
- **TOTAL STATION SURVEY**
- **RECONNAISSANCE SURVEY**
- **SURVEY PLANNING**
- **DATA COLLECTION**
- **ANALYSIS AND IDENTIFICATION OF POTENTIALS AND CONSTRAINTS**
- **TECHNICAL FEASIBILITY**
- **SOCIO-ECONOMIC AND ENVIRONMENTAL FEASIBILITY (IF REQUIRED)**
- **VISION, PROPOSALS AND ALTERNATIVE DEVELOPMENT ALONG WITH FEASIBILITY OF EACH ALTERNATIVE**
2. **Reconnaissance Survey**

2.1. **Site Description**

Mehrauli lies in the South West district of Delhi at 28°30′57″N 77°10′39″E. To its north lies Hauz Khas. Vasant Kunj lies to its West and Tughlakabad to its south.

Map 2: Location of Site in Mehrauli

![Map showing the location of the site in Mehrauli](source: Google Map, Phoenix Planning Studioz, July 2013)

The site taken for feasibility study lies in East of Mehrauli at the intersection of M.B. Road and Anuvrat Marg.

2.1.1. **Area and Boundary**

The site is located south of the Mehrauli Bus Terminus, approximate area being 55 Hectares. 85% of the site is a part of Mehrauli Archaeological Park, which is a conservation zone.

The boundaries of the site are defined by,

- Anuvrat Marg to South-East
- Qutub Complex and Mehrauli Bus Terminus to North
- Mehrauli Settlement to West
- Devi Puriji Ashram Marg to South-West

**Land Ownership**

The area is divided among the following managing agencies,

- Forest Department
- Delhi development Authority
- Sports Authorities of India
- Others

Thus, feasibility of the alignment will have to be assessed in terms of Land Ownership.

**Map 3: Area and Boundary of the Site**

Source: Google Map, Phoenix Planning Studioz, July 2013

Connectivity of Mehrauli to important landmarks are as follows:

- I.G. International Airport is approximately 17 km.
- 18 km approximately from New Delhi Railway Stations
• Nearest Metro Station is Chhatarpur & Qutab Minar Metro Station.

2.1.2. Physical Conditions

Accessibility

The Site is accessible only from East and West. There are five entry and exits to the site, three from the East and two from the West. All the entries are Heritage trails built of natural materials such as sandstone and the local quartzite stone employing traditional workmanship thereby contributing to the unique natural and historic character of the area. The fifth entry to the site is only for the nurseries. Entry to the site from the Devi Puriji Ashram Road is only for the encroachments which are present on the periphery.

Figure 1: Entrance to the site from Bus terminal is through Landfill Site at Post Office

Source: Phoenix Planning Studioz, July 2013
Map 4: Entry/ Exits to the Site

Source: Phoenix Planning Studioz, July 2013
Levels and Slope variation

Considering the TBM level at Bhul Bhuleya Tomb as 108 meters, the minimum level of the site dips to 80 meters and maximum level rises up to 106 meters. Site is undulating in nature.

Monuments and Religious Structures

The Site contains

- Ruins of Tomb of Balban, wherein a true arch and the true dome were built for the first time in India
- Jamali Kamali Mosque and Tomb of Maulana Jamali Kamali (Jamali Kamboh), built 1526 - 1535 CE
- Khan Shahid Tomb
- Rajon Ki Baoli, a stepwell
- Metcalf Canopy Tomb
- Tomb Lodi period
- Humed Tomb
- Sulmani Mosque
- Jamia Khadimul Quram Qadimi Mosque
- Gumti Tomb

Note: Site also has other unlisted and unidentified Tombs, Samadhi and Stambhs.
Map 5: Monuments and Religious Structures in site

Source: Phoenix Planning Studioz, July 2013

Encroachments
Site has been encroached peripherally from Mehrauli side as well on the Devi Puriji Ashram Road. Encroachments are in the form of huts, some of the permanent structures have also been built towards Devi Puriji Ashram Marg near Jain Mandir.
2.1.3. Natural features

Flora and Fauna

The flora on the site consists of Dhak, Khair, Khejri, Kumattha, Desi Keekar, Hingot, Ronjh, Bistendu, and Siri. But due to water table going down these trees are becoming extinct and *Prosopsis Juliflora* trees are rapidly growing.

Wild Life

Wild life present in site comprises mostly Nilgai, Fox, Peacocks etc.

