Black Forest LATM

Final Report

City of Unley

February 2014

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Tonkin CONSULTING

a better approach

Document History and Status

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[Note: This document has been produced for double-sided printing]

Contents

1 Introduction

1.1 Background

Tonkin Consulting has been engaged by the City of Unley to undertake a Local Area Traffic Management (LATM) study in the Black Forest area, bounded by South Road, Aroha Terrace, East Avenue, and the railway corridor.

The area already includes some traffic control devices such as road humps along Forest Avenue and single lane slow points along Byron Road.

However, these treatments have been installed in isolation without a holistic understanding of traffic movements through the whole area.

There is concern that non-local traffic moves through the area from South Road to East Avenue, and then either north along Leah Street or east along Victoria Street.

Council wanted to 'take stock' of previous traffic management interventions to determine whether the treatments have been successful or resulted in unwanted outcomes such as the relocation of traffic movements into other streets.

1.2 Process

Preparation of the LATM has also considered pedestrian and cycling issues to consolidate an overall integrated plan for the precinct.

The preparation of this LATM Plan has been based on:

- Community consultation including:
  - General mail out to all residents identifying traffic and road safety concerns
  - Two community meetings to discuss issues and potential solutions
  - Circulation of a Draft LATM Plan for comment
  - Second community workshop to discussion the draft plan and options
- An analysis of traffic volumes, speeds and vehicle classifications using the network;
- An analysis of crash data in the area; and
- Independent site inspections/observations of driver behaviour.

The final plan addresses the initial consultation results and has amended the draft recommendations based on the subsequent feedback received.

The plan is intended to provide Council and the community with a clear direction for traffic management in Black Forest precinct.

2 Findings

2.1 Background

A number of steps have been undertaken to qualify and quantify factors affecting the road network within the study area, including public consultation, site reviews and analysis of available traffic and crash data.

Call for Public Comment

- Circulars were sent to 1,236 properties in March 2013.
- 122 written responses were received (9.9% response rate)
- Two community meetings were also held on 20-21 March and attended by 14 residents.

Feedback from the community circulars and community meetings has been summarised per street and issue identified. The full summary of feedback is included in Appendix A.

Review of Traffic Data

Traffic data was most recently collected throughout the area by Council in October 2012 (before any impact of the current temporary closure of the railway). This data has been summarised together with historic data for the precinct in Appendix B.

Collision Data

Crash data for the period 2007-2012 was reviewed, based on geo-coded collision records maintained by the Department Planning Transport and Infrastructure (DPTI). The data was useful in identifying common trends throughout the area and locations with higher numbers of collisions. Collision data has been presented in Appendix C.

Site Investigations

All roads in the area were reviewed and driven by vehicle. Some road widths have been checked to confirm that certain devices can be implemented should the consultation process lead Council to that stage. The independent site inspections were undertaken in the context of a road safety audit to identify:

- Potential areas for speeding / rat-running through the area;
- Areas where parking demand is high and there is potential conflict between parked vehicles and travelling vehicles in particular streets;
- The provisions for vulnerable road users such as cyclists and pedestrians;
- Intersections with limited sight distance or other factors that might influence crashes; and
- Conflicts with land uses, for example abutting residential, school and industrial zones.

2.2 Summary of Key Issues

While there were many separate issues raised by the community (summarised in Appendix A), not all issues warrant specific intervention. In some cases, the reported concerns cannot be substantiated by actual traffic data, while in other cases the concerns and potential remedial treatments need to be balanced against the needs of other road users and possible adverse impacts. The following comments summarise and respond to the major concerns raised by the community.

2.2.1 Speeds and Volumes

Numerous residents mentioned excessive speeds and traffic volumes throughout the precinct. Roads mentioned included Addison Road, Byron Road, Canterbury Terrace, Coulter Avenue, Dryden Road, East Avenue, Fairmont Avenue, Forest Avenue, Gordon Road, Laught Street, and Selkirk Avenue.

2.2.2 Byron Road – Single Lane Slow Points

Several residents expressed concern over the single lane slow points installed along Byron Road. Various issues were mentioned including safety for cyclists, loss of parking, driver behaviour approaching the slow points, rubbish collection, and access difficulties for properties adjacent each slow point. While the vast majority of respondents expressed concern over these treatments, some residents actually commented that the devices are acceptable and that residential concern to the contrary is ‘exaggerated’.

2.2.3 Byron Road – Canterbury Road Bend

Residents expressed concern over driver behaviour around the bend with reference to parked cars, the adjacent playground, and future Greenways Shared Path.

2.2.4 East Avenue – Safety for Pedestrians Crossing Road

Numerous residents expressed concern over the safety of crossing East Avenue for pedestrians. Further consideration should be given to alterative locations for a pedestrian refuge along the road.

2.2.5 East Avenue / Canterbury Terrace

Residents highlighted various safety issues including the speed of left turns (due to the alignment of the junction), and safety for pedestrians and cyclists crossing East Avenue.

2.2.6 East Avenue Access

Several residents raised concern over difficulty turning off/into East Avenue from side roads during peak times, due to heavy traffic volumes and queuing back from Aroha Terrace and the tram crossing. The installation of a roundabout at Forest Avenue was suggested as a possible option to provide access in/out of Black Forest.

2.2.7 Forest Avenue

Some residents mentioned congestion around the school at pick-up and drop off times, with some reported disregard of parking restrictions.

2.2.8 Parking Issues

Respondents made reference to various locations where parking can create congestion/squeeze points including:

- Canterbury Terrace near the Community Centre
- Aroha Terrace near the tram stops
- Dryden Road
- Emerson Road
- Fairmont Avenue
- Forest Avenue (parking near reserve and sporting activities)
- Gray Street
- Hartland Avenue
- Selkirk Avenue

2.2.9 South Road Access

Several residents noted difficulty turning right in/out of South Road from Byron Road, Forest Avenue and Addison Road, due to the high volumes along South Road and lack of breaks in the traffic flow.

2.2.10 Byron Road and Cowper Road: Access to/from Local Shops on South Road

Concern was raised over access arrangements to/from the local group of shops fronting South Road, from Byron Road and Cowper Road. The driveways to the car park in Bryron Road and Cowper Road are very close to South Road and can cause issues when drivers enter/leave the car park.

2.2.11 Leah Street

While outside the scope of the Black Forest LATM area, numerous respondents complained about the speed cushions installed along Leah Street and potential shift of traffic into adjoining side roads. This matter received the most number of individual comments from the community circular and workshops.

3 Discussion and Recommendations

3.1 Speed and Volumes

A review of actual traffic data collected by Council (October 2012) does not reveal any street with unduly high volumes or speeds. Average speeds are typically around 40km/h which is acceptable for the prevailing speed limit. The only roads with daily traffic volumes in excess of 1,000vpd are Aroha Terrace (1200-1267vpd), Forest Avenue (1340-1440vpd), and Byron Road (820-1050vpd).

As a general guide, traffic volumes less than 1500vpd are considered acceptable for residential streets. Traffic volumes on East Avenue are obviously higher given its function as a collector-distributor route (7800-8780vpd).

Overall, speeds and volumes throughout the precinct are considered acceptable. Based on the available traffic data, there is little warrant to consider the wholesale application of further traffic control devices specifically aimed at reducing speeds or volumes.

3.2 Byron Road

3.2.1 Single Lane Slow Points

A review of Council's historic traffic data shows that the slow points have had little effect on traffic volumes and only a marginal reduction on speeds since 2004. The devices were installed circa 2007.

Average Daily Traffic Volumes and Speeds along Byron Road between Gordon Road and Canterbury Road

Date	Ave Daily Traffic	Ave Speed (km/h)	85th% Speed (km/h)
August 2012	1046	40	46
June 2011	1105	40	48
May 2009	1276	39	46
October 2007	1197	39	46
June 2007	1083	41	49
July 2006	1111	42	49
October 2004	1144	42	49

There are various alternatives that could be considered to address residents' concerns:

- Removal of the single lane slow points;
- Installation of road humps within the existing slow points (ie to create single lane humps);
- Installation of two lane road humps or flat top plateaux and removal of existing slow points;
- Installation of a roundabout at the intersection with Gordon Road (either with/out existing slow points); or
- Do nothing and retain existing treatment.

These options are discussed in the following paragraphs.

Removal of the single lane slow points

- Based on available traffic data, it is likely the removal of the slow points will have little effect on traffic volumes although speeds might increase marginally. Current speeds and volumes are already similar to other streets in the area, and would probably remain so if the devices were removed.

Installation of road humps within the existing slow points (ie to create single lane humps)

- The construction of road humps within the existing single lane slow points would reduce speeds along the road. Average speeds could be expected to reduce to around 30-34 km/h in comparison to existing average speeds of 37-40 km/h.
- The construction of road humps within the existing single lane slow points may result in a small shift of traffic into other adjoining roads, including Addison Road (less direct) or Forest Avenue (already treated with humps). This risk is considered low.
- The installation of humps will increase noise locally as vehicles accelerate and decelerate, and travel over the humps.
- Existing concerns about cyclist safety, property access, rubbish collection, loss of parking and driver behaviour approaching a one lane treatment would not be addressed.

