

MIN-4491 - Tolling Penlink

16 May 2024

Providing information on:

- measures being taken to reduce costs of tolling infrastructure and operations for Penlink
- implications for NZ Transport Agency Waka Kotahi (NZTA) of delaying a decision to toll Penlink
- whether a cheaper tolling technology might offer different approaches to tolling Penlink
- a review we are initiating that focuses on NZTA's costs to collect toll payments and administer our tolling system.

Background

The current proposed Penlink tolling scheme has two toll points, located at:

- **State Highway 1 end** (toll rates are proposed at \$2 during peak hours¹ and \$1 in the off-peak² for light vehicles)
- **Whangaparāoa Road end** (toll rate is proposed to be set at \$1 during both peak and off-peak for light vehicles).³



¹ Weekdays 6am to 9am and 4pm to 7pm.

² Including Saturdays, Sundays and Public Holidays.

³ Heavy vehicles will pay twice the toll charge of light vehicles.

Measures NZTA is taking to reduce costs of tolling infrastructure and operations for Penlink

NZTA is exploring efficiency and cost reduction opportunities for the Penlink tolling scheme. This includes altering the number of toll points, our procurement approach, technology and supporting infrastructure options.

1. Toll the Whangaparāoa Road end of Penlink (one toll point instead of two) reducing infrastructure costs

NZTA considers that the most effective way to reduce the costs of the Penlink tolling scheme, would be to toll only the Whangaparāoa Road end of Penlink. This option was a tolling strategy NZTA considered during our tolling scheme design process. It ranked best in terms of both efficiency and capital cost, but it ranked lowest in respect of equity/fairness. No formal decision has been taken on this option yet, but given the direction of the draft Government Policy Statement (GPS) 2024-27 we propose once the Request for Proposals (RFP) process (described below) is complete, to submit a final tolling proposal and proposed toll rates for a single gantry.⁴

We have undertaken more detailed work on the Whangaparāoa Road-only solution:

- Modelling indicates that Penlink could still operate effectively at opening with only one toll point at the Whangaparāoa end.
- s 9(2)(j)
- Any lowering of the end-to-end toll rate would result in higher traffic flows and the road would be more susceptible to congestion, in particular at the Whangaparāoa Road end during evening peak. A range of alternative toll rates were modelled given the reduced tolling costs, but at this stage we favour maintaining the end-to-end toll rates (\$3.00 peak, \$2.00 inter-peak) and applying it at only one gantry. Information gathered through the upcoming RFP process will enable us to confirm tolling costs. We will need to reassess the toll rates at that point because toll revenue cannot exceed costs over time.
- A slightly larger proportion of vehicles using Penlink would not pay any toll at all (trips within the two ends of Penlink are not subject to tolls under the current tolling proposal). This is around 6 percent of total traffic, up from 4 percent in the two-toll gantry option.

Impacts of no toll point at the State Highway 1 end of Penlink:

- An additional proportion of traffic will use the new road for free and will not contribute to maintenance and operations. The additional vehicles expected to access Penlink toll free would be relatively small. This is because adjacent land use development has not commenced, and most trips will be end-to-end.
- There remains an option to add further toll points in the future once development in the area proceeds. This would likely require the Order in Council (OIC) to make provision for further toll points or otherwise give NZTA discretion to amend the details of the road tolling scheme (possibly with Ministerial consent). Legislation does not require public consultation in respect of amendments to the OIC.

⁴ The factors used in our assessment were revenue potential, equity/fairness, efficiency (transaction cost vs. revenue) and capital cost.

Key traffic metrics are shown in Table 1 for the two-point tolling proposal and a single point toll scheme.

