Special vehicle lane assessment

Contents

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1. INTRODUCTION

As congestion continues to challenge urban mobility, Special Vehicle Lanes[1] (SVL) offer a targeted solution by repurposing road space to support the more efficient movement of people and goods. Whether it's bus, heavy vehicle, or transit lanes, this guideline ensures that each SVL project is backed by robust data, strategic alignment, and community input.

This document provides guidance to determine the most appropriate type of SVL to apply on corridors in the Auckland Region to ensure these assessments are carried out in a consistent way in accordance with current strategic direction. SVLs are lanes defined by signs or markings restricted to a particular class or classes of vehicle to provide priority for movement.

Given the limited opportunities in Auckland to increase physical capacity on the road network, it is important that the existing road space is used effectively to help deliver on two of the three Auckland Plan strategic directions for transport:

- *Better connect people, places, goods and services, and*
- *Increase genuine travel choices for a healthy, vibrant and equitable Auckland*

This also plays an important role in contributing to AT's purpose, to contribute to an effective and efficient land transport system to support Auckland's social, economic, environmental, and cultural well-being.

This guidance is to be applied for assessing all new proposed SVLs for buses, freight and high occupancy vehicles (HOV) on the Auckland Transport (AT) network, and for reviewing the performance of existing SVLs.

This guidance has been developed, peer reviewed and approved to guide operational decision making around improvements for strategic network modes. It is a refresh of guidance that was documented in the draft Auckland Transport Code of Practice (ATCOP) chapter 5, retaining its core principles while bringing it into alignment with the AT's latest strategic direction and plans. It is not intended to replace any existing design standards contained in the AT Transport Design Manual (TDM) and can be found on AT's Manuals & guidelines webpage.

The strategic and supporting networks for all modes in Auckland are defined and mapped in Future Connect, including their hierarchies. The modal network definitions (Strategic and Supporting Networks) are contained in the Future Connect Strategic Networks Report, Appendix A. Land use definitions are in accordance with the Auckland Unitary Plan.

Room to Move: Tāmaki Makaurau Auckland's Parking Strategy provides the guiding principles and policies to help with decisions relating to the balance between providing for parking and loading, and the efficient movement of people and goods. This helps us manage our roads and streets better, helping to make a better transport system for Aucklanders, complementing the Auckland Network Operating Plan (ANOP), network optimisation activities and this SVL assessment.

Future Connect thereby sets out which parts of the roading network are important for which modes in order to respond to growth in Auckland. The ANOP translates this strategic intent into operational outcomes for today and therefore provides a key means to ensuring strategic alignment to operational performance today.

[1] Defined in Land Transport (Road User) Rule 2004 as *"**special vehicle lane** means a lane defined by signs or markings as restricted to a specified class or classes of vehicle; and includes a bus lane, a transit lane, a cycle lane, and a light rail vehicle lane".*

Why We Use SVLs

The main driver for implementing SVLs is to reduce journey times and improve the journey time reliability for priority vehicles. It also serves to increase the people and goods carrying capacity of a corridor, thereby improving its productivity and the performance of the strategic modal networks.

As roads become increasingly congested, repurposing road space for more efficient modes and priority modes helps to mitigate congestion by increasing the productivity of the strategic networks, which can deliver a range of benefits, including mode shift, decreasing delays and improving reliability. This is particularly important for Auckland, where geographic constraints make it very difficult or expensive to continue adding physical capacity to the road network, and where many parts of the network are already operating at capacity for much of the day.

It is important that a consistent approach is taken to introducing priority measures to ensure that Auckland Transport provides a consistent and reliable Level of Service (LOS) for modes on the strategic networks and uses consistent rationales for its interventions.

Figure 1 illustrates typical corridor productivity outcomes of various lane types. It highlights the inherent constraints on operational efficiency and throughput within the road corridor. Through the introduction of a SVL, people movement efficiency can be increased even though vehicular movement remains constrained. On corridors with high number of buses, people movement efficiency is able to be increased three to four fold more than physically possible as general traffic lanes. This data is based on 2018 survey data.

Figure 2 illustrates the potential transition of a corridor as travel demand increases. With limited physical constraints, increasing travel demand to and through a corridor is able to be accommodated through increased priority of higher people carrying capacity modes.

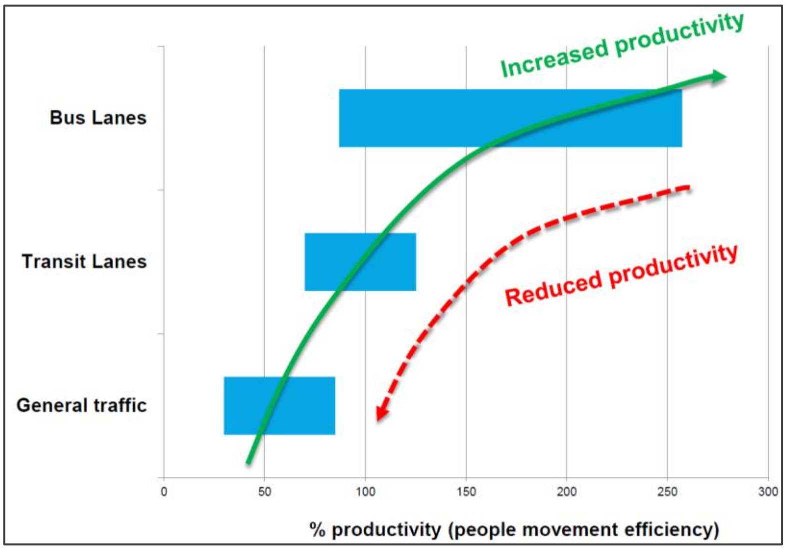

Figure 1: Sliding scale of corridor productivity outcomes by type of lane. Productivity is shown as a percentage of AT's target productivity per lane of 37,500 people.km/h (source: 2018 survey data)

