



National Motor Vehicle
Theft Reduction Council

Damaged Vehicle Criteria for Statutory Written-off Vehicles

Regulatory Impact Statement

August 2011

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Report outline

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Title	Damaged Vehicle Criteria for Statutory Written-off Vehicles
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Abstract	<p>The RIS assesses a proposal for reform being advanced by the NMVTRC to disrupt the activities of profit-motivated criminal networks seeking to exploit gaps in government and industry practices to convert stolen vehicles into cash. Specifically, the proposal seeks to:</p> <ul style="list-style-type: none">• further limit the opportunities for profit-motivated car thieves to launder stolen vehicle and parts via the repair and re-registration of written-off vehicles; and• address deficiencies in the current written-off vehicles damage assessment criteria which can lead to vehicles that are only fit for re-use as parts or as scrap being classified as repairable. <p>The proposal is based on introducing a set of more rigorous damage assessment criteria which require a greater application of engineering principles in the assessment decision process to ensure that vehicles which pose a structural repair risk are identified and classified appropriately.</p> <p>Based on in-field testing conducted by insurance industry experts, the proposal is expected to reduce the volume of written-off vehicles assessed to be repairable by 30 per cent and further reduce the ability of profit-motivated thieves to manipulate related re-registration processes.</p>
Purpose	The RIS supports a proposal by the NMVTRC to introduce more stringent damaged vehicle assessment criteria by amending respective state and territory legislation.
Key words	Stolen vehicles, insurance write-offs, repairable write-offs, profit-motivated vehicle theft

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1. Background

This Regulatory Impact Statement (RIS) was commissioned by the National Motor Vehicle Theft Reduction Council (NMVTRC), a joint initiative of all Australian governments and the insurance industry to facilitate the implementation of strategic responses to combat motor vehicle theft.

The RIS assesses a proposal for reform being advanced by the NMVTRC to disrupt the activities of profit-motivated criminal networks seeking to exploit gaps in government and industry practices to convert stolen vehicles into cash. Specifically, the proposal seeks to:

- further limit the opportunities for profit-motivated car thieves to launder stolen vehicle and parts via the repair and re-registration of written-off vehicles; and
- address deficiencies in the current written-off vehicles damage assessment criteria which can lead to vehicles that are only fit for re-use as parts or as scrap being classified as repairable.

The proposal is based on introducing a set of more rigorous damage assessment criteria which require a greater application of engineering principles in the assessment decision process to ensure that vehicles which pose a structural repair risk are identified and classified appropriately. Based on in-field testing conducted by insurance industry experts, the proposal is expected to reduce the volume of written-off vehicles assessed to be repairable by 30 per cent and further reduce the ability of profit-motivated thieves to manipulate related re-registration processes.

Under the national framework for the management of written-off vehicles developed by the NMVTRC and its stakeholders (and implemented by legislation in all jurisdictions) any 'notifiable' vehicle declared by an insurer (or self-insurer) to be a total loss as a result of a collision, fire, water or weather-event, or stripping or dismantling must be classified to be either a Statutory write-off (SWO) or a Repairable write-off (RWO)^{1,2}. The details of all written-off vehicles are placed on the Written-off Vehicles Register (WOVR).

Once classified as a total loss the vehicle becomes the property of the insurer. The insurer then typically sells the vehicle at public auction to recover some of the costs of the claim. An SWO may only be sold subject to a statutory restriction that it may not be re-registered, which effectively means the vehicle is only useful for parts or metal recycling. An RWO may be repaired and re-registered subject to passing specific safety and identification inspections.

The current proposal is the result of extensive consultation and policy development process to reach a technical solution which has the strong support of a broad base of industry and government stakeholders nationally.³

The proposal does not affect the existing jurisdictional law in relation to the:

- definition of the term total loss;
- classes of persons required to notify the registration authority that a written-off vehicle has been assessed to be a RWO or SWO; or
- management of heavy vehicles, motorcycles, caravans and trailers.

¹ The applicable State and Territory laws define the classes of notifiable vehicles. While all jurisdictions include passenger and light commercial vehicles and motorcycles up to 15 years of age, there are some variations in respect of heavy vehicles, caravans and trailers.

² A total loss is determined according to a financial equation. Where the fair salvage value of the damaged vehicle plus the cost of repair is more than the vehicle's fair market value immediately before the event that caused the damage, the vehicle will be determined to be a total loss.

³ A preliminary evaluation of 8 potential options was prepared in 2008 (Starrs 2008a). It was successful in generating considerable debate amongst affected parties, although most opposed the pursuit of the possible higher order interventions such as a total or partial ban on the majority of written-off vehicles. After reviewing stakeholder submissions, the NMVTRC decided to re-engage affected parties in a review of the classification criteria for the SWO category with the aim of removing a significant proportion of those RWOs considered to pose the highest risks in terms of criminal manipulation or structural repair.

2. Statement of the problem

2.1 Use of stolen vehicles to re-birth RWOs

Based on the recovery rates for the newest stolen vehicles, ie those under 5 years of age, the NMVTRC considers that the statutory ban on the re-registration of the most severely damaged vehicles (associated with the initial introduction of the WOVV) has significantly affected the activity of those engaged in traditional re-birthing.

However, concerns have developed in the last few years that other methods are now being adopted to re-birth stolen vehicles using damaged vehicles that can be re-registered. This may be achieved by using a stolen vehicle of the same type as a damaged vehicle purchased at auction or by using parts from stolen vehicles to repair damaged vehicles.

This is not surprising as these career criminals will attempt to find new ways to maintain their livelihood once one path is closed off. Achieving lasting reductions in profit motivated vehicle theft therefore requires a stepped process that systematically closes off opportunities for re-birthing.

Not all stolen vehicles are used to re-birth RWOs. The following, from the NMVTRC's Strategic Plan (NMVTRC 2010c, p5), shows the range of potential uses and/or end states:

.... One in four of all vehicle thefts are profit-motivated, however, the overwhelming majority of these thefts are still of older vehicles, with 80 per cent of all not recovered PLCs being more than six years old.

Almost two-thirds (or just under 7,000 by volume) of all non-recovered vehicles are more than 10 years old with the major proportion valued at \$5,000 or less. Within this group lays a large proportion of very old vehicles that may have been:

- simply dumped in waterways or bush land never to be seen again;*
- stripped for parts to repair or maintain like vehicles (with the shell more than likely taken to a metal recycler for shredding to destroy evidence and optimise financial returns);*
- stolen with the express intent of having them shredded for cash;*
- subject to re-birthing activity on the basis they are likely to attract less scrutiny than younger equivalents; and*
- the subject of a fraudulent insurance claim.*

At the other end of the spectrum, less than 2,000 vehicles under five years of age remained outstanding for the year indicating a relative reluctance by criminals to target vehicles in this age group because of higher levels of electronic and other protection and the challenge of selling them without service records, etc. One of the impacts of the global financial crisis is that this group is also now more likely to be subject to higher levels of insurance fraud disguised as theft.

The most lucrative criminal activity is focussed on the 'middle-aged' vehicles where the financial return is reasonable but the transactions to convert them into cash are less likely to draw the scrutiny of buyers or authorities.

There are 3 main reasons why it is considered that stolen vehicles/parts may be being used to re-birth RWOs.

Firstly, unrecovered stolen vehicles have not decreased at the same rate as recovered stolen vehicles, and more recently there have been increases in their number (see Table 1). The number of recovered stolen vehicles has decreased by 67 per cent since 2000, while those unrecovered has only decreased by 9 per cent. In addition, there has been little change in the number of unrecovered stolen vehicles since 2003, around the time that the Written-off Vehicles Register

(WOVR) was introduced in all jurisdictions⁴. In the year following the introduction of the WOVR in each jurisdiction (except Tasmania) there was a decrease in the number of unrecovered stolen vehicles, and that was maintained for at least the 2 following years⁵. This suggests that the effect of restricting the availability of damaged vehicles for re-birthing may have been short-lived while other mechanisms were developed by criminals.

Table 1: Stolen Vehicles by Year and Recovery Status, 2000 to 2010

Year	Total Thefts	Recovered	Unrecovered	
			Number	Per cent
2000	136,099	116,500	19,599	14
2001	136,955	116,740	20,215	15
2002	110,025	92,243	17,782	16
2003	94,843	77,660	17,183	18
2004	84,864	67,686	17,178	20
2005	78,383	61,103	17,280	22
2006	73,929	56,678	17,251	23
2007	69,532	51,987	17,545	25
2008	66,273	48,115	18,158	27
2009	60,208	43,605	16,603	28
2010	55,891	38,141	17,750	32
Change from 2000 to 2010	-59%	-67%	-9%	

1 Includes all States and Territories; Table A.4 in Appendix A shows the numbers excluding NSW.

2 In 2010, unrecovered vehicles are likely to reduce (and recovered vehicles increase by the same number) as the statistics were compiled before the end of January 2011.

There has been some suggestion that one of the reasons that the unrecovered rate has not declined at the same rate as total thefts is that more stolen vehicles are being moved overseas. However, only a small number of missing post-1995 vehicles have a world market as whole vehicles or as separated parts. Previous detailed separate analyses of the potential pool of exported vehicles conducted by the Australian Crime Commission, the NMVTRC and a large general insurer estimated the likely volumes at less than 700 vehicles per annum. Given that the majority of those vehicles would also have strong domestic appeal, exports can not be considered a major contributor to the volume of missing passenger and light commercial vehicles (PLCs).

Secondly, registration authorities and the Police in several states have raised concerns about the number of RWOs with suspect identities and parts being re-registered. It is difficult to quantify the volume with any certainty because of the challenges in identifying the provenance of parts used in the repair process. The best available Police intelligence suggests that the practice has links to all parts of Australia and other serious crime including drugs and firearms trafficking and terrorism.

Because of the poor empirical evidence about how stolen vehicles are used to re-build written-off vehicles and how many are involved, the NMVTRC has facilitated the establishment of inter-

⁴ The register became effective in different jurisdictions at different times, with the last one in September 2004 (SA). The WOVR was introduced in New South Wales in 1999, in 4 jurisdictions (Victoria, Queensland, Tasmania and NT) in 2002, and in 2 jurisdictions (WA and ACT) in 2003.

⁵ Unrecovered stolen vehicles increased in Tasmania in the first year, then halved and remained low for all following years.

agency taskforces in New South Wales and Victoria (Police, road authorities, fair trading agencies)⁶. These taskforces are utilising combined powers and expertise to build a more complete profile of the distribution channels for illicit sale of separated parts and the incidence of RWOs being rebuilt using stolen parts.

Thirdly, the NMVTRC examined typical examples of high volume late model RWOs to illustrate the potential use by criminals and query why, in the face of these examples, are such vehicles permitted to be sold as 're-registrable'. The examples in Table 2 are difficult to reconcile in the current environment of greatly reduced retail values for non-damaged used vehicles, unless sub-standard repair practices and/or the use of stolen parts are involved.

