East Lothian Modelling Framework

Developer Contribution Framework: Outline Methodology

Technical Note

On behalf of **East Lothian Council**

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1 Introduction

1.1 Purpose

1.1.1 East Lothian Council (ELC) has prepared its Local Development Plan (LDP) following the approval of the Strategic Development Plan (SDP) for Edinburgh and South East Scotland. ELC commissioned Peter Brett Associates (PBA) and SYSTRA to undertake a Transport Appraisal of the implications of housing and economic land allocations on the transport network in support of the Proposed LDP. The reporting of the Transport Appraisal is documented in "180514 31335 ELLDP Transport Appraisal - DPMTAG Final Report v4.0", PBA May 2018.

1.1.2 Following examination of the proposed LDP by Scottish Ministers, the following recommended changes were proposed to the planning data:

- Prop MH13: Land at Howe Mire Wallyford deleted allocation of 170 homes;
- Prop TT15: Humbie North deleted allocation of 20 homes;
- Prop TT16: East Saltoun deleted allocation of 75 homes; and
- Land at Newtonlees Farm added 115 homes and cemetery.

1.1.3 PBA translated the resulting planning scenario into travel demand and undertook transport model runs to assess the impacts of these changes in comparison to the previous LDP model runs. These model runs have the nomenclature: EDP1 which is used in model application and referenced throughout this Report. A summary of this analysis is included in the addendum within the aforementioned DPMTAG report.

1.1.4 As part of this work, PBA were also asked to provide advice and support to Council officers in preparing the East Lothian Local Development Plan (ELLDP) Draft Supplementary Guidance (SG) Developer Contributions Framework.

1.1.5 The 2016 Draft Supplementary Guidance was informed by an earlier iteration of this methodology. Refinements were made to the modelling including; additional microsimulation work, changes to estimated costs of works and subsequent changes to the apportionment of impacts, which have resulted in changes to contribution values for development sites. ELC will wish to consider these when updating the Supplementary Guidance before adoption.

1.1.6 This Technical Note describes the methodology derived and applied to prepare analytical evidence in support of the developer contribution framework for the EDP1 model runs.

2 General Approach

2.1 Introduction

2.1.1 This chapter summarises the modelling approach adopted for both the LDP and the EDP1 assessment. It is described in more detail (and for the previous LDP model runs) in the "180514 31335 ELLDP Transport Appraisal - DPMTAG Final Report v4.0b" (PBA, May 2018).

2.2 Modelling approach

Requirements

2.2.1 The LDP Transport Appraisal was carried out in accordance with Transport Scotland's Development Planning and Management Transport Appraisal Guidance (DPMTAG) methodology. The East Lothian Proposed Plan aligns with DPMTAG Stage 3, which provides opportunity to reconsider transport options and refresh the Transport Appraisal following MIR consultation. This would further refine deliverability of Transport Options in terms of feasibility, affordability and public acceptability.

Approach

2.2.2 To be compliant with DPMTAG, and reflecting that the East Lothian Local Development Plan (ELLDP) fits in with the SESplan SDP, a Level 3 Appraisal was required to support the Proposed Plan. This suggests the use of modelling tools, preliminary feasibility and design work to identify an adequate technical solution and realistic alternative options necessary to support the ELLDP.

2.2.3 Following discussions with ELC and Transport Scotland, it was agreed that the 2012 version of the SEStran Regional Model (SRM12) should be used for the ELLDP Appraisal. SRM12 is a multi-modal transport model, developed by Transport Scotland, which covers the entire SESplan area (including all of East Lothian) and features road and public transport (PT) assignment models (which reflect traveller route choice), a travel demand model (which reflects mode, destination and time of day choice) and park and ride capability.

2.2.4 SRM12 is a 'strategic' transport model, in that it contains aggregate representations of transport links and zones throughout the East Lothian area. To supplement this, more disaggregate and detailed traffic modelling has also been undertaken. For this, the Musselburgh and Tranent Traffic Model (MTTM), a S-PARAMICS micro-simulation model was developed and applied to provide more robust predictions of ELLDP impact in and around the more urban areas of East Lothian (Musselburgh and Tranent). In addition, local specific junction assessments were also undertaken at certain locations to provide further information relating to the requirement for potential mitigation interventions.

SRM12 Zone System Definition

2.2.5 The SRM12 zoning system is based on groups of standard geographies such as census output areas and data zones and as a consequence, the model travel demand matrices are ultimately developed from data in this spatial format. In locations where there is sparse population, zones will tend to be large and cover a wide area. In East Lothian, there are several cases where the SRM12 zone system has zones of this nature.

2.2.6 The model also includes a number of empty "greenfield zones", which can be used to represent future developments within the existing zone system. In order to create the best spatial representation of new developments in East Lothian, greenfield zones were used for all of the larger scale developments, with zonal boundaries created based on the spatial extent of the site(s) that were being represented. For smaller sites, individual representation was not possible and these were therefore included within existing SRM12 model zones.

Network Assessment

2.2.7 The Appraisal focusses on land-use and transport interventions that are directly relevant to the supply and demand for travel to, from, within and through East Lothian. Two core model scenarios were defined using ELLDP forecast assumptions provided by ELC Planners as follows:

- **Without LDP** land-use development scenario. This includes completed and committed development and transport schemes up to a forecast year of 2024; and
- **With LDP** land-use development scenario. This 2024 scenario is representative of the without LDP scenario plus the addition of a build-out of all identified ELLDP development sites (i.e. those up to and including 2038). It should be noted that, in this case, the 'With LDP' scenario is referred to in modelling terms as 'EDP1'.

2.2.8 These scenarios were modelled within SRM12. Inspection of the forecast scenario road and public transport model networks demonstrated a corresponding predicted change in road vehicle movements and public transport passengers. This indicated that the change in ELLDP development has negative transport impacts on the road and public transport networks in terms of network performance, increased congestion, increased delays to buses and general traffic and increased crowding on the rail network.

Mitigation Assessment

2.2.9 Following the identification of anticipated transport network impacts, a review of potential interventions to mitigate those impacts was undertaken to identify a package of measures that could support the delivery of the ELLDP.

2.2.10 Network impacts identified in SRM12 were considered alongside a list of potential mitigation interventions that were independently prepared based on anticipated ELLDP impacts. This list of potential mitigation measures was then refined using evidence from the various modelling approaches to confirm and conceptually define the interventions to a stage suitable for inclusion in the ELLDP.

2.2.11 Where the SRM12 does not provide sufficient detail, local traffic modelling was undertaken. For each intervention, consideration has been given to the impacts on the transport network and the associated ELLDP development allocations. This has defined a recommended package of proposed interventions that will help address the predicted cumulative impacts associated with the ELLDP.

2.2.12 Where proposed interventions address impacts relating to *specific* development sites, these have been highlighted. These interventions will be allocated to *specific* development allocations in the Proposed Plan and will not be included in the wider ELLDP package where developer contribution zones will be defined.

2.2.13 It is important to note that the mitigation has been derived for a modelled scenario including the full LDP build out by 2024. Phasing and\or partial build out has not been considered in this analysis.

2.3 Recommended Package

2.3.1 Following the mitigation assessment, a list of interventions that will address cumulative impacts was recommended for inclusion in the ELLDP as described in Table 2.1 with indicative *high-level* cost estimates.

Table 2.1 LDP Recommended Interventions

Intervention	Description	Estimated Cost
PROP T15: **Old Craighall A1(T)** Junction Improvements	Signal control of A1 off-slip and A720 approaches with local widening.	£995,000
PROP T17: **Dolphingstone\A1(T)** Interchange Improvements	Local widening and optimisation of signal control staging, phasing and timings.	£256,000
PROP T17: **Salters Road\A1(T)** Interchange Improvements	Local widening on Salters Road and optimisation of signal control staging, phasing and timings.	£272,000
PROP T17: **Bankton Interchange\A1(T)** Interchange Improvements and **A198** Junction	Signal control of northern roundabout with local widening. Redesign of southern roundabout with local widening.	£848,767
PROP T17: **Meadowmill Roundabout** Junction Improvements	Redesign of roundabout and local widening.	£747,000
PROP T9 + PROP T10: **Rail Station Package**	Station platform lengthening at Musselburgh, Wallyford, Prestonpans, Longniddry and Drem rail stations. This would accommodate longer, 8-car, trains. (Cost excludes ScotRail rolling stock changes). Also car park extensions at Longniddry and Drem Stations.	£4,369,000*
PROP T21: **Musselburgh Town Centre Improvements**	Local junction improvements at various locations including introduction of signal control.	£283,000
PROP T27 & T28: **Tranent Town Centre Improvements**	One-way system in town centre.	£449,000
PROP T3: **Active Travel Corridor**	Segregated walk and cycle route extending from Musselburgh to Dunbar via Blindwells and Haddington.	£23,400,000
Total		£31,619,767

* This figure includes estimated costs associated with the lengthening of platforms to cater for 8-car train sets from 6-car train sets. It is considered that the increase of platforms to cater for 6-car train sets is a committed scheme and would carry an additional estimated cost (to that quoted here) of £638,000.

Deliverability

2.3.2 An initial consideration of deliverability in terms of feasibility and public acceptability of the interventions has been undertaken. This has identified where further work on the conceptual interventions is required to deliver them. No significant impacts were identified at this stage.

2.3.3 A critical aspect of the Proposed Plan in terms of deliverability is the definition of a funding mechanism that links land-use development to the associated transport options. This is required to demonstrate that development related capacity constraints on the transport network can be alleviated and associated interventions funded, specifically in terms of developer contributions. For this, a developer contribution mechanism has been prepared with defined contributions zones and the apportionment of developer obligations based on SRM12 travel demand data and model outputs. This is presented in chapter 3.

3 Methodology

3.1 Introduction

3.1.1 The nature of the mitigation solutions varies across the local authority by mode, location and status. As a result, three different methods of approach were developed and adopted as follows:

- **Method 1:** Select link cordon analysis for road and public transport schemes (Select link analysis is a modelling method used to understand where all vehicles (or PT Passengers) passing through a specified link (or links) on the transport network originate from and destinate to);
- **Method 2:** Population and employment catchment analysis for the active travel corridor; and
- **Method 3**: Pre-determined "minded to approve" mitigation infrastructure.

3.1.2 Each of these methods is discussed below.

3.2 Method 1

Overview

3.2.1 When applying Method 1, the key steps to the process for calculating developer contributions for a mitigation infrastructure intervention are as follows:

- Apply select link cordons to the networks and generate select link matrices. This process considers all traffic travelling through the mitigation location and can isolate traffic that has an origin or destination at an LDP development site;
- Identify the development demand scenario which triggers a need for mitigation at each network location, based on SRM capacity and delay outputs[1];
- Calculate total LDP traffic impact at the network location;
- Calculate individual contribution of each development based on net traffic; and
- Determine the proportional contribution share for each development.

Select Link Cordons

3.2.2 For each mitigation location, a set of select link matrices was extracted by creating a cordon of select link points on the SRM network. For junctions, each approach arm was included in the analysis to ensure all traffic was captured. Individual links, to calculate bi-directional flows along a railway line for example, were also used where appropriate.

3.2.3 Select link matrices were then extracted for the following four assigned networks:

- AM LDP Mitigation Network and 'Without LDP' demand;
- PM LDP Mitigation Network and 'Without LDP' demand;
- AM LDP Mitigation Network and 'With LDP' demand; and

[1] Mitigation 'triggers' have been defined for each type of mitigation measures. These can be found in Section 3.5.

- PM LDP Mitigation Network and 'With LDP' demand.

3.2.4 These scenarios were selected to give the best representation of the effects of the additional LDP traffic (over and above the committed scenario) on the proposed mitigation infrastructure.

3.2.5 An example select link cordon is shown for Old Craighall junction in Figure 3.1 below. All of the select link cordons prepared for analysis are presented in Appendix A .

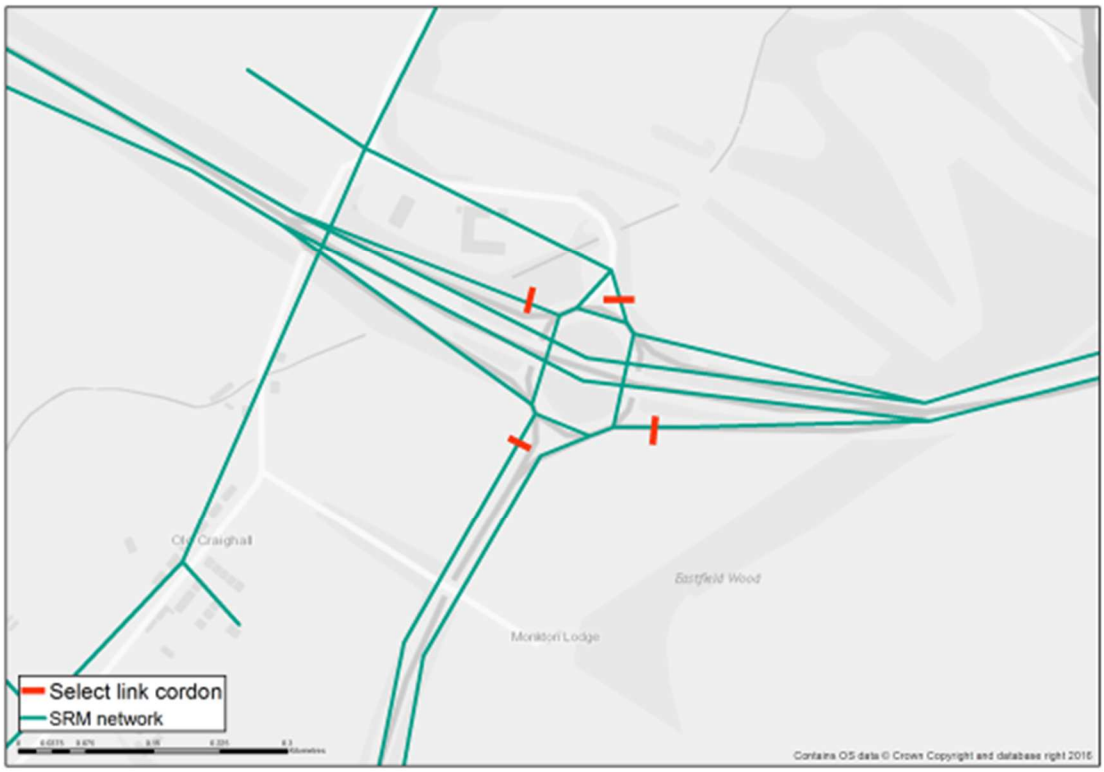

Figure 3.1 Example Select Link Cordon – Old Craighall junction

Calculating LDP Trip Impact

3.2.6 To isolate the contribution of LDP trips to total flows that travel through a mitigation scheme, the four select link matrices were used to calculate the net difference in travel demand through the mitigation location. Both the AM and PM networks were used to generate a total peak effect as follows:

Total Peak LDP Impact = (With LDP AM Trips – Without LDP AM Trips) + (With LDP PM Trips – Without LDP PM Trips)

3.2.7 The zones included in this analysis were determined by identifying only those in East Lothian which had proposed housing or commercial developments in the LDP. Zones with no LDP development were excluded from the calculation. Zones where LDP development existed, but no net new trips were generated, were excluded from the analysis.

Calculating Proportional Impact of Each Development

3.2.8 The proportional share of cost for each aspect of mitigation that would be attributed to each development is calculated using the following steps. The total net number of LDP trips for each zone is calculated using the formula presented in Section 3.2.6 above. This figure, divided by the total LDP trips, gives the percentage share to be contributed by the zone.

3.2.9 In a number of cases, there is only one LDP development within an SRM12 model zone and therefore, the development site's proportional share is equal to the zonal share.

3.2.10 There are also instances where a model zone contains more than one development site. To calculate the relative contribution required by each site within a single zone, the development size is used to determine the proportion of the zonal share. As there are both residential and commercial sites within the proposals, a common denominator was required to allow the size of these different land uses to be compared directly. To do this, the following conversion factor was used to convert residential developments into "pseudo-hectares" of land:

- 1 hectare = 30 dwellings[2]

3.2.11 With all sites now presented in a common unit system, the proportional share of the zonal contribution was then calculated as:

(Individual development hectares / total development hectares)* total zonal contribution

3.2.12 For zones with LDP development that have no select link trips associated with them (i.e. no traffic travelling through the proposed mitigation), these areas would have no calculated contributions.

3.3 Method 2

Spatial Catchment Definition

3.3.1 For mitigation infrastructure not represented in the modelling (ie either in SRM12 or MTTM), an alternative approach was derived to calculate the proportional developer contributions. The mitigation that falls into this category is the Active Travel Corridor.

3.3.2 To undertake this, a spatial catchment of 1.2km either side of the proposed route was defined to determine the area within which developments would be deemed liable for contributions. All LDP developments within this band were included in the contribution zones calculation. The catchment area used for the Active Travel Corridor is illustrated in Figure 3.2 below.