Water Body

There are 6 water bodies in the site, of which three of them are man-made tanks, approximate area being 1 hectare. Other three water bodies are naturally occurring. The water body present adjacent to the Rose Garden covers an area of 0.2 hectares and is used for recreational activities such as boating. Another water body present near the Jain Mandir covers 0.65 hectares. A seasonal water body is present near the Bus terminal wall having an area of only 0.03 Ha.

There are two water logged areas in the site which become inaccessible during monsoon. Other water supply related utilities such as, a well and a pump house, use to maintain the Rose Garden are present towards the North.
Map 6: Water bodies in the site

Source: Phoenix Planning Studioz, July 2013

Water Table

The water level has gone down in the recent past ranging between 45 m to 50 m due to rise in population of the Mehrauli and nearby areas.

Soil

The soil is of sandy loam to loam texture.

Climate

Mehrauli has a semi-arid climate with high variation between summer and winter temperatures. While the summer temperatures may go up to 46 °C, the winters can seem freezing to people used to a warm climate with near 0 °C.
2.1.4. Infrastructure and Utilities

Trail

Walking trails are present mostly on the Northern side of the site. Width of the trail varies from 2-3 meters. At some places trails are not continuous and dead ends are created. Trails exist only in the area where the historical monuments are located. Other half of the site, where no monuments or Tombs are present, lacks accessibility due to dense forestation and contours.

Map 7: Trails in the Site

Source: Phoenix Planning Studioz, July 2013
**Drains**

A drain runs through the center of the site dividing it into two parts. One part of the drain enters the site from the bus terminus boundary and other from Nirank Kari Satsang Bhavan. Drains are covered but certain part which is along the wall of the bus terminus is open and lot of waste is dump into it at this section.

**Map 8: Drains through the site**

![Map of Drains](image)

*Source: Phoenix Planning Studioz, July 2013*

**Electric poles**

Electric poles are present on the western and southern periphery of the site and also along the heritage trail. 2-3 electric poles are also present near the pump house towards the north of the Rose Garden.
Public conveniences

Drinking water facility is provided only at the centre of the site where 2-3 sections of Heritage trails merge.

Street Furniture

Street Furniture is provided all along the landscaped area near Jamali Kamali Mosque. Rest of the site is neither landscaped nor does it have any street furniture.

Signages

Signages are placed all along the trail to guide through the park naming important monuments and giving their details.

2.1.5. Historic and Cultural Importance

Area of Mehrauli is the oldest continuously inhabited area of the city. As such it contains the architectural legacy of many centuries. Lal Kot, the first fortification of the city of Delhi, was established by the Tomar Rajputs in the Mehrauli area in AD 1060. The Chauhans extended this by adding the fortifications of Qila Rai Pithora, and after them the Il-Bari Turks continued to rule from this location. Though later capital cities were built at other sites, this area was not abandoned and many important buildings continued to be located here during successive dynasties - the Khaljis, Tughlaqs, Lodis, Mughals, and the British.

Over 300 listed buildings of archaeological, architectural and historical significance dot the Mehrauli area with over 100 of these standing in the green belt south of the Qutub World Heritage Site and many more are still to be uncovered. The Delhi Chapter advocated the conservation of this area as a whole for several years. It measures about 100 acres and the Master Plan of Delhi, 2021, now refers to it as the Mehrauli Archaeological Park. It has buildings from practically each period of Delhi’s history.

Some of them are well known such as the historic mosque of Jamali Kamali and the step-well known as Rajon Ki Baoli, both protected by the Archaeological Survey of India. Others remain unprotected and have received attention only recently.
The Mehrauli Archaeological Park could compare with any archaeological site worldwide for its rich concentration of a diverse range of architectural heritage in a landscaped setting. It is in close proximity to the Qutub Minar complex, and has the potential to draw thousands of visitors daily. Besides being a major heritage attraction, the Mehrauli Archaeological Park, afforested in the 1970’s, is also a significant ecological resource for south Delhi. The park boasts of a number of animal and floral species.

2.1.6. Socio-economic importance

Mehrauli Archeological Park is planned as a playground of learning with heritage trails and detailed signages; it is however, not only about history. A significant bit of "green", it also provides the congested area (Mehrauli Village) a bit of breathing space. Area is threatened by encroachment, it might be the most "protected" part of the city, but the residents of the area still need to "adopt" it.