Table 2: Examples of repaired RWOs

	2005 VZ Commodore Wagon	2002 Toyota Corolla ZZE
Maximum pre-damage value	\$25,000	\$14,800
Estimated cost of repairs	>\$20,000	>\$15,000
Salvage value returned at auction	\$3,600	\$3,600
Number of equivalent undamaged vehicles for sale in New South Wales on carsales.com and price range	402 cars from \$14,990	407 cars from \$10,499

Values as at mid-2008 when collated.

As part of the analysis of options associated with this RIS, estimates of the use of stolen vehicles in re-birthing and the average value of a stolen vehicle were made (as discussed in Chapter 5 below). The estimated proportions range from 9 per cent to 30 per cent of RWOs and the value of a stolen vehicle is \$21,330. Applying these data to the estimated 40,000 re-registered RWOs, the cost of fraudulent re-birthing ranges between \$77 million and \$256 million in an average year. The use of stolen vehicles to re-birth stolen vehicles is therefore associated with significant costs.⁷

2.2 Damage criteria are out of date

The NMVTRC and State and Territory governments exercise a range of policy and program tools (including the damage criteria) to disrupt the illicit trade in stolen vehicles and/or parts to re-birth written-off vehicles. These policies and programs include the inspection of RWOs prior to re-registration, vehicle and component identification and the use of NEVDIS to exchange vehicle status information between transport agencies, police and other authorised parties⁸. Each of these policies and programs are complementary and contribute to the overall strategy to deal with the re-birthing problem.

The current damage criteria were developed by the NSW Roads and Traffic Authority in the mid-1990s. Changes in vehicle construction over recent years and the rapid acceleration in the use of new and composite materials mean that it is increasingly more complex to assure a complete and safe repair of a modern vehicle. Vehicle manufacturers have also expressed concern about the hazard posed by the delayed corrosion of key electronic components, including primary safety systems, in respect of immersed vehicles.

⁶ Due to report shortly.

⁷ These cost estimates exclude RWOs that are re-registered in NSW for reasons that are outlined in Section 4.3 below. If NSW were included the costs would range from \$113 million to \$374 million.

⁸ NEVDIS is the acronym for the National Exchange of Vehicle and Driver Information System that links state and territory databases.

As part of the analysis of options associated with this RIS, two pieces of work were commissioned by the NMVTRC. Firstly, an independent audit of the current WOVV damage criteria that covered more than 400 vehicles sold at auction in Brisbane, Sydney, Melbourne and Perth (Gribble 2010). It concluded that the current 'volume or area-based' criteria are too simple when applied to most modern vehicles and result in some severely damaged vehicles being categorised as RWOs when it should be obvious to a trained expert that the vehicle is suited only for dismantling or scrap⁹. The audit found that:

- 96.5 per cent of written-off vehicles are correctly assessed and classified as either an RWO or SWO under the existing damage criteria;
- 3 per cent were correctly assessed under the existing damage criteria but should not be able to be repaired on safety grounds, ie should be classified as SWOs rather than RWOs; and
- 0.5 per cent were incorrectly assessed under the existing damage criteria, one as an RWO (in place of an SWO) and one as an SWO (in place of an RWO).

The implication is that safety is likely to be compromised due to faults in the existing damage criteria for up to in the order of 3,600 written-off vehicles¹⁰.

Secondly, forensic vehicle engineers assessed the existing set of damage criteria and made recommendations on how they could be improved to ensure that vehicles are properly classified as RWOs or SWOs (DVE 2010). Although the existing set of damaged vehicle criteria is simple, there are weaknesses that mean that extensively damaged vehicles can be available for repair (RWOs) even though the repairs are most unlikely to result in an unsafe vehicle. The weaknesses include the following:

- The structural damage criteria are open to interpretation, and this has resulted in vehicles that are suitable only for dismantling being classified as RWOs. Vehicle rollover crashes, which can result in damage to multiple pillars and the vehicle roof, are not explicitly identified.
- Appropriate interpretation relies heavily on the training, skill and experience of the assessors to appropriately interpret the criteria. The lack of a recognised qualification for a vehicle assessor is seen as a deficiency.
- The criteria have not maintained pace with advances in vehicle manufacturing techniques such as the use of boron steel, laser welding and/or composite construction. Current vehicle design encompasses roof, firewall and floor panels as structural elements but this is not reflected in the criteria.
- The criteria define an area amount of damage to be sustained to the roof turret, floor pan and firewall, rather than defining an amount of damage which is unacceptable from a safety perspective *per se*.
- Examples of specific deficiencies in the criteria are that:
 - there is no definition of damage to the structural rails/chassis of the vehicle or to the suspension attachment points;
 - the deployment of airbags is not used as an indicator of severe loading of the vehicle structure; and
 - a vehicle immersed in salt water is treated differently to one immersed in fresh water, which is no longer appropriate in view of the positioning of key electrical and electronic systems in later model vehicles.

⁹ The phrase 'volume or area based' refers to the focus in the current criteria which means that impact damage to selected parts of the vehicle (ie the roof, floor pan and firewall) must measure to measure 300 x 300 mm or more by area in order to meet the definition of statutory write-off.

¹⁰ Calculated from an estimated 121,000 written-off vehicles in an average year (see Table A.1 in Appendix A).

A new set of criteria was recommended and subjected to extensive expert in-field testing. It is estimated application of the new criteria will result in a 30 per cent reduction in written-off vehicles classed as RWOs (as outlined later in Section 5.2). The most commonly disqualifying factors were longitudinal rails (present in 83 per cent of reclassified vehicles), floor pan (80 per cent), pillars (51 per cent), supplementary restraint systems (46 per cent), suspension (41 per cent) and the fire wall (21 per cent).

Applying the 30 per cent reduction to the range of costs of fraudulent re-birthing (estimated in Section 2.1 above) implies that changes in the damage criteria could reduce costs of the use of stolen vehicles for re-birthing by between \$23 million and \$77 million in an average year. This is a significant cost reduction.

3. Objective

The proposal is a core part of one of the NMVTRC's key reform themes (NMVTRC 2010c) to disrupt vehicle laundering markets by (amongst other things) tightening written-off vehicle damage assessment criteria and improving the rigour and consistency of vehicle inspection regimes. The approach is based on the crime prevention principle of increasing effort and risk that criminal networks are exposed to while decreasing the potential reward.

The objective of the current proposal is to further limit opportunities for profit-motivated vehicle thieves to launder stolen vehicles and parts via the RWO repair and registration process. This will be achieved by reducing the number of RWOs available for repair and consequently reducing the ability of profit-motivated thieves to manipulate the RWO process undetected.

Other effects of the proposal that can be considered as meeting the broad objectives of the work of the NMVTRC include improving safety by preventing the return and reuse of structurally compromised vehicles. This is not a specific objective of NMVTRC's work but there is no doubt that the existing and proposed damage criteria have a safety focus.

In developing the proposal, regard is also taken of the need to minimise the *unintended or disproportionate consequences or impacts on legitimate business or consumer transactions* as expressed in the NMVTRC's Strategic Plan (NMVTRC 2010c, p10).

4. Statement of the proposed regulation and alternatives

4.1 Proposal

The proposal is to introduce a new set of damage criteria for the assessment of written-off vehicles. The development process emerged from a national workshop in June 2009 which resolved that the current criteria were in need of urgent updating to reflect changes in vehicle construction techniques and materials and to make the system more impervious to fraudulent manipulation (NMVTRC 2009).

As noted in Section 2, the current 'volume or area-based' criteria are too simple when applied to most modern vehicles and can result in severely damaged vehicles being categorised as RWOs when it should be obvious to a trained expert that the vehicle is suited only for dismantling or scrap.

The proposed new criteria were developed by technical experts in consultation with a select number of industry players. They were then subject to field trials and subject to wider consultation. In September 2010, State and Territory road authorities gave in-principle commitment to work with the NMVTRC to implement the new criteria. Full implementation is expected to take up to 18 months.

The fundamental premise which underpins the revised criteria is that the SWO classification decision requires greater application of engineering principles to ensure that vehicles which should not be repaired on safety grounds are appropriately identified and classified as only suitable for parts or as scrap.

The proposal uses clearer indicators of structural load which are more aligned with modern vehicle design and fabrication technologies. Specifically, the new criteria:

- increase the number of structural areas of the vehicle to be examined for potential evidence of impact damage from 5 to 8 by adding the longitudinal rails, pillars and supplementary restraint systems to the current categories of roof, floor pan, firewall, suspension and mechanical components;
- substitute the current 'volume or area-based' assessment with more specific indicators that the component has been subject to a significant structural load resulting in a fracture, cut, crack, buckle or fold;
- require like areas of unconnected damage to select components (ie the pillars, floor pan, firewall, longitudinal rails and suspension) to be counted separately towards meeting the three count threshold for SWO status;
- rationalise the water damage criteria by:
 - treating any immersion fresh, brackish or salt water consistently;
 - significantly lowering the point of inundation of the cabin at which the vehicle must be classified as a SWO to the level of the inner door sill; and
- provide greater clarity in respect of the level of fire damage or component stripping that would render a vehicle a SWO.

Expert in-field testing of the new criteria indicates that they will effectively remove most classes of damage considered to pose a structural repair risk from the RWO category.

The new criteria are set out in the publication "Damage Assessment Criteria for the Classification of Statutory Write-Offs" developed by the NMVTRC and Austroads which is appended to this report.

4.2 Alternatives to the proposal

The alternatives that were assessed in the 2008 review report (Starrs 2008a) and led to the current proposal are discussed below, using a 3 way classification that depends on their main effect.

4.2.1 Those that affect the administration of the existing scheme

The only option considered was the upgrade of the current system. The main component of this option is improvement in checking receipts for parts used to repair RWOs, with the aim being to achieve a level of checking that gives confidence that stolen parts are not being used in vehicle repair.

The confirmed view of both transport agency personnel and police is that there is little that can be cost effectively implemented to improve the administration of the existing scheme in respect to receipt verification, which would be ultimately required to support a more robust audit process to limit the use of stolen parts. The only way to verify that a particular receipt is genuine is to physically visit the receipt issuer and undertake an audit of their record system (if one exists at all). Even where the record systems appear to be valid, one still needs to physically sight the purported donor vehicle or photographs of it to ensure the part specified was usable and/or is not still attached to the car. Police in New South Wales and Victoria both report that suspect recyclers simply refuse to co-operate even where legislative requirements exist such as currently apply in New South Wales.

These views were expressed during consultations prior to the preparation of the 2008 review report, and more strongly confirmed during the consultations following the release of the report. It is therefore concluded that the option is not feasible¹¹.

