

North Cottesloe Primary School

TRAFFIC ENGINEERING, SAFETY REVIEW AND TRAVEL MANAGEMENT PLAN

FINAL REPORT – V5

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1. EXECUTIVE SUMMARY

This Revised Traffic Engineering and Safety Review and Travel Management/Action Plan has been prepared by Move Consultants on behalf of the Town of Cottesloe with regard to the existing North Cottesloe Primary School, located at the north-east corner of Eric Street and Railway Street, North Cottesloe in the Town of Cottesloe. A meeting with the Town's Traffic and Safety Committee on 6 February 2019 to discuss the outcomes of the review resulted in a series of recommendations to progress the project. A subsequent meeting on 25 February to present and discuss the revised concept resulted in These included the following:

- Endorsement of the plan subject to the realignment of the western footpath adjacent to the eastern edge of the railway reserve to minimise impacts on existing vegetation with indicative connection of the existing footpath from Eric Street to Grant Street;
- Endorsement of a plan to proceed to formal public consultation and the preparation of a survey/questionnaire to be circulated to the Town's Traffic and Safety Committee.
- Endorsement of intent to engage with Main Roads WA to lower the speed limit to a permanent all-day 40kph between Eric Street and Grant Street; subject to the results of public consultation;
- A site-specific Tree Assessment report to identify trees of significance;
- Update of the Project Delivery Plan to include funding opportunities and a revised delivery timeframe; and
- Endorsement of consideration of preparing a brief for Stage 2 works to be undertaken as a separate project covering the section of Railway Road from the northern boundary of the existing project to the Grant Street intersection.

Following a detailed traffic operations and safety assessment, a review of the original proposed plan and subsequent revised plan(s) to upgrade and modify the existing road cross-section of Railway Street, north of Eric Street, was undertaken and the following summaries our review:

- The proposal to relocate the existing pick-up/drop-off activities associated with the school to the Railway Street frontage is supported from a traffic operations, safety and efficiency perspective. This will result in less conflict at the existing crossovers to Eric Street and minimise impacts to existing boundary road traffic operations between Curtin Avenue and Stirling Highway and will allow for increased safe ingress and egress for parents to access the higher order network, particularly north of the school via the fully controlled roundabout at Eric Street/Railway Street.
- There will be an increase in traffic along the Railway Street frontage (in the order of 200 to 300 vpd) due to redistribution of pick-up/drop-off traffic; however, this can be accommodated within the practical capacity of the road classification and the proposed road cross-section and potentially some minor redistribution in traffic associated with the school on the higher order roads in the area (i.e. Grant Street East and Stirling Highway) but these increases can be comfortably accommodated within the existing network operations.
- The upgrading and modification of the road cross-section of Railway Street to effectively separate through traffic from pick-up/drop-off traffic through realignment of the through carriageway to the western edge of the road reserve abutting the railway line will still allow for efficient north-south movement along the western boundary of the school for existing traffic demands.
- The proposed southbound one-way system within the new pick-up/drop-off area will allow for minimal conflict between through traffic on Railway Street and queuing vehicles entering the pick-up/drop-off area due to the increase in the number of parallel bays in the pick-up/drop-off area along the western edge of

the school. This increase in parallel bays within the 'Kiss n Ride' area will satisfactorily accommodate the demands associated with the existing a.m. and p.m. peak periods.

- The provision of additional angle parking within this dedicated area will supplement the overall car parking supply for the school with the existing angle parking located along the Eric Street frontage reallocated to either staff and/or visitors to the school or dedicated to parents of Kindy and Pre-Primary children.
- The additional proposed pedestrian crossing to the north of the school on Railway Street will assist in facilitating safe additional crossings which are now undertaken inappropriately north of the existing established crossing to the south. This crossing will require MRWA approval.
- The implementation of LATM or 'slow points' along the Railway Street frontage to encourage awareness of other road users, namely pedestrian, cyclists and school parents/caregivers entering and exiting the relocated pick-up/drop-off area will hopefully induce a degree of 'horizontal' friction to encourage lower travelling speeds.
- An application for a change in speed zoning to a permanent 40kph on Railway Street between Grant Street and Eric Street is recommended. This will need to be negotiated with MRWA.
- No other changes to speed zoning are justified.
- All changes to signage and line marking within Railway Street, Eric Street, inclusive of the future Kindy & Pre-Primary parking area, and other road frontages will require the approval of MRWA.

Following the Town's Traffic and Safety Committee meeting of 6 February 2019, the committee requested some modifications to the plan prior to release for public consultation and advertising. The modified concept plan incorporating a realignment of the western footpath adjacent to the eastern edge of the railway reserve along Railway Road has been undertaken and is reflected in the modified plan attached in Appendix B.

The proposed plan has also resulted in a significant change to existing formal and informal public car parking along the Railway Road frontage. The existing formal on-street supply consists of 24 bays plus an informal supply within the railway verge of approximately 10-15 bays. The proposed concept plan illustrates 31 formal on-street bays (within the realigned drive-through area) and effective elimination of the informal verge parking within the railway reserve.

Additional works between the northern boundary of the existing Railway Street plan and the Grant Street intersection will be addressed as Stage 2 of the project.

Based upon the results of this review going forward, a series of recommended actions have been outlined in an Action Plan documented in Appendix C. The tentative Action Plan options have been prioritised with regard to short-term (0-6 months), transition (6 months-2 years) and long-term (2+ years) timeframes and grouped by the 4 E's – Economic, Engineering, Effectiveness and Equity. Progression of Action Plan, subject to outcomes from the public consultation process.