[2] Calculation equivalence in accordance with East Lothian Council Planning policy

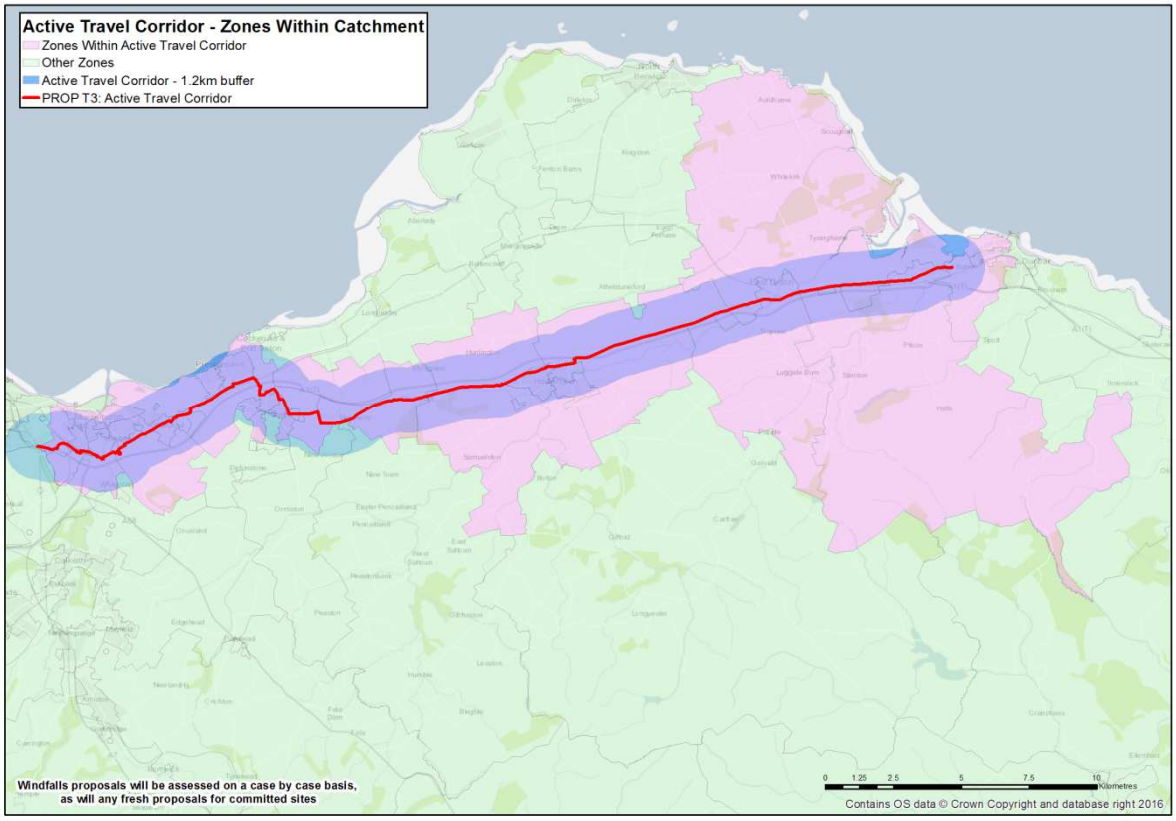

Figure 3.2 Zones Defined as Being Within the Active Travel Corridor Contribution Catchment

Calculating Total Contribution of all LDP Development Within Catchment

3.3.3 This method is based on calculating the net increase in households and jobs as a result of the LDP development. To do this, the total size of LDP development within each of the zones in the contribution catchment was summed and compared with the total household and jobs in the "committed" scenario (which includes base + committed development). To make this comparison, it was necessary to convert the LDP residential data from dwellings into hectares to correspond with the units used in the planning data files, using the same 30 dwellings per hectare factor as presented in Section 3.2.10.

3.3.4 Additionally, it was necessary to convert the base + committed planning data employment figures into pseudo-hectares, so that all development was measured using the same units. This was achieved by using the following development area to jobs factor:

- 1 hectare = 60 jobs[3]

3.3.5 The total LDP share of contributions was then calculated as:

Total Peak LDP Impact = (LDP Development pseudo-hectares within catchment) / (LDP + "Committed+Base" pseudo-hectares within catchment)

Calculating Contribution of Each Development

3.3.6 To calculate the proportional contribution of each development site, the total LDP figure is split across the individual developments based on the size in pseudo-hectares. This figure was

[3] Calculation equivalence in accordance with East Lothian Council Planning policy

calculated at a zonal and development level by using the 30 dwellings per hectare factor. Development site contribution is therefore calculated as:

Development Site Contribution = Development Site pseudo-hectares / Total LDP Development pseudo-hectares

3.4 Method 3

Pre-determined: "Minded to Approve"

3.4.1 In some instances, a mitigation intervention is linked directly to a development site and can be part of the planning approval. Depending on the nature of Section 75 agreement reached, the developer contributions to this may range from a small proportion up to meeting the full 100% of the cost.

3.4.2 For cases where infrastructure has been defined in this way, it is assumed that developer simply meets the costs agreed in Section 75. If the developer is obliged to cover 100% of the cost of the scheme, this is the value used for the contribution; all other developments are exempt from contributing. In instances where a pre-defined proportion of the infrastructure cost has been agreed, for example 20%, then the remaining 80% of the cost will be allocated to contribution zones using the process outlined in Method 1. Note that, however, traffic travelling to/from the development site will be excluded from the select link matrix result calculations, as these trips have essentially had their share covered by the specified contribution element.

3.4.3 The upgrade of Queen Margaret Union Junction on the A1 to an 'all ways' intersection and the Ashgrove Underpass (Dunbar) fall into this category where the developer is obliged to cover 100% of the cost of the scheme. As a consequence, those aspects of mitigation do not require further developer contribution analysis.

3.5 Calculating Proportion of Total Mitigation Costs to be Met by Developers

3.5.1 In the three methodologies outlined above, the calculation of how much of the mitigation costs should be met by LDP developers is calculated using slightly different approaches. A worked example of a developer contribution is provided in Appendix B.

Method 1

3.5.2 **In Method 1**, the total contribution is calculated based on the total net impact of trips (LDP-committed) produced in the select link analysis. For each mitigation measure, one of three different methodologies were used depending upon the modelled scenario in which the part of the network in question was judged to demonstrate operational or safety concerns.

- **Method 1A** is used if operational\safety concerns are present in the 2012 Base Scenario;
- **Method 1B** is used if operational\safety concerns are present in the 2024 Committed scenario; and
- **Method 1C** is used if operational\safety concerns are present in the 2024 ELLDP Without Mitigation Scenario.

3.5.3 Operational or safety concerns at each location through a combination of SRM12 (where the ratio of flow to capacity exceeded 0.85) & MTTM (through visual inspection of the MTTM) model analysis and engineering judgement from discussions between ELC, PBA and SYSTRA.

3.5.4 Table 3.1 below summarises which DCF Methodology applies at each location:

Table 3.1 DCF Methodology Applied to Each Location

Intervention	Significant Congestion by Demand Scenario			DCF Methodology
	2012 Base	2024 Committed	2024 ELLDP (without Mitigation)	
PROP T15: **Old Craighall A1(T)** Junction Improvements	Yes	Yes	Yes	1A
PROP T17: **Dolphingstone\A1(T)** Interchange Improvements			Yes	1C
PROP T17: **Salters Road\A1(T)** Interchange Improvements			Yes	1C
PROP T17: **Bankton Interchange\A1(T)** Interchange Improvements and **A198** Junction			Yes	1C
PROP T17: **Meadowmill Roundabout** Junction Improvements			Yes	1C
PROP T9 + PROP T10: **Rail Station Package**			Yes	1C
PROP T21: **Musselburgh Town Centre Improvements**		Yes	Yes	1B
PROP T27 & T28: **Tranent Town Centre Improvements**			Yes	1C
PROP T3: **Active Travel Corridor**			Yes	2

3.5.5 The proportional figure for DCF Methodology 1A is calculated as:

(LDP select link trips – committed select link trips) / Total LDP select link trips.

3.5.6 The proportional figure for DCF Methodology 1B is calculated as:

(LDP select link trips – committed select link trips) / Total (LDP select link trips – base select link trips)

3.5.7 The proportional figure for DCF Methodology 1C is calculated as:

(LDP select link trips – committed select link trips) / Total (LDP select link trips – committed select link trips)

3.5.8 This percentage of the total cost is then proportioned across all eligible developments using the methodology outlined in Section 3.2. For mitigation measures where DCF Methodology 1C is used, 100% of development costs will be met by the developer.

3.5.9 For **Method 2,** the share of total scheme costs to be met developer is the figure calculated in Section 3.3; total LDP pseudo-hectares divided by all pseudo hectares within the catchment area.

3.5.10 In **Method 3,** the proportion of total costs to be met developers will be stated in the Section 75 agreement. If this was less than 100% of the cost, the remainder is then used as the total cost input to the **Method 1** or **Method 2** calculations above.

4 Outputs

4.1 Introduction

4.1.1 The outputs of the contribution methodology outlined in Chapter 3 are presented below. The information can be presented in several ways, including:

- The proportional contribution of each development site to the costs of mitigation scheme; and
- The contribution(s) of a particular development site to several (or one) mitigation scheme.

4.1.2 The resultant proportion of costs, presented by scheme and also by development site, are included in Appendix D .

4.2 Developer Contribution Zone Plots

4.2.1 Illustrations highlighting the location of contribution zones for each mitigation scheme were prepared. An example contribution zone plot for Old Craighall is provided in Figure 4.1. Further contribution zone plots are presented in Appendix C.

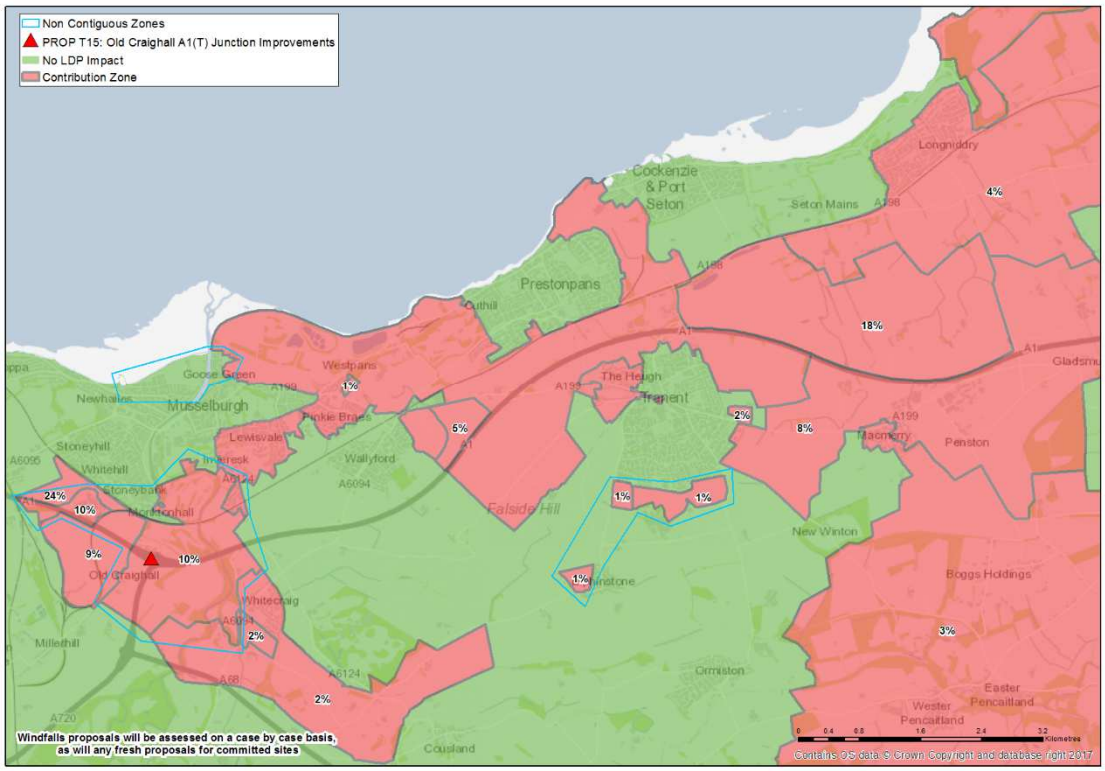

Figure 4.1 Example contribution zones plot for Old Craighall

4.2.2 Within this example graphic, the red shaded SRM12 zones are predicted to have a percentage share in traffic that will route through the mitigation location (in this case, Old Craighall).

4.3 Mitigation Costs – Total LDP Contribution

4.3.1 The proportion of total mitigation scheme costs to be met by developers was calculated as per the methodologies outlined in Chapter 3. The percentage of cost to be met by the LDP developer contributions framework is provided in Table 4.1 below.

Table 4.1 Proportion of mitigation costs to be met by LDP Developments

Intervention	Estimated Cost	% Cost to Developers
PROP T15: **Old Craighall A1(T)** Junction Improvements	£995,000	19.5%
PROP T17: **Dolphingstone\A1(T)** Interchange Improvements	£256,000	100.0%
PROP T17: **Salters Road\A1(T)** Interchange Improvements	£272,000	100.0%
PROP T17: **Bankton Interchange\A1(T)** Interchange Improvements and **A198** Junction	£848,767	100.0%
PROP T17: **Meadowmill Roundabout** Junction Improvements	£747,000	100.0%
PROP T9 + PROP T10: **Rail Station Package**	£4,369,000	100.0%
PROP T21: **Musselburgh Town Centre Improvements**	£283,000	85.9%
PROP T27 & T28: **Tranent Town Centre Improvements**	£449,000	100.0%
PROP T3: **Active Travel Corridor**	£23,400,000	16.5%
Total cost of all mitigation	**£31,619,767**	**35.5%**