Installation of two lane road humps/plateaux and removal of existing slow points

- The construction of standard road humps (or plateaux) similar to those already installed in Forest Avenue would reduce speeds along the road. Average speeds could be expected to reduce to around 30-34 km/h in comparison to existing average speeds of 37-40 km/h.
- The construction of standard road humps/plateaux may result in a small shift of traffic into other adjoining roads, including Addison Road (less direct) or Forest Avenue (already treated with humps). This risk is considered low.
- The installation of humps/plateaux will increase noise locally as vehicles accelerate and decelerate, and travel over the humps.
- Existing concerns about property access, rubbish collection, loss of parking and driver behaviour approaching a one lane treatment would be addressed.

Retain Existing Treatment

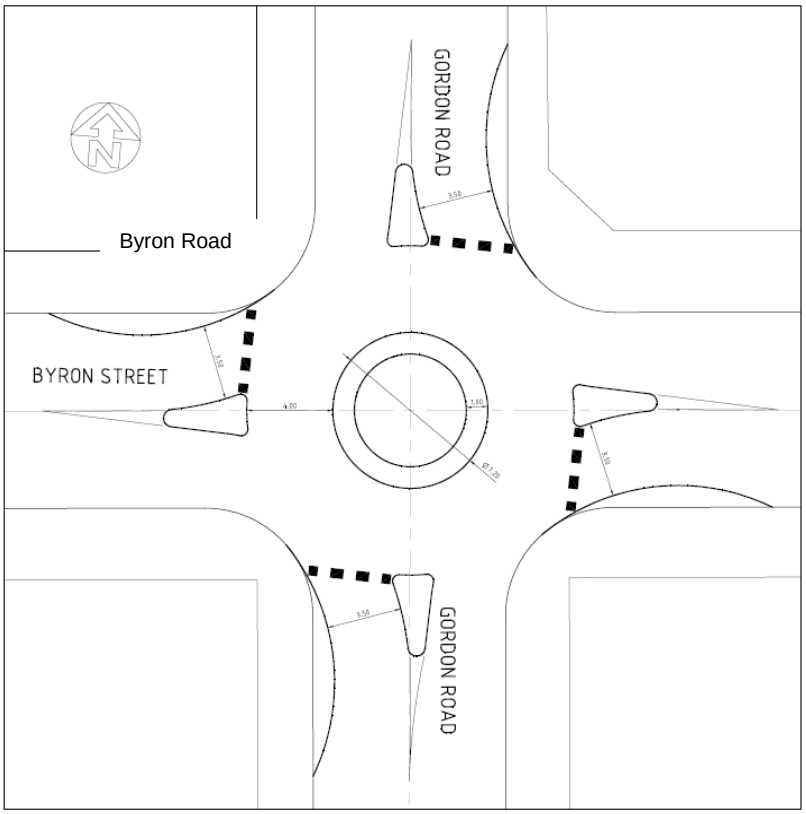
- Given the weight of community concern and lack of evidence indicating any effect of the existing slow points, it would seem difficult to justify retention of the existing treatment.

3.2.2 Installation of a roundabout at the intersection with Gordon Road (either with or without existing slow points)

Council has previously considered the installation of a roundabout at the intersection of Byron Road and Gordon Road as shown in the following concept sketch. The treatment could be installed either with retention or removal of the existing slow points.

- The installation of a roundabout would have little effect on traffic volumes.
- Isolated high speeds along the length or road (that might occur) would be controlled, even if the current slow points were removed. Speeds would be controlled only within 50-100m of the roundabout.
- The treatment would in principle offer a safer intersection control, although there has only been one reported collision at the intersection over the past 5 years.

Concept Roundabout



3.2.3 Community Feedback to Draft Recommendations.

- A small number of residents commented on the options for Byron Road – without any consensus
- Some resident again remarked that there is no problem
- One supported the two lane road hump option in lieu of the slow points
- Residents generally did not favour the installation of the roundabout.

3.2.4 Recommendation

We recommend the replacement of the existing devices with standard 2 lane road humps or plateaux. (The other most likely option to install humps within the existing one lane devices will not address the various concerns raised by the community).

3.3 Canterbury Terrace

3.3.1 Overview

Various issues were identified along Canterbury Terrace including:

- Traffic movements/parking and playground access around the bend into Byron Road
- Parking in the vicinity of the Community Centre
- Safety for pedestrians at the East Avenue junction
- Parking congestion around the Fairmont Avenue junction
- Future pedestrian and cycling movements associated with the Greenways shared path.

Further, at the time of preparing this local traffic plan, Council was consulting with Canterbury Terrace residents over the health of Ash trees planted along the southern (railway) side of the road, between Byron Road and East Avenue. Most of the Ash trees were in poor health and were subsequently removed.

3.3.2 Byron Road Bend – Playground and Greenways Access

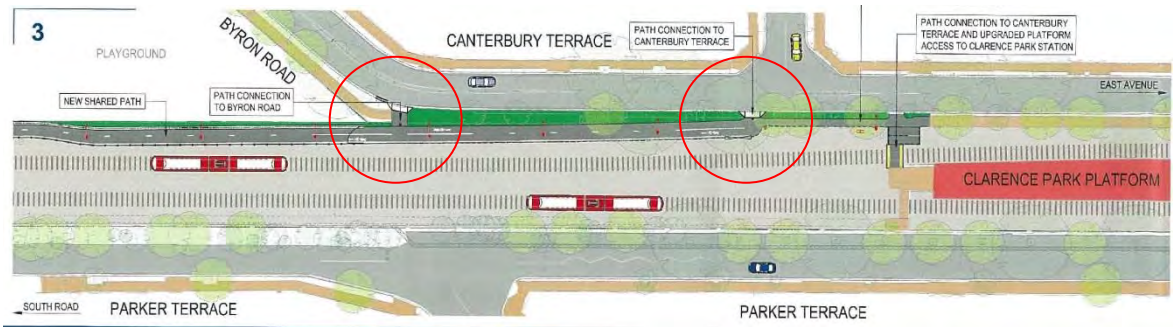
Various concerns were expressed over safety at the bend including access to the adjacent playground. There are parking controls already installed through the bend and pavement bars (rumble strips) to prevent drivers from cutting the corner. Curve warning signs are also installed to define the alignment of the bend.

The Department of Planning and Transport Infrastructure (DPTI) were in the process of upgrading the adjacent rail corridor to include the construction of a shared path (Marino Rocks Greenways) along the rail line. The path is intended connect with Canterbury Terrace as shown in the following concept plan.

Two path connections will be established:

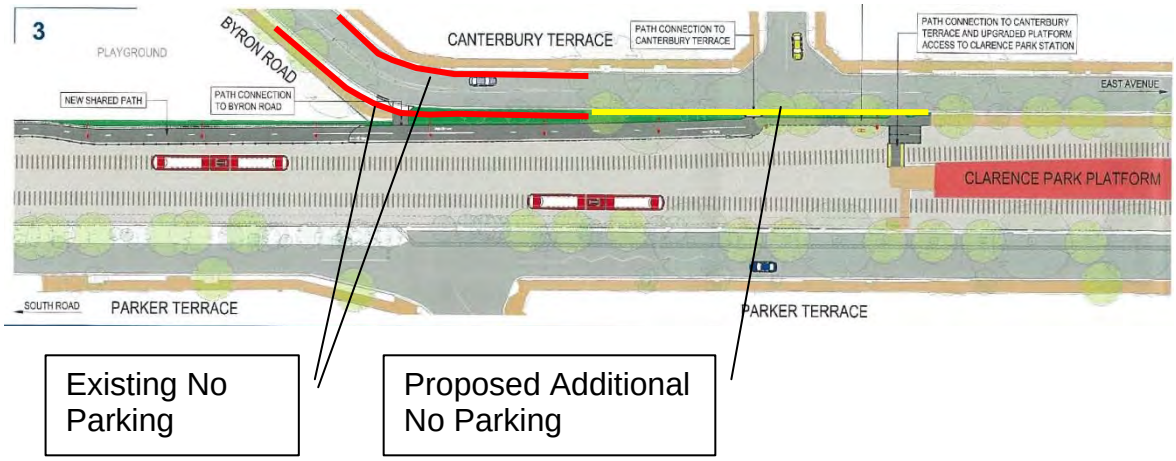
- one on the bend between Byron Road and Canterbury Terrace (adjacent the playground);
- the other opposite Addison Road.

DPTI Greenways Concept Plan



The connection adjacent the playground is positioned on the outside of the bend and visibility from the end of the path should be adequate. This connection is already placed within a No Stopping zone. The proposed connection opposite Addison Road, however, will be in a section of road where parking is currently permitted on the southern side of Canterbury Terrace. This location will inevitably be the focal point for access to/from the end of the shared path.

Option for consideration: extend the existing No Stopping zones as shown in the following plan.



Implications: This treatment will have a minor impact on parking pressures in adjoining streets.

