"HIGHWAY NETWORKING SYSTEM"

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ABSTRACT: *This project is part of our effort, it helps to connect various cities and certify their safety while travelling. Through this presentations we want to explain you about how to connect various cities and villages, how to develop them and boost industrial sector around them by connecting them with a common highway. The highway networking system helps in connecting various villages, town, cities and the required drainage system in to topographically and highly region. The basic need in Malshejghat is to carry out the existing rock condition. The rock type is basalt whose porosity index is very high. The sketch of the project cover under this passages through rolling /hilly terrain of Malshejgat This sketch passes mainly through thane dist. The formations width various from 6m-9m.The project road is two lane highway the road geometrics are poor and this are some sharp curve and stiff gradient at many locations. There are 40 culverts and 1 bridge. Which required a quality for providing networking systems. Pradesh & lastly ends a junction withNH7 near Nirmal in AP. The project road is stretches of NH222 forming part of project road pass through four districts of Maharastra Viz Thane,Pune, Ahmadnagar & Beed. The total length of NH222 is 285Km an index map showing the project road attached.*

INTRODUCTION:

Highway:

India has a road net over 33,00,000Km, available of this state road quantity about 70,934km. Department of road transport and art created many state free ways to state road fit of India (NHAI) for their progress.

NHAI has particular Kalyan to Andhra Pradesh edge unit of NH-222 (km 0 to 232& km 284 to 337) for restoration and up gradation to 2 lane with raised carries shape under NHDP PhaseIV.NH222 incomes off after NH3 near kalyan, permits done Maharastra & Andhra Pradesh & lastly ends a junction withNH7 near Nirmal in AP. The project road is stretches of NH222 forming part of project road pass through four districts of Maharastra Viz Thane,Pune, Ahmadnagar & Beed. The total length of NH222 is 285Km an index map showing the project road attached.
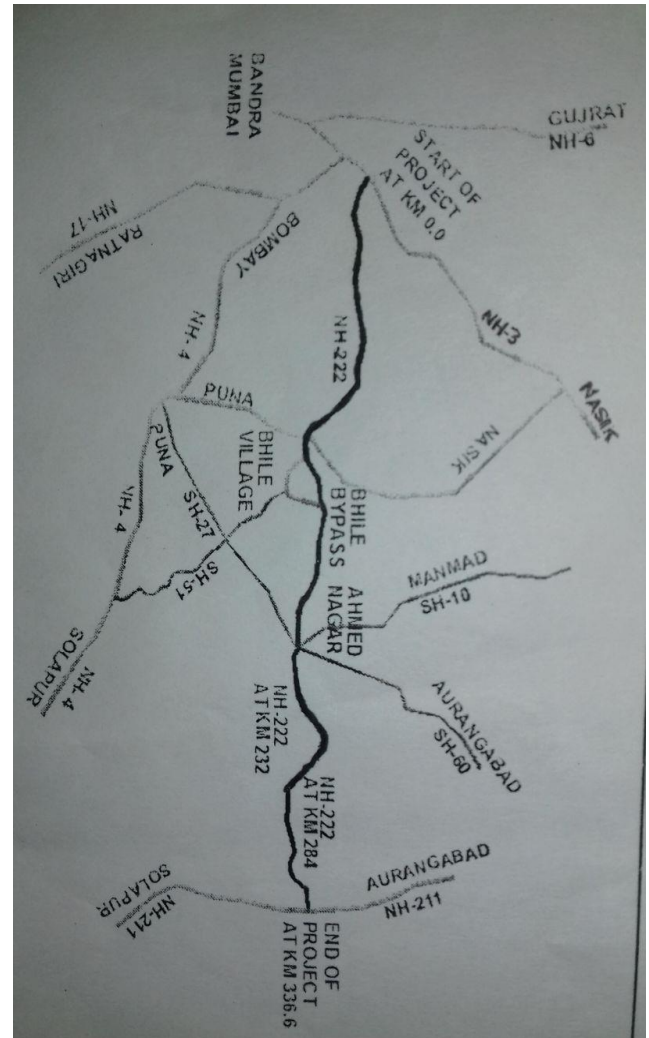

Fig.No:1

We take part of NH222 from city murbad to malshej ghat & it is about 55 Km.This has led to the emergence of transportation planning and demand management.