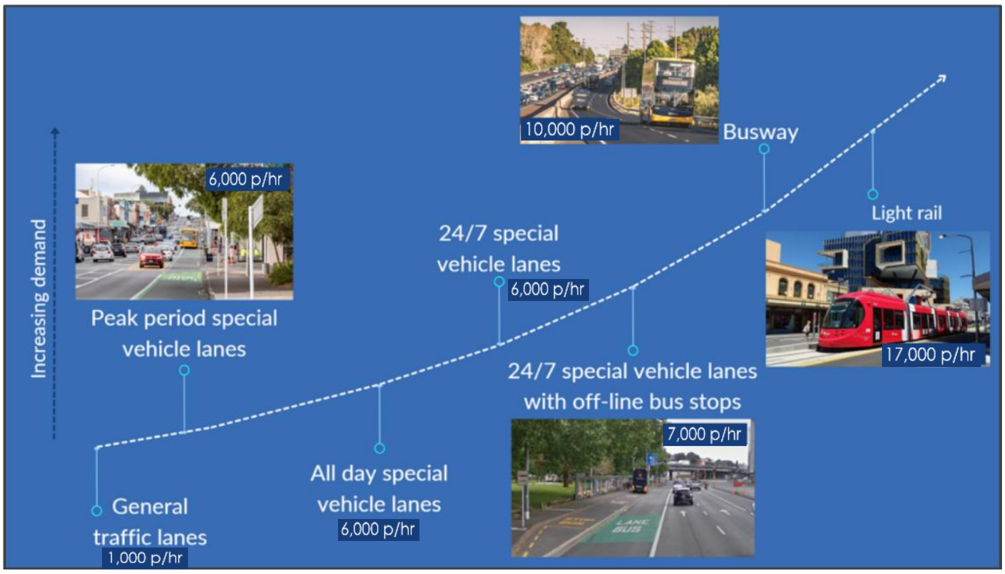

Figure 2: Lane management evolution with increasing demand.

While cycle lanes are also a category of SVL, their design and implementation involve distinct requirements that account for fundamental differences between bicycles and motor vehicles. This document does not include any guidance relating to the design and implementation of cycle lanes, this information can be found in the TDM. This document does however discuss how best to accommodate cyclists where they are likely to use a vehicle based SVL.

2. PRIORITY MEASURES

Various priority measures are used to ensure consistent and positive travel time experiences for key transport modes. While these include techniques like bus gating and signal pre-emption, SVLs are the most common and effective means of achieving benefits along corridors. The main benefit of SVLs lies in their capacity to deliver a consistent and predictable travel time experience, thereby improving journey reliability.

Since 2010, AT has applied the principles of this guideline, leading to an improved travel experience for buses and HOVs. This application has also increased people-moving productivity and efficiency across Auckland, particularly on key, busy corridors.

This long-term implementation, along with project reviews and network monitoring, has provided several practical learnings:

- **Improved User Experience**: An improved LOS experience has been recorded for occupants of buses and HOVs.
- **Increased Network Efficiency**: This has resulted in a significant increase in people movement productivity, enhancing the efficiency of the transport network, especially along key, high-demand corridors.
- **The SVL Progression Model**: A central finding from AT's experience is that efficiency gains are maximised through a progressive and staged introduction of Special Vehicle Lanes (SVLs). This progression is based on corridor-specific conditions and typically follows this sequence:
    - Clearway → T2 Lane → T3 Lane → Bus Lane.

  The transition from one stage to the next (e.g., from a T2 to a T3 lane) is determined by technical analysis, taking into account LOS outcomes, general traffic volumes, bus frequencies and occupancies..

3. SPECIAL VEHICLE LANES ASSESSMENT

The assessment to determine the most appropriate and beneficial type of SVL for a given corridor should consider:

- How important the corridor is for the movement of people or goods (from Future Connect Strategic Networks),
- Is there a deficiency that an SVL would address
- Any potential consequences from that SVL for Place function, or other modes, and
- The expected outcomes in terms of corridor productivity benefits.

This assessment has been designed with a focus on application on the urban strategic network and is not necessarily applicable to motorways and motorway on-ramps.

The matrix in Table 1 provides guidance for which SVLs are likely to be appropriate in any given location, taking into account strategic networks, land use and implications for vulnerable road users. The assessment then requires a review of LOS outcomes in accordance with the ANOP and a review of productivity outcomes to help identify a preferred option. Appendix A provides some worked examples of these options svl assessment.

Table 2 on the following page provides an overview of some of the main factors to be considered when assessing which types of SVLs are likely to be appropriate based on strategic network functionality and place. Appendix A shows a high-level flow diagram illustrating an example of the approach to an assessment for an SVL for bus corridors.

An SVL assessment tool has been developed to streamline the process of applying this guidance. This tool is in the form of a spreadsheet, which is provided as a separate document.