3.3.3 East Avenue / Canterbury Terrace

Residents expressed concern over safety at the junction and rail crossing, and difficulty crossing East Avenue for pedestrians. There are no current pedestrian facilities to cross East Avenue. The only practical way of improving pedestrian safety crossing East Avenue is by closing the left turn into Canterbury Terrace from the southern approach. This would enable development of a pedestrian crossing over East Avenue immediately north of the rail crossing.

Option for consideration: install a half road closure in Canterbury Terrace to prevent left turns from East Avenue.

Implications: this treatment would have a significant impact on access into the precinct from East Avenue. Daily traffic volumes in Canterbury Terrace are around 1,200vpd, of which around 670vpd is westbound (having turned left from East Avenue). This traffic would have be displaced into Forest Avenue and either Fairmont Avenue or Coulter Street.

3.3.4 Canterbury Terrace near the Community Centre

Parking is already restricted on both sides of Canterbury Terrace in the vicinity of the Community Centre as follows:

- No Parking along north side between East Terrace and Fairmont Avenue
- No Stopping along south side between East Terrace and Community Centre car park.

Canterbury Terrace is only 6-6.5m wide and cannot accommodate parking on both sides of the road. Notwithstanding, there may be opportunity to allow parking on one side of the road, along with possible half road closure of Canterbury Terrace at East Avenue.

Option for consideration: Limit Canterbury Terrace to a one way street (eastbound) between Fairmont Avenue and East Avenue, with exit onto East Avenue. Westbound cyclists would have to be accommodated with a 'contra-flow' arrangement. Parking to be permitted on the northern side of the road between Fairmont Avenue and East Avenue.

Implications: restricting Canterbury Terrace to one way (eastbound) would have a similar affect to the installation of a half road closure (outlined above) and would result in a displacement of around 670vpd into adjoining streets.

3.3.5 Fairmont Avenue junction

The road appears to be a typical residential street approximately 8.0m wide. The road should be wide enough for a vehicle to pass between two parked cars (one on either side of the road).

However there can be localised congestion near the junction with Canterbury Terrace, associated with use of the Community Centre.

Option for consideration: extend the current 10m No Stopping zone in Fairmont Avenue by a further 10m (ie total 20m from Canterbury Terrace) to reduce congestion at the junction.

Implications: this treatment would have a minor affect on parking pressure in the immediate area of the Community Centre. Approximately 3 car spaces would be lost by extending the parking restriction by 10m on both sides of Fairmont Avenue.

3.3.6 Community Feedback to Draft Recommendations

- There was overwhelming (almost unanimous) opposition to the proposed half road closure of Canterbury Terrace at East Avenue
- Most opposition highlights the impact the closure will have on accessibility within the Black Forest area and potential redistribution into other streets
- Several residents suggested a Stop sign is needed facing drivers turning left out of Canterbury

3.3.7 Recommendation

Council prepares an integrated traffic and landscape plan for the section of Canterbury Terrace between Byron Road and East Avenue, with consideration to the items outlined in Sections 3.3.2 – 3.3.6.

3.4 East Avenue

3.4.1 Pedestrian Crossings

Council has previously investigated options for pedestrian refuges along East Avenue between the tram crossing and Fairfax Avenue and resolved that there are two possible locations where median refuges could be installed to help pedestrians crossing the road:

- Immediately north of Forest Avenue;
- Immediately north of Dunrobin Street

Refer Appendix D for concept plans.

However, neither option was previously supported by the residents adjacent the treatments due to the resulting loss of car parking. The Public Transport Division of DPTI also had concerns over the location of the refuge north of Dunrobin Avenue as pedestrians would be encouraged to cross in front of the stopped buses.

An alternative to the installation of median island refuges in the centre of the road would be the installation of kerb build-outs on either side of the road. While this treatment does not afford pedestrians somewhere to stand in the centre of the road, kerb build-outs do provide a focal crossing point for pedestrians and reduce the overall crossing distance to approximately 7.5m. The kerb build outs would have less impact on parking (as they only need approximately 10m of kerb space on either side of the road) and could be installed at several locations along East Avenue rather than one or two locations only.

3.4.2 Community Feedback to Draft Recommendations

- 1-2 residents supported the idea of kerb build outs
- 2-3 opposed the idea or thought it would be insufficient to help pedestrians crossing the road (ie they favoured a central refuge)
- 1 resident opposed the protuberance due to impact on loss of parking and drainage concerns

3.4.3 Recommendation

Refine the proposed plan (as shown in Appendix E Concept Plan) to ensure minimal impact on parking loss, and progress installation of these treatments through consultation with immediately affected residents

Example Kerb Build Outs

3.4.4 East Avenue Access (Forest Avenue)

Several residents commented on difficulty accessing East Avenue during peak hours, and suggested the installation of a roundabout at Forest Avenue.

The installation of a roundabout would normally be considered at intersections with higher traffic volumes to manage flows, locations with a demonstrated crash problem, or to manage speeds along the road. However, traffic volumes for most parts of the day do not warrant the installation of a roundabout, and there have only been three collisions at the intersection since 2008.

It should also be noted that the installation of a roundabout will not necessarily provide easier egress from the side road (Forest Avenue) into East Avenue, depending on peak traffic movements. For example, during the morning peak, when there is a substantial northbound follow along East Avenue, drivers in Forest Avenue wanting to enter East Avenue would still be required to give way to their right. The roundabout would not actually make it any easier to enter the road.

East Avenue / Forest Avenue / Irwin Avenue Crash Data 2008-2012

INTERSECTION
3170217M IRWIN AVENUE MILLSWOOD

Date Time	Severity	Damage	Crash Type	Road Condition	Lighting	Traffic Controls	Locn Type	Report No.
10/09/2008 21:55 Wed	PDO	$5,000	Right Angle	Sealed + Dry	Night	Stop Sign	Cross Road	VC09942553
RRD: 0000.52	Motor Cars - Sedan - Straight Ahead in South direction(Not Towed From Scene) Hits a Motor Cars - Sedan - Right Turn in West direction (Driver Rider resp)(Not Towed From Scene)							
	Apparent Error: Disobey - Stop Sign				Total Casualties: 0			
Date Time	Severity	Damage	Crash Type	Road Condition	Lighting	Traffic Controls	Locn Type	Report No.
30/12/2008 11:40 Tue	PDO	$8,000	Side Swipe	Sealed + Wet	Daylight	Stop Sign	Cross Road	VC09960549
RRD: 0000.52	Motor Cars - Sedan - Straight Ahead in South direction(Not Towed From Scene) Hits a Motor Cars - Sedan - U Turn in North direction (Driver Rider resp)(Not Towed From Scene)							
	Apparent Error: Fail to Give Way				Total Casualties: 0			
Date Time	Severity	Damage	Crash Type	Road Condition	Lighting	Traffic Controls	Locn Type	Report No.
06/09/2012 15:05 Thu	PDO	$3,000	Rear End	Sealed + Wet	Daylight	Stop Sign	Cross Road	VC13165882
RRD: 0000.52	Motor Cars - Sedan - Stopped on Carriageway in East direction(Not Towed From Scene) Hits a Panel Van - Reversing in East direction (Driver Rider resp)(Not Towed From Scene)							
	Apparent Error: Reverse Without Due Care				Total Casualties: 0			

Preliminary concept development has shown the installation of a roundabout at this location will be difficult (costly) due to the location of two stobie poles at the intersection that will need relocation. Design of the roundabout to accommodate bus movements along East Avenue requires a larger roundabout than can normally be installed in residential streets.

3.4.5 Community Feedback to Draft Recommendations

- A few residents broadly supported the idea of a roundabout along East Avenue to improve accessibility

3.4.6 Recommendation

- **No further action at this stage.**

3.5 Parking

3.5.1 Aroha Terrace near the tram stops

Aroha Terrace is limited to parking on the southern side of road (with the exception of indented parking along the tram line). The road is 7.0m wide which should be wide enough for two vehicles to pass with care. 2 hour parking restrictions are applied around the tram stops to manage all day parking. Further parking restrictions are not considered necessary.

3.5.2 Dryden Road

The road appears to be a typical residential street approximately 8.0m wide with no unusual parking demands. The road should be wide enough for a vehicle to pass between two parked cars (one on either side of the road).

Recommendation: Signposting a No Stopping restriction on the southern side of the road through the bend into Gordon Road.

This treatment will have minimal affect on parking supply / demand in the area.

3.5.3 Emerson Road

The road appears to be a typical residential street approximately 8.6m wide, although some additional parking demand can be expected from the funeral parlour. The use of additional parking restrictions is not considered necessary.

3.5.4 Gray Street

The road appears to be typical residential street approximately 7.2m wide with no unusual parking demands. The road should be wide enough for a vehicle to pass between two parked cars (one on either side of the road). The bend in the road is already controlled with pavement bars and No Stopping restrictions. The use of additional parking restrictions is not considered necessary.

