Enhancing Earthquake Resilience Istanbul Bridges

Renforcement de la résilience sismique des ponts d'Istanbul

Overview

A major earthquake struck the Kocaeli region in 1999, located 110 km east of Istanbul. With the expectation that a major earthquake might hit Istanbul in the future, IHI carried out seismic reinforcement work on several major bridges in the city.

① **Old/New Golden Horn Bridge**

② **Ortaköy Viaduct**

③ **Mecidiyeköy Viaduct**

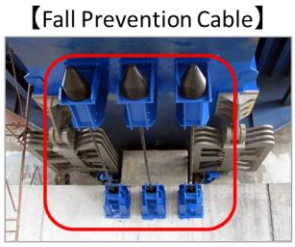
④ **1st Bosphorus Bridge**

⑤ **2nd Bosphorus Bridge**

Old / New Golden Horn Bridge

【Hysteretic Damper】

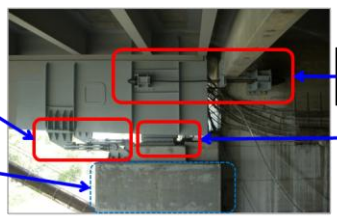
【Fall Prevention Cable】



【Fall Prevention Device】

【Displacement Restrict Dvc.】

1st Bosphorous Bridge



Ortaköy Viaduct

New Cap Beam concrete poured using ground-installed formwork scaffolding

Seismic Reinforcement for Bridge Piers

Mecidiyeköy Viaduct

Steel lining plate installed around the existing PC pier

Concrete lining installed on the underground part

Pier head cut while supported by a steel bent

Lead rubber bearing installed. Work completed

Replaced Bearings to Seismic lead rubber bearing

IHI Corporation
https://www.ihi.co.jp/en/

IHI
Realize your dreams

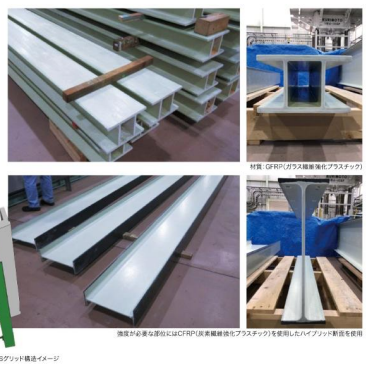
Technologies for Bridge Slab Replacement

Technologies de remplacement des tabliers de pont

Resilience

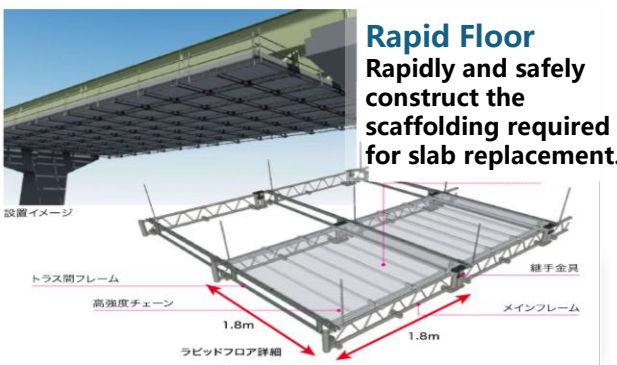
FS Grid

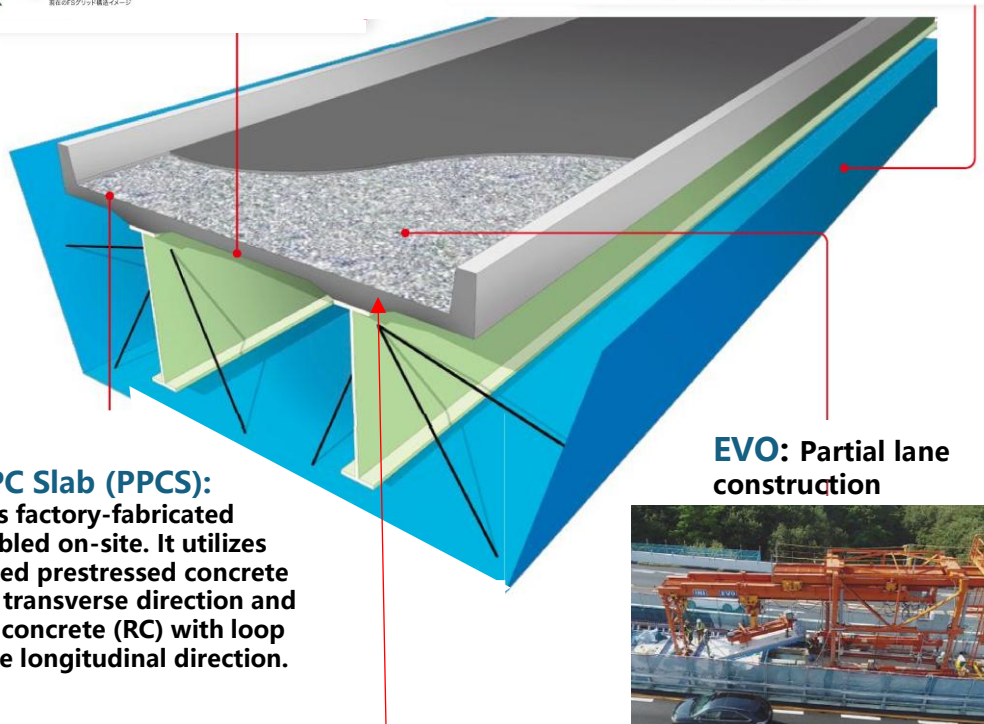
To extend the lifespan through reinforcement rather than replacing the slab



Rapid Floor

Rapidly and safely construct the scaffolding required for slab replacement.

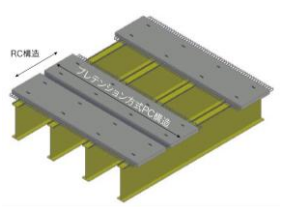




Precast PC Slab (PPCS):

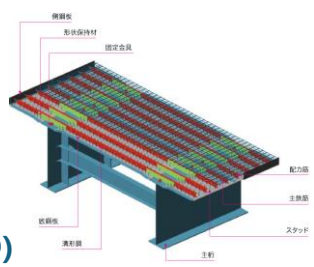
The PPCS is factory-fabricated and assembled on-site. It utilizes pretensioned prestressed concrete (PC) in the transverse direction and reinforced concrete (RC) with loop joints in the longitudinal direction.

EVO: Partial lane construction



Steel-Concrete Composite Deck (SCCD):

SCCD steel plate panels are manufactured in the factory, and shear connectors are integrated with the concrete on-site.



Orthotropic Steel Deck (OSD)

⇒ OSD are widely used in bridges built on weak ground and in elevated urban expressways due to their many advantages over RC slabs, such as lighter weight, shorter construction time, and greater flexibility.

IHI Corporation
https://www.ihi.co.jp/en/

IHI
Realize your dreams