

N7 Online Bus Stops Safety Review

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Objective

Presentation Objective

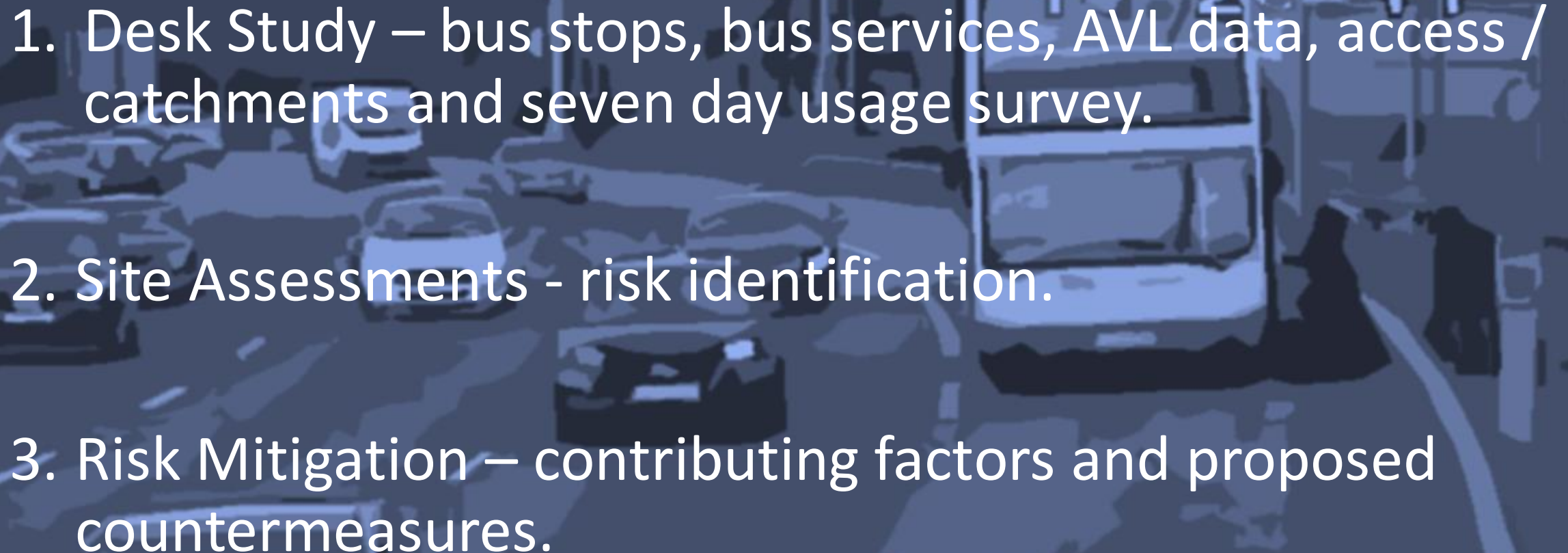
To highlight the process and outcomes of the N7 On-Line Bus Stops Safety Review which was commissioned by TII to establish and document the usage of the existing on-line bus stops on the N7, establish their associated operational risks and then propose a suite of countermeasures to mitigate the risks identified.

A blue-tinted photograph of a road scene. In the foreground, there is a metal guardrail. A white car is driving on the road to the right. In the background, there is a building with a large arched entrance and some trees. The sky is overcast.