3.5.5 Hartland Avenue

There appears to be additional parking demand along the northern end of the road near Aroha Terrace due to parking associated with the Black Forest Tram Stop. There is also additional parking and traffic demand due to the adjacent residential units. The road is approximately 7.2m wide which should be wide enough for a vehicle to pass between two parked cars (one on either side of the road), although this is likely to cause some frustration with the additional frequency of occurrence.

Recommendation: Signpost a 2 Hour Parking restriction (9am-5pm Mon-Fri) along the eastern side of the road, between Aroha Terrace and Dunbrobin Street.

This treatment is likely to ease parking pressures along Hartland Avenue but may increase parking demand in other nearby streets as commuters using the tram seek alternative all-day parking locations.

3.5.6 Selkirk Avenue

The road appears to be typical residential street approximately 7.2m wide with no unusual parking demands. The road should be wide enough for a vehicle to pass between two parked cars (one on either side of the road). The use of parking restrictions is not considered necessary.

3.6 South Road Access

Turning to/from South Road can be difficult throughout the day due to the high traffic volumes and speeds. With the construction of the Anzac Highway underpass and grade separation of the tram line and Cross Road, there are no nearby signalised intersections to create platoons of traffic separated by gaps. Traffic travelling along South Road is therefore very constant and finding a gap in opposing traffic flows can be difficult.

There are no immediate solutions to these conditions. Consideration could be given to limiting access to left turns in/out of side roads, although this will unduly limit accessibility into Black Forest.

3.6.1 Community Feedback

- Some residents suggested a 7-9 am ban on right turns from South Road into Byron Road and/or other side roads.

However, the AM peak volume along Byron Road is only approximately 90-95vph which equates to 8.5 – 9.2% peak flow, which is reasonably typical for metropolitan area. At face value the current volumes do not warrant introduction of a peak hour turning ban. If introduced, Council would have to consider a similar restriction at Forest Avenue and potentially Addison Rd

3.6.2 Recommendation

No action is considered warranted at this stage.

3.7 Forest Avenue

We have reviewed conditions around the school at pick-up times and did not observe any undue disregard of existing parking restrictions. While some minor levels of congestion were observed they were considered reasonably typical of a school environment.

3.8 Byron Road and Cowper Road: Access to/from Local Shops on South Road

Access to/from the shops is via driveways in Byron Road and Cowper Road, each approximately 10 metres from South Road. This results is some ‘corner cutting’ as drivers turn left from South Road directly into the car park, across the path of vehicles travelling west in Byron Road. Access can also be congested if 2 vehicles are queued in Byron Road or Cowper Road. These conditions are an unfortunate legacy of the original design and planning approval.

Ideally, alternative access arrangements should be negotiated with the owners with consideration given to (for example) one way in/out operation of the car park, or access only from South Road and egress via Byron Road or Cowper Road. However, restricting access directly from South Road only would desirably need an improved driveway access to ‘ease’ the left turn into the car park and reduce the risk of rear end collisions on South Road.

Alternative Access Arrangements: Examples Only for Consideration and Discussion

Option A

Option B

Both options may result in increased traffic using Gordon Road, between Byron Road and Cowper Road, in order to access the revised egress/exit points. For example, a resident of Cowper Street will have to use Gordon Road and Byron Road to enter the shops from South Road (in Option A), while a resident in Byron Road will have to use Gordon Road on their return to home.

The other option to resolving access arrangements would be to mark 'Keep Clear' message across the car park driveways in Byron Road and Cowper Road to enable drivers to enter/leave the car park with minimal impact on drivers in the side roads.

3.8.1 Community Feedback

- A few residents expressed concern that restricted (one way) access will have on traffic movements through the local area by residents wanting to access the shops. This will be particularly relevant for Option A as access is only available from South Road. Option B maintains access from either South Road or Cowper Street.

3.8.2 Recommendations

- **Discuss the practically of alternative access arrangements with the shop owners (although this treatment may result in a minor shift of local traffic accessing the shops on Gordon Road)**
- **Mark 'Keep Clear' messages in Byron Road and Cowper Road.**

4 Summary Recommendations: Preliminary Costing and Priorities

4.1 Byron Road

4.1.1 Recommendation

Council replace the existing single lane slow points devices with standard 2 lane road humps or plateaux.

4.1.2 Cost Implications

Removal of the existing devices and installation of two way humps or plateaux are likely to cost in the order of $35-40,000

4.1.3 Priority

These changes are considered MEDIUM priority.

4.2 Canterbury Terrace

4.2.1 Recommendation

Council prepares an integrated traffic and landscape plan for the section of Canterbury Terrace between Byron Road and East Avenue, with consideration to the following items:

- Extension of parking restriction on the southern side of the road around the Greenways Shared Path connections
- Installation of a half road closure at East Avenue and improved pedestrian facilities to cross East Avenue
- Parking arrangements between Fairmont Avenue and East Avenue.

4.2.2 Cost Implications

Cost implications will vary depending on the outcomes of further consultation and preparation of the integrated traffic and landscape plan.

4.2.3 Priority

This is considered a HIGH priority due to the ongoing development of the Greenways Shared path along the rail corridor.

4.3 East Avenue

4.3.1 Recommendation

Council install kerb build outs at several locations along East Avenue as shown in the concept plan.

4.3.2 Cost Implications

The installation of kerb build-outs along the road will be subject to further detailed design, with particular consideration to drainage requirements. Each pair of build-outs could cost in the order of $5,000 assuming no drainage connections are provided.

If the build-outs are constructed to the kerb line, with connections to the underground drainage network, costs per build-out could be in the order of $10,000 for each pair.

Total cost implication (assuming 6 pairs of build-outs) could be $30-60,000.

4.3.3 Priority

This is considered a HIGH priority.

4.4 Additional Parking Restrictions

4.4.1 Recommendations

Dryden Road

Signpost a No Stopping restriction on the southern side of the road through the bend into Gordon Road.

Hartland Avenue

Signpost a 2 Hour Parking restriction (9am-5pm Mon-Fri) along the eastern side of the road, between Aroha Terrace and Dunrobin Street.

4.4.2 Cost Implications

The installation of these parking restrictions will be relatively low cost.

4.4.3 Priority

This is considered a MEDIUM priority.

4.5 Byron Road and Cowper Road – Local Shops Access

4.5.1 Recommendation

Discuss the practically of alternative access arrangements with the shop owners and mark ‘Keep Clear’ messages in Byron Road and Cowper Road.

4.5.2 Cost Implications

Assumed no cost for discussions with the property owner.

Installation of ‘Keep Clear’ markings assumed to be $1,000 each (to be confirmed by Council’s pavement marking contract).

4.5.3 Priority

This is considered a LOW priority.

Appendix A

Summary of Community Feedback

Number of Comments Received	Addison Road
1	Do not want more traffic diverted into road
3	Bend and parked cars
5	Speeds
1	Close corner with South Road
3	Cut through traffic
1	Uneven footpaths
1	Parking over driveway
1	Traffic during school pick-up and drop-off
1	Purchase property to create lane through to school/oval
1	South Road corner - ped safety
1	Generally OK - no need for calming
1	Hoon driving
1	South Road - narrow footpath/blind corners
	Aroha Terrace
3	Speeds / Hooning
1	No issues and no treatment needed
2	Parking around Gray Street - blocking driveways
1	Rat running traffic
3	Parking inadequate for tram stops (use of side streets)
2	Not wide enough for park cars both sides
1	Parking around Hartland Ave - not wide enough
	Byron Road
1	Safety of peds to/from train station and bend
1	Speeds along Byron - Cantebury are not a problem
1	Speeds around Byron - Cantebury
1	Access to playground not a problem
16	Behaviour at one lane slow points (safety for cyclists / who gives way / loss of parking / rubbish collection)
3	Parking around playground
5	Shopping centre access (adjacent South Road)
5	No problems - one lane slow points are effective (concerns are exagerated)
1	Need to landscape slow points
2	Rat running traffic
3	Speeds (particularly rat running)
1	Access to driveways near slow points
2	Slow point near Gordon Road is too close to intersection (turning traffic)
2	Parked cars limit passing opportunities
1	South Road : make left in left out
	Canterbury Terrace
2	East Ave junction : Speed of turns (angle of junction, racing to beat train crossing)
1	East Ave junction : blind corner for left turn
2	East Ave junction : ped / cycle access over East
2	Parking issues (narrow / driveway access)
1	Speeds
2	Management of peds and bikes with future Greenways - connection to Canterbury and crossing East
6	Parking opposite Fairmont Ave near Community Centre
1	Parking near bend - sight distances
	Coulter Avenue
2	Through traffic (using Forest and Coulter)
1	Speeds

