



Western

Australia

RECORD OF INVESTIGATION INTO DEATH

Ref: 29/18

*I, Sarah Helen Linton, Coroner, having investigated the death of **Glenn William STRICKLAND** with an inquest held at the **Perth Coroner's Court, Court 51, CLC Building, 501 Hay Street, Perth** on **3 - 6 September 2018** find that the identity of the deceased person was **Glenn William STRICKLAND** and that death occurred on **21 January 2014** at **Royal Perth Hospital** as a result of **complications of neck injury** in the following circumstances:*

Counsel Appearing:

Sgt L Housiaux assisting the Coroner.

Mr J Johnson (Julian Johnson Lawyers) appearing on behalf of the family of Mr Strickland.

Mr J Bennett (State Solicitor's Office) appearing on behalf of Main Roads Western Australia, Western Australia Police and the Road Safety Commission.

Mr G Bourhill (DLA Piper) appearing on behalf of the Shire of Chittering.

Mr D McKenna appearing on behalf of St John Ambulance.

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INTRODUCTION

1. Glenn William Strickland was a much-loved husband and father of two who worked as a Condition Monitoring Engineer for Rio Tinto and had a passion for motorcycle riding in his spare time. He had a lot of experience riding motorcycles and generally owned Harley Davidson motorcycles. Mr Strickland lived in Warnbro but would sometimes ride his motorcycle on longer rides around the outskirts of Perth.¹
2. At the start of 2014 Mr Strickland was 43 years old. He was generally in good health and was not on any regular medications.²
3. On the morning of Saturday, 18 January 2014, Mr Strickland went for a planned long ride on his favourite Harley Davidson motorcycle. The route was intended to take him as far as Toodyay. He was travelling west on Julimar Road in Chittering, heading away from Toodyay, when he failed to negotiate a right hand sweeping bend and left the road and entered a stormwater drain. While travelling through the drain he struck an object, most likely a log and/or rock, and was thrown over the handlebars of his motorcycle and landed head first on the ground. Mr Strickland was travelling alone and it is unclear how long he remained lying injured on the side of the road before he was found by passing motorists who stopped to help him. The authorities were notified and St John Ambulance were asked to attend.³
4. Mr Strickland had no visible external injuries but he had pain at the base of his neck and complained of having no feeling below the waist. Mr Strickland was evacuated, with full spinal precautions, by air ambulance (helicopter) to Royal Perth Hospital. On arrival Mr Strickland required resuscitation and it was suspected that he had a significant spinal injury. CT scans and MRI confirmed spinal injury and extensive brainstem infarction. Mr Strickland was admitted to the ICU and his prognosis was poor. His condition continued to deteriorate. Brain death was confirmed on the afternoon of 21 January 2014 and he was taken off life support and died that evening in the presence of his family.⁴
5. Mr Strickland's widow, Jodye Strickland, wrote to the Coroners Court and requested an inquest be held to investigate various concerns she raised in relation to safety issues on Julimar Road, the conduct of St John Ambulance and the police investigation into the crash. There was evidence to indicate that there has been more than one other fatal motorcycle crash on Julimar road and it had been identified as a 'black spot' prior to Mr Strickland's death.
6. On 31 March 2017 this matter was brought to my attention and I exercised my discretion to hold an inquest into the death. I note that Mrs Strickland referred to allegations of 'negligence' in her submission seeking an inquest but it was made clear to Mrs Strickland that under s 25(5) of the *Coroners Act 1996 (WA)* a coroner is precluded from framing a finding or

¹ Exhibit 1, Tab 7.

² Exhibit 1, Tab 2.

³ Exhibit 1, Tab 2.

⁴ Exhibit 1, Tab 2 and Tab 7.

comment in such a way as to appear to determine any question of civil liability. Nevertheless, I was satisfied that there were public safety issues that could properly be explored in connection with considering the circumstances of the death.

7. I held an inquest at the Perth Coroner's Court from 3 to 6 September 2018. The documentary evidence included a report prepared by the Western Australia Police, comprising various witness statements and reports and medical records. Further material was provided by Mrs Strickland through counsel appearing on behalf of Mr Strickland's family, counsel appearing on behalf of the other parties and by Sergeant Housiaux who was assisting the Court during the inquest.⁵
8. In addition, three volumes of materials prepared by Mrs Strickland as part of her original request for an inquest were taken in as exhibits, in the order they were provided to the Court, so that all the parties understood the concerns raised by Mrs Strickland and the documents she relied upon in support.⁶
9. The oral evidence at the inquest focused primarily on the events surrounding the death of Mr Strickland, the helmet worn by Mr Strickland at the time of the crash, and information about the history of incidents on Julimar Road and what action had been taken by the Shire of Chittering (Shire) and Main Roads both prior to, and after, the death of Mr Strickland. The inquest also covered issues in relation to motorcyclist's road safety generally.

THE CRASH

10. On the morning of 18 January 2014 Mr Strickland was reportedly in good spirits. He planned to take a solo motorcycle ride through the countryside to the towns of Beverley, York, Northam and Toodyay. At the completion of the ride he was going to meet friends for a barbecue at a friend's house in the Vines.⁷
11. Mr Strickland put on his jacket and motorcycle helmet before leaving and his wife recalled that he mentioned that he planned to buy a new jacket and helmet in the future. I will return to Mr Strickland's helmet later as it was a topic that received attention during the inquest.
12. After saying goodbye to his wife Mr Strickland left his home around 9.00 am. He was apparently running about half an hour to an hour later than originally planned. Mrs Strickland expected that her husband would text her or call her when he arrived at his friend's house, but she did not hear from him again.⁸
13. The evidence indicates that sometime prior to midday Mr Strickland was riding his Harley Davidson west along Julimar Road in the Shire.

⁵ Exhibits 1 – 2, 6.

⁶ Exhibits 3 – 5.

⁷ Exhibit 1, Tab 7.

⁸ Exhibit 1, Tab 7.

Julimar Road runs between Chittering and Toodyay and is commonly used by motorcycle riders for day trips to and from Toodyay. It was referred to by one witness, who was a local to the area, as the “Julimar Strip” and he believed it was “generally regarded as a free for all race track for bikers on the weekends.”⁹ It is certainly the case that Julimar Road has been the site of a number of serious, and fatal, motorcycle crashes, which I will discuss later.

14. Mr Strickland was riding on Julimar Road when he failed to negotiate a right hand sweeping bend. He rode his motorcycle into a stormwater drain and travelled along the drain for some distance before he struck an object, causing him to go over the handlebars and hit his head on the ground before coming to rest on his back on the side of the road. The area surrounding the crash site is natural bushland so there were no residents nearby to witness the crash and come to Mr Strickland’s aid.
15. The road is not speed zoned at the section where Mr Strickland crashed, meaning it is subject to a maximum 110 km/hr speed limit. However, on both approaches to the crash location there was a curve and 80km/hr advisory speed warning sign. There is evidence that Mr Strickland told a police officer at the scene that he was travelling around the speed limit of 110 km/hr, at least at the time he entered the curve.¹⁰ The lack of forensic evidence from the scene meant the speed at which Mr Strickland was travelling when he first left the road could not be independently ascertained but it appeared to be generally accepted he had been travelling at about the speed limit as he entered the bend and then washed off some speed as he slowed before he left the road and entered the drain.

THE FIRST PEOPLE AT THE SCENE

16. Ms Christine Cornforth and her husband David were driving on Julimar Rd towards Toodyay at about noon on 18 January 2014 when Ms Cornforth looked out the passenger window and saw Mr Strickland lying on the side of the road. She saw he was wearing motorcycle gear and saw another motorcycle rider walking towards them.
17. Ms Cornforth is a trained nurse and her husband is a former ambulance volunteer so they stopped to see if they could help. Ms Cornforth got an umbrella out of the car and went over to the two men. She established the other motorcycle rider had just stopped to help and was not in company with Mr Strickland. Ms Cornforth saw that Mr Strickland was lying on his back on the ground with his hands up by the side of his head and his palms facing upwards.¹¹
18. Ms Cornforth put the umbrella up to shade Mr Strickland as it was a very hot day. She then crouched down and spoke to him. He gave his name and indicated his primary concern was for his wife to be contacted. Ms Cornforth asked Mr Strickland whether he remembered what had happened and, in

⁹ Exhibit 1, Tab 10.

¹⁰ Exhibit 1, Tab 2.

¹¹ T 60 - 62.

particular, she asked if he had swerved to avoid a kangaroo. Mr Strickland told her that he had not crashed due to a kangaroo.¹² In the statement she prepared prior to the inquest, Ms Cornforth said Mr Strickland told her that maybe he had been travelling too fast, but he didn't know.¹³ Ms Cornforth was asked at the inquest if he told her how fast he was travelling when he fell off, but she said he did not. Ms Cornforth asked Mr Strickland how long he had been lying there and he said he thought he'd been there about 20 minutes but he wasn't entirely sure.¹⁴ She recalled he was quite lucid and he remained conscious throughout the time she was with him.¹⁵

19. Ms Cornforth was concerned that Mr Strickland might be paralysed, given the way he was lying, and it was obvious he required medical attention. There was no mobile reception in the area so Ms Cornforth's husband drove some distance away to find telephone coverage in order to notify emergency services. Another passing motorist also did the same and had to drive about 1.5 km to Toodyay to gain reception.¹⁶
20. Another motorcyclist came past and also stopped to help. The two motorcyclists put Mr Strickland's motorcycle upright as it was leaking fuel. Ms Cornforth wasn't certain whether they simply stood it upright from the position it originally fell or if they moved it any distance at that time.¹⁷ Therefore, the exact spot where the motorcycle came to rest after the crash cannot now be identified.
21. Ms Cornforth's husband returned, having notified the authorities. He did a secondary assessment of Mr Strickland and established that Mr Strickland had no feeling from the waist down. Ms Cornforth said they made sure they did not move him.¹⁸ Ms Cornforth got a bottle of water to wet Mr Strickland's lips and kept him talking so that he remained conscious. Ms Cornforth asked Mr Strickland about his pain, which seemed to be minimal, and she reassured him that an ambulance was on its way. He spoke about where he had been planning on going and expressed primary concern for his wife. Ms Cornforth's husband reached the conclusion that an air ambulance might be required and left the area again to find mobile coverage and convey that opinion to emergency services.¹⁹
22. Sergeant Travis Taylor from Gingin Police Station was in Muchea on another job when he received notification of the crash. He knew the area well as he had attended other crashes along that road and he also lived in the area and drove the road himself regularly. Sergeant Taylor left Muchea and travelled to the area. He reached the crash scene at approximately 1.15 pm.²⁰
23. When Sergeant Taylor arrived Mr Strickland was lying on the road and being attended to by Ms Cornforth, who was still holding the umbrella over

¹² T 61.

¹³ Exhibit 1, Tab 9.

¹⁴ T 61 - 62; Exhibit 1, Tab 9.

¹⁵ T 65.

¹⁶ T 59, 61; Exhibit 1, Tab 10.

¹⁷ T 62.

¹⁸ Exhibit 1, Tab 10.

¹⁹ T 63 - 65; Exhibit 1, Tab 9.

²⁰ T 6, 8 - 9; Exhibit 1, Tab 8.

Mr Strickland to try to keep the sun off his face. As is typical in the month of January in Perth, the temperature that day was very hot, with a recorded maximum temperature of 38.9C at the nearest weather recording station at Gingin airport.²¹ Another passing motorist also provided a reflective windscreen protector to help provide Mr Strickland with some relief from the sun. This was put over the lower half of his body.²²

24. Mr Strickland was still lying on his back in a straight line, conscious and alert when Sergeant Taylor saw him. His helmet was still on and showed signs of substantial contact with the ground. Sergeant Taylor noted the front of the helmet had a piece of vinyl laminate missing and numerous scuff marks directly to the front of it. The helmet was later removed by ambulance staff while treating Mr Strickland at the scene and secured by Sergeant Taylor in his police vehicle. Sergeant Taylor understood from his discussion that Mr Strickland had landed directly on the top of his head when hitting the ground and then rolled onto his back, where he had remained.²³
25. It was unclear exactly how long Mr Strickland had been at the scene before the first witnesses arrived, although he had estimated to Ms Cornforth that he had been there approximately 20 minutes before she arrived. Mr Strickland was unable to tell Sergeant Taylor how long he had been lying there when he spoke to him.²⁴
26. Sergeant Taylor told Mr Strickland that the rescue helicopter was on the way and St John Ambulance staff would arrive shortly. Mr Strickland asked the officer to call Mrs Strickland and gave him her details. Sergeant Taylor said he would do so as soon as the ambulance staff took over his care and he could leave and move to an area where he could communicate with her, as the crash location was a complete communications dead spot for even his police radio.²⁵
27. Ms Cornforth estimated that she was with Mr Strickland for at least an hour before the first emergency services staff arrived at the scene.²⁶
28. After the ambulance staff and helicopter paramedics arrived, which Sergeant Taylor thought was a few minutes after he arrived, Sergeant Taylor drove away from the site approximately 3.5 kilometres to advise Mr Strickland's wife of the crash and to let her know he was to be conveyed to Royal Perth Hospital. Sergeant Taylor then returned to the crash scene and assisted with transferring Mr Strickland to the helicopter.²⁷

²¹ Exhibit 2, Tab 30.

²² T 65; Exhibit 1, Tab 10.

²³ T 7; Exhibit 1, Tab 2 and Tab 8.

²⁴ T 40.

²⁵ Exhibit 1, Tab 2 and Tab 9 [22].

²⁶ T 64.

²⁷ Exhibit 1, Tab 8.

MEDICAL EVACUATION

29. As noted above, Mr Strickland crashed his motorcycle sometime before midday on a very hot day and was unable to move himself so he lay on the side of the road for a period of time before he was found by passing motorists. The ambulance service was first notified of the crash at 12.45 pm and both a local St John Ambulance road ambulance and the Rescue 65 helicopter retrieval service were activated shortly afterwards (12.46 pm for the ambulance and 12.50 pm for the helicopter). The road ambulance was staffed by volunteer ambulance officers. It left the station at 1.03 pm and arrived at the scene at 1.24 pm.
30. The helicopter had two paramedics on board, one qualified critical care paramedic and one trainee critical care paramedic. The helicopter departed base at 12.58 pm and landed at 1.24 pm. The critical care paramedics had to walk a small distance from the landing site in a nearby field to the crash scene. The critical care paramedics then took over from the road ambulance officers, who had only recently arrived themselves.²⁸
31. At the time the first ambulance crew arrived Mr Strickland was conscious and alert, with his GCS recorded as 13/15. He was noted to be on his back, flushed, complaining of neck pain and no sensation in his legs. He was given IV morphine for his neck and shoulder pain and the rest of his observations were recorded as normal, although no temperature was recorded.²⁹
32. Ambulance officers gently removed the helmet and Mr Strickland was placed in a cervical collar.³⁰ Ms Cornforth, who was still present, observed that Mr Strickland complained of pain for the first time after the helmet was removed, although I note that he was said to have already mentioned pain to Sergeant Taylor and the ambulance officers.³¹ A medical expert suggested that, if Mr Strickland did complain of pain at the time of the helmet being removed and the collar put in place, it was not surprising as even with perfect manual stabilisation there will be some movement, which will increase pain. In addition, the collars themselves can be uncomfortable and cause pain.³²
33. The helicopter paramedic crew observed that Mr Strickland had diaphragmatic breathing, no movement or sensation in his legs, no sensation below his sternum and poor power and sensation in his arms. He had no obvious external injuries. Spinal precautions were applied before he was transferred to the helicopter at 2.19 pm.³³
34. During the flight Mr Strickland was recorded as having a normal GCS. His blood pressure dropped at one stage but responded to fluid. He was restless in flight and was given doses of morphine. His last observations were still within normal limits at 2.30 pm and his pain was described as 2/10.

²⁸ Exhibit 1, Tab 15; Exhibit 2, Tab 30.

²⁹ Exhibit 1, Tab 30.

³⁰ T 68 – 70, 77; Exhibit 1, Tab 11.

³¹ T 67; Exhibit 1, Tab 9.

³² T 91.

³³ Exhibit 1, Tab 30.

The helicopter landed at Royal Perth Hospital at 2.45 pm and he was taken to the Emergency Department and handed over to the RPH ED and trauma team.³⁴

ROYAL PERTH HOSPITAL

35. Mr Strickland's first documented assessment in the ED at 2.52 pm, showed an abnormal set of vital signs. In particular, his temperature was too high for standard measurement. He was said to be hot to touch, flushed and had a widespread rash. The cause for his significant temperature elevation was not readily apparent.³⁵ Mr Strickland also showed a reduced level of consciousness from what had been recorded earlier. His GCS was described initially as '6' but then changed to 9 by nursing staff. Diaphragmatic breathing was noted (which had been observed at the crash scene) with an abnormal respiratory rate.³⁶
36. Mr Strickland's high temperature was initially treated with icepacks and cold fluids and his temperature was recorded as dropping to 40.6°C. He required intravenous fluids to correct hypotension. He began to show breathing difficulties and a slowing heart rate. Mr Strickland was felt to have an obvious spinal injury with concerns that he had a progressive spinal/vascular problem from his neck and/or hyperthermia causing his worsening conscious level.³⁷
37. At 3.15 pm Mr Strickland was intubated successfully and without technical difficulty. He was noted to have some vocal cord oedema (possibly morphine related). After intubation his pulse and BP were supported using an adrenaline infusion and he continued to be cooled, with a documented temperature of 39.0°C just after 3.30 pm. He had grazes/burns on his torso but otherwise had minimal obvious external injuries. His extensive rash was thought to be due to anaphylaxis.³⁸
38. Mr Strickland was transferred to the CT scanner at around 4.10 pm where his severe cervical spinal fracture at C5/C6 with marked movement anteriorly was seen. A CT angiogram was then performed about half an hour later to assess for a vertebral artery injury. This demonstrated abrupt cut off of both vertebral arteries at the level of C7.³⁹
39. Mr Strickland was admitted to the Intensive Care Unit at around 6.00 pm. After discussions between the ICU, trauma and spinal teams Mr Strickland was transferred for an MRI to delineate the extent of his spinal, vascular and cerebral injuries. According to the notes the MRI was performed between 7.00 to 8.00 pm and a report from the hospital indicates it occurred around 7.16 pm. The results were phoned through to the trauma registrar at 9.00 pm. The results confirmed the severe cervical injury with a severe

³⁴ Exhibit 2, Tab 30.

