

Heavy Vehicle Access Management System (HVAMS)

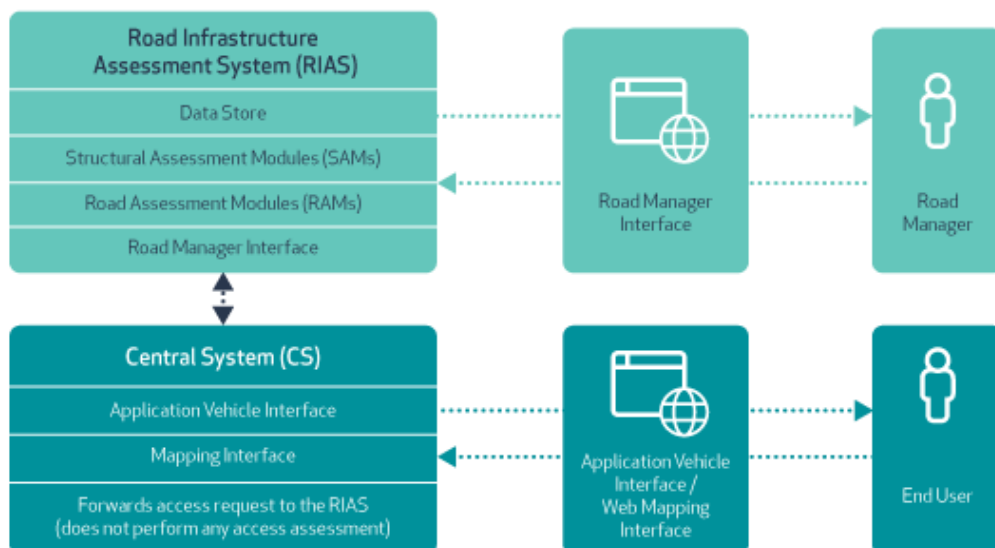
Approach and Attributes

Introduction

Tasmania introduced the Heavy Vehicle Access Management System (HVAMS) to the Over-size Over Mass (OSOM) industry in 2016, with great success. Since that time, development of the system has continued to ensure that the same, and greater benefits can be delivered to the heavy vehicle industry more broadly. HVAMS automates the road and structure assessment function of heavy vehicle access decisions under the Heavy Vehicle National Law (HVNL). It is comprised of:

- An 'Access Vehicle Interface' (AVI) that collects vehicle parameters which are utilised by the analysis tools for access decision making',
- A Mapping Interface to display the available network and conditions, matched to the user's heavy vehicle,
- Modules for assessing heavy vehicle access requests against structures (Structure Assessment Modules - SAMs) and the road network (Road Assessment Modules - RAMs),
- A Road Manager Interface (RMI) that facilitates the management of infrastructure data and risk profiles, required by the assessment modules,
- Data Stores that provide settings and configuration, to drive the System Logic and the structure and road data needed by the SAMs and RAMs.

HVAMS has been constructed with a modular architecture, with flexibility within the road manager assessment functionality to allow a range of assessment methodologies¹.



¹ A comprehensive documentation of HVAMS is provided in the State Growth report: 'Tasmanian Heavy Vehicle Access Management System', March 2021

Heavy Vehicle Access Management Challenges

Heavy vehicles are a key enabler of the Australian economy, providing an essential service to many of its critical parts, including agriculture, communications, construction, defence, energy, forestry, manufacturing, mining, retail, and transport systems. The level of success achieved by jurisdictions in enabling heavy vehicles to appropriately navigate the road network, both safely and productively, is critical to economic development and critical to avoiding economic stagnation.

A modern road structure is designed to be in service for 100 years, and a road pavement is typically designed to be in service for 40 years. Vehicle engineering advances over these same timeframes have provided the ability to build and operate larger and heavier combinations. Much of the road network is not designed for, or constructed to accommodate this contemporary heavy vehicle fleet, its activity, and its demand for access. For structures, such as bridges and culverts, the load effects produced by modern heavy vehicles are often in excess of those produced by the original design vehicle. For roads, the cross section and junction arrangements can often be inadequate to properly accommodate a modern heavy vehicle envelope.