Appendix A Select Link Cordons

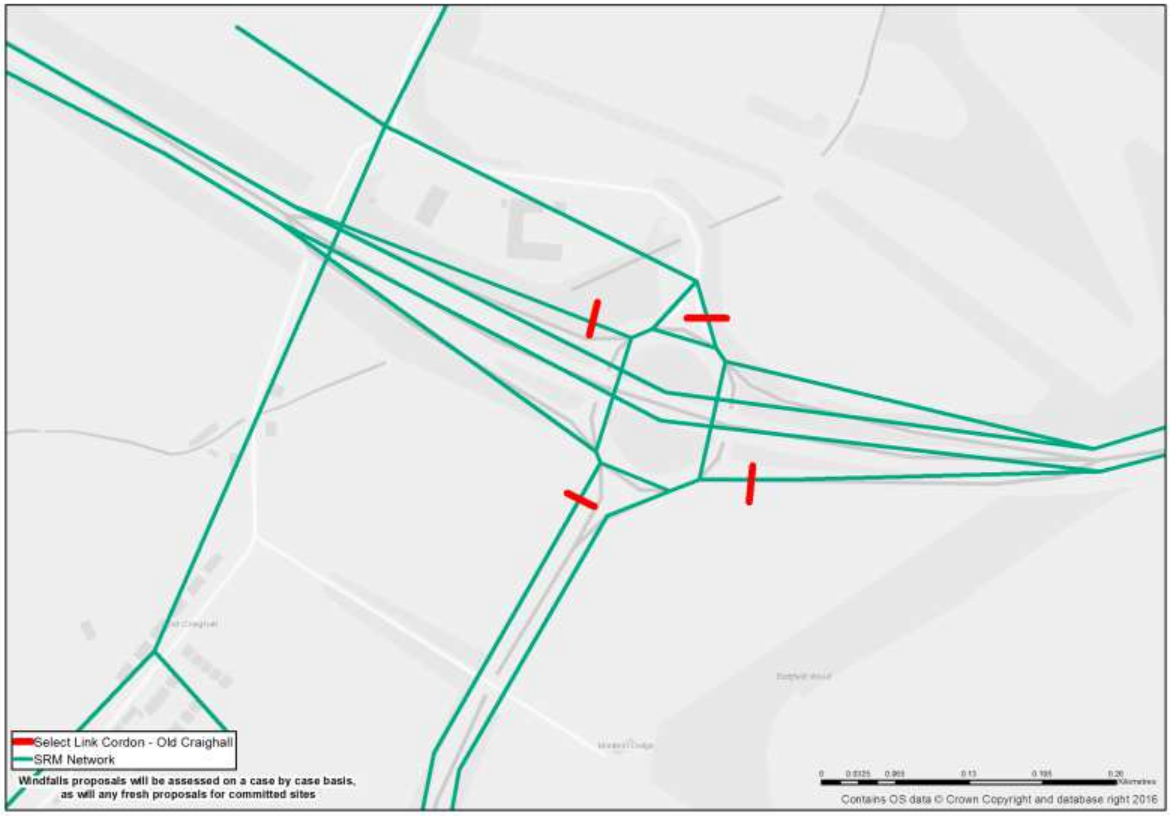

Figure A.1 Select Link Cordon – Old Craighall

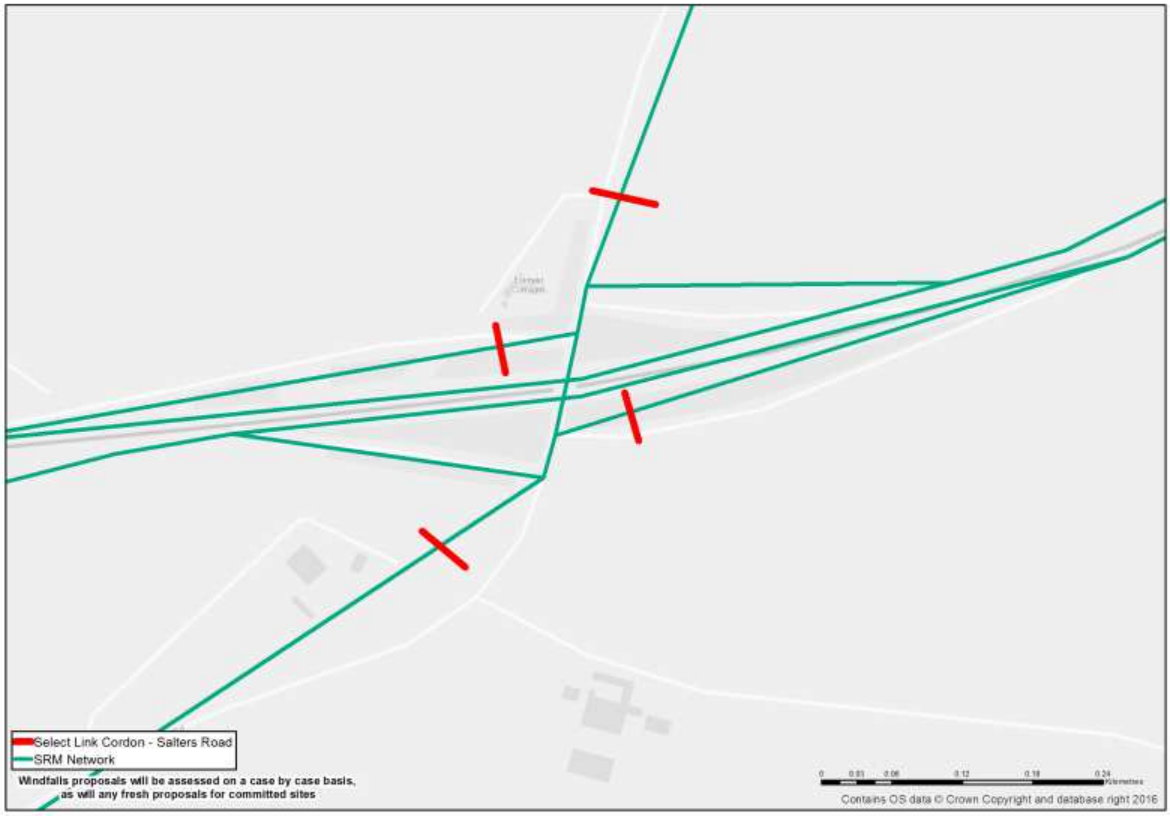

Figure A.2 Select Link Cordon – Salters Road

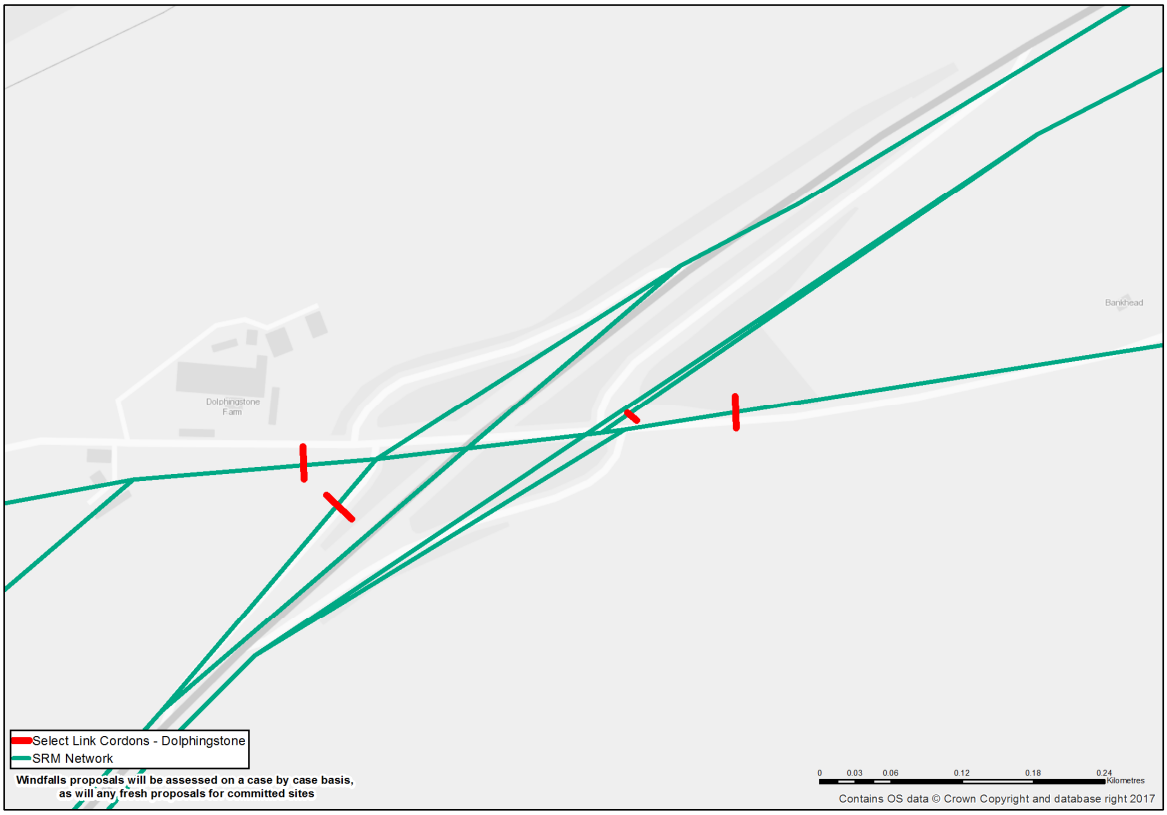

Figure A.3 Select Link Cordon – Dolphingstone

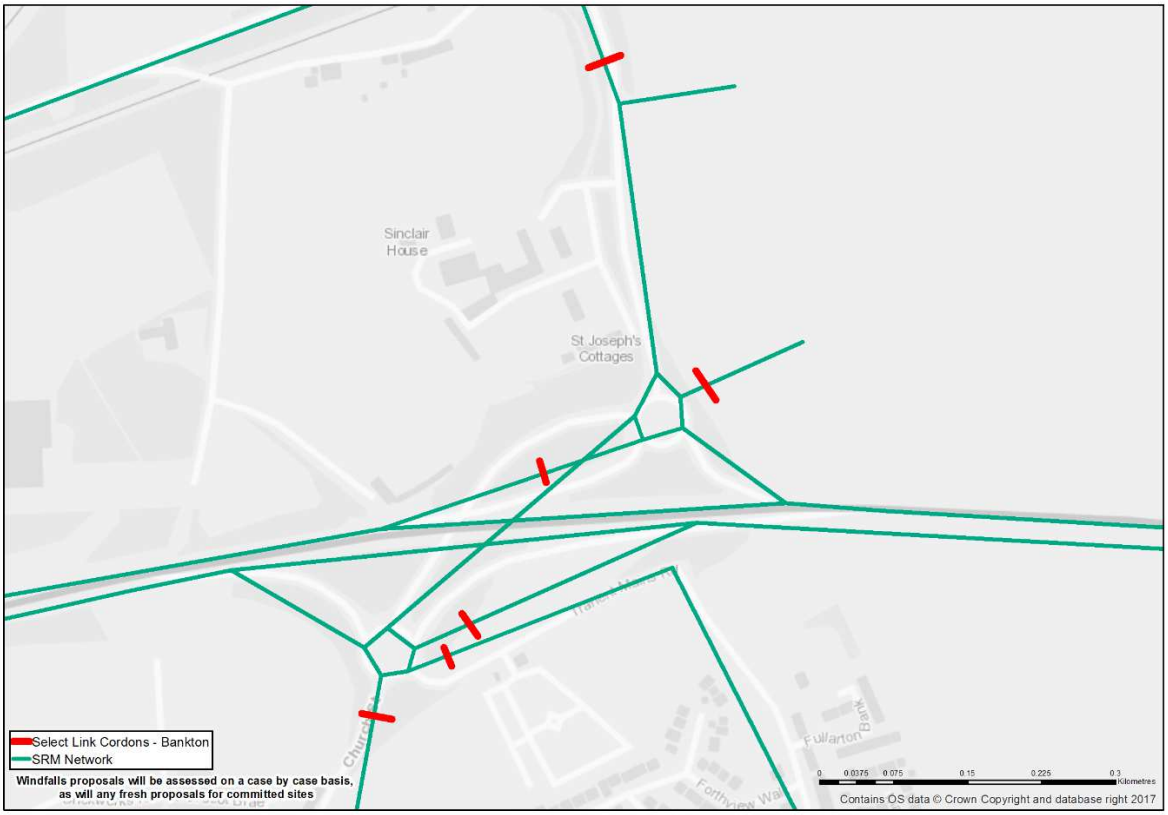

Figure A.4 Select Link Cordon – Bankton

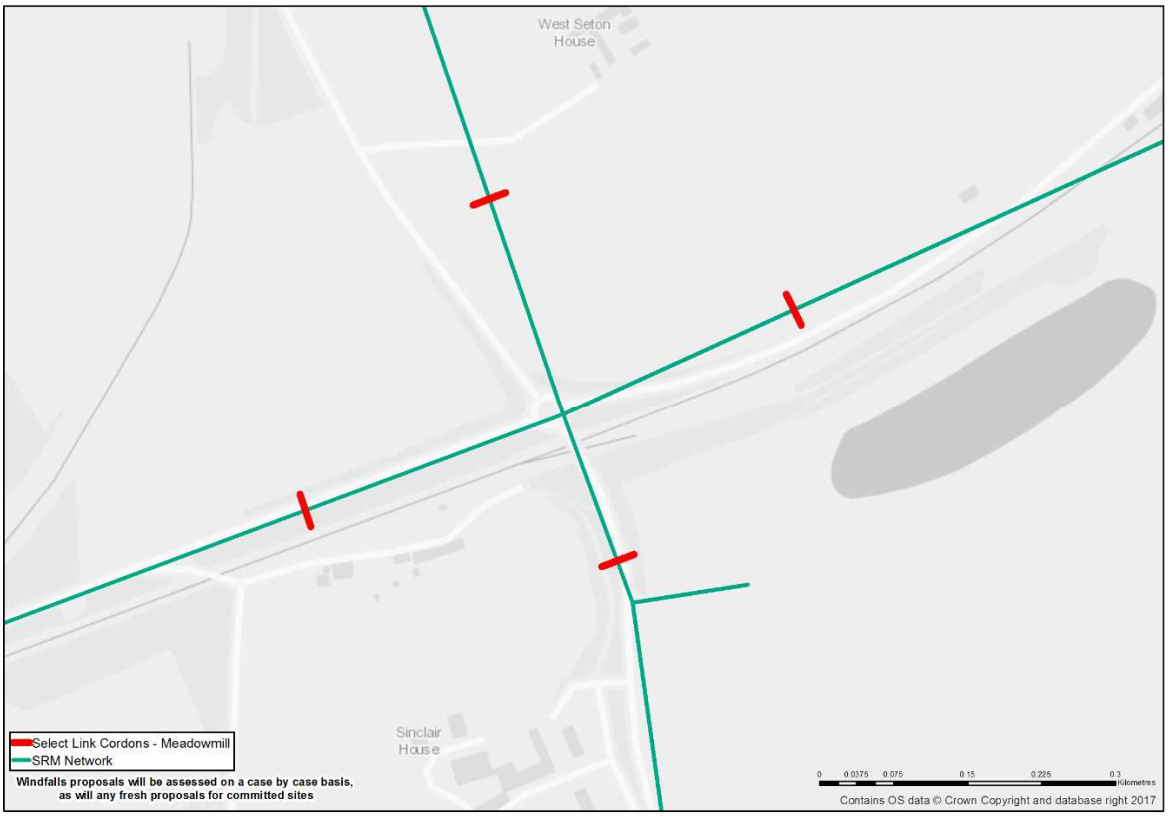

Figure A.5 Select Link Cordon – Meadowmill

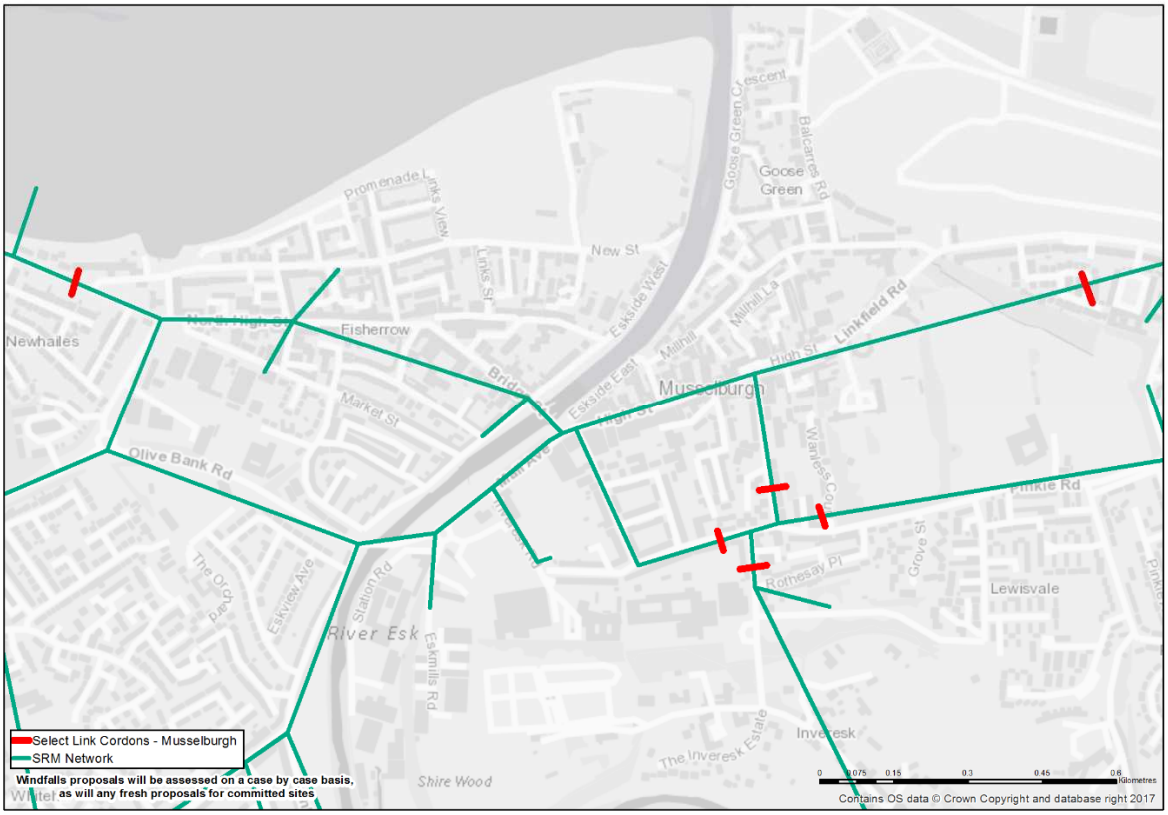

Figure A.6 Select Link Cordon – Musselburgh

Figure A.7 Select Link Cordon – Tranent

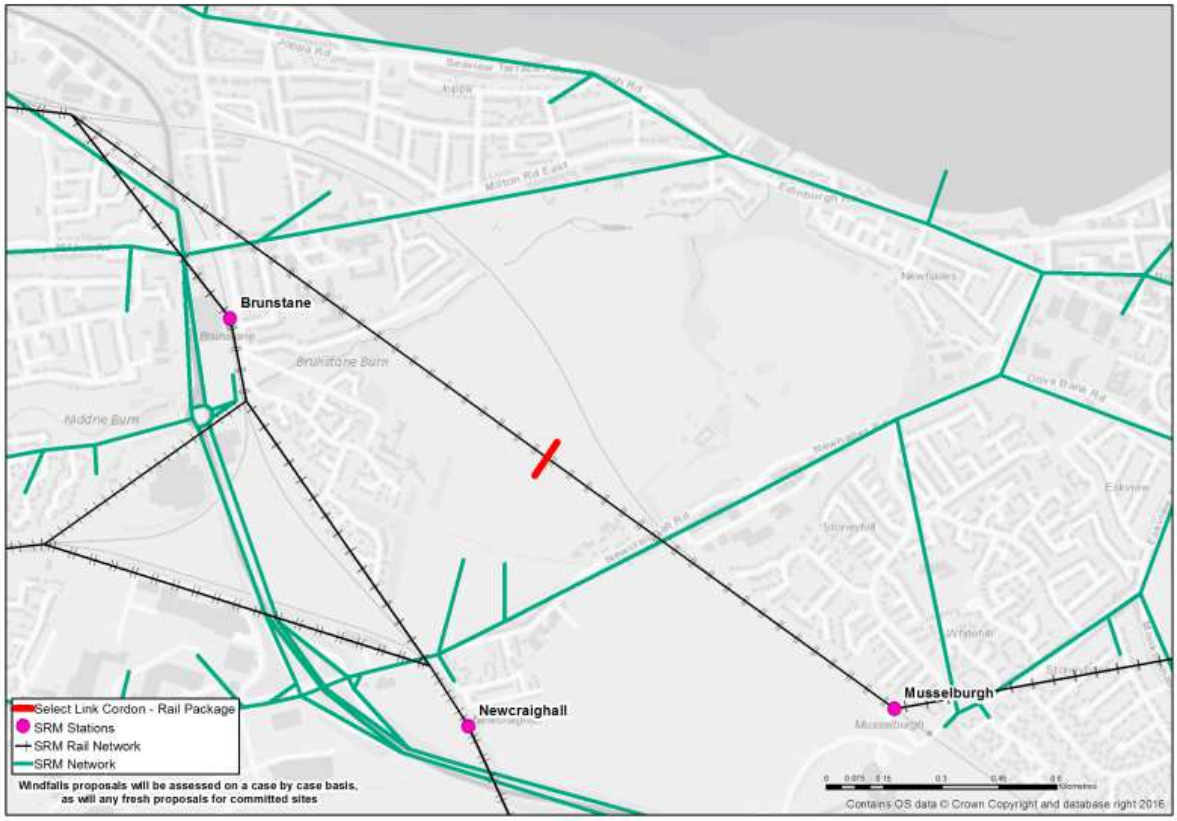

Figure A.8 Select Link Cordon – Rail Package

Appendix B DCF Worked Example

B.1 Calculation of Site Contribution

B.1.1 To demonstrate how the methodology has been applied, a theoretical worked example showing the contribution of an example development at the Blindwells developments to Old Craighall junction improvements is described below. It details the impact of a particular development on a mitigation location where mitigation is required under the base scenario. In this situation base, committed and LDP traffic contribute to the required upgrades.