³⁵ Exhibit 1, Tab 11.

³⁶ T 66 – 67; Exhibit 1, Tab 11; Exhibit 2, Tab 30.

³⁷ Exhibit 1, Tab 11; Exhibit 2, Tab 30.

³⁸ Exhibit 2, Tab 30.

³⁹ Exhibit 1, Tab 11; Exhibit 2, Tab 30.

bilateral C5/C6 fracture dislocation complex. The MRI also confirmed total occlusion of both vertebral and basilar arteries and extensive brainstem infarction (dead areas within the brain).⁴⁰

40. The spinal injury was managed with traction as operating was not considered appropriate given the severe brain injury, which was determined to be non-survivable. No sedation was administered after 2.00 am on 19 January 2014 and at 7.00 am Mr Strickland's GCS remained 3/15. Numerous discussions were held between ICU consultants, spinal surgeons, neurosurgeons, intervention radiologists and neurologists with respect to ongoing management decisions regarding Mr Strickland but his condition did not improve. Further investigations identified findings consistent with a diagnosis of cerebral brain death and on 21 January 2014 a doctor certified Mr Strickland life extinct at 4.20 pm.⁴¹

EXPERT REVIEW OF THE MEDICAL CARE

Professor Mountain

41. At the request of the Court Associate Professor David Mountain reviewed the circumstances of Mr Strickland's medical management by the ambulance staff/paramedics and RPH staff prior to his death. Professor Mountain gave particular attention to concerns raised by Mrs Strickland in relation to:
- whether removal of the helmet during the initial examination by ambulance crews was appropriate;
 - an alleged delay in measuring Mr Strickland's temperature until after he reached RPH; and
 - alleged delays in assessment of Mr Strickland's injuries due to a lack of available staff to perform CT/MRI scans.⁴²
42. After summarising the medical treatment provided to Mr Strickland, Professor Mountain expressed the opinion that Mr Strickland's overall management was "well organised, co-ordinated and [met] current standards of care in almost all aspects."⁴³ Professor Mountain stated that the injuries sustained by Mr Strickland, although not immediately fatal, were in his opinion "inevitably fatal." In his opinion Mr Strickland had suffered a severe fracture dislocation of the cervical spine, most probably from a severe flexion injury with probably some rotational element as well, causing the bilateral fracture dislocations. He had a severe spinal cord injury with a severe laceration and this would almost certainly have eventually caused a high complete spinal cord injury. Mr Strickland already had evidence of severe spinal cord damage on the scene and this progressed rapidly before his arrival in RPH. Professor Mountain did not believe there was any possibility of either emergency surgery or other interventions "being able to reverse the processes that had started at the point of injury."⁴⁴

⁴⁰ Exhibit 2, Tab 30.

⁴¹ Exhibit 1, Tab 2 and Tab 11.

⁴² Exhibit 2, Tab 30.

⁴³ Exhibit 2, Tab 30.

⁴⁴ Exhibit 2, Tab 30.

43. In relation to the appropriateness of the removal of Mr Strickland's helmet. Professor Mountain noted that all ambulance crews are taught spinal immobilisation techniques and prioritise neck stability during all manoeuvres. Given the type of helmet involved, Professor Mountain thought it would be unlikely to be difficult to remove and he would not have expected any significant neck movement to occur. Professor Mountain noted there were severe ligamentous, disc, spinal cord and bony injuries consistent with a massive trauma injury sustained during the initial accident and the CT and MRI scans showed a hanging facet injury still present, suggesting no major new movement had occurred throughout his multiple transfers. Given these observations, Professor Mountain did not believe the removal of the helmet was either inappropriate or likely to have affected Mr Strickland's injuries or outcome.⁴⁵
44. A concern was also raised as to whether the imaging (CT and MRI) was delayed at RPH due to a lack of on-call staff. Professor Mountain could not confirm whether there were, indeed, staffing issues in radiology that afternoon/evening. Professor Mountain considered Mr Strickland was managed rapidly and appropriately on arrival to the RPH ED. After a quick assessment, early management of his airway and hyperthermia, and other early interventions, he was transferred to the CT scanner for his initial scans within 80 minutes of his arrival. Professor Mountain considered this was clinically appropriate timing and his CT scans were immediately available and reviewed in a timely manner. Appropriate further imaging with his CT angiogram of the neck vessels was then performed.⁴⁶
45. The decisions about whether to proceed to an MRI scan and whether there was a need for confirmation of the degree of injury were also considered to have been appropriately discussed between the relevant clinical teams. Professor Mountain acknowledged there may have been delays for getting an MRI scan if staff needed to be called in, although there was no documentation to that effect in the materials he reviewed. However, even if this were so, Professor Mountain did not believe a more rapid MRI scan would have made any difference to what was found or the management that was eventually provided. In his opinion, in all likelihood there were established massive brainstem infarcts at the time the initial CT angiogram of the neck was performed, and no intervention would have altered the inevitable course of those injuries.⁴⁷
46. The other area of concern raised was in relation to the monitoring and management of Mr Strickland's temperature. This was the only area where Professor Mountain expressed some grounds for concern about the management of Mr Strickland, and his concerns were limited to the *pre-hospital* environment. Professor Mountain noted it was not clear from the information available to him whether Mr Strickland was in open sunshine or shade when he was found but the ambient temperature that day was likely in the very high 30's. He was noted to be hot, flushed and mottled by both crews that saw him. The observations sheets for the retrieval team clearly

⁴⁵ Exhibit 1, Tab 30.

⁴⁶ Exhibit 1, Tab 30.

⁴⁷ Exhibit 1, Tab 30.

have temperature as one of the vital signs that is to be checked and monitored but no temperature was recorded.⁴⁸

47. Professor Mountain acknowledged that he had not been provided with the standard protocols for the retrieval helicopter teams but considered that at least one temperature measurement for a patient who will be at least an hour until completed transfer was important, especially in a very hot environment where the patient already looks hot and flushed. He noted that in trauma, temperature is an important issue, for both its effects on bleeding/coagulation and because of temperature dysregulation. Spinal injuries, in particular, are associated with problems with temperature control and hyperthermia. Professor Mountain noted that on arrival to the RPH trauma centre Mr Strickland was already confused with unintelligible speech, but felt it was impossible to know if this was due to his hyperthermia or the start of his brain infarctions/strokes, or both.⁴⁹
48. Overall, although Professor Mountain felt it was “regrettable”⁵⁰ that Mr Strickland’s temperature was not checked initially by the ambulance and paramedic crews and noted Mr Strickland clearly had an episode of significant hyperthermia, Professor Mountain was of the view that this was not likely to be the cause of his vertebral artery injuries and he had no doubt that the vertebral artery dissections and stroke would have occurred even without the hyperthermia as they were the inevitable consequences of the original injuries sustained when he crashed. Professor Mountain also acknowledged that it would have been very difficult to manage his temperature in the prehospital environment.⁵¹
49. A report from Royal Perth Hospital indicated that from the time of his arrival at RPH medical staff were acutely aware of Mr Strickland’s temperature and efforts were directed at seeking its cause and reducing the level to normothermia.⁵² The emergency department records note dropping temperatures at 3.06 pm, 3.16 pm and 3.33 pm and once he was in the ICU further attempts were made to elucidate the cause, as well as control, his temperature.⁵³ Professor Mountain made no criticism of the management of Mr Strickland’s temperature once he arrived at the hospital.

Professor Bailey

50. Professor Paul Bailey is the Clinical Services Director for St John Ambulance WA. He is a specialist in emergency medicine.⁵⁴ Professor Bailey was not involved in providing care to Mr Strickland, but he reviewed the case and provided a technical overview of the emergency care provided to Mr Strickland by St John Ambulance staff. He had an opportunity to review Professor Mountain’s report so that he could also address the comments made by Professor Mountain about the emergency services care.

⁴⁸ Exhibit 1, Tab 30.

⁴⁹ Exhibit 1, Tab 30.

⁵⁰ Exhibit 1, Tab 30.

⁵¹ Exhibit 1, Tab 30.

⁵² Exhibit 1, Tab 11.

⁵³ Exhibit 1, Tab 11.

⁵⁴ T 73.

51. Having reviewed the entirety of the care provided to Mr Strickland by St John Ambulance staff, from the taking of the initial call up until the hand over at the RPH ED, Professor Bailey indicated that he was left satisfied that the care his organisation provided was done “to an excellent standard.”⁵⁵
52. In relation to the removal of Mr Strickland’s helmet Professor Bailey expressed the opinion “it was both appropriate and sensible.”⁵⁶ He noted that the helmet would have to come off at some stage and it is difficult to put on a c-spine collar (intended to keep the neck still) whilst the helmet is still on. It is also important for the ambulance officers or paramedics to see whether there is any bleeding or injury to the head under the helmet that requires emergency treatment.⁵⁷ From his review of the relevant documents, Professor Bailey’s opinion accorded with Professor Mountain’s opinion that the removal of the helmet raised no concerns.
53. As to the issue of the failure to take Mr Strickland’s temperature, Professor Bailey indicated that St John Ambulance have a strong preference and policy in place for a comprehensive set of vital signs to be taken. This includes a temperature, pulse, blood pressure, respiratory rate and oxygen saturations. Professor Bailey acknowledged that in this case that policy was not adhered to as there was no indication that a temperature was taken in the pre-hospital environment. However, Professor Bailey considered that there were mitigating circumstances to explain why the temperature was not taken in this case and also why it would not have made a difference to his treatment, in any event.
54. Professor Bailey explained that, in the first instance, it is very difficult when a patient is wearing a c-spine collar to take a reading with a tympanic thermometer, which could explain why it was not done.⁵⁸ Professor Bailey noted that there was an opportunity to take the temperature between removing the helmet and putting on the collar, which he described as a “missed opportunity,”⁵⁹ but once the collar was on it was no longer practical to take the temperature with the usual equipment and it would have been inappropriate to remove the collar for that purpose, given Mr Strickland had a suspected spinal injury.⁶⁰ Professor Bailey thought it was most likely overlooked rather than intentionally not done at the time before the collar was put on.
55. Professor Bailey also indicated that the tympanic thermometers are unreliable at extremes of ambient temperature. Given it was known that the temperature that day was extremely hot, and Mr Strickland was lying in the full sun next to the road, Professor Bailey thought it was unlikely the tympanic thermometer would have been able to give an accurate reading.⁶¹ Professor Bailey did not suggest that this was the reason why no temperature reading was attempted but merely raised it to indicate that even

⁵⁵ T 78.

⁵⁶ T 76 – 77.

⁵⁷ T 77.

⁵⁸ T 79 – 80.

⁵⁹ T 86.

⁶⁰ T 87.

⁶¹ T 79 – 80.

if an attempt had been made to record Mr Strickland's temperature, it may not have been accurate or able to be relied upon.

56. Further, Professor Bailey advised that there is no treatment for elevated temperature available on the rescue helicopter. A number of reasons were given for this, including:
- it is unusual for this rescue service to encounter hot patients (they are more commonly cold from exposure);
 - the strict weight limits on board make it impractical to bring bags of ice; and
 - the helicopter interior is very hot so it would not stay cool.⁶²
57. It follows that, even if a temperature reading had been taken on the roadside, the helicopter paramedics could not have provided any treatment to Mr Strickland to lower his temperature. Professor Bailey also said that ice is not routinely carried in road ambulances, and noted that it is "actually very hard to cool hot people"⁶³ even with the right equipment.
58. In summary, Professor Bailey's evidence was that knowledge of Mr Strickland's high temperature at an earlier stage would have made no difference to his immediate management and care he received at the scene. Professor Bailey suggested the only advantage of taking a temperature at an earlier stage was that it would have aided in the handover at RPH, so that an actual temperature could have been given rather than just information that Mr Strickland appeared very hot.⁶⁴
59. In those circumstances, Professor Bailey said he was "quite comfortable with the temperature not having been measured"⁶⁵ even though it was generally his preference that it be taken wherever possible

Comment on the failure to take Mr Strickland's temperature

60. Taking into account the evidence of both Professor Mountain and Professor Bailey, there is no doubt that it would have been preferable for the ambulance officers to have at least attempted to take Mr Strickland's temperature prior to placing the cervical collar on him at the scene. However, I accept the evidence of Professor Bailey that it would have made no difference to the care or treatment that could have been provided to Mr Strickland prior to his arrival at RPH. Once Mr Strickland arrived at the hospital his high temperature was immediately noted and addressed, so it made little to no difference to how he was then treated at the hospital.

⁶² T 79 – 81.

⁶³ T 87.

⁶⁴ T 82, 88 - 89.

⁶⁵ T 82.

CAUSE AND MANNER OF DEATH

61. Mrs Strickland lodged an objection to a full internal post mortem examination being conducted on Mr Strickland. Mrs Strickland indicated that she believed that the cause of death was obvious and felt little further information would be obtained from autopsy. She also felt her husband had been through enough.
62. Based upon an external examination, limited information about the crash and a review of Mr Strickland's Royal Perth Hospital medical records, Forensic Pathologist Dr A.V Spark formed the opinion that the cause of death was consistent with complications of neck injury.⁶⁶ Noting the family's position, and given the conclusion Dr Spark was able to provide, the objection to a full internal post mortem examination was accepted by the Deputy State Coroner.
63. Toxicology of Mr Strickland's plasma obtained in hospital and his post mortem blood found no alcohol or illicit drugs and medications consistent with his medical treatment.⁶⁷
64. By the time of the inquest hearing Dr Spark was no longer employed in Western Australia, so another very experienced forensic pathologist, Dr Clive Cooke, reviewed the post mortem findings and attended the inquest so he could speak to Dr Spark's report. Dr Cooke gave evidence that he agreed with Dr Spark's conclusions. Accordingly, I accept and adopt the conclusion of Dr Spark as to the cause of death.
65. Taking into account the circumstances leading up to Mr Strickland sustaining the neck injury, I find that the manner of death was accident.
66. Dr Cooke was asked whether Dr Spark would have had an opportunity to view Mr Strickland's motorcycle helmet during her post mortem investigation. Dr Cooke thought it was unlikely as it has been quite a few years since helmets have been delivered to the mortuary following a motorcycle crash, although in the past it was done regularly and routinely. As to the benefit of receiving the helmet, Dr Cooke indicated that it can be helpful to a pathologist to assist with defining a point of impact to the head and to explain some mechanisms of the causation of an injury but otherwise, in Dr Cooke's opinion, it would not really assist very much in the post mortem examination and determining the cause of death.⁶⁸
67. A question was raised during the evidence as to whether Mr Strickland's injuries may have been prevented if he had worn a different helmet. Dr Cooke expressed the opinion that the evidence is unequivocal that helmets protect from head injury, but given Mr Strickland died from a neck injury, Dr Cooke did not think the choice of helmet played a part in his death.⁶⁹

⁶⁶ Exhibit 1, Tab 6.

⁶⁷ Exhibit 1, Tab 7.

⁶⁸ T 96; Exhibit 1, Tab 5A.

⁶⁹ T 98; Exhibit 1 Tab 5A.

68. Dr Cooke's attention was drawn to the expert report of Mr Michael Griffiths, a biomedical engineer, and in particular Mr Griffiths' opinion that Mr Strickland would not have sustained his fatal injuries had he worn an Australian standards compliant helmet. Dr Cooke noted that he had not seen any data in Mr Griffiths' report that allowed Mr Griffiths to reach that unequivocal conclusion, acknowledging that he is naturally conservative and also may have missed other data that supported the conclusion.⁷⁰
69. Dr Cooke agreed that Mr Strickland's injuries could properly be explained by the account given that he had gone over his motorcycle's handlebars and landed on the top of his head and, in effect, put upward pressure on his upper spine. Following that reasoning, Dr Cooke said that on first principles you might expect some protection to the neck if the helmet had an energy absorbing liner. However, he was uncertain as to the degree of protection that could be provided to the neck by the lining.⁷¹ Based upon his observation of the photographs of Mr Strickland's helmet, Dr Cooke said that the impact appeared to be towards the top of the forehead region and so he would expect there to be a combination of compression injury plus flexion injury, and possibly even extension and rotation injury.⁷²
70. Dr Cooke described Mr Strickland's injury as a very severe cervical spine injury and he agreed with Professor Mountain that the injury was sustained in the crash and was non-survivable, in the sense that it would lead to complications that would inevitably cause death, such as strokes to the brain stem.⁷³

CAUSE OF THE CRASH

Sergeant Taylor's evidence

71. As noted above, Sergeant Taylor attended the scene shortly after the crash and helped tend to Mr Strickland. While at the scene Sergeant Taylor spoke briefly to Mr Strickland, who was still conscious and alert and able to converse. At no stage did Sergeant Taylor see Mr Strickland lose consciousness.⁷⁴
72. Mr Strickland provided his personal details, including the details of his wife, who he asked to be contacted and informed of the crash. Sergeant Taylor could not call Mrs Strickland immediately as there was no communication coverage at the crash location. Sergeant Taylor confirmed he would call her after the ambulance staff had arrived and he could leave the scene.⁷⁵

⁷⁰ T 99.