Road managers cannot afford, nor would it be prudent, to continually reconstruct their roads and structures to match contemporary heavy vehicle access demand and fleet innovation. However, jurisdictions cannot afford, not to safely facilitate this same access demand and fleet innovation.

Therefore, it is vital that heavy vehicle access to the road network is managed in a way that maximises heavy vehicle productivity, without compromising safety, using the available infrastructure. It is also vital that limited resources are directed to identifying and addressing network 'deficiencies' that are impeding heavy vehicle productivity, and, in turn, are impeding economic return or recovery.

Industry Priorities

The Austroads '*Options Evaluation for a National Heavy Vehicle Access Assessment System*' project polled the heavy vehicle industry's priorities for improvements to heavy vehicle access. The top four priorities were shortened turn-around times, increased access certainty, end to end networks and a consistent approach to road access.

These requirements cannot be optimised by responding with a permit-based access system and cannot be efficiently sustained by relying on pre-approved routes. Any change to vehicle configuration, asset condition, assessment methodology, standards and guidelines and risk profile, consequently, disrupts efficient access in such a way as to work against decision-making speed and the ability to plan, invest in and operate heavy vehicles.

Road Manager Responsibilities and Challenges

The introduction of the Heavy Vehicle National Law (HVNL) has brought about better-defined roles and responsibilities for road managers when making access decisions for restricted access vehicles.

The HVNL is important in that it supports an outcome where all road managers have properly considered the road network infrastructure requirements and risks, prior to any road manager consent to a heavy vehicle access request. However, there have been several challenges facing road managers in discharging this function in a way that supports the efficiency of access and heavy vehicle productivity. These challenges can be distilled into the following basics:

- Heavy vehicle fleet innovation, productivity and access demand evolve at a quicker pace than cycle times for road transport infrastructure renewal,
- Providing increased productivity consistent with the capacity of the infrastructure, without compromising safety, and optimising asset preservation,
- Managing heavy vehicle impacts on amenity in a location where there are stakeholders with differing demands,
- Limited personnel and financial resources, including skill and capability sets, and time dedicated to heavy vehicle access management (noting that this is not a dedicated role for many road manager organisations),
- Infrastructure asset data sets are often incomplete and not always well understood, and
- The processes for assessing infrastructure are often necessarily complicated, time consuming and not automated.

HVAMS

It is important to appreciate industry's need to 'get the job done', both safely and efficiently, at the same time as understanding that road manager challenges are not readily or easily resolved. Therefore, any heavy vehicle access management system should, within existing means, and sustainably through time and change, mitigate, relieve, and support road managers with their challenges and obligations, to successfully deliver productive heavy vehicle access.

HVAMS is a proven model and system that supports road managers to respond to these challenges.

It has been developed and continues to be developed in strong collaboration between, and to the satisfaction of, road managers, the heavy vehicle industry, operators and their respective associations.

The HVAMS development pathway delivers on industry priorities, and, at the same time accommodates and mitigates road manager challenges, sustainably through time and change.

HVAMS ensures that all the necessary checks and balances required as part of the road manager assessment process, do not adversely impact on the heavy vehicle operator's equally necessary productivity, and efficiency and reliability of access requirements.

HVAMS delivers the best possible heavy vehicle safety and productivity return on road transport infrastructure investment.

HVAMS Today

HVAMS is the established and accepted heavy vehicle access management system operating in Tasmania, uniting multiple road managers to effectively present one road network to the Heavy Vehicle Industry.

- HVAMS has been built in strong collaboration and alignment with the heavy vehicle industry and associations (CICA and TTA) and local road managers and their association (LGAT).
- HVAMS provides for **80%** of **OSOM** access under a **Notice**, harmonised across all State and Local roads since **2016**, and is available in real time self-serve 24/7. There is no permit requirement for 80% of OSOM activity.
- HVAMS provides for **95%** of **SPV** access under a **Notice**, harmonised across all State and Local roads since **August 2019**, and is available in real time self-serve 24/7. There is no permit requirement for 95% of SPV activity.
- HVAMS provides real time self-serve 24/7 harmonised access for the **ADF** fleet across all State and Local roads. This is particularly important to understand when considering the emergency management and disaster recovery role that the ADF can be called upon to fulfill, on an entire road network wide basis.