¹¹ The costs and benefits of this option could not be sufficiently quantified in the 2008 review report to draw any conclusion on its worth relative to the other assessed options.

There are proposals to upgrade the inspection process to better ensure the safe repair of vehicles, which will proceed and which are compatible with the promotion of the proposal for a new set of damage criteria.

4.2.2 Those that affect the management of recycled parts

The NMVTRC has been pursuing, since 2002, the development and implementation of a voluntary code of conduct for dealing in second hand parts to minimise the incidence of recyclers unwittingly facilitating the illicit trade. The code was introduced in 2004 and by 2008 the National Parts Code (NPC) had been adopted by 140 recyclers out of a total of approximately 1,000.

The 3 options assessed in the 2008 review report were the implementation of the NPC¹²:

- on a voluntary basis, effectively what was happening at the time of the review;
- on a voluntary basis with incentives to join, by giving parts recyclers/ dismantlers of vehicles who are members of the NPC priority access to auctions of damaged vehicles; and
- on a mandatory basis, by regulating access to damaged vehicle auctions so that only members of the NPC can bid for damaged vehicles.

The NPC ceased operation at the end of 2008. The membership had fallen away due to the NPC's inability to secure tangible economic benefits in return for compliance with the Code's standards. The NMVTRC had sought and at one point been close to securing a preferential status for accredited NPC members which involved being given access to an on-line damaged vehicle auction prior to the vehicles being offered to non-accredited recyclers or the public. For a variety of reasons the proposal failed to secure the multiple industry agreements required to move to implementation.

The industry is extremely diverse: only a small proportion of businesses operate at a top tier professional level and a large proportion operate at a very basic level. The NPC experience demonstrated that it is very difficult, if not impossible, to bring about a significant improvement in industry wide standards through voluntary compliance mechanisms.

The NMVTRC considers that imposing a mandatory regulatory scheme on a private sector industry would be difficult politically and somewhat contrary to the overarching push for de-regulation of industry. It is also sceptical that regulatory regimes can be effective in countering criminal behaviour in the absence of robust compliance and enforcement resources.

It is therefore concluded that alternatives concerned with the management of recycled parts are not feasible at this time.¹³

4.2.3 Those that affect the availability of RWOs

The third category of options assessed in the 2008 review report reduced the number of RWOs available for sale at damaged vehicle auctions by:

- restricting them to vehicles that are 5 years old or less. These are likely to have the highest vehicle values and the most useful parts for the repair of newer vehicles;
- restricting them to vehicles that have a vehicle value of \$57,123 or more (the then luxury car tax value¹⁴). This is intended to ensure that very high value vehicles can be repaired on the basis that not allowing it when technically possible would involve a high cost for individual vehicles;

¹² These options are aimed at improving industry practices within the repair and recycling sectors and fall under the Disrupt Separated Parts Markets theme rather than the Disrupting Vehicle Laundering Markets theme (as discussed in Objective).

¹³ The costs and benefits of these options also could not be sufficiently quantified in the 2008 review report to draw any conclusions on their worth relative to the other assessed options.

¹⁴ The current value is \$57,466.

- changing the damage criteria for the assessment of written-off vehicles so that more are classified as SWOs and fewer as RWOs; and
- elimination of the sale of RWOs for repair, ie all written-off vehicles would become SWOs. The parts could still be used to repair vehicles but the vehicles themselves could not be repaired.

All of these options remain feasible, but the consultation process following the release of the 2008 review report indicated that the preferred option was to develop a new set of damage criteria (see Section 6).

4.3 NSW position

In 2010, the NSW government decided that it would no longer allow RWOs to be sold for repair and implemented that decision on 31 January 2011. In effect, it has adopted the last mentioned alternative above. No analysis was reported of the effects of this decision nor a RIS published. It was stated that:

the key purposes of this reform are to reduce vehicle theft, vehicle re-birthing and related crime, as well as to improve vehicle safety and to significantly strengthen consumer protection by denying re-registration of the high-risk and suspect vehicles which supply the criminal re-birthing market.

The NSW scheme is relevant to the RIS to the extent that it affects the analysis of the options under consideration. In particular, the definition of the base case and the number of written-off vehicles and stolen vehicles affected by the proposal and alternatives to the proposal.

While the NSW scheme provides for some exemptions from the general prohibition, the pre-qualifying criteria suggest that exemptions will be extremely limited.

In general terms, the NMVTRC's assessment is that it is too early in the implementation of the NSW policy to draw any conclusions in respect of the permanent structural changes that it may ultimately deliver in respect of industry and criminal impacts.

5. Costs and benefits

5.1 Cost-benefit analysis framework

Cost-benefit analysis requires comparison between a base case and some number of improvement alternatives (options). For this analysis, the base case is the current system for the management of the written-off vehicles, the main features of which are:

- classification of written-off vehicles, aged of 15 years or less, as either statutory write-offs (SWOs) or repairable write-offs (RWOs) on the basis of the current set of damage criteria (developed at the time of the introduction of the WOV¹⁵); and
- recording the details of all written-off vehicles on the WOV so that SWOs cannot be re-registered and RWOs can only be re-registered following identity and safety checks.

The options to this base case are those identified in Section 4.2.3 to restrict the availability of written-off vehicles for repair, that is:

- Option 1 (or the proposal) which is to introduce a new set of damage criteria which would substantially reduce the volume of written-off vehicles available for re-registration.
- Option 2 to restrict the availability of written-off vehicles by vehicle age (those that are 5 years or under).

¹⁵ There are minor variations between jurisdictions about how the upper age limit is applied. Some exclude a vehicle upon the fifteenth anniversary of its manufacture. Others include vehicles up to 15 years and 364 days from manufacture. This proposal does not alter the jurisdictions' prevailing age requirements.

- Option 3 to restrict the availability of written-off vehicles to those that have a value greater than the luxury vehicle tax (currently \$57,466).
- Option 4 to eliminate the repair of written-off vehicles.

The analysis of the base case and options excludes New South Wales as it has implemented a scheme that no longer allows written-off vehicles to be sold for repair (effectively Option 4).

Analysis would normally include estimation and long-term forecasting of what is likely to happen in the base case (ie if the current situation continues) and the options (ie if an alternative way of managing written-off vehicles is adopted) so the effects over time can be taken into account. In practice, the available data do not permit long-term forecasting so the analysis is restricted to one year. This means that discounting to a common year is not required.

The assumptions used in making estimates of costs and benefits are based on consultations and review by an industry expert (during the 2008 review). Appendix A contains more detail of the derivation of the data used to estimate the costs and benefits reported below.

5.2 Written-off vehicles

The analysis is undertaken in terms of the uses of written-off vehicles as they affect the costs and benefits in some circumstances. There are 5 broad types of buyers of written-off vehicles at damaged vehicle auctions, as follows:

- 1 Main Street¹⁶ Recyclers: individuals or businesses that purchase both SWOs and RWOs as part of a legitimate business enterprise with the express intention of selling the vehicle in components (parts) or in its existing damaged state. This type of buyer may include recyclers, exporters and scrap metal traders.
- 2 Main Street Repairers: individuals or businesses that purchase RWOs as part of a legitimate business enterprise with the express intention of repairing the vehicle for on-sale to trade or private buyers.
- 3 Re-sellers: individuals or businesses that purchase both SWOs and RWOs at a wholesale level as part of a legitimate business enterprise with the express intention of on-selling vehicles in their existing damaged state including returning them to auction.
- 4 Other Operators: individuals or businesses that purchase RWOs with the express intention of repairing vehicles with stolen parts and/or sub-standard repair methods for fraudulent on-sell to unsuspecting buyers. This would include criminals and those commonly termed backyarders.
- 5 Enthusiasts: individuals that purchase RWOs with the intention of repairing vehicles for their own use and not on-selling them in the near term. (Note: The purchase of RWOs by this group is considered to be very small as cars over 15 years of age are not subject to WOVV requirements).

For the purposes of the assessment, Re-sellers are ignored. While they comprise a proportion of auction house sales, they do not change the end use of vehicles, ie as scrap, dismantled for parts or repaired. Enthusiasts are included with Main Street Repairers because their repair processes are legitimate and the end use of vehicles is the same. In addition, the numbers are expected to be small as noted above.

The estimated number of written-off vehicles and their uses are shown in Table 3. The number of written-off vehicles remains at 121,000 in the base case and options but their disposition varies in

¹⁶ Main street is used by the NMVTRC to describe a business that is clearly carrying-on a related business that is open to the public, is likely to be a member of a peak trade association or collective buying group, is likely to be part of a preferred service provider network of one or more general insurers and/or vehicle manufacturers, and could be expected to have management systems in place to assure compliance with all applicable regulations and potentially industry codes or other incentive based schemes.

each option. In particular, the share of (current) RWOs reclassified to SWOs increases over the four options as follows:

- In Option 1, the proposed new damage criteria, 30 per cent. This reduction was estimated by the technical groups that developed and assessed the damage criteria (NMVTRC 2010a)¹⁷.
- In Option 2, restricting repair availability to RWOs that are more than 5 years old, 75 per cent. This figure is based on NMVTRC analysis of the written-off vehicles placed on the WOVR.
- In Option 3, restricting RWOs with a value exceeding the luxury vehicle tax, 95 per cent. The actual proportion may be higher depending on how value is determined, eg based on CARS analysis 98.5 per cent would have been excluded in 2007 if insurance claims costs were used, 99.7 per cent if the value of unrecovered stolen vehicles were used. The proportion can be expected to be lower than these if new car values are used as both of the CARS values implicitly include value depreciation over time.

In Option 4, where RWOs are eliminated, 100 per cent. Effectively, it would not be possible to re-register a vehicle once it has been written off.

Table 3: Written-off Vehicles by Option, Type and Use¹

Options	1	2	3	4	
	Base Case	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Written-off vehicles					
SWOs	21,000	51,000	96,000	116,000	121,000
RWOs	100,000	70,000	25,000	5,000	0
Total	121,000	121,000	121,000	121,000	121,000
Use of RWOs					
Main Street Recyclers	60,000	42,000	15,000	3,000	0
Main Street Repairers	16,000	11,200	4,000	800	0
Other Operators	24,000	16,800	6,000	1,200	0
Use of SWOs					
Main Street Recyclers	17,850	35,850	62,850	74,850	77,850
Scrap, etc	3,150	15,150	33,150	41,150	43,150
Re-registered Vehicles²					
	40,000	28,000	10,000	2,000	0

¹ Excludes NSW.

² NEVDIS data show that 40 per cent of written-off vehicles are re-registered (see Appendix A.2 and Table 4).

The split of uses and buyers of damaged vehicles in the table are calculated from the shares in Table 4. The derivation of these shares is detailed in Appendix A.2.

