Item	Type	Suggestion	Rationale
1.1	Editorial	Remove	Does not add value, 1. Already introduces the section Can all definitions be moved to a section that would come directly after the introduction. This could be followed by any background information which could be followed by the functional requirements.
1.3	Editorial	Remove	Introduces a section which does not exist (there is no 1.3.1)
1.4 – 1.8 (entire sections except paragraphs listed - see corresponding document)	Structure	Move to background in annex or separate document	The information is useful to know to create functional requirements, but the purpose of the document is to outline the functional requirements. Too detailed for a document introduction. Certain items could work nicely in an introduction (1.5.6, 1.5.8, 1.5.9, 1.7.8.2, 1.7.8.2(bis), 1.7.8.3, 1.7.9.1, 1.7.9.3, 1.7.9.4, 1.7.9.5, 1.8.5, 5.1, 5.2) with some additional paragraphs to ensure clarity and flow of the document
1.4.9	Technical	Although the DDT comprises several subtasks (sensing, cognitive processing, action), the DDT itself refers to performing the whole driving task ~~within its Operational Design Domain (ODD). Within the ODD, the ADS or the driver performs the DDT. A system that cannot perform the entire DDT can only assist the driver's performance of the DDT.~~	There should be no ODD when talking about driving in general (human or ADS). References to the ODD come into play when talking about Automated driving in later sections.

1.4.12	Technical	Remove	This concept is already addressed in 1.4.9 "the DDT itself refers to performing the whole driving task"
1.5.2 & 1.5.7	Structure	Create a new heading as "1.5.2 Operational Design Domain" and place 1.5.2 & 1.5.7 as 1.5.2.1 & 1.5.2.2	Paragraphs related to ODD, would help readability
1.5.3-1.5.5	Structure	Create a new heading as "1.5.3 User Role" and place 1.5.3-1.5.5 as 1.5.3.1-1.5.3.3)	These paragraphs are all related to User Role, would help with readability
1.5.11	Structure/Technical	Combine with 1.4.4-1.4.5	In the Driving section (1.4), we introduce the concepts of Strategic, Tactical and Operational levels. In this section we are further breaking it down into Sensing/Perception, Planning/Decision and Control. These concepts are not exclusive to ADS, they relate to general driving (Human too). It would help the reader build a concept of what these things. Anything specific to ADS, we could re-insert in section 1.5 or 1.6. Section 3.7 also has similar text proposed.
1.6.4	Editorial	Remove	This section does not seem to add any value. The functions and features are defined so the concept is retained.

1.7.9.2	Technical	Remove	While this is very true for an L2 system, L3+, by design, cannot be activated when outside their ODD and must be able to perform the entire DDT within their ODD (ie. The user must trust the system completely to activate it as they will be eyes off & hands off). We are also defining systems that can execute a MRM if the user is unavailable for fallback and that have fault/ODD exit detection capabilities.
1.7.9.8	Editorial	Remove	The content is already in 1.7.9.1-1.7.9.5
1.8.3	Editorial/Technical	Change "ADS capabilities" to "ADS functions"	As we defined features and functions. The feature would be an application of the functions.
1.8.3 & 1.8.4	Editorial	Combine both paragraphs	They are both discussing the relationship between ADS functions and ADS features, could be joint in one paragraph.
Add section under 2	Editorial/Structure	This document is part of a coordinated approach to the safe introduction of automated driving systems on public roads combining input from expert groups on functional requirements, validation methods, data storage systems and cybersecurity as outlined in the framework document on automated/autonomous vehicles (ECE/TRANS/WP.29/2019/34/Rev.2). As part of this approach, this document outlines recommendations for global ADS safety requirements. Specifically, functional requirements for: - System safety - Failsafe response - HMI/operator information - OEDR - ODD	This is the purpose/reason for the document and should be outlined at this stage. Would remove references to framework doc embedded in various paragraphs (i.e. 5.8.1, 5.9.1, 5.10.1)

3.2	Editorial/Technical	*"(ADS) feature"* means an application of ~~ADS hardware and software~~ ADS functions designed specifically for use within an ODD.	As per our definitions, this should be the application of ADS functions with the functions being the application of hardware and software
3.7	Structure	Would prefer the full proposed text be embedded in section 1.4/1.5.11 (and moved to annex)	It is a bit too lengthy for a definition but like embedding sensing/perception, planning/decision and control under operational/tactical functions
3.12	Editorial	Remove?	If this is in 3.7 or in background annex, do we need to outline here? (we also don't define strategic functions)
3.17	Editorial	Remove?	If this is in 3.7 or in background annex, do we need to outline here? (we also don't define strategic functions)
4	Scope / Editorial / Structure	Review and remove what is out of scope for the document	This document is focused on the functional requirements with the NATM focused on validation methods. We must distinguish between what is required for 1. operation (end-user) and 2. verification/validation of the system (by manufacturer or by type approval authority).