Over the next few years, HVAMS will provide harmonised networks under Notice (no permits) in real time self-serve 24/7, considering all State and Local roads, for all restricted heavy vehicles, including PBS freight vehicles and any future heavy vehicles yet to be manufactured (for example designers/manufacturers of PBS vehicles or the introduction of electric heavy vehicles).

Design Principles

HVAMS is a modular platform that connects operator's vehicle inputs and infrastructure geometry and capacity data with the analysis tools used for access decision making. Significantly, it allows road manager decision making processes and tools to be automated and provides access decisions in a consistent format that can be used in a variety of ways. Primarily this will be in the form of an interactive web map but will also readily support other technologies to aid industry compliance, for example "voice in cab" technologies.

HVAMS provides this modular platform to mobilise the roads and structures asset assessment function of heavy vehicle access decisions under the HVNL and enables assessment modules to be linked seamlessly into the access management framework.

HVAMS provides flexibility in assessment approach to accommodate the needs of any participating road manager. This avoids the pitfalls of a 'one size fits all', or inadequately granulated, assessment approach. It allows for different assessment modules to be connected to a consistent interface such that end-users can interrogate the system for access on all roads in the network, without being limited by road manager boundaries. Each road manager has discretion to apply the most appropriate assessment, including risk management approaches, to suit each individual asset, within the network.

The following aspects of HVAMS' solution architecture are critical to successfully delivering productivity benefits within the context of the challenges and constraints faced by road managers:

- **Granularity** in assessing individual vehicles and individual structures; supporting improved utilisation of latent capacity,
- **Modularity** (road managers can incorporate existing assessment logic); making the automation and transparency more easily available for other road managers,
- A **spatial approach** that connects routing data with critical structural and network data; supporting attainment of sufficient granulation at critical network segments, and therefore application of appropriate access and conditions, and
- **Functions with** the full spectrum of data, from **basic to sophisticated asset information**; meaning that automation and transparency can be applied network-wide without prohibitive expenditure on data collection.

HVAMS is premised on infrastructure capacity information being available up front, such that industry can optimise vehicle design and utilisation. Importantly, an access decision with HVAMS can be based on either basic or detailed assessment data for any given structure. The accessibility and transparency of the HVAMS approach enables utilisation of latent network capacity, to leverage optimised heavy vehicle productivity, through use of the existing network assets.

HVAMS provides industry with the ability to test and iterate on a specific vehicle's characteristics, e.g., axle spacing and mass distribution, to determine the most productive combination for a particular freight task, based on the specific structures and constraints on that route. Each additional tonne of payload on a vehicle travelling over the course of a day delivers productivity gains in the

form of less heavy vehicle movements on the network. Such iteration is only feasible using an automated assessment approach, with real time feedback to transport operators and vehicle designers.

Permits and Notices

Permits induce delays to the efficient servicing of heavy vehicle industry clients and reduce the potential for optimised heavy vehicle productivity. Permit based access frameworks, perversely, also support the business models of those operators who are prepared to evade the permit request and consent process, thus enabling them to immediately respond to a client's request, albeit unlawfully.

HVAMS is a Notice based system, designed to provide optimised, current, transparent and granular access, that complements the NHVR intelligence led safety and compliance activities and the Chain of Responsibility legislation. In terms of response times, operators with unacceptable business practices are not supported and/or advantaged over those lawful operators, who are able, through HVAMS to directly compete and respond in a timely manner to service client requests.

Under current permit processes, a single road manager may improve bridge access for (say) 20 structures across a single year. If each of these updates impacts 20 vehicle permits, then 400 different permit update requests would be required over that year, assuming the road manager wants to deliver the access benefits as soon as possible to operators. Resourcing is typically insufficient to manage this, and therefore the updates are usually relayed to operators significantly after an infrastructure upgrade.

HVAMS facilitates access predominantly under Notice (permits are utilised in a minority of cases). The HVAMS Notice for SPVs provides the required exemptions and authorisation that allows the system to work and is the model for HVAMS delivered access consent going forwards.