¹⁷ The 2008 review report used an estimate of 40 per cent, based on industry knowledge and experience but no specific analysis. The benefits were therefore overestimated.

Table 4: Estimated buyers of written-off vehicles

Buyer Type/Disposition	Share of SWOs ¹	Share of RWOs	Share of Repaired RWOs
Main street recyclers	85%	60%	na
Main street repairers ²	na	16%	40%
Other operators	na	24%	60%

1 The remaining 15 per cent are assumed to be sold for scrap or export to either illegitimate operators or other individuals.

2 Includes enthusiasts.

5.3 Unrecovered stolen vehicles

5.3.1 Number of unrecovered stolen vehicles

The next piece of information required is the numerical relationship between repaired RWOs and stolen vehicles, ie how many vehicles are stolen to repair RWOs? It is assumed that unrecovered stolen vehicles are the source of parts for the repair of RWOs; recovered stolen vehicles have decreased at a significantly higher rate than those that are unrecovered and there has been a stabilisation (perhaps even increase) in the numbers of unrecovered stolen vehicles in the last few years.

The approach adopted was to analyse data by age group to make estimates of the number of stolen vehicles per re-registered RWO. The resulting figures in Table 5 show that over the relevant age groups (0-15 years) there is on average about one fifth of an unrecovered stolen vehicle for each re-registered vehicle, with only a relatively small variation between the relevant age groups (up to 15 years of age). The main variation occurs for vehicles over 15 years of age which are not currently required to be placed on the WOVV.

Table 5: Stolen Unrecovered and Re-registered Vehicles by Age Group¹

	0-5 years	6-10 years	11-15 years	Total 0-15 years	16+ years
Stolen unrecovered vehicles²					
Share	15%	21%	22%	58%	42%
Number	2,550	3,570	3,740	9,860	7,140
Re-registered RWOs³					
Share	23%	39%	31%	93%	7%
Number	13,740	22,550	18,030	54,320	4,180
Stolen unrecovered vehicle per re-registered vehicle					
Rate	0.186	0.158	0.207	0.182	1.708

1 Both data sets include NSW vehicles. The number of re-registered RWOs by age group excluding NSW was not available.

2 Vehicles for which age is unknown are spread proportionally across age categories.

3 NMVTRC analysis of the WOVV.

The unrecovered stolen vehicle rates in the table are the only 'hard' indication of the relationship between unrecovered stolen vehicles and the use of RWOs for re-birthing. The estimated rates have approximately halved since the 2008 review report due to the large increase in the number of RWOs (and re-registered vehicles) and only a small increase in the number of stolen vehicles.

The big driver of recent increases in the total volume of written-off vehicles has been a series of severe weather events which have seen tens of thousands of vehicles written-off due to hail and/or

water damage. Whether these relatively rare and extreme events are likely to become a regular feature is unknown at this point.

The relationship between stolen and re-registered vehicles was explored in the consultations but little indication was given, although several people agreed that a stolen vehicle is likely to provide parts for the repair of more than one RWO. Some people said that people who present suspect vehicles often concentrate on related makes/models so that parts from one vehicle could be used to repair several vehicles; this would be an “efficient” business practice on their part. Adopting a conservative position, the analysis uses half the rates in Table 5 to estimate the reduction in stolen vehicles by option (see Table 6).

The last line of Table 6 includes the suspect vehicles, ie those where it is suspected by registration and/or enforcement authorities that stolen parts have been used in the repair of a written-off vehicle for re-registration (see Appendix A.3). They are included to enable comparison with the number of stolen vehicles. There are significantly more suspect vehicles than unrecovered stolen vehicles, which gives some confidence that the reduction in stolen vehicles has not been overestimated.

Table 6: Stolen unrecovered vehicles by option

Options					
	Base Case	1 Damage Criteria	2 Age ≤ 5 years	3 Value > \$57,466	4 Eliminate RWOs
Re-registered vehicles	40,000	28,000	10,000	2,000	0
Stolen unrecovered vehicles					
Age groups affected	0-15 years	0-15 years	6-15 years	0-15 years	0-15 years
Rate per re-registered vehicle	0.091	0.091	0.090	0.091	na
Number	3,630	2,540	900	180	0
Relative to base case					
Number		-1,090	-2,730	-3,450	-3,630
Reduction (per cent)		-30	-75	-95	-100
Suspect vehicles ¹	12,000	8,400	3,000	600	0

¹ These estimates are based on the consultations as described in Appendix A.3.

5.3.2 Value of stolen unrecovered vehicles

The unit cost (or value) of a stolen unrecovered vehicle comprises costs for vehicle loss and damage, personal costs and injury costs. The estimated unit cost per stolen unrecovered vehicle is \$21,330, of which about 60 per cent is the net claims cost paid by the insurer for vehicle loss (see Appendix A.5). The unit cost is combined with the estimated theft reductions in Table 6 to estimate the savings due to the reduction in stolen vehicles by option, as shown in Table 7. The savings range from \$23 million for Option 1 (Damage Criteria) to \$77 million for Option 4 (Eliminate RWOs).

Table 7: Estimated Savings from the Reduction in the Costs of Stolen Vehicles

Options	1	2	3	4	
	Base Case	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Stolen vehicles	3,630	2,540	900	180	0
Costs of stolen vehicles (\$'000)					
Insurance company	45,774	32,029	11,349	2,270	0
Vehicle owner	31,654	22,149	7,848	1,570	0
Stolen vehicles relative to the base case		-1,090	-2,730	-3,450	-3,630
Reduction in stolen vehicle costs (\$'000)					
Insurance company		13,745	34,425	43,505	45,774
Vehicle owner		9,505	23,806	30,084	31,654
Total reduction		23,250	58,231	73,589	77,428

5.4 Price of damaged vehicles

There is some uncertainty about what will happen to prices of damaged vehicles if the numbers of vehicles at auction are reduced. The matters and data taken into account in estimating these prices are discussed in Appendix A.6. The prices are combined with the changes in written-off vehicle numbers in Table 3 to make estimates of revenue changes to insurance companies and profit changes to auction houses.

The data supplied for the 2008 review report (updated to current price levels using the CPI) for analysis of salvage prices¹⁸ show that:

- the current average price of SWOs is about \$1,690 and RWOs about \$2,740, a difference of about \$1,000 per vehicle sold at auction;
- a fair share of the difference in prices (the exact amount is indeterminate) is due to the insured value of the vehicles, with one data set showing that salvage prices for SWOs are higher than those for RWOs because both the insured value and the average age is lower;
- average salvage prices vary up and down over the last several years, and the current price is about the same (in nominal terms) as it was in 2000; and
- private buyers currently pay more on average than dealers for both SWOs and RWOs, and the differences have increased in recent years, particularly for SWOs. This may indicate that more SWOs are being purchased for scrap and export. The private buyer differential is about \$260 for SWOs and \$1,690 for RWOs.

It is assumed that there will be no changes in the prices obtained at auction of written-off vehicles in any of the options. This is somewhat of a simplification due to some constraints in the available data and the options being assessed. For example, an increase in price is probably likely for vehicles sold for repair as a result of the reduced supply of eligible vehicles; any price increase will be limited by the economics of repairing written-off vehicles and may only be for a short time until other business strategies are pursued. The assumption of no change auction prices becomes less certain the more the number of RWOs reduces, ie it is more certain for Option 1 (70,000 RWOs) than Option 2 (25,000 RWOs) and more certain for Option 2 than Option 3 (5,000 RWOs). In Option 4 there are no RWOs for sale. There will of course be changes in revenues due to changes in the number of vehicles of different types. The average price change over all written-off vehicles

¹⁸ These prices are intended to apply in a 'normal' year, ie the effects of weather related events have been eliminated to the extent possible.

is not expected to be large because the prices for SWOs should not be affected by any of the options and 60 per cent of RWOs are currently sold for parts.

Table 8 and Table 9 contain the price and revenue estimates for RWOs and SWOs respectively. The resulting revenues from the sale of damaged vehicles show that:

- revenues from the sale of RWOs are estimated to decrease;
- revenues from the sale of SWOs are estimated to increase; and
- the net revenue position is a decrease, ranging from \$16.5 million for Option 1 (proposed change to damage criteria) to \$55 million for Option 4 (elimination of repairable written-off vehicles).

Table 8: Estimated Prices for and Revenues from the Sale of RWOs

Options					
	1	2	3	4	
	Base Case	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Number of RWOs used by:					
Main street recyclers	60,000	42,000	15,000	3,000	0
Main street repairers	16,000	11,200	4,000	800	0
Other operators	24,000	16,800	6,000	1,200	0
Prices of RWOs (\$)					
Main street recyclers	2,210	2,210	2,210	2,210	na
Main street repairers	2,460	2,460	2,460	2,460	na
Other operators	3,900	3,900	3,900	3,900	na
Average price	2,660	2,660	2,660	2,660	na
Revenues from Sale of RWOs (\$'000)					
Main street recyclers	132,600	92,820	33,150	6,630	na
Main street repairers	39,360	27,552	9,840	1,968	na
Other operators	93,600	65,520	23,400	4,680	na
Total revenues	265,560	185,892	66,390	13,278	na
Revenues relative to the base case (\$'000)					
		-79,668	-199,170	-252,282	-265,560

Table 9: Estimated Prices for and Revenues from the Sale of SWOs

Options					
	1	2	3	4	
	Base Case	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Number of SWOs used for:					
Parts SWOs	17,850	17,850	17,850	17,850	17,850
Parts former RWOs	0	18,000	45,000	57,000	60,000
Scrap	3,150	15,150	33,150	41,150	43,150
Prices of SWOs (\$)					
Parts SWOs	1,690	1,690	1,690	1,690	1,690
Parts former RWOs	2,210	2,210	2,210	2,210	2,210
Scrap	1,950	1,950	1,950	1,950	1,950
Average price	1,730	1,950	2,020	2,040	2,040
Revenues from Sale of SWOs (\$'000)					
Parts SWOs	30,167	30,167	30,167	30,167	30,167
Parts former RWOs	0	39,780	99,450	125,970	132,600
Scrap	6,143	29,543	64,643	80,243	84,143
Total revenues	36,309	99,489	194,259	236,379	246,909
Revenues relative to the base case (\$'000)					
SWOs		63,180	157,950	200,070	210,600
RWOs + SWOs		-16,488	-41,220	-52,212	-54,960

As revenues decrease from the sale of damaged vehicles, auction houses will suffer a loss of profits that are a cost of the options. These profits are estimated from the reductions in sales and revenues; specific details of the calculations cannot be provided for confidentiality reasons. The estimated losses of profits by option are shown in Table 10.

