

Project: Mumbai-Ahmedabad High Speed Railway Project
Proposal No.: FP/MH/RAIL/31785/2018
Date of Proposal: 12/02/2018

ANALYSIS OF ALTERNATIVES

COMPARISON OF ALTERNATIVE ALIGNMENT

While finalizing the proposed MAHSRC alignment various alternatives were considered and a comparative study was done with the following aspects:-

- 1) Interlinking of the existing city transport specially for locating the station,
- 2) Attractiveness,
- 3) Natural and social environmental issues,
- 4) Technical
- 5) Promptness
- 6) Less R&R issues
- 7) Cost

Based on the above, the several meetings and discussions were held with the participating State Governments-Maharashtra and Gujarat, Western Railways to arrive at the final alignment and candidate stations.

First of all, the stations were selected at each major city between Mumbai and Ahmedabad and afterwards various alternatives alignment were examined based on the above components between the major intermediate cities. Three alternative alignments were examined and compared as discussed in length in the following sections.

Alternative 1 (ALT1)

ALT1 is shown in red colour in Exhibit 1 to Exhibit 4. Totally dedicated route for which starting station is proposed at Bandra Kurla Complex (BKC), Mumbai, crossing Thane Creek by tunnel and ends up at Sabarmati, in Ahmedabad with new suburban stations in Surat, Bharuch, Nadiad, Virar, Thane and juxtaposed to existing stations at Vadodara and Ahmedabad. It will be dedicated corridor with total length of 518.17km with 12 stations. It is proposed to have viaduct throughout the entire stretch except tunnel in Maharashtra region.

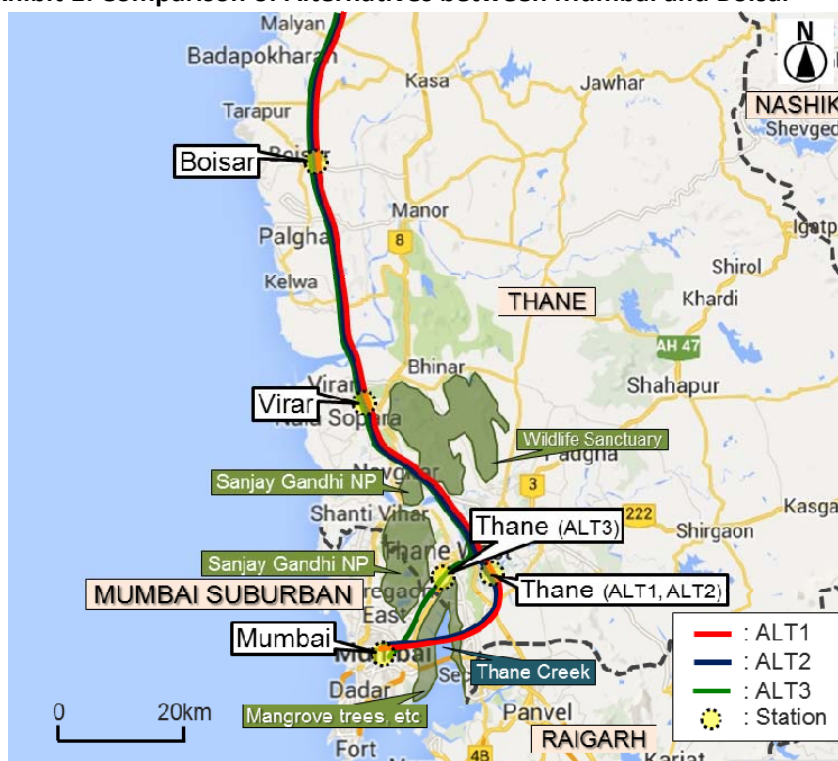
Alternative 2 (ALT2)

ALT2 is shown in blue colour in Exhibit 1 to Exhibit 4. Dedicated route for which new terminal station is proposed at Bandra Kurla Complex (BKC), Mumbai, crossing Thane Creek by viaduct and culminates at Sabarmati in Ahmedabad comprising new suburban stations juxtaposed to existing one at Surat and new suburban stations at Vadodara, Bharuch, Nadiad, Virar, Navsari and Ahmedabad.

