

# Hamilton Section



PART OF THE WAIKATO EXPRESSWAY



Project newsletter Issue 20 | February 2021

## Celebrating a safe site...

Right now, this project is one of the safest in the country.

Over a 12-month period last year, the CityEdge Alliance recorded no injuries requiring time off or medical attention. That's a significant achievement for a construction site with more than 300 employees and sub-contractors, and lots of machinery on the move.

Project Manager Matt Fairweather says there's been no 'silver bullet' in achieving this result.

"There has been a sustained effort to embed best safety practice at all levels - from the Project Board through to our supervisors and staff on the ground. Our challenge now is to stay focused on our critical risks."

All staff attended back-to-work sessions in January 2021 focused on the Alliance's new Life Saving Rules.



Matt Fairweather, Alliance Project Manager

## From grey to black – the final phase

North to south, this project is changing colour.

First the expressway was yellow – the colour of compacted sand. Then it turned grey, with two layers of cement-stabilised pavement rock. Now it's turning black as the asphalt surface is laid. This is the final surface you'll be driving on when the Hamilton section opens.

From the air, there is a visible change from grey to black as the black prime coat is sprayed to bind the top layer of pavement, followed by chip seal then asphalt.

The project's dedicated asphalt plant at Ruakura is producing up to 140 tonnes of hot asphalt an hour to supply paving crews working on the main expressway – and sealing the ramps and roundabouts on five interchanges.

Trucks filled with asphalt leave the plant and travel up the expressway to supply the paving team. The paver machine lays a consistent layer of asphalt. Behind the paver are two rollers compacting the hot asphalt and smoothing the joints with previously laid strips of asphalt. The paver must move at a speed that matches the supply of asphalt, to achieve a continuous surface each day without joints.

Attached to the front of the paver is another machine called a material transfer vehicle – commonly known as a 'shuttle buggy'. It is connected to the paver and moves with it. Trucks back up to the shuttle buggy until they are being pushed slowly forward by it. Then they tip their asphalt into the shuttle buggy's bin. A conveyor on the shuttle buggy carries a consistent supply of asphalt from the bin to the paver.

Regular tests are carried out to confirm the quality of the asphalt mix and the thickness of each layer. A single 50mm layer is laid on the expressway, but roundabouts require multiple layers to cope with heavy truck tyres constantly turning on the surface.



Trucks drive under a hopper at the asphalt plant and are filled automatically.



A truck tips asphalt into the shuttle buggy, which sends it on by conveyor to the paver.



Rollers compact the asphalt and smooth the joints.

# Project Update: What's happened since November?

## 1 Lake Road



The final asphalt is being laid north to south from Lake Road. A northbound off-ramp from the Ngaruawahia Section to Lake Road is under construction. Work has begun to tie in the lanes on the Hamilton Section lanes with the lanes on the Ngaruawahia Section.

## 2 Osborne Road



Flexible barriers are being installed. First the sleeves are driven into the pavement. The posts that hold the wire rope fit inside the sleeves. Across the project, 77km of flexible wire rope barrier is being installed.

## 4 Kay Road



The four lanes under the bridge are now chip sealed and ready for asphalt.

## 5 Gordonton Road



Prime coating of the pavement is completed and chip sealing is now progressing under the bridge towards Puketaha.

## 3 Resolution Interchange



The bridge abutments have been completed. Planting and landscaping is progressing. Construction of the link to Resolution Drive has recommenced. Chip sealing of the main expressway is complete.

## 6 Puketaha Road



Prime coating and chip sealing is progressing south. Pavement rock is being blended and supplied from our blending plant near the Puketaha Road Bridge.

## 7 Powells Road Underpass



The underpass structure is almost complete. Eighty concrete trucks supplied 500 cubic metres of concrete on 3 February to pour the roof of the underpass. Sand is now being placed and compacted either side of the underpass to take the expressway over the top.

## 8 Ruakura Interchange



The final asphalt is being laid at the Ruakura Interchange to enable the Ruakura West road connections to be constructed. Trucks building the roads that will connect the interchange with Silverdale Road and Ruakura Road will use the interchange for access.

## 9 Southern Interchange



Before the beams were placed on the East West Link Bridge, a wall made from intersecting concrete piles was created under the eastern end of the bridge. The wall was tied back to a large concrete anchor to reinforce it, then the ground on the opposite side was excavated out to form the retaining wall. This is called a secant wall. The piles are formed by a large auger that drills a series of deep holes and backfills them with concrete.



## Preparing for the last big concrete pour

The last major concrete pour on the Hamilton section was under way this month (Feb 2021).

It's the deck for the Powells Road Underpass. Powells Road traffic will travel through the underpass, with expressway traffic passing over the top.

To build the deck, the bridge crew must place scaffolding between the walls to support the formwork that creates a mould for the concrete, then tie all the reinforcing steel in place. The deck concrete will weigh 720 tonnes.

The bridge team starts work at 1am so they can pour all the concrete and allow it to set before the heat of the day.

Once the concrete deck has cured and passed its quality tests, the space on either side of the underpass will be filled with sand and compacted, so the expressway can be constructed on top.

The underpass is the final large structure to be built on this project. All 16 bridges are now completed.



Braces and scaffolding provide support until the deck is poured on top.

## Progress on new link road

It's been out-of-sight and out-of-mind, but our pavements team has now completed most of the new East West Link Road at Tamahere.

So far, 800m of the link road has been built, sealed and road marked from Birchwood Lane – complete



The new Link Road and 3m shared walking/cycling path.

with kerb and channel and a 3m wide shared path for walking and cycling. The link road remains closed because the final connections to the East West Link Bridge and Cherry Lane are yet to be completed.

However, six former Cambridge Road households are now using the link road as permanent access to their properties. This route provides safer access, and will make it possible to widen Cambridge Road near the new retaining wall.

Construction of a raised roundabout to complete the link road with Cherry Lane will begin this month (Feb 2021).

## Barriers driven, not poured

On this project, most of the sleeves that support flexible safety barriers are being driven into the pavement, rather than concreted in place.

A trial confirmed that using a hydraulic ram to drive the sleeves into place to carry the posts was just as effective as drilling holes and pouring concrete. While costs were similar, using the hydraulic ram was faster. We're installing 77km of flexible wire rope safety barrier over 22km, so the time saving will be significant.



The hydraulic ram unit drives sleeves into the pavement to hold the barrier posts.



### Any questions?



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