Mehrauli Archeological Park is one of the largest archaeological parks in the country, with heritage structures spanning over a millennium. At present, the park, which accommodates over 100 significant heritage structures and archaeological remains, has fallen prey to rampant encroachment. With lack of concrete conservation and developmental effort, wild vegetation and crumbling heritage structures are all that stand in the sprawling 125-acre plot.
2.2. Surrounding Conditions

Map 9: Surrounding Conditions

Source: Google Maps, Phoenix Planning Studioz, July 2013

Site is surrounded by many Monuments and Reserved areas as well as Settlements,

- Towards East: Anuvrat Marg, Qila Rai Pithora, Garden of Five Senses and Mehrauli Badarpur Road
- Towards North: Mehrauli Bus Terminal, Qutub Complex, Lado Sarai, Shri Aurobindo Marg, Qila Lal Kot
- Towards West: Mehrauli Settlement, Aruna Asaf Ali Marg
- Towards South: Abdul Gaffar Khan Marg, Reserved Forest

Mehrauli is one of the seven ancient cities that make up the present state of Delhi. Whole area is severely congested and under neglect. Major Arterial Roads in and around the site are Anuvrat

Qila Rai Pithora was created by Prithviraj Chauhan, also known as Rai Pithora, the popular hero of the stories of Hindu resistance against Muslim invaders. Prithviraj’s ancestors captured Delhi from the Tomar Rajputs who have been credited with founding Delhi. Anangpal, a Tomer ruler possibly created the first known regular defense work in Delhi called Lal Kot- which Prithviraj took over and extended for his city Qila Rai Pithora. The ruins of the fort ramparts are still partly visible in the area around Qutab Minar.

Most of the area in and around the site are reserved Forest and is rich in Water bodies, Flora and Fauna, Wild Life, Monuments from different eras, Congested settlements, etc.
2.3. Photographic Documentation

Map 10: Photographic Documentation

Source: Phoenix Planning Studioz, July 2013
Report for Pre-Feasibility Study for Route Development between Mehrauli Bus Terminal to M.B. Road

Figure 2: Temple near Bus Terminal

Source: Phoenix Planning Studioz, July 2013

Figure 3: Solid Waste dumping on the Site

Source: Phoenix Planning Studioz, July 2013

Figure 4: Starting Point of the Trail near Mehrauli Bus Terminal

Source: Phoenix Planning Studioz, July 2013
Figure 5: Trail passing through two monuments

Source: Phoenix Planning Studioz, July 2013

Figure 6: Trail near Water body

Source: Phoenix Planning Studioz, July 2013

Figure 7: Trail splitting into two

Source: Phoenix Planning Studioz, July 2013
Figure 8: Landscaped area near Jamali Kamali Tomb

Source: Phoenix Planning Studioz, July 2013

Figure 9: Landscaped area near Jamali Kamali Mosque

Source: Phoenix Planning Studioz, July 2013

Figure 10: Trail along the covered Drain

Source: Phoenix Planning Studioz, July 2013
Figure 11: Entry to the Site

Source: Phoenix Planning Studioz, July 2013

Figure 12: Entry to the Site from Mehrauli Settlement side

Source: Phoenix Planning Studioz, July 2013

Figure 13: Waste dumping area in the site

Source: Phoenix Planning Studioz, July 2013
3. **Potentials and Constraints**

**Potentials of Site**

- Part of existing heritage Trail can be used for connecting Bus terminal with the Mehrauli Badarpur road.
- Area between the existing Northern Trail and the Boundary wall of the Qutub Complex forms a prominent possible path alignment.
- Unique character of the area can be utilized to develop a landmark circulation network.
- The contours and foliage can be used to create a network which would be in harmony with the landscape of the area and with adequate sound buffer so as to create minimum disturbance to the surrounding.
- Possibilities to create shorter routes between the terminal and main road using planned landscaped areas of the park

**Constraints of Site**

- Presence of Monuments and ruins on the Northern Part of the site are major constraints, since all the monuments are scattered all around randomly.
- Site is undulating in nature. Thus leveling or other techniques of utilizing the contour will have to be thought of.
- Presence of Water bodies (Natural Ponds and manmade Tanks) on the site.
- Presence of Religious Structures in an ad-hoc pattern.
- Presence of Nurseries and Rose Garden.
- Activities such as heritage Walks, Jogging etc. has created a dominant path through the archeological Park which will have to be maintained.
- Presence of high density settlements leave very little scope of road widening
4. Perspective for Alternatives (vision)

Our vision for developing these proposals would be to propose a rational solution increasing mobility of vehicles, putting to optimum use the historic character of the site, guiding pattern of development and creating an harmonious landmark.
5. **Proposals:**

5.1 **Alignment 1:**

The proposed alignment runs at grade along the Qutub Complex Wall and then runs as a part elevated corridor from toilet blocks present near Quli Khan’s Tomb. In this alignment the level of the elevated portion shall be maintained at 91m elevation and the level drops in the contours along the path will be used to create arched cross over points to continue the heritage walk trails. The U-turn present in front of the Police Station on Anuvrat Marg will have to be shifted north by 50 m in front of the junction created, along with a slip road to bifurcate the right turning traffic.