The Process

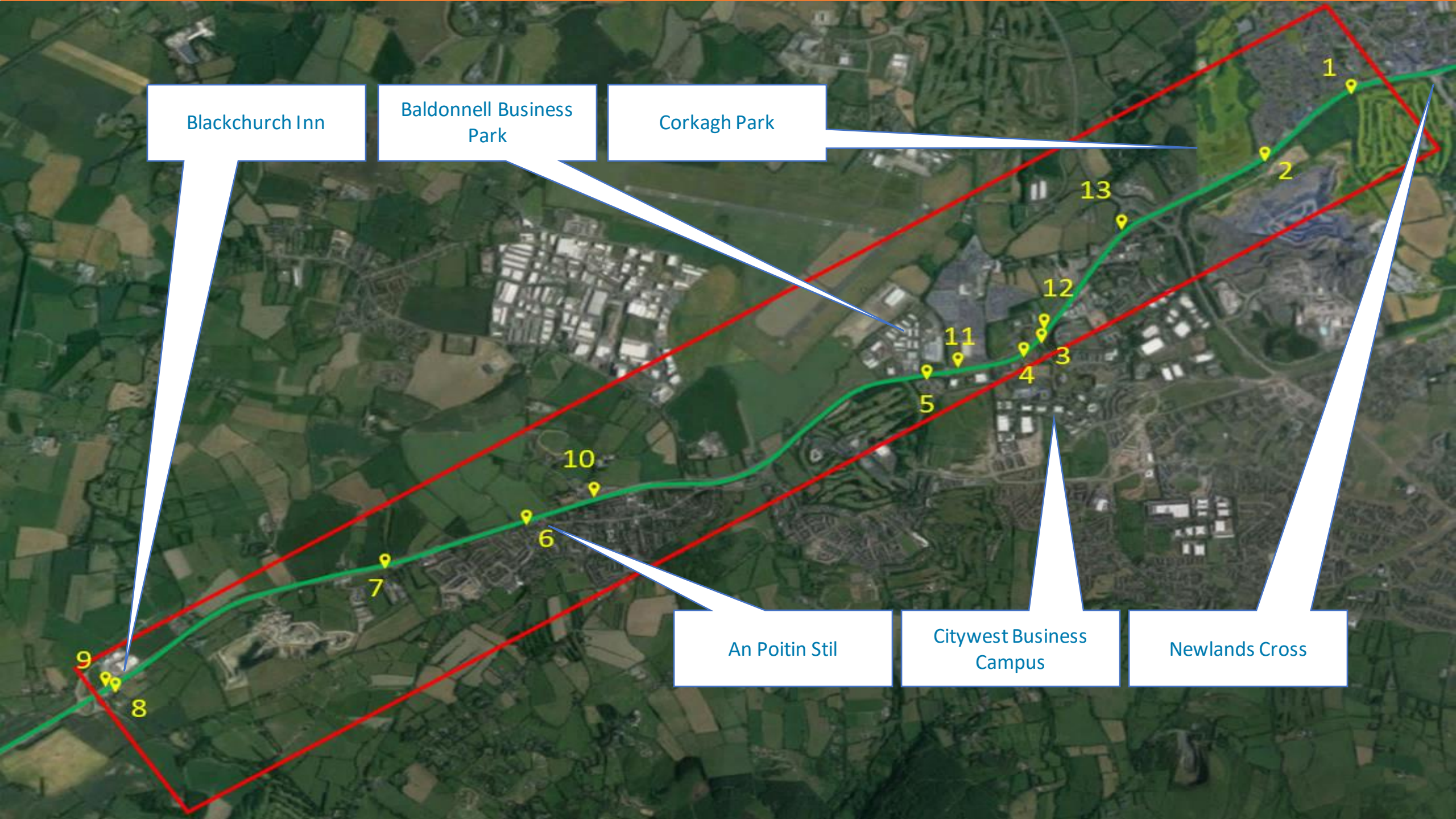


Study Process

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- A blue-tinted photograph of a busy street scene. In the foreground, a white bus is stopped at a bus stop. Several cars are visible in the background, some of which are also stopped. The scene is captured from a slightly elevated angle, showing the flow of traffic and the presence of the bus stop.
1. Desk Study – bus stops, bus services, AVL data, access / catchments and seven day usage survey.
 2. Site Assessments - risk identification.
 3. Risk Mitigation – contributing factors and proposed countermeasures.

Study Area





Blackchurch Inn

Baldonnell Business Park

Corkagh Park

An Poitin Stil

Citywest Business Campus

Newlands Cross

Demand Assessment

Bus Stops & Use of AVL Data to Discount Use

No.	Stop ID	Bus Route	Bus Stop Name	Demand Identified from AVL Data
1	3428	69x	Outbound, Naas Road, Bushfield	✗
2	3429	69x	Outbound, Naas Road, Cheeverstown	✓
3	134201	124, 130	Outbound, Kingswood Cross	✓
4	151901	124, 126, 130	Outbound, City West	✓
5	105121	124, 130	Outbound, Saggart Cross	✗
6	133951	124, 126, 130	Outbound, Rathcoole	✓
7	133721	124, 130	Outbound, Keatings Park	✗
8	133521	124, 130	Outbound, Blackchurch Inn	✓
9	136351	124, 130	Inbound, Opposite Blackchurch Inn	✗
10	104301	124, 126, 130	Inbound, Rathcoole (Slip Rd)	✓
11	105671	124, 126, 130	Inbound, Saggart Cross	✓
12	136331 / 136321	124, 130	Inbound, City West	✓
13	N/A	N/A	Inbound, Kingswood	✗

*AVL Data was limited to Bus Éireann and Dublin Bus services.

*AVL Data is used to denote dwell time at the stops. The data is presented as average dwell time at a stop over a year period.