Table 1: Special Vehicle Lane Option Suitability Assessment

Step 1	**Determine Future Connect Strategic Networks ***						
Public Transport *RTN, Interim RTN, FTN or Other Strategic PT Corridors*	✓	✗	✗	✓	✓	✓	✗
Freight *Level 1a, 1b or 2*	✓	✓	✓	✓	✗	✗	✗
General Traffic *Strategic, Primary and Secondary arterials*	✓	✓	✗	✗	✓	✗	✓
POTENTIAL OPTIONS	HV, HV+Bus, HV+T3, HV+T2, Bus, T3 or T2	HV, HV+T3, HV+T2, T3, T2	HV	HV, Bus	Bus, T3, T2	Bus	T3, T2

Step 2	**Assess land use and walking situation – Check for HV lane suitability ****
	• Safe and convenient walking facilities are required such as in a Town Centre on the Primary Walking Network, **OR** within 400m / 5 min walk of a major PT Interchange or terminal, or a school or tertiary educational facility **AND** • Pedestrian LOS is substandard (i.e. lacking safe and appropriate facilities, ANOP LOS D or worse)
If "yes"	HV options are unlikely to be appropriate
If "no"	All options from step 1 remain
Step 3	**Assess cycling situation – Check for HV and T2 lane suitability**
	Safe cycling facilities are required but not present. i.e. on the strategic cycle and micromobility network
If "yes"	• For HV option, look at providing a separate cycle facility or route. • For T2 option, consider either an alternative SVL type (T3 or bus lane) or a separate cycle facility or route.
If "no"	All options from step 2 remain
Step 4	**City Centre or Metropolitan Centre consideration – Check for HV, T2 and T3 lane suitability ****
	Located in a City or Metropolitan Centre on the Primary Walking Network
If "yes"	HV, T2 and T3 options are unlikely to be appropriate
If "no"	All options from step 3 remain
Step 5	**ANOP Level of Service assessment and productivity assessment**
	Evaluate remaining options using ANOP Level of Service assessment and productivity assessment to determine preferred option. If current conditions already achieve relevant ANOP Level of Service targets, a SVL is unlikely to be required.

NOTES:

- HV means Heavy Vehicle; A motor vehicle that has a gross vehicle mass exceeding 3,500 kg, which includes buses and freight.
- A transit lane is generally not appropriate where:
  - the length of the proposed intervention is <500m **OR**
  - the lane would end in a merge that would cause delays in the SVL **OR**
  - a significant proportion of SVL vehicles would need to merge to the right to access turning lanes, causing delays for other SVL users

* Future Connect Time Period - Future Connect has defined strategic networks for two time periods, 'Current' and 'First Decade'. When assessing the operation of an existing lane it is appropriate to refer to the 'Current' network, this is the network used by the ANOP. When undertaking an assessment to determine the appropriate type of lane for a new proposed lane (either from repurposing existing road space or from road widening), practitioners should also refer to the 'First Decade' network. This is to enable continuity towards the future state of the corridor and avoid unnecessarily inducing mid-block demand in the interim period.

** The listed land uses are generally not suited to HV priority provision due to the increased safety risk (risk of DSIs) resulting from increased exposure to heavy vehicles and higher speeds threat. However, this should be considered on a case-by-case basis, taking into account the findings from a Safe System Audit and the productivity assessment. The FC walking network is under development, so the 'importance' of the route for pedestrians should be assessed regardless of whether it is classified as primary or secondary for walking. The FC walking network is a good initial guide only.

Table 2: Summary of the main factors in determining which type of Special Vehicle Lane may be suitable

<table>
<thead>
<tr><th>Criteria</th><th>Bus Lane</th><th>T3 Transit Lane</th><th>T2 Transit Lane</th><th>Heavy Vehicle Priority (either stand-alone or as part of Bus or Transit Lane)</th></tr>
</thead>
<tbody>
<tr><td>Corridor Performance</td><td colspan="4">• LOS. A SVL is likely to deliver benefits where corridor performance operates below acceptable ANOP LOS targets in terms of average speed and journey time reliability. A SVL should improve the LOS for priority modes in accordance with the ANOP.
• Performance deficiency. The worst performing corridors are generally more suited to SVLs prioritising fewer vehicles, such as Bus or T3 Lanes. Moderately poor performing corridors may be better suited to T2 lanes, subject to the number of freight vehicles on the corridor (in the case of HV priority).
• Productivity. SVLs should also increase corridor productivity. Where similar LOS outcomes are achieved by more than one SVL type, the corridor productivity outcomes from each option should be assessed to identify the most effective and efficient option.</td></tr>
<tr><td rowspan="2">Future Connect Strategic Network Types</td><td rowspan="2">On Public Transport Strategic Network</td><td rowspan="2">On the Arterial Network (strategic general traffic, primary or secondary)</td><td>On the Arterial Network (strategic general traffic, primary or secondary)</td><td>On Level 1A or 1B Freight Strategic Network</td></tr>
<tr><td>Not suitable on Strategic Cycle & Micro-mobility Network where there are no existing or funded/committed safe cycle facilities</td><td>May require mitigation where on Strategic Cycle & Micro-mobility Network where there are no safe cycle facilities</td></tr>
<tr><td>Land Use</td><td>Suitable in all land use contexts</td><td colspan="2">Not suitable for City Centre or Metropolitan Centres and generally not suitable for Town Centres.</td><td>Generally not suitable for areas with high pedestrian volumes or where there are land uses with pedestrian generating (and therefore crossing) activities, e.g. City, Metropolitan or Town Centres, education facilities, or Major PT interchanges where there are no safe and appropriate provisions for pedestrians.</td></tr>
<tr><td>Bus Frequency</td><td>Typically suitable where over 15 buses per hour per direction</td><td>Typically suitable where between 8 and 15 buses per hour per direction</td><td>Typically suitable where between 4 and 8 buses per hour per direction</td><td>Generally priority to be assigned to bus and commuting traffic over freight during AM and PM peaks, where Heavy Vehicle priority would decrease bus LOS below ANOP targets for bus or transit vehicles. To be assessed on a case-by-case basis.</td></tr>
<tr><td>New movement lane v Repurposed vehicle movement Lane *</td><td colspan="2">• More suitable when creating an additional lane, e.g. SVL replacing a parking lane.
• If adding mid-block capacity without addressing the downstream bottleneck Bus or T3 lanes are generally more effective as they maximise the movement of people rather than simply increasing the number of vehicles queued at the bottleneck.
• Reduces the risk of unnecessarily inducing mib-block traffic demand which is important where there are other bottlenecks on the route or network that would be detrimentally impacted by increasing volumes.</td><td>• May be appropriate where repurposing an existing traffic lane to mitigate impacts to general traffic performance
• Can be a first step in SVL progression
• Typically suited in conjunction with motorway connections and for corridors with high general traffic focus</td><td>The impact to modal LOS should be assessed case by case.</td></tr>
</tbody>
</table>

