80 OF 128 STATIONS IN METRO PHASE-2 TO BE BUILT ON COLUMNS ABOVE CITY ROADS

STATIONS IN THE SKY

IN A NUTSHELL

Phase-2 line structures could be as high as a 11-storey building

SECOND PHASE

<table>
<thead>
<tr>
<th>Length</th>
<th>116.9km</th>
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</thead>
<tbody>
<tr>
<td>Budget</td>
<td>460,000 crore</td>
</tr>
<tr>
<td>Length of elevated corridor</td>
<td>76.3km</td>
</tr>
<tr>
<td>Stations</td>
<td>66</td>
</tr>
<tr>
<td>Size of elevated station</td>
<td>140m X 21.35m</td>
</tr>
</tbody>
</table>

THE METHOD

- In bended cantilever method of construction, the structure stands with support of columns only on one side
- The station will not be shaped like a tunnel built on the central median of the road
- The station will spread out on either side of the road on the single row of columns and its staircases will project out on either side connecting either ends of the road
- Hydroshadow metro rail was the first to use the method and build 63 stations
- Chennai metro rail will have six cantilever type stations to link a 4km stretch from Tondiarpet to Wimco Nagar

ADVANTAGES

- Saves space and reduces land requirement for construction
- Sleek stations can be built on narrow streets
- Less impact on roads as columns supporting the structure is at the centre
- Will not cause much traffic chaos

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By 2020, when a portion of the phase-2 line of metro rail opens, commuters will enter a futuristic world. Trains will fly off from compact elevated stations that have grown out of columns that run along the centre of the road. The structures will be as high as 11-storey buildings at about 6m to 8m. Commuters can watch an aircraft take off from Alibaug metro station or quickly catch a glimpse of the surrounding neighborhood from Porur Junction station before they board a train. The design is aimed at minimising land acquisition, time and money spent on construction.

Chennai Metro Rail Limited (CMRL) has planned 46 columns that will be nearer than the existing stations in Phase 1 making it easy for commuters to walk around. The stations will not rest on a row of columns but on the centre of the road. The structures will have two arms, each with a structure on each side of the road to serve as entry points for commuters.

Unlike Phase-1 where stations were built with a gap, the structures will be built on the pier itself, an official said.

Eighty of the 188 stations in Phase 2 will be elevated. Construction for a 1km priority corridor from Madhavaram to Sholinganallur and Madhavaram to CMRBS will begin by early 2020 and be completed in five to six years. Of the 97 stations in the priority corridor, 16 will be elevated.

A metro rail official said while most of the elevated stations would be at a height of about 6m, corridor 2, between Madhavaram and Sholinganallur will run a maximum height of 40.44m when it runs above the existing two-lane PH1 and PH2 roads to touch the highest point of the corridor at an elevation of 46m above the existing two-lane PH1 and PH2 roads. The station is proposed on the left side of existing stations on land reserved for metro, she said. The detailed project report of Phase 2 stations planned between Alwarthirum and Porur Junction will have a maximum height of about 70m as two corridors will be built, one below the other. Five stations are planned between Alwarthirum and Porur Junction, which will be an intersection of corridors 4 and 5.

"It is still under planning and design stage. The corridors may either be one below the other or one next to the other depending on the space and the design," she said. In Phase 1, the maximum height of the elevated structure was 25m, which was built above Katpadi grade separator at Goundy.

In Phase 2, stations passenger can climb up sleek sets of stairs or take an elevator to the announced level that will be at about the height. These, from the platform level, can view the bustling road below and the rest of the neighborhood, before climbing up again to level up after passing their smartcards to board trains that run at 25 to 35km altitude. In some stations, we have plans to do away with compact structures, but it is yet to be finalized," she said.