Table 10: Reduced Profit to Auction Houses by Option (\$'000), relative to the base case

Options				
	1	2	3	4
	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Reduced profit	-247	-618	-783	-824

It is also possible that the level of activity and hence profits or benefits of repairers and recyclers will be affected by the options. The proposal (Option 1) is associated with a reduction of 30 per cent in the number of damaged vehicles available for repair (RWOs) and a consequent increase in the number of damaged vehicles available for recycling of parts (SWOs). The position may improve for recyclers who currently purchase 60 per cent of RWOs and may decline for repairers (both Main Street Repairers and Enthusiasts). The relative effects can be expected to magnify for each of the 3 other options in turn as the reduction in RWOs increases and consequently there are fewer RWOs for repair. As there is no effect overall on the availability of written-off vehicles, there will arguably be little effect on profits/benefits overall. There is insufficient information to make estimates of the relative effects on repairers and recyclers in each of the options.

5.5 Administration costs

There are three administrative costs that have the potential to change if any of the options proceed. The derivation of these costs is discussed in Appendix A.7. The three costs are as follows:

- 1 The costs of the inspections of RWOs presented for re-registration will vary with the number of vehicles presented for inspection. The estimated marginal cost per inspection is \$235.
- 2 Insurance administration costs will vary because there are different numbers of stolen unrecovered vehicles by option. The estimated marginal cost is \$270 per unrecovered stolen vehicle.

Police investigation costs will vary because of changes in the number of RWOs presented for re-registration, about 2 per cent of which require identity checks of some form, and in the number of stolen vehicles. There are insufficient data to make estimates of Police investigation costs. It is expected that there will be no reduction in costs *per se* but that the extra time available will be directed to further investigations of suspicious vehicles.

Table 11 shows costs and savings in costs. The savings are relatively small compared to the savings from reducing the number of stolen vehicles and the loss of salvage value estimated above.

Table 11: Inspection and Insurance Administration Costs

Options		1	2	3	4
	Base Case	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Re-registered RWOs	40,000	28,000	10,000	2,000	0
	Vehicle inspection costs (\$'000)				
	9,400	6,580	2,350	470	0
Relative to base case		-2,820	-7,050	-8,930	-9,400
Stolen vehicles	3,630	2,540	900	180	0
	Insurance administration costs (\$'000)				
	980	686	243	49	0
Relative to base case		-294	-737	-932	-980
	Police investigation costs				
	ne	ne	ne	ne	ne
Relative to base case		ne(-)	ne(-)	ne(-)	ne(-)

5.6 Vehicle safety

The improvement to the damage criteria (for assessing whether written-off vehicles can be repaired or not) is expected to prevent vehicles from being repaired if it is unsafe to do so and to improve the safety of the vehicles that are repaired. This view was supported by the consultations and the technical work undertaken as part of the process of the development of the criteria (see Section 6).

There is insufficient information to estimate the safety benefits. Options 1 and 4 may have higher safety benefits than Options 2 and 3: the proposed damage criteria (Option 1) have a safety focus and no vehicles can be repaired in Option 4 (although not on safety grounds alone). The restricted availability of RWOs for repair on the basis of age (Option 2) and vehicle value (Option 3) do not

have a safety focus but there would be fewer vehicles available for repair so safety could be expected to improve.

Where RWO availability is restricted on other than safety grounds (Options 2, 3 and 4), there may be some costs to repairers as they can no longer access any or as many vehicles that could legitimately be repaired without adverse safety effects. No quantification was possible.

5.7 Cost-benefit analysis results

5.7.1 Overall results

All the costs and benefits, including those that could not be quantified, are shown in Table 12. Taking account of only the measured costs and benefits, Option 4 has the highest net benefit of just over \$32 million. Even if all costs and benefits could be estimated, it is unlikely that that would change. The benefits of fewer Police investigations are not quantified and they can be expected to be higher for options with higher restrictions on the availability of RWOs for repair (ie the benefit would be the highest for Option 4 and lowest for Option 1). In addition, safety benefits are not quantified; they are likely to be higher for Options 1 and 4 than Options 2 and 3.

The results show that the net benefit increases in inverse proportion to the number of RWOs removed from sale at public auction:

- Option 1 (changes to damage criteria) means that RWOs reduce by 30 per cent and has the lowest net benefit of \$9.6 million.
- Option 2 (age less than or equal to 5 years) means that RWOs will reduce by 75 per cent and has a net benefit of \$24.2 million.
- Option 3 (value greater than the luxury car tax value of \$57,466) could reduce RWOs by 95 per cent and has a net benefit of \$30.4 million.

Option 4, which would involve eliminating the re-registration of RWOs has a net benefit of \$32 million.

Table 12: Benefits and Costs by Option, relative to the base case (\$'000)

Options	1	2	3	4
	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Benefits from reduction in stolen vehicles				
Insurers	13,745	34,425	43,505	45,774
Owners	9,505	23,806	30,084	31,654
Costs from reduction in salvage values				
RWOs	-79,668	-199,170	-252,282	-265,560
SWOs	63,180	157,950	200,070	210,600
Costs from reduced profits made by auction houses				
	-247	-618	-783	-824
Benefits from reduced administration costs				
Inspections	2,820	7,050	8,930	9,400
Insurers	294	737	932	980
Police	ne (+)	ne (+)	ne (+)	ne (+)
Benefits from improved safety due to fewer RWOs for repair				
	ne (+)	ne (+)	ne (+)	ne (+)
Net Benefit	9,629	24,180	30,455	32,024

5.7.2 Sensitivity tests

Some tests were undertaken to vary assumptions and observe the effects on the economic analysis results (see Table 13). Firstly, the number of written-off vehicles was reduced by 10 per cent. There has been some variability in written-off vehicles numbers over time due to the effects of severe weather events so selection of a representative year is subject to some uncertainty (see Section A.1 in Appendix A). The net benefit reduces by about 10 per cent in all options.

Secondly, the relationship between stolen vehicles and re-registered RWOs was varied. In the main results, half of the rate of stolen unrecovered vehicles per re-registered vehicle is used to estimate the reduction in stolen vehicles. In the sensitivity test, two thirds of the rate is used, resulting in an estimate of 4,860 stolen vehicles in the base case rather than 3,630. The reasons for using an increase in the test are that suspect vehicle numbers significantly exceed stolen vehicle numbers and the rate is about half that used in the 2008 review report (see Section 5.3.1 and Table 6). There is no change in the relativity between options and net benefits increase by about 80 per cent in all options.

Thirdly, the prices of RWOs in the options (not the base case) were reduced by 10 per cent. It was argued in Section 5.4 that no change in auction prices was likely and in any event no data are available to make an estimate. The selected reduction represents a moderate reduction to enable the sensitivity of no change in price to be assessed. The net benefits of all options reduce, in proportion to the number of RWOs, as one would expect. The proposal (Option 1) has the largest number of RWOs and smallest number of SWOs, consequently it has the poorest performance in this sensitivity test. As noted in Section 5.4, it is most unlikely that the price of RWOs would reduce to any great extent because 60 per cent of RWOs are already sold only for parts.

Finally, the net benefit was re-estimated with the 3 variations that were tested in isolation. The negative benefit of Option 1 remains but is smaller, after taking into account the positive effects of an increase in the rate of stolen unrecovered vehicles per re-registered vehicle. The net benefits of all other options increase relative to the main results and remain positive.

Table 13: Net Benefits of Sensitivity Tests (\$'000)

Options	1 Damage Criteria	2 Age ≤ 5 years	3 Value > \$57,466	4 Eliminate RWOs
Main results	9,629	24,180	30,455	32,024
Reduce written-off vehicles by 10%	8,644	21,827	27,517	28,886
Two thirds of the rate of stolen vehicle per re-registered vehicle	17,405	44,052	55,727	58,592
Reduce price of RWOs by 10%	-13,277	7,347	16,321	18,565
All of above	-4,627	24,605	37,477	40,749

5.7.3 Effect on insurers

The effect on insurers of the options is shown in Table 14 in terms of the components that comprise the measured net benefit. In all options, the net benefit is negative because the benefits of the reduction in stolen vehicles are less than the costs of the reduction in salvage values in absolute terms. Option 1 has the best result, albeit negative. This is a different result to the 2008 review report because the number of written-off vehicles has increased at a greater rate than the number of unrecovered stolen vehicles. As noted in Section 5.3.1, it is unknown whether recent severe weather events are likely to become a permanent feature in the future.

Table 14: Benefits and Costs to Insurers (\$'000)

Options	1 Damage Criteria	2 Age ≤ 5 years	3 Value > \$57,466	4 Eliminate RWOs
Benefits from the reduction in stolen vehicles	13,745	34,425	43,505	45,774
Costs from reduction in salvage values	-16,488	-41,220	-52,212	-54,960
Reduction in administration costs	294	737	932	980
Net Benefit	-2,449	-6,058	-7,776	-8,206

5.7.4 Small business

The regulatory assessment guidelines for national standards require that particular attention be given to the likely impacts on small business, especially where regulatory compliance costs could have a disproportionate impact on small business. There is no information on the size of business involved in recycling parts from damaged vehicles and repairing RWOs. It is known that there are up to about 1,000 businesses involved, from the very small and basic to the very large and sophisticated.

The proposal (Option 1) is estimated to see a reduction of 30 per cent in the number of damaged vehicles available for repair (RWOs) and a consequent increase in the number of damaged vehicles available for recycling of parts (SWOs). The position may improve for recyclers who currently purchase 60 per cent of RWOs and may decline for repairers. No or very small changes in the average prices of damaged vehicles are expected. We therefore conclude that overall small business is unlikely to be affected to any great extent. The proposal is likely to have less disruption to small business than the other options because there are smaller changes to the classification of written-off vehicles.

6. Consultation

Extensive consultation processes have occurred in the development of the proposal to introduce a new set of damage criteria for the assessment of written-off vehicles, including:

- during the preparation of the 2008 review report;
- following release of that preliminary report;
- at a Workshop in June 2009 to discuss the Management of Repairable Write-offs; and
- during development of the new damage criteria.

A comprehensive account of the consultations and the issues raised is contained in Appendix B.

7. Evaluation

Proposal

The proposal is to introduce a new set of damage criteria for the assessment of written-off vehicles. The proposed new criteria were developed by technical experts in consultation with a select number of industry players. They have been subject to field trials and wide consultation, and are supported by State and Territory road authorities, who will be required to implement them.

The premise which underpins the revised damage criteria is that the SWO/RWO classification decision requires greater application of engineering principles to ensure that vehicles which should not be repaired on safety grounds are appropriately identified and classified as only suitable for parts or as scrap.

The current criteria were found to be too simple when applied to the most modern vehicles and result in severely damaged vehicles being categorised as RWOs, when it should be obvious to a trained expert that the vehicle is suited only for dismantling. The new approach uses clearer

indicators of structural load which are more aligned with modern vehicle design and fabrication technologies.