Bus Stop Pedestrian Access & Catchments (Sample)

Pedestrian Access & Catchments – Site 6 (high use)

Figure 2-7 - Site 6 (Stop ID 133951) Outbound, Rathcoole



Pedestrian Access & Catchments – Site 9 (low use)

Figure 2-10 - Site 9 (Stop ID 136351) Inbound, Opposite Blackchurch Inn



Seven Day Bus Stop Demand Survey

Summary of Seven Day Bus Stops Demand Survey

No.	Stop ID	Stop Name	Operator Observed to Stop	Bus Stop Facilities Present	Alighting	Boarding
1	3428	Outbound, Naas Road, Bushfield	None	✗	None	None
2	3429	Outbound, Naas Road, Cheeverstown	Dublin Bus	✓	5	None
3	134201	Outbound, Kingswood Cross	None	✗	None	None
4	151901	Outbound, City West	Bus Éireann Martley's Expressways	✓	None	41
5	105121	Outbound, Saggart Cross	Bus Éireann	✓	2	None
6	133951	Outbound, Rathcoole	Bus Éireann Expressways	✓	2	62
7	133721	Outbound, Keatings Park	None	✗	None	None
8	133521	Outbound, Blackchurch Inn	Bus Éireann	✗	1	0
9	136351	Inbound, Opposite Blackchurch Inn	None	✗	None	None
10	104301	Inbound, Rathcoole (Slip Rd)	Bus Éireann Expressways	✓	52	None
11	105671	Inbound, Saggart Cross	Bus Éireann Martley's Expressways	✓	35	None
12	136331 136321	Inbound, City West	Bus Éireann Expressways	✓	2	None
13	None	Inbound, Kingswood	None	✓	None	None

Site Assessment & Risk Identification (sample)

Site Assessment & Risk Identification – Site 6 (high use)

3.2.6. Site 6 – (Stop ID 133951) Outbound, Rathcoole

A Bus Éireann marker post and sign were identified during the site visit. The marker post was located in the vicinity of Rathcoole and An Poitín Stil and is served by a narrow pedestrian footpath which runs beside the hard shoulder.

The bus stop is situated in the hard shoulder, just beyond the termination of an uphill merge lane which services the preceding Rathcoole compact junction. This places a stationary bus at high risk of rear end / shunt collisions.

There are no safety barrier or protective measures in place at this location.

Figure 3-10 - Bus Stop location in hard shoulder at end of Rathcoole merge lane



Figure 2-7 - Site 6 (Stop ID 133951) Outbound, Rathcoole



Site Assessment & Risk Identification – Site 9 (low use)

3.2.9. Site 9 (Stop ID 136351) Inbound, Opposite Blackchurch Inn

Bus stop infrastructure was not identified at this stop during the site visit, nor were pedestrian facilities or evidence of pedestrian walking routes in the verge. This is reflected within the AVL data considered which shows no user activity.

This site is highly inaccessible from a pedestrian perspective. It is positioned in the verge on a section of raised embankment behind a continuous safety barrier.

Figure 3-13 - Inaccessible Stop opposite Blackchurch Inn, in verge behind safety barrier



Figure 2-10 - Site 9 (Stop ID 136351) Inbound, Opposite Blackchurch Inn



Common Problems



Problems and Risks Common to all N7 Online Bus Stops

1. Pedestrians being struck by an errant vehicle.
2. Buses which stop adjacent to the mainline cause distraction to other drivers and are at risk of being struck by errant vehicles.
3. Buses decelerating out of or accelerating into Lane 1 increase the risk of conflict with drivers on the mainline.
4. The presence of stationary buses, merging or diverging buses may result in sudden lane changing / conflicts.



Risk Mitigation / Countermeasures (sample)