B.1.2 The select links for Old Craighall were prepared, producing trip distribution patterns of all traffic using the slip roads of the junction (i.e. not including 'through traffic' on the A1), for the AM and PM time periods in both scenarios. To isolate only the trips from LDP development traffic, zone pairs which included a development site were selected; i.e. the origin or destination zone contained an ELLDP site. The distribution of LDP trips using Old Craighall is illustrated in Figure B.1 and Figure B.2 below, with trips starting or ending in the Blindwells zone illustrated in orange. A total of 2,492 net additional peak trips (AM and PM) were calculated to be using the junction.

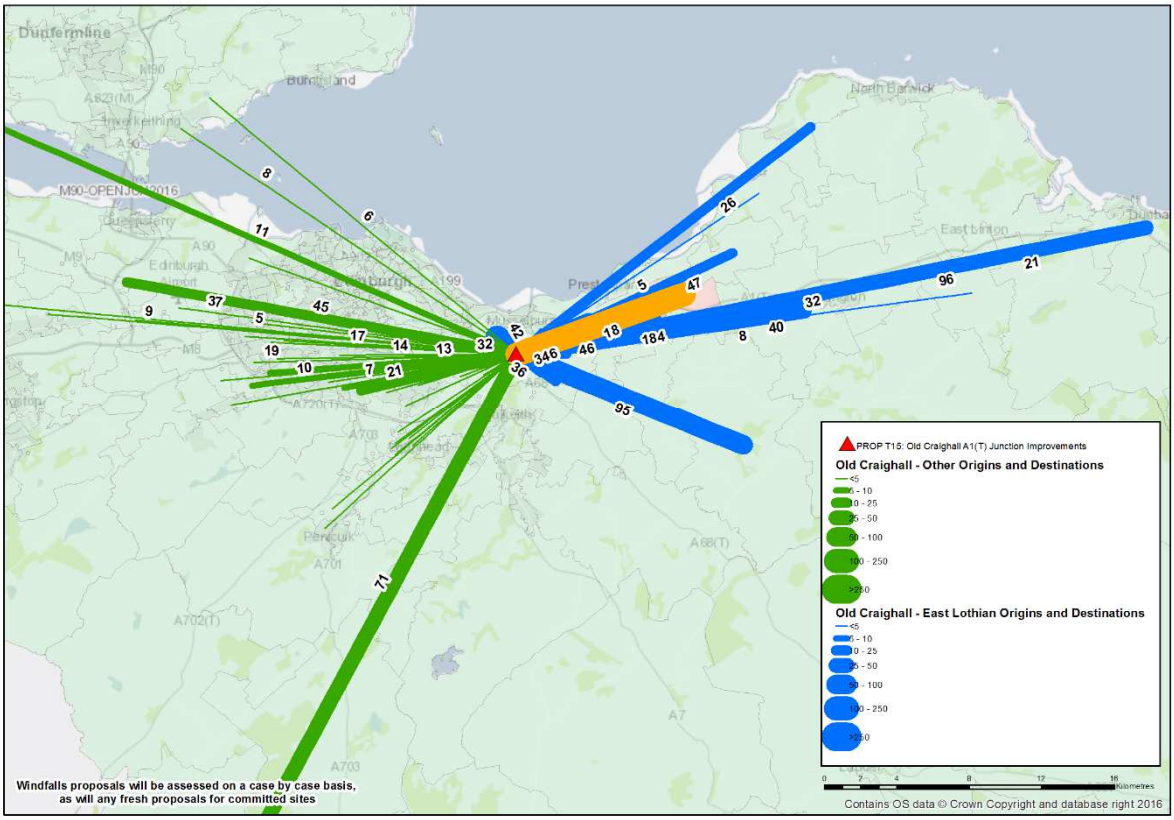

Figure B.1 Distribution of LDP Trips using Old Craighall Junction – Regional View

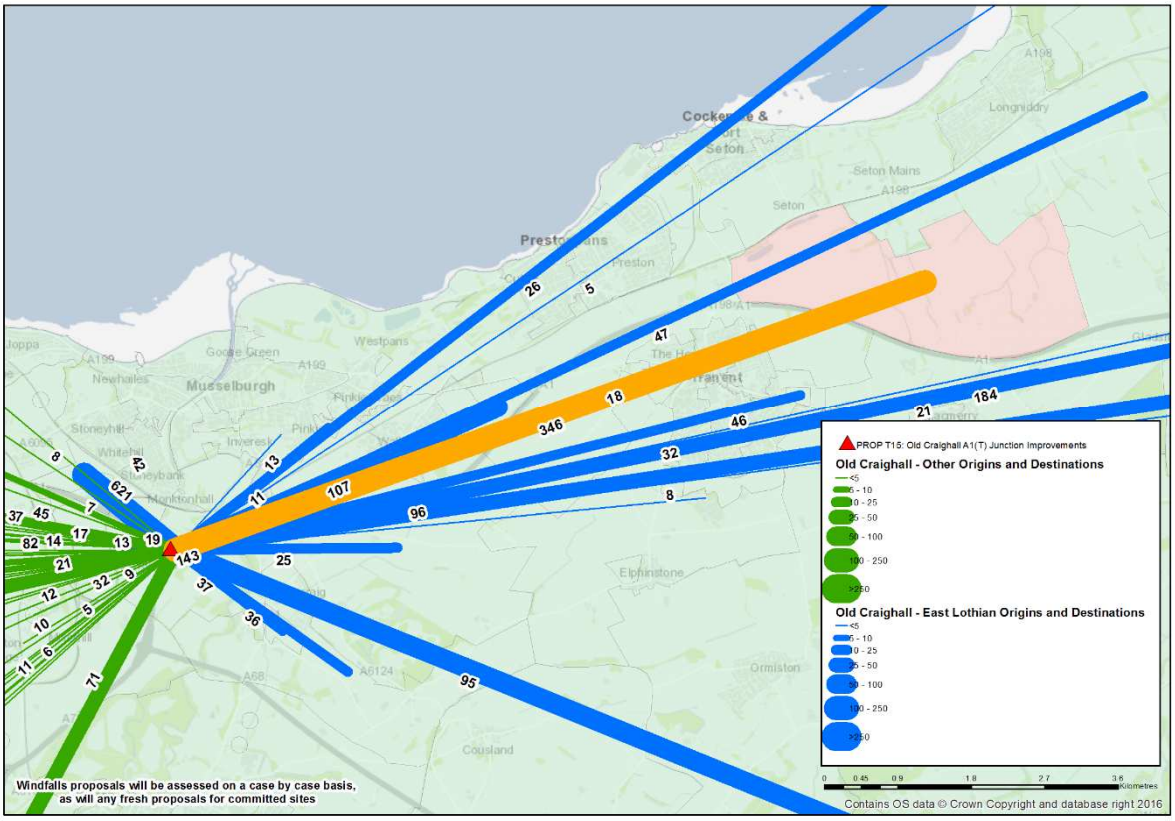

Figure B.2 Distribution of LDP Trips using Old Craighall Junction – Local View

B.1.3 The next step is to calculate the proportion of trips using Old Craighall which are associated with LDP development. Development sites often consist of several sub-developments within a single SRM12 model zone, and that is true of Blindwells. As such, the contribution of LDP sites is calculated first, then the total zonal impact, and then subsequently apportioned across the individual developments within the zone.

B.1.4 The analysis calculates that 449 of the road based trips leaving or entering the Blindwells zone in the AM and PM peaks are travelling via Old Craighall based on the defined select links. The contribution for zones that the Blindwells developments are in to Old Craighall junction is then calculated using the following formula:

Zonal contribution to Old Craighall =

449 Blindwells (Zone 670) peak trips / 2492 total LDP peak trips = 18.0%

B.1.5 Therefore, out of all the LDP development traffic using the slip roads at Old Craighall junction, 18.0% is associated with the zone containing the Blindwells developments.

B.1.6 The final step is to calculate the proportions of the zonal contribution (18.0%) which should be allocated to each of the developments within the zone. In this example, there are three LDP developments within the zone as follows:

- Res_B1: Blindwells Residential Private Housing – 1,120 dwellings;
- Res_B2: Blindwells Residential Social Housing – 480 dwellings; and
- Emp_B1: Blindwells Employment Allocation – 10 hectares.

B.1.7 In order to be able to distribute contributions pro-rata across these residential and commercial sites, a common denominator is required. To derive this, the assumption that 30 dwellings = 1 hectare of land was used, as discussed in Chapter 3. Applying this factor converts all of the developments into the same units (pseudo-hectares), and allows individual site contributions to be calculated as shown in Table B.1 below. Using this method "Res_B1" represents 59% of the zone, "Res_B2" is equal to 25% and the remaining 16% is accounted for by "Emp_B1". These proportions can then be applied to the zone share to give total Old Craighall contributions of 11.1%, 4.8% and 3.0% respectively.

Table B.1 Method for calculating development site contributions

Development Site	Units	Standardised units (hectares)	% of Total Zonal Units	% of Total
Res_B1	1,120 dwellings	37	59%	10.6%
Res_B2	480 dwellings	16	25%	4.6%
Emp_B1	10 hectares	10	16%	2.8%
Zonal Total		63	100%	18.0%

B.1.8 The percentages that appear in Appendix C are derived in this way. Therefore, a developer simply needs to lookup the relevant development site in this table and find the corresponding percentage contribution for each of the mitigation infrastructure schemes listed. However, it is important to note that these percentages are based on LDP site capacities and if these change as new or alternative proposals come forward, so will the percentage and level of contribution.

B.1.9 The above reflects the proportion of total LDP developers' contributions which the Blindwells developers are liable for. Total LDP developer contributions depend on whether a need for mitigation first arises in the base scenario, committed scenario or LDP scenario:

- If mitigation is required in the Base scenario, DCF Method 1A is applied.
- If mitigation is required in the Committed scenario, DCF Method 1B is applied.
- If mitigation is required in the LDP scenario, DCF Method 1C is applied.

B.2 Calculation of Overall Developers' Contribution

DCF Methodology 1A

As noted in Chapter 3, mitigation is required at Old Craighall in the Base Scenario, i.e. without the addition of Committed or LDP traffic, although the latter two generators will exacerbate this issue. As such, Methodology 1A applies and the LDP developers will be liable for the following proportion of total mitigation costs at this location:

(LDP select link trips – committed select link trips) / Total LDP select link trips.

= 2492 / 12586 = 19.8%

B.2.1 Therefore, LDP developers will contribute £197,032 towards Old Craighall Improvements. Blindwells specifically will be liable for 18.0% of this value, i.e. £35,514.

DCF Methodology 1B

B.2.2 Although not the case, if mitigation was found to be required at Old Craighall under the Committed Development scenario but not under the Base scenarios, DCF Methodology 1B

would apply. LDP developers would then be liable for the following proportion of total mitigation costs at Old Craighall:

(LDP select link trips – committed select link trips) / Total (LDP select link trips – base select link trips)

= 2492 / 3311 = 75.3%

B.2.3 If this were the case, LDP developers would contribute £749,036 towards Old Craighall Improvements. Blindwells specifically would been liable for 18.0% of this value, i.e. £135,008.

DCF Methodology 1C

B.2.4 If mitigation was only required at Old Craighall with the addition of LDP traffic, then any upgrades to the junction would be the sole responsibility of LDP developers. Therefore, LDP developers would contribute the full £995,000, and Blindwells specifically would be liable for 18.0% of £995,00 = £179,343.

Appendix C Developer Contributions

Name	Old Craighall	Salters Road	Dolphingstone	Bankton	Meadowmill	Mussel-burgh	Tranent	Rail Package	Active Travel Corridor
Blindwells (Private)	10.8%	5.6%	4.7%	23.4%	12.7%	4.8%	7.2%	18.0%	14.3%
Blindwells (Social)	4.6%	2.4%	2.0%	10.0%	5.5%	2.0%	3.1%	7.7%	6.1%
Blindwells Eastern Expansion (Hargreaves/Kennedy)	-	-	-	-	-	-	-	-	-
Eastern Extension of Allocated Blindwells Site (Hargreaves)	-	-	-	-	-	-	-	-	-
Blindwells East - Hoprig Mains	-	-	-	-	-	-	-	-	-
Abbeylands Dunbar (44 High Steet) (Empire)	-	-	-	0.2%	0.0%	-	0.0%	-	-
Abbeylands Dunbar (Former Hughes Garage)	-	-	-	0.1%	0.0%	-	0.0%	-	-
Hallhill North (250)	0.6%	0.4%	0.6%	0.6%	0.4%	0.3%	0.3%	-	3.2%
Newtonlees North (250)	1.0%	0.3%	0.5%	0.4%	0.5%	0.4%	0.2%	-	-
Brodie Road (50)	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	-	0.6%
Innerwick East (18)	-	-	0.0%	0.3%	0.0%	-	0.0%	-	-
East Linton Western Expansion (100)	0.2%	0.2%	0.3%	0.4%	0.2%	0.1%	0.1%	1.1%	1.3%
St John Street (Spott) (6)	-	-	-	0.8%	0.0%	-	0.1%	-	-
Newtonlees Farm - 115 homes	0.5%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	-	-
Belhaven Hospital Field	-	-	-	0.3%	0.0%	-	0.1%	-	0.5%
Coastguard Site, Dunbar	-	-	-	0.1%	0.0%	-	0.0%	-	-
Assembly Rooms Dunbar	-	-	-	0.1%	0.0%	-	0.0%	-	-
Letham South (275)	1.4%	0.7%	0.8%	0.8%	0.6%	0.3%	0.3%	0.0%	3.5%
Gifford - Gifford Garage	1.4%	0.0%	-	0.3%	0.0%	-	-	-	-
Craighall (700+800)	6.2%	5.9%	4.9%	2.3%	5.4%	2.2%	3.7%	11.9%	19.1%
Levenhall (65)	1.3%	7.8%	1.3%	0.0%	0.4%	1.9%	0.6%	1.1%	0.8%
Edenhall (100)	0.6%	1.5%	1.9%	0.1%	0.5%	27.3%	0.6%	0.0%	1.3%
Dolphingstone (MIR safeguard 400 Homes) (PLDP 600)	4.8%	32.4%	11.3%	1.6%	1.2%	1.7%	4.1%	4.3%	7.6%
Pinkie Mains (127)	-	0.0%	1.7%	0.1%	0.3%	10.2%	0.8%	0.3%	1.7%
Old Craighall East (50)	2.4%	0.8%	0.5%	0.4%	0.8%	2.2%	0.3%	0.0%	0.6%
Whitecraig North (200)	1.8%	5.7%	1.1%	0.6%	0.2%	4.6%	0.8%	0.3%	-
Whitecraig South (300)	1.5%	3.6%	0.4%	0.2%	0.3%	1.5%	0.3%	0.1%	-
Fire Service College (Gullane) (100)	0.2%	0.2%	0.1%	2.3%	0.9%	1.0%	0.4%	0.7%	-
Saltcoats (Gullane) (130)	0.3%	0.2%	0.1%	3.0%	1.2%	1.3%	0.5%	0.9%	-
Castlemains (Dirleton) (30)	0.1%	0.0%	0.0%	0.7%	0.3%	0.3%	0.1%	0.2%	-
Fentoun Gait South (Gullane) (15)	0.0%	0.0%	0.0%	0.3%	0.1%	0.1%	0.1%	0.1%	-
Fentoun Gait East (Gullane) (50)	0.1%	0.1%	0.0%	1.2%	0.5%	0.5%	0.2%	0.3%	-
Aberlady West (100)	0.1%	0.2%	0.1%	2.2%	1.0%	0.7%	0.4%	1.0%	-
Athelstaneford - Mansfield	-	-	0.0%	2.5%	0.6%	0.5%	0.2%	0.1%	-
Longniddry South (450)	3.5%	2.5%	0.7%	12.4%	25.9%	4.8%	3.0%	31.1%	-
Longniddry South Expansion Area (550)	-	-	-	-	-	-	-	-	-
Ormiston - Limeylands Road (Phase 2) (AH)	-	-	-	0.4%	0.0%	-	-	-	-
Pencaitland - Park View (Redmains)	2.6%	0.0%	-	0.9%	0.3%	0.4%	-	0.0%	-
Windygoul South (550)	0.9%	2.4%	8.0%	3.0%	4.6%	4.1%	12.5%	0.2%	-
Lammermoor Terrace (120)	0.8%	0.5%	4.8%	1.0%	0.9%	0.6%	5.0%	0.0%	1.5%
Bankpark Grove (80)	0.4%	2.3%	0.0%	3.1%	6.6%	3.2%	1.0%	0.2%	1.0%
Macmerry North (150)	1.5%	0.8%	5.8%	1.3%	1.7%	1.4%	6.0%	0.0%	1.9%
Elphinstone Road West (80)	0.1%	0.4%	1.2%	0.4%	0.7%	0.6%	1.8%	0.0%	-
Woodhall Road (Pencaitland) (16)	0.8%	0.0%	-	0.3%	0.1%	0.1%	-	0.0%	-
Gladsmuir (20 - 50)	0.2%	0.1%	0.8%	0.2%	0.2%	0.2%	0.8%	0.0%	0.3%
Ormiston - Limeylands Road (AH)	-	-	-	1.0%	0.1%	-	-	-	-