	Cowper Road
3	Shopping centre access
1	No through road not obvious
	Dryden Road
2	Gordon Road : parking too close and corner cutting / blind corner
1	South Road : parking too close blocks access to/from South Road
1	Parking in front of factory
1	Speeds
1	Shopping centre access
	East Avenue
11	Crossing road can be difficult at times (pedestrians)
6	Access to/from side roads due to queuing in East Ave or volumes
5	High traffic volumes
2	Access to / from driveways due to volumes or speeds
1	Parked cars driveway access issues (neighbours)
3	Install roundabouts
1	Parked cars no bike lanes
1	Overhanging trees cause issues for cyclists
	Emerson Road
1	Parking issues
	Fairmont Avenue
1	Speeds
1	Rat running (East-Byron)
1	Bend in road
	Forest Avenue
1	Delays / congestion at Oban when drivers turning right into Oban
4	Disregard of parking restrictions near school
5	Congestion / blocking of traffic
1	Lack of signage of school
1	Humps cause irritation
1	Use of Oban at afternoon pick-up and queue back into Forest
1	Pedestrians walking or road (early morning and late evening) due to trees, uneven footpaths and poor lighting)
3	Parking around reserve with sporting activities (including Selkirk)
1	Need to extend 25 past oval to Winifred
2	Speeds
3	Rat running
1	Speeding in school zone
1	East Ave : cars parked close to junction / conflict with drivers entering road from East
1	Parking opposite side roads : drivers in Forest must cross centre line
1	Pedestrian safety crossing road near school
1	Humps not as effective as before due to resurfacing
	Gordon Road
2	Rat running
2	Speeds
	Gray Street
2	Parking near Aroha - driveway access difficulty
	Hartland Avenue
8	Parking issues
1	Parking around Forest Ave

	Laught Street
1	Uneven footpath
1	Speeds
1	Rat running (Aroha to East)
	Leah Street
17	Dislike of speed cushions (frustration, shift traffic into other streets)
1	Road unable to cope with 2 way traffic
	Selkirk Avenue
1	Parking near Forest Avenue
1	Speeds
	Oban Street
1	Need to take pressure of street at school times (use of Kertaweeta Avenue, staggered end times, etc)
	Wilson Avenue
1	Children riding bikes without helmets in street
	South Road
1	No bike lanes
12	Difficulty turning accessing South Road (particularly right in/out of side roads) due to volumes/constant flows (mainly Forest Ave)
2	U turns at Forest Ave
	South Road / Cross Road
1	Short green light crossing southbound over Cross Road
	Aroha / East
2	Concern over safey
1	Illegal U turns
1	Safety of pedestrians
2	Need to ban entry into Aroha from East
1	Visibility of left turners into Norman for cyclists crossing Leah
1	Pedestrian behaviour around crossing and intersection with Victoria
3	Heavy flows - difficult access from Aroha into East in peak hours
1	Difficulty for cyclists to negotiate the junctions (to/from Aroha) - need bike lanes
	General Comments
2	No more humps/limits/traffic controls
1	Subdivided blocks adding to problems (parking and driveway access0
1	Leader / Leah St - Flour trucks block sight lines
1	Leader / Leah St - can be difficult turn
1	Don't want additional visual polution of streets
1	Congestion on South Road leads to rat-running in streets
1	Overhanging trees / pedestrians
2	Lighting - general concern
1	Better footpaths
1	Leave conditions alone and stop wasting money

Appendix B

Summary Traffic Data

Legend

- Traffic Data
- Railway Station

Year - 2007
ADT - 2007
North/East - 1263
South/West - 744
Avg Km/h - 36.6
85% Km/h - 44.6
CV >5% - No

Year - 2012
ADT - 1201
North/East - 669
South/West - 532
Avg Km/h - 43
85% Km/h - 50
CV >5% - No

Year - 2012
ADT - 7814
North/East - 4259
South/West - 3555
Avg Km/h - 41.1
85% Km/h - 47.2
CV >5% - 5.2

Year - 2012
ADT - 1267
North/East - 718
South/West - 549
Avg Km/h - 41.6
85% Km/h - 49
CV >5% - No

Year - 2012
ADT - 248
North/East - 116
South/West - 132
Avg Km/h - 34.7
85% Km/h - 42.5
CV >5% - No

Year - 2008
ADT - 7837
North/East - 3911
South/West - 3926
Avg Km/h - 48.6
85% Km/h - 55.1
CV >5% - 5

Year - 2004
ADT - 512
North/East - 354
South/West - 158
Avg Km/h - 37.1
85% Km/h - 43.9
CV >5% - No

Year - 2012
ADT - 21
North/East - 15
South/West - 6
Avg Km/h - 21.9
85% Km/h - 26.3
CV >5% - No

Year - 2012
ADT - 346
North/East - 187
South/West - 159
Avg Km/h - 33.4
85% Km/h - 42.5
CV >5% - No

Year - 2012
ADT - 157
North/East - 83
South/West - 74
Avg Km/h - 29.6
85% Km/h - 36.4
CV >5% - 5.1

Year - 2012
ADT - 7949
North/East - 4331
South/West - 3618
Avg Km/h - 47.5
85% Km/h - 52.6
CV >5% - No

Year - 2012
ADT - 369
North/East - 262
South/West - 107
Avg Km/h - 38.1
85% Km/h - 45.4
CV >5% - No

Year - 2012
ADT - 138
North/East - 61
South/West - 77
Avg Km/h - 32
85% Km/h - 39.6
CV >5% - No

Year - 2008
ADT - 8395
North/East - 4321
South/West - 4074
Avg Km/h - 47.7
85% Km/h - 52.9
CV >5% - No

Year - 2012
ADT - 1439
North/East - 795
South/West - 644
Avg Km/h - 34.1
85% Km/h - 40.3
CV >5% - No

Year - 2008
ADT - 540
North/East - 394
South/West - 146
Avg Km/h - 32.7
85% Km/h - 39.2
CV >5% - No

Year - 2007
ADT - 123
North/East - 57
South/West - 66
Avg Km/h - 32.7
85% Km/h - 40
CV >5% - No

Year - 2007
ADT - 123
North/East - 57
South/West - 66
Avg Km/h - 32.7
85% Km/h - 40
CV >5% - No

Year - 2008
ADT - 850
North/East - 677
South/West - 173
Avg Km/h - 41
85% Km/h - 47.5
CV >5% - No

Year - 2012
ADT - 104
North/East - 52
South/West - 52
Avg Km/h - 28.3
85% Km/h - 33.1
CV >5% - No

Year - 2012
ADT - 1342
North/East - 720
South/West - 622
Avg Km/h - 33.8
85% Km/h - 39.6
CV >5% - No

Year - 2007
ADT - 1540
West - 975
East - 565
Avg Km/h - 29
85% Km/h - 34.9
CV >5% - No

Year - 2012
ADT - 329
North/East - 171
South/West - 158
Avg Km/h - 23.1
85% Km/h - 29.9
CV >5% - No

Year - 2012
ADT - 251
North/East - 127
South/West - 124
Avg Km/h - 20.6
85% Km/h - 24.8
CV >5% - No

Year - 2012
ADT - 557
South - 201
North - 356
Avg Km/h - 33.7
85% Km/h - 38.5
CV >5% - 7.5

Year - 2012
ADT - 299
North/East - 140
South/West - 159
Avg Km/h - 32.6
85% Km/h - 38.5
CV >5% - No

Year - 2012
ADT - 8784
North/East - 4858
South/West - 3926
Avg Km/h - 40.4
85% Km/h - 46.8
CV >5% - No

Year - 2012
ADT - 668
North/East - 378
South/West - 290
Avg Km/h - 43.2
85% Km/h - 51.5
CV >5% - 6.6

Year - 2012
ADT - 524
North/East - 277
South/West - 247
Avg Km/h - 39.6
85% Km/h - 47.2
CV >5% - No

Year - 2012
ADT - 301
West - 171
East - 130
Avg Km/h - 34.3
85% Km/h - 39.6
CV >5% - No

Year - 2012
ADT - 359
North/East - 166
South/West - 193
Avg Km/h - 29
85% Km/h - 33.1
CV >5% - No

Year - 2012
ADT - 1205
North/East - 532
South/West - 673
Avg Km/h - 39.1
85% Km/h - 46.8
CV >5% - 12.2

Year - 2012
ADT - 824
North/East - 510
South/West - 314
Avg Km/h - 37.5
85% Km/h - 43.9
CV >5% - 6.3

Year - 2012
ADT - 1046
North/East - 563
South/West - 483
Avg Km/h - 40.2
85% Km/h - 46.8
CV >5% - No

Year - 2012
ADT - 320
North/East - 178
South/West - 142
Avg Km/h - 36.8
85% Km/h - 44.3
CV >5% - 7.2

Year - 2012
ADT - 303
North/East - 57
South/West - 246
Avg Km/h - 36.7
85% Km/h - 44.6
CV >5% - No

