1. This technical note provides a response to the following matters raised by Mr O’Brien:
   (a) new evidence provided on slides relying on the longitudinal sections provided on 7 August 2019;
   (b) commentary in TN41 (document 230).

2. This Technical Note also provides a brief summary of the independent road safety audit process in association with the Reference Design.

REQUEST: N/A

RESPONSE: New slides

1. Slide 7 - The exit is a two lane exit with localised widening of the shoulders. It has been assessed for a sight distance requirement of 195m in accordance with Austroads Part 4C (2015).

AOB Comment: This ramp provides one taper exit lane and one auxiliary exit lane. The above measure is only for an auxiliary lane exit. The equivalent for a standard taper exit is 280 m (refer to Table 7.1 of AGRD Part 4C).

2. Slide 8 issues raised:
   (a) The sight distance to the exit ramps need to be considered using the correct design speed. These locations are designed with a speed limit of 80km/h, not 100km/h.

AOB Comment: the four ramps were (speed limit in blue brackets):
- M80 eastbound exit to Greensborough Bypass and Grimshaw Street (120 m) (100 km/h)
- NEL northbound exit to Grimshaw Street (70 m) (100 km/h)
- NEL southbound at split to Eastern Freeway (in tunnel) (130 m) (80 km/h)
- Eastern Freeway at Doncaster Road eastbound exit (about 140 m) – exit is on a sharp left hand bend, on a crest, and with a concrete barrier beside the shoulder (100 km/h)
Appendix E of TTIA (Microsimulation Results) indicate that all of the above ramps operate with speeds that are significantly higher than 80 k/h.

Previously, entry and exit designs have almost always been the 'standard layout' – for reasons of driver expectation and consistency.

(b) Southbound split in tunnel is in accordance with Austroads Part 4C (2015), Fig 11.1.

AOB Comment: the design problem does not refer to the southbound split in tunnel. The layout of the ramp arrangements bears no relationship to Figure 11.1. The slide refers to a lane emerging on the right with a 2-lane exit to the left which underutilises the road capacity resulting in overdesigning.

(c) The eastbound on-ramp at Springvale Road is proposed to be ramp metered. Refer sheet 42 of 42 of the map book.

3. Slide 9 issues raised:

(a) The shared use paths have tight radii at locations where cyclists need to slow down, such as intersections and on bridge structures.

AOB Comment: this does not comply with a 10m minimum radius of horizontal curves specified in AGRD Part 6A bicycle facilities. Tight curves around bridge structures result in sight distance restrictions and is therefore unsafe.

(b) Right hand off ramps are not banned on the Victorian road network. An example of a recent ramp such as this is the inbound Montague exit ramp from the Kingsway ramp.

AOB Comment: that ramp had to be fitted into a r.o.w. and respect the existing structures to the east. This does not indicate that it is ‘good practice, let alone ‘best practice.

4. Slide 10 - All single lane ramps are designed to be 6m wide between barriers. This is wider than the Austroads requirement of 5m between kerbs (Austroads Part 4A, Section 6.4).

AOB Comment: for the ramps mentioned, they do not comply with the 6m minimum width

5. Slide 11 - As presented in Figure 9-56 of the TTIA the west facing ramp carries low volumes, up to 2,800 vehicles in the two hour AM peak period. The lane arrangement within the tunnel allows for complementary lane changes and reduces over reliance on the left lane

AOB Comment: the comment above does not address the issues raised.

6. Slide 12 - The location of the split was identified as an issue by NELP. The design change to address this issue occurred after the Reference Project map book was produced.
7. Slide 16 - Right hand off ramps are not banned on the Victorian road network. An example of a recent ramp such as this is the inbound Montague exit ramp from the Kingsway ramp

**AOB Comment:** The example of Montague St is a case where there is little alternative due to land and land cost constraints, and the existing eastbound on-ramp from Montague St. It is not a case of exception where there was no practical alternative.

8. Slide 17 - This section of road should not be considered as a freeway, this is a local road. Diverge guidelines to be adopted in accordance with Austroads Part 4C (2015), not AGTM Part 6.

**AOB Comment:** as stated in my report

“Desk top” road safety issues

9. Attached to this Technical Note at Attachment A is a marked up table of the “desk top” road safety comments set out in Mr O’Brien’s expert witness statement.

**Comments on TN41**

10. Attached to this Technical Note at Attachment B is a reply to Mr Andrew O’Brien’s comments on TN41 dated 20 August 2019 (document 230).

**Road Safety Audit by NELP on the reference design**

11. The Reference Design was the subject of review by an Independent Road Safety Auditor.

**AOB Comment:** Road Safety Audit reports and subsequent responses by designers should be made available for review.

12. The Road Safety Audit is an iterative process. Using a risk based approach, the auditor provides comments and the design team responds as the detailed road design evolves.

**AOB Comment:** A Road Safety Audit is NOT an iterative process. Guide to Road Safety Part 6A: Implementing Road Safety Audits sets out explanations of the audit processes and requirements for independence. The above describes a process that is not in accordance with Austroads.

13. As the Road Safety Audit is concerned with a finer level of detail than is published for the purposes of the EES the process is continuing. The independent Road Safety Audit is now in its fifth version.

**AOB Comment:** This is incorrect, and shows a lack of proper process or knowledge of the proper audit processes. A Road Safety Audit is NOT an iterative process. Audits are carried out at defined stages of development of design – typically at concept design, at functional or preliminary design, and detail design (refer
14. In addition to the road safety audit process, the reference design was the subject of a Safe System Assessment pursuant to VicRoads Safe System Assessment Guidelines. This is designed to ensure that the design aligns with safe system principles, and the ultimate objective of eliminating fatal and serious injuries from crashes on the road network. Assessments must be conducted for projects over $5M. In accordance with the Safe System Assessment Guidelines, an independent Safe System Reviewer, with VicRoads guidance, assessed the reference design and evaluated the alignment of the project with Safe System principles using the AP-R509-16 Austroads Safe System Assessment Framework.

AOB Comment: ‘independence’ does not come with ‘VicRoads guidance’.

15. When the Project is open to tender, tenderers will have access to the reference design together with further information that has been compiled, including for example information from ongoing geotechnical studies, groundwater reports, and the latest road safety audit report and Safe System Assessment report. This will ensure that tenderers have access to the most relevant and recent information to inform the preparation of their tender submissions. A highly informed tender submission assists in reducing development costs and risks to the State in the procurement of the project.

CORRESPONDENCE: N/A

ATTACHMENTS

Attachment A - Marked up table of the “desk top” road safety comments set out in Mr O'Brien's expert witness statement

Attachment B - Reply to Mr Andrew O'Brien's comments on TN41 dated 20 August 2019 (document 230)