Objective

The proposal is in line with one of the NMVTRC's key reform themes, which is to disrupt vehicle laundering markets, and the objective of further limiting opportunities for profit-motivated vehicle thieves to launder stolen vehicles and parts via the RWO repair and registration process. It meets this objective by reducing the number of damaged vehicles available for repair and consequently reducing the ability of profit-motivated thieves to manipulate the RWO process undetected. The proposal is also expected to improve safety because of the safety focus of the damage criteria and to minimise disruption to the businesses of repairers and recyclers by restricting repair of written-off vehicles purely on safety grounds.

The other options assessed also meet the prime objective, perhaps to a greater extent because they potentially remove more damaged vehicles. New South Wales has already adopted Option 4 by preventing any damaged vehicles from being repaired. The NMVTRC decided to pursue an option with a lower level reduction in RWOs as a result of feedback from interested parties and the safety benefits of the revised set of damaged vehicle criteria.

Alternatives

A large range of alternatives was initially considered (see Section 4). After initial review it was found that many were not feasible, ie those that affect the administration of the existing scheme and those that affect the management of recycled parts.

Costs and benefits

The costs and benefits of the proposal and 3 alternatives to the proposal are assessed. Although not all items could be quantified, the most likely outcome is that the net benefits increase with the number of damaged vehicles removed from the RWO process. On this basis, Option 4 (eliminate RWOs) has the highest net benefits and the proposal (Option 1) the lowest. The unquantified benefit of reducing Police administration costs is likely to be relatively small and there is insufficient data to make any assessment of the benefit of improving the safety of RWOs that are repaired.

The sensitivity tests show that the overall results are very sensitive to the number of stolen unrecovered vehicles that are used fraudulently and to the price of damaged vehicles that can be repaired. The former is based on very conservative estimates and the available evidence suggests that auction prices are unlikely to decrease because 60 per cent of RWOs are not repaired currently (but sold for parts).

The economic results improve as the number of damaged vehicles classified as repairable decreases so that Option 4, where no vehicles are able to be repaired, has the highest net benefits. This is the approach that NSW has adopted. Insurance companies are estimated to incur losses from all the options and those losses increase in the same manner, ie Option 1 will be the best outcome for insurance companies.

Consultations

There was an extensive process to develop options that were acceptable to industry participants. The comments on the 2008 review report strongly opposed options with higher numbers of the damaged vehicles classified as not repairable (Option 2, 3 and 4). These 'higher order interventions' were opposed by the majority of stakeholders on the basis that they would result in disproportionate consequences or impacts on legitimate business or consumer transactions. The proposal is seen as a pragmatic means of achieving the original objective of decreasing the availability of vehicles that may be used in a fraudulent manner (and improve the safety of repaired vehicles) without imposing a disproportionate disruption to legitimate activity. As the work progressed on defining the new set of damaged vehicle criteria (Option 1), support for this option as a way forward increased to the extent that it now has wide industry acceptance.

Conclusion

Overall it is considered that the proposal provides a reasonable balance of some conflicting factors. In addition, there is wide support for the proposal as means to curb fraudulent activity, to improve safety and to minimise disruption to damaged vehicle repair and parts businesses.

8. Review

The management of the written-off vehicles is primarily the responsibility of State and Territory road authorities. However, the system also places important obligations on the insurance industry (or vehicle owners where vehicles are not insured) and other industry sectors.

The States and Territories will be required to amend legislation for the revised set of damage criteria to be applied. It is expected that that will take at least until late 2012 for all jurisdictions (Shanks 2010). The NMVTRC has offered funding assistance to shorten the lead time for implementation and this is likely to be accepted by four road authorities.

It is expected that review of the criteria will commence from the time that they are introduced to ensure that they are having the desired effects, although no specific review time has been established at this stage. Sunset clauses, if any, will be determined by requirements in each State and Territory.

The NMVTRC has indicated it would be pleased to assist with any subsequent review, subject to its term being extended beyond its own current sunset of mid-2012.

References

Delta V Experts (DVE) (2010) *Review of Written-off Vehicle Damage Assessment Criteria* Technical Working Paper prepared for the NMVTRC, May.

Gribble A (2010) *Audit of Written-off Vehicles Sold at Auction* Prepared for the NMVTRC, March.

NMVTRC (2009) *Management of Repairable Write-offs* National Workshop Outcomes, July.

NMVTRC (2010a) *Review of Written-off Vehicle Damage Assessment Criteria* Results of In-field Trials NMVTRC, August.

NMVTRC (2010b) *New Damage Assessment Criteria for the Classification of Statutory Write-offs* Final Criteria Proposed by NMVTRC, September.

NMVTRC (2010c) *Strategic Plan 2010* NMVTRC.

Shanks (Geoff Shanks Consulting Pty Ltd) (2010) *Development of Implementation Plans for New Damage Assessment Criteria for the Classification of Statutory Write-offs* Report prepared for the NMVTRC, December.

Starrs, MM Pty Ltd (2008a) *Review of the Management of Written-off Vehicles* Preliminary Report prepared for the NMVTRC, October.

Starrs, MM Pty Ltd (2008b) *Benefits of Theft Reform 3rd Review of the National Motor Vehicle Theft Reduction Council* Prepared for the NMVTRC, November.

Appendix A: Data used to estimate costs and benefits

A.1 Number of written-off vehicles

The number of written-off vehicles since 2005 is shown in Table A.1. In each year, the number of written-off vehicles has increased, and the share of repairable vehicles (RWOs) has increased. The figures in some years are affected by discrete, severe weather events. We have therefore used figures that are more representative of an average year as the base for the analysis, as shown in the last row of the table.

The average of 75,994 RWOs over the 6 years from 2005 to 2010 is clearly not representative of the number of written-off vehicles in the recent past and a higher figure is therefore required for use in the analysis. As earlier years are excluded from the calculation of the average, the average figure increases by between 7 and 11 per cent per year, ending with 107,063 as the average of the 2 most recent years. We consider that more weight should be given to more recent figures. A similar rationale applies to the figures for SWOs, although the increases in the figures over time is not as great.

Table A.1: Written-off vehicles by Year and Status, 2005 to 2010

Year	RWOs	SWOs	Total Written-off Vehicles	RWOs (per cent)
2005	49,159	15,906	65,065	76
2006	54,130	17,857	71,987	75
2007	64,144	18,659	82,803	77
2008	74,407	20,044	94,451	79
2009	76,112	21,698	97,810	78
2010	138,014	21,594	159,608	86
Total	455,966	115,758	571,724	80
Average/year	75,994	19,293	95,287	80
Use in analysis	100,000	21,000	121,000	83

Source: NEVDIS, excludes NSW.

A.2 What happens to written-off vehicles

There are 5 broad types of buyers of written-off vehicles at damaged vehicle auctions collapsed to 3 for the analysis as discussed in Section 5.3. Estimates of the share of vehicles purchased by buyer type are shown in Table 4 in the main report, and the derivation of and rationale for the estimates are discussed below.

A.3 Main street recyclers

Recyclers of parts purchase both SWOs and RWOs, with the price they pay dependent on the vehicle type, the usable parts on the vehicle and the demand for these specific parts. The vehicle classification does not enter the decision on whether to purchase a written-off vehicle so any change in classification is not expected to affect the demand for vehicles by parts recyclers. The availability of usable parts is affected by the amount of damage not the classification of a vehicle, although a vehicle with more damage is likely to have fewer usable parts.

Parts recyclers are major purchasers of written-off vehicles. NEVDIS¹⁹ indicates that 60 per cent of RWOs are not re-registered; it is assumed that all these RWOs are purchased by recyclers and dismantled for parts. This assumption is supported by industry comment concerning who buys vehicles at auction, although it is likely to result in a small overestimate: some vehicles may be used for purposes that do not require registration, eg use on private property, for export, parts for personal use. Industry advice is that about 85 per cent of SWO sales are to persons associated with motor vehicle trades. The remaining 15 per cent of SWOs may be used for scrap or export.

A.2.2 Main street repairers

Repairers of vehicles can only usefully purchase RWOs because SWOs cannot be repaired and re-registered, although they may be harvested for parts. These repairers consider that they can pay for a written-off vehicle, repair it and on sell it at a profit (the profit may not include labour costs if apprentices undertake the repairs when there is insufficient paid work); in the case of enthusiasts, the repaired vehicle would be for personal use. It is expected that the number of RWOs in this category will be quite low because insurance companies have already made a decision that it is not economic to repair the vehicle. Insurance companies generally make that decision when the costs of repair exceed 75-80 per cent of the pre-accident value of a vehicle, although there is some variation depending on customer factors, vehicle value and the price expected to be received at auction. Insurance companies reported that a small (unspecified) number of vehicles that it would be economic to repair are written off to meet requirements in insurance policies and/or customer reasons; adverse weather effects are a significant cause of damage to such vehicles.

The purchase of RWOs by licensed dealers for repair varies depending on whether there is spare capacity in the repair industry. The consultations associated with the 2008 review report indicated that there are capacity constraints in NSW and WA while there is spare capacity in Victoria and SA. In the case of SA, the use of apprentices to repair vehicles at times of low demand was specifically mentioned as a common practice and the registration authority estimates that 40 per cent of repaired RWOs are presented by crash repairers. In Queensland the estimate is 50 per cent. By contrast, authorities in NSW and Victoria implied that few vehicles were presented by Main Street Repairers, although no numbers were supplied. SA also reported that 5 per cent of vehicles are presented by enthusiasts/hobby repairers.

It is estimated that 16 per cent of RWOs are repaired by Main Street Repairers or 40 per cent of vehicles available for repair after deducting vehicles purchased by recyclers. This proportion may appear low but reflects the fact that, by volume, 50 per cent of those RWOs that are re-registered occur in Victoria and WA²⁰. A higher proportion may occur in years when there are adverse weather events because of the quality of the vehicles, ie the damage level is lower.

A.2.3 Other operators

Other Operators purchase RWOs for repair with stolen parts and/or sub-standard repair methods; they would include criminals and those commonly termed backyarders. In total they are estimated to account for 24 per cent of RWOs or 60 per cent of vehicles available for repair after deducting vehicles purchased by Main Street Recyclers. (These figures are the residuals after taking into account Main Street Recyclers and Repairers.)

The consultations did not provide information to be certain about the relative importance of different types of buyers covered by Other Operators. The comment/data were that of the RWOs presented for inspection/registration:

¹⁹ NEVDIS is the acronym for the National Exchange of Vehicle and Driver Information System that links state and territory databases.

²⁰ About 25 per cent of RWOs are currently re-registered in jurisdictions other than the one in which they were placed on the WOV.