Criteria	Bus Lane	T3 Transit Lane	T2 Transit Lane	Heavy Vehicle Priority (either stand-alone or as part of Bus or Transit Lane)
Length of lane	Suited to SVLs of any length	• Generally not suited to SVLs less than 500m in length • May not deliver an increase in people movement productivity where the lane ends in a merge with the adjacent general traffic lane that will delay SVL vehicles OR where a significant proportion of SVL vehicles would need to merge to the right to access turning lanes, causing delay for other SVL users and all users of the corridor. An assessment should be undertaken to determine whether or not the proposed SVL would improve people movement productivity overall.		The impact to modal LOS as a result of geometry should be assessed case by case.

* Not applicable to cycle lanes

Corridor Productivity

- This is the measure of a corridor's ability to move people and freight efficiently and is the product of the speed and number of person or goods vehicle movements per hour.
- When there are multiple SVL type options that would be suitable on a given route, a productivity assessment should be completed to identify which option would provide the highest corridor productivity.
- The productivity assessment should use average speeds along the corridor.
- Data for the assessment can be obtained from the following typical data sources;
    - Volumes – SCATS counts or surveyed traffic counts
    - Existing speeds – GPS speed data, such as TomTom for general traffic and AT Bus GPS data
    - Predicted speeds – typically from traffic modelling outputs.
- AT's bus and transit lane monitoring programme has found that when the volume of traffic in the SVL approaches 30% of the total volume using the corridor (two lane corridors), the SVL begins to experience delays, reducing productivity and the potential benefits.
- KPIs for corridor productivity seek to achieve and exceed the ideal value of 38,000 people km/h. This generally translates to approximately 4 to 8 buses per hour for T2 lanes, 8 to 15 buses per hour for T3 lanes and over 15 buses per hour for bus lanes.
- Corridor productivity for a corridor can be influenced by various factors. With regards to bus movements, the performance at traffic signals, along the corridor and at bus stops along the way form three key components that need to be carefully considered. SVLs typically address the performance along the corridor component.
- Where a productivity assessment predicts a similar corridor productivity outcome two options (±5% to account for a potential variation in travel demand), it is generally recommended that the higher order option be given preference, e.g. Bus Lane over T3 lane. This approach provides a greater level of futureproofing for the corridor and network, and delivers better outcomes for active modes. In addition, the cost to enforce transit lanes is much greater than the cost to enforce bus lanes. This technical assessment will need to be considered alongside community input as part of the decision-making process.
- When assessing the corridor productivity performance outcomes of each option, the performance during the peak hour and at the worst performing location on the corridor should generally be used to determine the appropriate SVL type. If corridor performance deficiencies occur over a longer period of time (e.g. during the interpeak and / or weekend), then the operating hours should be set accordingly.

4. SAFE SYSTEM APPLICATION

The introduction of new SVLs can, if not carefully designed, result in an increased risk of deaths or serious injuries, particularly to cyclists or motorcyclists who may use the SVL, or pedestrians crossing the road. The report 'Traffic Safety On Bus Priority Systems'[2] found that changes made to street infrastructure in order to accommodate bus infrastructure can have an impact on crash rates. This research found that new raised medians, banned right turns (or left turns in jurisdictions that drive on the right hand side of the road) and removed traffic lanes all contributed to improved safety outcomes, but the sample of new peak hour bus lanes studied showed an overall increase in crash rates, and pedestrians represented over half of fatalities occurring in the bus corridors studies. It is therefore important that these risks are considered and addressed through the design process.

The following points outline the typical key safety considerations to be taken into account when planning new SVLs:

- **Safe System Audits and Conflict Studies:** It is a requirement that all designs for AT projects have a Safe System Assessment undertaken to assess how closely the proposed option / design and operation align with the Safe System objectives. It is important that Safe System Audits be undertaken for SVL projects to help identify risks, but the Safe System Audit framework on its own is not sufficient to thoroughly assess and understand the risks associated with the SVL project. Consideration should therefore be given to undertaking conflict studies as part of a plan for addressing identified safety risks. The requirement for conflict studies should be assessed on a project-by-project basis in consultation with a Transport Safety subject matter expert. These assessments will help to clarify which elements need to be modified to achieve closer alignment with Safe System objectives of reducing deaths and serious injuries. An assessment should also be undertaken to evaluate and quantify the road safety risk. This is particularly important for SVLs that are located on a high-risk intersections or corridors (both active road users and collective risk).
- **Vulnerable Road Users:** Mitigation will be particularly important on routes that have been identified as being high risk for people on bikes and motorbikes. Refer to AT GIS risk mapping for risk ratings for VRUs. Routes on the Strategic Cycle and Micro-mobility Network that are also on a Strategic Traffic, Bus or Freight network will generally require separated facilities for cycles. However, if sharing the road in the interim, an SVL should generally be a T3 transit lane or bus lane with no heavy vehicle priority.
- **Dooring risk:** Where a part-time SVL is being installed on a strategic cycle network route, the lane should be made wide enough to cycle in alongside parking. If the lane is too narrow people cycling feel that they need to squeeze into the remaining space which puts them in the car dooring zone.
- **Right Turning Crashes:** The risk and severity of right turn crashes into side roads or accesses may increase with the introduction of a SVL. This may be due to an increase in the number of vehicles lanes, increased travel speed in the SVL, increased speed differential with turning vehicles and SVL users (including motorbikes), and stationary queueing in the general traffic lane impacting visibility of vehicles in the SVL. Mitigation measures may be required, such as;
    - Banning right turns into side roads and higher volume accesses along the SVL, and out of side roads if no flush median is available to reduce risk exposure. It is preferable to also install a raised median to physically prevent right turns at some locations. Implications such as displaced U-turns need to be considered. This is particularly important for roads with a speed limit over 50 km/h
    - Coloured high friction surface treatments on approaches to conflict points, such as priority-controlled intersections and pedestrian crossings.