Table 1: Traffic metrics for two toll points vs one toll point for Penlink

| 2026 estimated traffic volumes | Current tolling proposal with two toll points (\$3.00 peak, \$2.00 inter-peak) | Single toll point – estimated volumes (\$3.00 peak, \$2.00 inter-peak) |
|----------------------------------|---|---|
| Daily traffic volumes on Penlink | 18,100 | 18,400 |
| Peak hour traffic | 2,900 | 2,950 |

2. Release an RFP with a broad approach to roadside infrastructure

An RFP has been prepared and is ready for release that seeks proposal from suppliers of tolling roadside infrastructure, appropriate for a range of different road types and conditions (eg multiple lane highway, dual carriageway, low and high speed). Therefore, this RFP would not be limited to the specific roading features of Penlink nor any particular type of roadside infrastructure (eg gantry and roadside cameras) but rather ensure we have a fit for purpose solution based on each road.

The RFP will enable NZTA to engage with several solution providers to compare products and prices, as well as evaluate performance and delivery reliability. The Government Procurement Rules are flexible, allowing NZTA to assemble a panel to concurrently deliver one or more solutions that best suit project requirements. This would also allow NZTA to continue to use the panel for future tolling scenarios, rather than repeating procurement activity.

The RFP process will take around three months to complete and we will report back with updated and accurate cost estimations for tolling infrastructure to you and the Ministry of Transport. This time is required to assess the responses due to the variety of road types our requirements are based on. At this point, NZTA would be in a position to confidently determine what roadside options are appropriate for the Penlink tolling scheme.⁵

3. Take a different approach to roadside camera technology and supporting infrastructure (e.g. gantry) to reduce cost

There are differences in performance and cost between using gantry central lane cameras and roadside cameras (ie pole-based cameras). NZTA needs to go to market to accurately assess the differences and determine feasibility of using different roadside equipment for road pricing (such as tolling).

In Table 2, we set out the pros and cons of different roadside camera technology and our experience with central lane cameras (note these relate to a single toll point).

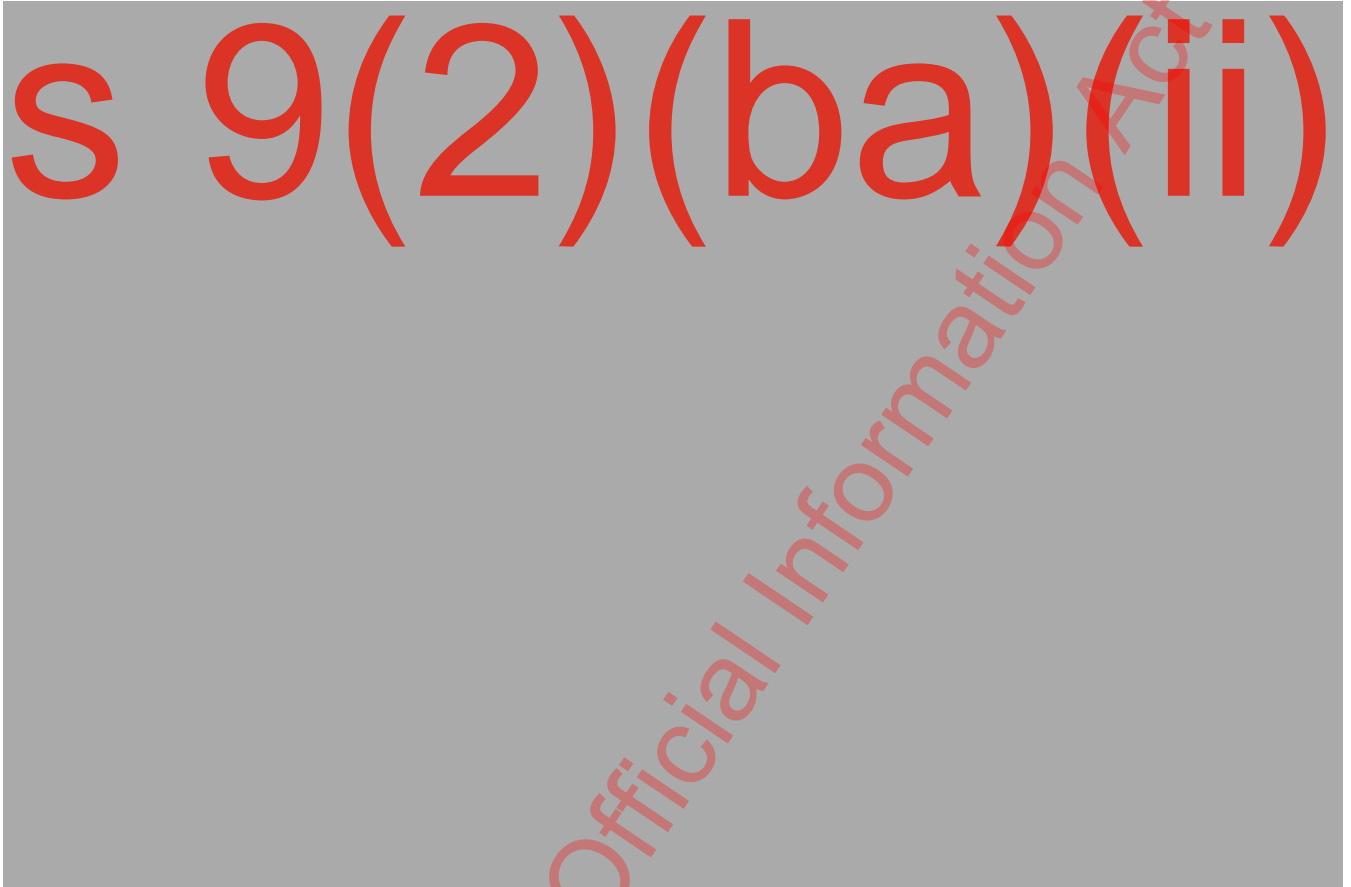
⁵ NZTA would consider the cost and performance results of roadside technology for future tolling proposals.

