Phase One Report:

The Congestion Question

Could road pricing improve Auckland's traffic?

#congestionquestion

AT · Auckland Council · NZ Transport Agency Waka Kotahi · Ministry of Transport Te Manatū Waka · The Treasury Kaitohutohu Kaupapa Rawa · State Services Commission Te Komihana O Ngā Tari Kāwanatanga · New Zealand Government

Contents

Executive summary

This report summarises the findings from the first phase of a joint project between Auckland Council and the Government to investigate congestion pricing for Auckland.

This phase has involved establishing baseline data, background information and our communications and engagement approach to provide a foundation for the rest of the project.

Congestion pricing is a method used to ease congestion by charging road users at different times and/or locations to encourage some users to change the time, route or way in which they travel.

This investigation builds on the findings of the Auckland Transport Alignment Project (ATAP), which set out a 30-year vision for Auckland's transport system. This vision comprised three integrated elements: targeting investment to the most significant challenges, making better use out of the existing network and focusing more on managing travel demand.

ATAP identified pricing as having significant potential to manage travel demand and reduce congestion, in conjunction with implementing the wider strategic approach. The work we have undertaken in this project to date reaffirms this.

Our analysis shows Auckland's congestion across the network has worsened over the past few years. An average weekday motorway trip now takes almost 10 percent more time than it did four years ago, and motorists now need to allow an additional 40 to 55 percent longer for their trips to be assured of arriving on time. Congestion is also increasingly a problem throughout the day and at weekends, not just in the peak times.

Without congestion pricing, our analysis shows that congestion is expected to become more widespread, even after a significant programme of investment in roading, public transport and active modes. The proportion of car travel in severe congestion is projected to increase by around 30 percent in the morning and afternoon peak, and 50 percent in the interpeak. This means that Aucklanders' access to jobs, education and other opportunities will become more difficult, negatively impacting both the productivity and liveability of the city.

International evidence from a number of cities shows congestion pricing is being used successfully to influence travel demand and ease congestion. However, Auckland's widespread congestion, heavy car dependency and dispersed commuting patterns represent uncharted territory when it comes to developing and implementing a congestion pricing solution.

Our review shows technology is not a constraint to implementation, but we need to be flexible to adapt to future technology changes. Automatic number plate recognition technology is likely to be the best immediate technology solution, but satellite-based technologies could offer a more sophisticated solution in the near future.

ATAP envisaged a progressive move to a pricing system that would apply across the entire road network, reflecting the actual cost of each trip ('smarter' transport pricing). The evidence to date suggests smaller scale options, used as stepping stones, are the best starting point. This would enable a scheme to be monitored for any distributional or equity issues and evolve over time, managed throughout staged implementation.

Building public understanding and acceptance will be critical to successfully implementing any congestion pricing solution. We will need to ensure meaningful and appropriate public involvement in the project.

We know congestion pricing can improve things, but we need to do further work to understand whether it might work in Auckland and if so, how. Our analysis in phase one of this project has built a compelling case for continuing the work we have done so far, so we can better understand the social, economic and environmental costs and benefits of congestion pricing for Auckland.

Definitions and abbreviations

Term/Abbreviation	Definition/Description
Active modes	Walking and cycling
ANPR	Automatic Number Plate Recognition. Technology to identify vehicles based on video technology to read their number plates and match that number to a database of vehicle owners.
Area-based charging	Charging vehicles for crossing a ring or driving within that ring at specific times of days, typically to manage demand. London's Congestion Charge is an area charge.
Arterial network	Arterial roads are defined as high capacity local roads that connect suburbs in urban areas, and play a critical role in moving people and goods.
ATAP	Auckland Transport Alignment Project – a joint project between the Government and Auckland Council to develop a strategic approach to addressing Auckland's transport challenges.
Autonomous vehicles	Vehicles where little to no human intervention is required to drive.
Carpooling	A carpool is when two or more people share the ride to a similar or nearby destination (also called ridesharing).
Congestion	Congestion can be defined in different ways, but generally relates to vehicles travelling at slower speeds than they would otherwise be able to travel due to increased traffic on the roads.
Congestion pricing	Charging vehicles for use of specific roads during specific times and days, in order to reduce the severity and duration of congestion on the network. Revenues from such charging are not necessarily linked to any road or transport infrastructure costs.
Connected vehicles	Connected vehicle technologies let vehicles and infrastructure communicate directly with each other using wireless connections, which has the potential to bring safety and efficiency benefits.
Cordon pricing	Charging vehicles for crossing a ring or line of charge points across a series of roads at specific times of day, typically to manage demand. Cordon pricing does not charge for traffic movements within the cordon. Stockholm's congestion pricing is a cordon.
Corridor-based charging	Charging vehicles to use all of the roads in a corridor (main highway and secondary routes).
Demonstration	In the context of road charging, a live trial of a series of possible policy/technology options for implementing a road charging system. A demonstration is time-limited, includes a limited set of participants and tests a range of technology and product options to assess whether one or more of them have sufficient merit for more detailed consideration. A road charging demonstration does not collect revenue, although it may operate a simulation of how much revenue might have been collected for illustrative purposes.
DSRC	Dedicated Short Range Communications. Also known as tag and beacon road charging, whereby a small battery powered device is installed in a vehicle to enable identification in a toll system. Not used in New Zealand.
eRUC	Electronic Road User Charging – the electronic system offered by some providers in New Zealand (currently Eroad and Coretex) to provide a GNSS platform to charge RUC.
ERP	Electronic Road Pricing – the congestion pricing system operational in Singapore (the same terminology is also used for proposals in Hong Kong and Jakarta).
Exemption	Legal exemption from having to pay in a road charging scheme, based on vehicle or vehicle owner characteristics.

Expenditure plans	The expenditure plans profile maintenance expenditure and capital investments planned by all levels of government on key road segments over the next four years.
Network-based charging	Charging all vehicles on a road network varying by time, location and vehicle type, typically by some form of metering of distance or time spent on the network.
GNSS	Global Navigation Satellite System. A generic term for such systems which includes GPS, GALILEO and GLONASS.
GPS	Global Positioning System, the US-Government provided GNSS system.
Heavy vehicles	Vehicles 3.5 tonnes and over – typically rigid and articulated trucks and buses as well as special purpose vehicles such as cranes.
HOT lane	High Occupancy Toll lane. A highway lane that is exclusively for use of buses and high occupancy (i.e. one or more passenger) cars, or for single occupancy vehicles if they pay a toll.
Light vehicles	Light vehicles include cars, motorcycles, mopeds, vans, people-movers, trailers with a total weight of less than 3.5 tonnes.
Mobility as a Service	A new approach to transport that combines journey options from transport providers into a single mobile service.
Mode share	Proportion of travel undertaken by a certain mode (for example, car, public transport, or walking).
NZTA	New Zealand Transport Agency
Pilot	A live trial of the proposed policy/technology option as an initial small-scale implementation of a road pricing system. A pilot may or may not be time-limited and may or may not be limited by number of participants.
Ridesharing	Two or more people share the ride to a similar or nearby destination (also called carpooling).
Road charging	Direct charging of road users for the use of the road network, distinct from tolls in that charging is not applied to a single part of the network to recover the infrastructure costs for that part of the network.
RUC	Road User Charge. The New Zealand weight/distance road charging system applicable to heavy vehicles and light diesel vehicles.
Severe congestion	In this report, severe congestion is defined as a volume to capacity ratio of 0.8 or over – which equates to stop start traffic and significant delay.
Tolls/ toll roads	Direct user charges in the form of regulated, facility-based tolls for usage of specific road corridors.
Toll lane	One or more lanes on a highway that may only be accessed by paying a toll, typically physically segregated from other untolled lanes.
Trials	Demonstrations and pilots. Any form of application of technology or systems in a form primarily to obtain information, data and feedback about its performance in advance of full implementation.

Part 1:
About the project

In 2016, central and local government officials worked together on a strategy for the development of Auckland's transport system over the next 30 years. The results are set out in the Auckland Transport Alignment Project (ATAP) – Recommended Strategic Approach.

The core finding of ATAP was that a new approach is needed if we are to keep pace with the growth anticipated in Auckland. We need to target investment to the most significant challenges, but also need to increasingly focus on maximising opportunities to influence travel demand, and making better use of existing networks.

ATAP developed an indicative investment package that illustrated the kinds of investments that may be required to implement the strategic approach. This was updated in August 2017 following the release by Statistics NZ of new, higher than expected population projections[1].

Over the last year, a lot of work has been underway to implement ATAP's recommendations. One recommendation was to establish a dedicated project to explore whether congestion pricing in Auckland was one part of the solution to influence travel demand and ease congestion, which led to the Government and Auckland Council establishing this project.

The project's Terms of Reference were agreed in April 2017 (see appendix) and outline the project's purpose, objective, and deliverables. The final deliverable will be a recommendation to the Minister of Finance, the Minister of Transport and the Auckland Mayor on whether to implement congestion pricing in Auckland.

This is the first of three project reports, prepared by officials from the six agencies involved (the Ministry of Transport, Auckland Council, NZ Transport Agency, Auckland Transport, the Treasury and the State Services Commission).

During this first phase of the project we have developed baseline data, background information and analytical tools to be able to evaluate and test pricing options, and a comprehensive communications and engagement strategy.

