

PF+A Ltd  
**Pointues Rocques Housing  
Development**  
Traffic Impact Assessment  
Addendum

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 254141

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**ARUP**

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# 1 Introduction

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- 1.1 PF+A Ltd are working on behalf of the States of Guernsey to develop a Development Framework for proposed residential development at Pointues Rocques.
- 1.2 The Draft Development Framework and supporting Traffic Impact Assessment (TIA) were available for consultation between 15 August and 25 September 2017. Consultees included the States of Guernsey Traffic and Highway Services (THS) and they commented on the framework and TIA in a memo dated 22 September 2017 addressed to The Director of Planning.
- 1.3 This report is an addendum to the TIA that responds to THS's comments and covers the following tasks:
- Responding to all comments in the memorandum from THS that are prefixed 'TIA'. We do not respond to the queries that refer to the Development Framework.
  - It appears that THS do not require the trip distribution to be revised, rather their concern relates to the impact on vulnerable users. We therefore assess how much traffic needs to turn east out of the site before the impact will be discernible to vulnerable road users.
  - We do not refine Appendix N as THS suggests, since quantifying impact would inevitably be subjective. Rather, we elaborate on the wider issues associated with having two site accesses instead of one.
  - The traffic signal controlled junctions at Braye Crossroads and St Clair Hill/Vale Road are re-modelled using the current timings, which we have obtained from THS.
  - The summary and conclusions are tweaked.
- 1.4 From this point forward, the section and paragraph numbering in this report is consistent with the TIA and only revised text is presented.

## 6 Highway Impact

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### Trip Distribution

- 6.1** The distribution of trips generated by the proposed housing is a refinement of the estimate derived in the HTA Study Report. It is based on the location of employment in Guernsey, as the majority of trips in the peak hours are journeys to/from work. On the face of it, a prime location for employment opportunities would be in the Bulwer Avenue/Bridge area. However, in reality, this area accommodates just 5% of Guernsey jobs. In comparison, St Peter Port accounts for 29% of jobs and in and around the area of Princess Elizabeth Hospital for 23%.
- 6.2** Generally, people like to live in close proximity to their place of work and reduce the time and cost associated with commuting long distances. Given the relatively short distances Guernsey residents have to travel to places of employment, this ideal is likely to be less pronounced than mainland UK. Nonetheless, for future residents of the Pointues Rocques site, it seems likely that jobs in the north of the island would be more attractive and people would be less inclined to travel to the south of the island. The trip distribution is therefore weighted: 100% north (St Sampson, Peter Port), 67% mid (Carmel, Hougue Fouque) and 33% south. These percentages represent a weighting ratio of 3:2:1. The weights assigned to each area reflect its relative importance based on its closer proximity to Pointues Rocques. This is a simple methodology to put greater emphasis on job availability nearer to the site and the table and graphic in Appendix O illustrate how the weighting is applied across the island's employment areas.

### Link Impact

#### St Clair Hill/Rue des Pointues Rocques

- 6.12** The impact for the scenarios with a single point of access would be less than 10% at St Clair Hill/Rue des Pointues Rocques junction and does not warrant capacity assessment. For the two-access scenarios, the impact would be significant and the sightline in the direction of oncoming traffic would need to be improved.

### Off-Site Highway Works

- 6.19** Having a second point of access to the site off Rue des Pointues Rocques would overcome the need to improve Route Militaire/Robergerie Road T-junction. However, any increase in traffic on Rue des Pointues Rocques would necessitate improvements to the St Clair Hill/Rue des Pointues Rocques junction because the sightline in the direction of oncoming traffic is sub-standard.