2. INTRODUCTION

2.1 OVERVIEW AND INTRODUCTION

This Revised Traffic Engineering and Safety Review and Travel Management/Action Plan has been prepared by Move Consultants on behalf of the Town of Cottesloe with regard to the existing North Cottesloe Primary School, located at the north-east corner of Eric Street and Railway Street, North Cottesloe in the Town of Cottesloe. A meeting with the Town's Traffic and Safety Committee on 6 February 2019 to discuss the outcomes of the review resulted in a series of recommendations to progress the project. A subsequent meeting on 25 February to present and discuss the revised concept resulted in These included the following:

- Endorsement of the plan subject to the realignment of the western footpath adjacent to the eastern edge of the railway reserve to minimise impacts on existing vegetation with indicative connection of the existing footpath from Eric Street to Grant Street;
- Endorsement of a plan to proceed to formal public consultation and the preparation of a survey/questionnaire to be circulated to the Town's Traffic and Safety Committee.
- Endorsement of intent to engage with Main Roads WA to lower the speed limit to a permanent all-day 40kph between Eric Street and Grant Street; subject to the results of public consultation;
- A site-specific Tree Assessment report to identify trees of significance;
- Update of the Project Delivery Plan to include funding opportunities and a revised delivery timeframe; and
- Endorsement of consideration of preparing a brief for Stage 2 works to be undertaken as a separate project covering the section of Railway Road from the northern boundary of the existing project to the Grant Street intersection.

It is our understanding that the Town of Cottesloe is reviewing the updated plan to upgrade the existing car parking and pick-up/drop-off arrangements associated with the activities of North Cottesloe Primary School within the Railway Street Road reservation located along the western boundary of the school. An indicative plan has been prepared to relocate the existing angle parking located abutting the eastern edge of the railway reserve to the east within a widened road space and immediately adjacent to the school and to relocate the single carriageway to abut the eastern edge of the railway reserve. The proposal also indicates the relocation of the existing at-grade pedestrian crossing from the school further to the north between the relocated angle parking bays as well as additional on-street car parking in the form of parallel bays adjacent to the western edge of the school. A central one-way southbound aisle will separate the angle parking and the parallel parking adjacent to the school with entry via the northern edge and exit via the southern edge.

A detailed Traffic Engineering Review and safety review of the draft proposal for Railway Parade has been undertaken as well as the history associated with infrastructure upgrades on the local road network adjacent to and in the vicinity of the school and the impacts which these upgrades would have on peak school traffic operations. Key tasks have included the following:

- Collection of travel demand data during the school a.m. (8:00 to 9:00 a.m.) and p.m. (2:30 to 3:30 p.m.) peak periods inclusive of vehicular traffic and non-motorised modes.
- Liaison with the School Leadership team and Town staff to quantify staff and student numbers as well as to collect anecdotal information relating to staff car parking and travel demands.

- A review of the draft proposal for modifications to Railway Parade with regard to established traffic engineering and 'best practice' standards.
- A review of existing traffic operations on Eric Street and Railway Parade as well as at the signalised intersections of Eric Street/Stirling Highway and Eric Street/Curtin Avenue to identify any potential to modify signal timing to allow for more efficient traffic dispersion and safe operations along Eric Street and Railway Parade during school peak periods.
- Review of the existing speed limits on both Eric Street and Railway Parade and to identify the potential and process to modify these speed limits, if warranted.
- A review of existing 'desire lines' for school-based vehicular traffic as well as pedestrian and cycling movements in the area.
- A brief safety review of the draft proposal inclusive of consideration of sightlines for exiting and entering traffic, expected impacts to the boundary road network, potential conflict points and crash history/impact to risk profile; identification of improvements/modifications to the proposal, where relevant, where required.
- Review of the existing signal cycle and optimisation of Stirling Highway/Eric Street and Curtin Avenue/Eric Street as well as the traffic operations at this location with regard to queuing northbound on Eric Street at Curtin Avenue and the capacity of existing right-turning movements, southbound queuing at Stirling Highway on Eric Street and overall capacity to allow for more throughput on the minor priority movements.
- Review of existing posted speed limits on both Eric Street and Railway Street in the context of MRWA guidelines and policy in consultation with Council.
- A review of impacts on all road users inclusive of pedestrians, cyclists, public transport users, ride share and taxi patrons and private motor vehicles will be considered as part of the assessment with regard to safety, equity of access, efficiency and wayfinding in the context of the proposed plan.
- Any recommended modifications or options relating to the proposed concept plan will be outlined in an Action Plan. These options will be prioritised with regard to short-, transition- and long-term timeframes and grouped by the 4 E's – Economic, Engineering, Effectiveness and Equity.

2.2 SITE LOCATION

North Cottesloe Primary School is located at the north-east corner of Eric Street/Railway Street, North Cottesloe in the Town of Cottesloe. It is served by two crossovers to the north side of Eric Street, east of the roundabout intersection with Railway Street. The westernmost crossover provides inbound only direct access into an informal unsealed staff parking area to the west of the crossover and to additional angle parking to the east of this crossover located within the Eric Street road reserve along the southern boundary of the school. The easternmost crossover is an exit-only crossover. Additional parallel parking is located along the southern edge of the school fence line north of the existing east-west pick-up/drop-off area with this area functioning as eastbound only. Additional on-street car parking is available within the public road reserve on Railway Street along the western boundary of the school.

Figure 1 shows the locational context of the primary school.