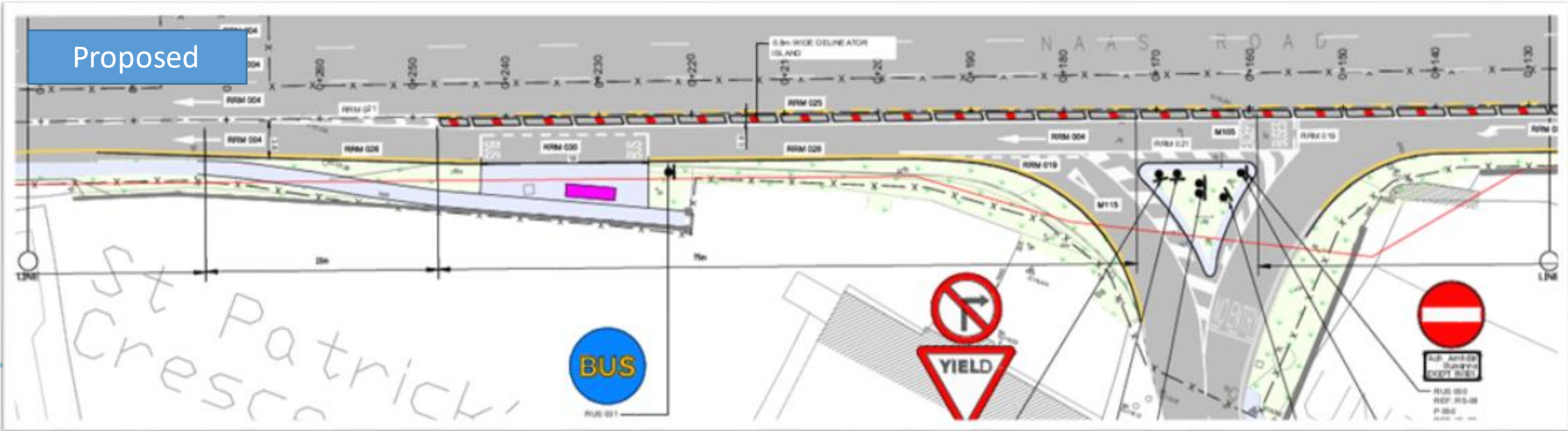
Initial Risk Mitigation – Site 6 (high use)

No.	Stop ID	Stop Name	Usage Summary	Summary of Contributing Factors & Resultant Risks	Proposed Countermeasures
6	133951	Outbound, Rathcoole	Medium	The bus stop is served by a substandard footpath adjacent to the hard shoulder, just beyond the termination of an uphill merge lane. This places users at risk of conflict with high speed traffic and a stationary bus at high risk of rear end shunt collisions.	Removal of existing bus stop infrastructure and development of new protected off-line stop some 30m to the west, in an area of embankment between the edge of the hard shoulder and the rear gardens associated with dwelling houses on Windmill Close.
7	133721	Outbound, Keatings Park	None	No pedestrian facilities and the stop is located in the verge within the extents of a merge lane, placing a potential stationary bus at high risk of a rear end shunt collision. The verge indicates a history of unlawful HGV parking.	Extinguishment of bus stop operation.

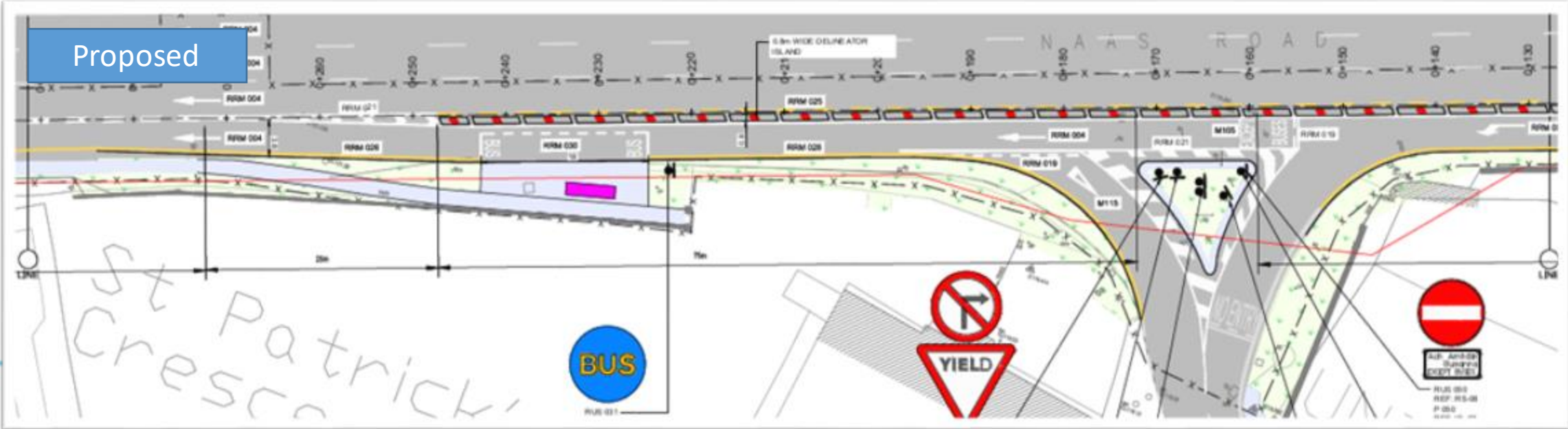
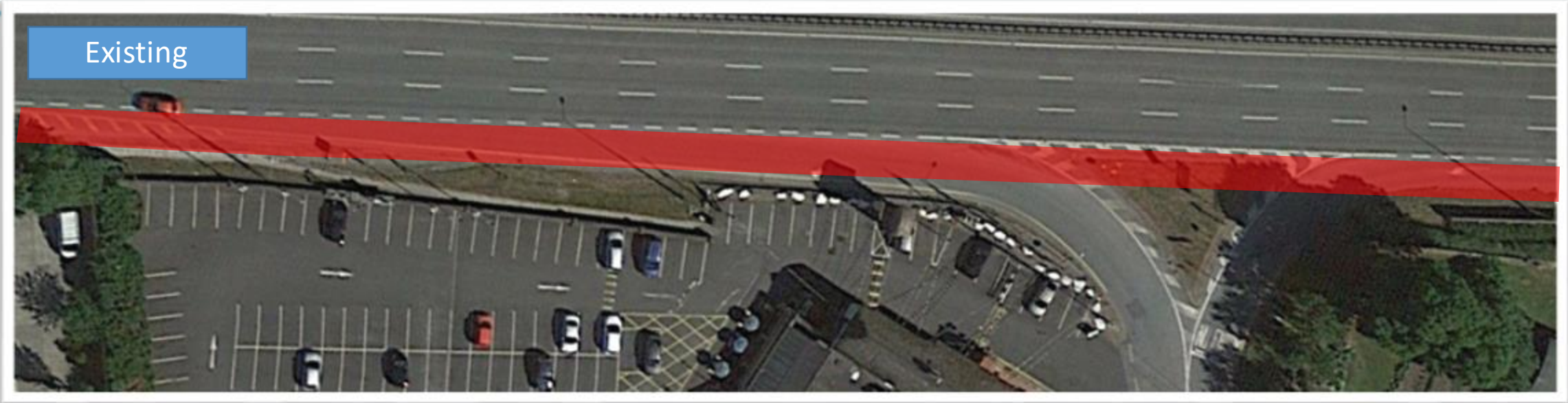
Figure 2-7 - Site 6 (Stop ID 133951) Outbound, Rathcoole