## Access Options

- 6.20** The benefits of having either one or two points of access to the site have been discussed both within the project team and with THS officers. Appendix N contains a tabular comparison for the potential impacts of the access options for a variety of issues, such as dispersal of traffic and car parking. The table demonstrates that, overall, two points of accesses would have more adverse impacts than one point of access. Our recommendation is therefore that the Pointues Rocques site should be developed with one point of access only, which would be off Robergerie Road.
- 6.21** This methodology may be considered slightly crude because it gives the same emphasis in the decision-making to all the issues, some of which are not road safety or traffic management matters. However, attempting to weight the various impacts would inevitably be subjective. For example, whilst partial demolition of a granite wall is a conservation issue rather than a traffic management issue, it is undoubtedly a key consideration when considering all the development issues as a whole.
- 6.22** THS remains concerned that the distribution of trips east towards The Bridge would be higher than the 3% estimated in this TIA. THS suggests that the two accesses ought to be seriously considered because the roads in the immediate vicinity of the site are narrow in parts, do not have footpaths and are close to schools and recreational facilities, thereby increased vehicular use would potentially adversely impact on vulnerable road users.
- 6.23** *Guidelines for the Environmental Assessment of Road Traffic* (Institute of Environmental Management & Assessment, 1993) suggest two broad rules of thumb for assessing a range of impacts including pedestrian amenity. Although this is not a recent publication, it remains an authoritative, widely recognised and adopted best practice guide.
- |        |  |
|--------|--|
| Rule 1 | Include highway links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%). |
| Rule 2 | Include any other specifically sensitive areas where traffic flows would increase by 10% or more.                                  |
- 6.24** The figures in Appendix E show that link impact on Robergerie Road east towards Brock Road and The Bridge would be in the range 0-4% for a development with one point of site access. In terms of the two-way traffic flow that would be pertinent to pedestrians, the impact would be 0-2%. This is well below the thresholds for discernible impact even for a sensitive location. However, THS considers the trip distribution to be an underestimate, and we therefore need to assess how much traffic needs to turn east out of the site before the impact will be discernible to vulnerable road users.

**6.25** Table 6.3 below shows the baseline traffic flows and the number of trips generated by the proposed development with different volumes distributed east: 3%, 10% and 20%. It can be seen that the amount of traffic turning east would need to be as much as 20% before it is likely to be considered detrimental to pedestrians.

Table 6.3: Robergerie Link Impact East towards Brock Road

Traffic Conditions	Two-way Traffic Flow			
	One Access			
	Low Density		High Density	
	AM	PM	AM	PM
Base	111	113	111	113
<b>3% trip distribution east (TIA)</b>				
Development	1	1	2	2
Link impact	1%	1%	2%	2%
<b>10% trip distribution east (notional uplift)</b>				
Development	3	4	6	6
Link impact	3%	3%	5%	5%
<b>20% trip distribution east (notional uplift)</b>				
Development	6	7	12	12
Link impact	6%	6%	10%	11%

**6.26** Trip distribution is based on employment data and it seems unlikely that in practical terms the amount of Pointues Rocques traffic turning east could be as much as six times the estimate. We therefore stand by our assertion in para 6.20 that Pointues Rocques could be developed with a single point of access off Robergerie Road.

## 8 Traffic Modelling

### Braye Crossroads

- 8.4** Braye Crossroads is modelled using Linsig with signal timings provided by THS. The information provided specifies that the indicative right turn arrows from Route Militaire South to Braye Rd East and from Braye Rd West to Route Militaire South are not operated unless demanded. Similarly, the pedestrian crossings are only operated when called. In the AM peak, the indicative arrows and pedestrian crossings are rarely demanded and thus have not been modelled. In the PM peak, the indicative arrow from Route Militaire South to Braye Rd East is called more often so is modelled.
- 8.5** The morning peak hour is within capacity for the base AM peak flows with delay on Route Militaire South of around 63 seconds. The background flows (that include committed developments) increase congestion so that Route Militaire South is over capacity and delay increases to 150 seconds. The evening peak hour is within capacity in the base and background flow scenarios. .
- 8.6** Trips generated by the proposed development would not adversely affect queues and delays at Braye Crossroads. Table 8.1 below summarises the junction performance and the signal cycle time is consistent across all of the scenarios at 82 seconds in the AM peak and 106 seconds in the PM peak. Average delay per vehicle is the maximum that occurs on any approach arm.

Table 8.1: Summary of Capacity at Braye Crossroads (THS Signal Timings)

Traffic Conditions	Maximum Average Delay (seconds) <sup>1</sup>			
	Low Density		High Density	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Base	63	34		
Background	150	34		
With proposed development	156	34	163	35

### St Clair Hill/Vale Road/Le Murier Signalised T-Junction

- 8.7** St Clair Hill/Le Murier is modelled using Linsig and all traffic flow scenarios are within capacity. Trips generated by the proposed development would not adversely affect queues and delays at St Clair Hill/Le Murier signal controlled junction. Table 8.4 below summarises the junction performance and the signal cycle time is 65 seconds for

<sup>1</sup> The Average Delay refers to the delay experienced in seconds per PCU (passenger car unit based on the size of the vehicle where a car is one PCU and a bus would be two PCUs) averaged over the modelled hour. In this instance the 'Maximum' refers to the worst arm rather than reporting overall delay for the junction.



the AM peak and PM peak scenarios. Average delay per vehicle is the maximum that occurs on any approach arm. With Le Murier running at its seven second minimum in all scenarios, as stated by THS, this exhibits the maximum delay shown and is unaffected by development trips. Delay on other arms only increases by around five seconds as a result of the development.