[2] Nicolae Duduta (2014), EMBARQ, World Resources Institute, Traffic Safety on Bus Priority Systems, Recommendations for integrating safety into the planning, design, and operation of major bus routes. https://www.wribrasil.org.br/sites/default/files/Traffic-Safety-Bus-Priority.pdf

  - Reducing the mean operating speeds in all lanes at conflict points as close to 30km/h as possible, to achieve the survivable impact speed.
  - Driver speed feedback signs to reduce differential speeds.
  - Improving intervisibility between drivers turning across the SVL and users in the SVL, including bikes and motorbikes.

- **Monitoring and Evaluation:** Robust post-implementation road safety monitoring will help to strengthen Safe System alignment. Post construction Safe System Audits should be carried out for all SVL projects and a review of crash trends post-construction (as part of a monitoring and evaluation plan) will help to identify whether there are any emerging safety concerns.

- **Additional design guidance:** Refer to the *Traffic Safety on Bus Priority Systems* report[2] for detailed recommendations on how to achieve Safe System outcomes through design.

5. FURTHER CONSIDERATIONS

5.1. Reliability

- Reliability can be measured in various ways, the two measures employed by AT are:
    - the percentage of public transport services that start and end on time according to published timetable, and
    - the reliability index developed by AT and defined in the ANOP, which is the ratio between the 85th percentile travel time along a corridor and the median travel time.

  The latter methodology is a direct measure for corridor performance and is therefore used in this regard, while the former is also impacted by other outside factors and is therefore not suitable for use in assessing corridor performance.
- SVLs generally improve reliability for priority vehicles.
- Reliability is not easy to predict or model when assessing various options.
- Reliability is not used as a justification on its own for implementing SVLs or determining the appropriate type of SVL, but should be used to monitor performance and poor corridor reliability could be a trigger for investigating mitigation options.
- Poor reliability in an existing SVL could be a factor when assessing whether the SVL type is appropriate. E.g. poor reliability in a T2 lane could be mitigated by converting to a T3 lane.

5.2. Freight in SVLs

- On the Level 1A and 1B Strategic Freight Network, consideration should be given to permitting freight to use Bus or Transit Lanes. However, this may not be appropriate through areas that have high pedestrian generating (and therefore crossing) activities such as City, Metropolitan or Town Centres, education facilities, or PT interchanges. This decision should be considered on a case-by-case basis and be informed by applying a Roads and Streets Framework assessment as well as a review of the road safety risks.
- On roads designated as part of the Strategic Cycle and Micro-mobility Network that lack safe cycle facilities, freight use of an SVL should generally be avoided but this will need to be assessed on a case-by-case basis.

5.3. Modal trade-offs – Cycling and Micromobility

- While it is not an accepted treatment to improve the LOS for cycling, a bus lane can provide a better LOS for people on bikes compared to a general traffic or transit lane. There may be cases where bus numbers are low, but it is on a strategic cycling route in Future Connect and a bus lane could be preferable to a transit lane, particularly where an intersection remains the key vehicular capacity constraint on a corridor.
- In terms of amenity, perceived safety and actual safety risks, T2 lanes do not improve the LOS for cycling and micromobility. Traffic volumes in the lane are still relatively high and average speeds are generally higher compared to general traffic lanes. In general, the fewer vehicles using the lanes the better for levels of service for cycling. Depending on the specific conditions, T3 lanes can provide an improvement to cycling with Bus Lanes providing a greater improvement over T3 lanes for cycling.
- A HV lane can lead to a reduced LOS for cycling due to increased safety risks for cyclists. AT has also been advised that truck drivers do not support sharing road space with cyclists because of these risks.
- In general, bus and transit lanes should not be installed in ways that would preclude the future installation of cycle facilities where the road is part of the cycle strategic network and does not currently enable safe cycling. These scenarios should be worked through on a case by case basis with the appropriate subject matter experts.

5.4. Modal trade-offs – Pedestrians

- If the project entails introducing additional lane/s this is likely to make it harder for pedestrians to cross the road. Consideration should therefore be given to whether additional crossing facilities are required.
- Consideration should be given to the impact of SVLs on pedestrians. Repurposing parking into a movement lane can have a detrimental impact on the pedestrian environment, particularly if there is a narrow footpath and no front berm. This impact should not prevent an SVL from being implemented, but should be considered as part of the design development to determine whether mitigation is required.