Alternative 3 (ALT3)

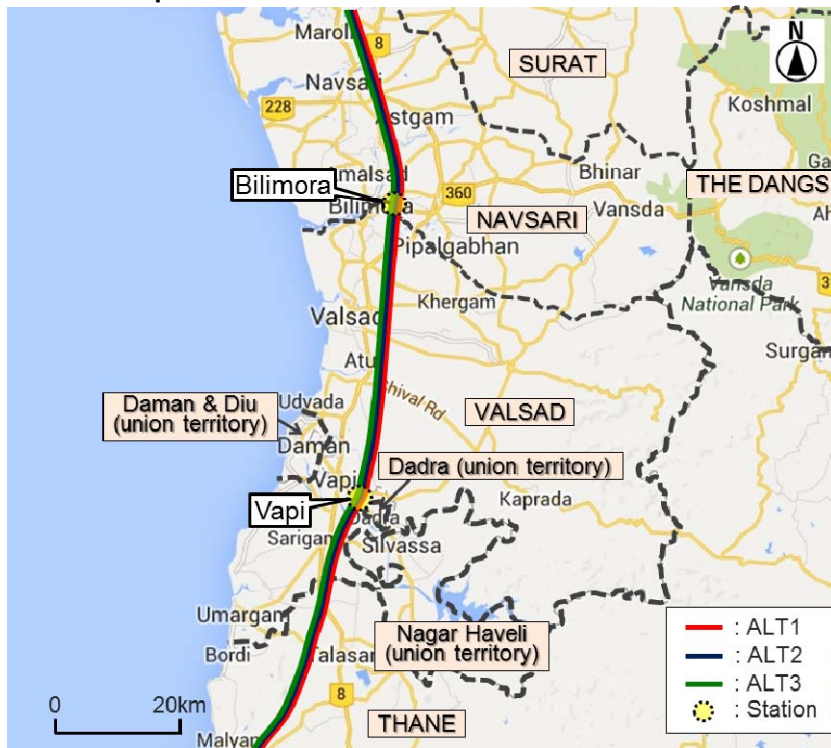
ALT3 is shown in green colour in Exhibit 1 to Exhibit 4. ALT3 route considers interoperability that HSR and existing railway are mixed in Mumbai, Surat, Vadodara and Ahmedabad areas. High speed operation is difficult due to a number of crossings of existing railway lines.

Exhibit 1: Comparison of Alternatives between Mumbai and Boisar



Source: Study Team

Exhibit 2: Comparison of Alternatives between Thane and Navsari



Source: Study Team

Alternatives-Between Mumbai and Thane

- As per the provisions of ALT1 and ALT2 in Mumbai suburban district, the HSR station location was planned at Bandra Kurla Complex (BKC), which is Central Business District. On the other hand, in ALT3, the HSR station was planned to utilize Lokmanya existing station and the HSR route was planned parallel to the existing line from Lokmanya Station to Kalwa station (northeast side of Thane existing station) considering interoperability between HSR and existing railways as shown in Exhibit 5.
- Between Mumbai and Navi Mumbai area (Navi Mumbai is area on east side of Thane Creek), ALT1 alignment passes through Thane Creek in the form of tunnel while ALT2 route passes in the form of viaduct.
- The tunnel has been proposed in the Thane Creek section to avoid felling of the mangroves. In case, viaduct is adopted in the Thane Creek section, hectares of mangroves patches need to be cleared which will result in a great loss to environment in the surrounding area where mangrove is considered to be the lifeline of city. In the light of above facts and figure, ALT1 was preferred.
- Thane HSR station under ALT1 and ALT2 was planned to be connected with the existing line, on the other hand, Thane HSR station on ALT3 was planned to utilize Thane existing station considering interoperability.
- ALT1 also passes through the Thane Creek Flamingo Sanctuary under the sea as tunnel structure, the longest tunnel of the entire stretch of MAHSR. This will lead to requirement of NBWL clearance.

Exhibit 5: Comparison of Alternatives between Mumbai and Thane

