

Challenges in Implementation of Urban Transport Projects in Mumbai

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Summary

Smooth and effective implementation of urban transportation infrastructure projects in the city of Mumbai requires in depth planning and meticulous execution. Key considerations amid constraints are shared in the presentation that covers elevated infrastructure projects of flyovers, mono and metro rail.

Keywords: Planning, designing, methodology, execution, co-ordination

1. Introduction

With the objective of making MMR a destination of economic activity by promoting infrastructure development, transport infrastructure projects such as metro rail, monorail and flyovers are undertaken by MMRDA.

Careful study of site conditions such as dense population, British era underground utilities, narrow roads etc is vital before taking up a project. Land is an extremely scarce commodity. Key considerations at each stage of a project are discussed in the paper.

2. Planning

Land being foremost issue, identification of available land and its optimal utilisation is the first step. Alignment is finalised based on detailed traffic studies, available right of way, topography, vertical clearance and profile especially with regard to crossing railway lines. It is equally important to plan in such a way that land acquisition and therefore rehabilitation is minimal.

3. Resettlement and rehabilitation

Rehabilitation and resettlement of Project Affected Persons forms integral part of the project and is a crucial pre-condition for implementation. R&R program is chalked out in advance. The program is inclusive of relocation of community assets as well as post- R&R support and livelihood support activities for vulnerable PAPs.

4. Designing

Most feasible options of structural components and their design are adopted, based on site conditions and availability of space. These include pile foundations in lieu of open foundations, limiting span length in view of handling and transportation, higher grade concrete for achieving slender components, single pier system at narrow roads etc. Aesthetics and provision of noise



barriers also form part of the design process. The project is awarded on 'design and build' basis as it ensures single source accountability as well as optimal design and methodology. Bidder is asked to submit at least three alternatives of the scheme, and the most feasible one is selected.

5. Construction methodology

Site conditions and constraints need to be looked into while finalising methodology. For example, pre-stressed concrete girders are suitable for spans up to 30 m length while steel structure is adopted for crossing railway lines where required span length is up to 50 m. Cable stayed type bridge is chosen for longer spans.

Use of precast components to the extent possible, overhead launching system and segmental technology in downtown where traffic needs to be allowed interrupted are few other examples.

6. Execution

A number of challenges arise during execution owing to the very nature of the city of Mumbai. Underground uncharted utilities need to be mapped and diverted before foundation construction. Step by step approach is adopted that includes accommodating the utility in design, localised diversion, longer route diversion, permanent protection, special design solution etc.

Traffic management includes study of road network and vertical clearances before chalking out route of transportation of heavy components in consultation with traffic police. Erection of longer spans at obligatory junctions needs to be done swiftly. When needed, the entire road requires to be blocked for a longer period which necessitates traffic diversion plan.

In case of demolition of old structures that foul in the alignment, modern technology is adopted and the demolition activity is programmed and executed on hour to hour basis so as to cause least inconvenience to the public.

Police permit only 5 hours in the night for transportation of heavy components and equipment as well heavy construction activities like erection of girders. Such constraints call for precise logistics.

There are many other challenges such as synchrony between rate of casting pre-cast components and their erection, slow pace of construction during monsoon, alteration in traffic diversion plans, protection of equipment and material etc.

7. Safety

Construction safety is a big issue in the urban infrastructure project that involves complex operation, heavy machinery and limited space. Training and review is ensured along with welfare measures.

8. Co-ordination

Co-ordination with other departments such as police, Municipal Corporation and within MMRDA team is ensured through day to day liaison, review meetings and online monitoring.

9. Conclusion

Thus, infrastructure projects in Transportation sector in Mumbai pose many challenges, which can be countered by in-depth planning, selecting suitable methodology along with contingency plans and effective monitoring and co-ordination.