[1] *Statistics NZ Subnational Population Projections, February 2017*

This report shares the findings and insights gained from the work to date. It includes:

- an overview of the challenge Auckland's transport system faces over the next 30 years, and what the future without congestion pricing is projected to look like
- how congestion pricing could be one part of a solution to address these challenges, based on international evidence
- our process for developing and evaluating different pricing options, including how we propose to involve the Auckland public.

Part 2:
The challenge

2.1

Where are we now?

Rapid growth and rising vehicle ownership

Auckland's population has increased by 10 percent in the last four years – this is an increase of roughly 170,000 more people, more than the population of Hamilton.

This significant growth in population, combined with a buoyant economy, is driving a rapid increase in the demand for travel, for both private vehicles and public transport. Aucklanders now drive an average of 1.6 billion kilometres a year further than they did in 2013 and own more cars on a per capita basis than ever before. Over 700 additional cars are being registered in Auckland every week.

Although private vehicles provide for the significant majority of trips in Auckland, public transport plays a critical role in efficiently moving large numbers of people to major employment areas at peak times. Recent years have seen record growth in public transport use in Auckland, with annual public transport boardings increasing by almost 30 percent over the last four years.

Government and Auckland Council are investing

Investment in Auckland's transport system has also increased significantly over recent years. Over $2 billion is now being invested annually in roading, public transport and active modes infrastructure and services. The results of this can be seen in the delivery of projects such as the widening of the Northwestern motorway, the upgrade and electrification of the metro rail network, and the under-construction City Rail Link.

Even with this level of investment, increased demand has led to a substantial decline in network performance. A key issue is the impact of congestion on the motorway and primary arterial road network. These roads make up only 27 percent of the road network, but carry 53 percent of morning peak traffic and account for 63 percent of severely congested[2] conditions.

[2] Based on results from Auckland's Macro Strategic Model. Severe congestion is defined as a volume to capacity ratio of 0.8 or over – which equates to stop start traffic and significant delay.


REMUERA
Mall
TOYOTA

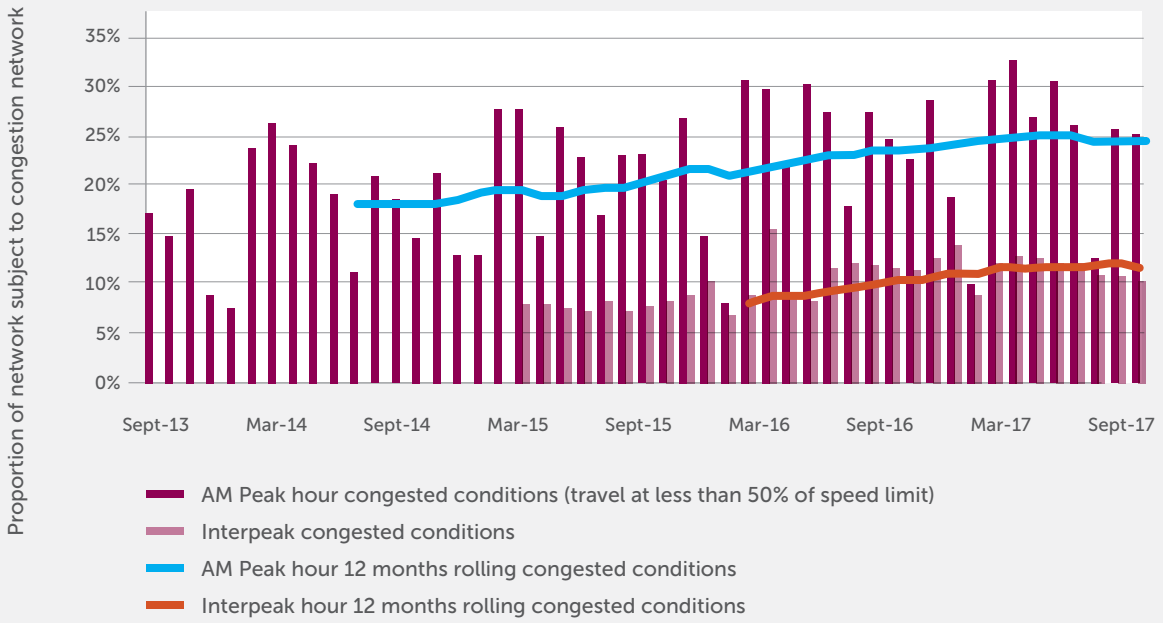
Congestion is spreading

Peak period congestion has increased significantly – 33 percent more of the arterial network is now congested[3] during the morning peak hour than in 2014[4] (see figure 01). Peak period congestion is not confined to the CBD and surrounds, but now spreads more widely from the north to the south of Auckland's urban area.

Interpeak congestion has also grown at a similar rate to the peak, albeit from a lower base. Key parts of the network, such as State Highway One between the CBD and Penrose, are often congested throughout the day. This growth in interpeak congestion is increasingly affecting business and freight travel, which mainly occurs during the middle of the day. Congestion at weekends is also increasing.

The general trend of increasing regional average congestion levels does appear to have stabilised recently with the opening of the Waterview Tunnel in late June 2017 – highlighting the positive impact of the Western Ring Route on the surrounding network. The full impact will become clearer as trends develop in the coming months, and is likely to be supported as new projects open on the Northern and Southern motorways. However, we expect that continued growth in demand for travel will see congestion trends resume, although from a lower base than before the Waterview Tunnel opened.

Figure 01:
Proportion of arterial network subject to congested conditions during the AM peak hour and Interpeak



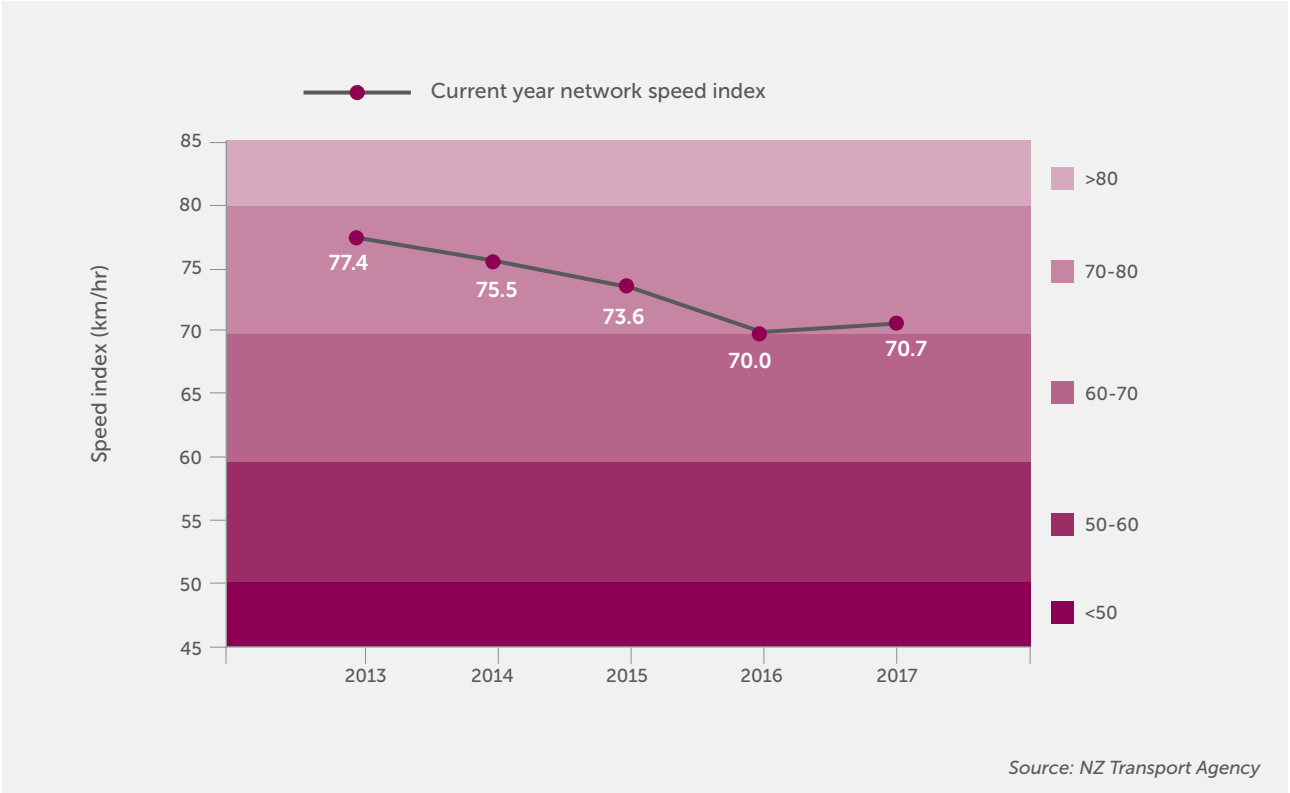
Source: Auckland Transport monitoring data

[3] Congestion is defined here as average travel speeds of less than 50 percent of the posted speed.
[4] The average proportion of the arterial network subject to congestion was 24.3 percent for the year to September 2017, compared to 18.2 percent for the year to September 2014.

Overall, the impact of growing congestion is increased travel times and unreliability, and ultimately higher cost. In Auckland, this impact can be seen in significantly reduced average travel speeds on the motorway network (see figure 02), meaning that an average weekday motorway trip now takes almost 10 percent longer than it did only four years ago. Meanwhile, increasing unreliability means that motorists now need to allow an additional 40 to 55 percent more time for their trips to be assured of arriving on time.