⁷¹ T 101, 103.

⁷² T 102 - 103.

⁷³ T 104 - 105.

⁷⁴ T 13, 15.

⁷⁵ T 7, 12 - 13.

73. In relation to the crash Mr Strickland told Sergeant Taylor words to the effect that:
- He wasn't exceeding the speed limit when he entered the corner and was doing about the speed limit of 110 km/hr;
 - The corner tightened and he was unable to maintain his position on the surface of the road even after slowing his speed;
 - He had left the road riding into the stormwater drain before stopping suddenly;
 - He was thrown from the motorcycle over the handlebars after the rear end "kicked up."⁷⁶
74. There was no evidence to suggest another vehicle or person was involved in the crash.⁷⁷ Sergeant Taylor felt that he had no reason to disbelieve Mr Strickland's statement that he was not exceeding the maximum speed limit of 110 km/hr at the time he entered the bend.⁷⁸
75. Sergeant Taylor noted the section of road in the vicinity of the crash site was a sealed single carriageway with a single lane in each direction. The lanes were separated by double white lines. The lines on the outside edge of the road appeared to have recently been repainted.⁷⁹ Both sides of the road were heavily lined with trees and scrub. The southern side of the road verge had a wide and deep open stormwater drain that contained large items of discarded rubbish, including traffic management signs, sandbags and gum tree branches.⁸⁰
76. The right hand sweeping curve went slightly downhill and 'tightened up' a little halfway through the bend when travelling in a westerly direction. Sergeant Taylor noted that while the speed limit was 110 kilometres/hour in both directions, there were advisory signs alerting traffic to travel at a reduced speed (he believed it was 90 km/hr but other evidence indicates the advisory speed was 80 km/hr) on the curve.⁸¹
77. Sergeant Taylor was asked whether he recalled if the advisory sign posted in the direction that Mr Strickland was heading was concealed by vegetation. Sergeant Taylor's response was uncertain on that point as he was walking around the area rather than riding a motorcycle at the time. However, he said that if it was partly obscured by vegetation, as an experienced rider he would note the pole in any event from some distance away and as he got closer, and the obstacle cleared, he would make sure to observe the sign.⁸²
78. Sergeant Taylor accepted that more photographs taken at the scene would have helped with issues such as this, but at the time he first attended the crash scene the only camera belonging to Gingin police station was being used for a drug search warrant being executed, which is why he only used his person mobile to take photographs. He also believed at the time that it

⁷⁶ T 7, 28, 36; Exhibit 1, Tab 2.

⁷⁷ T 36.

⁷⁸ T 9.

⁷⁹ T 42 – 43.

⁸⁰ Exhibit 1, Tab 2.

⁸¹ T 44 – 45; Exhibit 1, Tab 2 and Tab 8.

⁸² T 43.

was not likely to be a fatality. Sergeant Taylor acknowledged that after he became aware Mr Strickland had died, he could have returned to the scene to take more photographs, and agreed he would do so if the same situation presented itself today.⁸³

79. It appeared to Sergeant Taylor from the physical evidence and the account of Mr Strickland that Mr Strickland was unable to negotiate the right hand bend when travelling at a speed of 110 km/hr and he was forced to travel off the road.⁸⁴
80. Once he left the roadway, the two options available to Mr Strickland were either to lay down his bike and bear the impact of the fall or keep the bike upright and try to ride it out off the road. The evidence supports the conclusion Mr Strickland chose to try to ride it out. No tyre brake marks were evident on the surface of the road prior to where the motorcycle departed from the road and travelled into the stormwater drain. Fresh soft tyre marks from the motorcycle were observed in the stormwater drain, mainly on the right hand edge, giving the appearance Mr Strickland had tried to avoid a number of obstacles that were located in the drain.⁸⁵ No skid marks or scrape marks were visible.⁸⁶
81. In Sergeant Taylor's opinion Mr Strickland did a relatively good job of avoiding obstacles in the drain, travelling some distance and missing most of them. Sergeant Taylor said he was quite impressed by how well Mr Strickland had successfully avoiding various objects. However, towards the very end of the drain Sergeant Taylor observed a log and large rock that together lay perpendicular across the full length of the drain and were unavoidable. Sergeant Taylor observed that there was evidence of movement from within the dirt around the log, which indicated to him that Mr Strickland had definitely hit the log. It was his assessment that Mr Strickland's motorcycle's back wheel was more likely to have struck the log than the front wheel, given the description of the bike kicking up at the back and the lack of any damage to the front wheel of the motorcycle.⁸⁷ Mr Strickland was then propelled over the handlebars and travelled several metres through the air and landed on the top of his head on the ground, coming to rest in low scrub approximately three metres from the road's edge. This is essentially the action that Mr Strickland described to Sergeant Taylor at the scene.⁸⁸
82. Mr Strickland's motorcycle was located by Sergeant Taylor upright, leaning against the right hand side wall of the stormwater drain.⁸⁹ As noted earlier, there was evidence that the motorcycle had originally been on its side but witnesses who stopped to assist had put it upright as they were concerned it was leaking fuel. Sergeant Taylor could see that the motorcycle had bent handle bars and bent front forks.⁹⁰ As noted above, the exact location where

⁸³ T 47, 57.

⁸⁴ Exhibit 1, Tab 2.

⁸⁵ Exhibit 1, Tab 2.

⁸⁶ T 16.

⁸⁷ T 41.

⁸⁸ T 11, 42, 59.

⁸⁹ Exhibit 1, Tab 2.

⁹⁰ T 8 - 9; Exhibit 1 Tab 8.

the motorcycle landed could not be confirmed as it may have been moved slightly when it was put upright.

83. Mr Strickland's motorcycle was examined by two qualified heavy duty mechanics and vehicle examiners from the WA Police Vehicle Investigation Unit. The motorcycle was found to have sustained damage to the left hand side and the rear tyre had been deflated due to crash damage to the rim.⁹¹ No run marks were visible to the sidewalls of the deflated tyre indicating that the tyre had not been driven on whilst flat. No defects were found in the motorcycle that were not crash related.⁹² There were no unusual modifications to the motorcycle and all its features were compliant.⁹³ It was described as well maintained and in good condition for its age.⁹⁴
84. Sergeant Taylor is a very experienced motorcycle rider, having been involved in riding motorcycles for many years both in his private capacity and as a police officer. He has raced motorcycles and is a trained motorcycle pursuit rider.⁹⁵ His conclusions came from his examination of the scene, together with his experience as a motorcycle rider and his training as a police investigator. However, Sergeant Taylor did not purport to be a trained crash investigator.
85. Sergeant Taylor indicated that he has ridden the section of Julimar Road where the crash occurred before it was altered and he considered that the ability to take the corner at speed on a motorcycle depended upon the type of motorcycle being ridden. He explained that motorcycles perform differently depending upon the style of bike. For example, a Japanese sports style bike would be able to travel a lot faster around a sharper corner than an open cruiser style bike, as the former is able to lean over at a greater angle than the latter due to the different riding angle and wheelbase.⁹⁶
86. In Sergeant Taylor's experience, any type of motorcycle could take the particular corner of Julimar Road at the maximum speed limit provided the road position taken by the rider was correct. However, it could be taken much faster on a sports bike than a cruiser style bike.⁹⁷ Sergeant Taylor has travelled that section of road doing police training and taken the corner in excess of 140 km/hr on a Japanese sports bike but he accepted that this would not be possible on a cruiser style bike. However, he still maintained that a cruiser style motorcycle could successfully navigate the corner at 110 km/hr.⁹⁸
87. Sergeant Taylor described the particular corner as a sweeping corner, rather than a tight corner, but he noted it tightened up as the rider entered it. He indicated that this could surprise a rider if they were not familiar with the corner. For a rider travelling the other direction the road opens up so there

⁹¹ There was some evidence provided by Mrs Strickland that the motorcycle may have sustained some of its damage

⁹² Exhibit 1, Tab 2.

⁹³ T 16.

⁹⁴ T 16.

⁹⁵ T 8.

⁹⁶ T 9 - 10.

⁹⁷ T 10.

⁹⁸ T 25.

is not a similar problem when heading the other way.⁹⁹ Sergeant Taylor agreed with the proposition that a rider unfamiliar with the road might be misled into thinking that they could make the corner at a higher speed than really was feasible, depending upon their skill and their vehicle.¹⁰⁰

88. Sergeant Taylor said that he usually would enter the corner pretty much on the double white lines as if he started too far to the outside of the road it left too little room to manoeuvre. If a rider did not take the correct road position and then did not adjust and counter-steer, it could cause the rider to start drifting out to the side of the roadway and they would run into trouble and run out of road to make the turn. The motorcycle would then leave the roadway and enter the stormwater drain. This is what appeared to have happened to Mr Strickland.¹⁰¹
89. Sergeant Taylor agreed that speed and road positioning are of constant importance when riding a motorcycle and the line you take on a corner is based upon what the rider sees before them. If, as is not uncommon, the rider cannot see all the way around a corner, it is sensible to approach it in a manner that is careful to accommodate whatever might happen in that bed.¹⁰² Sergeant Taylor accepted the proposition that an 80 km/hr advisory sign would generally indicate there is something untoward about the corner that would suggest a person couldn't or shouldn't go around that corner at the speed limit, and he would expect a normal road user to pay attention to an advisory sign.¹⁰³ Sergeant Taylor also gave evidence that he believed an earlier black spot road sign would provide information to a motorcyclist about possible hazards ahead.¹⁰⁴
90. Sergeant Taylor explained his position as follows,¹⁰⁵

when you're on a motorbike you're taking everything that you can get, because at the end of the day, realistically, you've got the size of a 50 cent piece on the back wheel, and the size of a 20 cent piece on the front wheel. That's all the grip you have on a road at any one time. So when you do your risk assessment and you make decisions on what you want to do, you take in all the available information, and if there's an advisory sign there you go, why is that there; if there's a black spot sign there, why is that there... You don't ever stop doing a risk assessment while you're riding.

91. In his report prepared for the Coroner, Sergeant Taylor expressed the conclusion that Mr Strickland contributed to the crash by travelling at a speed that was not commensurate with the road feature he was negotiating.¹⁰⁶

⁹⁹ T 46.

¹⁰⁰ T 46 – 47.

¹⁰¹ T 10, 25 - 26.

¹⁰² T 35.

¹⁰³ T 38.

¹⁰⁴ T 37.

¹⁰⁵ T 38.

¹⁰⁶ Exhibit 1, Tab 2.

Mr Davey's evidence

92. Mr Robert Davey is a self-employed motor vehicle accident consultant. Mr Davey has several qualifications and many years of experience that have enabled him to develop an expertise in crash reconstruction. Mr Strickland was requested by lawyers acting for Mrs Strickland for other proceedings to review the events involving Mr Strickland's fatal crash and provide an opinion as to the likely cause of the crash. Mr Davey's final report was helpfully provided to this Court for the purpose of the inquest and formed part of the brief of evidence.¹⁰⁷ Mr Davey also gave oral evidence at the inquest to expand upon his findings.
93. Mr Davey personally attended the scene of the crash on three occasions, being 5 July 2014, 7 August 2014 and 14 January 2015, and had a survey of the relevant area prepared to his specifications. He also reviewed the evidence of the police investigation. Mr Davey noted there was little photographic evidence and no measurements of tyre marks or the like. Mr Davey took into account the evidence of Mr Strickland's dying declaration to Sergeant Taylor at the scene in reconstructing the events. Various calculations done by Mr Davey concluded that Mr Strickland was probably correct in his estimation of his speed at approximately 110 km/hr as he entered the corner.¹⁰⁸
94. Mr Davey noted changes to the signage during his various visits to the crash site and some other changes. Mr Davey noted that on his first visit to the scene in July 2014 there was an 80km/hr advisory sign on the left hand side of the road and a curve sign on the right hand side of the road. He noted that at that point the commencement of the bend was visible but the centre of the bend or termination of the bend was not as the trees on the right hand side of the road masked the severity of the bend and length of the bend. Mr Davey described this as "quite crucial"¹⁰⁹ and agreed this was because it could affect the perception of the person travelling down the road as to the severity of the corner.¹¹⁰ Mr Davey explained that when driving we make up our minds about the severity of a bend and the appropriate speed to take it based on certain markers or features of the bend, "and one of them is obviously the tightness and the length of the bend."¹¹¹
95. On reviewing the bend Mr Davey noted that it "tightens up towards the centre,"¹¹² which was consistent with the description given by Mr Strickland to Sergeant Taylor. Mr Davey went on to explain that having taken radius measurements, it was apparent the bend becomes "more severe, so the radius of the bend decreases."¹¹³ From his measurements, the radius of the curve started off at 240 metres, decreased to 140 to 150 metres at the apex and then on the exit it opened back out again to approximately 270 metres.¹¹⁴

¹⁰⁷ Exhibit 2, Tab 34.

¹⁰⁸ T 152 – 153.

¹⁰⁹ T 155.

¹¹⁰ T 155.

¹¹¹ T 155.

¹¹² T 156.

¹¹³ T 157.

¹¹⁴ T 158 - 159; Exhibit 2, Tab 34 [5.1.6].

96. Mr Davey's evidence was that the change in radius was significant because, if a driver knew it was there, you would expect they "would probably travel at a slower speed."¹¹⁵ Mr Davey accepted that the advisory speed sign suggested a speed of 80 km/hr for the bend.¹¹⁶
97. Mr Davey also noted a patch of repaired road on the apex of the bend, which was referred to in the Main Roads report as a "poorly reinstated road surface patch." Mr Davey observed that deformed pavement can lead to reduced riding quality, thereby causing loss of skid resistance and control, particularly for motorcycle riders.¹¹⁷ Mr Davey felt the evidence available was entirely consistent with Mr Strickland leaving the road close to that repaired patch of road.¹¹⁸ It was also consistent with Mr Strickland travelling through the drain for a distance.
98. Mr Davey looked at the object in the drain and saw the log referred to by Sergeant Taylor, although at the time he viewed the scene the log was parallel to the road, and also some rocks. Mr Davey examined the rocks in the area and found no obvious sign that any had been in contact with something hard, such as a motorcycle, although he conceded that they had been moved around and it was some months after the event.¹¹⁹ Mr Davey did, however, find evidence on Mr Strickland's motorcycle that the exhaust pipes had collided with what he believed to be rocks in the drain.¹²⁰ Mr Davey noted the damage was symmetrical, which suggested to him the bike was still upright and was not travelling sideways when it hit a hard object, which he felt was likely to have been a rock.¹²¹
99. Mr Davey noted Mr Strickland was riding a Harley Davidson motorcycle. These motorcycles are "not known for their handling abilities,"¹²² as compared to a Yamaha or Japanese sports bike. A Harley Davidson is designed for cruising rather than the other types of bikes mentioned, which are designed for racing. The differences in construction between the two types of machine are that a racing bike is designed with a higher centre of mass and a significant ground clearance, whereas the cruiser style has components such as the exhaust pipes set much closer to the ground. For a motorcycle to turn a corner it requires the rider to lean the motorcycle in the required direction, and the lower exhaust pipes and other components of a Harley Davidson limit the ability of the rider to lean to one side without touching the ground surface.¹²³
100. Mr Davey performed some rudimentary calculations based on centrifugal force based on information supplied by Harley Davidson as to the ground clearance of their motorcycles, but not taking into account other factors such as suspension compression, tyre width or the rider's weight and skill.

¹¹⁵ T 158.

¹¹⁶ T 158.

¹¹⁷ T 160 – 161.

¹¹⁸ T 163 – 164.

¹¹⁹ T 165 – 166.

¹²⁰ T 171.

¹²¹ T 173 – 174, 176.

¹²² T 168 – 169.

¹²³ T 177; Exhibit 2, Tab 34 [6.5].

Using these basic calculations Mr Davey concluded the lean angle required to negotiate the bend at its sharpest point (with a radius of 140 metres) at 110 km/hr was 34 degrees, which was beyond the lean capability of a standard modern Harley Davidson. Mr Davies' calculations therefore suggested that Mr Strickland could not have safely negotiated the corner on his Harley Davidson at the maximum speed limit of 110 km/hr.¹²⁴

101. I asked Mr Davey whether he would expect that it would be well-known by motorcycle riders that there is a difference between what a road bike can manage in terms of angles and a cruiser style motorcycle. Mr Davey said he believed that "if you've owned a Harley Davidson, you would know that."¹²⁵

102. Mr Davey did accept that it might have been possible for Mr Strickland to travel at a higher speed around the corner if he had taken what is described as the 'racing line', which is a way of passing through the bend that increases the radius of the bend for the rider. However, Mr Davey suggested that the rider "would have to know that bend intimately to get the racing line."¹²⁶ The rider would also run the risk of meeting oncoming traffic head on as it is a blind corner.¹²⁷

103. Mr Davey's calculations supported the conclusion Mr Strickland's Harley Davidson motorcycle was capable of taking the corner at 80 km/hr, the speed recommended by the speed advisory sign.¹²⁸ Mr Strickland would, however, have had to be slowing to that advised speed before he actually entered the bend. Mr Davey explained that if Mr Strickland approached the corner at 110 km/hr and then realised that the corner had tightened, he wouldn't be able to suddenly brake and reduce his speed to 80 km/hr as he would have probably been close to the maximum lean angle anyway at that point and if he braked heavily and locked the rear wheel the bike would fall over.¹²⁹

104. Mr Davey was asked whether he had seen any evidence that the 80 km/hr advisory sign on the approach coming from the west was obscured by vegetation, either at the time he inspected it in July 2014 or shortly after Mr Strickland's accident. Mr Davey's evidence was that the sign was not obscured when he viewed it, and he had not seen any photographs showing that sign to be obscured at an earlier stage.¹³⁰

105. In conclusion, Mr Davey's evidence was generally consistent with Sergeant Taylor's evidence that the crash occurred because Mr Strickland was unable to negotiate the bend on his Harley Davidson motorcycle at his entry speed into the corner of 110 km/hr. Both Sergeant Taylor and Mr Davey expressed the opinion Mr Strickland was most likely taken unawares by the bend tightening up, and by the time he realised it was too late for him to reduce his speed to a level that would allow him to safely negotiate the bend. However, if he had entered the bend at the advisory

¹²⁴ T 170 – 171; Exhibit 2, Tab 34 [6.7] – [6.8], [.8] – [8.11].