The SPV Notice is different in character from most heavy vehicle exemptions. Rather than defining classes of vehicles that fall within prescribed envelopes, and then matching these to certain routes, HVAMS uses infrastructure data to match individual vehicle configurations to individual network assets.

Road manager consent is still central to providing access under HVAMS. Under the SPV Notice, rather than consenting once for a set network, the HVAMS process allows road managers to initiate or consent to network changes in a highly responsive way over time.

Granulation

The attribute of granulation is applied throughout all aspects of HVAMS (i.e. an assessment can be based on the unique vehicle characteristics being considered against the attributes of specific infrastructure, relevant to each unique access request). Highly refined granulation is essential to effectively delivering industry's priorities whilst also mitigating road manager challenges.

The HVAMS approach is to provide a unique network for a unique vehicle, thus avoiding the higher impacts of one heavy vehicle determining another, less impactful, vehicle's network. This avoidable scenario leads to the underutilisation of available network capacity and diminishes heavy vehicle productivity. When considering the tens of thousands of daily, restricted access vehicle movements, a lack of refined granulation adds up to a considerable amount of lost productivity, against that which could have been safely realised. Over a financial year the difference to Gross domestic product is significant.

Granulation, at the individual vehicle configuration level, is a significant benefit to heavy vehicle productivity, however, HVAMS also granulates in other ways to further benefit heavy vehicle productivity, including multiple methods of structural assessment and many levels of acceptable risk profile, that can be applied on a scenario, and on a case by case, basis.

HVAMS granulates an access request, and the assessment of that request, to an essentially unique level, but then rolls the consent decision back up into a simple to use access response. In this way the potential capacity of the road network is fully released on demand to the individual vehicle configuration request.

Granulation for heavy vehicles on structures means considering the distinct and calculable load effect a given combination produces on that structure and comparing that against the structure's capacity. HVAMS also granulates the road network at critical points. For example, the introduction of 'access points' on structures allows HVAMS to isolate on/off ramps from through carriageways, so appropriate travel conditions can be applied for different parts of a single structure.

The same model is applied for the geometric matching of a given vehicle against the road network. This is illustrated with the consideration of swept paths through intersections where this is broken down to understand directional impacts, so for example an unacceptable left-hand turn at an intersection does not lead to a restriction of access for vehicles travelling directly through that intersection.

The full potential of granulation to unlock latent capacity is realised when the entire network is assessed in this manner, across state and local networks and across jurisdictions. When operators are provided with options across a network, and are assessed at this granular level, industry is enabled to use this flexibility to maximise productivity to the benefit of the economy.



Harmonisation

Simply put, HVAMS presents a one road network access response to the access requests of the heavy vehicle industry and its operators. This is an essential attribute for transparent, equitable access and for fair competition. The HVAMS front end presents a single, uniform source of harmonised consent. However, the HVAMS back end is modularised, and this allows, for example, different methods of assessment to take place, and for innovation to occur.

HVAMS fosters improved collaboration and governance and can present assessment methodologies more transparently and offer opportunities to identify best practice.

There is likely to be benefit in a measured harmonisation approach where road managers collaboratively establish the 'best of breed' assessment methodologies for certain structures and loading scenarios, and pool resources to develop approaches to new problems.

An opportunity will develop for Austroads to coordinate the harmonisation of existing modules and development of new assessment modules. The research and coordination remit of Austroads is well suited to supporting this activity.

Risk and Assurance

Under existing permit-based approaches, road managers often have limitations in their understanding of the capacity of structures and the ability for certain heavy vehicles to safely travel over them. To compound this, incentives for certain operators can be biased towards travelling without approval, giving the road manager less control over the management of the assets. To overcome this, road managers need a method to ensure the underlying data required to assess the capacity of the infrastructure is held such that it can be matched directly against the parameters of heavy vehicles requiring access. This not only provides for robust access decisions, but it provides consistency and far more visibility on the risk that a road manager is adopting with its decision-making approach.

HVAMS provides for and enables assets to be proactively assessed in a way that allows for any risks to become more transparent and relevant to the heavy vehicles that seeks to utilise them. Further, when operators are confident that access requests will receive a transparent and rapid response relevant to their exact vehicle, a greater proportion of travel becomes visible to the road manager. Notably this can be supplemented by the conditional application of telematics to help monitor vulnerable and critical infrastructure, and to collect demand data across the network, to inform inspection regimes and maintenance and capital works budgets.

