Explanation of 'Next-generation' LVVTA Technical Documents

Introduction:

This Information Sheet has been provided to explain the development of a major re-configuration of LVVTA's technical document system; principally the LVV Standards, the NZ Car Construction Manual (CCM) Chapters, and the Form-sets which apply to the LVV Standards and the CCM Chapters.

Background:

Before explaining the changes, it will be helpful to first outline how LVVTA's technical document system got to where it is now.

Initially - LVV Standards:

The LVV Standards have been progressively developed since the 1990s. This was the document methodology chosen back in the early days from which to provide all of the necessary technical requirements for low volume vehicles, and from which to provide the legal platform for the LVV certification inspection system. The LVV Standards could be developed one at a time, so the development of them was a 'bite-size' process. Regardless of what came next, or what came in addition to the LVV Standards (such as the NZHRA Code of Construction Manual and its successors), the LVV Standards provided a very good legal and technical starting point for the system we have now.

Then - COCM/HCTM/CCM:

While the LVV Standards have provided the legal platform and the necessary technical requirements, the big drawback for that regime is that the LVV Standards aren't user-friendly documents for our target audience; the modifiers and builders. The modifiers and builders are typically practical people who just want to know what the technical requirements are, and they want the requirements all in one place. Much of the content in the LVV Standards (scope, application, how a vehicle is assessed, which vehicles don't need to be certified etc) isn't necessary for the home or even commercial builder, because those decisions (as to whether or not the vehicle or the modifications need to be LVV certified) have already been made by the AVI, Entry Certifier, or LVV Certifier. The modifier/builder just wants the technical requirements, and to have them captured in a single document, and provided in as straight-forward a fashion as possible.

To meet exactly this need, the initial NZHRA Code of Construction Manual (COCM) was developed in 1990, and then some years later came the NZ Hobby Car Technical Manual (HCTM)/NZ Car Construction Manual (CCM), both of which incorporated more detailed requirements for the more complex modifications and scratch-built construction processes than that which is contained within the LVV Standards.

The difference in technical content between the LVV Standards and the COCM/HCTM/CCM is that the LVV Standards typically cover (for example) basic suspension modifications like a bolt-in adjustable platform suspension system, and then the LVV Standard refers a modifier or builder to the COCM/HCTM/CCM in cases where more detailed requirements are needed for a complex suspension modification such as a custom-built independent front suspension. The other difference is that the COCM/HCTM/CCM provides additional explanations, interpretations, helpful information, and more diagrams and tables than the LVV Standards.

Merging the LVV Standards requirements with the COCM/HTCM/CCM:

In order to streamline things for the modifiers and builders, the decision was made early on to also incorporate the more basic technical requirements (the requirements for a bolt-in adjustable platform suspension system, for example) which are contained within the LVV Standards, into the COCM/HCTM/CCM (let's just call it the CCM) documents, so that the modifiers and builders didn't have to be working with two sets of documents (the relevant Standard, and the CCM). Having to refer to the CCM, plus the LVV Standards, would be a big frustration for practical people, and it would be a big impediment to the smooth operation of the system.

The other thing this merging achieved, whilst still retaining the LVV Standards, is that it enabled us to leave out all of the legalese that confuses and frustrates practically-oriented people from the CCM, and allow the CCM to just focus on the technical requirements. This avoided 'cluttering' the CCM with all of the peripheral 'legalese' stuff that is captured in the LVV Standards, such as the scope, application, what has to be complied with, and identifying the vehicles and modifications which don't need to be LVV certified.

It has to be remembered that we can't capture all of the technical requirements from the LVV Standards within the CCM, and then dump the remaining peripheral legalese contained in the LVV Standards, because that peripheral legal stuff is the regulatory back-bone of the LVV certification process, and its existence is critical – even if it is seldom (if ever) looked at by the average user.

So, in short, the COCM/HCTM/CCM:

- gets rid of (from the perspective of the modifiers and builders) the unwanted and inconsequential legalese, which is confusing, distracting, and adds unnecessary content; and

- provides the more expanded high-level technical requirements for complex modifications and scratch-built vehicles; and

- in addition to providing the (legal) technical requirements, also provides helpful tips, hints, interpretations, best practice ideas, and diagrams, all of which provide great guidance to the modifiers and builders; and

- importantly, provides the modifiers and builders with everything they need in a single comprehensive and convenient document.