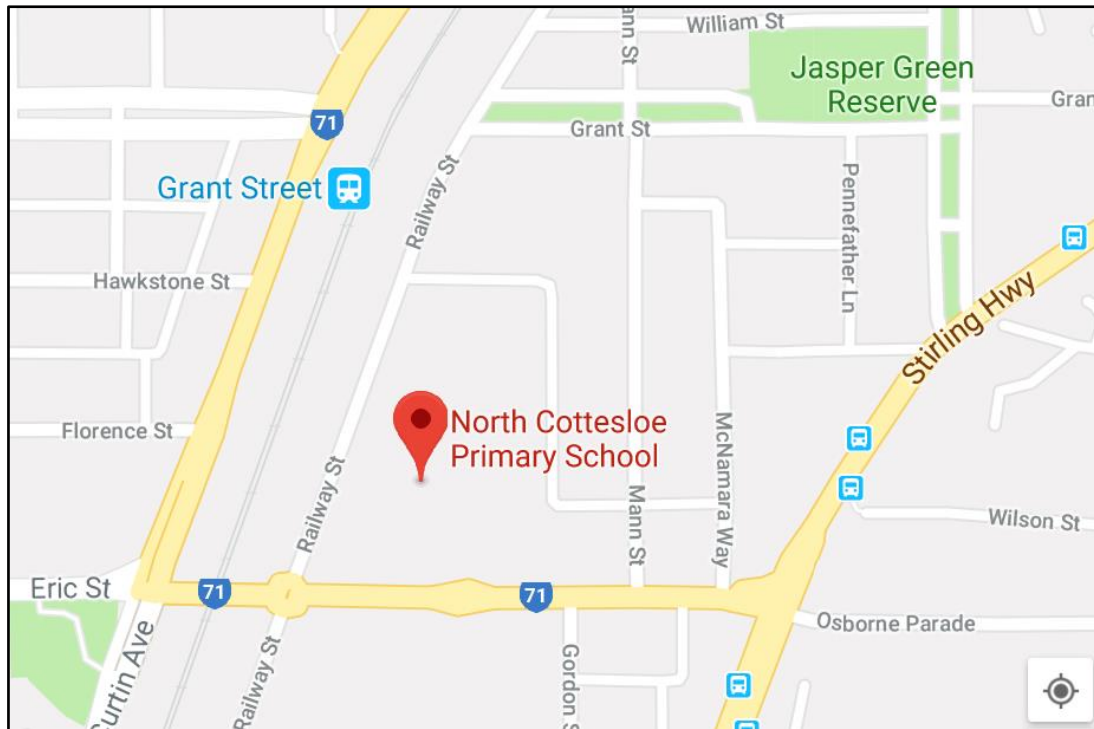


Figure 1: Site Location

The detailed area context is shown in Figure 2. Figure 3 shows the existing crossover and pick-up/drop-off arrangements including the Railway Street on-street and verge car parking.

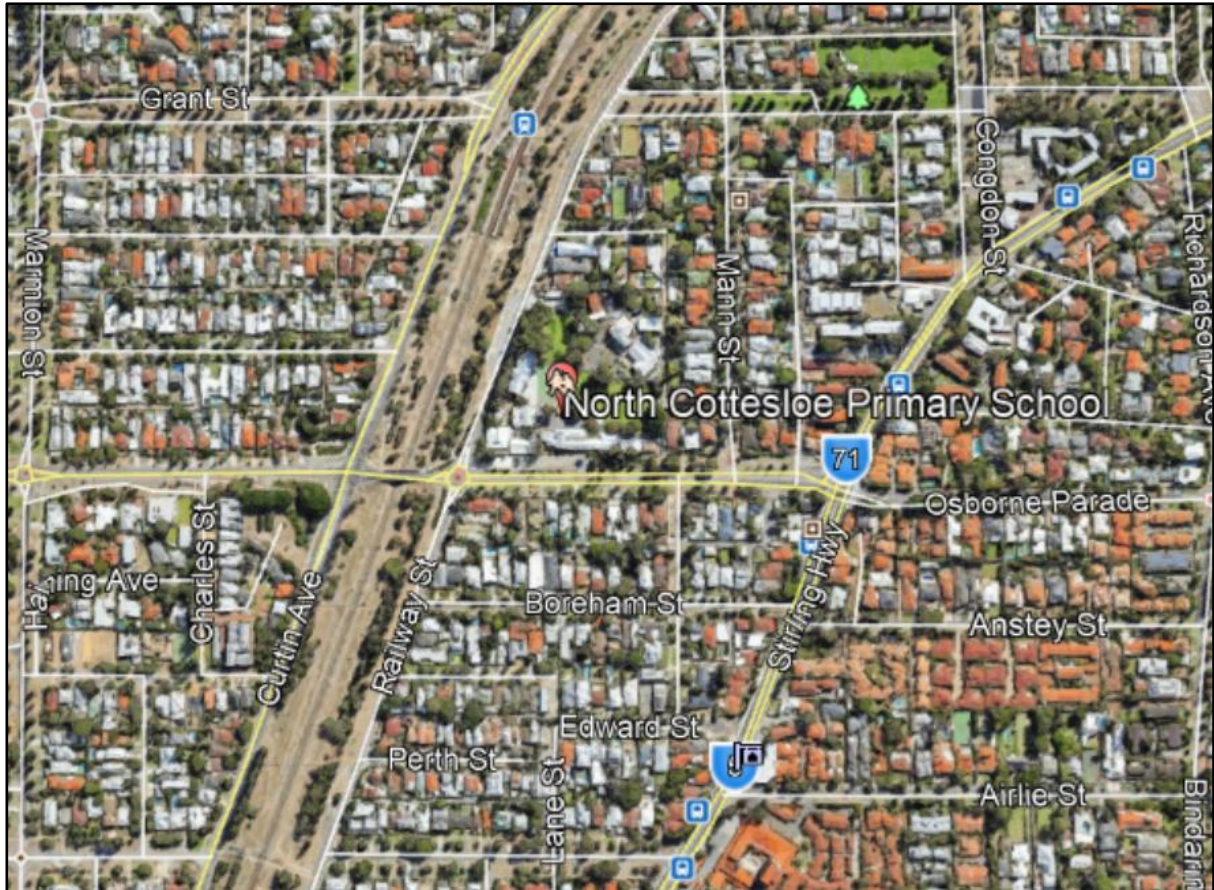


Figure 2: Aerial Context

operates under the jurisdiction of Main Roads WA. It has been constructed as a dual undivided carriageway to the north and south of the signalised intersection with Eric Street and provides the primary access into the Perth CBD for the western suburbs.

Curtin Avenue, to the west of the site and running parallel to the western edge of the railway reserve, is a primary north-south road link connecting North Fremantle with West Coast Highway in Swanbourne to the north. It has been defined as a *District Distributor A* road, east of Railway Street, which is defined as a road “...carries traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These roads are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.” It operates under a posted speed limit of 60kph and is owned, operated and maintained by the Town of Cottesloe. It has been constructed as a dual divided carriageway north of Eric Street.