¹²⁵ T 180.

¹²⁶ T 185.

¹²⁷ T 190.

¹²⁸ T 178 - 179; Exhibit 2, Tab 34 [6.7] – [6.8], [.8] – [8.11].

¹²⁹ T183 – 184.

¹³⁰ T 193.

speed of 80 km/hr, he would have had a good chance of safely negotiating the bend.

106. In the submissions filed on behalf of Mr Strickland's family it was suggested there is no evidence whether Mr Strickland saw the 80 km speed advisory sign on the left side of the road before the bend, and the related footnote commented that "there is a suggestion that this sign was partially concealed" and a reference is made to a photograph in the Main Roads Crash Location Report.¹³¹ However, as noted above, this proposition was put to Mr Davey, who had viewed the photographs taken in January 2014 and his response was that he had "not seen any photographs showing that sign to be obscured"¹³² although it was smaller than the sign that later replaced it.

107. The author of the Main Roads Crash Location Report also noted that curve warning signs with advisory speeds were installed prior to the curve, and the curve warning sign on the eastbound approach was partially obscured by vegetation. However, this was not related to the crash as it was for traffic heading in the opposite direction.¹³³ There was no similar finding of vegetation obscuring the signage for the westbound approach, which is the direction Mr Strickland was heading.

108. It is, of course, still possible that for some reason Mr Strickland did not see the 80 km/hr advisory speed sign even though it was not obscured, but there is no good reason put before me for him not to have seen it. He had already travelled along a large portion of Julimar Road, which the evidence indicates is a windy road with a number of advisory speed curve signs, so he would have been alert to the possibility such a sign would be present on this approaching curve. The evidence of the other experienced motorcyclists at the inquest was that an experienced motorcyclist would be alert and looking for any signs or information that might affect their passage. If, as I'm told, Mr Strickland was an experienced motorcyclist, there is no reason to think he would not be taking a similar approach.

109. I did also ask Mr Johnson, who appeared on behalf of the family at the inquest, if he could provide information on whether it was known if Mr Strickland had ridden on Julimar Road before that day. Surprisingly, given my question, in the submissions filed on behalf of the family it was said that it was common ground that he had not ridden on the relevant section of road before.¹³⁴ I would not put it so, given there was no direct evidence about it, but I will take it that the instructions of the family are that they understood this to be the first time that Mr Strickland had ridden on Julimar Road. In my view, while this suggests he could easily have been taken by surprise that the corner tightening up, given his unfamiliarity with the road, it would also suggest that as a safety conscious rider he should have been approaching every corner cautiously as he was unfamiliar with the road and it would have been apparent to him, as an experienced rider, that the curvy nature of the road presented some challenges to motorcycles,

¹³¹ Exhibit 1, Tab 12, Photo 1.

¹³² T 193.

¹³³ Exhibit 6, Tab 8 [5.7.2]>

¹³⁴ Submissions to the Coroner filed on behalf of the family of Mr Strickland, filed 30 November 2018 [1.2].

particularly driving at the maximum speed limit of 110 km/hr on a Harley Davidson.

OTHER INCIDENTS ON JULIMAR ROAD

110. As mentioned at the start of this finding, Julimar Road is known to be a very popular road for motorcyclists. Sergeant Taylor explained at the inquest that the reason that motorcyclists choose to ride this road is because there are not many windy roads close to Perth and Julimar Road is one of the few roads that fits that description. He went on to explain that travelling on a windy road means a motorcyclist can test their ability and their machine. They are “testing how low, how quick, how fast can [they] get around this corner safely.”¹³⁵
111. Sergeant Taylor understood the previous reported crashes on Julimar Road in the years prior were most commonly motorcycles involved in single vehicle crashes. Sergeant Taylor described them as generally involving “rider error.”¹³⁶ The claim that most of the crashes involve motorcycles is generally borne out by the Main Roads crash data that came before the Court, although I note there were some identified errors in the data, such as the wrong crash location for a 2011 fatality. Nevertheless, in general it showed the majority of crashes involved motorcycles travelling during daylight hours on weekends, and generally occurred on a curve.
112. Another police officer called as a witness, Senior Sergeant Paul Gale from the WA Police State Traffic Intelligence Planning and Coordination Unit, described Julimar Rd as a “rider’s delight.”¹³⁷ He stated that Chittering Road together with Julimar Road has been “touted for decades as one of the premiere riding roads in Western Australia. It is documented and published in books for riding enthusiasts across Australia.”¹³⁸
113. Senior Sergeant Gale explained that “[e]very curve is a risk for a rider but it comes down to the environment, the behaviour, the type of motorcycle, the type of road surface, so there’s a number of factors that contribute to whether that curve is a dangerous curve or whether it’s not a dangerous curve.”¹³⁹ In providing his own opinion about why there have been so many motorcycle crashes on Julimar Road, Senior Sergeant Gale believes it “comes down to speed.” In his opinion the road itself is safe, noting he has ridden it probably 100 times in the last four years as part of the police regional motorcycle training.¹⁴⁰ During that regional road training the police will ride at speeds that are authorised, which are higher than the road’s speed limit, and in Senior Sergeant Gale’s opinion “the road itself is conducive to being able to ride safely on that road” but the serious crashes that have occurred there for the majority have been causally related to speed.¹⁴¹

¹³⁵ T 38.

¹³⁶ T 48.

¹³⁷ T 113.

¹³⁸ T 113.

¹³⁹ T 113.

¹⁴⁰ T 113 - 114.

¹⁴¹ T 114.

114. Senior Sergeant Gale agreed with the comments of Sergeant Taylor that it can depend upon the type of motorcycle being ridden as sports bike and cruiser style bikes have different attributes in terms of braking and handling, which means they are ridden remarkably differently and a road such as Julimar Road requires the rider to tackle it differently depending upon the type of motorcycle.¹⁴² Nevertheless, similarly to Sergeant Taylor's evidence, Senior Sergeant Gale expressed the opinion that Julimar Road's speed limit of 110 km/hr can be done safely by any licensed motorcycle rider, not just a trained police motorcycle rider.¹⁴³
115. I pause to observe at this stage that there is an open coronial investigation in relation to the death of a police officer who sustained fatal injuries in a motorcycle crash that occurred whilst he was undertaking 'on public road training' on Julimar Road in early December 2017. Without going into detail, I note the circumstances of the crash have some similarities to the current matter, involving a loss of control by a single motorcyclist while travelling at speed around a bend. I do not in any way seek to pre-empt the outcome of the other investigation, but it does highlight ongoing issues with Julimar Road for motorcyclists after the death of Mr Strickland and I am led to understand that police motorcycle training is not currently being undertaken on Julimar Road while investigations continue.
116. Additional information was provided at the inquest about some of the specific prior incidents that were related to the same crash location where Mr Strickland's crash occurred. Crash data analysis for the five year period 1 January 2008 to 31 December 2012 identified five other reported crashes that all occurred during daytime on a weekend and involved 'off path on curve' crashes. Three of the crashes led to hospital treatment. There were also two fatal run-off crashes involving westbound motorcycle riders in August 2006 and February 2011.
117. The incident in 2006 was a coronial case that involved the death of a male motorcyclist after he crashed his Triumph motorcycle while riding alone on Julimar Road, 3.7 km east of Chittering Road, on 17 August 2006.
118. The February 2011 fatality involved the death of another single male motorcyclist at the same bend.
119. Sadly, the memorials in place commemorating the deaths of those men have now been joined by that of Mr Strickland. In the submissions filed on behalf of the family it is noted that the proximity between the three fatalities in 2006, 2011 and 2014 is most evident when the position between Mr Strickland's finishing point and the monuments to the two other men are viewed. Further, it was submitted that it was significant that all three fatalities involved a single motorcyclist being unable to negotiate the bend in the same direction, and leaving the roadway at roughly the same location.¹⁴⁴

¹⁴² T 114.

¹⁴³ T 114.

¹⁴⁴ Submissions to the Coroner on behalf of the family of Mr Strickland filed 30 November 2018.

120. Mrs Strickland, on behalf of all of Mr Strickland's family, asks why lessons were not learnt from these deaths and changes made to prevent another life being needlessly lost. I move on now to consider the evidence of what was done after the other two fatalities, and prior to Mr Strickland's death, to see if that question can be answered.

REMEDIAL REPAIRS TO JULIMAR ROAD – PRIOR TO MR STRICKLAND'S DEATH

121. Mr Alan Sheridan is the current Chief Executive Officer for the Shire of Chittering. He has only held this role with the Shire since April 2016, so any information he provided about the Shire's actions prior to that date was provided by resources available to him, rather than firsthand knowledge.

122. Mr Sheridan acknowledged that the Shire is, and was, responsible for the relevant section of Julimar Road where the fatal crash involving Mr Strickland occurred as the Shire is responsible for the first 5.4 kilometres from the junction with Chittering Road (SLK 0 to SLK 5.4)¹⁴⁵. The remainder of Julimar Road comes under the responsibility of the Shire of Toodyay.¹⁴⁶

123. Following the fatality in 2006 and a number of other crashes on the road, the Shire commissioned a Road Safety Audit in July 2008 that covered parts of Julimar Road that came within the Shire's responsibility. Mr Sheridan advised that the Shire is a relatively small local government, with around 2000 rateable properties, so there is not a lot of revenue generated. Accordingly, like a lot of rural shires, the Shire relies on funding from other sources such as the State and Federal Government to undertake projects, including improving road safety.¹⁴⁷ The Road Safety Audit is generally the first step towards planning any remedial action on a road, particularly where external funding is required.

124. Mr Sheridan described the Black Spot funding process as reactive in the sense it works retrospectively by looking at past incidents and identifying issues that need to be rectified, rather than proactively considering potential safety concerns.¹⁴⁸ However, Mr McMahon from Main Roads considered the road safety audit approach to funding, as was undertaken by the Shire, to be a more proactive approach than the other pathway for obtaining Black Spot funding. That is because the other pathway is based on crash history and uses a benefit crash ratio, weighing the cost of the proposed project against the cost associated with the known crashes. In comparison, while the road safety audit approach may consider previous crashes, the auditor also looks at potential crash risk issues that may not have been related to a previous crash.¹⁴⁹ Mr McMahon explained that the road safety audit approach may be used where the crash history might be insufficient to gain funding but the potential risk is recognised.¹⁵⁰

¹⁴⁵ SLK standing for Straight Line Kilometres.

¹⁴⁶ T 203; Exhibit 1, Tab 13.

¹⁴⁷ T 205.

¹⁴⁸ T 254.

¹⁴⁹ T 263 – 264.

¹⁵⁰ T 264.

125. The 2008 Road Safety Audit covered Julimar Road from SLK 0.1 to SLK 3.7, so stopping just short of the area where Mr Strickland's crash occurred (at SLK 3.83). The 2008 Road Safety Audit recommended the following remedial work for that section of Julimar Road:

- Reducing the vegetation to improve sight lines through curves;
- Reinstating and upgrading flood damaged drainage and gravel shoulders and widening shoulders in certain areas;
- Installing winding road and speed advisory signs at the start and finish of the road;
- Installing centre and side line road markings along the entire section of the road; and
- Installing guide posts along the entire section of the road.¹⁵¹

126. Following the 2008 audit the Shire applied for Black Spot Funding to undertake the works. Later in this finding I discuss the types of Black Spot funding and the competing demands upon the system, but at this stage it is sufficient to note that Black Spot funding was granted. The recommended works were then completed in 2010.¹⁵²

127. The works undertaken included some improvements to the entire length of road up to SLK 5.4, including road widening, line-marking and vegetation clearing.¹⁵³ In relation to the vegetation clearing, Mr Sheridan was not able to say specifically where the vegetation was cleared, although some of the works were done beyond the area designated in the funding application. There was evidence from the Shire that money was spent removing vegetation and improving sightlines on 1 December 2009 from SLK 0.10 to SLK 3.70 and then again on 30 December 2010 from SLK 0.00 to SLK 5.39.¹⁵⁴ As to whether the particular corner where Mr Strickland crashed had vegetation cleared on those occasions, Mr Sheridan was unable to say for certain, although he thought it was "highly likely that there would have been works on vegetation on the roadside during that period"¹⁵⁵ or at least prior to 2014.¹⁵⁶

128. Mr Sheridan advised that in the Shire all the roads are inspected three times per year, once in the lead-up to the budget, once before the wet season to make sure all the drains are functioning, and once after the wet season to see whether the wet weather conditions have caused any damage that needs repairing.¹⁵⁷ However, roadside vegetation is handled differently. Every year in late September roads within the shire will have a verge spray to stop grass growing and obstructing signage and blocking drains. The trees very close to the road can be pruned and are generally pruned every five to ten years, through a mixture of hand pruning and more extensive pruning utilising machinery. More specifically, Julimar Road was subject to hand tree pruning

¹⁵¹ Exhibit 1, Tab 13.

¹⁵² T 207 – 208; Exhibit 1, Tab 13.

¹⁵³ T 208.

¹⁵⁴ Exhibit 6, Tab 25.

¹⁵⁵ T 244.

¹⁵⁶ T 233 – 234, 245.

¹⁵⁷ T 220.

in 2010, 2014 and 2018, which is a spacing of roughly four years. Further, Julimar Road was subject to major tree pruning utilising agricultural machinery in October 2013. Approximately 10 kilometres of roadway is done using this method per year in the Shire as it is a more complicated and costly exercise. If particular issues are brought to the Shire's attention by members of the public then that will also be done on an 'as needs' basis.¹⁵⁸

129. In the 2011 Crash Preliminary Investigation Form prepared by Main Roads, the sight distance was not identified as a problem (photographs showed similar vegetation to the time of Mr Strickland's crash) and was marked as good. It was not identified as an environmental factor that possibly contributed to the causation of the crash.
130. In August 2012 another Road Safety Audit was commissioned by the Shire on Julimar Road, this time for the remaining section of Julimar Road not covered in the earlier audit application, being from SLK 3.7 to SLK 5.4. There had been further crash incidents on the road in the interim so it was apparent to the Shire there were still road safety issues with the road.¹⁵⁹
131. The 2012 Road Safety Audit recommended resumption of land to facilitate works to redesign and realign the curve in the road from SLK 3.81 to SLK 3.98 (which would include Mr Strickland's crash location at SLK 3.83), reducing vegetation at SLK 3.81, widening of the gravel shoulder through the same curve, installing curve and speed advisory signage on the realigned curve and then some other works to the entire section being audited.
132. Taking into account the scope of the works suggested in this 2012 audit, the Shire decided to try to carry out the recommended work in stages. The Shire applied on 30 July 2013 for Black Spot funding to carry out part of the above recommended work. Mr Sheridan observed that the proposed realignment was an expensive undertaking given it involved the resumption of land from a private property owner, which was not something the Shire could easily afford without funding assistance, so that part of the proposed remedial works could not progress without it.¹⁶⁰
133. There was some confusion at the inquest as to what part of Julimar Road was actually covered in the 2013 Black Spot funding application. Having heard the evidence at the inquest and reviewed all the available materials, it seems the staff member from the Shire who prepared the Black spot funding application put in the application for a 500 metre section of Julimar Road between SLK 4.80 and SLK 5.40, *not* the section of road that related to the Road Safety Audit's primary recommendation for road realignment at the curve between SLK 3.81 and SLK 3.98.
134. The Shire submitted in its closing submissions that it relied upon incorrect crash location data provided by Main Roads, which may in part be the case, but it doesn't entirely explain the way the application was prepared. The focus of the application on a different section of Julimar Road caused problems with the funding progressing.

¹⁵⁸ T 220, 254. – 256.

¹⁵⁹ T 208. – 209.

¹⁶⁰ T 209 – 211.

