Appendix B – Details of Options for the Page Street/Bunns Lane/Pursley Road Junction

Option 1 - Removal of the double mini roundabout junction – Pursley Road/Bunns Lane Priority

Option 1 considers the removal of both of the mini roundabouts within the study area and changing the priority of the junction. It would provide an East/West connection from Pursley Rd to Bunns Ln which has the assumed highest vehicle flow.

Although forward visibility would not be in accordance with the design standard, on local roads, where the posted speed limited is 3omph or less, road users tend to adapt their speed to the geometry of the road. It is anticipated that the horizontal geometry of the road would aid in the reduction of vehicle speeds through the junction this could be reinforced with traffic calming or the introduction of a 20mph zone as identified in Option 1b. This will be fully risk assessed as part of the preliminary design process.

The following table outlines the key issues for the scheme and comments on how Option 1 compares to the current junction operation.

Issues	**Option 1 Benefits/Disbenefits**
High Traffic Volumes	**Benefit** - In the absence of traffic data it is assumed that the East West movement has the highest flow. Option 1 will provide a free flowing arrangement at the junction for the East West movement. Bunns Ln and Pursley Rd are also located on a bus route – Option 1 should decrease the journey time of passengers using public transport. A traffic model would be required to assess the impact on Page St and the North/ South link.
High Pedestrian Volumes	**Benefit -** The existing pedestrian crossings on Bunns Ln and Page St can still be utilised. A new controlled or uncontrolled crossing point could be installed at the Page St/ Pursley Rd junction where there appears to be high pedestrian activity. The horizontal geometry would slow vehicles down which would be beneficial for both pedestrians and the road user.
Accidents	**Benefit -** After reviewing the accident stats in section 3, there seems to be confusion for the road user using the junction in the current arrangement. The simplification of junction should to increases awareness of pedestrian movements at the junction.
Perceived as confusing layout	**Benefit -** Option 1 provides a standard highways layout which would be familiar with all road users.

Inappropriate parking/ drop off for school children	**Benefit -** Option 1 proposes to narrow the road lanes to the absolute minimum road widths which prevents vehicles from stopping/ dropping off without blocking the highway. Wooden verge markers/ bollards could also install in the soft verges to prevent unauthorised parking.
Vehicle/ pedestrian conflict with cyclists	**Benefit -** Roundabouts are not the preferable junction arrangement for cyclists. Option 1 provides standard highways arrangement which should improve the current situation for cyclists.

The following works would be required to implement this scheme;

- Removal of existing road markings associated with the roundabouts
- Removal of existing signs associated with the roundabouts
- Excavation of existing carriageway
- Removal of kerbs
- Localised Carriageway reconstruction
- Installation of new splitter island (kerbs, footway construction, bollards etc)
- Installation of new traffic signs and road markings
- The outline proposals indicate that there will be no implications on the Statutory Undertakers apparatus.

The Indicative construction cost estimate for implementing Option 1 – Outline construction costs have been provided below:

Activity	**Indicative cost**
Main Works Allowance	£8500
Preliminaries (including Traffic Management) – Allowance	£2000
Contingency Allowance	£3500
Total	**£14,000**

Key Risks - The following risks have been identified that may have an impact on the scheme:

Key Risk	**Impact**				**Potential Mitigation**
	Health & safety	Ecological	Financial	Political	
Potential queuing on the Page St	✓			✓	Undertake junction modelling to

approach to the junction.					determine the queue length over and above the base line conditions.
Increased speed through the junction	✓				Due to the geometry this is unlikely, however addition traffic calming measures may need to be implemented.
Forward visibility – This will be reduced due to the change of alignment.	✓				Will be fully risk assessed at preliminary design stage and mitigated.
Vertical alignment may need to be changed during detailed design to accommodate drainage, superelevation etc .			✓		Undertake a topographical survey prior to prelim deign to confirm if any level changes are required.

Option 1a - Variation on Option 1

Option1a provides the same alignment as Option 1 but would include additional traffic calming features to reduce vehicle speeds further.

The proposal includes:

- Provision of a 20mph gateway located on each of the approach arms, including gateway signing and road markings.
- Narrow (3 metre) carriageway widths.

Indicative construction cost estimate - It would be prudent to allocate and additional £2,000 per arm in addition to the costs identified in the Option 1 Estimate to allow for the additional traffic calming measures for the 20mph limit. The indicative costs for Option 1a would be **£22,000.00.**

Option 2 - Removal of the double mini roundabout junction – Page Street Priority

Option 2 is based on the same principal as Option1 but giving priority to Page St and providing a staggered junction for Pursley Rd and Bunns Ln. Vehicles would be able to travel North to South without stopping or giving way. The proposed alignment does not provide any significant horizontal deflection which may encourage higher speeds through the junction. The existing kerbline will may need to be realigned along Page St depending on the results of a topographic survey.

The following table outlines the issues for the scheme and comments on how Option 2 compares to the current junction operation.

Driver	Option 2 Benefits/Disbenefits
High Traffic Volumes	Disbenefit - It is assumed that the Page St North – South link currently has the lowest traffic flow. The introduction of the give way junctions at Bunns Lane and Pursley Road my cause severe queueing at peak times on the Bunns Lane and Pursley Road arms. It may also increase the journey times for users of public transport and encourage rat running in the locality.
High Pedestrian Volumes	Neutral - The existing pedestrian crossings on Bunns Lane and Page Street can still be utilised.
Accidents	Benefit – It is assumed that vehicles will be travelling slower through the junction at peak times especially on the Bunns Lane and Pursley Road arms.
Perceived as confusing layout	Benefit – Option 2 provides a standard highways layout which would be familiar with al road users.
Inappropriate parking/ drop off for school children	Benefit – Option 2 proposes to narrow the road lanes down to the absolute minimum road widths which prevents vehicles from stopping/ dropping off without them blocking the highway. Wooden verge markers/ bollards could also installed in the soft verges to prevent unauthorised parking.
Vehicle/ pedestrian conflict with cyclists	Benefit – Roundabouts are not the preferable junction arrangement for cyclist. Option 2 provides a standard highways configuration which should improve the current situation for cyclists.