Eric Street, along the southern boundary of the school, provides direct vehicular access into the school via two crossovers located on the north side between the intersections with Railway Street and Gordon Street. west of the site, has been defined been classified as a *District Distributor A* road, east of Railway Street, which is defined as a road “...carries traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These roads are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.” It operates under a posted speed limit of 50kph with school speed zoning in place between Gordon Street to just north of Railway Street of 40kph on school days between 7:30 a.m. and 9:00 a.m. and 2:30 p.m. and 4:00 p.m. It has been constructed as a single undivided carriageway with a flush central painted median with a small section just to the east of the existing eastern exit-only crossover on the north side of Eric Street configured as a ‘chicane’ or ‘slow point’ to manage traffic speeds in the vicinity of the school. A limited amount of on-street parallel parking is in place on the south side of Eric Street opposite the school in the form of 2 to 3 bays.

Railway Street, along the western boundary of the site and running parallel to the eastern edge of the railway reserve, provides direct pedestrian and cycling access to the school and a link to Eric Street for vehicles wishing to either park on the site and/or undertake pick-up/drop-off activities during peak periods. It functions as an alternative de facto north-south reliever route between the Claremont Town Centre and the Town of Cottesloe to the south of the site as well as providing direct access to abutting properties on its eastern side and access to the Grant Street Railway Station located approximately 150m north of the school. Formalised angle parking is in place on the western side of Railway Street, north of Eric Street, in the form of 2-hour marked bays to minimise long-term or commuter parking at this location. Observations indicate that some vehicles park on the south-western verge of Railway Street opposite the school during peak periods. Railway Street has been classified as a *Local Distributor* road which has been defined as a road which “...carries traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks and are managed by Local Government.” It operates under a posted speed limit of 50kph with school speed zoning in place between Greenham Street and just north of Boreham Street, south of Eric Street. of 40kph on school days between 7:30 a.m. and 9:00 a.m. and 2:30 p.m. and 4:00 p.m.

Figure 4 shows the functional road hierarchy in the vicinity of the site.

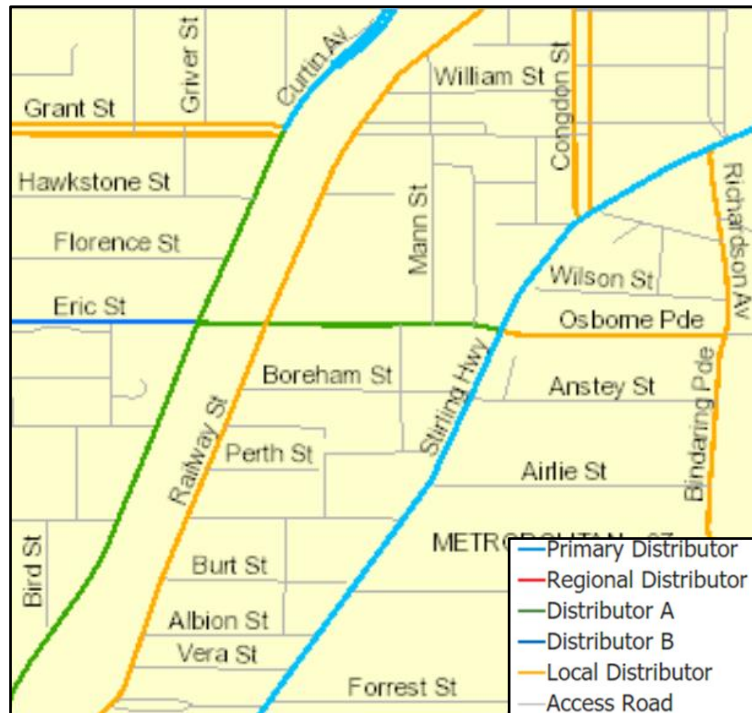


Figure 4: MRWA Functional Road Hierarchy

The following traffic controls are in place at the nearby intersections on the adjacent boundary road network:

- Eric Street/Curtin Avenue – 4-way signalisation
- Eric Street/Railway Street – single circulating 4-way roundabout
- Eric Street/Stirling Highway – 4-way signalisation
- Railway Street/Greenham Street – Give Way control on Greenham Street approach
- Eric Street/Gordon Street – Give Way control on Gordon Street approach
- Eric Street/Mann Street – Give Way control on Mann Street

Several detailed site visits were conducted in October and November 2018 to meet with staff and to conduct on-site observations relating to existing road geometry, speed limits, and sightlines and to observe existing traffic operations on the adjacent boundary road network.

Existing traffic volumes were obtained via Main Roads WA and the Town of Cottesloe as well as speed data and vehicle classification data for the major roads in the area. Table 1 outlines this data.

Table 1: Existing Traffic and Speed Zoning Data

Road Link	Daily Traffic Volume (vpd)	Speed Limit	Percentage Operating Over Speed Limit (%)
Stirling Highway at Eric Street	35,000 vpd (MRWA 2017/18)	60kph	N/A
Curtin Avenue (north of Eric Street)	25,200 vpd (MRWA 2017/18)	60kph	N/A
Curtin Avenue (south of Eric Street)	21,000 vpd (MRWA 2017/18)	60kph	N/A
Eric Street (West of Stirling Highway)	9,000 vpd (MRWA 2017/18)	50kph	N/A
Eric Street (Railway Street to North Cottesloe Primary School/Greenham Parade)	8,000 vpd (Town of Cottesloe 2018)	50kph	<2%
Railway Street (West of Eric Street)	5,200 vpd (MRWA 2014/15)	50kph	N/A
Railway Parade (East of Eric Street)	2,100 vpd (Town of Cottesloe 2018)	50kph	>50%

3.2 PUBLIC TRANSPORT, PEDESTRIAN, AND CYCLISTST FACILITIES

The subject site is served by high frequency bus services, including the Circle Bus Routes 999 and 998, along Stirling Highway which is within a 5-minute walking distance from the school as well as frequent railway service via Grant Street Railway Station located immediately to the north-west of the school.

High quality pedestrian and cycling facilities are in place adjacent to and in close proximity to the school including on-road cycle lanes on Eric Street along the southern boundary of the school and on Curtin Avenue to the west of

the site. Railway Street, along the western boundary of the school, has been designated as a *Bicycle Boulevard* within the *Perth Bicycle Network* with Eric Street also signed as a *Continuous Route* (NW 16) in the PBN. Footpaths are in place on both sides of Eric Street with the footpath on the north side located on the northern edge of the existing road reservation immediately adjacent to the southern fence line abutting the pick-up/drop-off area. There is also a footpath on the eastern side of Railway Street adjacent to the western boundary of the school with pedestrian crossings in place on Railway Street, north of Eric Street, providing direct access east of the railway line into the western section of the school. A formalised pedestrian crossing is also in place on Eric Street, east of Railway Street, through the established LATM or 'slow point' to facilitate safe refuge for pedestrians and cyclists to travel across Eric Street during peak periods.