135. I have received information from Main Roads indicating that the Black Spot funding application was not evaluated because the proposed treatment area was not in line with the supporting Road Safety Audit.¹⁶¹ However, it does not appear that this information was communicated to the Shire, and many Shire staff did not appear to understand that the application had not related to the curve identified in the Road Safety Audit and that was why it was declined. In its submissions at the close of the inquest, the Shire submitted that it was not told the real reason that the 2013 Black Spot funding application was not successful at any stage.¹⁶²
136. I also note at this time that the Road Safety Audit had included some erroneous information, which I understand came from Main Roads, that showed the 2011 fatality occurred at SLK 5.00, whereas this fatality occurred at SLK 3.70. The map that was then added to the 2013 Black Spot funding application showed this 2011 fatality at the wrong location, following the incorrect information in the audit, and also seemed to omit the 2006 fatality. It is possible the 2006 fatality was omitted due to the length of time that had elapsed, although it was noted in the audit.
137. A letter from the Executive Manager of Technical Services for the Shire, Mr Jim Garrett to Main Roads dated 24 July 2014 suggested he understood the Shire had applied for Black Spot funding relating to the curve near SLK 3.83 on Julimar Road, where three fatalities (by now Mr Strickland had died) had occurred, and had been told application was not successful with the comment “other funding to be sourced.”¹⁶³ Mr Garret indicated to Main Roads that Shire staff felt “this was an inadequate response and more information should have been supplied”¹⁶⁴ about the application.
138. Mr Garrett’s email appeared to relate to an email he received from a staff member of Main Roads on 18 February 2014 in which he was told “Julimar was not successful for Black Spot funding.”¹⁶⁵ The email was sent in response an email from Mr Garrett indicating the Shire was most concerned to know the outcome for the Julimar Black Spot application as there had been another fatality (Mr Strickland’s) recently.¹⁶⁶ This was followed up by Mr Garrett with another email on 28 February 2014 stating the sheet given back to the Shire “indicated that the curve in the road that we applied for would not get funded through black spot. Funding should come from another source.”¹⁶⁷ Main Roads did not tell the Shire at the time that there had been an error in the application that caused it not to be considered for funding.
139. Mr Garrett continued to pursue the matter and eventually there was a meeting between Main Roads and Shire staff at the curve from SLK 3.84 to SLK 4.20 on 18 August 2014. Even at that time the Main Roads crash

¹⁶¹ Responsive Submissions by Main Roads Western Australia filed 17 December 2018; Exhibit 9.

¹⁶² Closing Submissions on behalf of the Shire of Chittering, filed 30 November 2018 [47].

¹⁶³ Exhibit 6, Tab 11.

¹⁶⁴ Exhibit 6, Tab 11.

¹⁶⁵ Exhibit 6, Tab 31.

¹⁶⁶ Exhibit 6, Tab 31.

¹⁶⁷ Exhibit 6, Tab 32.

information was still showing only the 2006 fatality and the recent death of Mr Strickland, not the 2011 death.¹⁶⁸

140. A note by a Main Roads staff member recorded that Main Roads recommended to the Shire that they:

- Clear vegetation from close proximity to road to improve sight distances;
- Request speed zoning study of the section;
- Size B signage to be used throughout to improve warning series; and
- Conduct a road survey of the section.¹⁶⁹

141. Mr Sheridan understood that one of the suggestions that came out of the meeting was also to alter the application from indicating a four-part proposal for various sections on Julimar Road and restrict the application to the particular corner, so it seems that the problem with the initial application was at least obliquely raised.¹⁷⁰ In the original treatment proposal Mr Sheridan understood there were four sites identified as requiring works so the section in the application was presumably one of them, although Mr Sheridan understood the application was supposed to have been for the area of road including SLK 3.83 where Mr Strickland crashed, as per the road safety audit.¹⁷¹ However, as noted previously, Mr Sheridan was not at the Shire at the relevant time so he is only able to give evidence about what he has read or been told about what occurred.¹⁷²

142. Steps were taken by the Shire to put in a new Black Spot funding application focussed specifically on the curve identified in the 2012 Road Safety Audit and following its recommendations. Mr Garrett also took steps to liaise with the Shire of Toodyay to try to arrange a joint effort in relation to Julimar Road upgrades, including Mr Garrett suggesting they put up some sort of signage warning of the dangers of travelling through the hills.¹⁷³ As discussed below, the next funding proposal was successful.

143. What is relevant to the 2013 Black Spot funding proposal, was that it was for funding for the 2014/2015 financial year (1 July 2014 to 30 June 2015). Further, when the funding was later granted it took approximately two years for it to be completed. Therefore, the Shire submits that even if it had been prepared correctly and approved, the funding would not have been available, and the works completed, until after Mr Strickland's crash.¹⁷⁴

144. I accept that proposition in relation to the realignment of the curve, as the evidence indicated it was a significant task, requiring property resumption, engineering input and many other factors before it could be successfully implemented. However, in relation to the clearing of vegetation to improve the sightline, I take a different view.

¹⁶⁸ Exhibit 6, Tab 36.

¹⁶⁹ Exhibit 6, Tab 36.

¹⁷⁰ T 224.

¹⁷¹ T 246 – 247.

¹⁷² T 249.

¹⁷³ Exhibit 6, Tab 33.

¹⁷⁴ Closing Submissions filed on behalf of the Shire, filed 30 November 2018 [53].

145. Mr Davey attended the crash scene on three occasions, in July and August 2014 and again in January 2015. Mr Davey noted that the 80 km/hr advisory sign was much taller on later visits to the scene than on his initial attendance in July and that the sign on the right hand side has had an 80 km/hr advisory sign added. Chevron boards on the corner had also been added.¹⁷⁵ During his visit in January 2015 Mr Davey also noticed that “a large amount of foliage, including large trees, had been removed from the northern verge, allowing drivers to properly assess the severity of the bend on approach.”¹⁷⁶ Mr Davey considered the removal of foliage was highly appropriate from a safety point of view as with the vegetation cleared away it permits a much better understanding of the beginning of the bend and some base line for the radius of the bend.¹⁷⁷
146. Mr Davey noted that the speed limit (maximum posted) remained the same and expressed his surprise that the bitumen near the apex remained untouched.¹⁷⁸ I will return to the issue of the maximum speed limit a bit later. As for the patch of bitumen, the road has now been realigned so it is no longer an issue, although there is some evidence below that the Shire took some steps to remediate it in the interim.
147. Prior to the curve redesign works commencing the Shire did take some remedial actions in the relevant area in 2014 without waiting for Black Spot funding.¹⁷⁹ These were recommended by Main Roads in their Crash Location Report that translated into recommendations in the Crash Corrective Action Report. They involved:
- Installing Chevron alignment markers on the outside of the curve where Mr Strickland’s accident occurred;
 - Remediating the small patch of the road surface;
 - Arranging for batter face smoothing through the curve; and
 - Realigning guide posts through the curve.¹⁸⁰
148. Mr Sheridan’s evidence was that those minor remedial works hadn’t been identified in the Road Safety audits commissioned by the Shire previously and they were actioned quickly by the Shire as they could be undertaken within the resources already available without additional funding.¹⁸¹
149. What Mr Sheridan does not mention is that the Shire also arranged to remove vegetation around the sightline, as noticed by Mr Davey. This had been identified in previous Road Safety audits and was discussed in the roadside meeting with Main Roads. There is evidence that on 17 September 2014 the Shire arranged for some tree pruning to be done on Julimar Road, which appears to coincide with the Shire’s plan to reduce vegetation around the curves following the meeting with Main Roads on site.¹⁸²

¹⁷⁵ T 168.

¹⁷⁶ Exhibit 2, Tab 34 [8.13].

¹⁷⁷ T 191.

¹⁷⁸ T 179 – 180; Exhibit 2, Tab 34 [8.13].

¹⁷⁹ T 213.

¹⁸⁰ T 213 – 214; Exhibit 1, Tab 13.

¹⁸¹ T 214 - 216.

¹⁸² T 251 – 253, 256; Exhibit 1, Tab 13.

150. The fact that the Shire was able to carry out the vegetation clearing without Black Spot funding strongly supports the conclusion it could have been done at an earlier stage.
151. I have been provided by counsel on behalf of Mr Strickland's family with google map pictures of the difference between the view of the approaching corner prior to, and after, the clearing of vegetation. The difference is quite obvious, as described by Mr Davey.
152. Mr Strickland's family urge me to make a finding that the Shire should have cleared the vegetation to improve sightlines after the 2008 and 2012 Road Safety Audits, as it has been shown to have been a simple and inexpensive step that improved the bend's safety. As noted above, there is some evidence before me that some vegetation clearing was done along the road prior to that time. Nevertheless, it is apparent from the various photographs before me that any vegetation clearing done was not to the same extent as was done after Mr Strickland's fatal crash. The evidence before me shows the cost of clearing the vegetation was relatively small, and was able to be borne by the Shire prior to receiving any Black Spot funding. Therefore, I cannot see why such a simple step could not have been undertaken proactively by the Shire prior to Mr Strickland's crash, given the problem had been identified on more than one occasion.
153. I am unable to take any finding to the extent that clearing the vegetation would have prevented Mr Strickland's death, as it seems to me the issue of Mr Strickland's choice of speed at 110 km/hr is not answered just by this change as he had other warnings of an approaching curve and had still chosen not to adjust his speed to the recommended advisory speed of 80 km/hr, despite being an experienced rider travelling on a motorcycle not built to take corners at speed. All I can find is that the clearing of the vegetation would have given Mr Strickland some additional warning of the nature of the curve, which may have influenced his decision-making on the day.

REMEDIAL REPAIRS TO JULIMAR ROAD – AFTER MR STRICKLAND'S DEATH

154. Main Roads is responsible for the State road network and has some responsibility for the Local Government Road network in terms of regulatory signage and road marking. Main Roads also manages and administers the Black Spot Program funding for both the State and Federal programs.¹⁸³
155. Main Roads also plays a role in investigation of fatal crashes. Mr Andrew McMahon is a Senior Road Safety Investigator at Main Roads. Mr McMahon explained that currently Main Roads investigates all fatal crashes that occur on the road network in Western Australia, whether they occur on State roads or Local government roads.

¹⁸³ T 263.

156. It is a two stage process. There is a preliminary investigation conducted, which is done as soon as practicable after Main Roads staff are notified of the crash by police, and must be done within seven days of the crash. It requires an investigator to attend the site. After the preliminary investigation is completed, Mr McMahon reviews the results and determines whether or not there are any road environmental factors identified as part of the preliminary investigation process that may be related to the possible cause or severity of the crash. If there are, then this initiates the next step in the process, which is the preparation of a crash location report.¹⁸⁴
157. Mr McMahon provided information that after the 2011 fatality on Julimar Road a fatal crash preliminary investigation was undertaken but it did not lead to a full investigation despite a recommendation to that effect by the preliminary investigator. It was not clear why it was not progressed further, although Main Roads provided submissions to the effect that the findings of the preliminary investigation would not meet the usual criteria for a full investigation as there were no environmental factors that contributed to the causation or severity of the crash.¹⁸⁵
158. After Mr Strickland's fatal crash, a full crash location report was ordered to be prepared, focussed upon an area 500 metres either side of the crash location on Julimar Road. Mr McMahon explained that the reason for looking 500 metres either side is because when a vehicle leaves the road Main Roads want to consider any factors in the road environment either side of the crash, such as signage or any visual cues on the approach to the location, that may have played a role.¹⁸⁶ Previous reported crashes in the vicinity of the crash site in the previous five year period were also considered to determine crash rates, trends and crash types.¹⁸⁷
159. Mr McMahon identified the purpose of the report is for asset managers (the body responsible for the road), to assist them in considering and implementing appropriate remedies and measures. To that effect, recommendations are made for what remedial action might be appropriate.¹⁸⁸ Mr McMahon acknowledged that in making those recommendations, the cost of the remedial action is acknowledged by the report writer, in the sense of lower cost items that can be recommended to reduce the risk, but bigger cost items will also be recommended without consideration given to how they will ultimately be funded although acknowledging they will probably be "a longer term approach to the location."¹⁸⁹
160. The crash site was inspected by a Main Roads investigator close in time to the crash for the preliminary investigation and then team members attended the site again on 7 April 2014 in order to prepare the crash location report. Mr McMahon explained that the photographs used in the later report come from the early site visit during the preliminary investigation, close in time to

¹⁸⁴ T 263, 265 - 267.

¹⁸⁵ Exhibit 8; Responsive Submissions by Main Roads Western Australia filed 17 December 2018.

¹⁸⁶ T 267.

¹⁸⁷ T 268.

¹⁸⁸ T 268.

¹⁸⁹ T 269, 277.

the crash.¹⁹⁰ The crash history data was taken from 1 January 2008 to the end of December 2012, as that was the most recent information available.¹⁹¹ In the crash location report it was noted that hospital severity crashes were found to be significantly overrepresented against the network average, although Mr McMahon suggested that these statistics needed to be treated with some caution given there are small numbers involved.¹⁹²

161. The crash investigation team found there were no road environment findings that were **directly** attributable to the crash.¹⁹³ Mr McMahon explained that this is a common finding as his team do not find a factor was directly attributable very often, as it has to be “crystal clear.”¹⁹⁴ However, there were a number of findings of road environment issues that were **possibly** related to crash causation.

162. The first such finding related to the road geometry. The crash occurred within a sharp horizontal curve along Julimar Road. The curve had a measured radius of 150 m and superelevation of 7.3%, which reduced to 5.3% at areas of road widening. The investigation team found the combination of radius and superelevation was not suitable for the speed environment. Mr McMahon explained that the Austroads Guide to Road Design geometry for 110 km/hr roads requires a minimum radius and the radius in this case was much tighter than specified so it was not suitable for a 110 km/hr speed.¹⁹⁵

163. Although curve warning signs with advisory speeds were installed prior to the curve at both ends, the investigation team found they were inadequate warning of the substandard curve, which possibly contributed to the crash. Mr McMahon explained in his evidence that an advisory sign was a way of managing the fact it was a substandard curve, accepting that it can be very costly to implement the technical treatment for a substandard curve, but also suggested that a relevant Australian Standard indicated Chevron Alignment Markers should have been provided at 16 m spacing on the outside of the curve to further delineate the alignment for approaching motorists. A recommendation was therefore made to install such markers.

164. Mr McMahon accepted that a problem with adding in further signage is that the signage itself can add to the impact if a motorcyclist does come off the road, but he emphasised that “the intent of the chevron line marker is to reduce the likelihood of crash causation rather than crash severity,” so effectively reducing the likelihood that the crash occurs in the first place.¹⁹⁶

165. The other recommendation for the substandard curve was to review the horizontal geometry in accordance with Austroads and Main Roads design guidelines.¹⁹⁷ A redesign of the road was obviously the ideal solution, but Mr McMahon accepted this could be both expensive and require greater time

¹⁹⁰ T 269 – 272.

¹⁹¹ T 274.

¹⁹² T 274.

¹⁹³ Exhibit 1, Tab 12.

¹⁹⁴ T 294.

¹⁹⁵ T 295.

¹⁹⁶ T 297 – 298.

¹⁹⁷ T 296; Exhibit 1, Tab 12, p. 7.

to implement, so the markers and warning signs were the appropriate solution in the interim.¹⁹⁸

166. A poorly reinstated road surface patch was also identified. It is known that deformed pavement can lead to reduced riding quality and thereby cause loss of skid resistance and control, particularly for motorcycle riders. Mr McMahon explained that road surface is very influential for motorcycles because of the potential instability of a motorcycle as compared to a car, so they are very susceptible to irregularities in the road surface. Curves are also known to be a greater challenge for motorcycles than cars. As the deformed pavement was seen to increase the risk of a crash, a recommendation was made to rectify the road patch, irrespective of whether the patch of road was directly involved in the crash involving Mr Strickland.¹⁹⁹
167. As to issues related to the severity of the crash, Mr McMahon identified the unrecoverable drainage ditch and the trees located in the clear zone. Mr McMahon acknowledged that there are many, many road networks in Western Australia that have trees and other hazards in the clear zone area and it is a common finding for fatal crash location reports. He also acknowledged that it is very difficult to remove trees from the roadside and the community generally prefers to maintain a green environment as much as possible. Nevertheless, as a road safety engineer, Mr McMahon identified trees as a hazard to road user. Therefore, it is a difficult matter to balance.²⁰⁰
168. Mr McMahon from Main Roads was asked whether he would have reached the same findings if he had completed the crash report in 2011 or earlier, given the road configuration had not changed. Mr McMahon responded that the crash history would have been influential as it will indicate if there are a number of people failing to cope with the road environment. He noted that there are “lots of similar roads in Western Australia with a similar geometry as Julimar Road”²⁰¹ but the risk may be very low on some of those roads as there is “very little exposure on the route”²⁰² as it is mainly local traffic. A crash history of fatal crashes on a low volume road will alter that risk and indicate the need for a speed zone assessment.²⁰³ I took this to mean that, with each fatality, the risk of the road was proven to increase.
169. Mr McMahon explained that the final Crash Location Report is referred to the “appropriate asset managers,” which can include Main Roads or Local Government. These asset managers are not bound to agree with the contents of the report but are asked to document acceptance or rejection of any findings and recommendations on a Corrective Action Report annexed to the final report.²⁰⁴ It is also provided to the WA Police and the State Coroner to form part of the coronial investigation.²⁰⁵

¹⁹⁸ T 297 – 298.

¹⁹⁹ T 277 – 278, 290.

²⁰⁰ T 282 – 283

²⁰¹ T 302.

²⁰² T 302.

²⁰³ T 302.

²⁰⁴ Exhibit 1, Tab 12.

²⁰⁵ Exhibit 1, Tab 12.

170. As well as the Crash Location Report, a further Road Safety Audit was commissioned in 2014 that included Julimar Road from SLK 3.40 to SLK 4.5, so covering the area where Mr Strickland's crash occurred. This audit again recommended:

- The resumption of land to facilitate the realignment of the curves in this section of the road;
- Redesign and realignment of the curves, effectively removing two curves and replacing them with a left hand curve of 800m radius; and
- Providing a 1.5m wide gravel shoulder through the realigned curve and the approaches to it.²⁰⁶

171. A further Black Spot funding application was made on the basis of the 2014 Road Safety Audit. The Shire was advised in August 2014 that this application was successful. However, the remedial action then took a lengthy period of approximately 20 months to complete as it involved negotiation with the property owner for the land resumption and approval by Main Roads of the road design engineering before the works could commence.²⁰⁷

172. I am advised that the works are now complete. Mr Sheridan described the new configuration of the realigned section of Julimar Road as "a significant variation from the previous alignment"²⁰⁸ and he believes it is now "a much, much safer section of road."²⁰⁹

173. There is crash monitoring after a Black Spot funding project has been completed to see how effective the measures that have been put into place are in reducing future crashes. To properly monitor its effectiveness it is done over a five year period to allow for valid statistical analysis.²¹⁰ Not enough time has elapsed for this information to be provided at this stage.