5.5. Operating times

- Principle IV from 'Room to Move' states "*On the Strategic Transport Network, the important movement needs for people and goods will be prioritised over permanent space allocated to vehicle parking (except in exceptional circumstances*). A flexible approach will be adopted, to ensure that the right mix of space is allocated for the right purpose at the right time, and this will change at different times of day and on different days. Therefore, where and when space is not required to achieve our level of service targets for strategic modes or other key objectives, then the provision of parking can be enabled.*"
- Appropriate operating times should be determined on a corridor by corridor basis and should cover the duration of normal peak periods for the particular corridor or area. The time and duration of normal peak periods should be assessed using appropriate performance data, such as GPS speed data, to identify when delays are occurring. The times should be consistent along individual routes and within local areas if possible.
- Most PM peak SVLs used to be in operation from 4pm. However, travel patterns have changed over the past few years and many corridors are now becoming congested earlier in the afternoon. Therefore, to maintain corridor productivity throughout the pm peak period, many SVL operating times also need to be adjusted to an earlier start time.
- The following time periods are typically used as they most commonly align with the times when delays occur[3]:
    - Auckland City Centre - 24 hours, 7 days a week.
    - North Shore - 6.30am to 10am to align with an earlier start to the morning commute compared to the central area. 3 or 4pm to 7pm.
    - Elsewhere - generally 7am to 10am and 3 or 4pm to 7pm.
    - Where freight priority is required - consideration is to be given to extending operating hours to include the interpeak period in addition to the AM and PM peaks, e.g. 7am to 7pm.
- Weekend operation - The majority of SVLs in Auckland do not operate during the weekend to allow on-street parking to occur. However, consideration should be given to weekend operation based on an assessment of the weekend peak period.
- In some situations it may be more optimal to change an SVL type to suit varying conditions at different times of the day or week, e.g. Weekdays peak hour bus lanes could assist corridor productivity if they were reverted to Transit Lanes on the weekend or during the Interpeak period. New technologies may facilitate this type of operation in future, and technology solutions could be explored to support flexible operations without compromising safety. However, there are a number of potential drawbacks to this approach which currently makes this impractical:
    - This change is likely to be more confusing for some drivers and may lead to increased rates of inadvertent infringements.
    - The standard font size for operating times on SVL signage is very small and not designed to be easily read and understood every time a driver passes a sign. Rather, it relies on drivers becoming familiar with the route over time.

[3] "Auckland Transport - Review of Special Vehicle Lane Operating Hours, May 2025"

  - Adding a second SVL type to the same section of road will double the amount of sign clutter, which could create an eyesore and will add to driver information overload.
  - The TCD mandates the use of specific road markings for SVLs, and each SVL type has a different road marking requirement. At this time there is no proven way to implement changeable road markings that are durable enough to be used on arterial roads.

5.6. New Lane v Repurposed Lane

- When creating an additional lane to be used as an SVL it is generally preferable to cater for higher occupancy vehicles, i.e. either a Bus Lane or a T3 Lane.
  - When creating an additional lane (either through road widening, or parking and road space repurposing) there is usually little or no detrimental impact to existing performance for general traffic.
  - Catering for higher occupancy modes reduces the risk of inducing traffic demand which is often detrimental to the overall performance of the network.
  - When reviewing the performance of existing SVLs it is much easier to modify SVLs by moving down the order of hierarchy, e.g. change from Bus Lane to T3 lane, and harder to move up e.g. from T3 to Bus Lane. Therefore it is preferable to start higher (at a justified level) and adjust down if necessary.
- When creating a SVL by repurposing an existing traffic lane, the performance of general traffic is often negatively impacted. In these cases it may be less detrimental to general traffic performance if a T2 is implemented. However, the preferred option should be selected taking into account a productivity assessment of these options.

5.7. Geometry

- The length of transit lanes should be sufficient within the context of the network to ensure sufficient journey time savings and encourage modal shift and carpooling, generally no less than 500m.
- Transit lanes should be continuous. Where there are a number of intersections or vehicular movements across the transit lane however, a break in the transit lane - and providing a clearway instead - may be more appropriate. Side friction, high volumes of left turns through a transit lane, staggered intersections, for example, can restrict corridor capacity and in these situations a transit lane could potentially be counterproductive to productivity. Where that is the case, it may be preferable to retain general lanes, consider alternative SVL types, or have a break in the transit lane. These scenarios will need to be tested and / or modelled to identify an optimal solution.

5.8. SVLs and Dynamic Lanes

- In some situations it may be beneficial to implement an SVL in conjunction with a Dynamic Lane (e.g. Maioro Street, New Windsor). The assessment for whether an SVL is appropriate is based on the same criteria outlined in Section 3, however a separate assessment is required to determine whether the corridor is suited to the implementation of a Dynamic Lane.

5.9. Use of Other Types of Special Vehicle Lanes

- Bus Only Lanes – these are preferred by NZTA for use on motorways, where motorcycles are excluded for safety reasons. On AT roads, these are generally reserved for specific situations where it is either unsafe for cycles, mopeds and motorcycles, or where there is desirable to exclude them to protect the LOS for bus services, such as:
  - Bus station accesses,
  - Dedicated busways (e.g. Lagoon Drive), or
  - A centre-running bus lane (e.g. the right turn lane into Daldy Street on Fanshawe Street,).
- Electric Vehicles (EVs) – Legislation allows for road controlling authorities to permit all EVs to use SVLs as a separate vehicle class. However, Auckland Transport does not provide SVLs specifically to prioritise EVs due to the negative impact this would have on corridor and network productivity, and road safety, particularly as the EV fleet continues to grow and eventually becomes the dominant form of vehicle.

- There are alternative types of SVLs that can be resolved (e.g. goods vehicle lanes), however, to date these have only deployed under specific circumstances on Queen Street in the city centre. The purpose of these particular SVLs is to create an Authorised Vehicles Only (AVO) zone for use only by buses, motorcycles, mopeds, bicycles, vehicles registered with Waka Kotahi as 'goods vehicles' and emergency service vehicles, to free up space along Queen Street for essential road users and make the area safer and more pleasant for active modes. These and are not part of AT's typical SVL toolkit.

