

Innovative products and services

Previously considered/under consideration

'Innovative' Practices or Products	Reasons why not adopted /or when permitted
Concrete fabric scour protection	Deemed unable to tolerate typical stream velocities.
Mesh product for stream bank stability	Concerns regarding durability of the product.
Integral Bridges	Integral Bridges are advantageous when the bridge vertical alignment is constrained by the road geometry. Integral bridges have a lower vertical alignment because the girders and headstocks are on the same horizontal plane. Foundation material must be competent to avoid differential settlement because integral bridges cannot accommodate "large" differential settlements.
Arches	Arches are advantageous when the road vertical alignment is high, for example over a steep sided creek/gorge. It achieves a good outcome for the road alignment and less construction costs, particularly if the span is not more than 25 metres approximately, proprietary precast arches are available. Cast in-situ arch headwalls can be used instead of precast panels, to achieve durability and robustness if flooding is an issue.
Hot air curing of concrete products	Is not permitted
Metal Culverts	Metal culverts in situations where they sit frequently or permanently in water. History of significant corrosion.
Reinforced concrete piles for bridges	Not acceptable as tension wave for driving is larger than the capacity of the pile causing cracking
Unlined cast-in-place piles for bridges in most applications	TMR will allow unlined cast-in-place piles in stiff material that will not collapse and where reinforcement cover can be assured (limited application). A pilot may be required to be case and uncovered to show conformity
Pile splices with little moment capacity for bridges	Not acceptable. Splice permitted with approval of process that ensures that they break back the concrete to lap bars. (Note sometimes can wait overnight and pile will set up. Restrike the next day may show that extension is not required)
Alternative precast concrete girder profiles	TMR will not unreasonably reject
Unlined cast-in-place piles in stiff material that will not collapse (limited application)	TMR will not unreasonably reject
A set of numerous smaller box culverts to replace larger boxes with same waterway area	Not normally allowed due to concerns about blockage.
Substituting unbound pavement instead of bound pavement.	Not normally allowed, as this is not genuine innovation
Use of admixtures in concrete for longer working time	Considered on their merits, but generally approved
Cartage to TMR projects using overloaded vehicles	Not allowed
Substitution of hollow spun piles for bridges	Not allowed, due to cracking on many piles when this was previously allowed
Use of plastic pipes for culverts	Banned, after they were catching on fire
Use of AC pipes containing asbestos	Banned due to health concerns
Use of hollow rock bolts	Concerns about corrosion of thin sections – under review. May be approved in inland area