The following works would be required to implement this scheme;

- Removal of existing road markings associated with the roundabout
- Removal of existing signs associated with the roundabouts
- Excavation of existing carriageway
- Removal of kerbs
- Realign existing kerblines
- Localised Carriageway reconstruction
- Installation of new splitter island (kerbs, footway construction, bollards etc)
- Installation of new traffic signs and road markings

- The outline proposals indicate that there will be no implications on the Statutory Undertakers apparatus.

Indicative construction costs – Outline costs have been provided below:

Activity	**Indicative cost**
Main Works Allowance	£17,000
Preliminaries (including TM) – Allowance	£4250
Contingency Allowance	£7500
Total	**£28,750.00**

Key risks - The following risks have been identified that may have an impact on the scheme;

Key Risk	**Impact**				**Potential Mitigation**
	Health & safety	Environmental	Financial	Political	
Potential queuing on Bunns Lane and Pursley Road approach to the junction, potential noise and air pollution issues.	✓	✓		✓	Undertake junction modelling to determine the queue length over and above the baseline conditions.
Increased speed through the junction	✓				Due to the geometry this is unlikely however addition traffic calming measures can be implemented to help mitigate this.
Vertical alignment may need to be changed during detailed design to accommodate drainage, superelevation etc			✓		Undertake a topographical survey prior to prelim deign to confirm if any level changes are required.
The kerbline may need to be realigned outside Page Court which may extend into the existing verge		✓			To be confirmed upon completion and review of the topographical survey. The kerbline shown on the OS plan appears to be different to that installed onsite.

Option 3 - Removal of Page Street / Pursley Road mini roundabout

Option 3 is a hybrid option which maintains the mini roundabout at the Page Street/ Bunns Lane junction and removes the mini roundabout at Page St/reet Pursley Road. This arrangement should remove driver confusion at the Pursley Road junction which is currently nonstandard, whilst maintaining the existing arrangement at Bunns Lane.

The following table outlines the issues for the scheme and comments on how Option 3 compares to the current junction operation.

Driver	**Option 3 Benefits/Disbenefits**
High Traffic Volumes	Neutral- The removal of the Page Street/ Pursley Road junction is likely to have little or no effect on the traffic flows.
High Pedestrian Volumes	Neutral - The existing pedestrian crossings on Bunns Lane and Page Street can still be utilised.
Accidents	Benefit – The removal of the Page Street / Pursley Road junction should reduce any confusion at this location
Perceived as confusing layout	Benefit – Option 3 standardises the junction layout at within the study area
Inappropriate parking/ drop off for school children	Neutral– Likely to remain the same unless additional measures are installed.
Vehicle/ pedestrian conflict with cyclists	Benefit – Roundabouts are not the preferable junction arrangement for cyclists. Option 3 provides a standard highways arrangement which should improve the current situation for cyclists.

The following works would be required to implement this scheme;

- Removal of existing road markings (Mini roundabout)
- Removal of existing signs at Pursley Rd
- Installation of new traffic signs and road markings
- The outline proposals indicate that there will be no implications on the Statutory Undertakers apparatus as all the works are within the existing site extents.

Indicative construction costs – Outline costs have been provided below:

Activity	**Indicative cost**
Main Works Allowance	£3500
Preliminaries (including TM) – Allowance	£900
Contingency Allowance	£1600
Total	£6,000.00

Option 4 - Revised geometrical layout of double mini roundabout junctions

Option 4 refines the current arrangement of a double roundabout and provides a standard geometrical arrangement. It is proposed that single approach lanes will be provided to minimise potential conflict points at the junction. The impact on the traffic flows would be negligible compared to the baseline conditions although the standardisation of the mini roundabout is likely to improve safety by reducing the driver confusion at the roundabouts.

Drawing PST-CAP-00-XX-DR-C-006 has been prepared for diagrammatic purposes only, the compliant arrangement will be provided at preliminary design stage upon completion of a topographic survey.

The following table outlines the key drivers for the scheme noted in section 1.4 and comments on how Option 4 compares to the current junction operation.

Driver	**Option 4 Benefits/Disbenefits**
High Traffic Volumes	Neutral- Unlikely to have an impact on traffic flows compared to the existing arrangement.
High Pedestrian Volumes	Neutral - Unlikely to have an impact on traffic flows compared to the existing arrangement.
Accidents	Benefit – The standardisation of the junction should reduce driver confusion at the roundabouts.
Perceived as confusing layout	Benefit – Option 4 standardises the junction layout at within the study area.
Inappropriate parking/ drop off for school children	Neutral– Likely to remain the same unless additional measures are installed.
Vehicle/ pedestrian conflict with cyclists	Neutral – Unlikely to have an impact on traffic flows compared to the existing arrangement

The following works would be required to implement this scheme;

- Removal of existing road markings (Mini roundabout)
- Removal and reinstatement of kerbed mini roundabout (*Note: This is subject to a detailed geometric check as the roundabout location may remain as existing*)
- Installation of new road markings

Indicative construction costs – Outline have been provided below;

Activity	**Indicative cost**
Main Works Allowance	£6000
Preliminaries (including TM) – Allowance	£1500
Contingency Allowance	£2700
Total	£10,200