

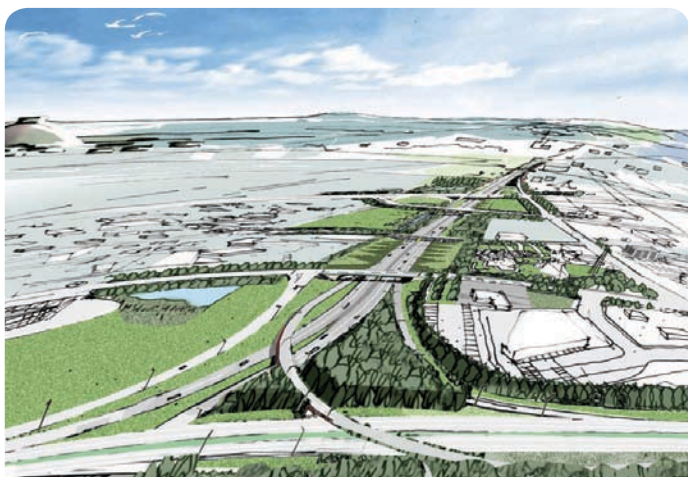


# SH20 - SH1 MANUKAU EXTENSION

## LINKING SH1 AND SH20

### Solid progress over two years since project started

Steady progress has been made on the NZ Transport Agency's\* SH20 – SH1 Manukau Extension project since construction started in October 2006. What was once a corridor of vacant fields and disused industrial property, is starting to take shape as a 4.5 km motorway between SH20 and SH1.



Nearly 500,000 manhours of construction is turning the concept into a reality.

#### Milestones achieved include:

- 455,000 cubic metres of earthworks completed
- Construction started on 8 out of 12 bridges
- 4 kilometres of stormwater drainage installed
- 220 concrete bridge beams manufactured
- 900 metres of new sewer lines installed
- 750 metres of Puhinui Stream diverted
- 350 eels and aquatic species relocated
- Two nationally strategic fibre optic cables relocated.

There is still much work to do, including 4 more bridges to start, 10 km of stormwater drainage to install, 200,000 cubic metres of earthworks to complete, 240,000 square metres of road surface to be placed and over 270,000 plants to cultivate and plant.

The project is scheduled to be completed in August 2010.

\* On 1 August 2008, Land Transport New Zealand and Transit New Zealand became the NZ Transport Agency. The NZ Transport Agency (NZTA) brings together the functions of Land Transport NZ and Transit to provide an integrated approach to transport planning, funding and delivery.



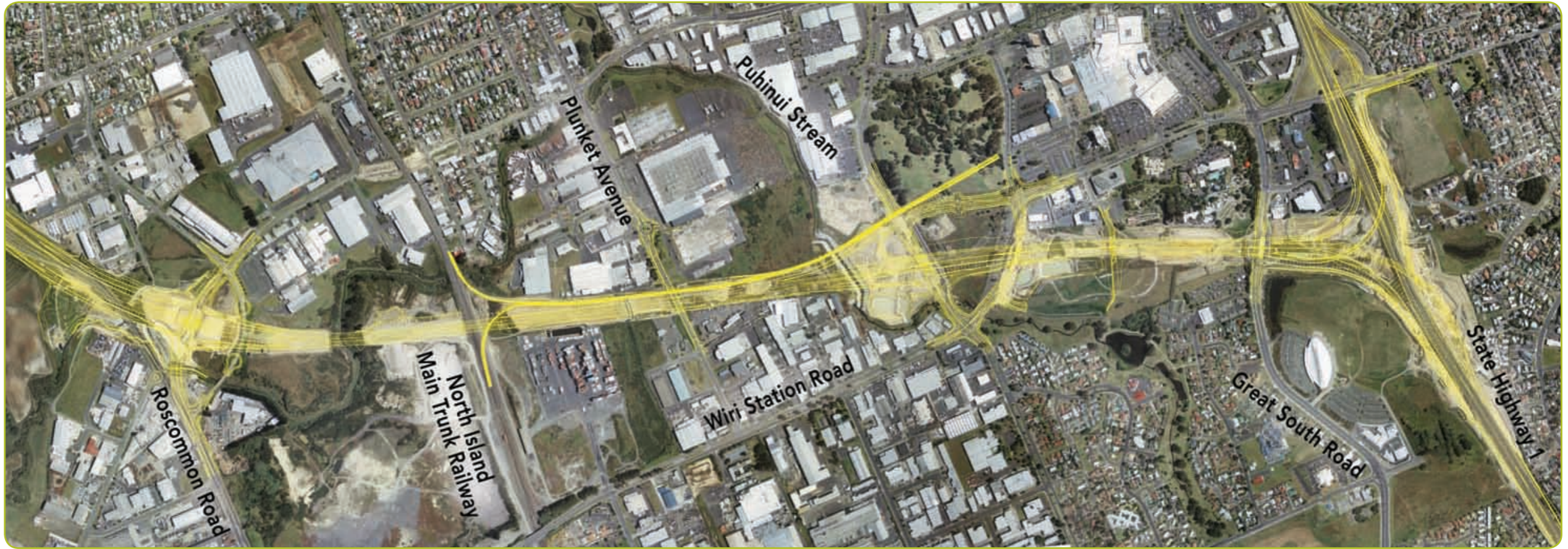
### Complex area of activity

The western end of the project by Roscommon Road is a complex area of work providing many construction challenges.