These delays and costs are affecting people's ability to access work and education opportunities. They have a resulting negative impact on Auckland's productivity – which given Auckland produces 37 percent of national GDP, has implications for the whole of New Zealand's economy. They also make Auckland a less attractive place to live and affect the quality of life for many Aucklanders, reducing the time available to spend on leisure activities and with friends and family.

Figure 02:
Average weekday speed on the motorway network



Source: NZ Transport Agency

2.2

Auckland's future growth

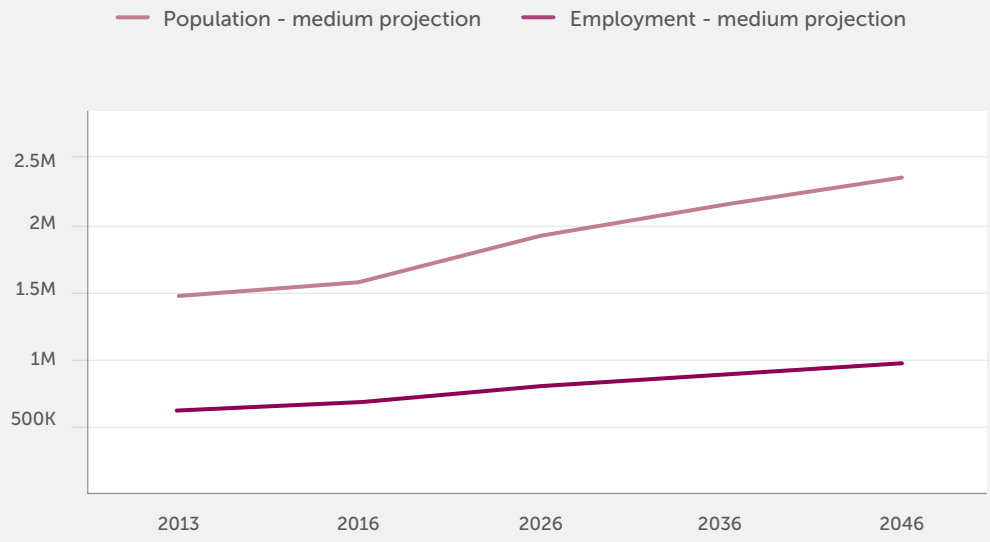
Auckland is growing at a rapid pace

Looking ahead, Auckland's rapid population growth is projected to continue. Recently revised medium population projections by Statistics NZ have Auckland's population reaching 2 million people in 2028, four years earlier than in the previous projections used by ATAP.

Beyond 2028, Auckland's population is projected to reach between 2.4 million[5] by 2046 – an increase of 800,000 on current figures. The number of employees is expected to grow by 40 percent over the same period. This is shown in figure 03.

Auckland's growing population and labour market provide many opportunities and benefits, such as the potential to increase innovation, productivity and prosperity. Its increasing diversity makes Auckland a more exciting and attractive place to live. However, the travel demands of a growing population will continue to place pressure on Auckland's transport networks, increasing travel times, and reducing reliability and access.

Figure 03.
Forecasted growth in population and employment 2016 (base)–2046



Source: Statistics New Zealand and Auckland Forecasting Centre

[5] Taken from the Statistics NZ February 2017 projections (see footnote 1).
These do not take into account any potential future changes to immigration policies.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2.3

The strategic approach to addressing Auckland's transport challenges

Congestion pricing could have a major impact

ATAP identified congestion pricing as having significant potential to influence travel demand and reduce congestion in Auckland. However, this was only one of range of measures recommended to address the challenges of Auckland's transport system.

The ATAP strategic approach contains three integrated elements:

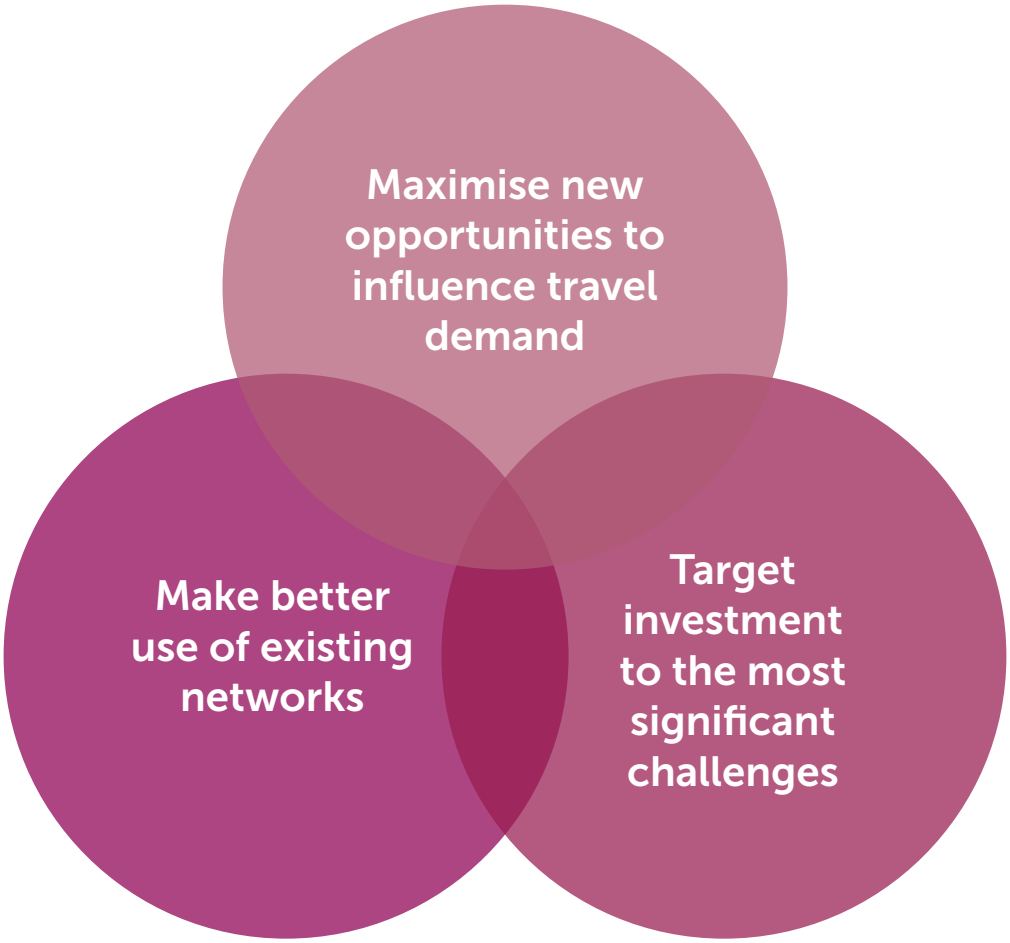


Figure 04.
The ATAP Recommended Strategic Approach

This acknowledges that we need to continue to invest significantly in transport infrastructure, services and technology – roading, public transport and active modes – as Auckland continues to grow. Our current understanding of what these investments might entail is detailed in the August 2017 ATAP update report, which proposed expanding the original investment package in response to higher population projections.

ATAP recognised that it is becoming increasingly expensive to build new roads or expand existing ones due to land availability constraints and the high costs of purchasing land. To maximise the benefits of our investments, we need to get more out of the existing network by increasing throughput of people and goods.

This could be achieved through smarter and more active traffic management, increasing availability of real-time travel information, and interventions such as intersection upgrades, minor road layout changes, street space reallocation and traffic light optimisation. In the longer term, developing technologies such as autonomous and connected vehicles offer further potential to get more out of the existing network.

We also need a greater focus on influencing travel demand to actively inform and shape people's travel decisions. This includes better integrating land use and transport planning including through urban design, and encouraging increased vehicle occupancy through shared mobility technologies such as ridesharing and carpooling.

ATAP found that congestion pricing has the potential to be a powerful tool to influence travel demand and significantly improve network performance. However, it will be most effective if it is implemented alongside these other initiatives, many of which are already underway.

2.4

What does a future without congestion pricing look like?

Since the original ATAP report came out in 2016, new information has been released and further work has been undertaken on how Auckland's transport system is likely to evolve over the next 30 years. To understand whether these changes impact on the case for congestion pricing, we have modelled future network performance using the Auckland Forecasting Centre's Macro Strategic Model, which has been updated and validated to a base year of 2016. As outputs from this model have only recently become available, the results reported below represent an initial assessment.

The modeling scenario does not include congestion pricing, and is based on:

- the most recent population and employment projections[6]
- the indicative package of transport investments recommended in the ATAP Update report[7].