Speed Zoning

174. The issue that has not yet been addressed to date is the maximum speed limit along Julimar Road.

175. Julimar Road is classed as an open road so the state default speed limit of 110 km/hr applies. Mr Sheridan advised that local councils do not have any control over posted speed limits on roads in their area, so the only option for a local authority wishing to adjust the speed limit is to apply to Main Roads.

176. As early as July 2008, when the first Road Safety Audit was prepared, it was suggested that speed appeared to be a contributing factor to the high crash numbers, as the speed is derestricted on Julimar Road, with only two of the crashes at that time occurring on curves with advisory speeds posted (one being at SKL 3.70).²¹¹

²⁰⁶ T 211 – 212; Exhibit 1, Tab 13.

²⁰⁷ T 212 – 213; Exhibit 1, Tab 13.

²⁰⁸ T 217

²⁰⁹ T 218.

²¹⁰ T 286 – 287.

²¹¹ Exhibit 6, Tab 1, p. 4.

177. Given the concerns about the maximum speed limit, at the request of the Shire, Main Roads has undertaken a speed assessment of Julimar Road in 2011, 2014 and 2016. Apparently on each occasion Main Roads advised the Shire that the default speed limit would not be changed.²¹²
178. Mr Sheridan noted that in the 5.4 km section of Julimar Road that is managed by the Shire, there are nine advisory speed signs posted, which equates to one every 500 metres. The advisory speeds range from 60 km/hr up to 80 km/hr, so a change of at least 30 km/hr, and up to 50 km/hr, difference from the maximum set speed limit on the road. Mr Sheridan suggested that this range in speed, combined with the crash history along that section of road, would seem to comply with the Main Roads policy provisions for reassessing the speed limit. Mr Sheridan also noted that Chittering Road, which intersects with Julimar Road and has a similar configuration of windy bends but in Mr Sheridan's opinion is "not as severe as Julimar Road,"²¹³ is signposted with a maximum speed limit of 90 km/hr. However, the council's requests for the speed limit to be lowered have repeatedly been declined, although the reasons for that decision have not been made clear to the council.²¹⁴
179. Interestingly, Mr McMahon from Main Roads also recommended in the crash location report prepared after Mr Strickland's death that the speed zoning of Julimar Road in its entirety be assessed for consideration to it being reduced. Mr McMahon advised he was not aware that the Shire had raised its own concerns with Main Roads about the speed limit in the past. Mr McMahon's recommendation was made on the basis of the off-path crash history and the vertical geometry of the route as well as the tightness of the curves on the route. He noted it is not really practical or realistic to drive along Julimar Road at 110 km/hr given it is a curved and linear route and the environment should be conducive to doing a relatively consistent speed.²¹⁵ Mr McMahon noted that you don't generally change the speed limit over short lengths, as it tends to be over a number of kilometres rather than a kilometre, which suggested the speed limit should have been lower overall to be more consistent over the route.²¹⁶
180. Mr McMahon confirmed that the speed zones are set by Main Roads, so in effect he was making a recommendation to his own employer although it was in effect a recommendation from one section of the Department to another.²¹⁷
181. The inappropriately high speed limit of 110 km/hr was also raised in the Fatal Crash Preliminary Investigation completed in March 2011 after the February 2011 fatality, with a note made "no speed zoning (road not safe for 110km/h)."²¹⁸

²¹² T 216; Exhibit 1, Tab 13.

²¹³ T 217.

²¹⁴ T 216 – 217.

²¹⁵ T 280 – 281.

²¹⁶ T 298.

²¹⁷ T 278.

²¹⁸ Exhibit 8.

182. Mr McMahon explained that the assessment process for lowering the speed limit would usually involve looking at the geometry such as the number of substandard curves on the route, as well as the crash history.²¹⁹
183. There was also evidence that the Shire had requested that Main Roads give consideration to lowering the 80 km/hr advisory speed sign, which did not progress as Main Roads did not respond.²²⁰
184. For speed advisory signs, Mr McMahon explained the curve analysis is conducted and if the speed identified is 15 kilometres or greater below the posted speed limit, then it will require an advisory sign. The threshold is 15 km/hr, but obviously it can be greater than that, as was the case here.²²¹
185. I was informed by Mr Sheridan during the inquest hearing that the maximum speed limit for Julimar Road remains 110 km/hr,²²² which I find very surprising given the evidence I received at the inquest about the number of crashes that have occurred on the road and the attraction it continues to hold for motorcyclists. Even though the particular curve where Mr Strickland crashed has been modified, there would appear to be similar issues with other parts of Julimar Road.
186. At the conclusion of the inquest I asked counsel who appeared on behalf of the Shire and Main Roads to seek instructions from their clients as to any additional information that could be provided to me to shed light on why the speed limit on Julimar Road has not been lowered even now.
187. As part of its written submissions after the inquest the Shire advised that it has been unable to locate any information prior to November 2011 relating to the advisory speed for Julimar Road but did find an email sent on 22 November 2011 from the Shire to Main Roads requesting a speed assessment of the road due to the number of accidents occurring on it, as referenced by Mr Sheridan.²²³
188. The Shire also provided a copy of another letter sent by the Shire on 19 January 2012, in which the Shire asked Main Roads to provide 60 km/hr advisory bend signs to replace the existing 80 km/hr advisory signs.²²⁴
189. Main Roads accepts that it can find no evidence of a response to the Shire's two requests for Main Roads to conduct a speed assessment on the road and acknowledges that the apparent lack of response is "regrettable."²²⁵
190. On 24 July 2014 the Shire wrote to Main Roads again and requested that Main Roads assess the speed limit of the road.²²⁶ This was the first request that Main Roads responded to, and it led to a site visit on 31 July 2014 and the later meeting with Shire staff on 15 August 2014. The Shire made a

²¹⁹ T 280.

²²⁰ T 240 – 2412.

²²¹ T 282.

²²² T 218.

²²³ Exhibit 6, Vol 6, Tab 10.

²²⁴ Letter to Main Roads from Gavin Pollock, Executive Manager Technical Services dated 19 January 2012.

²²⁵ Responsive Submissions by Main Roads Western Australia filed 17 December 2018.

²²⁶ Exhibit 6, Vol 6, Tab 11.

formal request for a speed assessment of Julimar Road after this on site meeting in August 2014.²²⁷

191. On 10 September 2014 Main Roads confirmed that it would be conducting a speed assessment of the road in September 2014.²²⁸
192. The Shire has provided information in the form of an email from Main Roads to Mr Garrett at the Shire dated 10 December 2014 showing the results of a curve survey done on Julimar Road.
193. The curve Survey, done on 9 November 2014, shows that for all of the section of Julimar Road managed by the Shire that was surveyed (only seems to go from SLK 0.0 to SLK 4.35 for some reason) none of the curves were calculated to be taken safely at 110 km/hr, and all led to a suggestion of an advisory speed no greater than 90 km/hr, and as low as 70 km/hr.²²⁹
194. There is also information on some traffic counts done on 8 November 2017 sent by the Shire to Main Roads, with some clarification about the results on 4 January 2018. This is as much as the Shire could provide on the matter.
195. Main Roads advises that at present Julimar Road still does not meet the requirements for speed zoning to be applied to it because the seal width of parts of Julimar Road are not sufficiently wide. It was queried whether the areas of reduced seal width were within the area managed by the Shire of Chittering or the Shire of Toodyay. Main Roads was unable to provide that information. However, Main Roads also advised that the Shires of Chittering and Toodyay have been advised of the requirements for the application of a speed zone, including the minimum seal width and other features such as adequate horizontal and vertical geometry, etc. Main Roads understands both Shires have actioned improvements “to provide an adequate and suitable road, capable of being speed zoned once complete.”²³⁰ Main Roads goes on to indicate that the recent completion of road improvement works, including seal width and horizontal curve modification (particularly in the Shire of Toodyay) has precipitated a need for further assessment of Julimar Road, which is planned for the first quarter of 2019 and “may lead to an application for a speed zone of the road.”²³¹
196. I am surprised at how long this process has taken but I am reassured that at least there is some prospect that a speed zone may be imposed on Julimar Road in the near future. In my view, reducing the maximum speed permitted on Julimar Road to something significantly less than 110 km/hr will be an important step in reducing the risk of fatal accidents on that road and improving the safety of the road, particularly for motorcycle riders.
197. Main Roads also submits that it was open to the Shire to change the advisory speed on the road without Main Roads approval, but this is, with

²²⁷ Exhibit 6, Vol 6, Tab 13.

²²⁸ Exhibit 6, Vol 6, Tab 14.

²²⁹²²⁹ Main Roads Curve Survey of Julimar Road conducted 9.11.2014 provided to Counsel Assisting 16 October 2018.

²³⁰ Letter from Peter Woronzow, Managing Director of Main Roads, to Mr Bennett, Assistant State Solicitor, received 24 January 2019.

²³¹ *Ibid.*

respect, an attempt to deflect attention from the failure of Main Roads to respond to the Shire's legitimate request for expert assistance from a body with much more experience in these matters than the Shire. They were also asking for help with signage, which I understand is provided by Main Roads to ensure it complies with Australian Standards. The information put before me shows the Shire had made consistent and significant efforts to have the problems on Julimar Road looked at, with the 110 km/hr speed limit identified as an obvious part of the problem as well as issues about the advisory speeds on some of the curves, and Main Roads has done very little to assist them.

198. In their submissions the family of Mr Strickland asked me to consider making a recommendation requiring greater collaboration and accountability for local authorities and Main Roads if a road fatality occurs. It is not really the type of issue that would translate easily into a recommendation. However, it is appropriate to comment that there has been an obvious, and ongoing, failure in communication between the Shire and Main Roads in relation to the speed zoning issue, with the lapses appearing to lie more on the side Main Roads. I suggest Main Roads give some consideration to reviewing the way they manage communication with the various local government agencies on issues of road safety, to ensure that requests for advice and assistance are dealt with promptly and appropriate record keeping of such communication is also maintained.

MR STRICKLAND'S HELMET

199. Mrs Strickland described Mr Strickland as "safety conscious"²³² because of his experience as an Occupational Health and Safety Officer for many years at mine sites. She said "he always wore the necessary safety gear when riding,"²³³ generally being a jacket and helmet.

200. Information provided by Mr Strickland's widow was to the effect that she understood Mr Strickland purchased the motorcycle helmet he was wearing in the crash from a store in Kenwick where he also purchased the Harley Davidson motorcycle he was riding. Mrs Strickland believes that at the time the helmet was purchased it had a "road legal Australian Standards Sticker on it"²³⁴ but the sticker came off in December 2013 after it was cleaned and washed and Mr Strickland then replaced the sticker with one from his daughter's unused bicycle helmet.²³⁵ Mrs Strickland does not provide any explanation as to why Mr Strickland would have done so, although the obvious explanation is that he hoped it would, at least from a distance, give the impression to an observer that it was a legal Australian Standard sticker for the helmet.

201. Mrs Strickland recalled that Mr Strickland had said he intended to purchase a new helmet and jacket the following week, and said in her statement he

²³² Exhibit 1, Tab7 [9].

²³³ Exhibit 1, Tab 7 [9].

²³⁴ Exhibit 5, Covering memorandum, p. 3 [19].

²³⁵ Exhibit 5, Covering memorandum, p. 4 [20].

told her “I don’t care what anyone else thinks that it looks funny.”²³⁶ It’s not entirely clear what he might have meant by that, so I don’t think it takes the issue any further.²³⁷

202. Mrs Strickland maintains the helmet was not a novelty helmet and, apart from the incorrect Australian Standard sticker, it was otherwise compliant with the Australian Standards for a motorcycle helmet. However, as I explore the evidence below it will become apparent that the missing sticker is not the only item missing from a motorcycle helmet that meets the Australian Standard. It was also missing any form of manufacturer’s tag and the lining inside the helmet was not of the type ordinarily seen in such helmets that meet the Australian Standard.

203. Sergeant Taylor has served as a WA police officer for more than 20 years, with the majority of his time spent working in regional areas or in traffic.²³⁸ Sergeant Taylor had an opportunity to closely inspect Mr Strickland’s helmet, as he seized it after the crash, and he described it as a “black open faced novelty helmet,” which in his experience “is popular with Harley Davidson and cruiser style motorcycle riders.”²³⁹ Sergeant Taylor stated this type of helmet is “commonly called a “skull cap” due to it not having the required lining of high density foam that protects the skull when suffering an impact.”²⁴⁰

204. Sergeant Taylor said in evidence that he knew Mr Strickland’s motorcycle helmet was a ‘novelty helmet’ the minute he saw it. He said another term for it is a ‘bushranger style helmet’. In Sergeant Taylor’s experience such helmets are popular with ‘cruiser style’ motorcycle riders because the lack of a fairing on such bikes means that the rider is exposed to a lot of wind and an Australian compliant helmet will often lift up in the wind when riding, which can be uncomfortable. In comparison, the novelty or bushranger style helmet sits lower on the head, closer to the skull, and does not lift up as much in the wind. However, the reason the novelty helmet sits lower is that it is missing the thick high-density foam insert that provides some protection to the head in a crash. It was apparent to Sergeant Taylor from a glance at Mr Strickland’s helmet that his helmet was missing that high density foam lining and when he later felt the inside this was confirmed.²⁴¹

205. Sergeant Taylor said that one of the first things in safety gear that is purchased for a motorbike is a helmet. It is the only mandatory protective gear required to legally ride a motorcycle in Australia, although other optional safety gear such as leather jackets and protective pants and gloves and even spinal protectors are available. Sergeant Taylor expressed the opinion that “any motorcycle rider who has been riding for even a short period of time will know the difference between a compliant helmet and a

²³⁶ Exhibit 1, Tab 7 [12].

²³⁷ Exhibit 5, Covering memorandum, p. 4 [20].

²³⁸ T 5.

²³⁹ Exhibit 1, Tab 8 [24].

²⁴⁰ Exhibit 1, Tab 8 [24].

²⁴¹ T 20, 49

non-compliant helmet.”²⁴² He believes that “it would be strange if they were unaware.”²⁴³

206. Sergeant Taylor also gave evidence that usually in an Australian standard compliant helmet there will also be a tag sewn into the helmet’s lining or on the strapping indicating the details of the manufacturer, date of manufacture, batch number and other relevant information.²⁴⁴ The evidence is that this label was absent from Mr Strickland’s helmet.

207. If a motorcycle rider is stopped by police and found to be wearing a non-compliant helmet they can be charged under s 244 of the *Road Traffic Code*, which carries a \$550 fine and 4 demerit points, which is a relatively severe penalty. Sergeant Taylor noted the penalty has recently been increased, he believes due to the prevalence of people wearing non-compliant helmets. In his experience, the primary culprits are older motorcycle riders on cruiser style motorcycles.²⁴⁵ Sergeant Taylor’s evidence was that he can “spot a novelty helmet 50 metres coming towards me” and if he stops a rider with a non-compliant helmet he will always issue an infringement as he considered them to be unsafe, and will take the helmet to the station and keep it until the matter is finalised. After that, he is required to return it to the owner.²⁴⁶

208. Mrs Strickland provided information to the Court that it was her understanding that Mr Strickland had been stopped by police in the past wearing the subject helmet and had not been given an infringement.²⁴⁷

209. Sergeant Taylor accepted that not all police officers are able to identify a non-compliant helmet easily and his understanding is that many police officers are unaware of the problem with fake Australian Standard stickers.²⁴⁸ Sergeant Taylor is aware from his work as a police officer that fake Australian Standard 1698 stickers are available to purchase on the internet and by travellers to Bali and they are used by some motorcycle riders to provide the appearance that a non-compliant helmet is compliant in the hope of avoiding an infringement. He explained that there are some features that will show that the sticker is false, including the type of fonts used and the fact that the sticker will show the word void if pulled.²⁴⁹ Sergeant Taylor advised that the use of false Australian Standard stickers is so prevalent that he has developed a contact with Australian Standards to whom he can send a photograph of the sticker and receive confirmation as to whether it is registered and to what type of helmet it belongs.²⁵⁰

210. This case is slightly different, as Mr Strickland had affixed a different standard sticker from a different type of helmet to his helmet, but again it might not be easily apparent to an inexperienced officer that it was not the relevant standard.

²⁴² T 23.

²⁴³ T 23.

²⁴⁴ T 21.

²⁴⁵ T 23 – 24.

²⁴⁶ T 24 – 25.

²⁴⁷ Exhibit 5, Covering Memorandum, p. 5.

²⁴⁸ T 51.

²⁴⁹ T 20, 50.

²⁵⁰ T 50.