Name	Old Craighall	Salters Road	Dolphingstone	Bankton	Meadowmill	Musselburgh	Tranent	Rail Package	Active Travel Corridor
Blindwells employment allocation	2.9%	1.5%	1.3%	6.3%	3.4%	1.3%	1.9%	4.8%	3.8%
Spott Road, Dunbar	2.9%	1.0%	1.6%	1.1%	1.4%	1.0%	0.7%	-	-
Auction Mart, East Linton	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.3%	0.4%
Gateside East	-	-	-	-	-	-	-	-	-
Gateside West	-	-	-	-	-	-	-	-	-
Gateside West	-	-	-	-	-	-	-	-	-
Peppercraig East	0.2%	0.2%	0.4%	0.2%	0.2%	0.2%	0.1%	0.0%	0.5%
Peppercraig East	0.3%	0.2%	0.4%	0.2%	0.2%	0.3%	0.1%	0.0%	0.6%
Peppercraig East	0.5%	0.5%	0.8%	0.4%	0.5%	0.5%	0.2%	0.0%	1.1%
Peppercraig East	0.2%	0.2%	0.3%	0.1%	0.2%	0.2%	0.1%	0.0%	0.4%
Craighall , North West of QMU	24.3%	9.0%	1.6%	1.7%	1.9%	-	1.1%	10.1%	8.2%
Craighall, South west of QMU	2.5%	2.4%	1.9%	0.9%	2.2%	0.9%	1.5%	4.8%	7.6%
Old Craighall Junction South West	7.3%	2.3%	1.4%	1.1%	2.3%	6.6%	1.0%	0.1%	1.9%
Tantallon Road South	-	-	-	-	-	-	-	-	-
Various employment sites at North Berwick.	-	-	-	-	-	-	-	-	-
Mid Road Industrial Estate West	0.1%	0.9%	0.0%	1.2%	2.5%	1.2%	0.4%	0.1%	0.4%
Windygoul South West	0.4%	1.1%	3.7%	1.4%	2.2%	1.9%	5.8%	0.1%	-
Kingslaw	1.9%	0.3%	8.8%	0.7%	0.9%	0.7%	7.5%	0.0%	1.7%
Macmerry Business Park East	4.4%	2.4%	17.4%	3.8%	5.2%	4.1%	17.9%	0.0%	5.7%
Macmerry Business Park, Greendykes	1.7%	0.9%	6.7%	1.5%	2.0%	1.6%	6.9%	0.0%	2.2%

Appendix D Contribution Zone Plots

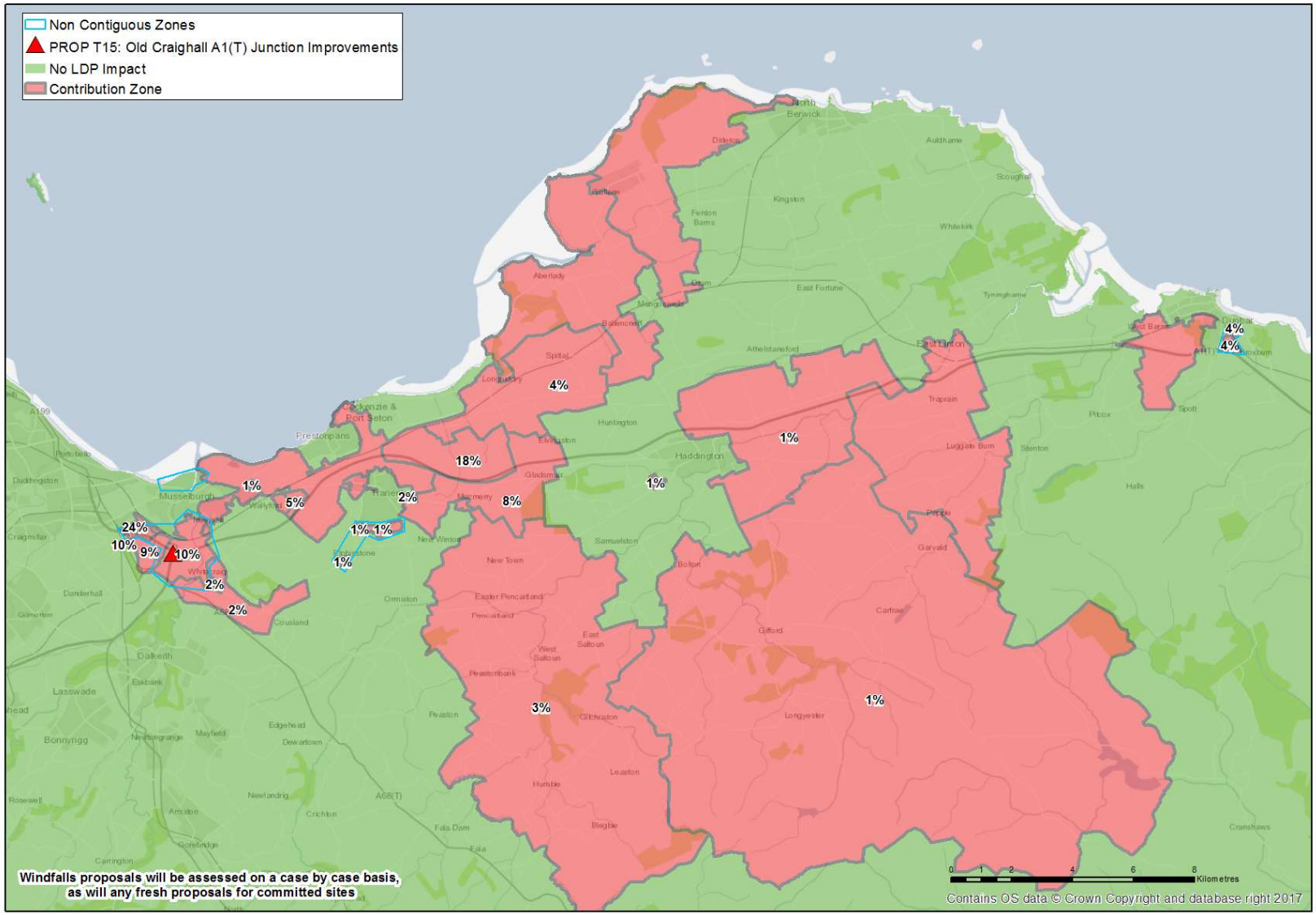

Figure D.1 Contribution Zone Plot – Old Craighall (Full)

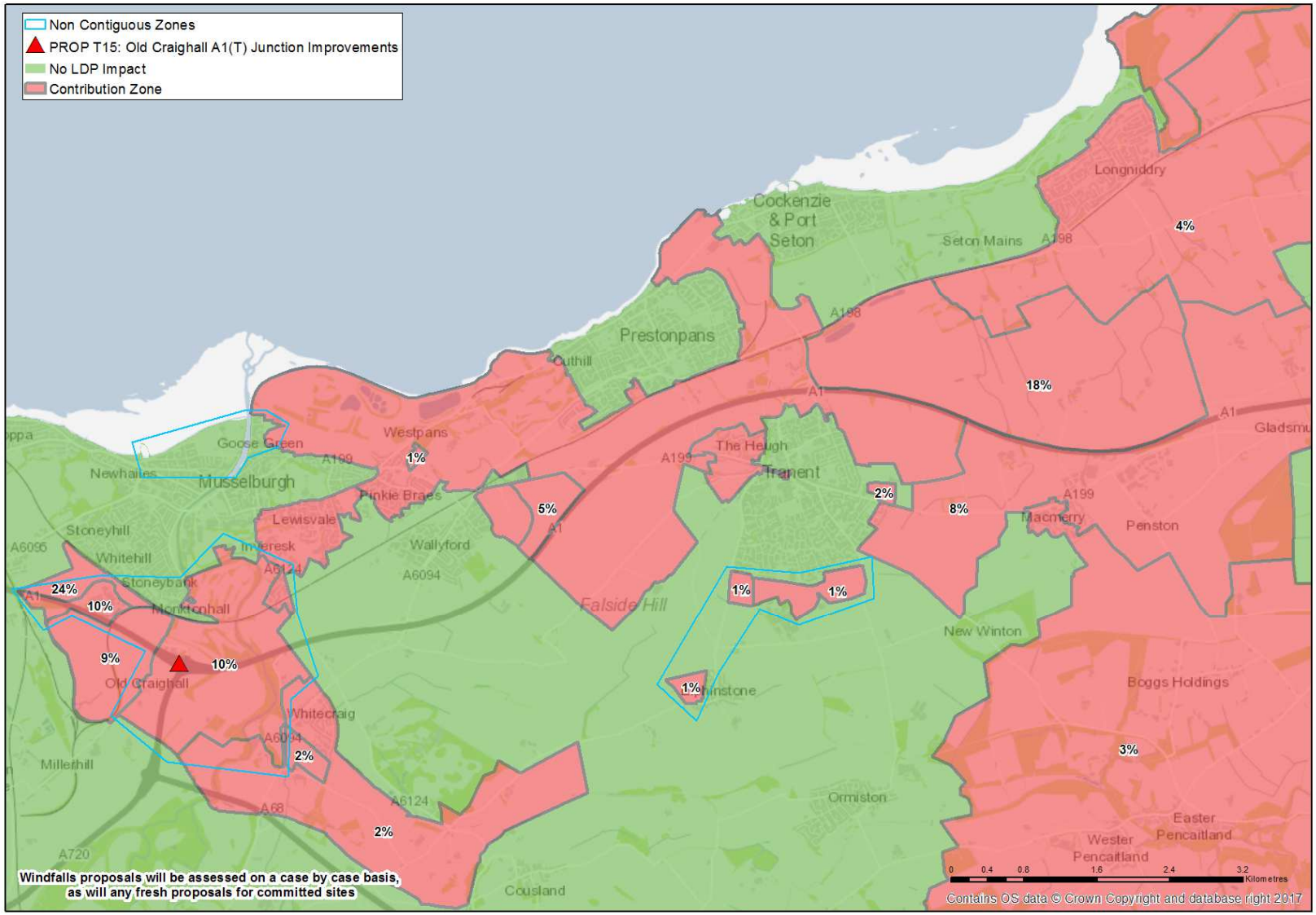

Figure D.2 Contribution Zone Plot – Old Craighall (Local)

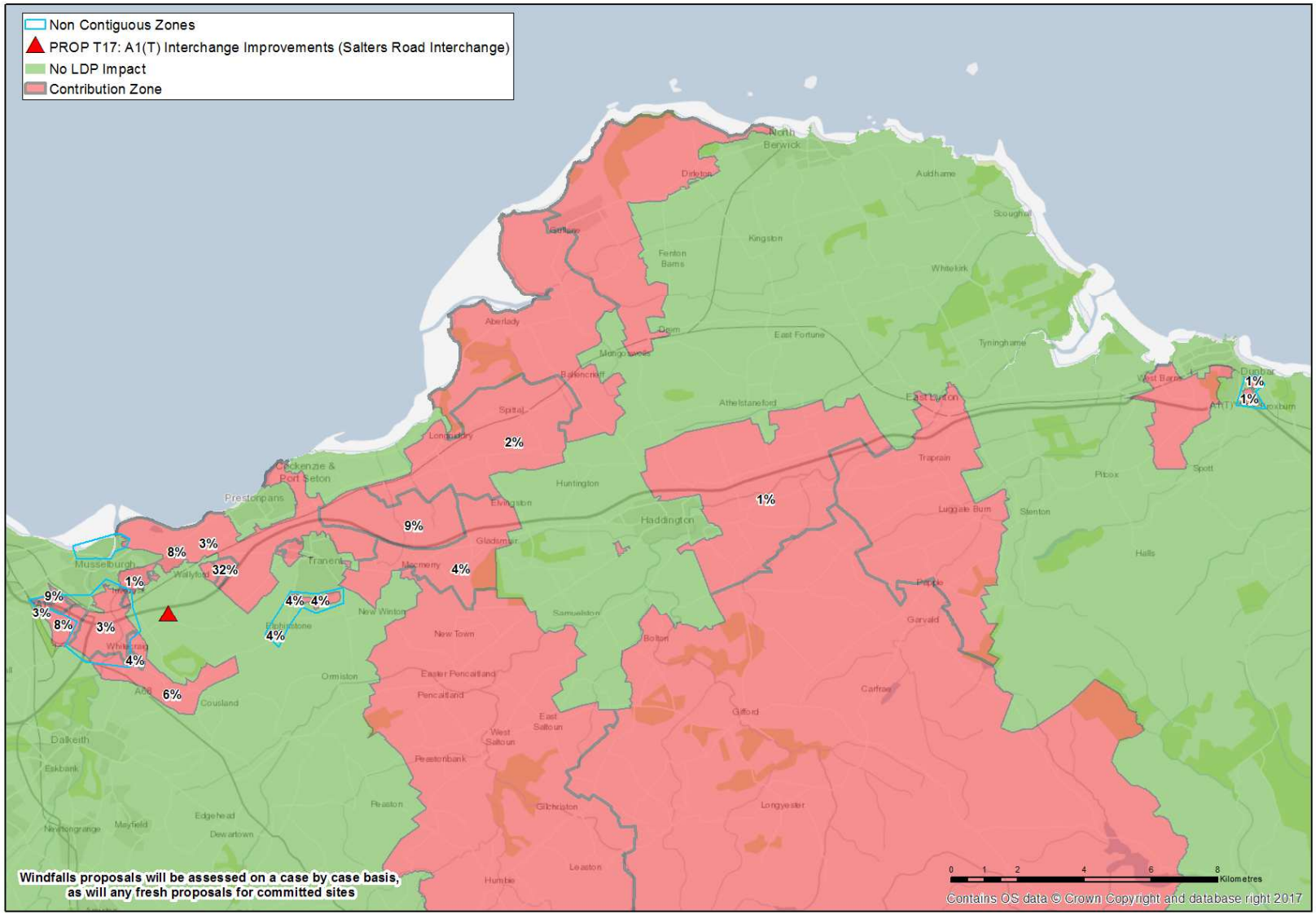

Figure D.3 Contribution Zone Plot – Salters Road (Full)

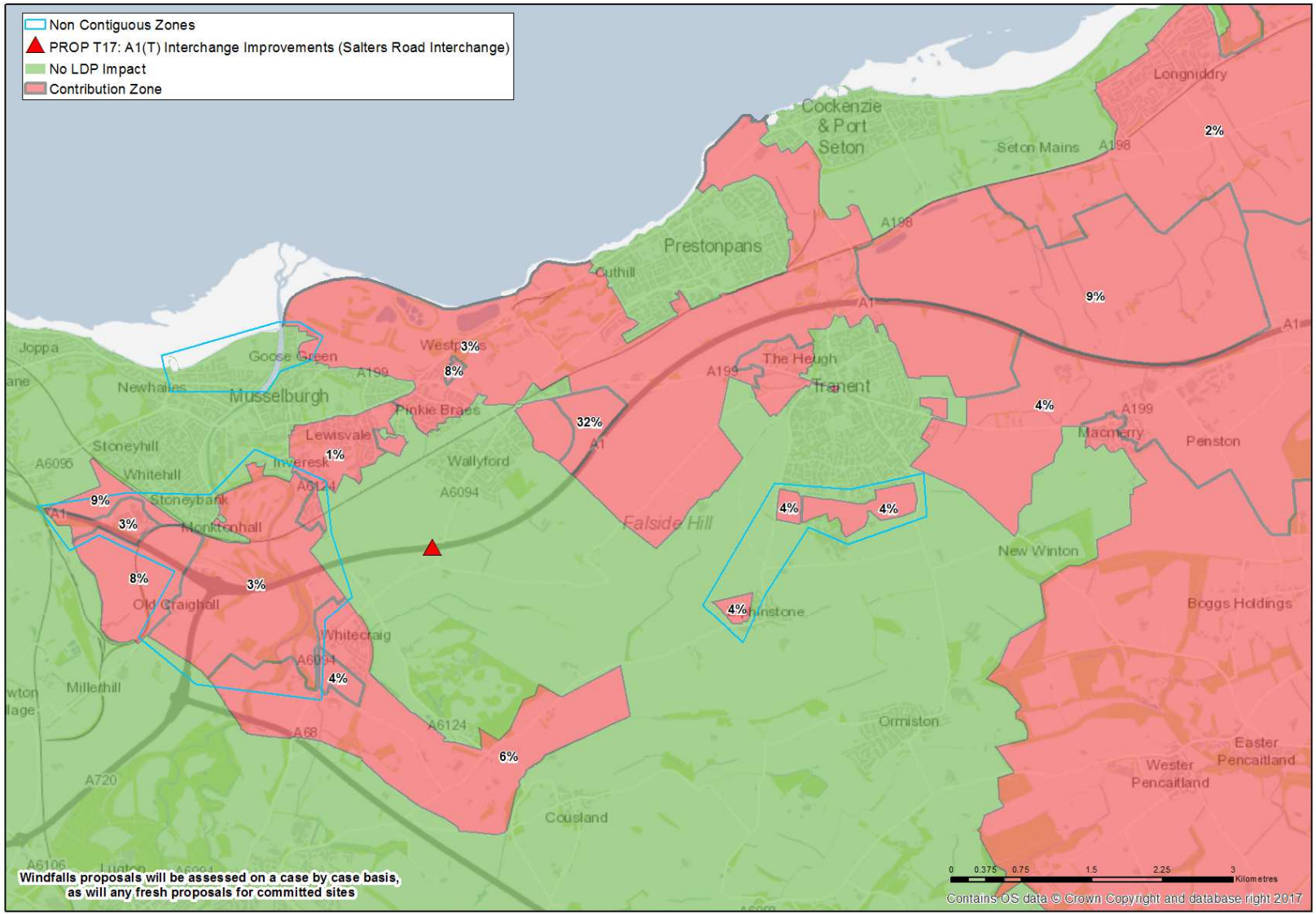

Figure D.4 Contribution Zone Plot – Salters Road (Local)