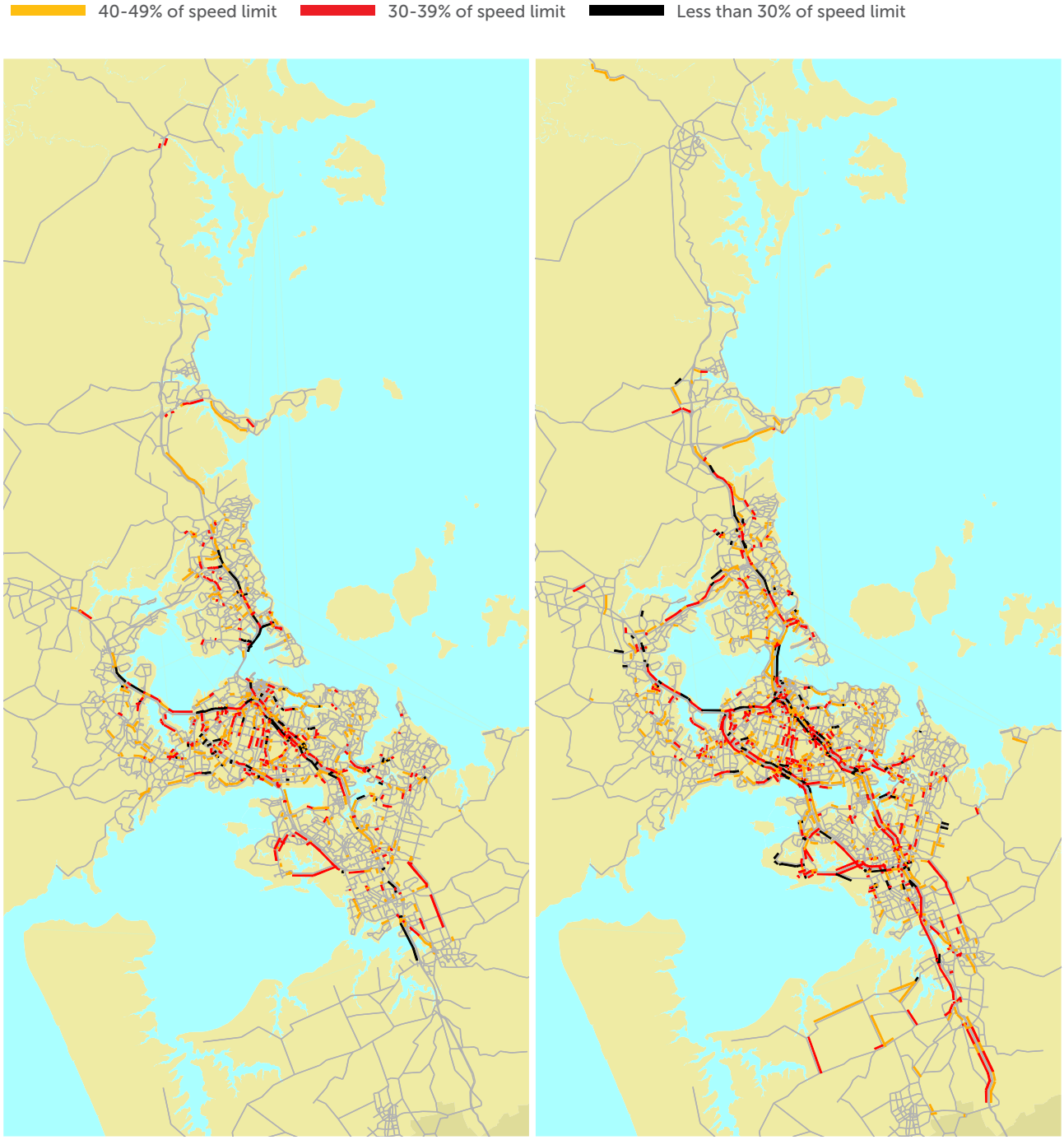
Under this scenario, continued rapid population growth is projected to lead to increases in demand for travel, with total daily trips by all modes rising from 5.4 million in 2016 to 7.8 million by 2046.

Public transport and active mode share (walking and cycling) improves significantly over this period, but the distance travelled by private vehicles is still expected to grow by 50 percent – increasing the pressure on the road network.

While the major investment programme proposed in the ATAP Update report provides significant new public transport and greenfield roading capacity in response to this growth, the scale of increased demand means that further declines in road network performance are still projected. The main effect predicted by the modelling is that congestion becomes more widespread on the existing road network, with the length of lane kilometres subject to severe congestion increasing by 40 percent over the next 30 years. This can be seen in figure 05 which provides a comparison of severe congestion during the morning peak in 2016 and 2046. The motorway system is heavily affected, with the number of lane kilometres subject to severe congestion more than doubling and congestion spreading from the Bombay Hills in the south to Redvale in the North.

[6] Scenario I11, based on Statistics New Zealand's Sub-national population projections issued February 2017.
[7] *Auckland Transport Alignment Project report*

Figure 05.
The growth of severe congestion in the morning peak: 2016 compared to 2046



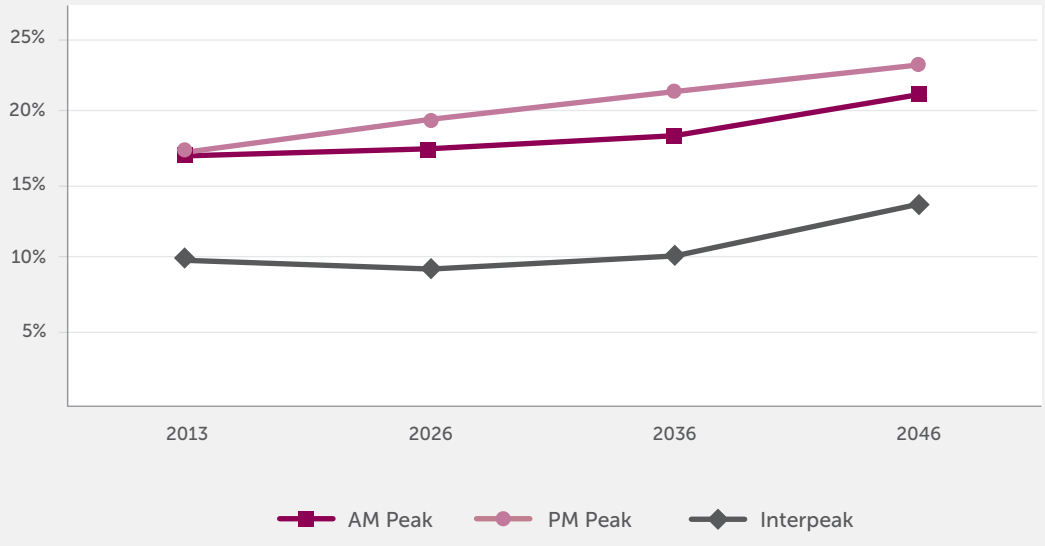
Source: Auckland Forecasting Centre, Macro Strategic Model outputs

The modelling indicates that by 2046:

- the proportion of car travel in severe congestion increases by 29 percent in the morning and afternoon peaks and by 38 percent in the interpeak
- severe congestion on the freight network during both the morning peak and interpeak will increase by 50 percent.

Figure 06 below shows the change in proportion of vehicle travel subject to severe congestion over time. These regional average performance figures include the effect of construction of new road capacity to support greenfields growth and uncongested rural roads. As a result, they are likely to mask higher congestion impacts at a subregional level. As the maps in figure 05 indicate, conditions within the existing urban area are likely to become much worse than the regional average figures suggest.

Figure 06.
Proportion of regional vehicle kilometres travelled in severe congestion



Source: Auckland Forecasting Centre, Macro Strategic Model outputs

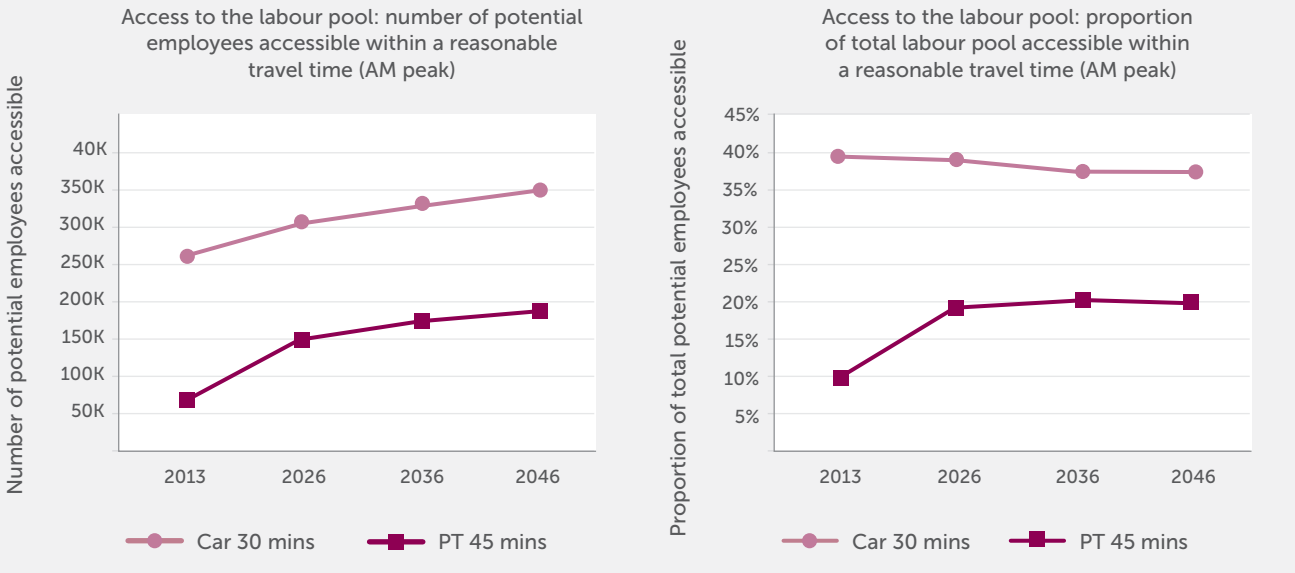
The modelling indicates that in 2016 only 39 percent of the potential labour force was available to employers within a 30 minute car journey. This is a significant decline compared to the 51 percent availability calculated for 2013 – suggesting that congestion has exacerbated skills shortages, even with population growth.