211. Sergeant Taylor advised that riders of performance bikes or sports bikes will generally wear a lot of expensive safety gear, such as a full face helmet and spinal protector. He said “they pay the money so it gives them the highest chance to live if they’re going to come unstuck”²⁵¹ as generally if they come off they will be travelling at high speed. Another police officer agreed that in his experience riders of sports style motorcycles will generally ride with a compliant helmet.²⁵²
212. Riders of cruiser style motorcycles, on the other hand, generally wear open face, bowling ball helmet, which Sergeant Taylor described as a style or look.²⁵³
213. Police officers are encouraged to intercept motorcycles and identify whether the rider or pillion passenger’s helmet complies with the relevant Australian or European Standard permitted in WA (AS/NZS1698 and ECE22.05). If a breach is identified then, as indicated earlier by Sergeant Taylor, a traffic infringement notice can be issued to the rider that carries a \$550 fine and 4 demerit points.²⁵⁴ Senior Sergeant Gale confirmed that WA police only enforce helmet regulations on the roads and they do not monitor or regulate helmet sales by retailers.²⁵⁵
214. Senior Sergeant Gale was asked about the importance of wearing a helmet that is compliant with Australian standards.²⁵⁶ Senior Sergeant Gale expressed the opinion (based on his experience in the field of road safety) that the amount of research and manufacturing development that goes into a helmet, and the stringent requirements to meet compliance, mean that it is far safer for a rider to wear a helmet that has been certified to be compliant with Australian road safety requirements.²⁵⁷
215. Senior Sergeant Gale was asked about education in this regard, and he referred to the Road Safety website and suggested that it is relatively clear on that website what is an approved helmet and how they can be identified.²⁵⁸ In addition, he advised that WA Police have spent considerable time and energy running regular operations targeting motorcyclists to educate them about motorcycle safety. These operations try to capture the largest number of riders by focussing on areas where motorcyclists are likely to be travelling, such as scenic roads on a fine day on the weekend.²⁵⁹
216. Senior Sergeant Gale agreed with Sergeant Taylor’s observations that riders of sports type motorcycles usually wear compliant helmets whereas riders of open cruiser type helmets are more likely to wear a non-compliant helmet because they are choosing a helmet based on their helmet style preference,

²⁵¹ T 51.

²⁵² T 110.

²⁵³ T 51.

²⁵⁴ T 106.

²⁵⁵ T 106.

²⁵⁶ Currently identified as Australian Standard (AS) 1698:1988; Australian Standard/New Zealand Standard (AS/NZS 1698:2006) and United Nations Economic Commission for Europe (UN ECE) 22.05.

²⁵⁷ T 108.

²⁵⁸ T 109.

²⁵⁹ T 109 – 110.

rather than to protect their head.²⁶⁰ In Senior Sergeant Gale's experience, these riders are generally aware that the helmet is non-compliant and have chosen to wear it anyway.²⁶¹

217. The education aspect also appears to apply to the ability to police non-compliant helmets, as Senior Sergeant Gale agreed with Sergeant Taylor's observation that not all police officers are able to easily identify a non-compliant helmet, given there is a diversity in experience of individual officers and a huge variety of different helmets available that are constantly changing, particularly given the addition of the European standard. Police officers gain their ability to identify helmet breaches through experience on the job and communication with other more experienced officers.²⁶²

218. Sergeant Taylor advised that while many non-compliant helmets are bought over the internet or overseas, non-compliant motorcycle helmets are also available for purchase from some stores in Australia and as far as he is aware there is no legal requirement for the salesperson to advise the purchaser that the helmet is not compliant with Australian Standards for road use and not allowed to be worn when riding a motorcycle on a public road.²⁶³ He expressed his view that such a lacuna in the legislation should be rectified.²⁶⁴

219. Mr Michael Griffiths is a Bio-Medical and Mechanical Engineer. In particular, his expertise is impact injury biomechanics and he has a long history of involvement in investigating and researching motorcycle crashes and motorcycle safety.²⁶⁵ Mr Griffiths prepared a report at the request of the Shire, which the Shire helpfully provided to the Court.²⁶⁶ Mr Griffiths was then called to give oral evidence at the inquest to expand upon the information provided in his report.

220. Mr Griffiths explained that his Mechanical Engineering qualifications provide a sound fundamental understanding of the laws of physics and resultant dynamics and his training in Bio-medical Engineering provides a sound fundamental understanding of the tolerance of the human body to impact and how it is damaged by impact trauma.²⁶⁷ He has been involved in road safety research and, more specifically, motorcycle helmet testing in Australia for many years and was a member of the Australian Standards Helmets Committees for both pedal cycle and motorcycle helmets for many years. He has published extensively on various aspects of road safety research, including many studies into how people are injured in crashes. In particular, Mr Griffiths has conducted specialised studies of motorcyclists' neck injuries, including an Australia-wide review of 100 motorcycle riders receiving either quadriplegia or paraplegia that included working with staff at the WA Royal Perth Hospital Spinal Unit.²⁶⁸

²⁶⁰ T 110.

²⁶¹ T 111.

²⁶² T 111 – 112.

²⁶³ T 50.

²⁶⁴ T 50 - 52.

²⁶⁵ T 331.

²⁶⁶ Exhibit 2, Tab 32.

²⁶⁷ Exhibit 2, Tab 32.

²⁶⁸ T 317; Exhibit 2, Tab 32.

221. Mr Griffiths was specifically asked to provide an opinion as to whether Mr Strickland would have received the same spinal injuries or equivalent injuries leading to a fatal outcome if he had been wearing an Australian Standard compliant motorcycle helmet.²⁶⁹
222. Despite a request being made, Mr Griffiths was not actually given an opportunity to view Mr Strickland's helmet. He did have an opportunity to ask for a series of photographs to be taken of the helmet from specific angles and he asked questions so that he had information to base his opinion on. He also had an opportunity to view the report of another expert, Mr Daniel Simms, who was given an opportunity to view the helmet when preparing an opinion for Mrs Strickland's counsel, and Mr Simms's report confirmed some of the information that Mr Griffiths had assumed.²⁷⁰
223. Mr Griffiths' key finding about Mr Strickland's helmet was that it had no energy-absorbing polystyrene liner. Mr Griffiths indicated he could tell visually straightway that the proper polystyrene liner was not present,²⁷¹ which was confirmed by Mr Simms. This type of liner is needed to crush and absorb energy on impact and increases the distance over which the head comes to a stop so that the deceleration forces on the brain and neck are reduced.²⁷²
224. Instead of the energy absorbing liner, the interior padding of Mr Strickland's helmet (as described by Mr Simms) appeared to be a polyurethane foam or similar open cell foam material. Because it was open cell meant that it compressed very flat, very easily, and did not provide the energy absorption required.²⁷³
225. As Mr Griffiths described it, the purpose of a helmet is to reduce the loads applied to the head and to the neck. In this case, where the load was applied in the region of the forehead (seen where the cracking occurred) the load was transmitted through the skull into the neck, leading to the C5-C6 vertebrae injury as one of his vertebrae slid forward relative to the other. In Mr Griffiths' opinion, if the energy had been dissipated by proper energy absorbing lining, the sliding would have been reduced, thereby reducing the probability of injury.²⁷⁴ Mr Griffiths went on to explain the basis of his reasoning was that the injury did not involve complete transection of the spinal cord nor complete transection of the vertebral arteries, which indicates the injury was in the threshold region and hence, if some of the energy was removed there was a high probability of getting a lower level or injury, or no injury at all.²⁷⁵

²⁶⁹ Exhibit 2, Tab 32.

²⁷⁰ T 314.

²⁷¹ T 316.

²⁷² T 315; Exhibit 2, Tab 32 [7.2].

²⁷³ T 315.

²⁷⁴ T 315 – 316.

²⁷⁵ T 330.

226. The hard shell of the helmet will also distribute load over the head and prevent penetrating style injuries, but that was not considered to be an issue in this case.²⁷⁶

227. Mr Griffiths explained that, based upon his extensive experience in the area, it is much safer for a motorcycle rider to wear an Australian standards approved helmet because the energy is absorbed and not transmitted to the rider's head and neck. The larger the helmet, the more coverage the helmet provides, which also reduces the likelihood of injury. With a full face helmet, in particular, it can also transfer some of the load onto the shoulders, reducing the load on the neck further. Therefore, as an example, if a person is wearing a full face helmet in a heavy impact crash, the outcome is more likely to be at the lower end of paraplegia than the higher level of quadriplegia.²⁷⁷

228. Mr Griffiths accepted that the Australian standards do not require a full face helmet, but expressed the view that this is not because it is not safer, but rather because of successful lobbying by some in the motorcycle industry.²⁷⁸

229. Mr Griffiths' evidence was also that without an energy absorbing polystyrene liner in the order of around 3cm thickness Mr Strickland's helmet could not be compliant with Australian standards energy absorption requirements.²⁷⁹ Mr Griffiths accepted that the Australian standards do not specify that such a liner must be present, as it is a performance based standard meaning if a manufacturer can find another way to absorb the energy then that is permitted.²⁸⁰ However, Mr Griffiths, who I accept is an expert in the field of motorcycle helmet testing and safety in Australia, explained that to date it is most frequently done with polystyrene as that is currently the best technology available to perform that task. If more innovative new materials should come along that offer the same protection then they could meet the performance-based standard, but currently no such materials are available.²⁸¹

230. In terms of Mr Strickland's helmet, based upon what he had seen in photographs and the detailed description provided by Mr Simms, Mr Griffiths was confident that Mr Strickland's helmet did not have any kind of energy-absorbing liner that would have met the Australian standard.²⁸² Mr Griffiths expressed surprise that Mr Simms, as a mechanical engineer, would express any uncertainty as to whether the helmet could actually absorb energy as Mr Griffiths considered it to be obvious that it could not as the open-cell foam was incapable of performing that function.²⁸³

231. In this particular case, Mr Griffiths expressed the opinion that if Mr Strickland had been wearing an Australian standard helmet that had the

²⁷⁶ T 315; Exhibit 2, Tab 32 [7.2].

²⁷⁷ T 317, 322.

²⁷⁸ T 322.

²⁷⁹ T 316.

²⁸⁰ T 325, 328.

²⁸¹ T 333.

²⁸² T 334.

²⁸³ T 334, 336.

requisite energy absorption lining, then the outcome of the crash was likely to have been less severe.²⁸⁴

232. Mr Griffiths based his opinion on the damage to the helmet, which showed where the load was applied, coupled with the type of injury sustained by Mr Strickland, which showed where the energy was expended. Mr Griffiths said the injury showed the load was dominantly straight down compression that passed energy into the neck region. Mr Griffiths' evidence was that the load did not have a rearward component or a different injury, known as an extension injury or hangman's fracture would have been seen.²⁸⁵ Mr Griffiths was asked whether he considered there was any rotational force and he responded that "the injury mechanism doesn't tell us that. The injury mechanism just tells us that there was a very significant downward component."²⁸⁶ In Mr Griffith's opinion, the compression factor would have been the most dominant factor in order to cause the sliding movement of the two vertebrae.²⁸⁷

233. Mr Griffiths explained in his report that if Mr Strickland had been wearing a helmet with a liner of typical thickness, in the order of 30 mm, it would have increased the distance over which the velocity change occurred by almost double, which in turn would have more than halved the acceleration and forces. In his opinion, such a major reduction in force and associated acceleration would have been expected to result in no movement of one vertebra relative to another, thus the brain and spinal injury "should have been entirely prevented."²⁸⁸ Mr Griffiths stated the "proven benefit of the energy absorption provided by a liner in a helmet approved to the Australian Standard, should have entirely prevented the significant spinal and brain injuries he received."²⁸⁹

234. Mr Daniel Simms is a Mechanical Engineer based in Perth. Unlike Mr Griffiths, Mr Simms does not have the additional qualification, or experience, as a Bio-medical Engineer.²⁹⁰ Mr Simms has approximately 20 years' experience in mechanical engineering, some of which has involved review and investigation of motor vehicle accidents.²⁹¹ Mr Simms prepared a report on behalf of Mr Strickland's wife for other proceedings but, again, was helpfully provided to the Court. As noted above, Mr Simms did have an opportunity to inspect Mr Strickland's helmet in person. Mr Simms also had an opportunity to view Mr Griffiths' initial report before preparing his own. Mr Simms's report related solely to issues relating to the motorcycle helmet worn by Mr Strickland at the time of the crash.²⁹²

235. When he examined the helmet Mr Simms was unable to find any indication of the manufacturer on the inside or outside of the helmet, so its origin is unknown. There was a purported Australian Standard sticker, which was

²⁸⁴ T 315 - 316.

²⁸⁵ T 319, 322 - 323.

²⁸⁶ T 319.

²⁸⁷ T 320 - 321.

²⁸⁸ Exhibit 2, Tab 32, p. 30.

²⁸⁹ Exhibit 2, Tab 32, p. 34.

²⁹⁰ T 338.

²⁹¹ Exhibit 1, Tab 21B.

²⁹² T 338; Exhibit 1, Tab 21B.

noted to be held on by sticky tape and was not the correct Australian Standard for a motorcycle helmet. Rather, it was a standard that related to a bicycle helmet.²⁹³ Mr Simms noted that the practice for bicycle helmets is for the Australian Standard label to be affixed to the interior of the helmet, and the sticker is usually in a slightly different form (not a foil-type but rather a more sweat-resistant-type) so it did not conform to what would be expected for a bicycle helmet any more than it did for a motorcycle helmet.

236. Mr Simms's evidence was that from his inspection of Mr Strickland's helmet he was unable to say whether or not it was compliant with the Australian Standard for motorcycle helmets. Mr Simms did note the Australian Standard (AS/NZS 1696-2006) nominates requirements for the marking and labelling of a helmet, including the manufacturer's details, date of manufacture, compliance details and care instructions.²⁹⁴ There was no evidence of compliance on Mr Strickland's helmet as the labels affixed to it were either deficient or not of the required form.²⁹⁵ There was no labelling on the helmet indicating that it had undergone testing in compliance with the Australian standard.²⁹⁶ In fact, there were no manufacturing labels and no relevant Australian Standard labels on the helmet.

237. Mr Simms maintained that it was not possible to say definitively whether the helmet complied with the Australian standards without testing the helmet in accordance with the standards, which could not be done as the helmet is now compromised because of the crash.²⁹⁷ However, Mr Simms acknowledged that he has seen helmets that comply with the Australian Standards, and Mr Strickland's helmet "does not have the features of an Australian Standard helmet ... that are typical to a helmet that has demonstrated compliance with the Australian Standards."²⁹⁸

238. Mr Simms also indicated that he has seen motorcycle helmets that are commonly described as 'novelty helmets' and he agreed that Mr Strickland's helmet looked similar to those types of helmets, with "the same form as a whole",²⁹⁹ while noting that there are many different types.³⁰⁰

239. Mr Simms also noted that generally the standard requires that a helmet is capable of absorbing impact energy. He observed that the interior padding in the lining appeared to be a "polyurethane foam or similar open celled foam material"³⁰¹ Mr Griffiths gave evidence that the type of open celled foam material found in Mr Strickland's helmet cannot provide the impact absorption required by the standard.³⁰² Mr Simms agreed that what he saw in Mr Strickland's helmet was "a compressible material" that he described as "the sort of foam that you might use to wash your car." He also described it as a "low density, easy to compress foam" and agreed it was not an "EPS

²⁹³ T 339 – 340.

²⁹⁴ Exhibit 1, Tab 21B, p. 18.

²⁹⁵ Exhibit 1, Tab 21B, p. 17.

²⁹⁶ Exhibit 1, Tab 21B, p. 18.

²⁹⁷ T 340; Exhibit 1, Tab 21B, p. 18.

²⁹⁸ T 341.

²⁹⁹ T 342.

³⁰⁰ T 342.

³⁰¹ Exhibit 1, Tab 21B, p. 15.

³⁰² T 315.

liner,”³⁰³ or polystyrene liner such as is widely used in motorcycle helmet liners.³⁰⁴ Mr Simms agreed that the material in Mr Strickland’s helmet would squash or compress more with less force applied³⁰⁵ but maintained it “would have acted to some unknown extent to distribute load over the head.”³⁰⁶

240. Mr Simms noted that the relatively minor damage to the helmet and the apparent absence of head injury to Mr Strickland suggested that the helmet was effective in preventing head injury as he did not present with any obvious head injuries. However, he stated it was not possible to assess the extent to which the helmet may have attenuated force transmission into the neck region or how it would have compared to other helmets in this respect.³⁰⁷ It followed that, in Mr Simms’s opinion, it is not possible to determine whether any other form of helmet would have been more effective in reducing or preventing the neck injuries Mr Strickland sustained.³⁰⁸

241. Nevertheless, Mr Simms did express an opinion in his report that whilst “an Australian Standard compliant helmet with an energy absorbing EPS layer may have deformed and reduced energy transfer, the resulting rotation, compression and shear forces would nonetheless have been transferred through the same mechanism and movement”³⁰⁹ that he inferred occurred when Mr Strickland’s helmet struck the ground. He based his opinion on the basis that motorcycle helmets do not prevent hypertension or flexion of the neck.³¹⁰ Mr Simms summarised his position at the end of his evidence as being that there are “too many unknowns to form any sort of reasonable scientific basis”³¹¹ to determine the extent of the force Mr Strickland was subjected to when he hit the ground. However, Mr Simms acknowledged that he did not have the expertise to take any information from the injuries suffered by Mr Strickland in that analysis.³¹²

242. At the conclusion of his report Mr Simms stated that it was “not his intention in his report to suggest that the wearing of an Australian Standard helmet would not have been preferable or to imply that the subject helmet provided the same level of protection”³¹³ but emphasised that there was uncertainty about what additional level of protection a compliant helmet may have provided in the circumstances. He maintained this was particularly so, given Mr Strickland sustained a neck injury rather than a head injury.³¹⁴

243. I am satisfied on the evidence before me, including the evidence of Sergeant Taylor, Mr Griffiths and Mr Simms, that Mr Strickland’s helmet was not compliant with the Australian standard for motorcycle helmets. In

³⁰³ Exhibit 1, Tab 21B, p. 20.

³⁰⁴ T 344.

³⁰⁵ T 348.

³⁰⁶ Exhibit 1, Tab 21B, p. 20.

³⁰⁷ Exhibit 1, Tab 21B, pp. 13 - 14.

³⁰⁸ Exhibit 1, Tab 21B, p. 15.

³⁰⁹ Exhibit 1, Tab 21B, p. 16.

³¹⁰ Exhibit 1, Tab 21B, p. 16.