Figure 6 shows the existing pedestrian and cycling infrastructure with Figure 6 showing the existing pedestrian crossings.

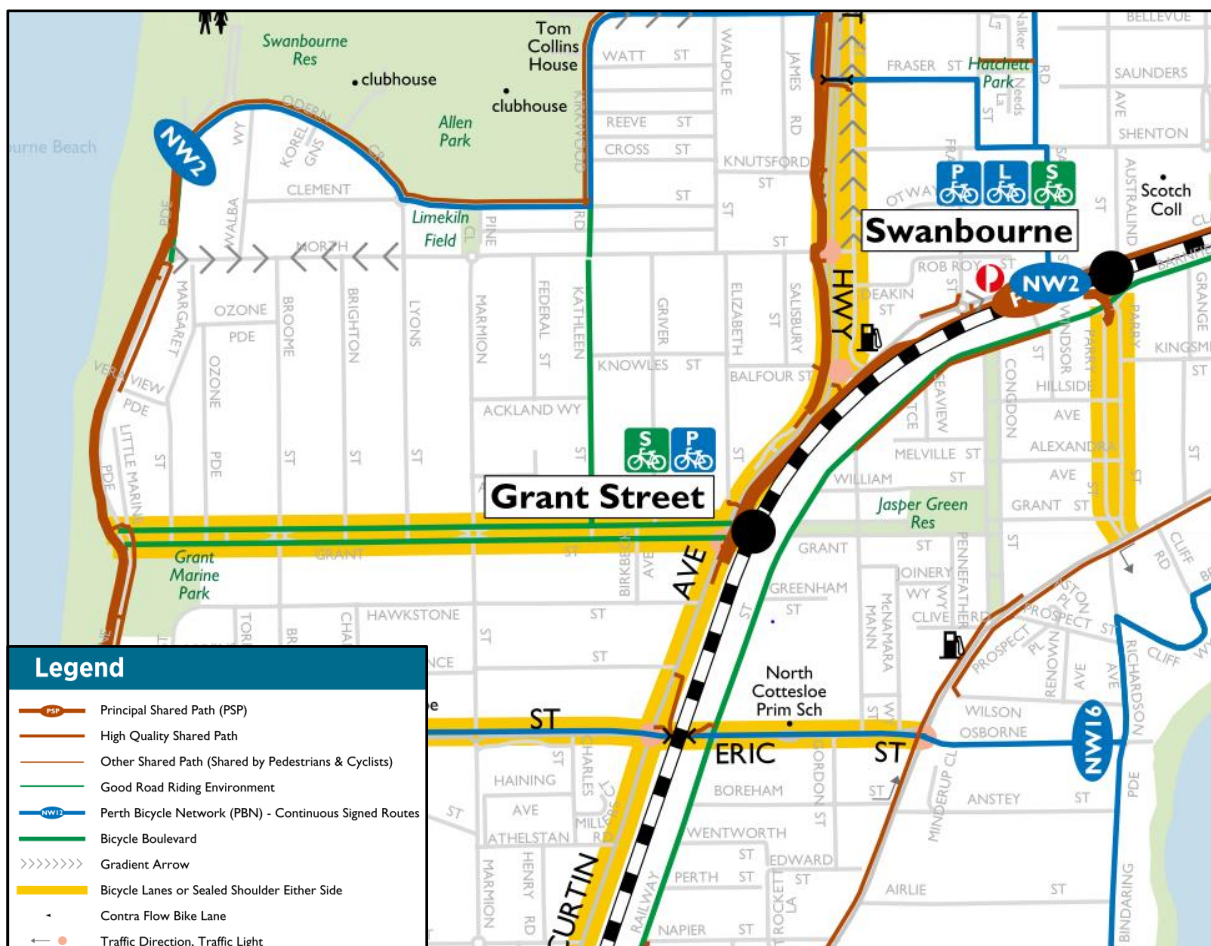


Figure 5: Existing Pedestrian and Cycling Infrastructure



Figure 6: Existing Pedestrian Crossings

4. OVERVIEW OF NORTH COTTESLOE PRIMARY SCHOOL

North Cottesloe Primary School caters to approximately 400+ students and primarily operates out of the main location at Eric Street/Railway Parade. There is an off-site Early Childhood Learning Centre which eventually may be incorporated into the main school campus, but this is a long-term proposition and has not been considered as part of this assessment.

Primary vehicular access to the school is afforded via two crossovers on the north side of Eric Street, between Gordon Street and Railway Street with the western crossover functioning as entry-only (right-turns and left-turns permitted) leading to a one-way eastern aisle within the Eric Street road reservation along the southern edge of the school bounded by angle parking on the south side of the aisle and parallel parking on the north-side. The parallel parking on the north side currently functions as the pick-up/drop-off or 'Kiss n Ride' area for the school. Vehicle

then travel in an easterly direction to exit via the exit-only crossover (eastern crossover) to turn left or right into Eric Street. Angle parking on the southern edge of the one-way aisle can be used by parents and/or staff; however, staff parking is also provided via the western crossover within an unsealed area at the south-western corner of the school. Additional right-angle parking is located along the south-eastern boundary of the school at the eastern end of the one-way aisle and is inclusive of an ACROD bay.

No direct access for vehicles is available via Railway Street; however, pedestrian and cycling access is afforded directly into the school via a designated pedestrian crossing north of Eric Street. An additional pedestrian crossing is in place between the two crossovers on Eric Street to facilitate north-south crossing from the south side and north side via the existing 'slow point' fixed central refuge in Eric Street. There is limited parallel parking on the south side of Eric Street opposite the school.

A significant level of angle parking is in place on Railway Street north of Eric Street opposite the western edge of the school and is signed as 2-hour only in order to limit the demands of long-term and commuter parking associated with the Grant Street Railway Station.