Looking forward, Auckland's total labour force is projected to increase by around 280,000, or 40 percent, over 30 years. However, the congestion levels mean that the potential number of employees available to a business within a 30-minute car trip only increases by 87, 000, or 34 percent, over the next 30 years (see figure 07). Although access to the labour force by public transport improves, cars are expected to remain the main mode by which people get to work, accounting for 69 percent of commuting trips in 2046.

Consequently, the increases in congestion and slower travel times mean that many of the potential benefits from Auckland's growth, such as the increased productivity that would arise from a larger and more connected labour force, are likely to be limited.

In summary, our analysis shows that Auckland's congestion has worsened over the past few years. Although future investment is expected to make a critical contribution, without some form of congestion pricing, congestion will continue to increase and overall network performance will deteriorate further. The result is that Aucklanders access to jobs, education and other opportunities will become more difficult and the benefits of growth will be limited.

Figure 07.
Access to the labour pool in the morning peak



Source: Auckland Forecasting Centre, Macro Strategic Model outputs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Part 3:
What is congestion pricing and how does it work?

3.1

Definition

What is congestion pricing?

Currently, motorists pay for the use of roads through a range of methods: petrol taxes, road user charges, vehicle registration fees and rates. These charges do not take into account the time or location of travel – for example, driving on a congested motorway in rush hour versus driving along a quiet road late at night. However, the true costs of these two journeys are very different – driving at peak times adds to the congestion on the road, which affects (or has a 'cost' to) other road users. These costs affect both the economy (for example, by adding to freight travel times and costs) and individuals (for example, people have less time at home with family).

Congestion pricing is a method used to ease congestion by charging road users at different times and/or locations to encourage some users to change the time, route or way in which they travel.

Implementing a congestion pricing scheme would more accurately reflect where the cost of using the roads is higher, thereby encouraging people to think about travelling in different ways – this is an example of influencing travel demand. Having a higher cost where the roads are congested, in order to manage demand, can increase the number of vehicles that can move along a road in any given time, as it increases the average speed of traffic. Even a relatively small reduction in traffic can have a big impact on congestion.


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There are conceptually four types of congestion pricing:

Area-based	Charging vehicles for crossing a boundary or driving within that boundary at specific times of day. **Example: London (figure 08)**
Cordon-based	Charging vehicles for crossing a ring or line of charge points across a series of roads at specific times of day. Unlike area-based schemes, cordon-based schemes do not charge for traffic movement solely within the cordon. **Example: Stockholm (figure 09), Gothenburg**
Corridor-based	Charging vehicles to use one or more of the roads in a specific congested corridor or corridors (main highway and secondary routes). **Example: Dubai (figure 10), Singapore**
Network-based	Charging vehicles for travel on all congested roads in a defined geographical area. **Example: Singapore from 2020, proposed for London**

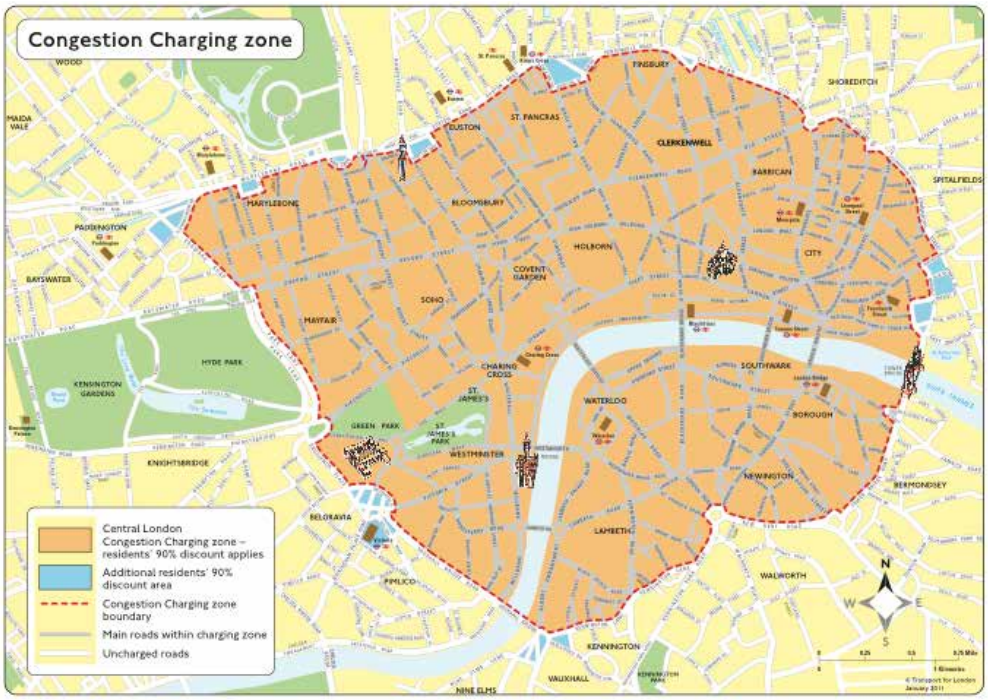

Figure 08.
Area scheme London

Figure 09.
Cordon scheme Stockholm

Figure 10.
Corridor scheme Dubai

3.2

How has congestion pricing been used internationally?

Our review of international experiences demonstrates that congestion pricing can influence travel demand and ease congestion[8]. Some jurisdictions have used congestion pricing to reduce congestion within the targeted areas at peak periods by 15-30 percent. This is similar to the reduction in morning peak congestion levels associated with school holiday periods in Auckland.

While some overseas jurisdictions have successfully introduced a congestion pricing scheme, many others have attempted but not proceeded. We can learn lessons from both successful and unsuccessful attempts, and it is important we tailor these to Auckland's specific challenges.

Why is Auckland different?

No 'New World' city with dispersed trip patterns and relatively low density of housing has yet introduced congestion pricing[9]. The widespread nature of Auckland's congestion means that schemes that have worked well elsewhere may not be as effective in improving congestion across Auckland.

Auckland's geography, urban form, trip patterns, and governance require bespoke policies, public involvement, design and delivery that build incrementally to address the most widely acknowledged challenges.

[8] Review of international pricing initiatives, previous reports and technologies for demand management purposes – D'Artagnan Consulting
[9] In the United States, some cities have developed networks of high occupancy/toll lanes that enable motorists willing to pay for priority lanes to bypass congested part of the highway network. They are not, strictly speaking, congestion pricing schemes as they do not relieve congestion, but provide a congestion free alternative.

The international review has provided the following lessons to inform our consideration of whether congestion pricing is right for Auckland and what it should look like. The case studies below also identify the key points of difference between Auckland and the city being discussed.

Policy lessons

- **Establish clear objectives** that address an agreed problem. Diverse and competing interests can lead to too many objectives and subsequent public scepticism.
- **Focus on the most obvious broadly recognised problems** and design a solution that persuasively addresses them.
- **Lead with policy, not technology** – let policy lead technology choices, even if technology choices may provide limits around what is achievable on a step-by-step basis.
- **Ensuring clarity** on how revenue will be used is critical to building public acceptance. It helps for at least some of the revenue to be applied to roads, demonstrating a clear benefit to those paying to use the roads.
- **Ensure the scheme design considers distributional impacts** – with the right information, economic appraisal can identify how social benefits and costs of reduced congestion are distributed. Such information can help in designing more targeted congestion charging, and in identifying any remedy needed to address any distributional impacts.
- **Consider complementary measures** – core to successful schemes internationally has been the availability of sufficient high quality public transport to support modal shift where this has been a viable alternative. There is also a need to ensure bypass routes around charging locations can manage increased demand for changes to traffic patterns.
- **Poorly designed schemes can disproportionately affect those least able to pay**, particularly in areas with high private vehicle use by people on low incomes. For users heavily affected by the scheme, exemptions or discounts or some other measure to mitigate negative impacts may need to be considered, but care should be taken not to undermine the scheme's effectiveness.

Case study: Stockholm and Gothenburg

Stockholm introduced a cordon charge in 2007, with prices varying between peak and off-peak.

This came after a comprehensive pilot, which effectively trialled the full scheme for six months, exposing the public to the impacts of the scheme. It was followed by a referendum providing a narrow mandate to proceed. Today the scheme has a high degree of public acceptance and has largely sustained the benefits of its introduction, with charges increased once and an expansion of the scheme to charge through-traffic. Most of the net revenues have been used to fund major urban road improvements (including a bypass route to the charging zone), but more recently have also been used to fund public transport and cycling infrastructure.

An attempt to replicate the success of Stockholm's scheme in Gothenburg provides a cautionary tale. Gothenburg introduced congestion pricing in 2013, which makes it the most recent jurisdiction to introduce such a scheme. However, it has much lower levels of public acceptance. This is because Gothenburg has much less serious congestion than Stockholm, much lower mode share for public transport, and the scheme was designed principally to maximise revenue, rather than to target congestion.

It was intended to use the revenue raised from the Gothenburg scheme to fund a package of transport investments, the biggest of which is an underground rail tunnel which has yet to be completed. Research shows that users do not perceive any major benefits from the scheme. Although congestion was largely concentrated in one location during peak periods, the scheme operates all day across a cordon. This has created concerns about community severance and unfairness.