The downside of where we've got to:

So, we've ended up meeting our two needs ([1] maintaining the important legal framework, and [2] providing the users with just the technical stuff they want) by running the two documents (LVV Standards and CCM) in parallel. This has worked well over the years.

However, now with the continuing growth of the system, it's becoming very inefficient trying to manage the amendment and improvement process for two document systems in parallel, and there's a constant risk of conflict emerging between the documents as one is progressed ahead of the other.

In hindsight, the steps we took until now were entirely the right thing to do, and I don't think we could have done anything differently unless we had the advantage of seeing 20 years into the future. Possibly, even if we could have seen into the future, it might still have needed to evolve this way in order to maintain a manageable and ordered progression.

Time has come to resolve the shortcomings:

The time has come to streamline and simplify the system, and in particular reduce the volume of duplication that currently exists (between the LVV Standards and the CCM), and will continue exponentially into the future.

This duplication adds a lot of time to every amendment process, because the amendment to an LVV Standard requires the same amendment to the CCM, and in some cases (but not all), vice-versa. During 2020, LVVTA has been giving a lot of thought as to the best way to do it, and how best to future-proof the system. We engaged with the NZ Transport Agency to see if they supported our thinking, and they agree that this will represent a big step forward for the LVV system as everyone gets used to it.

The end result of this thinking and discussion is the 'Next-generation' Technical Document system, explained here.

The thinking behind the 'Next-generation' document system:

The CCM style of document is what the vast majority of users want and need, and this is what our focus should be on. The existence of the LVV Standards is critical (from a legal perspective, and for the reference of the LVV Certifiers), but few modifiers or builders now ever look at most of the LVV Standards.

Our thinking started by creating a separation between the purposes of the two documents into the future:

- The LVV Standards:

  For the future, the LVV Standards need to be stripped of technical detail down into a set of 'shell' documents, which should contain only the things that don't and won't change regularly. The LVV Standards should be nothing more than 'legal framework' documents, which contain:

  - the scope (specifying which vehicles must meet the LVV Standard); and
  - the application (how a vehicle is certified to the LVV Standard); and
  - which vehicles and modifications don't require certification to the LVV Standard; and
  - the General Safety Requirements from the relevant Land Transport Rule; and
  - broad technical content, that should be limited to just the over-riding technical principles with which a low volume vehicle must comply; and
  - then, (importantly) 'direction' as to where the user finds the relevant (detailed) technical requirements (which will be contained in the CCM); and
  - lastly, 'direction' to the information which explains those modifications, and those vehicles, which don't require LVV certification.

  What's left of the LVV Standard will hardly ever need amendment, and if it does, the amendment won't affect the content of the CCM.

- The CCM:

  The CCM needs to remain as it is, insofar that it is a purely technical document, free of the distractions contained in the LVV Standards. The CCM needs to continue to be designed in such a way that the

modifiers and builders won't need to look at the LVV Standard because everything they need or want is in the CCM. The relevant CCM Chapter should contain:

- the General Safety Requirements from the relevant Land Transport Rule (the only part which will appear in both the LVV Standard and the CCM Chapter); and
- all of the detailed technical requirements which are applicable to a vehicle which must be certified to the LVV Standard; and
- any other associated technical requirements (such as reference to any other inter-related CCM Chapters); and
- any associated information which might be helpful to the modifier or builder – such as references to any relevant LVVTA Information Sheets or LVVTA Newsletter items.

When we amend the CCM, there will be no need to amend the LVV Standard, because a clear technical separation has been made, and the two documents – while being inter-dependent – won't impact each other as changes need to be made to either of them.

- <u>The Form-sets:</u>

  We also need to remove the duplication that exists in relation to the Form-sets which are in place for both the LVV Standards and the CCM Chapters. With the technical 'stripping' that has been applied to the LVV Standards, the Form-sets which relate to the LVV Standards will drop off, and the CCM Chapter Form-sets will be what is used into the future, as they are progressively released to the LVV Certifiers.