- the majority are presented by unlicensed dealers in Victoria and 50 per cent in Queensland and SA. The use of the term ‘unlicensed’ in respect to repairers of vehicles, traders of vehicles or sellers of vehicles can be misleading because licensing requirements vary considerably across jurisdictions and even then may only apply to very specific types of activities. ‘Unlicensed’ and ‘licensed’ therefore mean different things to different people; and
- many are by “family groups”, ie the same surnames occur but different family members are recorded as the owners. SA provided an estimate of 45 per cent and Queensland 5 per cent. The use of extended family and associates as agents is a widely used technique to evade motor trader licensing requirements.

The assumptions underlying the estimates of the use of RWOs and SWOs are as follows:

- Option 1, the use of RWOs for parts by Main Street Recyclers is assumed to reduce in the same proportion as the reduction in available RWOs (30 per cent) and the remaining demand by recyclers is taken up from the increased number of SWOs. The remaining RWOs are assumed to be purchased by Main Street Repairers and Other Operators in the same proportion as the base case, ie 40 per cent by the former and 60 per cent by the latter.
- All other options use the same assumptions as Option 1, but the reduction in the available RWOs for sale at auction vary: 75 per cent for Option 2, 95 per cent for Option 3 and 100 per cent for Option 4.

The last part of Table 3 (in the main report) shows the estimated number of vehicles that would be re-registered in each option. The figures are the sum of the figures for RWOs sold to Main Street Repairers and Other Operators.

A.3 Suspect vehicles

It is difficult to quantify the volume of written-off vehicles rebuilt with stolen parts with any certainty because of the difficulties in identifying the provenance of parts used in the repair process. However, the best available Police intelligence suggests that the practice has links to all parts of Australia and other serious crime including drugs and firearms trafficking and terrorism.

Of the four authorities included in the 2008 consultations, three provided estimates of the number of suspicious vehicles. On the basis of relative numbers of RWOs presented for registration in each state, a figure of 30 per cent is applied, giving a current total of 12,000 vehicles with suspect parts or identities (see Table A.2).

The view was expressed several times in the consultations that there is no certainty that Main Street Repairers use legitimate parts more or less than other people who repair RWOs. Consequently, affected vehicle numbers are calculated by applying proportions to all repaired vehicles.

Table A.2: Estimate Number of Vehicles Suspected of being Repaired with Stolen Parts¹

Options	1	2	3	4	
	Base Case	Damage Criteria	Age ≤ 5 years	Value > \$57,466	Eliminate RWOs
Suspect vehicle share = 30 per cent					
Number	12,000	8,400	3,000	600	0

¹ Estimates exclude NSW.

A.4. Stolen unrecovered vehicles

Table A.3 shows that there have been decreases since 2000 in the number of stolen vehicles in all age groups. The decreases are greatest for those 0-5 years old and those 11-15 years. There

appears to be an increase in 2010 but some or all of that may be due to the timing of data provision²¹.

In making estimates of the potential number of unrecovered stolen vehicles used for repairing RWOs presented for re-registration, the following method is used:

- Age group shares based on the data in the table are combined with the 17,000 stolen unrecovered vehicles (which is based on the figures for all stolen vehicles in Table 1 in the main report), to make estimates of the stolen unrecovered vehicles by age group²². (Note that Table A.3 applies only to passenger and light commercial vehicles. It includes NSW because a national data set of RWOs presented for re-registration adjusted to exclude NSW is not available at this time.)
- Similarly, data on age group shares for RWOs presented for re-registration are used to estimate vehicles by age group. The source of these data is a resource of these data is NMVTRC analysis of the WOVOR.
- The rate of stolen unrecovered vehicles per re-registered RWO is then calculated by age group.

The estimates are contained in Table 5 in the main report.

Table A.3: Stolen Unrecovered Vehicles by Year and Age Group, passenger and light commercial vehicles, including NSW

Year	0-5 years	6-10 years	11-15 years	16+ years	Unknown	Total
2000	2,716	2,615	3,930	5,322	338	14,921
2001	2,984	2,656	3,788	5,490	289	15,207
2002	2,656	2,435	3,073	4,881	298	13,343
2003	2,091	2,418	2,721	4,910	284	12,424
2004	1,773	2,469	2,521	5,126	299	12,188
2005	1,585	2,394	2,467	5,485	218	12,149
2006	1,719	2,350	2,378	5,291	160	11,898
2007	1,679	2,211	2,417	5,586	158	12,051
2008	1,725	2,391	2,437	5,258	151	11,962
2009	1,614	2,178	2,200	4,381	138	10,511
2010	1,618	2,420	2,582	4,855	144	11,619
Total	22,160	26,537	30,514	56,585	2,477	138,273
Average	2,015	2,412	2,774	5,144	225	12,570
Share of Total						
Actual	16%	19%	22%	41%	2%	100%
Used in Analysis¹	15%	21%	22%	42%		100%

Allowance made for vehicles of unknown age and shares by age group in more recent years. Only the estimated age shares in the last row are used in the analysis (see Table 5).

²¹ Data were supplied before the end of January so not all recovered stolen vehicles are included.

²² The 17,000 is used in the analysis to represent an 'normal' year figure based on the most recent years of data.

Table A.4 shows the same data on stolen vehicles as Table 1 in the main report but excludes New South Wales. It is these figures that are used in preparing the estimated potential reductions in stolen unrecovered vehicles in the base case and for each of the options.

Table A.4: Stolen Vehicles by Year and Recovery Status, 2000 to 2010, excluding NSW

Year	Total Thefts	Recovered	Unrecovered	
			Number	Per cent
2000	84,630	72,622	12,008	14
2001	84,575	72,831	11,744	14
2002	69,256	58,451	10,805	16
2003	60,751	50,072	10,679	18
2004	52,268	42,045	10,223	20
2005	49,547	39,751	9,796	20
2006	46,009	36,136	9,873	21
2007	42,961	33,228	9,733	23
2008	41,879	31,398	10,481	25
2009	37,884	28,938	8,946	24
2010	35,518	25,704	9,814	28
Total	605,278	491,176	114,102	19
Average	55,025	44,652	10,373	19
Used in analysis	35,000	25,000	10,000	29

In 2010, unrecovered vehicles are likely to reduce (and recovered vehicles increase by the same number) as the statistics were compiled before the end of January 2011.

A.5 Cost per stolen vehicle

The unit cost (or value) of a stolen unrecovered vehicle comprises costs for vehicle loss and damage, personal costs and injury costs. A detailed description of the method for estimating the costs is contained in the study of benefits of reducing stolen vehicles undertaken for the 2008 review of the NMVTRC (Starrs 2008b). The costs were re-estimated for the 2008 review report for vehicles of age 15 years or less and are increased by 5.5 per cent for this analysis (in line with the CPI increase).

The estimated unit cost per stolen unrecovered vehicle is \$21,330 (see Table A.5), of which about 60 per cent is the net claims costs paid by the insurer for vehicle loss. The costs to vehicle owners for vehicle loss comprise the excess for insured vehicles and the cost of the vehicle loss for uninsured vehicles; the CARS analysis shows that 26 per cent of unrecovered stolen vehicles are not insured. Personal costs comprise extra time spent consequent upon the theft, direct costs (eg alternative transport), and loss of quality of life as a result of the experience of being subject to motor vehicle theft.

Table A.5: Unit Cost per Unrecovered Stolen Vehicle (\$), 2011

Cost Component	Insurer	Vehicle Owner	Total
Vehicle loss	12,610	3,850	16,460
Personal costs	na	4,870	4,870
Total cost	12,610	8,720	21,330

A.6 Prices of damaged vehicles

Current prices of damaged vehicles at auction are lower for SWOs than RWOs. Concerns were raised in the consultations that reducing the number of written-off vehicles that can be repaired would lead to a reduction in the average price and returns to insurance companies and auction houses. In this section, variations in prices are discussed based on the consultations and two data sets that were made available for analysis.

Perhaps the best guide to the likely change in salvage prices is what happened when the WOVV was introduced. There are no historical data that cover the whole period over which the WOVV was implemented in all jurisdictions, and personnel changes mean that few people were prepared to make any comment or assessment in the consultations. The data that were provided was on a confidential basis so it cannot be reported in specific detail. Some of the data provided are at an aggregate level so it is not possible to conclude with absolute certainty that differences in salvage prices are due to the classification of written-off vehicles *per se*.

The general view expressed during the consultations (where a view was expressed at all) was that the introduction of the WOVV had reduced the price of written-off vehicles sold at auction, although in several cases it was said the reduction was short-lived. In one case, the decrease was attributed to the fact that the identity of SWOs no longer had any value. It is reasonable to expect that the introduction of the WOVV would lead to:

- an increase in the number of SWOs and a decrease in their price; and
- a decrease in the number of RWOs and an increase in their price²³.

The available data for analysis of the effect of the introduction of the WOVV in each jurisdiction do not show this pattern consistently and, where price changes in the expected direction did occur, they were relatively small²⁴. This suggests that using the average difference between the prices of RWOs and SWOs at auction is not likely to be a good guide to what may happen to prices if more written-off vehicles were not available to be repaired.

The assumption is therefore made that there will be no changes in the prices obtained at auction of written-off vehicles in any of the options. Table 8 and Table 9 in the main report contain the price and revenue estimates for RWOs and SWOs respectively. The estimated salvage prices assume that:

- Main Street Recyclers and Repairers (except enthusiast repairers) purchase RWOs at dealer prices (\$2,210 per vehicle) and enthusiast repairers and Other Operators purchase them at private buyer prices (\$3,900 per vehicle). As Main Street Repairers and enthusiasts are included in the same buyer group, the average price paid for RWOs is \$2,460;
- Main Street Recyclers continue to buy the existing number of SWOs at the current dealer price for SWOs (\$1,690 per vehicle) and extra SWOs (after reclassification from RWOs) are purchased at the current dealer price for RWOs (\$2,210 per vehicle); and
- SWOs sold for scrap or other purposes are purchased at the current private buyer price for SWOs (\$1,950 per vehicle).

A.7 Administration costs

Firstly, the costs of inspections of RWOs presented for re-registration will vary as the number of vehicles presented for inspection will vary in some of the options. Fees for inspections charged to people presenting RWOs for re-registration are in the order of \$470 per vehicle based on information from Victoria, Queensland and SA. As fees are generally set on a cost recovery basis, it is assumed that inspection fees can be used to approximate the costs of inspections. It is unlikely that costs will be reduced in line with the average cost (represented by the full cost

²³ Strictly one would not expect any SWOs and RWOs prior to the introduction of the WOVV. The data show that there were, which are presumably vehicles placed on the WOVV in another jurisdiction.