Auckland's points of difference

A key point of difference between Auckland and Stockholm is the higher use of public transport in Stockholm and higher density of trips into the central area. Gothenburg has a higher car dependency than Auckland, but unlike Auckland, its congestion highly concentrated in a few areas rather than widespread.

Public acceptance and communications lessons

- **Lack of public acceptance** is the single biggest factor that has halted development of urban congestion pricing schemes internationally. Successful schemes have achieved synergy between policy, design and communications with the public, particularly those most likely to pay the charge.
- **Take charge of communications** by leading the public narrative on the purpose of the scheme and the benefits to road users.
- **Provide plenty of information and be responsive** by ensuring the public has access to all the information it needs, and have answers for as many questions as possible. The more responsive the communications and information, the greater public confidence will be. Have a strategic engagement strategy for all parts of the scheme.
- **Use demonstrations/pilots to engage with the public** as these can be valuable in building public confidence by focusing people on a real-life application and engaging public opinion on different policy and user options. Trials can be used for a variety of purposes, including testing technology, proving the impact of the scheme on demand, testing interfaces between customer service and account management, or obtaining feedback on options from participants.

Singapore

Singapore was the first jurisdiction to introduce congestion pricing and it currently operates by far the most sophisticated and effective system. It started using a paper-based area licensing scheme in the CBD in 1975 and progressed to today's cordon, arterial and expressway-based scheme in 1998. This involves around 80 charging points covering two adjacent cordons and some strategic corridors. The prices at each charging point are reviewed every three months to ensure speeds on the routes that are charged are within ranges of 45-65 kilometres per hour for expressways, and 20-30 kilometres per hour for local streets. When the average speed drops below the bottom of the target range, the price is increased, and if the average speed exceeds the top of the range it is reduced. The gantries used to detect and process payment are some of the largest and most expensive used for urban congestion pricing anywhere, taking up 11m of road length.

By 2020, Singapore will be the first to introduce a Global Navigation Satellite System (GNSS) urban congestion pricing scheme. This will be capable of enabling full network-based (distance, time and location and vehicle type) pricing – but will, in the first instance, be used to replicate the existing pricing system and then evolve over time to apply charges on a more flexible basis. Some gantries (although far fewer than currently in place) will need to be retained for enforcement purposes.

Auckland's points of difference

Singapore's political culture, urban form and geography are significantly different to those of any other city. Compared to Auckland, housing density is much higher, car ownership is much lower and public transport is much more extensive.

Design lessons

- **Start small and evolve** – focus on designing a scheme that can easily be implemented and that will demonstrate clear and sustainable benefits without constraining options for scalability and flexibility to evolve further. Design a scheme that will be effective in improving conditions for the location/s targeted but don't promise a magic bullet.
- **Don't chase perfection first up** as complexity risks confusion, suspicion and public opposition. Singapore started with a simple, easy to understand, but effective scheme. It evolved and expanded over subsequent years into a sophisticated system.
- **Balance simplicity with a targeted approach** – target congestion where and when it occurs. The blunter the scheme, the greater the concerns about fairness and the need to mitigate equity issues.
- **Maintain momentum** – there is no ideal timeframe from conception to implementation. Long timeframes create challenges for sustaining broad agreement and maintaining scope. Early agreement can be undermined by changes in political landscape. Evidence suggests Auckland should be able to implement a pilot or small scheme within two and a half years once agreement to proceed on a chosen option is reached.
- **Minimise discounts and exemptions** – while these can be useful to avoid charging vehicles that are not intended to be deterred from travelling, they reduce the scheme's impact on congestion, increase costs and can create opportunities for defrauding the scheme. In London, a long list of vehicles with substantial discounts or exemptions has undermined its core objective. Today it is estimated that 50 percent of vehicles circulating in the London charging area are subject to a discount or exemption.

London

London was the first major European city to introduce congestion pricing in 2003.

It operates an area scheme that is conceptually simple, introduced under a political mandate. Initial reductions in congestion were high inside and approaching the charged area (20-30 percent). Due to growth in traffic (particularly vehicles subject to exemptions) and significant re-allocation of road space to public transport, walking and cycling, congestion is now back to levels seen before the charge was introduced. Nonetheless, the congestion pricing is still having some impact and congestion in central London would be much worse without it.

A recent report[10] indicates the current scheme is no longer fit for purpose and the Mayor's draft transport strategy 2017 proposes the eventual replacement of the scheme with full network road pricing across Greater London based on time, location and distance. In the meantime, an ultra low emission zone is proposed to cover much of inner London (around 20 percent of London by area) by 2021.

Auckland's points of difference

Compared to Auckland, London has greater density, and higher levels of traffic congestion and public transport use. Prior to introducing the congestion charge, only 12 percent of trips into the charging zone were undertaken by car – by comparison, just under 50 percent of trips into Auckland's CBD are by private vehicle. The congestion charging zone in London covers an area of 21 square kilometres, an area over four times larger than Auckland's CBD (4.3 square kilometres).

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[10] ***London Stalling – London Assembly Transport Committee***

3.3

Has congestion pricing been considered in Auckland before?

Although congestion pricing has not been introduced in New Zealand, central government and Auckland Council have looked at it several times over the past 15 years to examine the merits and consider the options to influence travel demand in Auckland. These include consideration of cordon and area schemes, motorway tolling, and parking levies.

We reviewed this previous work for any lessons for this project. Overall, we found most of the schemes previously investigated had shortcomings, either in their ability to ease congestion or in the resulting economic and social impacts.

The Ministry of Transport's Auckland Road Pricing Evaluation Study (ARPES) 2006 and Auckland Road Pricing Study (ARPS) 2008 concluded that there could be considerable merits in introducing congestion pricing, but identified shortcomings to all the options, particularly around either local economic and social impacts, or traffic impacts.

Auckland Council's Future Auckland Transport Funding Report looked at a motorway toll as one option to raise additional revenue for transport in Auckland (rather than to ease congestion). It found that a motorway user charge could have net positive impacts on Auckland if it encouraged behaviour change that could reduce congestion, but did not consider equity issues.

3.4

What are the technology options for congestion pricing?

We reviewed the technology options currently available to implement congestion pricing, as well as technologies that might be available in the near future[11]. We found that automatic number plate recognition technology is likely to be the most suitable and cost-effective solution for a congestion pricing scheme that is available today. This is already in use on New Zealand's three toll roads and would be necessary for any scheme for enforcement purposes.

In the near future, in-vehicle technology incorporating a Global Satellite Navigation System (GNSS) could offer a more sophisticated solution, but there are a number of risks and logistical barriers to overcome before this is feasible. GNSS is not yet proven for urban congestion pricing, with Singapore expected to be the first city to introduce such a scheme by 2020.

Expansion and evolution of the current electronic Road User Charges (eRUC) system for heavy vehicles in New Zealand could be one pathway for any eventual implementation of GNSS-based systems for demand management purposes.

Given the inherent uncertainty around how transport technologies might evolve, it is important that we consider the flexibility and scalability of any pricing option for Auckland.

[11] Review of international pricing initiatives, previous reports and technologies for demand management purposes – D'Artagnan Consulting

Existing technology

- **Dedicated Short Range Communications (DSRC):** otherwise known as 'tag and beacon'. This is very reliable (99 percent) but relatively expensive as it involves gantries or poles for antennae and beacons for each charging point, and each vehicle must be equipped with a small electronic 'tag' so they can be detected. Number plate recognition would still be required for enforcement. DSRC was first used for free-flow tolling[12] in 1997, and has been used in first generation road charging schemes and extensively in Australia on toll roads. DSRC is now becoming obsolete as newer technologies mature.
- **Automatic Number Plate Recognition (ANPR):** converts images of number plates into digital information that allow a vehicle to be identified and matched to owner accounts and charging products, as well as enabling identification through the Motor Vehicle Register. It is already used in New Zealand's three toll roads to identify and charge vehicles. As imaging and camera technology have improved significantly in recent years, ANPR is starting to replace DSRC as a means of identifying vehicles for charging purposes, because its accuracy and reliability means the 'tags' used for DSRC are no longer necessary.

  Costs are dependent on the number of charging points as cameras need to be located at each point for each direction of travel to capture images for all lanes. Gantries are not always required for ANPR – cameras can be fitted to poles or lamp-posts (depending on the road configuration), as is the case in London.

  ANPR is an essential element of any urban road pricing scheme for enforcement purposes (proof of time and place of a vehicle). For any system that may use other technologies, ANPR would also be needed as a backup charging system for occasional users, unless any other technology were made mandatory (for example, GNSS On Board Units).
- **Electronic Road User Charges (eRUC)**: used in six European countries for heavy vehicles and in Oregon (USA) for heavy and light vehicles [13]. It is currently used in New Zealand as an option to measure road use and pay road user charges for approximately 12 percent of the heavy vehicle fleet[14]. This is a GNSS-based charging system (see next page) based on weight, vehicle type/configuration and road type.