Table 8.4: Summary of Capacity at St Clair Hill/Vale Road/Le Murier

Traffic Conditions	Maximum Average Delay (seconds)			
	Low Density		High Density	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Base	42	44		
Background	42	44		
With proposed development	42	44	42	44

## 9 Summary and Recommendations

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- 9.15** Traffic modelling looks at the impact on four critical junctions:
- Braye Crossroads;
  - Route Militaire/Robergerie Road priority T-junction;
  - St Clair Hill/Rue des Pointues Rocques priority T-junction; and
  - St Clair Hill/Vale Road/Le Murier signal controlled T-junction.
- 9.16** The Braye Crossroads is within capacity in the AM peak for the base model with current traffic flows. Including the committed development trips increases the congestion and delay on Route Militaire South, which increases with committed development. The trips generated by the proposed development would not worsen the delays. The PM peak operates within capacity in all scenarios. All other junctions would be within capacity for all scenarios tested.
- 9.19** Proposed highway mitigation measures would overcome any potential adverse impacts on transport infrastructure and the proposed housing would not have any residual impacts. A single point of access to the site is recommended off Robergerie Road. The proposed development is suitable in transport terms subject to agreeing the scope of off-site highway works.

## **Appendix O**

### **Trip Distribution Weightings**

**Trip Distribution: Site Specific Weighting for Pointues Rocques**

Jobs in the north of the island would be more attractive to residents and people would be less inclined to travel to the south of the island. The trip distribution for journeys to work is therefore weighted:

- 100% north - where residents are more likely to work;
- 67% mid - slightly further to travel but still attractive; and
- 33% south - much further to travel and not very attractive.

Location	Survey Area Code	Number of Employees		Distribution without Weighting		Weighting for Pointues Rocques	Distribution with Weighting		Rebased to 100%	
		All Area Codes	Excluding A and MS	Area Codes	North, Mid and South Totals		Area Codes	North, Mid and South Totals	Area Codes	North, Mid and South Totals
Outside Areas	A	514								
	MS	4,860								
North (St Sampson, St Peter Port)	T1	1,051	1,051	4%	59%	100%	4%	59%	4%	69%
	T2	3,386	3,386	12%		100%	12%		14%	
	T3	1,576	1,576	6%		100%	6%		7%	
	T4	2,176	2,176	8%		100%	8%		9%	
	1	111	111	0%		100%	0%		0%	
	2	93	93	0%		100%	0%		0%	
	3	275	275	1%		100%	1%		1%	
	4	447	447	2%		100%	2%		2%	
	5	751	751	3%		100%	3%		3%	
	6	250	250	1%		100%	1%		1%	
	7	319	319	1%		100%	1%		1%	
	8	481	481	2%		100%	2%		2%	
	9	283	283	1%		100%	1%		1%	
	10	553	553	2%		100%	2%		2%	
	11	356	356	1%		100%	1%		1%	
	12	526	526	2%		100%	2%		2%	
	15	1,113	1,113	4%		100%	4%		5%	
	16	1,773	1,773	6%		100%	6%		7%	
	20	468	468	2%		100%	2%		2%	
	21	614	614	2%		100%	2%		3%	
Mid (Carmel, Hougue Fougue)	13	185	185	1%	37%	67%	0%	25%	1%	29%
	14	335	335	1%		67%	1%		1%	
	17	145	145	1%		67%	0%		0%	
	18	151	151	1%		67%	0%		0%	
	19	431	431	2%		67%	1%		1%	
	22	453	453	2%		67%	1%		1%	
	23	740	740	3%		67%	2%		2%	
	24	170	170	1%		67%	0%		0%	
	25	6,357	6,357	23%		67%	15%		18%	
	26	206	206	1%		67%	0%		1%	
	27	772	772	3%		67%	2%		2%	
	28	190	190	1%		67%	0%		1%	
South	29	305	305	1%		67%	1%		1%	
	30	581	581	2%	4%	33%	1%	1%	1%	1%
	31	207	207	1%		33%	0%		0%	
	32	206	206	1%		33%	0%		0%	
Total		33,410	28,036	100%	100%		85%	85%	100%	100%