A significant level of consultation over the last several years, since 2015, has taken place with the Council and with MRWA in relation to securing funding to modify the access and parking arrangements as well as traffic controls and signage associated with the school's traffic operations. As a result, a Strategic Community Plan was developed in order to address traffic congestion, safe access and an updated Railway Street road cross-section to relocate the existing pick-up/drop-off activities to the western frontage of the school in order to redistribute demands to the lower order road frontage. However, a funding application to assist in paying for these improvements was deferred in 2017.

5. REVISED TRAFFIC ENGINEERING REVIEW

A detailed traffic engineering review relating to boundary road network operations, safety, effectiveness, crash history and sightlines as well as existing traffic patterns adjacent to and within the school car parking and pick-up/drop-off areas has been undertaken and is outlined below. The March 2019 review has been modified to incorporate feedback and discussion received from Council and the school.

5.1 EXISTING SCHOOL TRAFFIC OPERATIONS

Detailed demand surveys were undertaken by the School's P&C in 2017 with follow-up observations undertaken by Move Consultants in 2018 relating to vehicular demands on Eric Street and Railway Street as well as demands for the existing pick-up/drop-off area along the southern edge of the school. The following summarises the results of these surveys:

- Demands within the pick-up/drop-off area were consistent between 8:00 a.m. and 9:00 a.m. with average drop-off times ranging between 30s and 1 minute.
- Average queuing of vehicles in this area was in the range of 2 to 4 vehicles at any given time with occasionally queues ranging from 5 to 7 vehicles; however, this queue would dissipate quickly with no impacts to Eric Street operations.

- Demands within the pick-up/drop-off areas differed during the afternoon peak period varied from the morning peak period with vehicles already queuing within the pick-up/drop-off area from 2:30 p.m. onwards with the queues averaging 4 to 6 vehicles prior to 3:00 p.m. and then extending into Eric Street from 3:00 p.m. to 3:10 p.m. These queues typically dissipated by 3:20 p.m. with no material impact on Eric Street southbound traffic operations.
- Some parents were observed to be parking on-site within the angle parking due to the need to collect children directly from the school gate. There was some minor conflict observed between parking and departing vehicles from these bays with vehicles queued in the pick-up/drop-off area and mainly impacting on exiting vehicles to Eric Street. No significant traffic delays were observed at the easternmost exit-only crossover.
- A number of parents parking on the Railway Street frontage within the existing established angle parking and on the verge closer to Eric Street were observed to access the school via the western gate.
- A high proportion of parents and/or students utilised the Railway Street pedestrian crossover to access the northern catchment of residential uses north of the railway reserve.
- Some parents were observed to park further west along Railway Street and on Gordon Street and then walking to school to collect their children.
- A higher than average (>25%) proportion of students were either walked or cycled to school or made their way to school on foot or via cycling by comparison to other primary schools in Perth.
- Significant queuing downstream queuing on Eric Street both eastbound on approach to Stirling Highway and westbound on approach to the signalised intersection at Curtin Avenue caused minor delays, mainly during the a.m. peak period which is coincident with the school a.m. peak period. No queuing delays were observed during the school p.m. peak period.
- A number of inappropriate pedestrian crossing movements were noted during the school p.m. peak period along the Railway Street frontage to the north of the formal crossing.
- The majority of pedestrians crossing the Eric Street frontage did so at the formal pedestrian crossing located to the north of the eastern crossover.

5.2 REVIEW OF EXISTING OPERATIONS AT ROAD INTERSECTIONS

A detailed SIDRA analysis at the Eric Street/Curtin Avenue, Eric Street/Railway Street and Eric Street/Stirling Highway intersections was undertaken for the weekday a.m. roadway peak (coincident with the school a.m. peak period) and the school p.m. peak period. The results of the analysis are as follows:

- Significant queuing on Eric Street, along the frontage of the school, in an eastbound direction on approach to Stirling Highway between 8:00 and 9:00 a.m. This is exacerbated by the recent upgrades to signal timing and signal cycles along Stirling Highway between Mosman Park and Nedlands to assign priority to northbound/eastbound traffic along Stirling Highway. As a consequence, the split phasing at this location has reduced green time on Eric Street eastbound resulting in longer queues which occasionally extend westbound through Gordon Street and the Railway Street roundabout intersection. However, an increase in green time for Eric Street approach has been allowed for during this period with a reduction in green time allocated to the Osborne Parade approach.
- Limited queuing observed on Eric Street, along the frontage of the school, in an eastbound direction on approach to Stirling Highway between 2:30 p.m. and 3:30 p.m. which does not impact operations at the school crossovers.

- Significant queuing westbound on Eric Street on approach to the Curtin Avenue signalised intersection; however, this rarely impacted on the eastbound approach to the western crossover at the school during the a.m. peak period with only occasional queuing observed extending beyond the roundabout at Railway Street. This intersection has also assigned priority to the north-south route (Curtin Avenue) at the expense of the Eric Street approach; however, there is scope to modify the signal cycle timing to assist in the dispersal of westbound traffic during the a.m. peak period.
- No significant queuing observed westbound on Eric Street on approach to Curtin Avenue with no impacts to traffic operations at the crossovers to Eric Street or on the roundabout intersection at Railway Street.
- The recently installed roundabout at Eric Street/Railway Street has assisted in efficient access to and from Eric Street from Railway Street and has resulted in minimal queuing on Railway Street east of Eric Street. This has also minimised conflict between westbound queuing traffic on Railway Street and the existing established pedestrian crossing on Railway Street.
- It is unlikely that MRWA will approve any changes to the existing signal timing at Stirling Highway/Eric Street/Osborne Parade intersection at this time.