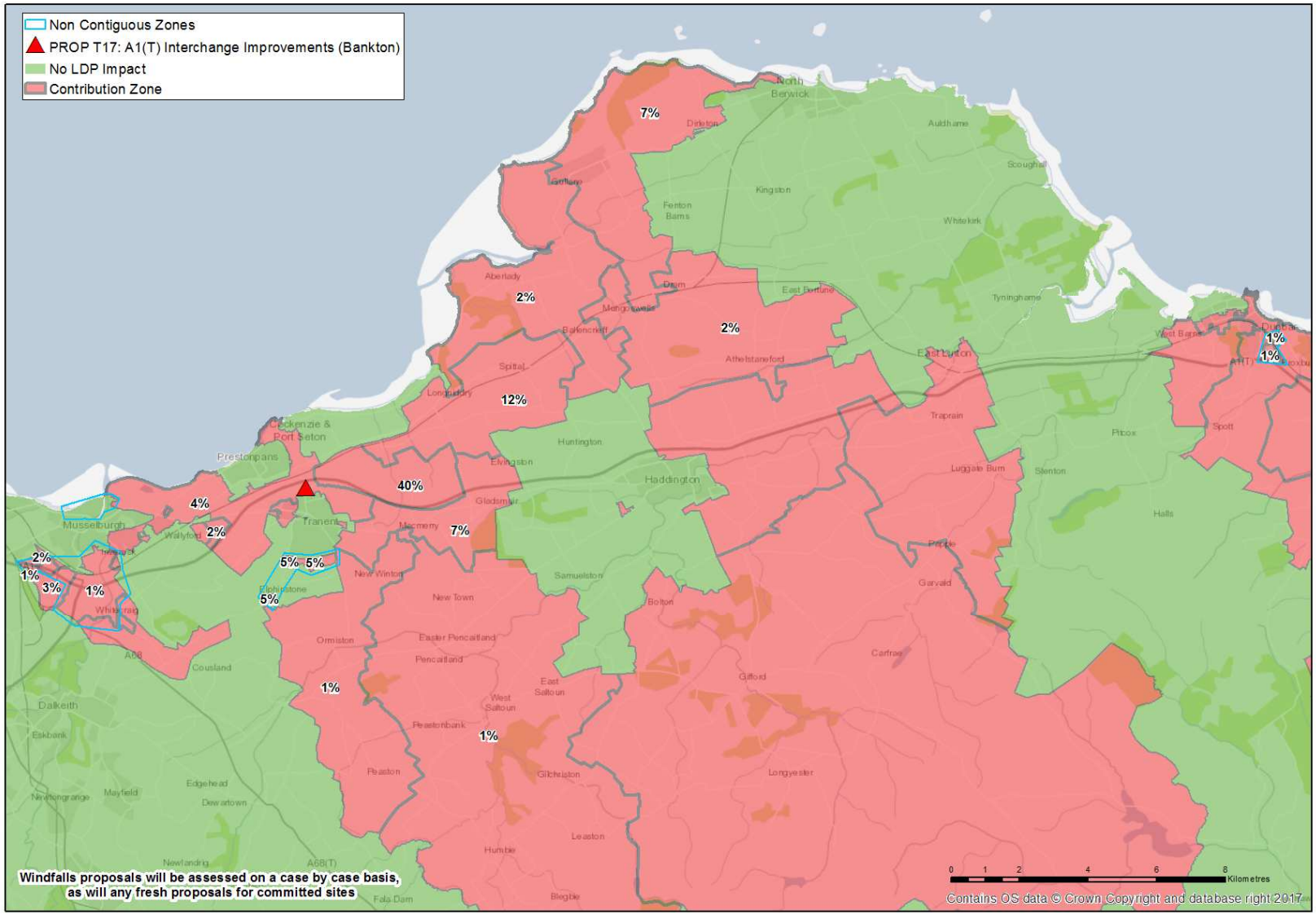

Figure D.5 Contribution Zone Plot – Bankton (Full)

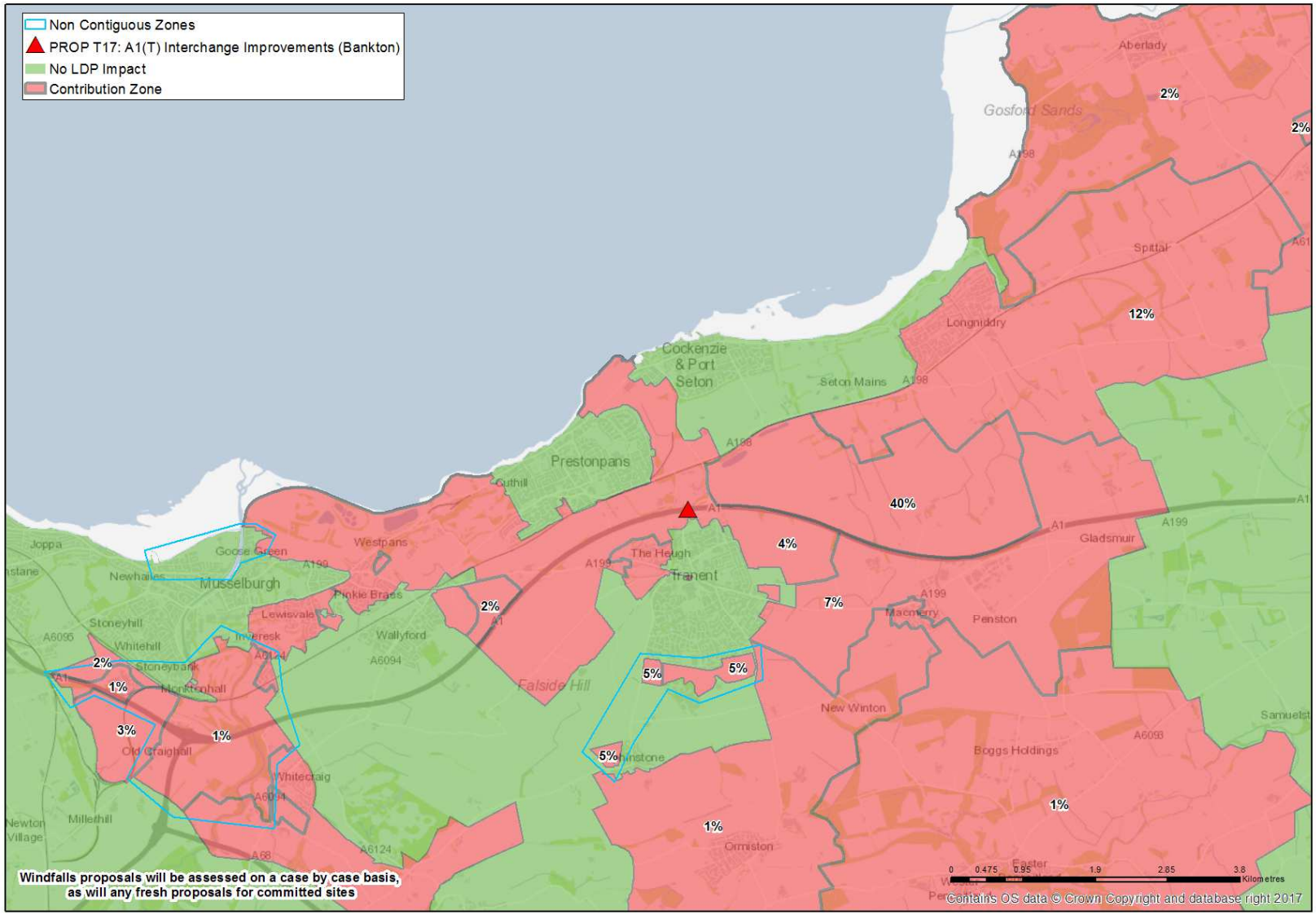

Figure D.6 Contribution Zone Plot – Bankton (Local)

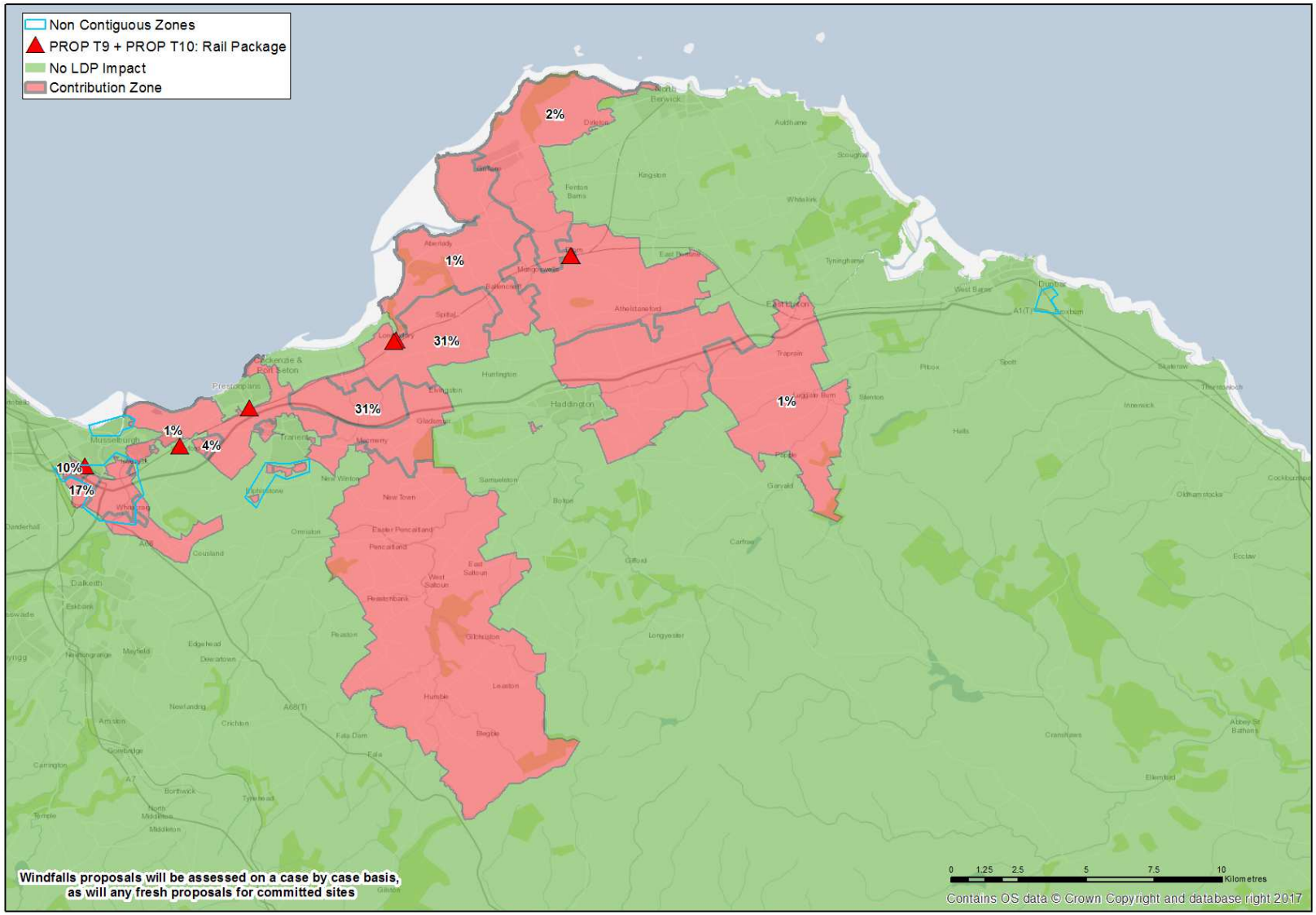

Figure D.7 Contribution Zone Plot – Rail Package (Full)

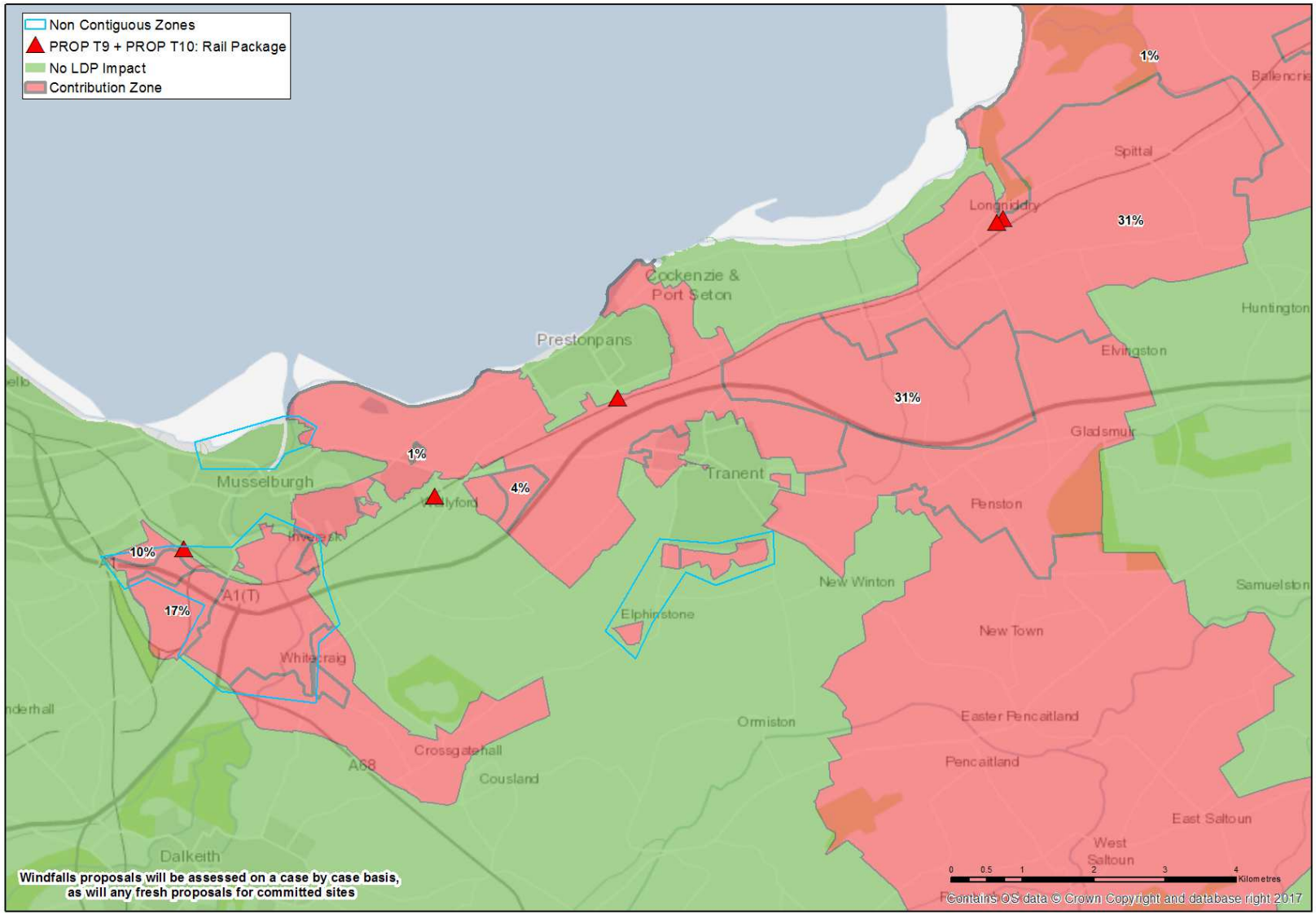

Figure D.8 Contribution Zone Plot – Rail Package (Local)