Final Risk Mitigation & Implementation – Site 6 (high use)



Final Risk Mitigation & Implementation – Site 6 (high use)



Risk Mitigation – Site 9 (low use)

No.	Stop ID	Stop Name	Usage Summary	Summary of Contributing Factors & Resultant Risks	Proposed Countermeasures
6	133951	Outbound, Rathcoole	Medium	The bus stop is served by a substandard footpath adjacent to the hard shoulder, just beyond the termination of an uphill merge lane. This places users at risk of conflict with high speed traffic and a stationary bus at high risk of rear end shunt collisions.	Removal of existing bus stop infrastructure and development of new protected off-line stop some 30m to the west, in an area of embankment between the edge of the hard shoulder and the rear gardens associated with dwelling houses on Windmill Close.
7	133721	Outbound, Keatings Park	None	No pedestrian facilities and the stop is located in the verge within the extents of a merge lane, placing a potential stationary bus at high risk of a rear end shunt collision. The verge indicates a history of unlawful HGV parking.	Extinguishment of bus stop operation.
8	133521	Outbound, Blackchurch Inn	Low	No pedestrian facilities and the stop is positioned within a short deceleration lane serving the Blackchurch Inn, immediately in advance of the left-in entry point to the site car park. This places a stationary bus at high risk of rear end shunt collisions.	Extinguishment of bus stop operation.
9	136351	Inbound, Opposite Blackchurch Inn	None	This inaccessible stop has no pedestrian facilities and is positioned in the verge on a section of raised embankment behind a continuous safety barrier.	Extinguishment of bus stop operation.
10	104301	Inbound, Rathcoole (Slip Rd)	Medium	This set-down stop is located at the beginning of diverge lane at the end of a fast-downhill section of the mainline carriageway, this places a stationary bus at high risk of rear end shunt collisions. Anecdotal evidence suggests buses have been known to stop on the mainline in the section of chevrons on the outside of the traffic delineators.	Removal of existing bus stop infrastructure and relocation of the stop circa 500m east to a new position in Lane 1, at the top of the diverge ramp where it splits into two lanes in advance of the northern junction roundabout.

Figure 2-10 - Site 9 (Stop ID 136351) Inbound, Opposite Blackchurch Inn



Video Feed – Bus Stop Operation

**Not for the frail of heart!*

Site 6 – Rathcoole (pedestrian exposure)



Site 11 – Saggart Cross (forced merging in AM peak)



Site 4 – City West (peds jumping barrier)



Thank you!

Any Questions?

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