Case #1 falls within the scope of this document.
Case #2 falls within the scope of the NATM or, the upcoming joint work between FRAV and VMAD. We should share those with VMAD, perhaps in another document but not include them for the purposes of this document

Certainly, some criteria will be verified/validated with documentation but our scope is to establish the criteria, not require it use documentation as the validation method. The focus should be on communicating to the user limitations of the system, responsibilities of the user and processes for transition |
| 5. (no subsection number) | Editorial | Remove | Not all subsections have criteria, the title of the section encompasses the content. |
| 5.1 & 5.2 | Editorial / Structure | Suggest moving these paragraphs to the Intro in Section 1 | They introduce some concepts rather than outline requirements |

| 5.3-5.5 | Scope | Remove | This appears to be in the scope of VMAD SG1 in terms of defining various scenarios (and potentially scenario database) for validation.

The next step is in the coordination between FRAV and VMAD to translate requirements/criteria into validation methods and appropriate scenarios. This is beyond the scope of this document at this time.

Unclear how the requirements/criteria are established |
|---|---|---|---|
| 5.8.1 | Editorial | Remove | The suggested paragraph added in Section 2 covers the link to the framework document. |
| 5.8.2 | Scope | Remove | Compliance would fall in the scope of the NATM/VMAD or during the combination of work between FRAV and VMAD. |
| 5.8.3 | Editorial | Remove | Not sure this is required, the section title covers the subject matter, the entire document is recommended requirements. |
| 5.8.5 | Technical | The ADS shall recognise the conditions and boundaries of the ODD of its feature(s) ~~pursuant to the manufacturer's declaration under paragraph [4.9].~~ | Full stop. How this is verified/validated falls to NATM & FRAV/VMAD future work. In self-certification this would potentially cause problems. It could open the way for loopholes. |
| 5.8.8. | Editorial / Technical | The ADS shall detect and respond to objects and events relevant to its performance of the DDT. ~~See Appendix B.~~ | As Appendix B is incomplete, we should not reference it and just keep the general statement. |
| 5.8.14 | Technical | The ADS shall comply with traffic rules and regulations relevant to its performance of the DDT. ~~See Annex B for a method for converting traffic rules and regulations into elements applicable to scenario generation and the establishment of behavioural competencies.~~ | While this work is interesting, it is outside the scope of creating functional requirements or criteria. The method the manufacturer chooses could be different and is up to the manufacturer. Unless we want to specifically use this method and are confident it is the only way, would recommend keeping out of the document. However, additional work in this area (with WP1) could be useful. |

5.8.15	Editorial	ADS ~~shall~~ comply with the traffic laws in ~~nominal~~ conditions, ~~except~~ when in specific circumstances or when necessary to enhance the safety of the vehicle's occupants and/or other road users. The ADS shall comply with traffic rules and regulations except as permitted by the applicable road traffic authority to address specific circumstances when deviation is necessary to enhance the safety of the vehicle's occupants and/or other road users.	Discretion should be given to the traffic authority on what laws may be broken if need be.
5.8.18	Technical	Remove	This is covered with 5.8.13, as it is a collision. Could review 5.8.13 if we want to allow collisions with say, plastic bags.
5.8.19	Technical	Remove	Would this not be implicitly required by abiding to road traffic laws as per 5.8.15?
5.8.22	Editorial	Remove	Duplicate of 5.8.18 (see above)
5.9.1	Editorial	Remove	The suggested paragraph added in Section 2 covers the link to the framework document.
5.9.2	Scope	Remove	This is in the scope of NATM or future VMAD/FRAV work. It does not outline a requirement or criteria.
5.9.3	Editorial	Remove	Not sure this is required, the section title covers the subject matter, the entire document is recommended requirements.
5.9.4	Editorial	Move to Section 5.10	Failure is addressed in section 5.10
5.9.4.2.2	Technical	Needs further discussion/review due to jurisdictional boundaries	Some jurisdictions may not want to permit in cases where there is no competent/licensed driver in the vehicle. In L3 vehicles, this could be the requirement as a driver would need to activate the system and be a fallback ready user. WP1 should be engaged in this discussion.
5.9.5	Technical	Remove & replace with 5.9.5.1	5.9.5.1 is more complete version
5.10.1	Editorial	Remove	The suggested paragraph added in Section 2 covers the link to the framework document.
5.10.2	Technical	Remove reference to manufacturer's documentation under Section 4.	How this is verified/validated falls to NATM & FRAV/VMAD future work. In self-certification this would potentially cause problems. It could open the way for loopholes.