The selected stretch of NH-222 passes through district of thane in Maharashtra the total length of this stretch is 37 km.

METHODOLGY:

Project road particulars:

General:

The project road takes place off from Km 549.200 of NH-3 in Kalyan and ends at Km336.600(junction of NH 222 with NH 211).The total length of the project road section is 284.600 Km. The stretch from Km 232.000 to Km 284.000 is not part of the project road. The length covered under this package is from Km 64 to Km 101.

Existing Alignment/ Geometrics:

The stretch of the project road cover end under this package passes through rolling/hilly terrain of MalshejGhat. This stretch passes mainly through Thane Dist. The Right of way varies from 15m to 20m.The formation width varies from 6m to 9m.The project road is 2 Lane highway. The road geometrics are poor and there are some sharp curves and stiff gradient at many locations.

Terrain

The Road section passes through rolling and hilly (MalshejGhat) terrain.

Cross Sectional Details

(i)   Right of Way (ROW)

The right of way varies from 15m to 20m as observed at site and partly connected from state PWD. However exact ROW is being collected from State Revenue Authorities.

(ii) Roadway

The formation width varies from 7m to 10m in rolling areas and it varies from 6m to 9m in hilly areas in MalshejGhat.

(iii) Carriageway Width:

Project road as carriageway of 7.0m width.

Pavement condition:

The pavement condition of the existing road is fair having surface manifestation such like cracking, potholes & pavement surface is bitumen resulting in pitting suitable to loss of bitumen binder and dislodgement of aggregate particles at places.

Junction

There are total 32no Junction/ intersection out of which 23 nos are LHS junction, 8nos are RHS junction and 1nos is cross junction.

Culverts

There are 40 nos.of culverts in this stretch of the project road, The type of existing culverts are as follows:

. Hume Pipe Culverts   36 Nos.

. Slab Culverts   4 Nos.

Bridges

There are 1 bridge on this stretch and this is a minor bridge.

Existing tunnel

There are 80m long tunnel starting from km 92+312. The carriageway width inside the tunnel is 7.00m, sides are stable. The condition of the tunnel has deteriorated and few hanging boulders are seen while passing through the tunnel. The portals are also not maintained. the area received heavy rain every year and deteriorated the ground conditions. Individually the rock until shows high strength(dry crushing strength) up to 63-70 MPa in dry condition whereas, due to water saturation it reduces 10-15%. But presence of geological discontinuities, the rock mass becomes much weaker as compared to intact rock mass.

MODERN SOIL STABILIZATION TECHNIQUES:

The stabilization of naturally-occurring or native soil has been performed by millennia. The Mesopotamians and Romans separately discovered that it was possible to improve the ability of pathways to carry traffic by mixing the weak soils with a stabilizing agent like pulverized lime stone or calcium. This was the first chemical stabilization of weak soils to improve their load-carrying ability.

Successful modern soil stabilization techniques are necessary to assure adequate subgrade stability, especially for weaker and wetter soils. It is widely recognized that selection between cementitious stabilizing agents cement and lime is based on the Plasticity Index (P I) of the primary soil type being improved

Tunnel:

There exists 80m long tunnel starting from Km 92+312. The carriageway width inside the tunnel is 7.00m, Sides are stable. The conditions of tunnel has deteriorated and few hanging boulders are seen while passing through the tunnel. The portals are also not maintained and hanging of boulders can clearly indicate instability at alarming situations.

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conditions, whereas, due to water saturations it reduces 10-15%. But presence of geological discontinuities , the rock mass becomes much weaker as compare to intact rock mass.

Junctions/ Intersection:

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Service Road:

There is no service road on the project road section.

Retaining Walls & Breast Walls:

Retaining wall and breast wall are existing at many locations. Most of these have been retained. However the retaining wall coming within the proposed widening portions would be dismantled & reconstructed.

Toll Plaza:

There is no toll plaza.