Advantages of the 'Next-generation' technical document system:

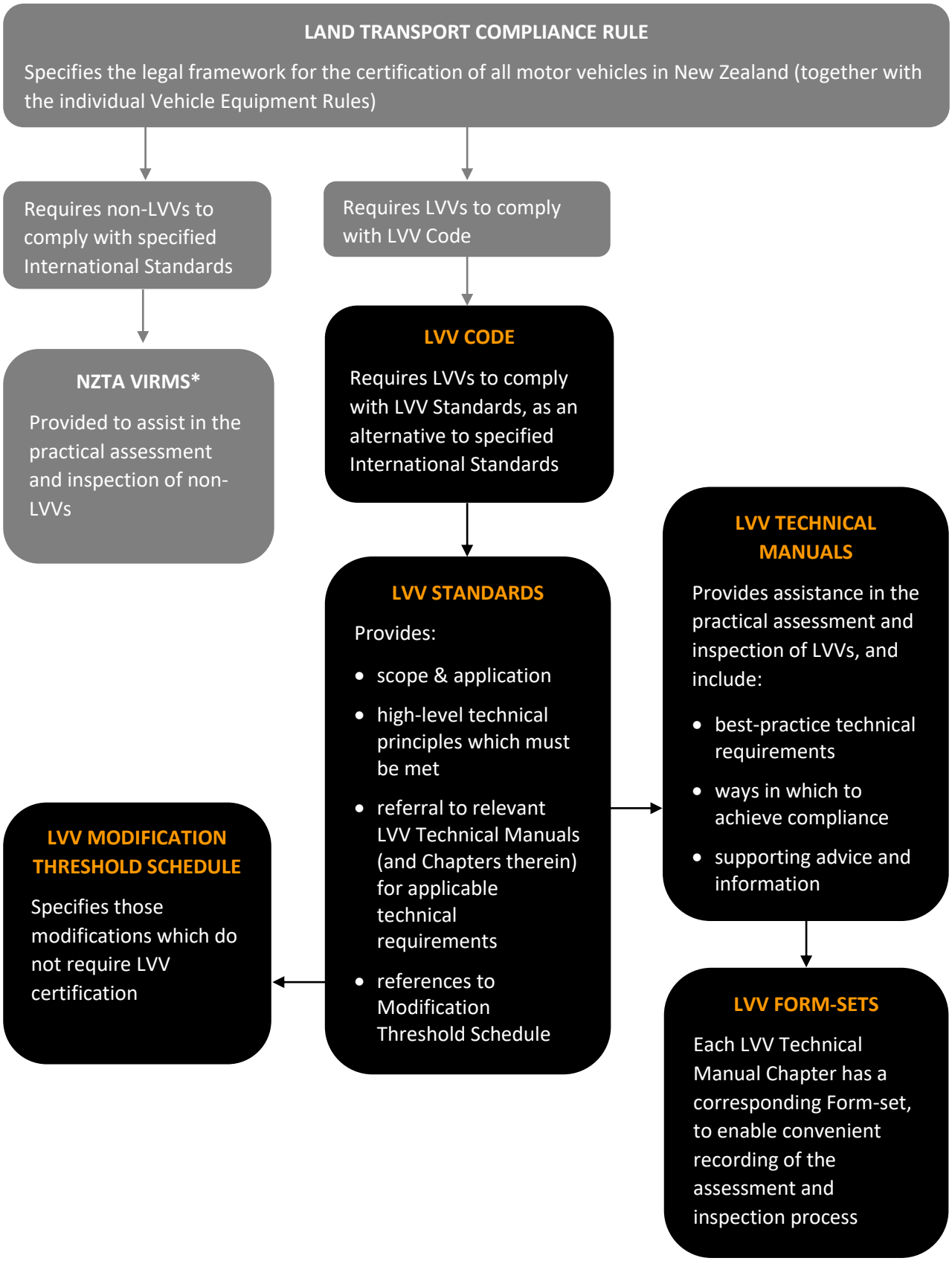
If we apply this concept, there will be many advantages for LVVTA, the LVV Certifiers, the NZ Transport Agency, and users of the LVV certification system. These advantages include:

- the development of all of the existing documents, and creation of new documents, will all be able to be done much more efficiently into the future as a result of reduction of duplication; and
- information will be found more easily by users of the LVV certification system; and
- there will be less potential for confusion as a result of conflicting requirements between the LVV Standards and the CCM Chapters; and
- the concept is directly aligned to the 'single source of truth' philosophy that the NZ Transport Agency likes to apply within the regulatory environment; and
- the concept is directly aligned to the 'incorporation by reference' philosophy which is the basis of how the LVV certification system is integrated within the Land Transport regulatory framework; and
- the system will all become more straight-forward, and make better sense to users.