5.11.1 & 5.11.2	Technical	Review	Little to no ambiguity as to who is responsible for L3+. Either the human is in control or the ADS. What humans can and cannot do is in scope of WP1.
5.11.3	Technical	Review	Flow charts are unclear and may not be value add. We see 3 possibilities for chart 1. 1. System is active 2. System is not active 3. System is active but with active take over request For Chart 2, it is very design dependent, do we need to specify this at this stage?
5.11.3.1.1	Technical	Remove	This is an L2 consideration, in L3+ an ADS cannot be activated outside its ODD and can detect its boundaries, faults and must be capable of achieving a MRM if required.
5.11.4	Scope	Remove	While we agree, with the statement, this is not applicable to specific vehicles unless we require a particular standard. This should be addressed but not in this document.
5.11.4.1 (Section)	Technical	Review	This needs clarification, it is too broad in its current form and lacking details. What states are possible, what and how will it inform the user. Things to perhaps communicate: - Time until takeover (planned) - Warning to start re-engaging user when nearing ODD limits - Some concept of how much time left for transition before MRM is initiated
5.11.5	Technical	Review	unclear what is being communicated here, mode confusion less of an issue with L3+
5.11.5.1	Technical	Review	This is very general. Most misuse should be covered by the ADS system not allowing activation outside its ODD limits
5.11.5.2 & 5.11.6	Technical	Review	Both sections have similar concepts, need to clarify
5.11.6.1	Technical	Review	Unsure what we are looking for, very broad
5.11.6.1.2	Editorial	Remove	See 5.11.3.1.2
5.11.7	Editorial	Remove	This appears to be notes while drafting the document, should be cleaned up. See 5.11.3.1.2 d)
5.11.8	Technical	Review	How can it be designed to ensure safe transitions? In some cases the fallback user may not be compulsory
5.11.8.1	Technical	Review	Common to what?
5.11.8.2 (no number)	Editorial	Remove	See 5.11.3.1.2 d)
5.11.8.3	Technical	Review	How to do this? Perhaps we can look at some sections of UN R157
5.11.8.4	Technical	Review	How will it determine this & what will it do if the user is not in stable control?
5.11.9	Technical	Review	How will it ensure a safe takeover process?

5.11.9.1	Technical	Remove fallback	It may not be a fallback user in the case of a L4 system. However jurisdictions may not want just any user to take back control. For L3 systems, the fallback user taking control is appropriate.
5.11.9.2	Technical	Review	Common to what?
5.11.9.3	Technical	Remove fallback	As with 5.11.9.1, may not be fallback only.
5.11.9.4	Technical	Review	How will it provide clear specific feedback?
5.11.9.5 (no number)	Editorial	Remove	See 5.11.3.1.2 d)
5.11.10.1 (except for 5.11.10.1.3)	Scope	Remove	This falls in the scope of the NATM audit pillar. We should limit ourselves to the requirements.
5.11.10.1.3, 5.11.10.2, 5.11.11	Structure	Move to section 4	Requirements for documentation for user.
6.A & 6.B	Scope	Remove	This would fall within the NATM audit pillar.
6.C	Structure	Move to Section 4	This relates to the information required in the Owner's manual which is in Section 4
7.A	Scope	Remove	This appears to be the next step when combining the requirements of FRAV with the NATM of VMAD. Would suggest to remove from this document.
7.A.2.5	Scope	remove	This text seems to be aimed at CPs not as guidelines to manufacturers. Unsure why it is in this document.
7.A.3.1.2.2 & 7.A.3.1.2.3	Scope	Remove	This is mapping out a scenario akin to what VMAD SG1 has done/is doing. This approach should be used in that group to develop scenarios.
7.A.3.1.3	Scope	Remove	This is part of the next step with FRAV and VMAD joint work. Beyond the scope of this document
7.A.4 (Section)	Scope	Remove	The identification of scenarios is part of the VMAD SG1 group. Which scenarios to use for each situation would fall in the future work between FRAV and VMAD.
7.A.5 (Section)	Scope	Remove	This would fall in the next step likely using adequate scenarios from VMAD SG1, with the audit pillar from NATM and demonstrated behaviour in simulation, track and real world testing.
7.A.5.9.2	Technical	Revise	In self-certification there is no test engineer, the company provides documentation to prove their compliance.
7.B	Technical	Remove	Similar to Annex A 5.2-5.9, however this may be beyond the scope of this document as manufacturers may have various different approaches. From FRAV point of view, we want to ensure the ADS obeys the traffic laws. This will no doubt require input from jurisdictions and WP1 so would prefer to keep it more general at this time.