



# PUNGGOL: A SHOWCASE IN FASTER & MORE EFFICIENT ROAD CONSTRUCTION

Punggol residents have been enjoying a new route to the various expressways, thanks to the early completion of newly-constructed road links that connect the town to the two expressways.



Being stuck in peak hour traffic between your home in Punggol and your downtown office is no one's idea of a fun time. But ever since two new roads were added, driving has become easier as bottlenecks on road networks have eased in this rapidly expanding new town.

The best part is, the new roads – opened in November 2018 and March 2019 – were completed ahead of time – much to the joy of motorists and bus commuters.

The first new road, which is a 160m-long bridge across Sungei Serangoon, was completed almost a year ahead of schedule.

This new link, connecting Punggol Central to KPE and TPE(PIE), will help to alleviate traffic congestion along the main roads leading to the expressways.

Similarly, the second new slip road, from TPE(SLE) Exit 6 at KPE/TPE Interchange to Halus Link towards Lorong Halus and Punggol Central, will further smoothen traffic conditions. It also finished sooner than expected.

**“Since the opening of new link roads... outgoing traffic from Punggol town during morning peak hours is observed to be smooth flowing.”**

**NG SAY CHEONG**  
LTA DEPUTY PROJECT MANAGER

“Traffic condition at Punggol Road and Punggol Way towards TPE (PIE) is also observed to have improved too.”

When all the new roads in this project are completed in the second quarter of 2021, “they will provide Punggol residents with a more direct link to and from KPE and TPE and improve traffic flow of connecting roads in the vicinity”, he added.

It could be even sooner, with help from new construction methods and technology.



### HOW TECHNOLOGY MAKES ROAD PLANNING EASIER

It started with manually drawn blueprints on huge rolls of paper. Over the years, computer aided design (CAD) made the pen drawings redundant.

Building information models (BIM) then became the new standard for three-dimensional modelling and better collaboration among engineers, architects, and construction professionals.

But now, a new disruptor in the construction scene is revolutionising how construction projects can be better managed and executed.

Called virtual design and construction (VDC), this method of virtually planning, modelling, collaborating and executing building projects emphasises more on the collaboration and integrated working aspects through the sharing of project data and other relevant information.

Synergising BIM and VDC technologies, designers and construction teams are able to simulate the construction stages in the virtual environment. This enables more efficient planning, design and management before actual construction work begins.

Say Cheong shared that,

**“The adoption of these productive technologies sped up the entire process of design and construction by minimising interruption or abortive work due to late detection of design clashes and changes during construction.”**

### NEW WAYS TO CONSTRUCT ROADS FASTER

Much like how many new HDB flats are now built – modularly using components that have been made in concrete casting yards off-site – the adoption of an extensive precast system during the construction of flyovers, bridges or roads has allowed for faster, safer, and more environmentally-friendly construction.

By using this precast method, the construction time can be shortened. This is because key structural components such as columns, crossheads and beams can be fabricated while the construction of other parts of structural components such as piles and piled caps on site can go on concurrently.

The construction process can also be quicker as no massive installation of temporary supports and scaffolds are needed for the precast method, as compared to the conventional casting on-site method.

Apart from saving time, the adoption of these new construction methods optimises the use of materials. This also leads to less waste, fewer manpower required on site due to prefab and process optimisations, increased safety, and higher quality of workmanship as fabrication of precast components is carried out in a factory environment.

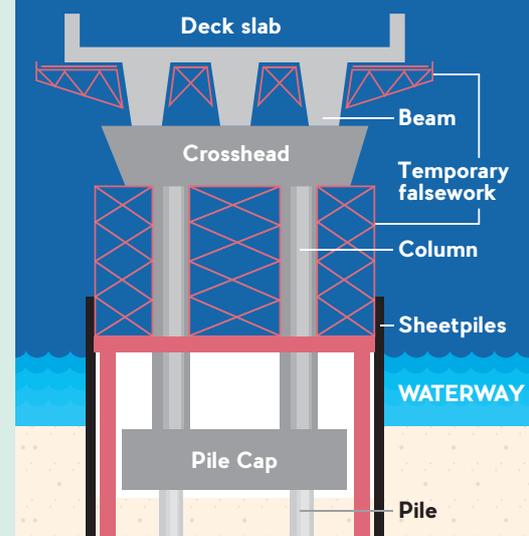
LTA has previously adopted VDC on a smaller scale for construction of other projects. The success of this project will serve as a template for future LTA projects involving construction of bridges, flyovers and viaducts.

As a resident in Punggol, faster completion of bridges and roads means smoother traffic. Way to go!

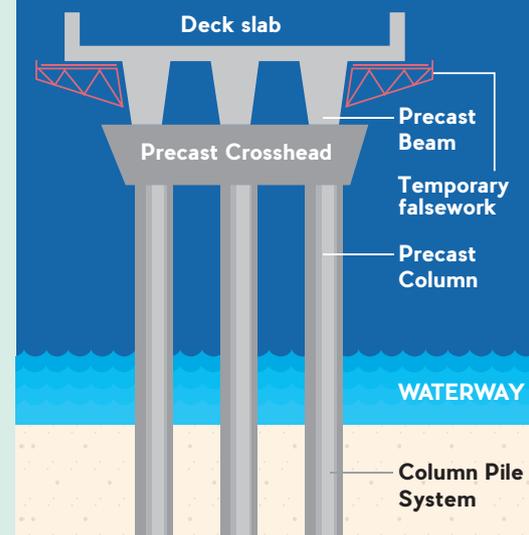


### DIFFERENT METHODS FOR BRIDGE CONSTRUCTION ACROSS WATERWAY

#### Typical conventional method (On-site casting)



#### Innovative and productive method (Extensive precast system)



#### Fun facts:

According to the data from the Singapore Department of Statistics, the residential population in Punggol has tripled.

It is only going to grow bigger as new housing developments are built.



54,560  
in 2008



161,570  
as of June 2018