[12] Tolling that does not require a vehicle to slow down or stop to pay the toll
[13] In Oregon, eRUC is an option to pay heavy vehicle weight-distance tax, similar to NZ, and is an option for light vehicles choosing to pay by distance instead of fuel tax as part of the OReGO pilot.
[14] *Evaluation of the new road user charges system 2016*

Emerging technology

- **Global Navigation System by Satellite (GNSS):** the only emerging technology capable of implementing a full network-based congestion pricing scheme. This would require devices to be installed in every vehicle (called an On Board Unit – OBU) that receive signals from a satellite-based navigation system to enable the OBU to identify when and where a vehicle is travelling.

  This system has the advantage of being able to charge different road segments at different times of day, to enable congested routes to be targeted directly. It does not require roadside infrastructure at each charging point.

  This is leading edge technology that has not yet been implemented for full network congestion pricing in any city to date (although it has been used for less complex forms of road pricing). The sheer volume of OBUs required in Auckland, which would need to be distributed to vehicle owners to install in each vehicle, could present logistical issues with the adoption of this technology. The technology would need to be supplemented with ANPR to service out-of-town or occasional users without OBUs in their vehicle.

- **In-vehicle telematics:** electronic, vehicle-based systems employing wireless communications that transmit data to a supplier's system, including GNSS technologies. As connected vehicle technologies emerge, these systems are becoming more sophisticated and may have the capability to incorporate applications to enable network based charging. Currently no jurisdiction uses this technology for road charging, in part due to the lack of interest most vehicle manufacturers have shown in making such systems available for these purposes. Due to New Zealand's slow fleet turnover it will be many years before this technology is widespread enough to become useful for congestion pricing, and would require specific agreements with individual vehicle manufacturers and telematics providers to be feasible.

- **Smartphones:** these have had GNSS technology as standard since 2009. Smartphones could have useful applications to alert drivers to impending charge zones, enable management of congestion pricing accounts, provide means for occasional users to pay for road use and advise on alternatives such as public transport and park and ride services outside the zone. However, smartphones alone cannot be used for urban road charging because they need to be reliably correlated to a specific vehicle (not a person), they lack accuracy to reliably distinguish the locations of charging points, and not everybody owns a smartphone.


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Part 4:
What's next for the project?

4.1

How will we explore with Aucklanders whether congestion pricing should be part of the solution?

Public understanding is key

While there may be several approaches to congestion pricing that could be effective, they are unlikely to be successful if people do not understand or accept its potential. The key impacts of congestion pricing on those using the transport system, businesses and households, including fairness, equity and distributional impacts, will also have to be carefully considered. There may need to be trade offs between addressing these impacts, such as through mitigations or exemptions, and the effectiveness of the overall scheme in reducing congestion.

Alongside our analytical framework for assessing congestion pricing options, it will be critical for us to involve Aucklanders as we develop and evaluate options to inform our recommendations on whether to introduce congestion pricing.

Communication and engagement strategy

We have developed a communication and engagement strategy for the project. This has four objectives:

1. Stakeholders and the Auckland public understand how the project relates to them and the broader context of improvements to the transport system.
2. The Auckland public has opportunities to inform the course of the project.
3. The project, its leadership and the processes used are seen as credible.
4. Participating agencies have sufficient understanding of the position of stakeholders and the Auckland public to inform their recommendations.

The initial focus of the strategy has been on progressing the following important elements necessary to plan meaningful and appropriate public involvement in the project.

1. **Stakeholder identification, understanding and initial engagement** to ensure existing knowledge and networks are used to understand and involve a range of Auckland's interest groups and diverse communities.
2. **A benchmarking research programme** to understand where different groups of Aucklanders are at with their thinking and understanding of congestion and solutions to address it.
3. **A visual identity** established for the project, which is public-facing, including a website as the central source of information and updates.

How Aucklanders can be involved

The research programme is designed to gain insights to help empower and engage key stakeholders and the Auckland public. It will be an iterative process where research is both an input (knowledge gathering and listening) and output (information sharing) of the public's involvement.

A Stakeholder Working Group will be established as a forum to ensure key stakeholders are in a position to inform how best to involve Auckland's diverse communities and business interest groups in the project, and to assist with this involvement.

The project website will be the initial hub for public information and involvement, supported by a social media strategy.

As the project progresses, so too will the design of public involvement, informed by the research and stakeholder engagement (including the insights of the Stakeholder Working Group).

4.2

Analytical framework

The project's terms of reference set out the objective and key considerations for any congestion pricing option in Auckland. These are:

- improving the performance of Auckland's transport network, in particular through improved congestion results
- ensuring key impacts of pricing on those using the transport system, businesses and households, including fairness, equity and distributional impacts, are understood and appropriately addressed
- ensuring any pricing system is cost-effective to implement, operate, administer and enforce.
- ensuring pricing is flexible and adaptable to changing circumstances, such as developing technology
- the need for transparency on the use of any net revenue raised by any pricing system for demand management purposes in Auckland
- national and regional implications including any impacts on the existing land transport funding system

We have developed an analytical framework to assess different congestion pricing options against these requirements. This framework is built on and utilises existing tools and frameworks used to assess transport interventions in New Zealand, including the Treasury's Better Business Case framework, and the NZ Transport Agency's Investment Assessment Framework and Economic Evaluation Manual.

We will use congestion data along with information about trip patterns in Auckland to develop an initial long list of potential options. We will then use the analytical framework along with other information and tools for:

- selecting a long list of options that meet the option design requirements
- shortlisting options using indicative (mainly qualitative) assessment
- carrying out in-depth assessment of the short-listed options.

Figure 11 covers the analytical framework, and how it will be used throughout the project in more detail. Apart from assessing options against the requirements listed above, we will consider public acceptability and any trade-off requirements throughout the analytical process to inform development of mitigation strategies.

The project's terms of reference require us to consider whether any demonstrations or pilots could be undertaken. This could include trialling options, or demonstrating what an option might look like, in order to test technology, behaviour change, or build public understanding of what a congestion pricing option might look like.

At this stage in the project, we have concluded that demonstrations or pilots are better considered once we have developed options and after we know what information might be usefully learned from demonstrations and/or pilots.

Figure 11.
Project analytical framework

		Development of options		Assessment of options
ALIGNMENT TO TERMS OF REFERENCE REQUIREMENTS		**PHASE 1** Checking against option design requirements	**PHASE 2** Indicative assessment of long list of options	**PHASE 3** Final (quantitative where possible) assessment of shortlisted options
PROJECT OBJECTIVE (TOR 4.1)	**Assess the extent to which the option improves Auckland's transport network performance, considering:** • the size and nature of congestion improvement effects	Qualitative assessment of the potential to achieve objectives	Indicative assessment of congestion improvement and network performance	• Percentage of arterial network in congested conditions during peak hours • Travel time (non-monetised) • Reliability (non-monetised)
ECONOMIC, SOCIAL & ENVIRONMENTAL IMPACTS (TOR 4.2)	**Assess the impacts of the option on economic, social and environmental outcomes, considering:** • different user types and trip purposes	Qualitative assessment of the economic, social and environmental outcomes	Indicative assessment of the economic, social and environmental outcomes	• Access to employment and wider economic impacts • Travel time and reliability (monetised) • User time and vehicle operating cost • Emissions and other external impacts
DISTRIBUTION OF IMPACTS (TOR 4.2.1)	**Assess the fairness, equity, and distributional impacts of the option, including how such impacts will be addressed, considering:** • impacts across social groups and geographical locations	Qualitative assessment of the needs and opportunities to mitigate distributional or equity impacts	Indicative assessment of distributional impacts across social groups and geographical locations	• Household affordability • Social inclusion and equity • Mitigation opportunities and effectiveness
EFFICIENCY, FLEXIBILITY, WIDER IMPLICATIONS (TOR 4.2.2, 4.2.3 AND 4.2.5)	**Assess the extent to which the option can be implemented, operated and enforced efficiently, considering:** • financial, operational and technological aspects	Qualitative assessment of the efficiency and practicality of implementation	Indicative assessment of implementation, operational and enforcement efficiency	• Cost and ease of implementation, operation, compliance and enforcement
	Assess the extent to which the option can evolve to a longer-term option, considering : • flexibility and scalability in terms of both temporal and spatial aspects	Qualitative assessment of the potential to evolve to a longer-term option	Indicative assessment of option flexibility and scalability	• Time, space and coverage • System and platform requirements
Other key considerations		**Public acceptability** and any **trade-off** requirements must be considered throughout the option development and assessment process		

Note: This is an indicative list of potential performance measures only. The performance measures will be developed/refreshed over the course of the project to ensure the most appropriate measures are used for the final assessment of the shortlisted options.


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Part 5:
Conclusions and next steps

We recommend that the Mayor of Auckland, Minister of Transport and Minister of Finance agree to proceed to Phase II of the project.

Our overall finding from the first phase of the project is that congestion pricing shows real promise as a means to help address Auckland's transport challenges. We have learnt valuable lessons from international experiences of congestion pricing about the importance of public engagement and the need to take a staged approach. The work we have done so far in setting up the project means we are in a good position to start examining how different congestion pricing options could work in Auckland.

We have more work to do before we can say how congestion pricing might impact on Aucklanders and whether it is a good idea. The next two phases of the project will evaluate different pricing options before we reach a recommendation on whether or not it should be introduced and what it might look like. Throughout this, we plan to engage with the public and with stakeholders to ensure whatever we recommend is right for Auckland.

The proposed next steps for phase two and three of this project are as follows.

