

CHALLENGES FACED BY LOCAL GOVERNMENTS CONSIDERING ROAD ACCESS APPROVAL FOR HIGH PRODUCTIVITY FREIGHT VEHICLES



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Abstract

Australian road managers are often required to approve road access permits for High Productivity Freight Vehicles ('PBS vehicles'). Complex considerations involving safety, infrastructure and amenity issues make it difficult for the managers of some local community roads to approve access promptly, so access may be declined unnecessarily. Following consultation with more than 40 professionals from state road authorities, local government associations, local councils, transport industry associations, transport companies and other government agencies, this paper identifies the major barriers to road access approval by local road managers. It includes case studies of good access decision-making and makes a series of recommendations for further investigation. While infrastructure capacity constraints—geometric and structural—do feature among the identified barriers, the vast majority of barriers were found to stem from road managers' incomplete understanding of the PBS Scheme, resource shortages, and areas for improvement in the Heavy Vehicle National Law. The case studies demonstrate how concerns about swept path width, intersection clearance time, route compliance, increased infrastructure consumption, bridge loading and stakeholder acceptance were ultimately overcome. Recommendations for further investigation focus on education, funding needs, legislative change, appeals processes, cost recovery frameworks and route assessment guidelines and tools.

Keywords: High Productivity Freight Vehicles, safety, productivity, access, local government

Challenges Faced by Local Governments Considering Road Access Approval for High Productivity Freight Vehicles

1. Introduction

Roads managed by local councils provide necessary links between state-managed highways and some freight origins and destinations such as silos, sale yards, rail heads, distribution centres, industrial parks and depots. These local roads—colloquially known as ‘the last mile’—may lack the geometric or structural capacity to accommodate longer and heavier truck configurations that are now being approved under the national Performance Based Standards (PBS) Scheme. By virtue of their increased carrying capacity, PBS-approved vehicle configurations are often referred to as High Productivity Freight Vehicles (HPFVs).

Some of the concerns and challenges faced by local road managers include:

- pavement wear caused by heavy vehicles that cannot be addressed without additional funding, and the difficulties involved in obtaining that funding from the usual local government funding sources
- impacts of noise and air pollution, hours of operation, and the general safety implications of heavy vehicles in residential areas
- insufficient knowledge and expertise to assess the impact of various mass and dimension scenarios
- insufficient capability within local government to assess bridges and road design matters, such as turning paths to accommodate longer vehicles
- providing sufficient evidence to meet the criteria of the National Heavy Vehicle Regulator (NHVR) to refuse access including possible damage to infrastructure, the environment and a threat to road safety when tools and knowledge are low or non-existent.

This paper presents the findings of stakeholder consultation aimed at identifying the barriers to local road access for HPFVs, and uses a number of case studies to demonstrate some of the options available to local road managers when considering HPFV road access. A number of recommendations are proposed.

2. Main Barriers to Local Road Access

A full report with much more detail, covering many subjects not included in this paper, is available for download (Austroads, 2018).

2.1 Misunderstanding the Finite Freight Task

The amount of road freight transported in Australia is independent of the types of heavy vehicles used. Take a commercial, agricultural or industrial precinct in any Australian city or local government area; the farms, factories, warehouses, processing plants, retail outlets and other freight-generating businesses that operate in that precinct have a certain amount of business that requires a certain amount of freight to be moved; that amount of freight is driven by the size of the economy and the success of the businesses, not simply by the ability to fit more freight on each heavy vehicle. It follows that using heavy vehicles with a greater freight capacity, whether that be greater mass, greater volume or both, will not result in more freight being transported, but rather will result in a reduction in the number of heavy vehicle movements required to service the given freight task over a given period of time.

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In the consultations it emerged that recognition of this basic principle is limited. In one case, a local road manager had to be counselled on the fact that heavy vehicles transporting product from a factory with 20 per cent more payload capacity per vehicle would not result in the factory automatically generating 20 per cent more product; rather, the same amount of freight would be transported with fewer trips. Larger vehicles do not directly cause more freight to be generated.

What is not always clear to the local road manager is that a more productive vehicle is likely to replace one or more less productive vehicles, and the number of vehicle movements, if not the number of vehicles altogether, is likely to be lower across the transport task when higher-productivity vehicles are employed.

2.2 Expecting Swept Path Width to be Too Great

Swept path width is one of the many aspects of heavy vehicle performance that is directly controlled by the PBS safety-related standards to remain within acceptable limits. Nevertheless, swept path width was often brought up in the consultations as both a safety and infrastructure concern. No other aspect of performance was mentioned. Anecdotally, road access decisions that were initially being hindered by concerns about swept path width were ultimately resolved once it was established that the PBS vehicle did in fact have acceptable swept path width. The method of establishment in these situations was typically either a computer-based swept path analysis, a controlled physical demonstration or an explanation of how swept path is controlled in the PBS Scheme. In all of the cases discussed with stakeholders in preparing this paper, the longer PBS vehicle was found to have no more swept path width than the vehicles already approved to use the road.

