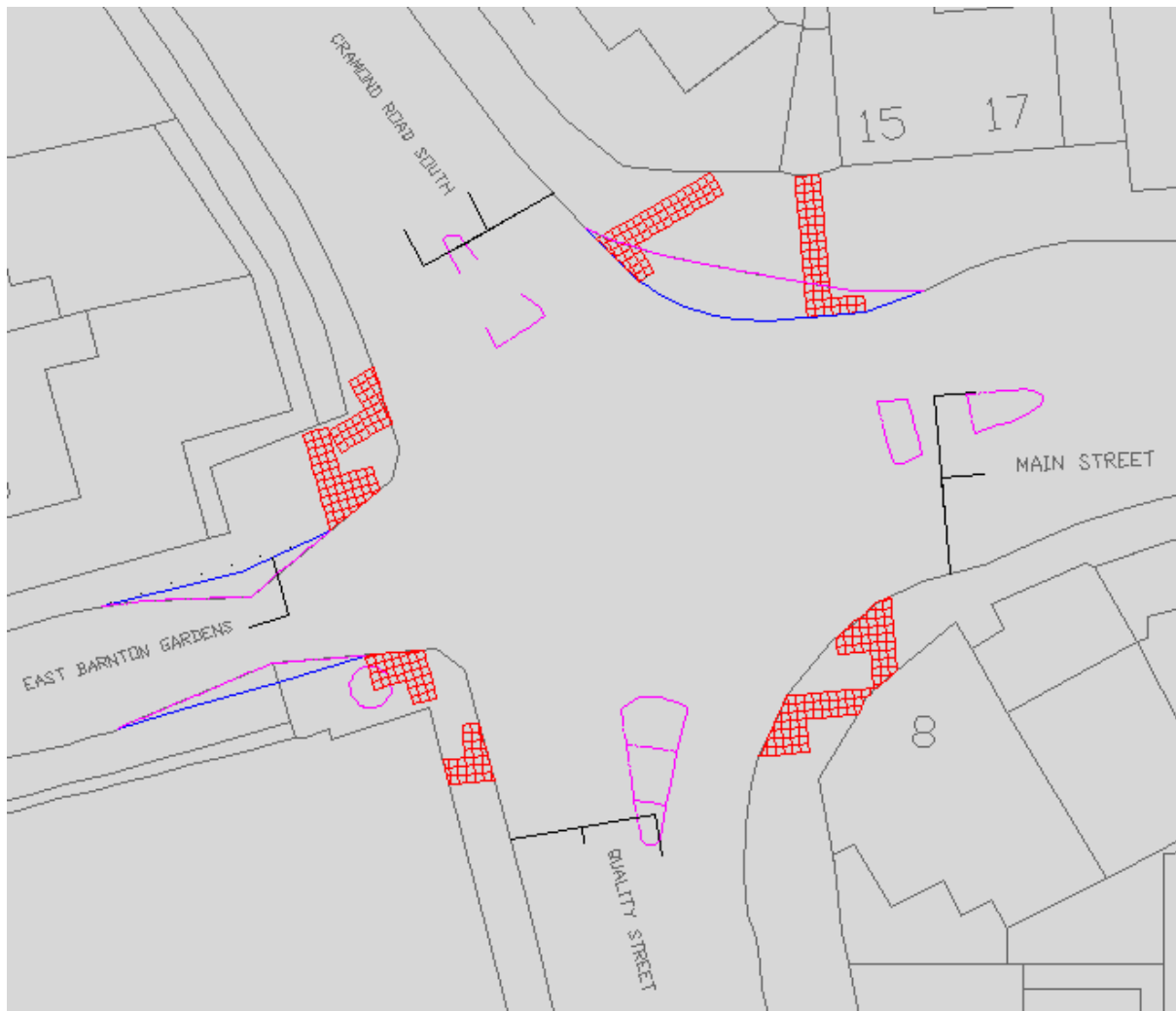


Quality Street / Davidsons Mains Proposed Signalised Junction

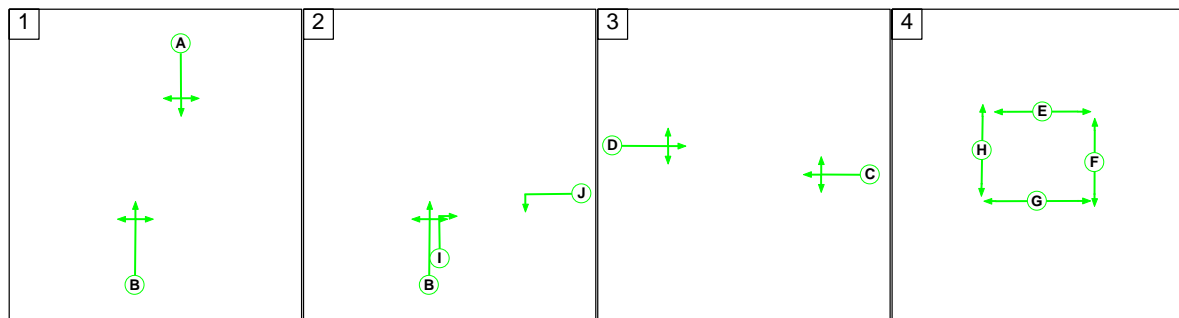


The sketch above details a suggested layout for a proposed signalised junction at this location. Items which are pink represent traffic islands; kerbing; and listed structures which would have to be removed/moved in order to accommodate this set-up. Blue lines indicate new kerblines. Tactile paving has been included to indicate potential crossing points, as have vehicle stop lines, at a distance of 3m from the proposed line of crossing studs.