³¹¹ T 351.

³¹² T 349 – 350.

³¹³ Exhibit 1, Tab 21B, p. 21.

³¹⁴ Exhibit 1, Tab 21B, p. 21.

submissions filed on behalf of the family, it was accepted that this finding was open to me on the expert evidence before me at the inquest.³¹⁵

244. At the conclusion of the inquest I raised with Mr Johnson, who appeared on behalf of Mr Strickland's family, whether he had instructions as to the extent of Mr Strickland's knowledge about his helmet's compliance. In the submissions later filed, Mr Johnson submitted that I should rely upon the information previously provided by Mrs Strickland that she understood the helmet was purchased by Mr Strickland from a reputable motorcycle dealership and had purportedly borne an appropriate standard sticker until shortly before the accident, in conjunction with Mr Strickland's reputation as a safety-conscious person with a good driving record and his previous interactions with police.³¹⁶

245. The evidence provided by Mrs Strickland is not supported by any other objective evidence and is not provided in a signed statement or in any other formal way so the weight I can give to it is limited. I have evidence that on the day of the crash Mr Strickland's helmet did not have appropriate sticker on it and the only Australian standard sticker affixed to it clearly did not relate to that motorcycle helmet.

246. The evidence that Mr Strickland was prepared to deliberately take a sticker from a bicycle helmet and sticky tape it to this helmet does not sit well with an understanding that his helmet was compliant with the Australian Standard for motorcycle helmets.

247. The evidence that he was a very experienced and safety conscious motorcycle rider also makes it surprising that he might think it was compliant when weighed against the evidence of Sergeant Taylor, Mr Griffiths and Mr Simms that the appearance of the helmet was obviously different to that of compliant motorcycle helmets. Some photographs were provided by Mrs Strickland of other helmets that are purportedly compliant with the Australian Standard and look similar to Mr Strickland's helmet, but the photographs show very little and do not permit me to make any meaningful comparison so I prefer the evidence of the expert's in this regard.

248. In addition, I had evidence before me from experienced police officers that it is a common practice for motorcyclists who ride the 'cruiser' type of motorcycle as ridden by Mr Strickland to choose to wear the non-compliant helmet for comfort and style reasons.

249. Nevertheless, weighing up all the evidence before me, I do not consider I am able to conclusively find that Mr Strickland was aware that his helmet was not compliant so I do not make a finding to that effect.

250. The final question raised in the inquest in relation to the helmet was whether Mr Strickland's injuries may have been reduced, or even entirely prevented, if he had been wearing a helmet compliant with the Australian Standard? The sole evidence before me to that effect came from Mr Griffiths.

³¹⁵ Submissions to the Coroner on behalf of the family of Mr Strickland filed 30 November 2018 [47].

³¹⁶ Submissions to the Coroner on behalf of the family of Mr Strickland filed 30 November 2018 [49].

However, I also received evidence from Dr Cooke and Professor Mountain that contradicted that opinion to some extent.

251. Ultimately, I accept the submission put on behalf of the family that the evidence allows me only to find that there is a possibility that Mr Strickland's injuries spinal and vascular injuries may have reduced, and thus potentially may have avoided the fatal outcome, if he had been wearing a compliant helmet.³¹⁷
252. Given the evidence has raised the possibility that Mr Strickland unknowingly purchased a non-compliant helmet from a store in Australia, although I have not found this is the case, and given Sergeant Taylor's expressed concern about this practice still occurring in Western Australia, I consider it appropriate to make a recommendation, as urged by Mr Strickland's family, about this practice being regulated. In the meantime, it would be opportune for all motorcyclists to take the time to access the helmet safety information readily available on the WA Road Safety Commission's website.³¹⁸
253. I also draw attention to Mr Griffiths comment that it is a sad state that for motorcycle helmets the strongest lobbyists against improvements are the motorcycle riders themselves, which he said made it a frustrating area to work in because researchers can identify scope for improvements and new products that could reduce head and neck injuries significantly but they are resisted by the bodies that represent motorcyclists. Mr Griffiths queried whether the views of those bodies are actually representative of the general motorcycling population but noted that they are very powerful in terms of limiting the scope of the standards. For example, from the point of view of road safety researchers, they would argue that the research supports full face helmets being mandatory as that is the safest option.³¹⁹ Therefore, when considering what helmet to use, as well as it being compliant, motorcyclists should give strong consideration to the added safety benefits of certain safety gear, beyond what is mandated.

RECOMMENDATION

I recommend that the Honourable Minister for Road Safety consider implementing regulations to require retailers of motorcycle helmets in Western Australia to provide written information to any purchaser as to whether the helmet purchased complies with the relevant approved standard for use as a protective helmet when riding a motorcycle on a public road in Western Australia.

³¹⁷ Submissions to the Coroner on behalf of the family of Mr Strickland filed 30 November 2018 [68].

³¹⁸ <https://www.rsc.wa.gov.au/Your-Safety/People/Motorcyclists/Helmets-and-helmet-standards>.

³¹⁹ T 333 – 334.

MOTORCYCLE SAFETY

254. The discussion about Mr Strickland's helmet leads on to a general discussion about motorcycle riding and its inherent risks, as well as the safety precautions that can be taken to reduce that risk.
255. As noted previously, Senior Sergeant Paul Gale is attached to the WA Police State Traffic Intelligence Planning and Coordination Unit. He is a very experienced motorcycle rider and, as part of his role, he coordinates and performs the on road training for police motorcyclists.³²⁰ He advised that the WA Police are committed to road safety in partnership with the WA State Government and their Towards Zero road safety strategy. As part of this overall strategy, traffic enforcement strategies focus on driver behaviour such as drink and drug driving, dangerous and reckless driving, non-use of restraints and inattention. Non-use of restraints includes the wearing of non-approved motorcycle helmets.³²¹
256. Senior Sergeant Gale advised that motorcyclists are overrepresented in the statistics of fatal and serious injury crashes in Western Australia. Over the period 2014 to 2017 there were 131 fatal and 156 serious crashes involving motorcycles in WA. Of those 287 incidents, 53 involved either the rider or pillion passenger not wearing a helmet, wearing a helmet incorrectly or there was no data about the helmet.³²² Senior Sergeant Gale was unable to differentiate which of those cases involved a non-compliant helmet as opposed to no helmet being worn or a helmet being worn incorrectly (such as not having the strap done up).³²³
257. Mr Ian Cameron is the current Acting Commissioner of Road Safety at the Road Safety Commission in Western Australia at the time of the inquest. The Road Safety Commission is attached to the WA Police but Mr Cameron explained that the Commission has an overarching role in promoting road safety that is separate to the core responsibilities of the WA Police. The Road Safety Commission takes information on serious and fatal crashes from other agencies such as the WA Police, the Department of Transport and other road authorities. It then analyses that data and commissions research to understand crash trends. Based on their analysis the Commission then makes recommendations to the government on investment strategies and road safety options, as well as monitoring the performance of the strategies that are implemented.³²⁴
258. The Road Safety Commission considers motorcycles as part of the category of powered two-wheel vehicles, which includes mopeds and scooters. Motorcycles make up the bulk of crashes within that category. Mr Cameron advised that the number of powered two-wheelers has been increasing in Western Australia at a much faster rate than passenger cars in recent years, hence powered two wheelers are playing an increasingly significant role in the road transport system either as a primary form of transport or for

³²⁰ T 111.

³²¹ T 106.

³²² T 106.

³²³ T 107.

³²⁴ T 116; Exhibit 1, Tab 21A.

recreational use. This trend is also seen in other Australian states and territories but is most pronounced in Western Australia, where there has been a 213% increase in registrations from approximately 2005 to 2016.

259. The difficulty with this trend is that powered two-wheelers “represent an important challenge for safety as, by their inherent design, their riders are far more physically exposed. They lack many of the protective features, are subject to variations in road surfaces, and require more control and skill by the rider to operate safely compared to a passenger car.”³²⁵ As a result, the riders of powered two-wheelers “are at far greater risk than car drivers per kilometre ridden in term of fatalities and serious injuries entailing long-term disability.”³²⁶
260. This has led to an overrepresentation in statistics for fatalities, with motorcycle riders comprising up to 20% of fatalities in Western Australia although motorcycles represent only about 6% of the overall vehicle fleet.³²⁷ Interestingly, the actual number of incidents is decreasing, but their rate as a proportion of the overall deaths on our roads is increasing because motorcyclists have not benefited from the same pace of change for safety improvements as car occupants over recent decades.³²⁸
261. Mr Cameron advised that in 60% of the motorcycle crashes there was no other vehicle involved. Powered two-wheeler crashes are frequently linked to failures of perception and control, with single-vehicle crashes also often attributed at least in part to the powered two-wheeler’s greater sensitivity to external variations in the road surface or weather conditions. Excess or inappropriate speed is also more commonly involved in serious motorcycle crashes than in motor vehicle crashes, indicating rider behaviour is a factor.³²⁹
262. Mr Cameron advised that there is widespread international and national agreement on the most effective safety responses to the risks presented by powered two-wheelers. Jurisdictions re advised to implement a “safe system approach, which essentially looks to cater for the human propensity to make mistakes, while also providing increasing forgiveness so that crashes are less likely to result in serious harm.”³³⁰ There are four guiding principles in the design and operation of a safe system:
- People make mistakes that can lead to road crashes;
 - The human body has a known, limited physical ability to tolerate crash forces before harm occurs (and these tolerances are quite low);
 - While individuals have a responsibility to act with care and within traffic laws, a shared responsibility exists with those who design, build, manage and use roads and vehicles to prevent crashes resulting in serious injury or death, and to provide post-crash care; and

³²⁵ T 117.

³²⁶ T 117.

³²⁷ T 117.

³²⁸ T 117 – 118.

³²⁹ T 117 – 118.

³³⁰ T 118.

- All parts of a system must be strengthened in combination to multiply their effects and then road users are still protected, ideally, if one part fails.³³¹

263. The current overarching road safety strategy in Western Australia is 'Towards Zero', which is a long-term strategy that has run from 2008 and ends in 2020. Work is now beginning on the next strategy, which will involve significant public consultation before it commences.³³²

264. The Towards Zero approach went beyond the traditional focus of trying to create perfect human beings and accepted the first principle; namely, people make mistakes. Mr Cameron indicated that 70% of all serious crashes now involve somebody who wasn't involved in risky-taking behaviour such as excessive speeding, being drunk or not wearing a seatbelt. Instead, they are often generally law-abiding people making errors of judgment. Therefore, although the strategy expects people to be responsible and tries to improve driver behaviour, acknowledging the first principle means an emphasis on what else can be done to provide additional protection. Improvements in vehicle safety has given significant assistance in this regard, with an estimated reduction in crashes of around 26% as a result of vehicle improvements.³³³ Some other advancements that are likely to have an even greater effect on reducing motor vehicle crashes in the future are lane departure warning technology and autonomous emergency braking.³³⁴

265. Unfortunately, motorcycles haven't benefitted from the same rate of technology improvements as passenger cars, in part because the types of protective features that can be built into a motor vehicle are not available for a motorcycle or scooter. Mr Cameron indicated that there have been some recent improvements in motorcycle safety, in particular with the availability of motorcycle advanced braking system (ABS) technology for new motorcycles and the likely introduction of electronic stability control, but the reality is that a motorcycle rider will still be afforded less protection than the driver of a car in the event of a loss of control.³³⁵

266. Accordingly, Mr Cameron explained that for motorcycles another area of emphasis is in protective equipment, both in terms of helmets and other forms of protective clothing. A new initiative nationally will be promoting the benefits of wearing protective clothing and providing specific information about the best types of clothing and what consumers should look for in terms of construction, materials, labelling, etc.³³⁶

267. Road improvement initiatives aimed at building safer roads and safer road signs include shoulder sealing and putting audible edge lines on the sides of some country roads, which are important features given 70% of regional crashes in WA, whether motorcycle or cars, are single vehicle crashes. Other strategies focus on regulating intersections in metropolitan areas.³³⁷

³³¹ T 118 – 119; Exhibit 1, Tab 21A, p. 4.

³³² T 119.

³³³ T 122 – 123.

³³⁴ T 128.

³³⁵ T 124 – 125, 129.

³³⁶ T 135 – 138.

³³⁷ T 127 - 129.

268. As to the type of person who is involved in motorcycle crashes, they are predominantly male and fall across the age ranges from young riders all the way through to riders in their 50's and even to a lesser extent in their 60's. Some of it reflects the population trend in the state and also a change in riding behaviour for older people.³³⁸ However, it is relevant in the sense that it rules out the explanation that the motorcycle crashes are happening to 'young inexperienced hoons' and shows that more mature, experienced motorcycle riders are equally at risk.³³⁹ And for "country crashes, the problem crash for motorcyclists is the same as for car drivers; it's largely a single vehicle running off the side."³⁴⁰
269. Mr Cameron explained that, in terms of targeted road safety funding for road improvements there are two existing programs. One is the Federal Black Spot Program. There is also a State Black Spot Program that includes a mixture of both State and local government funds, with the state government generally funding a ratio of two thirds of the cost against one third funded by the relevant local authority. Both programs are administered by Main Roads WA. The advantage of the Federal program for a small local authority such as the Shire is that it funds 100% of the funding for an approved project.³⁴¹
270. The Road Safety Commission also manages a complimentary program related to the Road Trauma Trust Account, which is funded by speed and red-light camera infringements. Part of it is used to fund the Towards Zero strategy and money is also provided to Main Roads with a set of priorities based on risk that can then be used for targeted safety improvements.³⁴²
271. As Mr Cameron acknowledged, there will always be more submissions than there are funds available for all of the programs, so applications are prioritised according to crash history and the severity and value of those crashes, and then consideration of the cost-benefit ratio of the treatment that is proposed.³⁴³ The aim is "to optimise every dollar."³⁴⁴
272. The Western Australian government and local governments have a responsibility to maintain as safe a road network as is possible, but I accept there are budget constraints, which gain greater significance when considered in the context of the vast size of this State and the correspondingly vast road network that services it. I understand that the government's road safety strategy is focussed upon trying to design, build and manage roads to prevent crashes resulting in serious injury or death. However, the government and local councils must work with the existing road network and identify the best areas to target with the limited funds available.
273. The evidence before me makes it clear that if a person chooses to ride a motorcycle or some other powered two-wheeler, they are making a choice

³³⁸ T 140 – 141.

³³⁹ T 140 - 141

³⁴⁰ T 142.

³⁴¹ T 146.

³⁴² T 144 – 145.

³⁴³ T 146 – 148.

³⁴⁴ T 146.

that carries with it an inherently greater risk to their safety than when getting behind an ordinary motor vehicle. It may be for some people that they are making the choice for cost-effective reasons, as motorcycles and powered two-wheelers can be a low cost choice both as to initial outlay and running costs. But the evidence also indicates that many people choose to ride motorcycles recreationally, for the pleasure they gain from that type of mode of transport. Mr Strickland is an example of that type of rider. He was a motorcycle enthusiast who had been riding motorcycles for many years. I have no doubt he would have had an understanding that choosing to ride a motorcycle meant a greater risk to his safety but he chose to do so for the pleasure it gave him. As an adult with the appropriate driver's licence qualification he was entitled to make that choice but he accepted a certain level of risk to his safety in doing so.

CONCLUSION

274. The evidence before me demonstrates that, like many regional roads in Western Australia, Julimar Road presents a risk to motorists, particularly motorcyclists, due to its geometry and tree-lined aspect. Roads such as this are managed by many local governments, who must do their best to identify those roads that present the greatest risk to motorists and the most cost-effective way to reduce the risk. This can include changing the geometry of the road, changing speed zones and adding in safety features such as warning signs.
275. Evidence was provided by the Shire about the limited budget of the Shire, in the vicinity of \$10 million per year, in comparison to the large network of sealed and unsealed roads it has to maintain. The Shire advised that in the last four financial years it has invested, on average, \$1 million per year to operate and maintain roads within the Shire and \$2 million per year to upgrade roads within the Shire. It is a significant task and clearly takes up a large part of the Shire's annual budget. It explains why the Shire is so reliant on Black Spot funding to upgrade its road network.
276. Black Spot funding also has its limits, with more applications than can be funded in any financial year, and I heard evidence about how the focus is upon getting the most value for the taxpayer's dollar. In conjunction, road safety experts focus upon improving vehicle safety and motorist behaviour (including wearing the right protective gear for motorcyclists).
277. Despite the number of fatalities and crashes of motorcyclists on Julimar Road, it still comes up as a favoured motorcycle route for motorcyclists today, with the Perth to Toodyay road identified on the Motorcycle Riders Association of Western Australia website.³⁴⁵ The website doesn't mention the dangerous curves on the road. However, I am also aware the MRAWA participated in 2015 in providing sessions in association with the Shire of Chittering and Toodyay to focus on safe motorbike riding techniques for local

³⁴⁵ <https://mrawa.org>.

riders and visitors to Toodyay, given the number of incidents on Julimar Road.

278. The evidence before me indicates that the safety of Julimar Road for motorcyclists has improved since the death of Mr Strickland, with the realignment of the particular curve that has taken the lives of at least three men. However, the road remains a challenge to motorists, and a particular risk to motorcyclists. In my view, the simplest way to reduce the risk is to reduce the maximum speed limit to something closer to the advisory speeds for the multiple curves. Until that is done, more lives are likely to be lost. I urge the Shire (and the Shire of Toodyay if required) and Main Roads to focus on working together to resolve this issue expeditiously.

279. In the meantime, it is hoped that public awareness of this inquest will remind motorcyclists of the need to prioritise their safety by wearing the best protective gear and riding to the conditions and the limits of their motorcycle.

S H Linton
Coroner
29 January 2019