Phase II includes:

- identification, design and assessment of potential pricing options for demand management purposes in Auckland
- engagement with the public and stakeholders
- high level identification of scheme components including development, indicative timeframes for implementation, capital and operating costs
- any demonstrations and pilots as appropriate
- assessment of shortlist of options based on results of evaluation (including cost benefit analysis)
- recommendations of options to take to Phase III.

Phase III includes:

- further option design, refinement and assessment, including demonstrations and pilots as appropriate
- further engagement with the public and stakeholders
- indicative implementation timeframes, scale, predicted impact, constraints and main risks for the preferred scheme option(s)
- a final report setting out the preferred option(s), containing comprehensive evaluation, including benefit-cost analysis, with a clear recommendation on whether pricing for demand management purposes should be introduced in Auckland.

Phase II is expected to conclude by August 2018. At that point we expect to give an indicative end date for the project as whole.

Appendix – Terms of Reference

1. Participating Agencies

1.1. The Ministry of Transport
1.2. Auckland Council
1.3. The Treasury
1.4. State Services Commission
1.5. The New Zealand Transport Agency
1.6. Auckland Transport

2. Background

2.1. In 2016 the Government and Auckland Council agreed an aligned strategic approach for the development of Auckland's transport system over the next 30 years. The results of this work are set out in the Auckland Transport Alignment Project – Recommended Strategic Approach report (the ATAP report).

2.2. The ATAP report concluded that there is a requirement to make "a fundamental shift to a greater focus on influencing travel demand through smarter transport pricing, and accelerating the uptake and implementation of new technologies, alongside substantial ongoing transport investment, and getting more out of our existing networks".

2.3. The ATAP report recommended the early establishment of a dedicated project to progress "smarter transport pricing" with a primary focus on influencing travel demand to address congestion. The report said that this should be progressed alongside other opportunities to influence demand, such as better integrating land use and transport, and actively encouraging increases in vehicle occupancy.

2.4 In September 2016, Cabinet noted that Ministers would receive further advice on options to develop a pathway towards smarter transport pricing in Auckland. In December 2016 Ministers agreed that plans for a multi-agency pricing project be developed to support a decision on whether to implement a form of pricing in Auckland.

3. Purpose of the Auckland Smarter Transport Pricing Project

3.1. The purpose of the project is to undertake a thorough investigation sufficient to support a decision on whether or not to proceed with introducing pricing for demand management purposes in Auckland.

4. Objective of the Auckland Smarter Transport Pricing Project

4.1. The Parties agree that the primary objective of pricing is to improve the performance of Auckland's transport network, in particular through improved congestion results.

4.2. As part of achieving the objective, consideration must be given to economic, social and environmental effects including the following matters:

4.2.1. Ensuring key impacts of pricing on those using the transport system, businesses and households, including fairness, equity and distributional impacts, are understood and appropriately addressed.
4.2.2. Ensuring any pricing system is cost-effective to implement, operate, administer and enforce.
4.2.3. Ensuring pricing is flexible and adaptable to changing circumstances, such as developing technology.
4.2.4. The need for transparency on the use of any net revenue raised by any pricing system for demand management purposes in Auckland.
4.2.5. National and regional implications including any impacts on the existing land transport funding system.

5. Project Scope

5.1. The project will investigate pricing for demand management purposes (i.e. to reduce congestion) on Auckland's road network.

5.2. The project must consider the implications of any potential pricing initiative on the current land transport funding system of fuel excise duty (FED) and road user charges (RUC). For the avoidance of doubt, this means the potential for any demand management pricing initiative in Auckland to replace or offset FED and RUC in Auckland.

5.3. The broad scope of the Project's three phases is outlined below. While the project is set out as three phases, a degree of flexibility is likely to be needed between phases depending on the findings of individual pieces of work.

Phase I

5.4. The objective of this phase is to develop baseline data and background information, the right analytical tools to be able to evaluate and test pricing options, and a comprehensive communications and engagement plan.

5.5. Phase I includes:

5.5.1. An updated base case that accurately describes the existing and projected transport situation in Auckland in the absence of pricing for demand management purposes
5.5.2. A review of available and prospective pricing technology, systems and enforcement solutions
5.5.3. A review of previous Auckland and international congestion pricing proposals, schemes and lessons learnt
5.5.4. A detailed evaluation framework to guide the review and appraisal process together with appropriate analytical modelling tool/s
5.5.5. Preparation of a comprehensive public and stakeholder communications and engagement plan
5.5.6. Detailed scoping and planning for Phases II and III, including timescales
5.5.7. Recommendations for the appropriate timing and nature of possible demonstrations and pilots for Phases II and III of the project.

Phase II

5.6. The objective of this phase is to identify options, and analyse these based on the findings from Phase I. A shortlist will be developed, which will form the basis of recommendations on which options to progress to further design and testing in Phase III.

5.7. Phase II includes:

5.7.1. Identification, design and assessment of potential pricing options for demand management purposes in Auckland
5.7.2. Engagement with the public and stakeholders
5.7.3. High level identification of scheme components including development, indicative timeframes for implementation, capital and operating costs

5.7.4. Any demonstrations and pilots as appropriate and identified in Phase I
5.7.5. Assessment of shortlist of options based on results of evaluation (including cost benefit analysis)
5.7.6. Recommendations of options to take to Phase III.

Phase III

5.8. The objective of this phase is to undertake further design, testing and analysis of the shortlist of options, to support a decision on whether to proceed with introducing pricing for demand management purposes in Auckland.
5.9. Phase III includes:
5.9.1. Further option design, refinement and assessment, including further demonstrations and pilots as appropriate
5.9.2. Further engagement with the public and stakeholders
5.9.3. Indicative implementation timeframes, scale, predicted impact, constraints and main risks for the preferred scheme option(s)
5.9.4. A final report setting out the preferred option(s), containing comprehensive evaluation, including benefit-cost analysis, with a clear recommendation on whether pricing for demand management purposes should be introduced in Auckland.

6. Project deliverables and timing

6.1. The project will be undertaken in three phases, with the deliverables set out below provided to the Parties at the end of each phase. These deliverables will be provided to the Minister of Transport, Minister of Finance, the Auckland Mayor and the Mayor's nominee (the decision makers) and will act as gateways for formal decisions to progress to the next phase.
6.2. Regular update reports will also be provided to the decision makers. The frequency and type of reporting to be provided will be agreed with the Ministers' and Mayor's offices.
6.2.1. Phase I: A progress report in November 2017 setting out baseline evidence, evaluation and analytical methodology for assessing different options against the project objectives, a comprehensive plan for engagement with the public and stakeholders, and recommendations for the appropriate timing and nature of possible demonstrations and pilots.
6.2.2. Phase II: Interim advice outlining a shortlist of pricing options, proposed demonstrations and pilots, analysis, recommendations and next steps.
6.2.3. Phase III: A final report containing comprehensive evaluation and benefit-cost analysis of the preferred pricing option(s), and the results of demonstrations and pilots, with recommendations and next steps.
6.3. The timing of deliverables two and three will be identified in Phase I of the project.

7. Governance of the project

7.1. The Parties agree to establish a governance structure comprising:
7.1.1.a Governance group consisting of the Secretary for Transport (Chair), Chief Executive of Auckland Council, Deputy Secretary Treasury, Deputy Commissioner for Auckland, State Services Commission and the Chief Executives of the NZ Transport Agency and Auckland Transport.
7.1.2.a Steering Group consisting of nominees from the Ministry of Transport, Auckland Council, the Treasury, the NZ Transport Agency and Auckland Transport.
7.2. The Governance Group will:
a. consider the project deliverables and key findings of each phase
b. make recommendations to the Minister of Transport, Minister of Finance and the Auckland Mayor's office.
7.3. The Steering Group will:
c. ensure the project is delivered to the agreed scope, budget and timeframes
d. ensure that work is coordinated with the wider ATAP implementation work programme
e. resolve issues and if necessary refer any unresolved issues to the Governance Group to address.
7.4. The project will be managed by a Project Director who will be appointed by the Ministry of Transport after consultation with the participating agencies (the agencies). The Project Director will report to the Steering Group, and be supported by a project team comprising internal agency resources and external expertise.
7.5. The Project Director, working with the project team, will:
a. be responsible for overall outputs/deliverables of workstreams and recommendations on key decisions
b. deliver the project to the agreed scope, budget and timeframes.

8. External advice

8.1. The Project Director, in consultation with the Steering Group, will commission external advice and peer review throughout the delivery of the project to support the investigation and development of options and recommendations.

9. Communications and public engagement

9.1. Public and stakeholder engagement will be a critical element of project success as their understanding and acceptability will be a key factor in any subsequent decision to introduce pricing for demand management purposes in Auckland. As such, communications and engagement will be a key activity from the initial stages of the project.

10. Budget

10.1. A cost-sharing arrangement will be established between the agencies to cover project costs.

11. Protocols for the project

11.1. The agencies will participate in the project in good faith and will ensure information is only released by agreement or in accordance with statutory duties.
c. The Project Director, in consultation with the Steering Group, will be responsible for preparing any information for release or consultation, and for ensuring there is joint agreement for the proactive release of any information.
d. The Parties recognise that Ministers and Government bodies are subject to the Official Information Act 1982 and Auckland Council and Auckland Transport are subject to the Local Government Official Information and Meetings Act 1987.

12. Amending the terms of reference

12.1. The Chair of the Governance Group will recommend any substantive proposed changes to this document for consideration and agreement.

#congestionquestion