HVAMS can assist road managers to lower the risks associated with heavy vehicle access, through the application of appropriate access conditions to the vehicles that may have been utilising vulnerable infrastructure without consent under current arrangements. It systemises this process so that access conditions can have a direct relationship with assessment factors for each structure such that road managers can have greater control over the management of risk for each structure.

Responsiveness to Change

Innovation in the design of heavy vehicles and in the standards and guidelines for the management of road assets continues to evolve. A structural assessment undertaken, or an access decision made, today, has a use by date. Typically, in the discipline of restricted heavy vehicle access management, a not exhaustive list of change through time includes:

- Vehicle fleet,
- Vehicle configuration/combination/performance,
- Vehicle activity (e.g. in response to economic or land use change),
- Asset design elements,
- Asset condition,
- Asset risk profile,
- Standards,
- Guidelines, and
- Assessment methodology.

Some of this change can lead to an increase in heavy vehicle productivity. Some of this change can lead to a decrease in heavy vehicle productivity. HVAMS is able to manage positive change in a timely and affordable manner, and it is able to manage negative change in a similarly timely manner to minimise, mitigate and recover any lost productivity, in the earliest possible time frame.

HVAMS is devised with a solution architecture that is able to sustainably adapt and respond to the many facets of change in the immediate, short, mid and long term, securing the best possible heavy vehicle productivity at any point in time, through time. This solution architecture supports, particularly local, road managers to use the HVAMS functionality without incurring high recurrent costs revisiting their understanding of their structures.

HVAMS applies governance tools and system reminders to maintain data currency. The currency of data is critical in ensuring automated real time assessments can be made on behalf of road managers. It is also important that each road manager has assurance that uploaded data remains 'valid'. This ensures that industry is provided with a system that remains responsive and provides real time results.

The use of the data by HVAMS, in providing an access decision, occurs at a point after the road manager confirms bridge data and assessment rules. It is a similar mechanism to how traditional Notices work currently and requires an implicit understanding of the data being used, in an ongoing sense, to manage access. HVAMS employs a range of tools to ensure that road managers are prompted to confirm that data remains valid for assessment purposes and allows for updates to occur when changed or improved data becomes available.

Emergency Management and Disaster Recovery

HVAMS provides an ability to understand heavy vehicle access and infrastructure capacity in a way that allows governments to facilitate emergency management and disaster recovery operations efficiently and safely. Pre-prepared HVAMS scenario profiles can be deployed and made available virtually instantaneously, providing in each case, a clear, safe and 'contained' network access response, whenever and wherever the situation dictates.

Emergency service vehicles can be provided with the optimal emergency route to a location or area, that can allow a higher level of managed risk, in a way that acknowledges the urgency and significance of the task.

ADF vehicles can be provided with the optimal emergency or disaster recovery routes to a community or within a region, that again allows a higher level of managed risk, in a way that acknowledges the urgency and significance of the task.

Supporting Road Managers

HVAMS is built in a modular way such that road managers can easily utilise its functionality and approach, to assess structures and networks more broadly. Road managers can utilise the assessment modules developed within HVAMS, with the required asset data. Road managers can incorporate their existing assessment logic as new modules within the HVAMS architecture.

Road managers utilising HVAMS require significantly less ongoing resources to manage reactive permit requests and bridge assessment activities, thus allowing more proactive bridge and network analysis and management activities.

Changes in access (either network increases or decreases) can immediately flow through to every single operator once entered into the system. This represents a significant reduction in effort when compared to tasks road managers need to undertake when managing change under a permit or traditional Notice based framework.

Local Road Managers

HVAMS requires minimal local road manager resources by only requiring asset data and risk profile information to be kept up to date. HVAMS requires State/Territory road managers to engage with and support local road manager colleagues, to maintain an awareness of heavy vehicle access matters, and to maintain awareness of HVAMS' workings and ongoing developments, as these relate to access management and obligations under the HVNL.