6. REFERENCES

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- Auckland Transport, Review of Special Vehicle Lane Operating Hours, May 2025

Appendix A: Example Assessments for Special Vehicle Lane Suitability

EXAMPLE ASSESSMENT 1 : WALMSLEY ROAD FROM KAKA ST TO STATION ROAD

Step 1	**Determine Future Connect Strategic Networks ***	
Public Transport *Current RTN, FTN or Other Strategic PT Corridors*	✓	
Freight *Current Level 1A, 1B or 2*	✓	
General Traffic *Current Strategic, Primary and Secondary arterials*	✓	
POTENTIAL OPTIONS	**HV, HV+Bus, HV+T3, HV+T2, Bus, T3 or T2**	
Step 2	**Assess land use and walking situation – Check for HV lane suitability ****	
Safe and convenient walking facilities are required but not present. I.e. located: • In a Town Centre on the Primary Walking Network, **OR** within 400m / 5 min walk of a major PT Interchange or terminal, or a school or tertiary educational facility **AND** • Pedestrian LOS is substandard (i.e. lacking safe and appropriate facilities, ANOP LOS D or worse).	**No = Bus, T3, T2,HV**	Located within 400m of Otahuhu Train Station, but pedestrian LOS is C or above.
Step 3	**Assess cycling situation – Check for HV and T2 lane suitability**	
Safe cycling facilities are required but not present. I.e. on the strategic cycle and micromobility network	**No = Bus, T3, T2, HV**	Located on Regional Cycle Network, a shared path exists
Step 4	**Assess land use and walking environment – Check for HV, T3 and T2 lane suitability ****	
Located in a City or Metropolitan Centre on a Primary Walking Network	**No = Bus, T3, T2, HV**	Not located in a City or Metropolitan Centre
POTENTIAL SVL OPTIONS	**Bus, T3, T2, HV**	
Step 5	**ANOP Level of Service assessment and productivity assessment**	
Evaluate remaining options using ANOP Level of Service assessment and productivity assessment to determine preferred option	**T3 + HV ^**	*T3 + HV lane option compared to T2 + HV is estimated to;* • *Improve productivity by an estimated 14%* • *Improve LOS for buses and freight to from E to D (target is D)* • *Reduce LOS for T2 vehicles from LOS E to F (Target is D)* ^

^ Productivity and LOS assessment data is not based on real data, these are examples figures only for the purpose of illustrating the process

EXAMPLE ASSESSMENT 2: NEILSON ST FROM SH20 TO CHURCH ST

Step 1	**Determine Future Connect Strategic Networks ***	
Public Transport *RTN, Interim RTN, FTN or Other Strategic PT Corridors*	✗	
Freight *Current Level 1A, 1B or 2*	✓	
General Traffic *Current Strategic, Primary and Secondary arterials*	✓	
POTENTIAL OPTIONS	**HV, HV+T3, HV+T2**	
Step 2	**Assess land use and walking situation – Check for HV lane suitability ****	
Safe and convenient walking facilities are required but not present. I.e. located: • In a Town Centre on the Primary Walking Network, **OR** within 400m / 5 min walk of a major PT Interchange or terminal, or a school or tertiary educational facility **AND** • Pedestrian LOS is substandard (i.e. lacking safe and appropriate facilities, ANOP LOS D or worse).	**No ^ = HV, HV+T3 or HV+T2**	^ Onehunga Train Station is within 350m of the western end of Neilson Street. Pedestrian facilities must therefore be upgraded to LOS C.
Step 3	**Assess cycling situation – Check for HV and T2 lane suitability**	
Safe cycling facilities are required but not present. I.e. on the strategic cycle and micromobility network	**No = HV, HV+T3 or HV+T2**	Not on the strategic cycling network
Step 4	**Assess land use and walking environment – Check for HV, T3 and T2 lane suitability ****	
Located in a City or Metropolitan Centre on a Primary Walking Network	**No = HV, HV+T3 or HV+T2**	Not located in a City or Metropolitan Centre
POTENTIAL SVL OPTIONS	**HV, HV+T3 or HV+T2 ^**	^ Footpath to be upgraded to provide adequate width and separation close to the Train Station, as required for ANOP LOS C. HV lane is therefore appropriate.
Step 5	**ANOP Level of Service assessment and productivity assessment**	
Evaluate remaining options using ANOP Level of Service assessment and productivity assessment to determine preferred option	**HV+T2 ^^**	*T2 + HV lane is estimated to provide the highest productivity outcomes whilst achieving LOS targets for Freight and HOVs. ^*