Table 2: Observations of gantry and roadside camera technology

| | Gantry with central lane camera positions (1 or 2 cameras per lane, 2 or 4 cameras in total) | Roadside cameras (4 cameras, 2 for each side of the road) |
|---|---|---|
| International experience | Industry best practice for tolling across the world. | Uncommon/rare usage in the jurisdictions we usually compare ourselves to such as Ireland, Australia and USA. |
| Capital costs for tolling infrastructure ⁶ | s 9(2)(j) | |
| Integration and 'go live' costs | s 9(2)(j) | |
| Licence plate recognition | <p>Clearest view of front and rear plates, across multiple lanes.</p> <p>Effective in any speed environment.</p> <p>Effective in congestion.</p> <p>Better illumination possible enabling improved plate recognition in low light and adverse weather conditions.</p> | <p>Angle for reading the plates roadside is not optimal during periods of heavy congestion.</p> <p>Not suitable across more than one lane.</p> |
| Performance and accuracy (e.g. vehicle detection, weather events) | <p>Vehicle detection rate at roadside is 99.9 percent.</p> <p>7-8 percent of trips require manual validation.</p> <p>Ensures continuity of full lane coverage in the event of a camera issue (two cameras per lane).</p> | <p>Higher number of missed vehicles.</p> <p>Higher level of manual validation and processing due to lower rate of licence plate recognition.</p> <p>Reduced accuracy of automation would increase operational costs to maintain acceptable levels of detection through manual validation of images.</p> |
| Maintenance implications | Safe maintenance without road closures. | Physical barriers will be required for safe maintenance of equipment at the roadside. Without barrier protection, roads closures would be necessary for the maintenance of poles/cameras. |

⁶ This covers costs for roadside civils incl. power/fibre, foundations, signage, gantries, roadside buildings, toll point equipment, vendor designs, implementation, testing and spares (back up equipment)

Some aspects of Penlink's design and expected performance during peak periods indicate that the use of roadside cameras may not be feasible for Penlink. This is because we anticipate congestion during peak times and roadside cameras have reduced effectiveness in congested environments.



Reviewing costs to collect toll payments and administer our tolling system

We are initiating a review of the costs to collect toll payments and administer the tolling system. We will keep you informed of progress and the improvements we are able to implement through this review process.

Noted by Minister ☐