HVAMS assists local road managers to significantly reduce the number of permits required, and thereby the time spent responding to these, thus allowing greater focus on strategic network planning. Local road managers can also significantly reduce expenditure of resources and ongoing effort in reactive structural assessments, instead focussing on keeping asset and spatial data current and managing periodic inspections more effectively.

Experience with HVAMS to date has shown that local road managers are better able to target infrastructure deficiencies (particularly structures) with their limited resources and have experienced improved risk management, due to the increased visibility of infrastructure capacity and application of controls, via targeted application of access conditions.

Telematics data is an important complimentary layer to HVAMS, further assisting both State and local road managers to manage risk and to inform inspection regimes, and capital works and maintenance budget choices, including making sound evidence-based funding submissions. This also provides Program sponsors with the ability to understand and compare the risk profiles of (say) any two structures, to ensure that the structure with the most deficient capacity is prioritised over the structure with the more conservative risk profile.

Heavy vehicle operators are also more frequently self-selecting vehicle combinations aligned to infrastructure capability, leading to reduced risk of damage to local assets.

Improving heavy vehicle access and productivity nationally will be substantially driven by improving the ongoing capability of local road managers to sustainably consider access on their assets within their means. The HVAMS model of the State road managers working collectively and collaboratively with local road managers, on gathering data and structures knowledge, is sustainable and cost effective as it:

- Considers the capacity of a given structure in a way that is future proofed to allow for conceivable future access requests (e.g. PBS vehicles and electric vehicles),
- Supports local road managers to be an informed client for any consultant engineering assessments,
- Builds a body of knowledge and understanding between local road managers and State road manager expertise,
- Collects Data that is tuned to the requirements of assessment modules and the priorities of the heavy vehicle industry.

Mapping Requirements

Supporting the granulation required to optimise access requires a mapping base layer that accurately aligns network and route information with the properties of the structures and road segments. The ability to accurately relate access requests to the relevant structure is made possible by having road and structure data available at segment level, and appropriate congruence established between structures and roads.

The accuracy of presentation is important in allowing for heavy vehicle access requirements to be translated with high fidelity to the right parts of structures (and their associated structural models). It also allows for robust mapping outputs and routing that clearly present the more complex bridge-to-road connections, access points and 3-dimensional layering of structures with adjoining roads. Location data accuracy and a robust assembly of structure data, stored as a segment that accurately connects to the road segments, are necessary to deliver optimised heavy vehicle productivity.

Industry Requirements for Productive Access

As outlined above the Austroads 'Options Evaluation for a National Heavy Vehicle Access Assessment System' project polled the heavy vehicle industry's priorities for improvements to heavy vehicle access. The top four priorities were shortened turn-around times, increased access certainty, end to end networks and a consistent approach to road access.

These requirements cannot be optimised by responding with a permit-based access system and cannot be efficiently sustained by relying on pre-approved routes. Any change to vehicle configuration, asset condition, assessment methodology, standards and guidelines and risk profile, consequently, disrupts efficient access in such a way as to work against decision-making speed and the ability to plan, invest in and operate heavy vehicles.

<i>Response Option</i>	<i>Importance (_/10)</i>	<i>Urgency (_/10)</i>
1. <i>Shortened Turnaround times</i>	8.6	8.9
2. <i>Increased access certainty</i>	8.4	8.1
3. <i>'Joined up' state and local government networks</i>	8.0	6.7
4. <i>Consistent approach to road access across all jurisdictions</i>	7.1	7.2
5. <i>Increased access decision-making transparency</i>	7.6	5.7
6. <i>Appropriate data governance</i>	6.9	6.5
7. <i>Increased level of access (i.e. more mass or larger dimensions)</i>	7.4	5.8
8. <i>Ability to quickly reiterate or change an access request for different configurations</i>	6.7	6.4
9. <i>Simpler User Interface</i>	6.1	5.6

Industry Access Priorities (Austroads project NEF6274)

The following outlines how HVAMS addresses each of these industry priorities:

Shortened turn-around times

HVAMS delivers real time, self-serve, access on demand 24 hours a day, 7 days a week, under Notice without the need for a permit in almost all cases.