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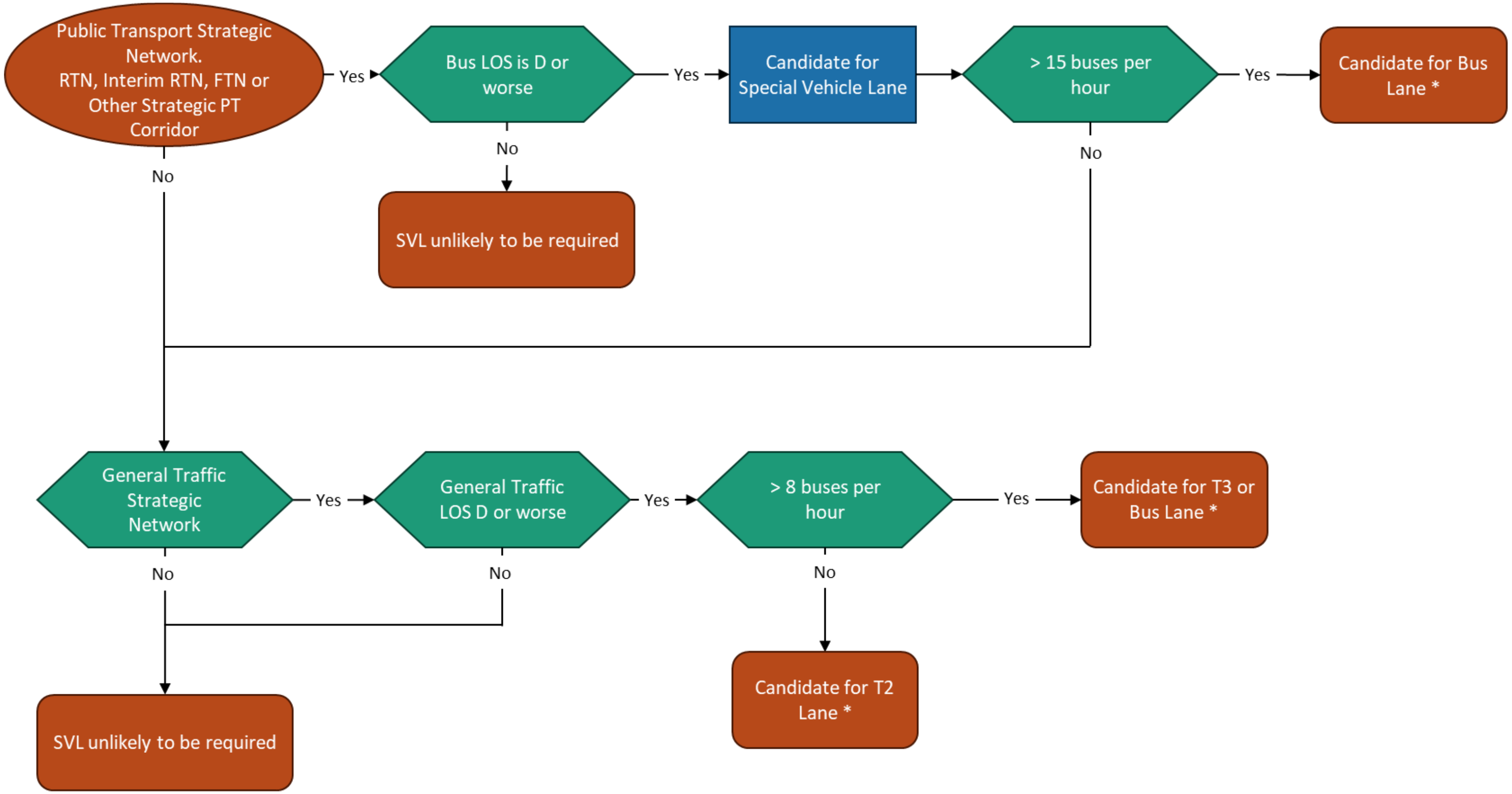
EXAMPLE ASSESSMENT 3: ONEWA RD FROM BIRKENHEAD AVE TO SH1

Step 1 **Determine Future Connect Strategic Networks ***		
Public Transport *Current RTN, FTN or Other Strategic PT Corridors*	✓	
Freight *Current Level 1A, 1B or 2*	✓	
General Traffic *Current Strategic, Primary and Secondary arterials*	✓	
POTENTIAL OPTIONS	**HV, HV+Bus, HV+T3, HV+T2, Bus, T3 or T2**	
Step 2 **Assess land use and walking situation – Check for HV lane suitability ****		
Safe and convenient walking facilities are required but not present. I.e. located: • In a Town Centre on the Primary Walking Network, **OR** within 400m / 5 min walk of a major PT Interchange or terminal, or a school or tertiary educational facility **AND** • Pedestrian LOS is substandard (i.e. lacking safe and appropriate facilities, ANOP LOS D or worse).	**Yes = Bus, T3, T2**	Located within 400m of Northcote College and Northcote Primary School with pedestrian walking LOS D or worse.
Step 3 **Assess cycling situation – Check for HV and T2 lane suitability**		
Safe cycling facilities are required but not present. I.e. on the strategic cycle and micromobility network	**Yes = Bus, T3**	Located on Major Cycle Network and no separated cycle facilities exist
Step 4 **Assess land use and walking environment – Check for HV, T3 and T2 lane suitability ****		
Located in a City or Metropolitan Centre on a Primary Walking Network	**No = Bus, T3**	Not located in a City or Metropolitan Centre
POTENTIAL SVL OPTIONS	**Bus or T3**	If separated cycle facilities were introduced, a T2 lane could be considered. A HV lane may not be appropriate on this route unless pedestrian LOS is improved due to the presence of schools.
Step 5 **ANOP Level of Service assessment and productivity assessment**		
Evaluate remaining options using ANOP Level of Service assessment and productivity assessment to determine preferred option	**Bus or T3 ^**	*Bus lane option compared to T3 is estimated to;* • *Improve productivity by an estimated 6%* • *Improve LOS for buses to from E to D (target is D)* • *Reduce LOS for T3 vehicles from LOS E to F (Target is D)* ^

^ Productivity and LOS assessment data is not based on real data, these are examples figures only for the purpose of illustrating the process

Appendix B: Special Vehicle Lane Assessment Overview for Bus Corridors



* If on the Freight Level 1a, 1b or 2 networks, consider including provision for HVs in the SVL. Check against the 'Special Vehicle Lane Option Suitability Assessment' to determine whether it is appropriate to open the SVL to HVs.

Attachment: Special Vehicle Lane Assessment Tool

Refer to separate spreadsheet.