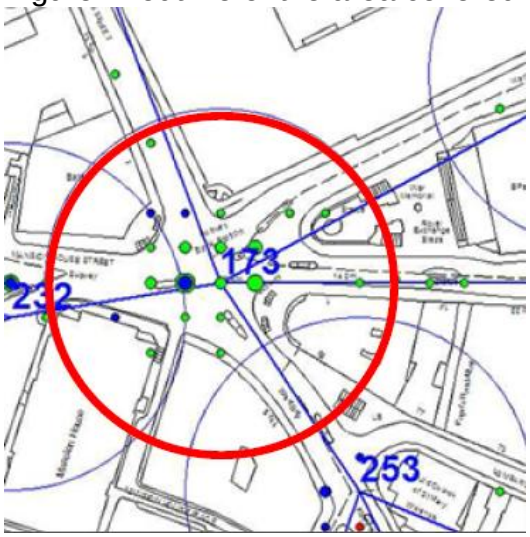
Collision analysis for the main part of Bank Junction.

Introduction:
Collisions are associated to a specified area, known as a node, or on a stretch of street between two nodes, known as a link. At Bank, the area analysis undertaken and contained within the Movement report 2015, covered eight nodes and nine links to look at the whole junction and its approaches. In the five years analysed between November 2009 and November 2014 there were 105 collisions and 118 casualties. This analysis looks at just one of the eight nodes, Node 173, which covers the centre of the main junction and can be seen in figure 1. This is the key node which would be significantly impacted (positively) by the proposal of a safety scheme at Bank to reduce the number of vehicles crossing the junction.

Figure 1: outline of the area covered by Node 173



It is worth noting that the casualty data contained within the main report refers to the number of casualties that would be influenced in a wider area than this analysis. The below information gives a greater understanding as to who is being injured, what modes are colliding, when these collisions occur and the common causes associated with the collisions in this one node.

Analysis Node 173:
<u>Casualties and mode collided with</u>
There were 49 casualties in node 173 in the five year period analysed with 42 collisions. This accounts for 42% of all casualties in the wider bank area and 40% of the collisions. Table 1 presents the relationship between the recorded casualty and the other mode collided with. If there was more than one casualty this is represented as one casualty per “other mode”. Table 1 does not proportion blame, only what mode the casualty had collided with.

Table 1: ***All Casualties and mode collided with***

Other mode	Pedestrian	Cycle	M/C	taxi	car	GDS	Bus	HGV	Other vehicle	None	**Total Casualty**
Casualty											
pedestrian			4	2	1	4	1		1		**13**
Cycle	2		1	2	5	6	1		2		**19**
M/C	3			1	2	2					**8**
taxi					1						**1**
car				1	2						**3**
GDS	1			1							**2**
Bus				1						2	**3**
HGV											**0**
Other											**0**
Total other mode	**6**	**0**	**5**	**8**	**11**	**12**	**2**	**0**	**3**	**2**	**49**

Car and goods vehicles make up 22% and 25% of the 'other mode' involved in the collision, but only 10% of the casualties. Taxis were involved in a further 16% of the casualties. If totalled together those three modes were involved in 63% of the casualties in the junction.

The bus passenger casualties were largely caused without another vehicle being physically collided with.

Looking at the Killed and Seriously Injured (KSI) casualties, there were no fatalities in this time period in node 173. There were 5 serious injuries.

Table 2: ***Serious casualties and mode collided with.***

other mode	Pedestrian	Cycle	M/C	taxi	car	GDS	Bus	HGV	Other vehicle	None	**Total Casualty**
Casualty											
pedestrian						1					**1**
Cycle						2			1		**3**
M/C						1					**1**
Total other mode						**4**			**1**		**5**

As can be seen in Table 2, 80% of all serious injuries involved a goods vehicle, the "other vehicle" involved in a collision with a cyclist was a minibus.

The serious collisions occurred with no particular pattern, largely prior to 12.30 which fits with the profile that 78% of servicing takes place before 13.00 Monday to Friday.

Table 3: *Serious casualties, day and time of collision*

Day	Time
Thursday	11.40
Tuesday	08.04
Thursday	12.28
Friday	18.08
Saturday	08.45

When looking at all casualties it is clear that weekdays are the prominent days that collisions occur with Tuesday to Friday having relative similar numbers of casualties. As would be expected, the six hours of the peak periods, when more people are travelling, account for 57% of all casualties Monday to Friday. Between 0700 and 1900 Monday to Friday 71% of all casualties occurred.

Table 4: *Number of all casualties by day and time*

	Number of casualties by time period				
Day	0700-1000	1000-1600	1600-1900	1900-0700	**Total**
Monday	2	1	2		**5**
Tuesday	3	1	3	2	**9**
Wednesday	3		6	1	**10**
Thursday	3	3	2	1	**9**
Friday	3	2	1	4	**10**
Saturday	1			4	**5**
Sunday				1	**1**
Total	**15**	**7**	**14**	**13**	

Causation factors

When looking at the causation factors for all collisions, there are varying circumstances, however Table 4 shows the three key causes and the resultant casualties.

Table 5: *top causation factors for all casualties in node 173*

		Casualty							
% of casualties	**caused by -:**	Pedestrian	Cycle	M/C	taxi	car	GDS	Bus	***total***
31%	Pedestrians stepping out	9	2	3				1	***15***
20%	right turns		4	4		2			***10***
12%	run into back of vehicle in front		1	1	1	1	1	1	***6***

As can be seen from Table 5 the top cause of a collision in node 173 is the result of a pedestrian stepping out into the path of a vehicle. This action resulted in 31% of the total casualties for node 173. This cause is also responsible for 69% of all pedestrian casualties in the five year time period in this node.

The second largest causation factor is right turning vehicles which accounted for 20% of casualties, with the third largest being vehicles running into the back of each other.

Looking again at serious casualties in node 173 we can see from Table 5 that there was no one repeated cause for serious casualties.

Table 6: *collision description for serious casualties*

Casualty	Cause
Cycle	Cycle waiting to turn right, hit in rear by van
Cycle	Goods vehicle turned left across cyclist
Cycle	Minibus collided mid junction (N/S) with cyclist (E/W)
Motor cycle	Motor cycle turned right across goods vehicle
Pedestrian	Pedestrian (on crossing) crossed in front of goods vehicle

Conclusions

In conclusion, it is clear that Monday to Friday peak periods in particular are when collisions tend to take place. The largest influencing factor in the cause of a collision appears to be pedestrians stepping out which contributed to 69% of all the pedestrian casualties in this node and almost a third of all casualties. Goods vehicles and cars are the two modes most identified as being involved in a collision, with Taxis third most likely. The second highest contributing factor to casualties is vehicles making right turns at the junction, with 20% of casualties associated with this manoeuvre.