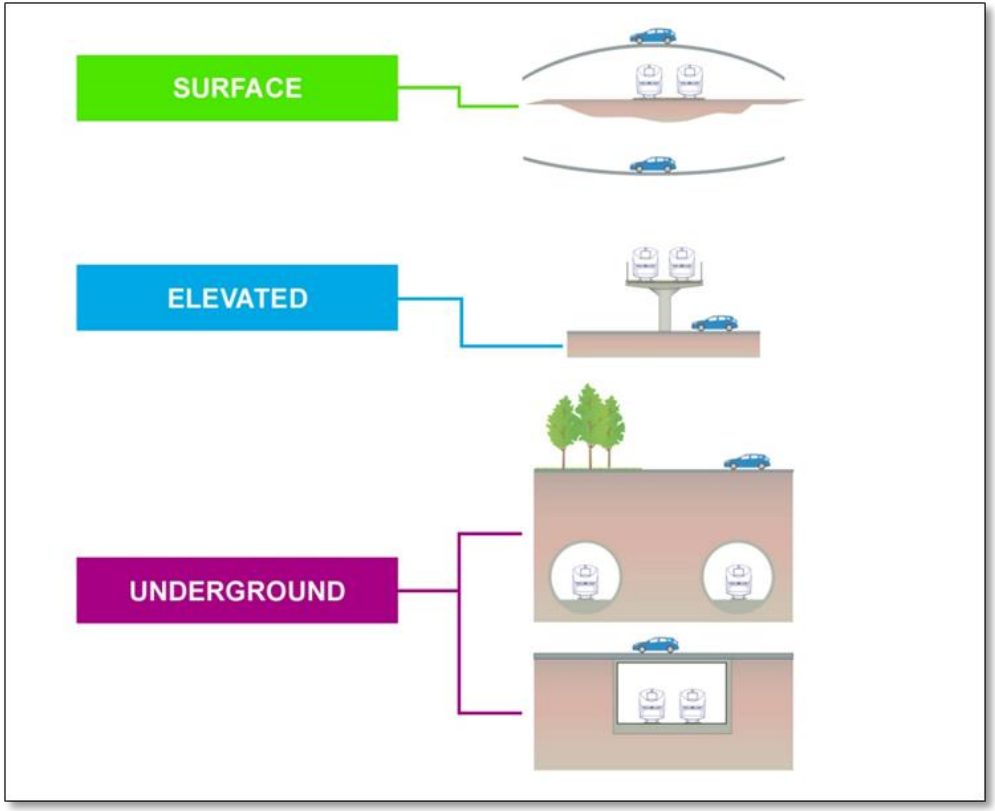
BAKERSFIELD TO PALMDALE

ENGINEERING ELEMENTS

2018 ALIGNMENT FEATURES



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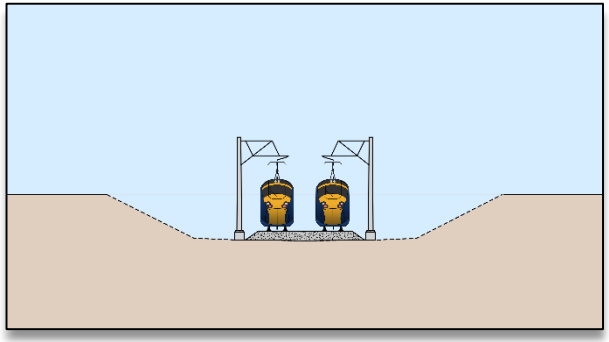
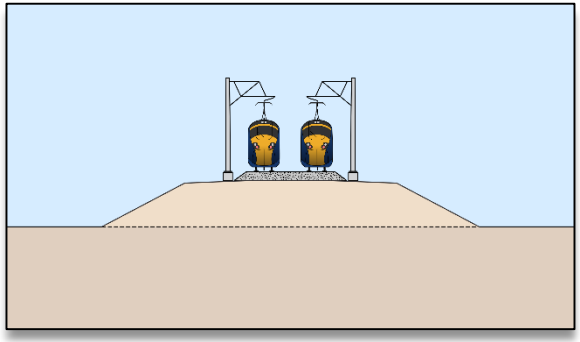
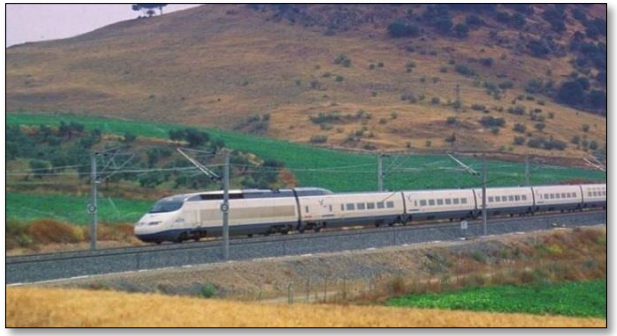
ALIGNMENT: SURFACE