- Supports road managers to combine infrastructure capacity data with analysis tools that can **automate** access decisions, and
- Allows a road manager with data limitations to achieve a real time access response without needing to overcome all of these limitations.

Increased Access Certainty

HVAMS gives industry full certainty of where they can travel, and the conditions of access.

HVAMS supports industry in the following areas:

- Vehicle design/innovation – networks are provided for vehicles on the drawing board,
- Fleet management – networks understood prior to investment,
- Ease of compliance,
- End to end network permeability,
- Responsive to unforeseen and/or short notice client requests and changes, and
- Continual network approval in advance (specified time period), subject to unplanned emergencies e.g. land slip, structure failure.

Joined up State and Local Networks

HVAMS presents one road network with harmonised conditions throughout.

- HVAMS can be successfully implemented across a network inclusive of state and local roads and can also include assets managed by third parties,
- A State/Territory and local road manager partnership model fosters expertise and capabilities to support local road managers and one another, and
- Cost-effective and sustainable for local road managers to harmonise with the State road manager.

Consistent Approach to Road Access Across all Jurisdictions

HVAMS presents one road network with harmonised conditions throughout.

- Modular approach enables Jurisdictions to join using their existing assessment methods, and
- Facilitates consistency of decision making and sharing of road manager assessment methodologies, without stifling innovation or 'best of breed' identification and selection.

Increase Access Transparency

HVAMS presents a visual, interrogatable display of an entire network that is equitable and represents the greatest level of access that can be made safely available.

- Road managers are able to present and justify varying levels of access and conditions clearly, and
- The logic and decision-making framework for any assessment module is clearly documented, allowing for informed discussions to occur where required.

Appropriate Data Governance

HVAMS supports governance arrangements that:

- Allows road manager groups at state and local levels to influence and manage the way that the assessment processes are developed and optimised,
- Provides technical guidance for the development, documentation and maintenance of assessment modules,
- Supports interface management between the infrastructure assessment aspects (as described within HVAMS) and the NHVR systems and processes, and
- Supports engagement with stakeholders, system end-users and heavy vehicle service clients.

Increased Level of Access

The HVAMS approach allows road managers to effectively unlock latent network capacity and deliver this to the access marketplace.

- Granulates the assessment of a request, to an essentially unique level, and provides a simple to use access response,
- Allows productivity gains to be realised on a trip-by-trip basis,
- Uses load effects generated within the system for each combination on each structure, and
- Highly responsive to change in the heavy vehicle industry and in road network assets.

Ability to quickly reiterate or change an access request for different configurations

HVAMS is distinguishable by its ability for revised vehicle analyses, that can be prompted by an end-user, and prompted by whatever the 'change' situation, to test access outcomes with altered vehicle parameters.

- An end-user can adjust vehicle parameters such as axle masses, axle group spacings, or drawbar length, to test for different access outcomes,
- Revised application vehicle data prompts the Structural Assessment Module/s to utilise a logical hierarchy of assessment, to test for the best case where access can be approved,
- In the case of PBS vehicles, the configuration that allows the highest mass on each structure along the defined route can be found, and
- A different network map can be generated in real time for each variant considered.

Simple User Interface

HVAMS has been developed in close collaboration with the heavy vehicle industry and its Associations, the Tasmanian Transport Association (TTA) and the Crane Industry Council of Australia (CICA), and with local road managers and their Association, the Local Government Association of Tasmania (LGAT). Independent contact with these organisations is encouraged to discuss the HVAMS intuitive and easy to use solution architecture.

Opportunity for Road Manager HVAMS Collaboration

HVAMS has been developed and released to date for the Class One, OSOM and SPV fleet, and for the ADF Land 121 fleet.

HVAMS is currently under development to achieve access for all restricted heavy vehicles under a Notice.

HVAMS is transferable and Jurisdictions have the opportunity of collaborating jointly to promote rapid deployment, and to enable sharing of specialist analysis tools/software. This form of collaboration can also ensure that important aspects of harmonisation are addressed.

Jurisdictional based rollout of this proven capability based on the system development that has been successfully piloted and trialled (operating since 2016 for OSOM and 2019 for SPV) in Tasmania avoids costly and high-risk system development activities.