2.3 Insufficient Structural Capacity

Bridge and culvert loading is an issue that can be difficult for local road managers to resolve. In most cases, the stresses that would be imposed on a structure by a proposed PBS vehicle are not significantly greater than those imposed by prescriptive vehicles currently accessing the structure, and may well be within the capacity of the structure. They may certainly be less than those imposed by over-mass permit loads that cross it from time to time. In these situations road manager concerns often revolve more around the rate of consumption of the life of the asset than its load-bearing capacity. Typical reasons for refusing access include:

- the infrastructure capacity is insufficient
- the infrastructure capacity is unknown (either because of insufficient resources or insufficient asset data)
- the road manager does not understand the effect of the proposed vehicle on the infrastructure.

For state roads, the state road authority generally has the ability to resolve infrastructure capacity using its internal human resources and assets databases. For local roads, it is probable that the local road manager will be unable to resolve the infrastructure capacity.

2.4 Insufficient Pavement Capacity

Pavement loading is sometimes used as a reason to not grant access to a PBS vehicle, on the grounds that the pavement would not be able to sustain the additional loading caused by a heavier vehicle. PBS vehicle axle group mass limits are the same as (and sometimes less than)

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prescriptive vehicle axle group mass limits, so the pavement wear effect of each axle group is no worse for a PBS vehicle than it is for a prescriptive vehicle. Further, over a whole vehicle combination, despite having a higher overall mass, the majority of PBS vehicles result in no worse pavement wear for a given freight task, because of the reduction in trip numbers required to transport the same amount of freight.

The example in Table 1 illustrates this by comparing a PBS A-double combination with a benchmark semi-trailer combination. With around twice the payload capacity, the A-double requires only half the number of trips for a given freight task, resulting in around three-quarters of the pavement wear.

Table 1.: Pavement Wear Comparison

	Semi-trailer	PBS A-double
Gross mass (tonnes)	43.0	79.5 (185%)
Payload mass (tonnes)	24.0	48.7 (203%)
Trips per 1 000 tonnes of payload	42	21 (50%)
Equivalent standard axles per 1 000 tonnes of payload	304	225 (74%)

2.5 Inability to Obtain Road Access Approval Before Constructing Vehicle

Under the current Heavy Vehicle National Law there is no provision for a transport operator to seek road access approval prior to constructing a vehicle. This puts the transport operator in a risky situation, where an investment of AUD\$500 000 to AUD\$1 000 000 in new equipment may fail to make any return. An administrative arrangement known as “In-Principle Access Support” has been setup by the NHVR to allow transport operators to seek written support “in-principle” from road managers at the beginning of the approval process. This has the effect of the road manager promising to approve a later permit application if the operator completes the process and the vehicle design does not change during that process. Because this process is not written into the law, road managers are not bound to take part in it, they are not bound to complete it within a particular timeframe, and any access they may support is not binding at the time of permit application. This is making it difficult for transport operators to embark on PBS vehicle projects. The NHVR is currently developing a new approach that will overcome these issues.

2.6 No Penalty for Failing to Resolve Access Within Statutory Timeframe

Under the current Heavy Vehicle National Law there is a statutory timeframe of 28 days within which road managers must respond to a permit application. If the application cannot be resolved within that timeframe, the road manager may request extensions of time up to 6 months. There is no penalty for not meeting these timeframes, so road managers sometimes exceed the timeframes at the expense of the transport industry.

2.7 Acceptable Reasons for Access Refusal are Too Broad

Under the current Heavy Vehicle National Law there is a list of reasons that a road manager can use to decline a permit application:

- Access may cause damage to road infrastructure

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- Access may impose adverse effects on the community arising from noise, emissions or traffic congestion or from other matters stated in approved guidelines
- Access may pose significant risks to public safety.

The above reasons may only be used if it is not possible to grant access subject to road conditions or travel conditions that will mitigate the damage, adverse effects or significant risks.

The problem with this list is that the second dot-point includes “or from other matters stated in approved guidelines.” The approved guidelines allow the road manager to refer to an internal strategic plan, which may contain some opaque reasoning supporting a delay in providing any access to HPFVs on a particular road or road network. For example, if the strategic plan suggests that a road will be upgraded in the future, the road manager may use this to imply that the road is not currently suitable when it may in fact be suitable.

2.8 Mapping Tools are Under-Developed

The NHVR website features a mapping tool known as the Journey Planner. It provides public access to maps of the various heavy vehicle restricted access networks and allows transport operators to plan and save proposed journeys. The tool does not sufficiently cater for PBS combinations; when seeking directions from one address to another, there is nowhere for the user to enter the vehicle configuration, its PBS classification, or its overall dimensions. It has limited functionality for prioritising certain types of roads. Town bypasses are not given automatic priority. As a result, by default the tool appears to simply plot the most sensible route for a passenger car, which may not be the best route for the proposed heavy vehicle.

3. Case Studies

The full report (Austroads, 2018) contains seven case studies. Three are outlined in this paper. The full report provides more detail.