²⁴ As the WOVV was introduced on different dates, the effects could have been dampened by the movement of vehicles to jurisdictions that had not yet introduced the WOVV.

recovery fee) due to economies of scale and the fact that inspections of RWOs are not the only inspections that are undertaken by authorities. This is particularly the case for the options that affect fewer numbers of RWOs. There is insufficient information to be precise about the effect on costs. The assumption is made that costs per inspection will reduce by half the average cost, ie \$235²⁵. Fees charged for inspections are not directly used in the analysis.

Secondly, insurance administration costs will vary because there are different numbers of stolen unrecovered vehicles by option. The cost of assessing stolen vehicle claims is based on costs provided by 2 large insurers. Similar to inspection costs, the cost reduction on the insurance administration cost per stolen unrecovered vehicle is likely to be much lower than the average cost per claim. In addition, about a quarter of vehicles are not insured. Taking both these factors into account, the cost reduction is estimated to be \$270 per stolen vehicle.

Thirdly, Police investigation costs will vary because of changes in the number of RWOs presented for re-registration, about 2 per cent of which require identity checks of some form, and in the number of stolen vehicles. There are insufficient data to make estimates of the costs of Police investigation costs. It is expected that there will be no reduction in costs.

The costs are shown in Table 11 in the main report.

²⁵ The term cost refers to resource cost or total inputs into the production or delivery of related inspection services.

Appendix B: Consultations

B.1 2008 review report

The consultations were designed to assist the preparation of an analysis of wide-ranging options for improving the management of written-off vehicles. A Specialist Reviewer, Mr David Hurford who has extensive insurance and related experience, was engaged by the NMVTRC to assist in securing industry data and identifying people who should be involved in consultations. He also participated in consultations and reviewed analytical work, especially option development and underlying assumptions/interpretations.

Consultations were structured generally to seek views/estimates of criminal activity, effects of that activity (or the elimination of it) on the agency/business, and availability of data for analysis. In some cases, specific questions were aimed at determining the effect of the introduction of the Written-off Vehicles Register (WOVR) on the demand for damaged vehicles, salvage prices at auction and administration/business procedures. Consultations were undertaken with representatives of:

- three insurance companies, Insurance Australia Group (IAG), Suncorp/GIO and RACT;
- two damaged vehicle auction houses, Pickles Auctions and ManheimFowles;
- four registration/inspection authorities, NSW Roads and Traffic Authority, VicRoads, Queensland Transport and the SA Department of Transport, Energy and Infrastructure;
- motor vehicle theft investigators from three Police forces, New South Wales, Victoria and Queensland;
- a major parts recycler in Victoria, Imlachs; and
- the Victorian Automobile Chamber of Commerce (VACC), which represents various participants in the industry including vehicle repairers and dealers.

The supply of data for analysis from insurers, auctions houses, transport agencies and related motor trades affected parties was not as comprehensive as hoped. Indeed, in a limited number of cases there was a lack of support for the review occurring at all due to perceptions about the potential effects on the business of disposing of damaged vehicles. This meant that some effects and data had to be estimated from alternative sources and/or assumptions made on the basis of information from consultations with industry participants.

B.2 Comments on the 2008 review report

These disparate views were also evident in formal comments on the 2008 review report. The NMVTRC summarised the 20 submissions received, which were received from:

- three insurers;
- two users of damaged vehicles and/or their parts;
- five representative associations (eg insurance, motor trades);
- two motor vehicle auction houses;
- four registration authorities;
- three Police agencies; and
- one vehicle inspector.

Most submissions did not support any of the options in the 2008 review report. Of the 7 submissions that did support a specific option, the most commonly mentioned was the elimination of RWOs, ie classifying all written-off vehicles as SWOs. It was police agencies and recyclers/vehicle dismantlers that provided the support. The police view was supported by evidence (provided in camera) of investigations that showed involvement of non-industry persons (criminals) in the use of stolen vehicles/parts to re-build written-off vehicles, the fabrication of receipts, and payment of secret commissions for false receipts.

Apart from that evidence provided by police and also by one registration authority regarding the involvement of non-industry persons in registering re-built vehicles, there was little other evidence provided in submissions (although that had been specifically requested). There was however

considerable criticism of the data used in the analysis. In particular, two submissions claimed that revenues from the sale of damaged vehicles was in the order of \$300 to \$350 million pa while the (reasonably reliable) data and analysis available to the review suggested a figure at least 40 per cent lower.

Three submissions commented on whether any of the options would affect criminal involvement in stealing vehicles, and two of them thought that none of the options would have any effect. As noted above, it is difficult to achieve lasting reductions in professional theft (unrecovered vehicles) as alternative methods can often be found by criminals who see their livelihood affected. This is not necessarily a reason for doing nothing, and especially when the benefits exceed the costs, even if only for a short period.

B.3 Workshop on the management of repairable write-offs

To re-engage stakeholders in a broad examination of the issues, the NMVTRC hosted a national workshop in conjunction with Austroads²⁶ to discuss the prevailing controls for managing written-off vehicles. It was attended by more than 80 representatives of insurers, law enforcement agencies, registration authorities, vehicle manufacturers, auto parts recyclers and other motor trades, and offices of fair trading.

The workshop consisted of presentations by invited speakers and syndicate group activities on specific topics. The next steps suggested by the workshop participants are summarised in Box 1. Of specific relevance to this RIS is the action to review the damaged vehicle criteria for SWOs.

Box 1: Next Steps Suggested by the Workshop on the Management of Repairable Write-offs

1. WOVR Review	Formal review of SWO standards and criteria and of RWO categories. Establishment of a working group with stakeholder representation was suggested, with distribution of a draft paper to a larger group for comment. Outcomes sought include redefined SWO criteria, where structural damage is key, and contemporary RWO categories and written off reasons.
2. Theft and re-birthing	NMVTRC to work with police, roads authorities and fair trading to analyse who is buying RWOs (names, groups) and analyse unlicensed trading. Data access will need to be organised. Investigate mandatory use of microdots for new vehicles and new vehicle parts.
3. Information systems	Review requirements for improvements to NEVDIS and increased links with REVS/PPSR systems. Improve data and facilitate access to vehicle information.
4. Whole-of-life data capture	Develop a national generic vehicle lifecycle process and consider a national system to capture all-of-life vehicle data.
5. Repairer licensing and inspection	Repairer / wrecker licensing to a national standard. Review inspection processes. Liaison with I-CAR for the education and training of repairers.
6. Public education	Consider providing expanded and more advertised access to WOVR information.

Source: NMVTRC (2009)

²⁶ Austroads is the national association of road authorities, relevant in this case as they are the transport regulatory authorities that register and inspect vehicles.

The presentation by the NSW Police was useful in confirming the links between written-off vehicles and stolen vehicles and the types of activities that are occurring. To quote the workshop report (NMVTRC 2009, p5-6):

Investigations since 2004 have increasingly revealed a significant change in the modus operandi of choice of profit-motivated thieves from VIN-swapping to rebuilding RWOs with stolen parts'

The NSW Police presentation also indicated that:

- rebuilt wrecks may be the composite of up to three stolen vehicles, with the final vehicle often 'transformed' into a premium or luxury variant built over a base model;
- the production and use of false and manipulated receipts was rife;
- paper receipts present all of the same problems (plus a few more) of relying on paper documents for evidence of personal identity, which has been rejected by authorities on security grounds;
- syndicates currently under investigation had clear links to:
 - multiple jurisdictions-which were both the point of origin and destination of/for parts and rebuilt vehicles; and
 - other serious crime including drug and weapons trafficking, standover tactics, extortion, fire bombings, identity fraud, money laundering, unlicensed motor vehicle trading, Centrelink fraud, tax evasion and even terrorism.

The difficulty of relying on paper receipts was supported in the presentation of the WA Department of Transport presentation.

The safety hazard posed by rebuilt RWOs was raised as a concern in four of the presentations. These problems may be identified at the time of inspection prior to re-registration. Some cannot be corrected because the vehicle has structural damage that cannot be safely repaired, even though the damage criteria allow that to occur. The presentation from an insurance company noted that while substandard repairs are widespread their contribution to real safety risks was less clear cut (NMVTRC 2009, p7). This presentation also pointed out that the sale of written-off vehicles provides substantial income to offset claims costs and consequently the cost of insurance premiums.

B.4 Development of the new damage criteria

Following the workshop, the NMVTRC engaged forensic vehicle engineers, Delta V Experts (DVE), to:

review the national assessment criteria for the classification of WOVs (written-off vehicles) taking account of the significant changes in vehicle design, construction and repair techniques since the original criteria were set, to ensure that vehicles which should not be repaired on safety grounds are classified appropriately.

DVE was assisted by an Expert Reference Group (ERG) of affected parties established especially for this purpose by the NMVTRC. The ERG comprised 21 representatives drawn nationally from a cross-section of transport agencies, police, insurers, and the motor trades. Discussions were also held with a range of other selected organisations with an interest in related issues. The initial draft DVE report recommended a 4 tier classification of written-off vehicles in place of the current 2 (SWOs and RWOs) and an increase in the number of criteria to use in assessing vehicles.

At the same time, the NMVTRC also commissioned an independent audit of a sample of more than 400 written-off vehicles sold at auction in Brisbane, Sydney, Melbourne and Perth to assess the consistency with which the current criteria were being applied (Gribble 2010). It was found that the classification system was generally operating to a high level and there was no evidence of the misclassification of vehicles either by design or the instruction of any party. Nevertheless, it was noted that the strict application of the current relatively simple damage criteria can result in severely damaged vehicles being categorised as RWOs when it should be obvious to a trained expert that the vehicles are not suitable to be repaired in a safe manner. It was recommended that

DVE develop a means of more consistently identifying and appropriately classifying those vehicles suited only for dismantling as a priority.

A draft report was released for comment in May 2010 (DVE 2010). During the comment period, the NMVTRC hosted a half-day information briefing for parties proposing to make a submission on the draft criteria. In general terms, the comments received indicated there is high degree of consensus about much of the proposed regime and a high level of consistency in comments on those elements which required clarification or re-working. After reviewing the comments, the NMVTRC was of the view that most issues could be addressed by a combination of refined criteria and the separate development of detailed photographic and/or illustrated technical guides to support consistent assessments in the field.

The ERG subsequently endorsed a modified set of criteria to be trialled in the field by a group of experienced assessors. The trial found that (NMVTRC 2010a):

- application of the alternative criteria could be expected to shift up to 30 per cent of vehicles currently classified as repairable into the statutory category;
- with only slight modification the trial criteria could effectively remove all classes of damage considered to pose a structural repair risk from the RWO category;
- the principle of separately counting like areas of unconnected damage in determining whether a vehicle has the three areas of damage required to render it a SWO did not have any undue or disproportionate impacts on the vehicle classification process; and
- the trial criteria were generally clear, unambiguous and therefore relatively simple to apply once familiar with them.

Some refinements to the final criteria were proposed to ensure their consistent application and they form the proposal now subject to regulatory impact analysis.