6. SAFETY REVIEW

6.1 EXISTING CRASH HISTORY AND SIGHTLINES

A review of the detailed crash history for the 5-year reporting period 2013-2017 along the respective frontages of the school indicate the following:

- 7 right-angle crashes at the intersection of Eric Street/Railway Street – it is assumed that these crashes occurred prior to the upgrade of the intersection to a single circulating roundabout which would significantly mitigate future right-angle crashes at this location.
- 1 rear end crash at the intersection of Eric Street/Railway Street – this is considered to be a very low crash rate by comparison to the annual rate of traffic demand through this location.
- 3 crashes along Railway Street between Eric Street and Mann Street involving 1 relating to manoeuvring into and/or out of a private driveway and 2 relating to car parking (presumably within either the established angle bays or reversing from the verge). This would indicate that a lower speed and more urban road cross-section could be justified which would assign a level of priority to vehicles parked along this road cross-section in the context of the low volumes currently using this section of road.

A sightline analysis along Railway Street indicates that there are sufficient sightlines to the north and south in the vicinity of the existing angle parking to the north of the school to allow for modifications and upgrades to the existing parking and road cross-section arrangements in accordance with Austroads guidelines.

A similar sightline analysis along Eric Street indicates that for exiting vehicles sightlines to the west are obstructed by existing vegetation along the northern edge of the existing kerb line between the two school crossovers.

A review of the existing safety issues on-site within the established pick-up/drop-off areas within the Eric Street road reserve indicate that while one-way system is currently accommodating the existing demands, localised queuing during the school p.m. peak period both into the Eric Street eastbound lane and occasionally past the western crossover and conflict between vehicles entering and exiting the angle parking south of the eastbound-

only aisle and through traffic within the pick-up/drop-off zone could potentially impact safe vehicle operations in this area as well as impacting efficient and effective ingress and egress to and from the school. No conflict between staff car parking within the unsealed area at the south-western corner of the school and other demands on the site were noted during the school a.m. and p.m. peak periods.

6.2 SPEED LIMIT ZONING

A review of the speed limit zoning on Eric Street and Railway Street indicates the following:

- Compliance with signed speed limits (both within and outside school travel times) on Eric Street is very high with less than 2% of vehicles travelling beyond the posted speed limit of 50kph. and 69% travelling between 30 and 40kph. This would also indicate a high compliance with school speed zoning.
- Compliance with signed speed limits on Railway Street is very low with >30% travelling greater than the posted speed limit of 50kph and only 15% travelling at a speed ranging between 30 and 40kph. The significantly lower traffic volumes on Railway Street by comparison to Eric Street with a significant proportion of daily weekday traffic associated with the school indicates that this non-compliance is a significant issue within the school speed zoning.

7. REVIEW OF PROPOSED PLAN

A review of the original proposed plan and subsequent revised plan(s) to upgrade and modify the existing road cross-section of Railway Street, north of Eric Street, was undertaken and the following summaries our review:

- The proposal to relocate the existing pick-up/drop-off activities associated with the school to the Railway Street frontage is supported from a traffic operations, safety and efficiency perspective. This will result in less conflict at the existing crossovers to Eric Street and minimise impacts to existing boundary road traffic operations between Curtin Avenue and Stirling Highway and will allow for increased safe ingress and egress for parents to access the higher order network, particularly north of the school via the fully controlled roundabout at Eric Street/Railway Street.
- There will be an increase in traffic along the Railway Street frontage (in the order of 200 to 300 vpd) due to redistribution of pick-up/drop-off traffic; however, this can be accommodated within the practical capacity of the road classification and the proposed road cross-section and potentially some minor redistribution in traffic associated with the school on the higher order roads in the area (i.e. Grant Street East and Stirling Highway) but these increases can be comfortably accommodated within the existing network operations.
- The upgrading and modification of the road cross-section of Railway Street to effectively separate through traffic from pick-up/drop-off traffic through realignment of the through carriageway to the western edge of the road reserve abutting the railway line will still allow for efficient north-south movement along the western boundary of the school for existing traffic demands.
- The proposed southbound one-way system within the new pick-up/drop-off area will allow for minimal conflict between through traffic on Railway Street and queuing vehicles entering the pick-up/drop-off area due to the increase in the number of parallel bays in the pick-up/drop-off area along the western edge of the school. This increase in parallel bays within the 'Kiss n Ride' area will satisfactorily accommodate the demands associated with the existing a.m. and p.m. peak periods.

- The provision of additional angle parking within this dedicated area will supplement the overall car parking supply for the school with the existing angle parking located along the Eric Street frontage reallocated to either staff and/or visitors to the school or dedicated to parents of Kindy and Pre-Primary children.
- The additional proposed pedestrian crossing to the north of the school on Railway Street will assist in facilitating safe additional crossings which are now undertaken inappropriately north of the existing established crossing to the south. This crossing will require MRWA approval.
- The implementation of LATM or 'slow points' along the Railway Street frontage to encourage awareness of other road users, namely pedestrian, cyclists and school parents/caregivers entering and exiting the relocated pick-up/drop-off area will hopefully induce a degree of 'horizontal' friction to encourage lower travelling speeds.
- An application for a change in speed zoning to a permanent 40kph on Railway Street between Grant Street and Eric Street is recommended. This will need to be negotiated with MRWA.
- No other changes to speed zoning are justified.
- All changes to signage and line marking within Railway Street, Eric Street, inclusive of the future Kindy & Pre-Primary parking area, and other road frontages will require the approval of MRWA.

Following the Town's Traffic and Safety Committee meeting of 6 February 2019, the committee requested some modifications to the plan prior to release for public consultation and advertising. The modified concept plan incorporating a realignment of the western footpath adjacent to the eastern edge of the railway reserve along Railway Road has been undertaken and is reflected in the modified plan attached in Appendix B.