Utilities:

There are number of existing utilities along the project road which are tabulated as under:

Sr. no	Particular	To be shifted
1	HT LINE WITH POLE	0
2	GAS LINE WITH PILLAR	0
3	ELECTRIC LINE WITH POLE	39
4	TELEPHONE LINE WITH POLE/ TOWER	3
5	OFC PILLAR	52
6	TRANSFORMER	3
7	HANDPUMP/ WATER TANK/ WELL/ TAB	1

Literature Review:-

The Indian Highway System:

India has very big road network, which carries 65% of the country freight (World Bank 2007) is subjugated by its 66,000 Km & long network of 228km federally-built and maintain National Highways, which connect major cities in the country to one another and which carry 40 per cent of the country road is comprising only 2 per cent of its aggregate road length of 3.3 millon Kms.

The important role played by the National Highway system has encouraged policymakers to pay important attention to their quality and carrying capacity, which is widely approved to be insufficient to the needs of a rapidly-expanding economy, both in conditions of lane capacity (bulk of the NH network as of the year 2000 was of two lanes or less; 32 % was in fact single-lane and practically none of the network was of 4 or more lanes and surface quality. In count, yet national highways in India are not access-controlled, so with the purpose of highways frequently pass through busy towns and villages, with poor cost not only for speed but also safety.

This has lead to common obstruction the World Bank uneven and ready that a quarter of all India highways are crowded, dropping truck and bus speeds to 30-40 kmph. It is so no revelation that policy-makers quarrel that Indias highway network acts as a restriction on higher economic development: for example, the World Bank country scheme for India ideates highway bottleneck as one of the major constraint to poor quality reduction and private sector-led expansion.

current highway systems industrial in the 20th century as the automobile gained status. The world's first limited access road was constructed in Italy in 1922.

Inside the USA, 1922, the first drawing for a national highway system (Pershing Map) was available. The Federal Aid Highway Act of 1956 owed $25 billion for the creation of the 41,000 miles (66 Mm) long Interstate Highway System more than a 20-year.

In Great Britain, the Special Roads Act 1949 provided the legislative basis for roads for controlled classes of vehicles and abnormal or no speed limits helpful in terms of universal road law this legislation reversed the natural principle that a road accessible to vehicular traffic was also available to mount or pedestrian passage as is regularly the only practical change when non-motorways are reclassified because individual roads. The first segment of motorway in the UK opened in 1958 and subsequently in 1959 the first section of the M1 motorway.

The most proper location, agreement, and shape of a highway are selected right through the design stage. Highway design involves the concern of three major factors (human being, vehicular & roadway) and how these factors work mutually to give a safe highway. Human factors contain reaction time for braking and steering, design irregularity for traffic signs and signals and car-following presentation. Vehicle considerations have

vehicle size and dynamics that are compulsory for important lane width and highest slopes, and for the collection of design vehicles.

Highway engineers design road geometry to make definite stability of vehicles when discuss curves and grades and to provide adequate sight distances for enterprise passing movements along curves on two-lane, mutual roads.

Geometric Design:

Highway and transportation engineers must meet many safety, service and arrangement principles when designing highways for specific site topography. Highway geometric design mostly refers to the noticeable elements of the highways. Highway engineers who plan the geometry of highways he must also think about ecological and social effect of the design on the adjacent infrastructure.

There are certain considerations that must be accurately address in the design process to successfully fit a highway to a site's topography and maintain its safety. a few of these design consideration consist of:

- Design speed

- Design traffic volume

- Number of lanes

- Level of Service (LOS)

- Sight Distance

- Alignment, super-elevation, and grades

- Cross section

- Lane width

- Horizontal and vertical clearance

CONCLUSION:

While it has been agreed upon that traffic overcrowding is a major problem in this country, as well as others, the solutions to this problem have ranged from the simple to the exotic. The same is true with the development of the Highway Networking System. While some of the benefits which are being promoted the most are increased safety and increased capacity, and thus decreased travel time during heavy traffic periods, exactly how much of a benefit which will be realized is debatable While more fuel-efficient vehicles are being introduced every year, the increase in the number of vehicles on the road each year not only offsets the benefit of reduced emissions per vehicle, but actually overwhelms it. An additional advantage is that highway financing would be more

transparent without the complex federal trust fund. Citizens could better understand how their transportation dollars were being spent. From soil stabilizations test and rock testing, it can be concluded that life span of murbad malshej highway will increases and the maintenances cost will reduces.

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