3.1 Swept Path of 30-metre Level 2 Vehicle on 26-metre B-double Route

A transport operator sought access for a 30-metre PBS combination meeting Level 2 standards. Because it met Level 2 standards the 30-metre PBS combination had a swept path width suitable for operation on roads currently approved for 26-metre conventional combinations. The operator sought to pass through a town that had two roundabouts which are regularly used by 26-metre conventional combinations. The road manager requested a swept path analysis to confirm that the longer PBS vehicle would be able to negotiate the roundabouts. The transport operator was required to explain to the road manager that being a Level 2 PBS vehicle meant the vehicle could negotiate the same turns as a 26-metre conventional combination, so the analysis would not be necessary. The road manager then approved the access. Road managers should have sufficient understanding of the PBS Scheme to not have to go through these sorts of negotiations and to improve access decision times.

3.2 Clearance Time Through Unsignalised Intersection

A road manager was asked to approve access for a 30-metre PBS combination on a route normally used by 26-metre conventional combinations. The road manager was concerned about the additional time it would take for the 30-metre PBS combination to clear a particular intersection where the cross-traffic had limited sight distance. The transport operator requested the opportunity to perform a demonstration of the manoeuvre with the road manager and NHVR

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representatives in attendance, on the condition that a successful demonstration would result in access being approved. The demonstration proved that the PBS vehicle could clear the intersection in an acceptable amount of time, and the access was granted. This proved the power of a physical demonstration in assisting access decision-making.

3.3 Route Compliance for a Quad Axle Semi-Trailer

A quad axle semi-trailer with 27 tonnes on the quad axle group and 50.5 tonnes overall mass was found to be capable of negotiating a particular route without any structural capacity issues. The road manager was prepared to grant access to that route but was however concerned that if the vehicle took a different journey for any reason there could be a risk of structural damage on the roads that were not approved. The solution to this was that the operator entered the Intelligent Access Program (IAP) under Australia's National Telematics Framework. This allowed the road manager to have peace of mind because the telematics system would alert the road manager to any route non-compliance. This would occur with sufficient evidentiary quality that the road manager could prosecute the operator if need be. This demonstrates that concerns about route compliance should never be a factor in a road access decision if it is possible for the vehicle to participate in the IAP.

4. Recommendations

The recommendations are presented in more detail in the full report (Austroads, 2018).

4.1 Facilitate Better Knowledge and Understanding of the PBS Scheme

The recommendation is to develop and deliver nationally co-ordinated education campaigns and supporting tools targeting local road managers and regional state road managers. This includes website content, video clips, staged vehicle demonstrations, training workshops, direct mail and road manager training in the online access portal.

4.2 Outsource Road Asset Audit & Assessment

The recommendation is to provide a mechanism by which local councils can apply for funding to outsource bridge asset auditing and geometric or structural route assessments to third-party professionals. Road managers would need to identify the roads that are in need of audit and assessment, and to apply for funding. Third parties to undertake both geometric and structural assessment where road managers lack sufficient resources to do so internally.

4.3 Funding for Structural Upgrades/Replacements

The recommendation is to target funding to upgrade or replace critical structures so that high-productivity freight vehicles—such as 50.5-tonne PBS quad axle semi-trailers and 85.5-tonne PBS A-doubles—can access priority freight routes.

4.4 Improve the Governance of, and Confidence in, In-Principle Access Decision-Making

The recommendation is to consider legislative amendments to introduce binding decisions within a statutory timeframe when requests are made for access prior to a PBS vehicle being constructed.

4.5 Incentivise On-Time Access Approval

The recommendation is to amend the legislation or provide other forms of support so as to better enable access approval within an acceptable timeframe.

4.6 Strengthen Section 156(3) of the Heavy Vehicle National Law

The recommendation is to strengthen Section 156(3) of the HVNL by:

- redrafting it to require that any reasons given for access refusal are compelling
- enforcing compliance with Section 156(3)(b) so that where the requested access is refused for compelling reasons, access is nevertheless approved (if possible) with acceptable risk-mitigating conditions, e.g. reduced axle loads
- clarifying Section 4.4 of the NHVR's Approved Guidelines for Granting Access, which are referenced in Section 156(3)(a)(ii) of the HVNL as "approved guidelines".

4.7 Implement Independent Appeals Process

The recommendation is to identify options for, and implement, an independent appeals process to handle appeals against adverse access decisions, to improve confidence in the delivery of due process.

4.8 Implement Better Journey Planning

The recommendation is to improve the NHVR Journey Planner so that (a) automatically-generated routes between origins, waypoints and destinations take into account the vehicle classification, the various road classifications, and other considerations that can easily be built into the tool, and (b) it reflects in a more timely manner the updates that are frequently made to online maps managed by the state road authorities.

4.9 Implement Cost Recovery Options

The recommendation is to develop a suite of practice-ready cost recovery options to compensate for additional infrastructure consumption or to fund infrastructure upgrades.

4.10 Update Route Assessment Tools

The recommendation is to update the PBS Network Classification Guidelines to reflect the more advanced route assessment guidelines used by state road authorities and to include additional considerations specific to local councils. Update the Restricted Access Vehicle Route Assessment Tool (RAVRAT) to reflect the changes.

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