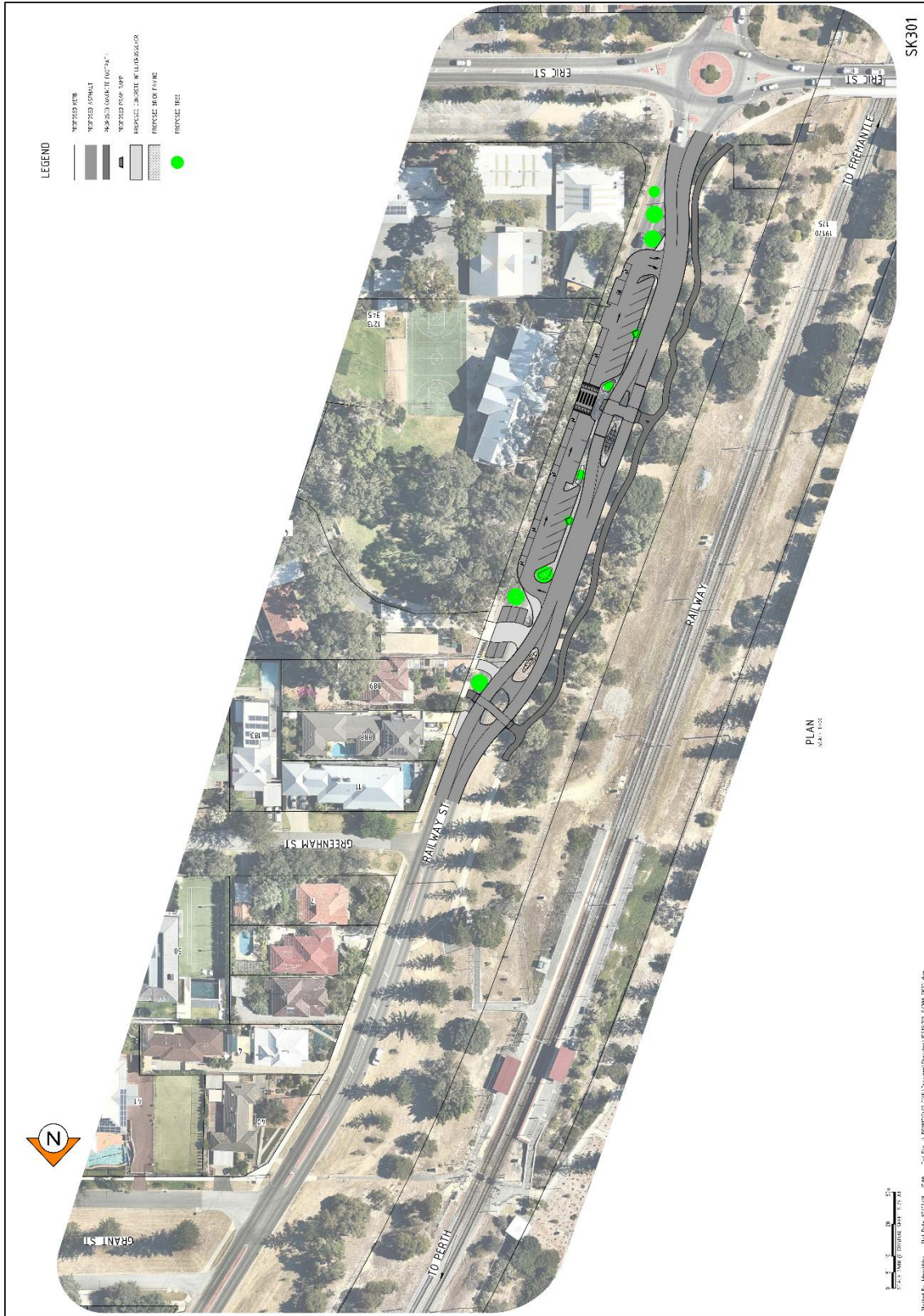
The proposed plan has also resulted in a significant change to existing formal and informal public car parking along the Railway Road frontage. The existing formal on-street supply consists of 24 bays plus an informal supply within the railway verge of approximately 10-15 bays. The proposed concept plan illustrates 31 formal on-street bays (within the realigned drive-through area) and effective elimination of the informal verge parking within the railway reserve.

8. INFRASTRUCTURE ACTION PLAN

- Based upon the results of this review, a series of recommended actions have been outlined in an Action Plan documented in Appendix C. This Action Plan (draft) options have been prioritised with regard to short-term (0-6 months), transition (6 months-2 years) and long-term (2+ years) timeframes and grouped by the 4 E's – Economic, Engineering, Effectiveness and Equity.
- Additional works between the northern boundary of the existing Railway Street plan and the Grant Street intersection will be addressed as Stage 2 of the project.
- Progression of Action Plan, subject to outcomes from the public consultation process.

APPENDIX A: PROPOSED PLAN FOR RAILWAY PARADE (MODIFIED)





APPENDIX B: INDICATIVE INFRASTRUCTURE ACTION PLAN

EFFECTIVENESS		SHORT TERM	TRANSITION TERM	LONG TERM
1.	On-going Monitoring of School -Based Travel Management Plan	APPROVE	ONGOING IMPLEMENTATION	
2.	Ongoing Engagement with Community re Alternative Travel Modes to School		ONGOING	
3.	Engagement with Road Safety Council and Department of Education and Training		ONGOING	
4.	Review of Existing On-Street Parking Arrangements on Railway Street	EVALUATE		
5.	Ongoing Engagement with MRWA	ONGOING		
ENGINEERING		SHORT TERM	TRANSITION TERM	LONG TERM
1.	Review of Infrastructure Opportunities & Constraints on Eric Street and Railway Street	PLAN		
2.	Finalise Options for Railway Street Upgrade		EVALUATE PLAN	
3.	Community Consultation		EVALUATE	
4.	Liaise with MRWA re Changes to Speed Zoning, Line Marking, Signage and Traffic Control Measures	EVALUATE		
5.	Prepare Council Engineering Report	PLAN		
6.	Road Safety Audit	UNDERTAKE		
7.	Undertake Upgrades		IMPLEMENT	
ECONOMIC		SHORT TERM	TRANSITION TERM	LONG TERM
1.	Cost Up to Two (2) Alternative Options	PLAN		
2.	Prepare Council Report Outlining Funding Options	UNDERTAKE		
3.	Seek Funding from MRWA and/or Grant Process		PLAN	
EQUITY		SHORT TERM	TRANSITION TERM	LONG TERM
1.	Community Consultation & Liaison with School Leadership Team	ONGOING		
2.	Preparation of School-Based Travel Management Plan (Short-Term)	DEVELOP/IMPLEMENT/MONITOR		
3.	Preparation of School-Based Travel Management Plan (Long-Term post Works)		IMPLEMENT	
4.	Secure Approval for Additional Pedestrian Crossing on Railway Street	EVALUATE	PLAN	