MASTERS AVENUE
HALMON AVENUE
FOURTH AVENUE
THIRD AVENUE
SECOND AVENUE
VICTORIA STREET
SOUTH ROAD
HALE STREET
ROSS STREET
EURILPA AVENUE
AROHA TERRACE
NORMAN TERRACE
ALLENBY AVENUE
LAUGHT AVENUE
BUSBY AVENUE
DAVID AVENUE
PATH
DUNROBIN STREET
GRAY STREET
HARTLAND AVENUE
SELKIRK AVENUE
LINCOLN AVENUE
MEREDYTH AVENUE
IRWIN AVENUE
FOREST AVENUE
MAUD STREET
WINIFRED AVENUE
HILL COURT
SCHOOL AVENUE
COULTER AVENUE
FAIRMONT AVENUE
CANTERBURY TERRACE
PARKER TERRACE
MILLS STREET
ADDISON ROAD
CLARENCE PARK STN
BYRON ROAD
KELVIN AVENUE
GORDON ROAD
COWPER ROAD
COWPER TERRACE
LORRAINE AVENUE
EAST AVENUE
FREDERICK STREET
DRYDEN ROAD
HOMER ROAD
RIPON ROAD
LANGDON AVENUE
OAKFIELD AVENUE
ROSSLYN AVENUE
GEORGE STREET
KING STREET
EMERSON ROAD
EMERSON STN

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Scale 1:3,500

Job Number:	2012.1294
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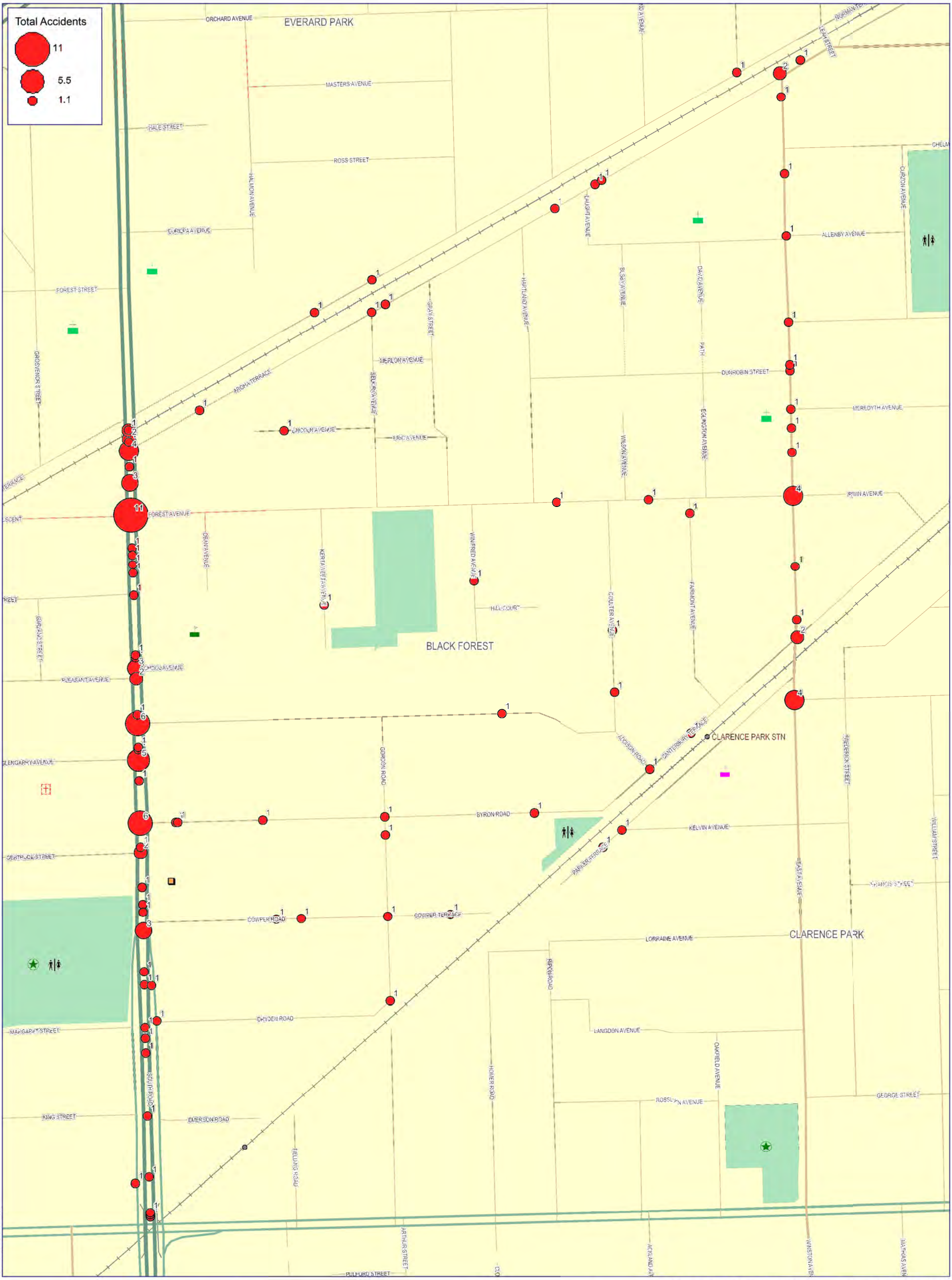
Revision:	A
Date:	24/01/2013
Drawn:	ALO
Spatial Approval:	ALO
Technical Approval:	PS

Black Forest
Local Area Traffic Management Study

TRAFFIC DATA

Appendix C

Collision Data



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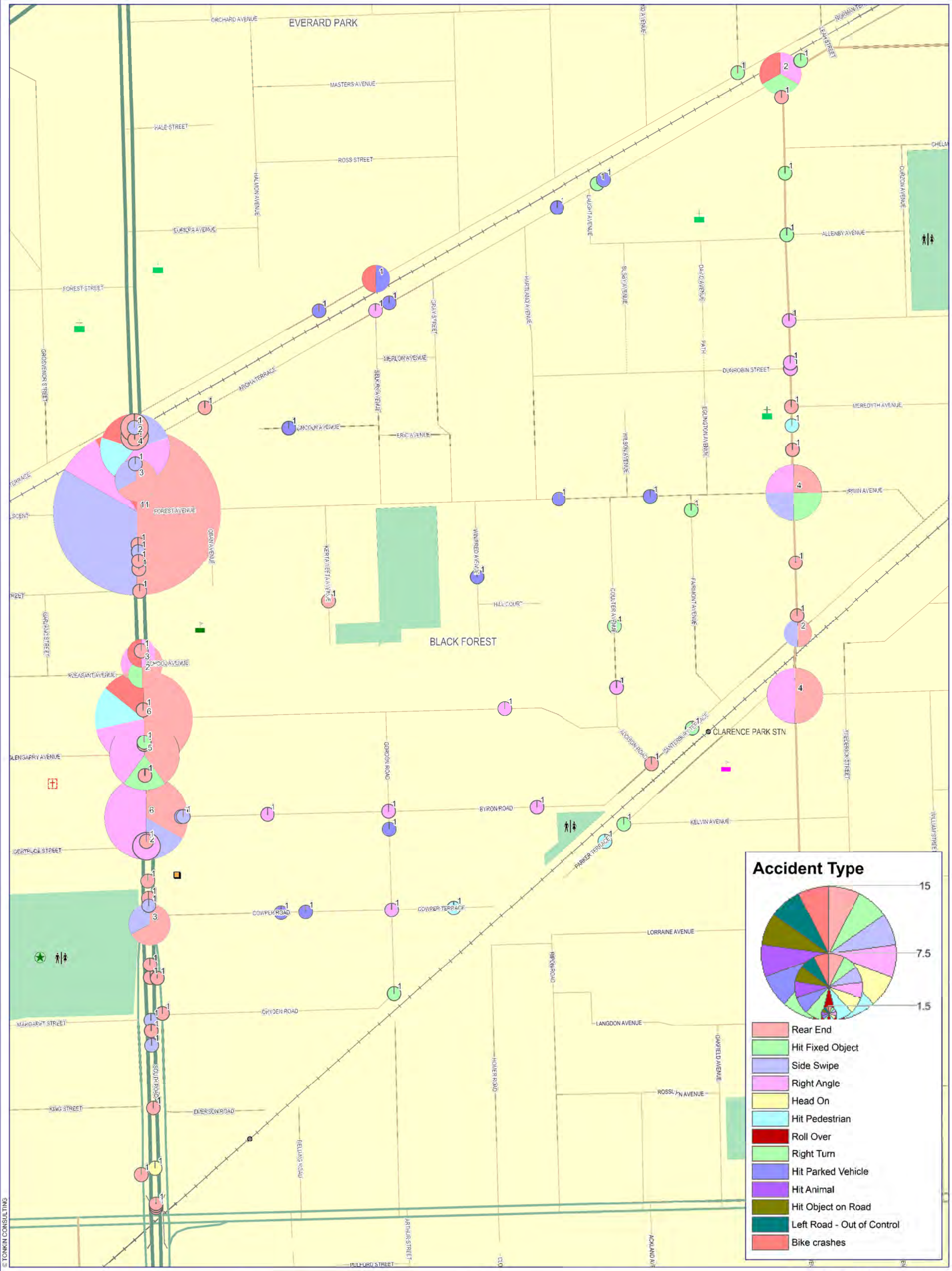
N

