APPENDIX D.3: BRISBANE LMF (EAST) REPORT AND EXHIBITS – ALTERNATIVE A
March 2019
APPENDIX D.3. BRISBANE LMF (EAST) ALTERNATIVE A REPORT AND EXHIBITS

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1 CONSTRUCTABILITY PHASES APPROACH THE BAYSHORE STATION.

This document describes the working phases of Bayshore station approach tracks adaptation. The main object of this work is the construction of a maintenance facility for future high-speed trains in the east side of the existing Caltrain tracks.

Affected area starts near the tunnel portal placed in Caltrain Bayshore station and ends on the straight alignment after Tunnel Avenue overpass.

The layout of the main track in this area is composed of the straight section running from the tunnel, a left-hand curve, a straight stretch parallel to future maintenance facilities, another left-hand curve and a last straight alignment.

LMF access turnouts are placed in the first and last straight sections, Bayshore station is at the beginning of the central straight line, and consists of two lateral platforms linked in with a footbridge. In addition, East side siding track is connected with an industrial area near the northern end.

As a general comment in the following phases, a series of speed limits are necessary. Experience shows that in the work area the speed limit is 20 mph, a permanent monitoring of the tracks condition must be made and the track ballast must be tamped under the railway track when necessary.

This speed limit restriction will be gradually lifted with the progression of the leveling works, the adjustments of the ballast bed, the release of tensions and the dynamic stabilization.
2 FUTURE SITUATION

Future situation presents a similar layout to the current one. This layout is displaced to the West. With this movement the access to future LMF is improved.

![Figure 1. Localization of Brisbane LMF alternative A](image)

In this alternative workshops are located in the east side of the tracks, so the railway exit to San Francisco is made directly from the siding track. In addition to this, a flyover is necessary to allow the railway access from San Francisco Station to workshops.

Southern access does not have a flyover, so the entrance to workshops are made by turnouts located on main tracks.

3 PHASES

3.1 Phase 1

- Enlargement of Bayshore west platform.
- Further west siding track and right main track near central curve area are removed.
- The new Tunnel Ave overpass structure is built.

During this stage, traffic runs through all tracks except the two ones that are removed.

The capacity of the railway line is not affected. Traffic runs freely in both directions.
Disassembly works of the main track and the siding-track will be carried out during the night-time period.

3.2 Phase 2

- Electrification facilities are extended in order to make them compatible with current and future tracks to guarantee railway traffic during the works. In the next picture, the shaded area represents the affected area (green).
- Installation of new OCS portal frames placed in the freed space after the tracks removal in the previous phase (magenta).

At this stage, traffic runs through all tracks except the two ones removed in phase 1. The capacity of the railway line is not affected. Traffic runs freely in both directions.

The OCS adaptation works will be carried out during:

- Day-time period: Works taking place outside the safety area.
- Night-time period: Works taking place inside the safety area or areas where a power outage is needed.

3.3 Phase 3

- Partial construction of four tracks in Tunnel Ave area.
- At this stage, traffic runs through all tracks except the two ones removed in phase 1.
There is no variation in the capacity of the railway line.

### 3.4 Phase 4

- Part of the track from San Francisco to workshop is built
- Right siding-track construction by lateral displacement on end sections and connection with track built in the previous phase is made. Assembly of turnouts located in this track is carried out.
- Platform built in phase 1 is put into service.

At this stage, traffic runs freely in San Jose-San Francisco direction and with restrictions in the opposite one, where traffic must be compatible with works.

At this stage, turnouts are assembled, and lateral displacement and connection with the track previously built is made, keeping the railway traffic in service, so it is expected to have some interferences in the usual traffic to San Jose. These interferences will consist in speed limits when passing over some elements. All of the works during this stage will be carried out in night-time period, except for the new track built next to the Bayshore station and the removal of the right siding track.

### 3.5 Phase 5

- Right main track construction by lateral displacement on first section and connection with track built in the previous phase is made. Assembly of turnouts located in this track is carried out.
- At this stage, traffic runs freely in San Jose - San Francisco direction and with restrictions in the opposite one, where traffic must be compatible with works. Change between tracks is not possible.
At this stage, lateral displacement of the main track towards San Jose is made, so some speed limits in this direction are foreseen during the works.

The most critical element is the section between the exit of the existing tunnel and the right siding track. In the rest of the section, the main track and the siding track run parallel, so the traffic towards San Jose has two tracks to its disposal.

All of the works during this stage will be carried out in night-time period, even the building of the new track as it is placed between the existing tracks.

### 3.6 Phase 6

- Left main track construction by lateral displacement on first section and connection with track built in the previous phase is made. Assembly of turnouts located in this track is carried out.
- A provisional track is built at the end of the right siding track in order to put this track into service.
- Left siding track is built in Tunnel Avenue area.
- At this stage, traffic runs freely in San Francisco - San Jose direction and with restrictions in the opposite one, where traffic must be compatible with works. Change between tracks is possible.

A little effect over the traffic towards San Francisco is made due to the execution of the works in the left main track. To enable the stop at Bayshore station it is needed the assembly of a provisional track that connects the left siding-track with the turnout placed at the exit of the workshops.

At this stage, speed limits due to the lateral displacement of the track and the assembly of the turnouts will be maintained.
All the works are expected to be carried out during the night-time period, in order not to affect railway traffic.

### 3.7 Phase 7

- Left siding-track construction by lateral displacement on first section is made and afterwards it is connected with track built in the previous phase. Assembly of turnouts located in this track is carried out.
- Connection with industrial area is made.
- Construction of a railway-flyover is carried out to enable an access to LMF
- Building of the LMF accesses
- The right siding track removal is made at Tunnel Avenue area
- At this stage, traffic runs freely in San Francisco - San Jose direction and with restrictions in the opposite one, where traffic must be compatible with works in the siding track and free in the main one. Change between tracks is possible.

At this stage, there is no reduction in the capacity of the railway line, but the infrastructure performance during the works decrease due to the lateral displacement of the left siding-track and the assembly of some turnouts. At this same stage, the connection with the LMF of Brisbane is made.

All the works will be carried out during the night-time period, in order not to affect railway traffic.

It is remarkable the execution of a railway flyover for the access-track from San Francisco to the workshops, over the main-tracks and the siding-track. It is foreseen this structure to be built with a typology known as Pergola, which can be built without affecting the existing traffic, although some of the stages of the structure building must be carried out in nighttime period, with power outage and without traffic.

### 3.8 Final Phase

In this final stage, construction works are finished and railway traffic is fully operational.
EXHIBITS
SAN FRANCISCO

PHASE 0

BAYSHORE STATION

PHASE 1

BAYSHORE STATION

PHASE 2

BAYSHORE STATION

NEW OCS PORTAL FRAMES NEED TO ENVELOPE EXISTING AND NEW DESIGNED TRACKS

NEW OCS PORTAL FRAMES NEED TO ENVELOPE EXISTING AND NEW DESIGNED TRACKS

STRUCTURE UNDER CONSTRUCTION

NEW OCS PORTAL FRAMES NEED TO ENVELOPE EXISTING AND NEW DESIGNED TRACKS

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SAN FRANCISCO TO SAN JOSE