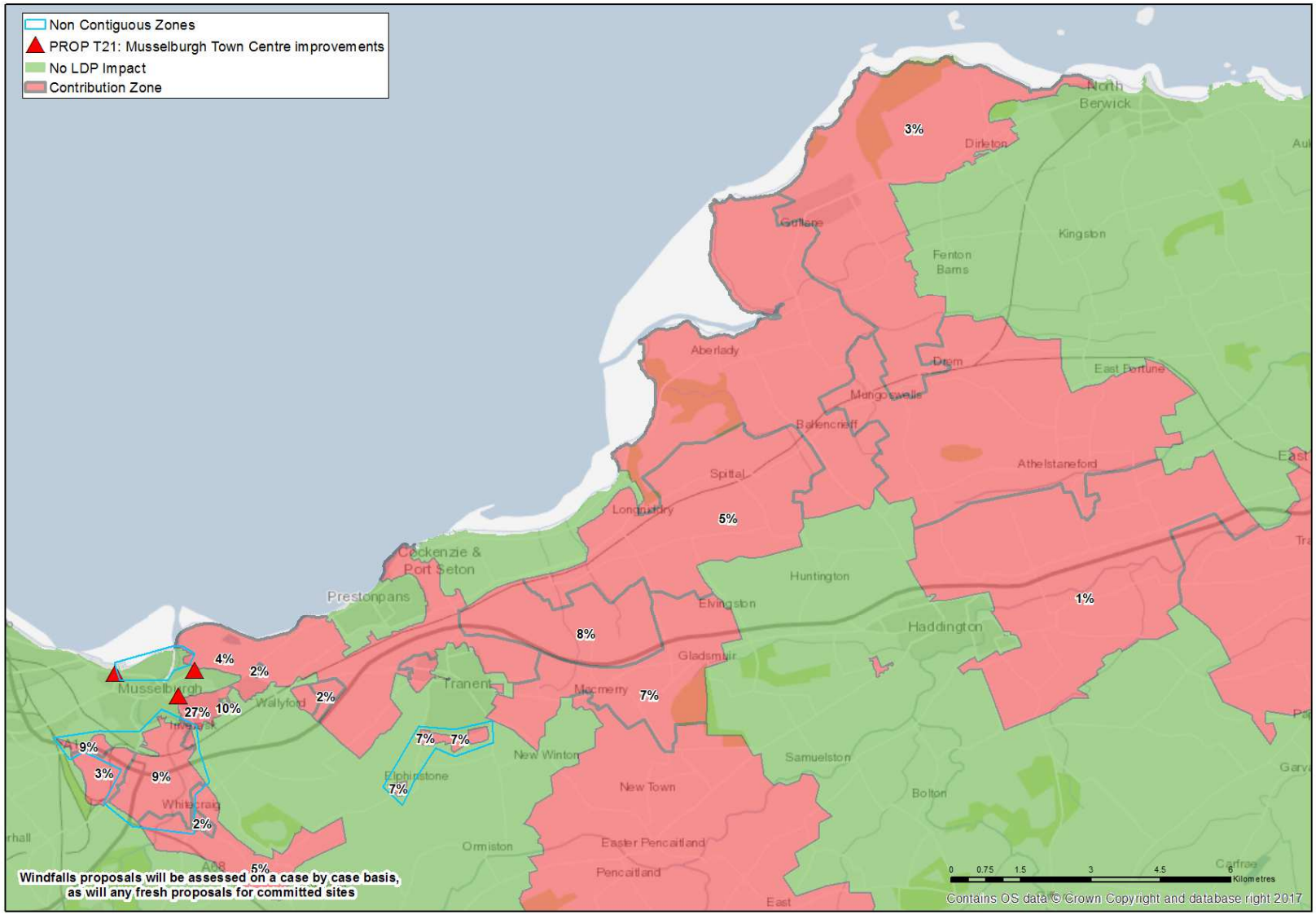

Figure D.9 Contribution Zone Plot – Musselburgh (Full)

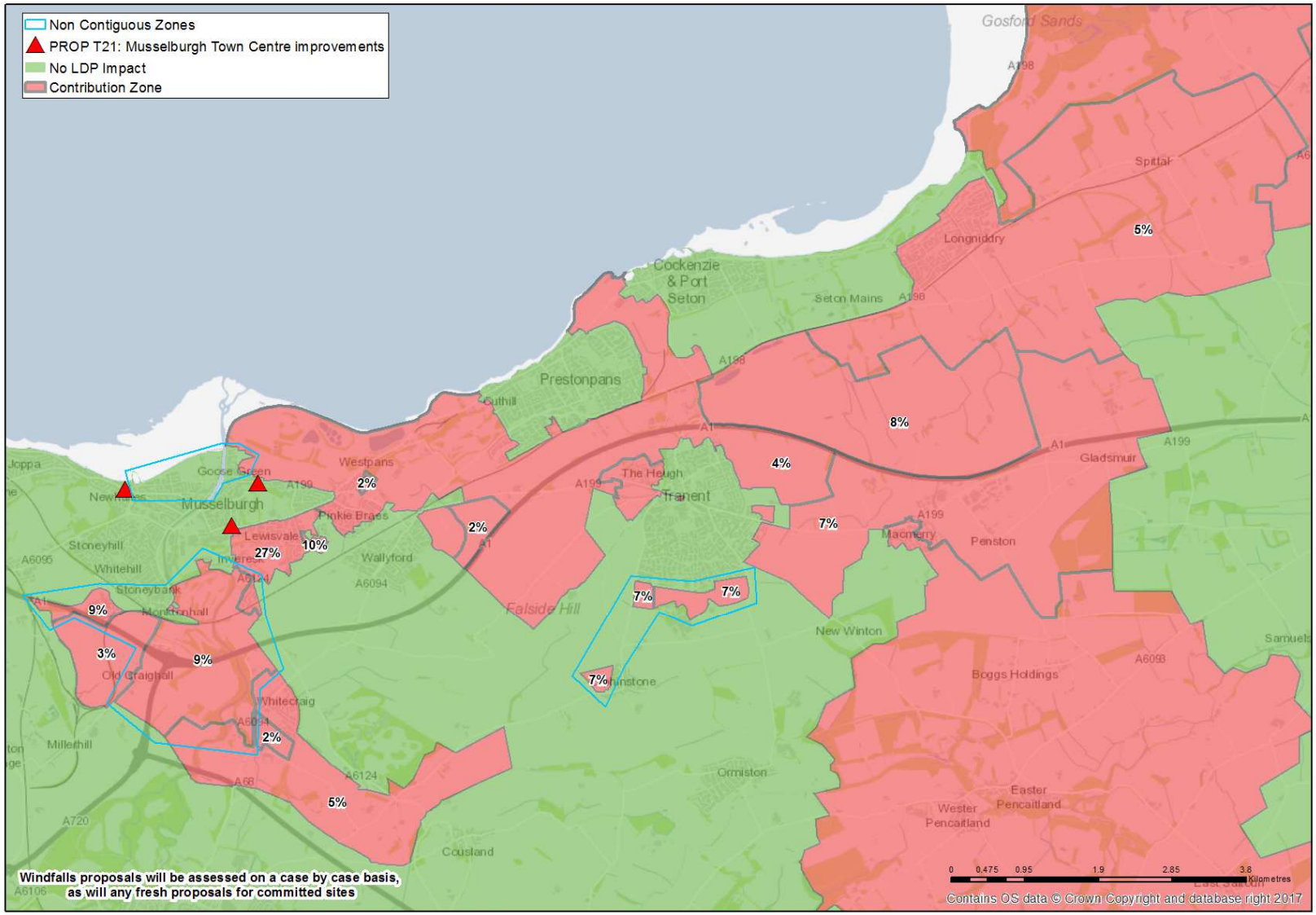

Figure D.10 Contribution Zone Plot – Musselburgh (Local)

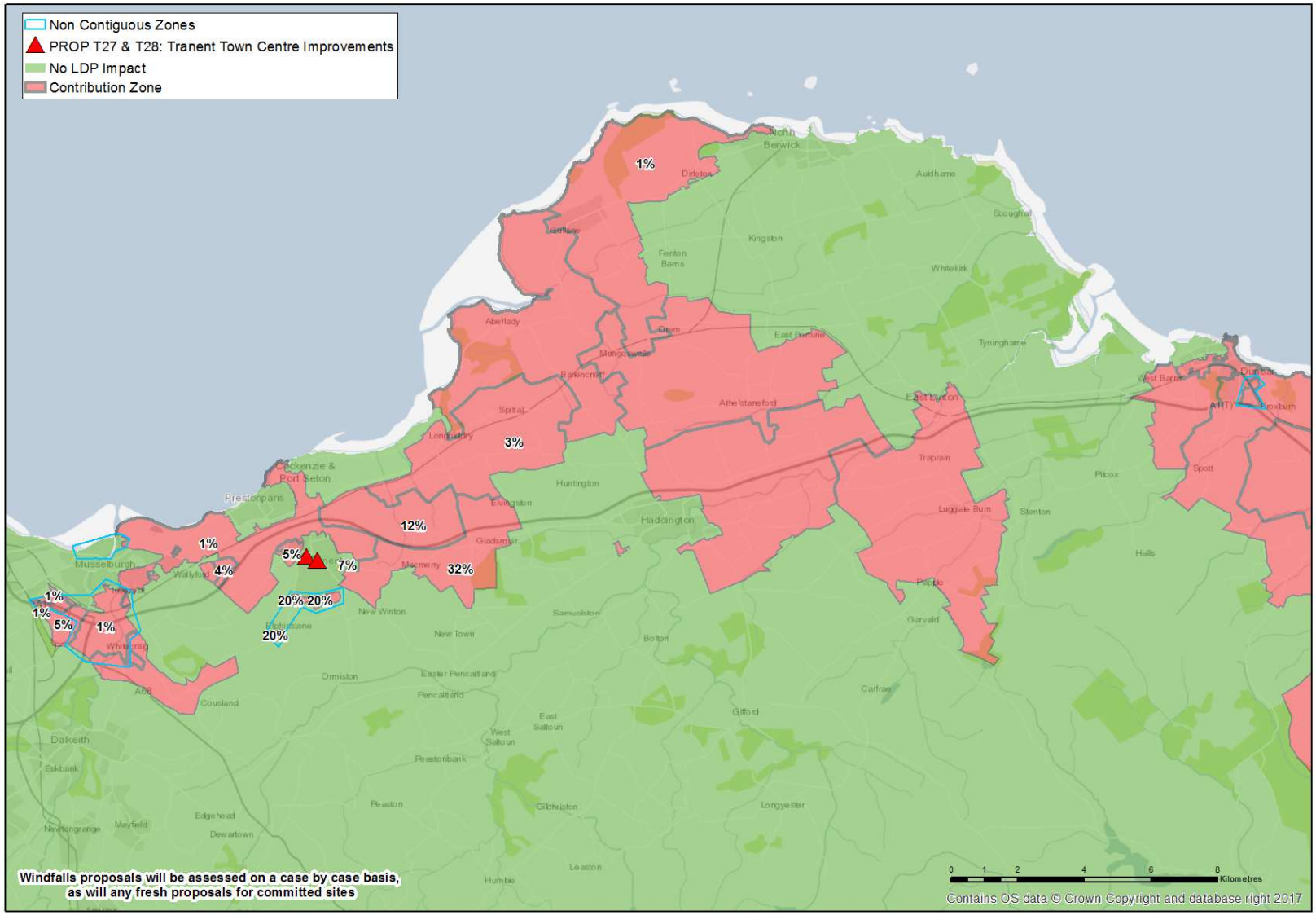

Figure D.11 Contribution Zone Plot – Tranent (Full)

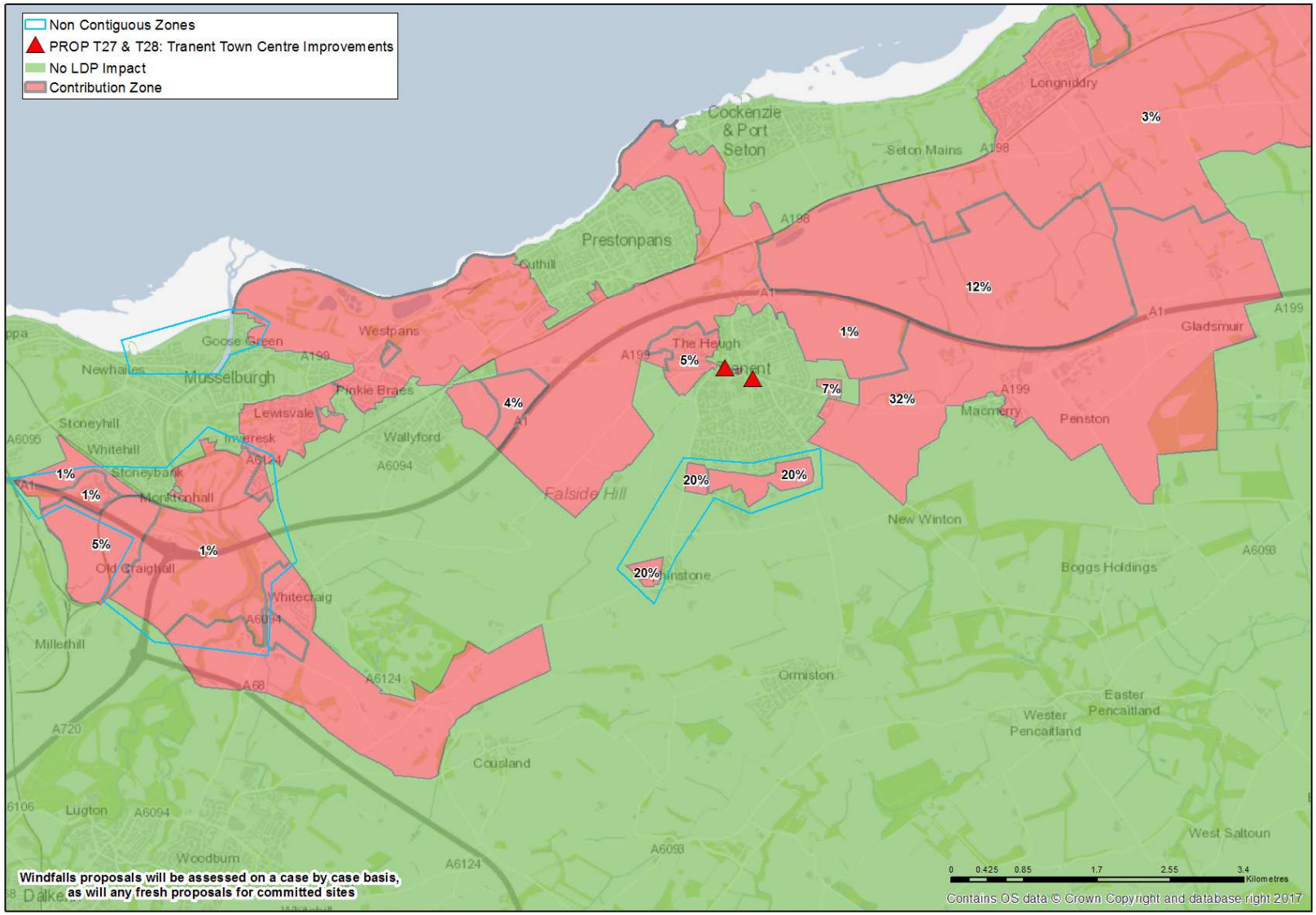

Figure D.12 Contribution Zone Plot – Tranent (Local)

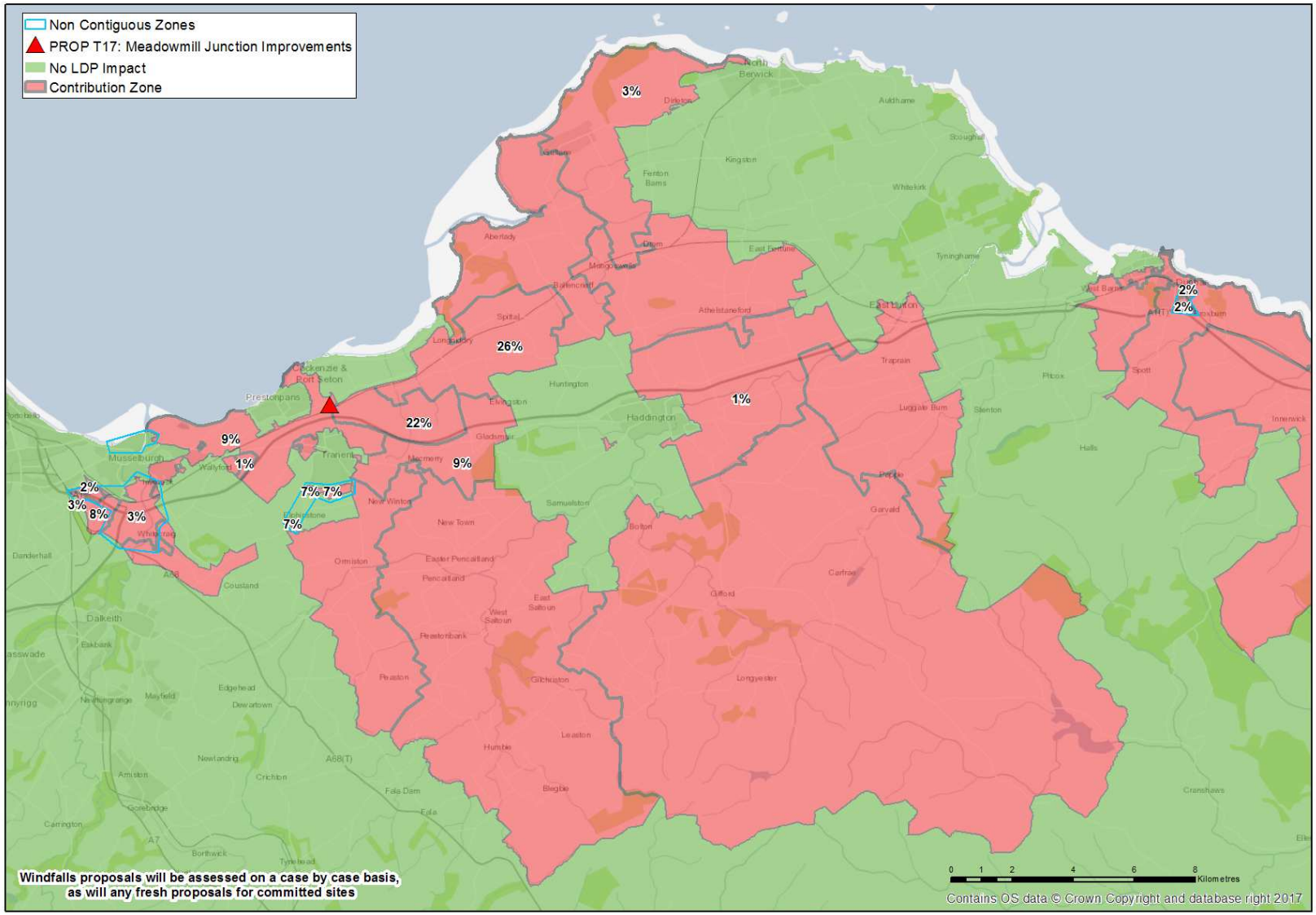

Figure D.13 Contribution Zone Plot – Meadowmill (Full)