**Remarks:**

The advantage of this alignment is that the shortest route shall be developed to improve the connectivity of the village. **The travel distance will be of 0.75km and average travel speed shall be 40km/hr.** While the proposal would be imposing a physical division between the planned park and the sensitive heritage zone, it would also be creating an interesting feature of archways for the visitors. Since the alignment would be elevated and would cut through planned zones of the park the possibility of ribbon development along the new development would be minimum.

The otherwise continuous green space would be virtually divided by the new alignment though physical connectivity would not be disturbed. Also at the eastern side the alignment runs too close to the monuments.
Map 11: Alignment 1

Source: Phoenix Planning Studioz, July 2013

Enlarge Map Enclosed
5.2 Alignment 2:

This alignment is an at grade solution connecting the bus-stand to the Flower Sellers Road. It runs at grade up till the Rose Garden and then separates into 2 one way roads which are grade separated (one side rises by 3m and the other side slopes down by 3m) and meet the main road after a crossover. The Stambhs that fall between the 2 roads are incorporated into an landscaped traffic Island. One way circulation is enforced on the existing streets of flower sellers road towards north of Rose Garden.

Remarks:

The advantage of this alignment is that the shortest route shall be developed to improve the connectivity of the village. The travel distance will be of 0.65km and average travel speed shall be 40km/hr. The alignment would run along the wall and edge of the park there by creating minimum interference with the activities of the park. Infact, the otherwise unutilized zones of the park would be infused with activity such that they do not become hubs for illegal activities and petty crimes.

Developing the alignment would require compromising on the pedestrian entry to Quli Khan’s Tomb. Also the alignment would pass through an area of dense foliage near the Rose Garden where even if all the trees would not require cutting but would have to be shredded and maintained.
Map 12: Alignment 2

Source: Phoenix Planning Studioz, July 2013

Enlarge Map Enclosed
5.3 Alignment 3:

This alignment involves widening the Devi Puruji Ashram road, towards the south running from the Bus Stand to Anuvrat Marg, from in front of the Jain Mandir. The people travelling to Gurgaon from Mehrauli village would have to take a U-turn from the opening in front of the Police Station on Anuvrat Marg or at the Junction of Anuvrat Marg, M.B Road and Sri Aurobindo Marg.

Remarks:

The advantage of this alignment is that the alignment makes use of an existing alignment thus minimum damage would be done to the surrounding. Thus this option would be cost effective, of minimum intervention and would involve minimum damage to the surrounding properties and land.

However, the alignment follows would be longer than the other alignments. **The travel distance would be of 1.3km and the design speed would be of 40 km/hr.** Some parts of DDA land along the alignment would also have to be acquired thus the cost has to be incorporated within the project. Also structures of public semi-public use and heritage value along the stretch near the village will have to be taken care of while developing the stretch.
Map 13: Alignment 3

Source: Phoenix Planning Studioz, July 2013

Enlarge Map Enclosed
6. Comparison

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<th>Parameters</th>
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<th>Alignment 2</th>
<th>Alignment 3</th>
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<td>Major Construction Element</td>
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<td>Crossover</td>
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7. Conclusion

Keeping in view the above comparison, Alignment 3 seems to be the most feasible option, since

- it is an option of minimum intervention thereby conserving the largest maintained green patch of Delhi, which would help in maintaining the natural environment of the settlement
- Also it would be cost effective and
- Would not hamper any activity of the park. Instead, it would prevent the illegal, unhygienic and pollution creating activities taking place in the park area.
- The coverage area for movement of local traffic as well as floating traffic will be maximum in this case.
• Qutub Complex and the archeological park would be developed as a larger contiguous heritage area, increasing the potential for tourist activity as well as generating revenue from the otherwise less known archeological park.

• Over spill of the settlement has begun on to the archeological park site, which would be restricted by development of this alignment it would define a clear boundary to the archeological park.
Annexure

Map 14: Mehrauli Zone

Source: INTACH
Map 15: Mehrauli Archeological Park

Source: INTACH