In regard to the second-to-last bullet-point, this concept of integration within the NZ Transport Agency's Land Transport regulatory framework is illustrated within the flowchart on the next page, titled '*Overview of LVV Certification Documents*'. This is a schematic which shows how LVVTA's major documents (which the LVV certification system is based on) integrate with each other, and how they are aligned to the broader vehicle certification system.

Overview of LVV Certification Documents

and Integration within the Land Transport Regulatory Framework



Details of the 'Next Generation' technical document system:

The LVV Standards and CCM Chapters:

The first documents that the 'Next-generation' technical document philosophy has been applied to is LVV Standard 85-40 (Engine & Drive-train), and the corresponding NZ Car Construction Manual Chapter 9 (Engine & Drive-train) both of which take effect on 1 March 2021.

In summary, the changes to LVV Standard 85-40(03) (Engine & Drive-train) taking effect 1 March 2021 are:

- A more relevant explanation of the 'purpose' at the start of the LVV Standard.
- The LVV Standard is stripped of its detailed technical requirements, and replaced with:
    - a small number of over-arching technical principles with which a low volume vehicle must comply; and
    - reference to the relevant (detailed) technical requirements contained in the CCM Chapter 9 (Engine & Drive-train).
- Section 3 (Exclusions to the LVV Standard) is deleted, and any applicable Exclusions go into the CCM Chapter – because that's where the corresponding technical requirements are listed.
- Sub-section 4.2 in Section 4 (vehicles which are not required to be certified to the LVV Standard), which now becomes Section 3, is reduced from being a list of prescriptive modifications to simply a reference to the Modification Threshold Schedule, or the VIRM Tables – to save constant revision of the LVV Standard as the Modification Threshold Schedule or VIRM Tables are regularly updated.
- Section 5 (Terms & Definitions) is deleted from the LVV Standard, and shifted to the CCM Chapter – so that they are with the requirements that the Terms are found in. The Terms and Definitions need to live with each respective Chapter, because it would be inconvenient for users to have to refer to a different section of the CCM, and a complete Terms and Definitions schedule will become too big. Also, as the CCM is available on-line as individual Chapters, the associated Terms and Definitions for each Chapter should logically be with their respective Chapter.
- The 'Associated Information' section is shifted from the front of the LVV Standard to a short section at the start of the CCM referring system users to the LVVTA website, where all the 'Associated Information' will be available to download, free of charge – this is so that the LVV Standard doesn't have to be amended each time a new Associated Information document is created.
- The body text of the CCM is 'de-confused' by the removal of the italic type to indicate content which is copied from the LVV Standard. All body text in the CCM will now be 'regular' font (not some italics and some regular) which makes reading the text much cleaner and easier.

The resultant LVV Standard is reduced from 30 pages to 7 pages, does the job we need of it (to provide the legal framework), and won't have to be endlessly amended.

The Form-sets:

A by-product of the 'Next-generation' technical document philosophy is that the Form-set methodology has changed. There is no 'technical detail' within an LVV Standard now, so there can't be a corresponding inspection Form-set for the LVV Standards. The Form-sets which correspond with the CCM Chapters will, as time goes by and the LVV Standards and CCM Chapters progressively go through their 'Next-generation'

conversion process, become the Form-set that the LVV Certifiers use. This will make the whole inspection documentation system far less complex.

Finally:

Note that all of the new content shown in LVV Standard 85-40 (Engine & Drive-train), and NZ Car Construction Manual Chapter 9 (Engine & Drive-train) are shown in grey highlight.

If you require any explanation or clarification on the changes within the LVV Standards or CCM Chapter, please feel free to contact an LVVTA Technical staff member at the LVVTA office on (04) 238-4343.