Cut



Fill





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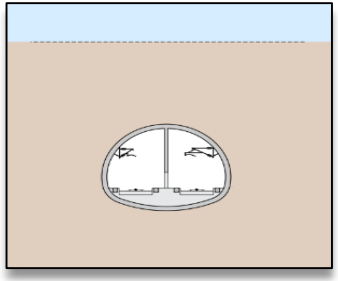
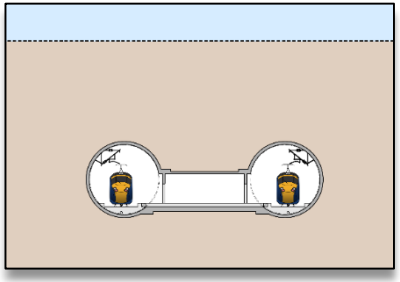
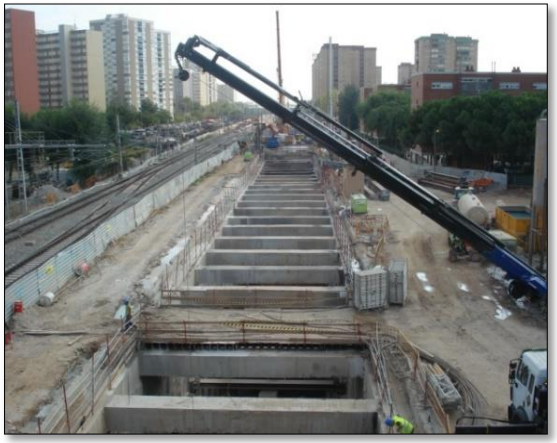
ALIGNMENT: BELOW-GRADE

Tunnels







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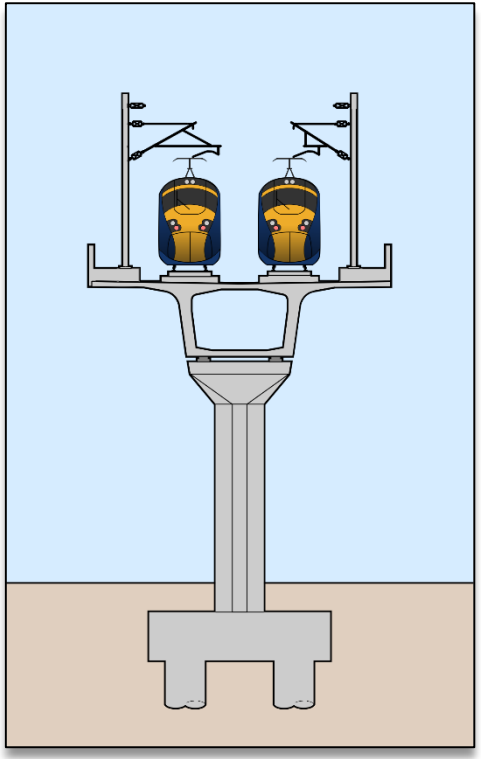
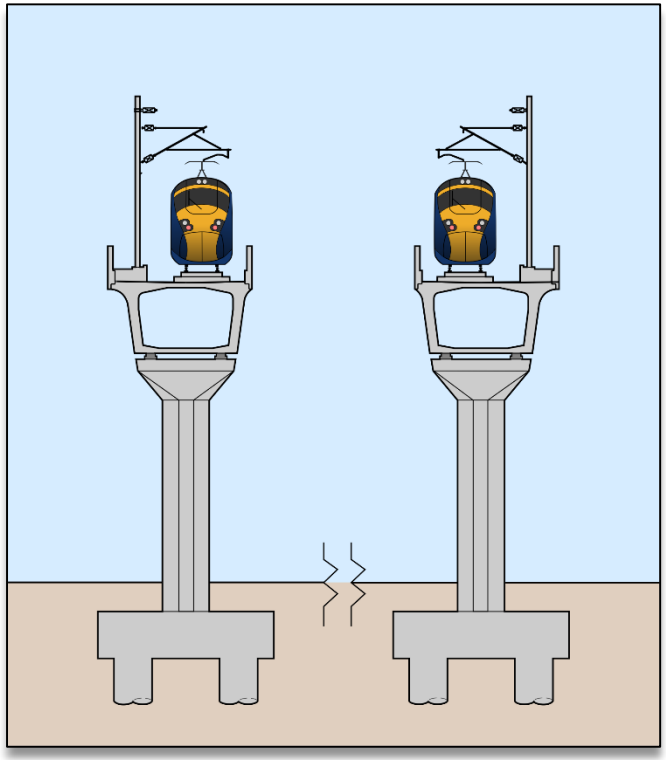
ALIGNMENT: ELEVATED