SCALE: 1cm = 65m

TOTAL CRASHES - LOCATIONS

Black Forest
Local Area Traffic Management Study

2007 - June 2012



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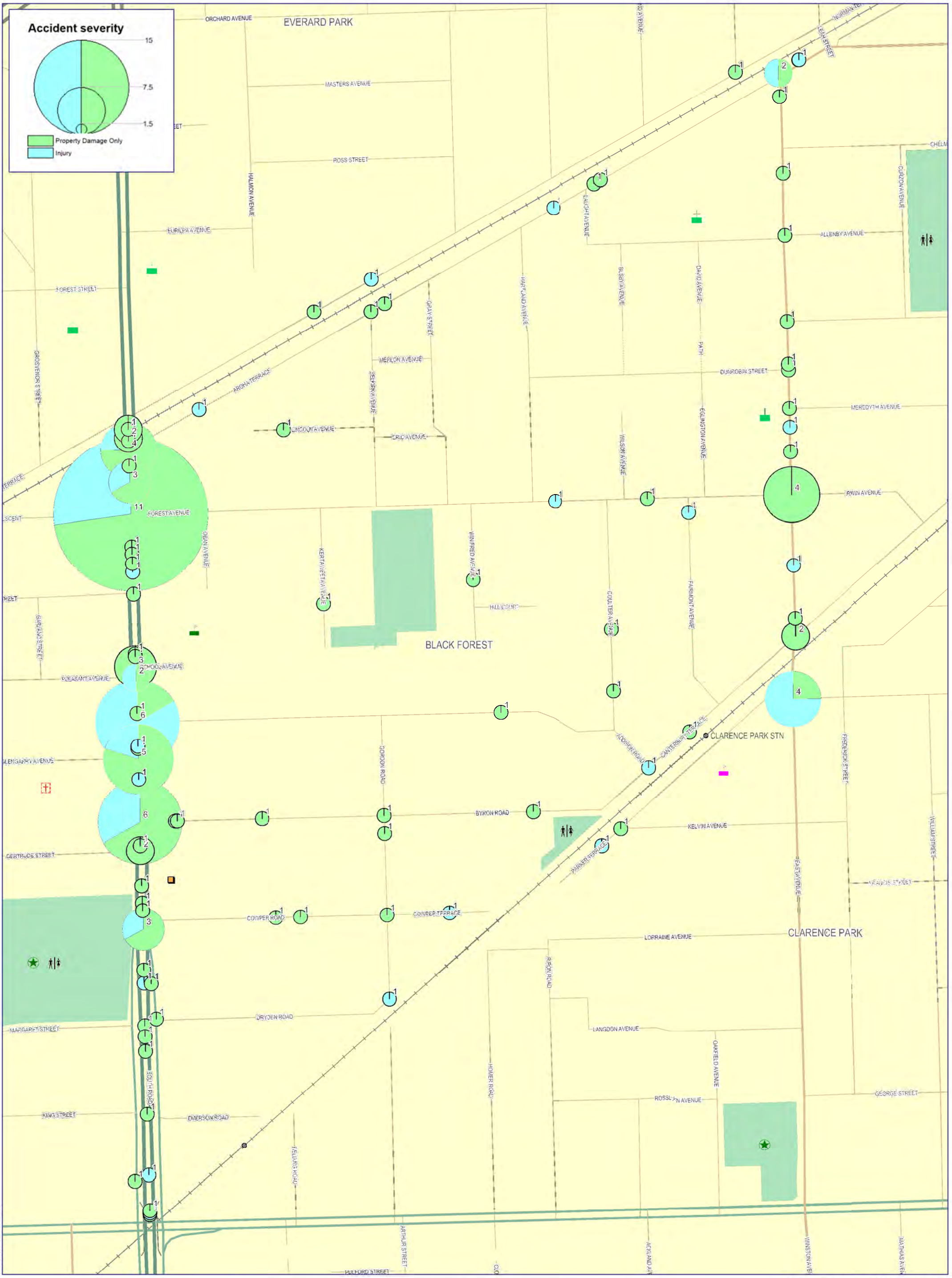
N

SCALE: 1cm = 65m

ACCIDENT TYPES

Black Forest
Local Area Traffic Management Study

2007 - June 2012



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N

SCALE: 1cm = 65m

CRASH SEVERITY

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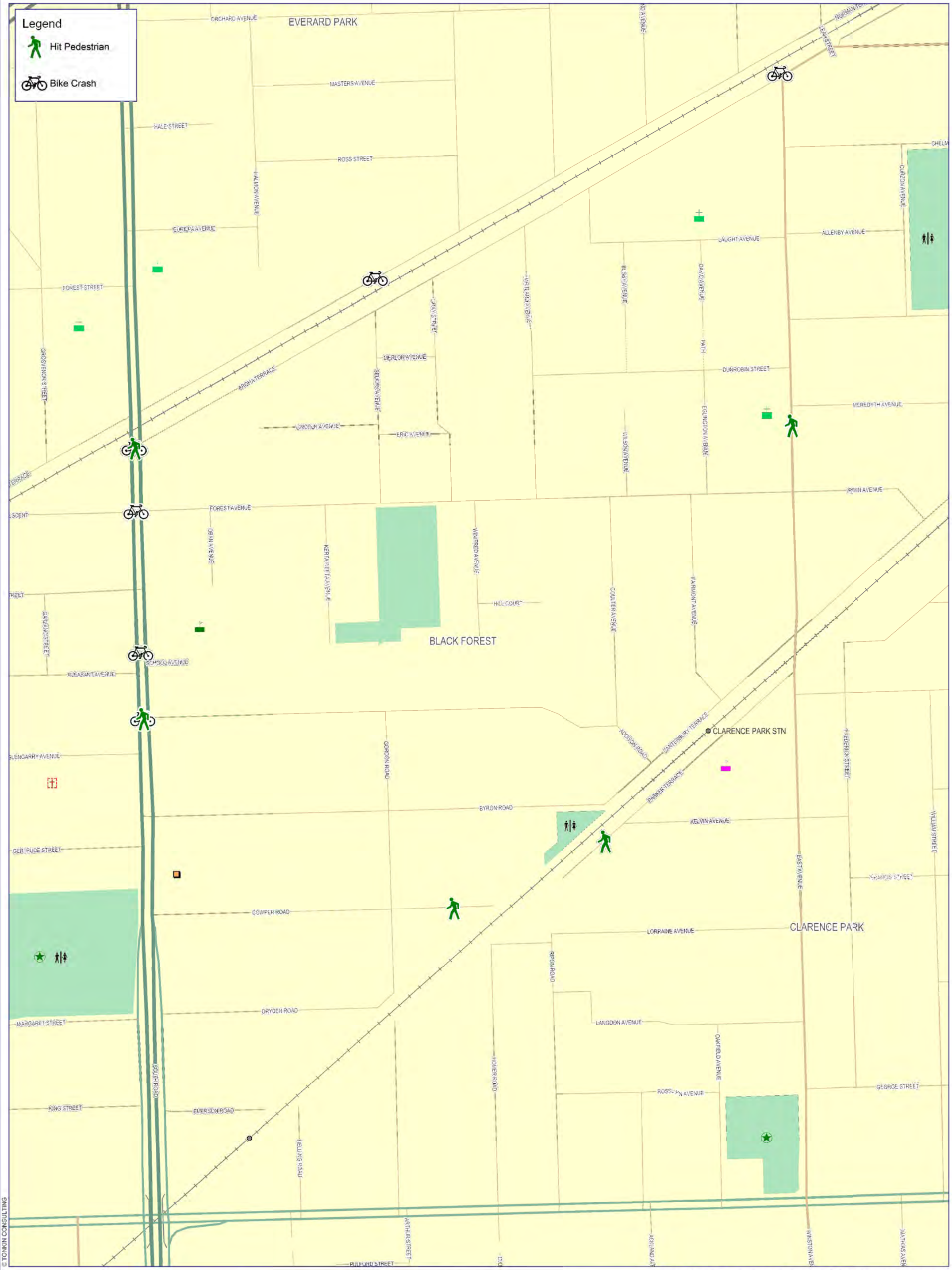
2007 - June 2012