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Use of Quick Lime for subgrade stabilising	Approved, as same MSDS as hydrated lime.
Use of rock hammer on mini excavator to strip piles	Can be approved after demonstration that operator is skilled
One way cross fall in road design	Can be approved. Significant cost savings
Safety barrier or kerb (low profile) system that can be moved in a single, continuous motion and under traffic, for tidal flow management.	We don't currently have an operational requirement for this type of system.
Safety Roller Barrier	Innovation in terms of improved safety and/or reduction in costs (whole-of-life) when compared to current approved systems has not been demonstrated.
Timber Guardrail	Concerns with splintering under impact, termites, warping/cracking and fire resistance have not been addressed. Qualitative/quantitative road safety benefits and installation configurations need to also be demonstrated.
Plastic Guardrail (looks like a replacement to W-Beam)	Not crash tested. Appears to provide delineation only.
Mineral based soil conditioner	Feedback from soil scientist who developed TMR's soil and soil conditioner standard requirements confirmed that product was not cost effective or beneficial from a nutrient / soil conditioner perspective in comparison to other available products (manufactured soil conditioner as per MRTS16).
Plastic tree ties (in general)	Tree ties, if left, can ring bark and / or deform the tree resulting costly replacement or corrective pruning. MRTS16 currently specifies the use of hessian tree ties as they are far less likely to cause damage to a tree than plastic ties because, if they are not removed (which tends to happen), they rot and fall away in reasonable time.
Various plant species being marketed as innovative (bred hybrids or cultivars as opposed to naturally occurring native species).	Some have been trialled, but main reason for reluctance to generally adopt is due to consistent failure (death) (costly to replace) and that there are numerous acceptable, proven plant species.
Aerated concrete / Recycled product (Rubber or plastic or Timber) noise fence panels	It hasn't been demonstrated that this material is able to achieve a consistent material quality over the design/service life. MRTS15 specifies durability (including vandalism damage issues and environmental degradation) and low maintenance.
Software for streamlining the process for signing off drawings.	Current legislation does not permit – still looking into this.
High Modulus Asphalt (EME2)	Can be used now. Project specific decision. (Pilot specifications have been released.) Need to consider risks (e.g. first project a supplier has manufactured/laid EME) and risk sharing (e.g. warranty).
Stone Mastic Asphalt surfacings	Can be used now. Project specific decision by District. Supplementary specifications for Metropolitan and Northern Regions exist and are used. State-wide specification being considered pending outcomes of ARRB report under TMR/ARRB research program.
Use of harmonised asphalt specifications	Can be used now on demonstration projects. (Pilot specifications have been released.) Contractual issues need to be resolved if proposed for contracts where the tender has been awarded. Need to consider risks (e.g. first project a supplier has manufactured/laid harmonised mix).
Use of Warm Mix Asphalt (WMA).	Already permitted (see MRTS30 and 31, and TN75).
Increased use of Reclaimed Asphalt Pavement (RAP)	Up to 15% in non-surfacing layers already permitted. Harmonised specifications allow greater use based on the supplier demonstrating a history of proven performance.
Use of cement modified base (CMB) in new pavements.	Pavement Design Supplement allows its use. Supplementary Specification and design method available from Pavements, Research and Innovation for use on projects when it is proposed.
Use of plant mixed foamed bitumen stabilised material in new pavements.	Pavement Design Supplement allows its use (and refers to Pavement Rehabilitation Manual).

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Use of emulsion primes or primer seals on improved layers (working platforms) in new pavements.	Experience to date has shown variable performance with trials on projects not always being successful. If proposed the recommended approach is for a small trial to be done on the project to confirm suitability and if successful use more widely on that project.
Use of proprietary asphalt surfacings	Project specific decision. Consider if long term warranty for functional performance is offered. Would need to consider risks/risk sharing. TIPES can be used to assess products in advance. (Note: Supplementary Specification developed for Metropolitan and successfully trialed a few years ago. Would need to be updated before it is used again.)
Use of high standard granular base (HSG)	Used on TrackStar Alliance project (via annexure for MRTS05). Performance is being monitored and assessed under TMR/ARRB research program.
Use of multi-grade binder in asphalt.	Pavement Design Supplement allows its use. Annexures to current asphalt specifications allow any type of binder to be specified. Project specific specification will be required for the binder itself.
Use of proprietary stabilising/soil modification agents (e.g. chemical)	Consider provided TIPES evaluation done in advance and this shows it performs. Project specific specification may be required if accepted.
Use of geogrids to reduce the thickness of new pavements	Proposal needs to be for the whole package (e.g. product specification, justified/proven design methodology, construction specification). Project specific decision. Consider if long term warranty for functional performance offered. Would need to consider risks/risk sharing. TIPES can be used to assess whole package in advance. Project specific specification would be required.
Use of project specific designs for new pavements.	Pavement Design Supplement allows more flexibility. While it provides typical scenarios, values, etc., guidance is provided so project specific decisions can be made. It does not set mandatory values/minimums.
Use of innovations in new pavements.	Pavement Design Supplement references <i>Engineering Innovation within the Department of Transport and Main Roads</i> document.
Use of spirally welded steel liners/piles	TMR is changing its specifications MRTS63, 63A and 66 to allow the use of spirally welded steel liners/piles in some situations. Conditions relating to use will include, compliance with MRTS78 and for the liners/piles with a diameter of less than 1.0m no restrictions regarding installation method. For piles with a diameter of 1.0m or greater, piles shall not be driven but may be spun, vibrated or pushed into position. Where a liner/pile with a diameter of greater than 1.0m is required to be driven the existing plated liner design shall be used.