Single Structure



Twin Structure



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BRIDGE DESIGN EXAMPLES

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SOUNDWALL EXAMPLES

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PORTAL EXAMPLES

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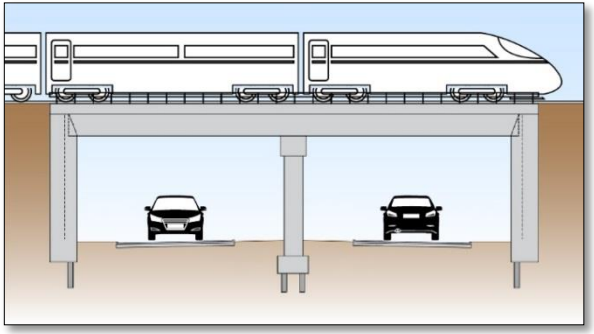
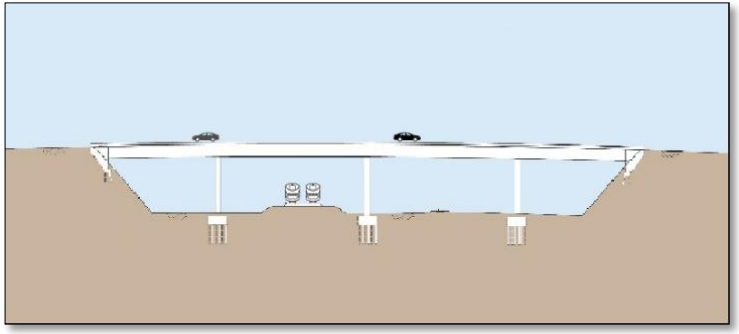
NEW GRADE SEPARATIONS

GRADE SEPARATION EXAMPLES

Roadway Underpass



Roadway Overhead



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ADDITIONAL HIGH-SPEED RAIL FEATURES

- **Overhead Contact Systems**
  - Supplies electric energy to rail vehicles
- **Paralleling Station**
  - Provides voltage stabilization and equalizes current flow
  - Located every 5 miles between Switching Stations and Traction Power Substations (TPSS)
- **Switching Station**
  - Connects and balances the electrical load between tracks
  - Located every 30 miles between the TPSSs
- **Communication Tower**
  - Uses a radio-based communications network to provide Positive Train Control (PTC)
  - Located every 2-3 miles
- **Maintenance Facilities**
- **Maintenance of Way**

Overhead Contact System

Paralleling/Switching Station

Communication Tower

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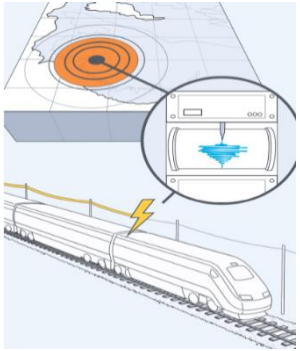
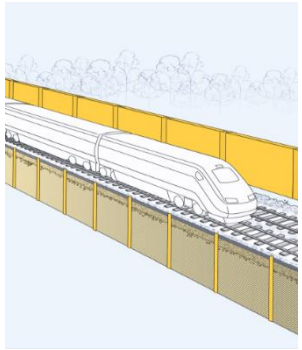
CORRIDOR/SHARED CORRIDOR FEATURES

- **Corridor Protection**
  - Fencing
  - Walls
  - Sound walls
- **Positive Train Control**
  - Restricts speed limits
  - Serves as fail-safe system
  - Takes over system, preventing running red signals
- **Corridor Detection**
- **Early Earthquake Warning System**
  - Detects initial wave produced by a seismic event
  - Immediately cuts off power to trains



Early Earthquake Warning



Corridor Protection

Soundwall Example

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STAY INVOLVED

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