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N

SCALE: 1cm = 65m

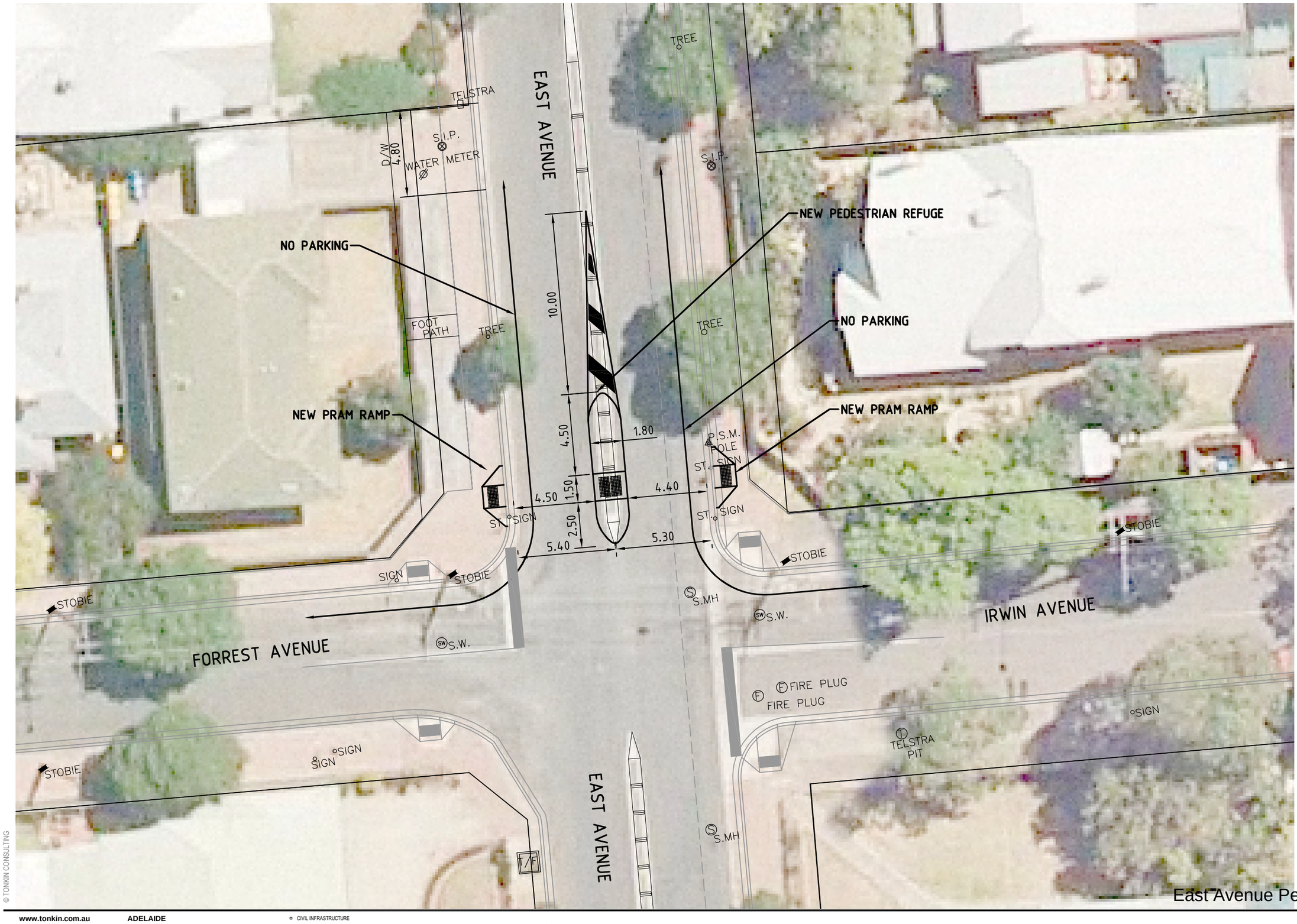
BIKE & PEDESTRIAN CRASHES

Black Forest
Local Area Traffic Management Study

2007 - June 2012

Appendix D

East Avenue
Previous Concept Pedestrian Refuges



T:\2009\20091059 EAST AVE PEDESTRIAN REFUGE - CITY OF UNLEY\ACAD\FINAL\20091059_CONCEPT.DWG [LAYOUT1 (2)] 01-Sep-2009 - 2:22pm

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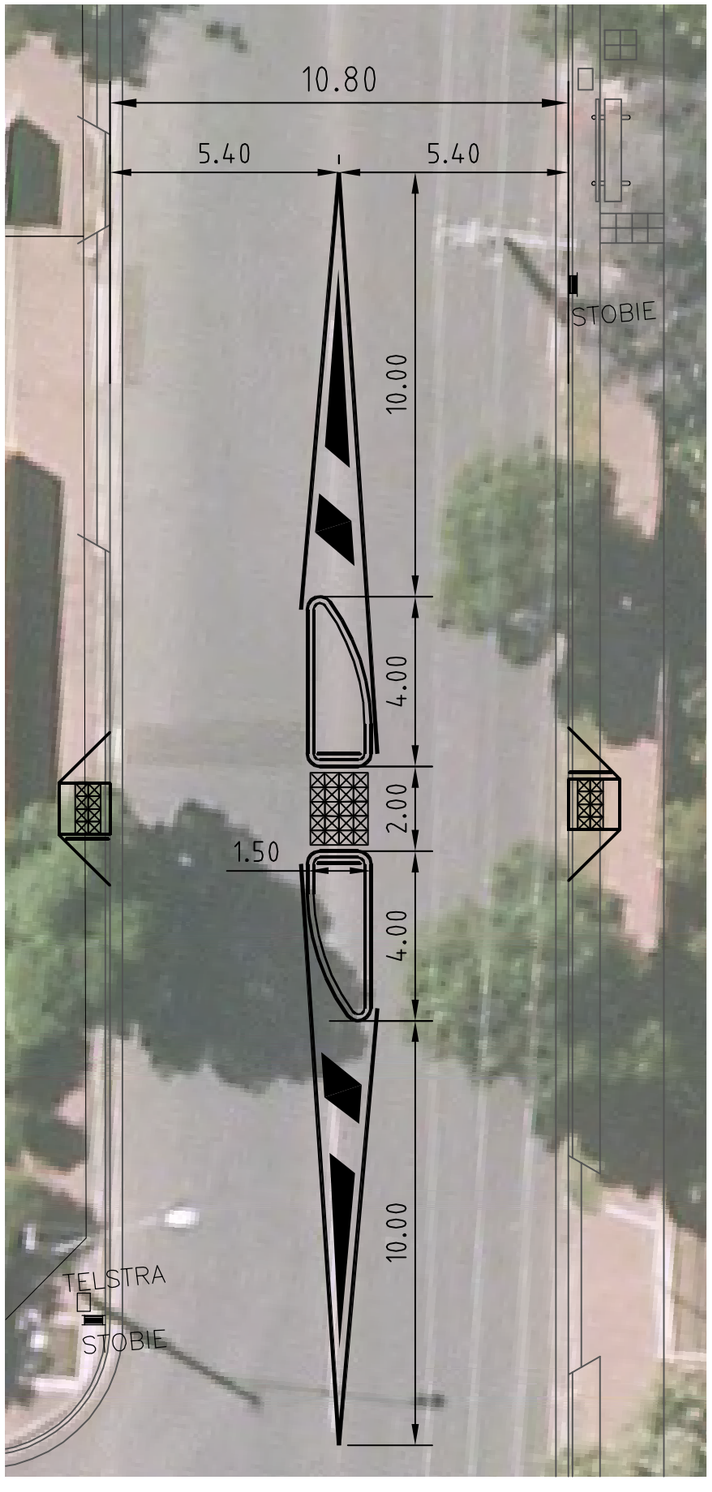
- STORMWATER MANAGEMENT
- ROAD SAFETY & TRAFFIC
- BUILDING SURVEYING
- SPATIAL INFORMATION
- ELECTRICAL, MECHANICAL AND AUTOMOTIVE

Job No: 2009.1059
Drawing: 20091059_CONCEPT.DWG
Drawn: T.K.
Date:
Scale: 1:300 @ A3

Figure
East Avenue Pedestrian Refuge

Unley Council
East Avenue, Unley



5 0 5 10 15 20 Metres

BAR SCALE 1:250

Coords to MGA 94

East Avenue Pedestrian Refuge

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- ELECTRICAL, MECHANICAL AND AUTOMOTIVE

APPROVED COMPANY ISO 9001 Quality Management Systems QMS

Job No: 2011.0876
Filename: 20110876_PLAN.DWG
Revision 02
Drawn: D.Bradley
Date: 25/01/12
Scale: 1:200

City of Unley
East Avenue & Dunrobin Intersection
Unley, SA

Appendix E

Concept Traffic Management Plan for Consultation

Hartland Ave
Install 2 Hour Parking
on east side of road between Aroha Tce
& Durnrobin St.
(Section 3.5.5)

East Ave
Install kerb buildouts along
the road to aid pedestrians.
(Section 3.4.1)

Shopping Centre Access
Mark 'Keep Clear' message in Byron Rd
& Cowper Rd. Discuss alternative access
arrangements with shop owners.
(Section 3.8)

Byron Rd
Replace the existing single lane slowpoints
with standard two lane humps or plateaux.
(Section 3.2)

Dryden Rd
Install No Stopping on southern
side of road through bend.
(Section 3.5.2)

Canterbury Tce
Develop an integrated traffic & land
use plan between Byron Rd & East Ave
to address traffic, parking &
pedestrian/cycle accessibility.
(Section 3.3)

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Scale: 1:7,000

Job Number:	2012.1294
Filename:	Appendix E V5.wor
Revision:	D
Date:	21/08/2013
Drawn:	TKD
Spatial Approval:	TKD
Technical Approval:	PS

City of Unley

BLACKFOREST DRAFT LOCAL AREA TRAFFIC PLAN FOR CONSULTATION