The Category B listed structures at East Barnton Gardens – Barnton House, East Gates; Gatepiers & Well (LB30053) – would need to be moved in order to allow the junction to operate correctly, with vehicles able to exit the junction whilst another vehicle is queuing. There is also a visibility issue for both pedestrians and drivers with the structures in their current position. It has been assumed that these will be moved as required if the junction proposal were to go ahead.

The realignment of kerb lines will allow for additional footway width, useful during times of high footfall such as weekday afternoons. There may also be scope of increase footway widths elsewhere around the junction.

Stage Sequence



Phases:

A – Cramond Road South: ahead; left; and right

B – Quality Street: ahead; left; and right

C – Main St: ahead; left; and right

D – East Barnton Gardens: ahead; left; and right

E – Pedestrians across Cramond Road South

F – Pedestrians across Main St

G – Pedestrians across Quality St

H – Pedestrians across East Barnton Gardens

I – Quality St Right Turn Indicative Arrow: unopposed right turn into Main St

J – Main St Left Filter Arrow: early start left turn into Quality St

Stages:

1 – Phases A & B

2 – Phases B; I; & J

3 – Phases C & D

4 – Phases E; F; G; & H (All round pedestrian stage)

Lane Widths:

Cramond Road South: Left turn – 3.60m

Ahead and right – 3.60m

Main St: Left turn – 4.60m

Ahead and right – 4.00m

Quality St: Ahead and left – 3.55m

Right turn – 3.55m

East Barnton Gardens: Ahead; right; and left – 2.90m

It is recommended to utilise two lanes on the Cramond Road South; Main Street; and Quality Street arms of the junction. This will ensure capacity for the large number of turning movements and prevent turning traffic from blocking other vehicles. This will mean that median markings will have to be realigned to accommodate.

Cycle Time:

AM Peak – 90 seconds PRC = 11.2%

PM Peak – 120 seconds PRC = 9.4%

The cycle time for both the AM & PM peak are derived from the *Cycle Time Optimisation* tool in LinSig. The aim is to achieve a Practical Reserve Capacity (PRC) figure of 10% - leaving the junction with an additional 10% capacity is recommended to cope with any fluctuations in traffic and to allow for a modest increase in additional demand. Whilst a 120 second cycle time for the PM peak has not produced a PRC figure of 10%, it should be noted that a single yellow line on the southern kerb, to the east of the junction will be in operation during this time. The left turn lane from Main Street into Quality Street has however, had to be modelled as a short lane in order to indicate a 'worst case scenario' should a vehicle be stopped on the single yellow during its operational times.



(Main Street looking westbound, showing termination of single yellow line)

In order to avoid queueing through the junction, and to accommodate lane marking re-alignment, double yellow lines should be implemented between Main Street and Quality Street Lane.



(Suggested location of double yellow lines)

Average Pedestrian Waiting Times:

AM Peak – 37s mean delay

PM Peak – 53s mean delay

Vehicle Queues:

AM

Cramond Road South: 56m, adjacent to middle of Tesco car park

Main Street: 57m, opposite Clydesdale Bank

Quality Street: 57m, opposite 49 Quality Street

East Barnton Gardens: N/A

PM

Cramond Road South: 50m, adjacent to middle of Tesco car park

Main Street: 100m, opposite Norhet Bar

Quality Street: 75m, opposite 47 Quality Street

East Barnton Gardens: N/A



Mean Max Queues

(Red = AM Peak; Green = PM Peak)

Conclusion:

A proposal to to install a signalised junction to replace the mini-roundabout at Quality Street/Davidsons Mains will produce a workable junction.

Installing a signalised junction will improve pedestrian safety with the provision of controlled crossing points. Additionally, audible signals and tactile cones will assist vulnerable pedestrians in safely crossing the road. There is capacity on the network to cope with the installation of a signalised junction and the subsequent demand as long as the listed structures at East Barnton Gardens can be moved, and double yellow lines are implemented on Quality Street.

On the down side, pedestrian average waiting times are likely to be longer as they will no longer be able to cross the road on demand as with the current uncontrolled Zebra crossings. This will be particularly felt during the PM peak period which will have a 120 second cycle time. The introduction of double yellow lines between Main Street and Quality Street Lane may negatively impact trade for

businesses in the area. Moving the listed structures from East Barnton Gardens may become a contentious local issue.