To complete the new motorway, the following work will be completed:

- Existing SH20 motorway will be realigned
- 3 bridges will be constructed
- 120 bridge beams will be installed
- Major earthworks will take place
- Puhinui Stream will be redirected
- Tie in of the old SH20 Roscommon Road with the new extended Cavendish Drive link project (Manukau City Council)
- Large sewer main will be relocated
- Large settlement pond will be excavated
- Bridge over the Puhinui Stream will be removed

Careful planning, high construction standards and effective communication with stakeholders and the public are required to ensure the work will not have an adverse effect. Before realigning the Puhinui Stream into its final position, aquatic life will be relocated and strict controls will be installed to prevent the environment from being harmed by construction.



### Puhinui Stream and Main Trunk Railway Bridges



Construction on bridges over the Puhinui Stream and the North Island Main Trunk Railway will start this summer.

Constructing a 3 span bridge over the Puhinui Stream requires careful planning and environmental management. The site has been cleared of trees such as gorse and shrubs that occupy the banks of the stream. This will be planted with native bush consistent with the landscaping plan in place for the new motorway extension.

The bridge over the North Island Main Trunk Railway is one of the largest bridges to be constructed on the project with 6 spans and 72 bridge beams. Considerable planning will take place in co-ordination with railway operator ONTRACK to ensure a safe working environment that rail services are not disrupted by the work. The railway corridor requires a unique set of construction methods and the project team are receiving specialist safety training before work starts in this area.

### Plunket Avenue Bridge



A new 7 span bridge at Plunket Avenue will take local motorists over the new motorway and the Manukau Rail Link. The motorway and Manukau Rail Link will pass beneath at the existing ground level.

The 206 m long bridge is one of the longest on the project, and has a functional design that reflects the industrial character of the surrounding area.

Work will start this summer to relocate services such as water, sewerage, power and communications and construct a temporary traffic diversion, before starting on the bridge. The project team will be communicating with local stakeholders and motorists to keep them updated on progress. The traffic diversion will remain in place until the bridge is opened in late 2009.

### SH1 - SH20 Triple Level Interchange



Traffic management is a key factor in the planning of the new SH20 – SH1 triple level interchange. Construction is planned in three stages with the first stage to be completed soon.

For the second stage southbound traffic will be moved to the east to allow the team to access the central area and construct the middle portion of the SH20 - SH1 Underpass structure and the final pier of the SH1 – SH20 flyover. Once this pier is constructed the remaining bridge beams will be installed to complete the SH1 – SH20 flyover spans over SH1.

## Project taking great care of local stream

*The Puhinui Stream crosses the new motorway alignment in seven different locations and has a significant influence on how the project is constructed.*



*Working in close proximity to the stream requires careful environmental management.*

The Puhinui Stream is environmentally important as it is home to native aquatic life such as short finned and long finned eels, native fish such as inganga, kokupo (whitebait), and freshwater crayfish (koura). Because of this, construction around streams needs to be carefully planned and managed.

One concern is the uncontrolled sediment run-off caused by rain water washing soil and clay particles off the site and into the stream and stormwater system. These particles of soil washed into the stream can clog fish gills, block sunlight and smother eggs and offspring. Uncontrolled sediments can flow downstream and potentially cause harm to fish such as snapper and flounder that use the Puhinui estuary as nursery grounds.

Extensive environmental controls are set up and installed to prevent sediments entering the man made stormwater system, as well as the stream and its tributaries. Careful design also ensures stream diversions are constructed to replicate the natural conditions of the stream to enable safe fish passage.

Effective environmental controls during construction have provided positive engineering outcomes for the project. For example the physical controls such as clean water channels, creates a free draining site that dries quicker and allows work to start sooner after heavy rainfalls.

The project team's efforts to protect the Puhinui Stream and the wider environment have been recognised with the New Zealand Contractor's Federation Environmental Award for the Auckland region in 2008.

## Upcoming work continues progress

Work will progress on a number of areas of the project this coming spring.

The completion of the new Redoubt Road southbound on-ramp to SH1 is a key step for the project. When open, the on-ramp will take motorists south from Redoubt Road, alongside the existing SH1 before merging with the southbound lanes. The on-ramp will replace the current 'clover leaf' layout.

New bridges at Wiri Station Road, Great South Road and Lambie Drive will take traffic over the new motorway extension route in the coming months. There will be some traffic switches and temporary road closures required as lanes are moved onto the new bridges. The new Barrowcliffe Place Bridge is also progressing well.

At the western end of the project, SH20 motorway lanes south of the Puhinui Interchange will be temporarily diverted further west so that construction can progress. Nearby, work has recently started on the bridges over the future Nesdale Avenue and across the Puhinui Stream.

Also due to start is the preparatory work for the construction of Plunket Avenue bridge, with service relocations and the construction temporary traffic diversion.

**For more information please call 0800 SH20-2-1**

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**New Zealand Government**