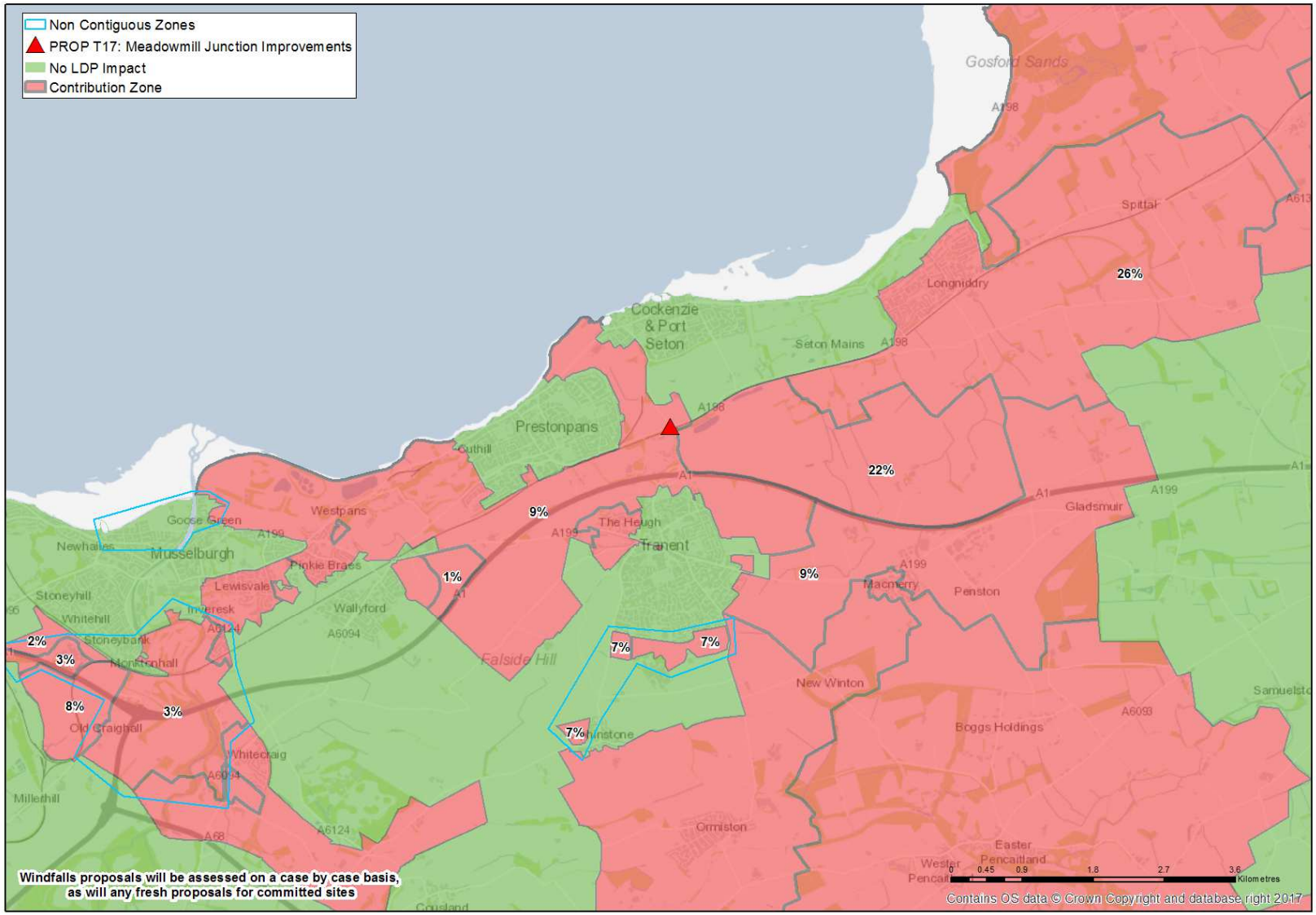

Figure D.14 Contribution Zone Plot – Meadowmill (Local)

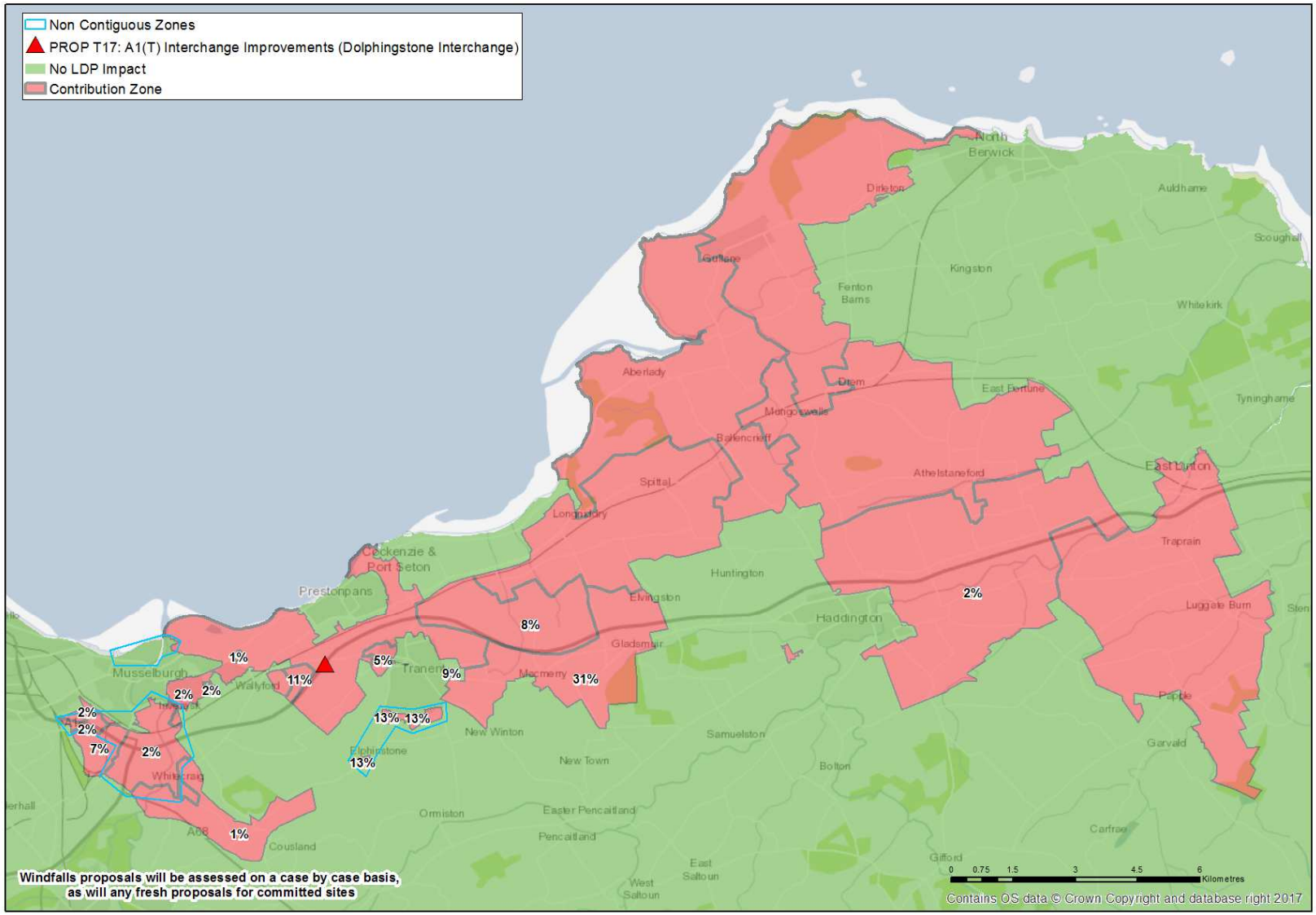

Figure D.15 Contribution Zone Plot – Dolphingstone (Full)

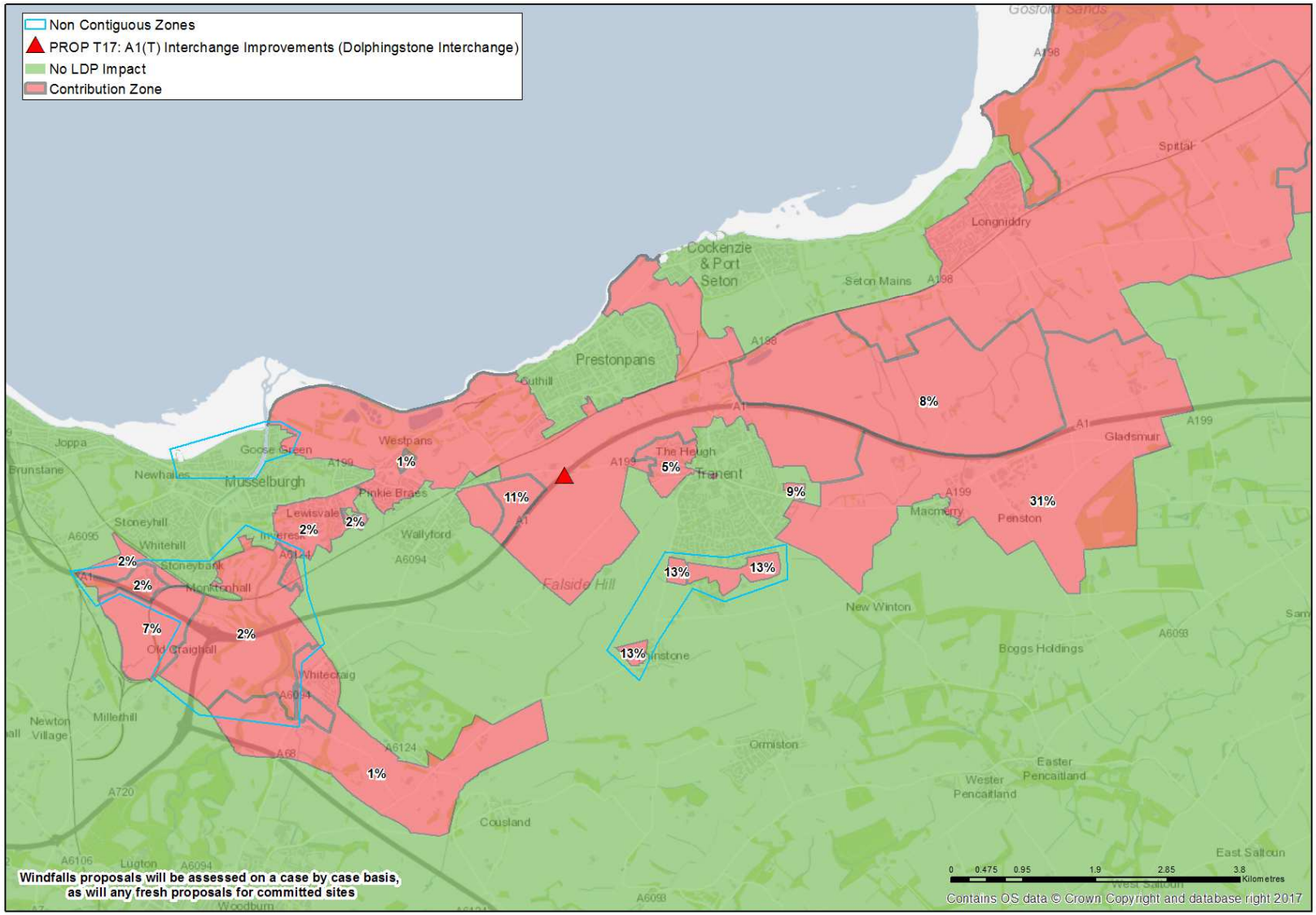

Figure D.16 Contribution Zone Plot – Dolphingstone (Local)

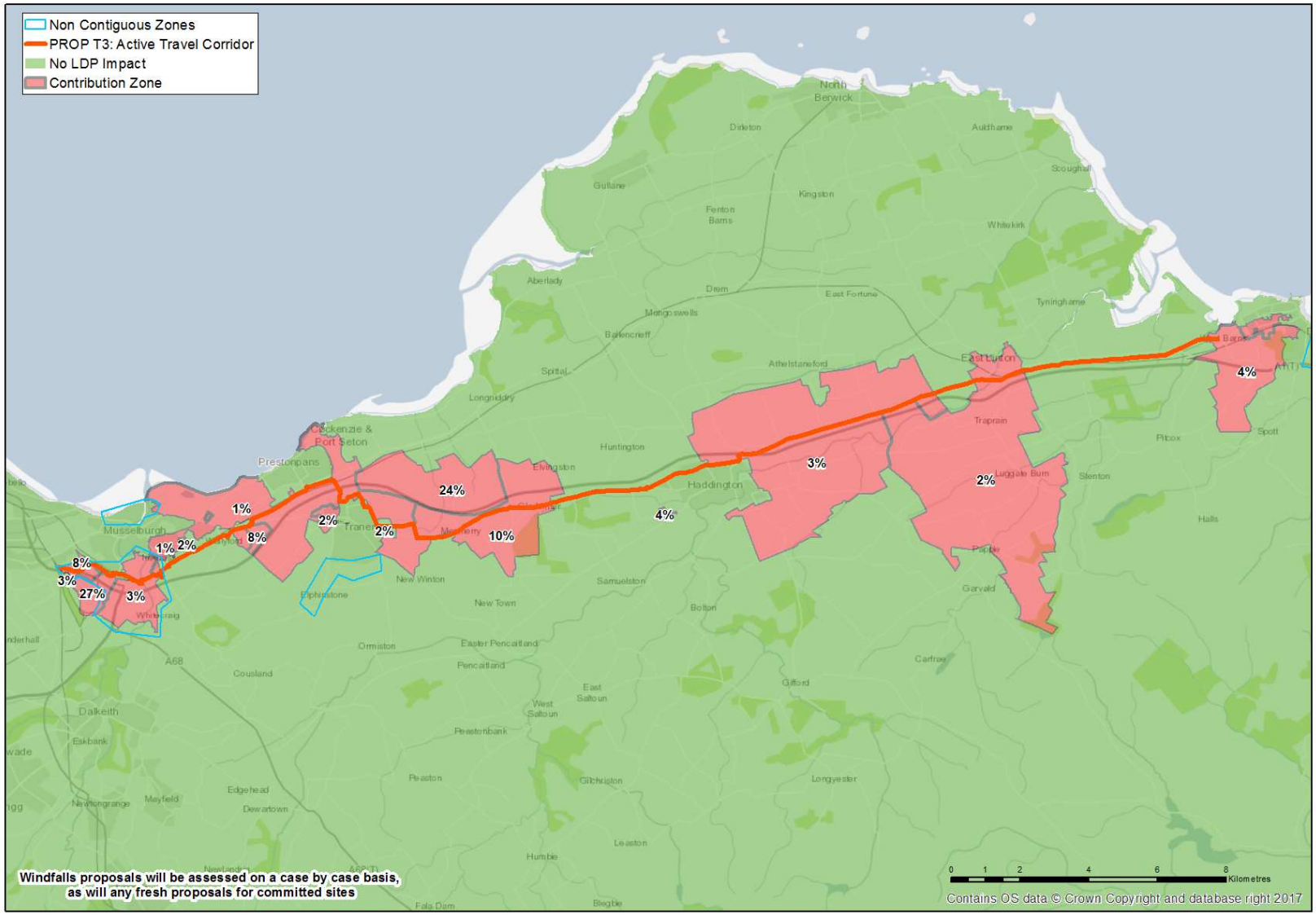

Figure D.17 Contribution Zone Plot – Active Travel Corridor (Full)

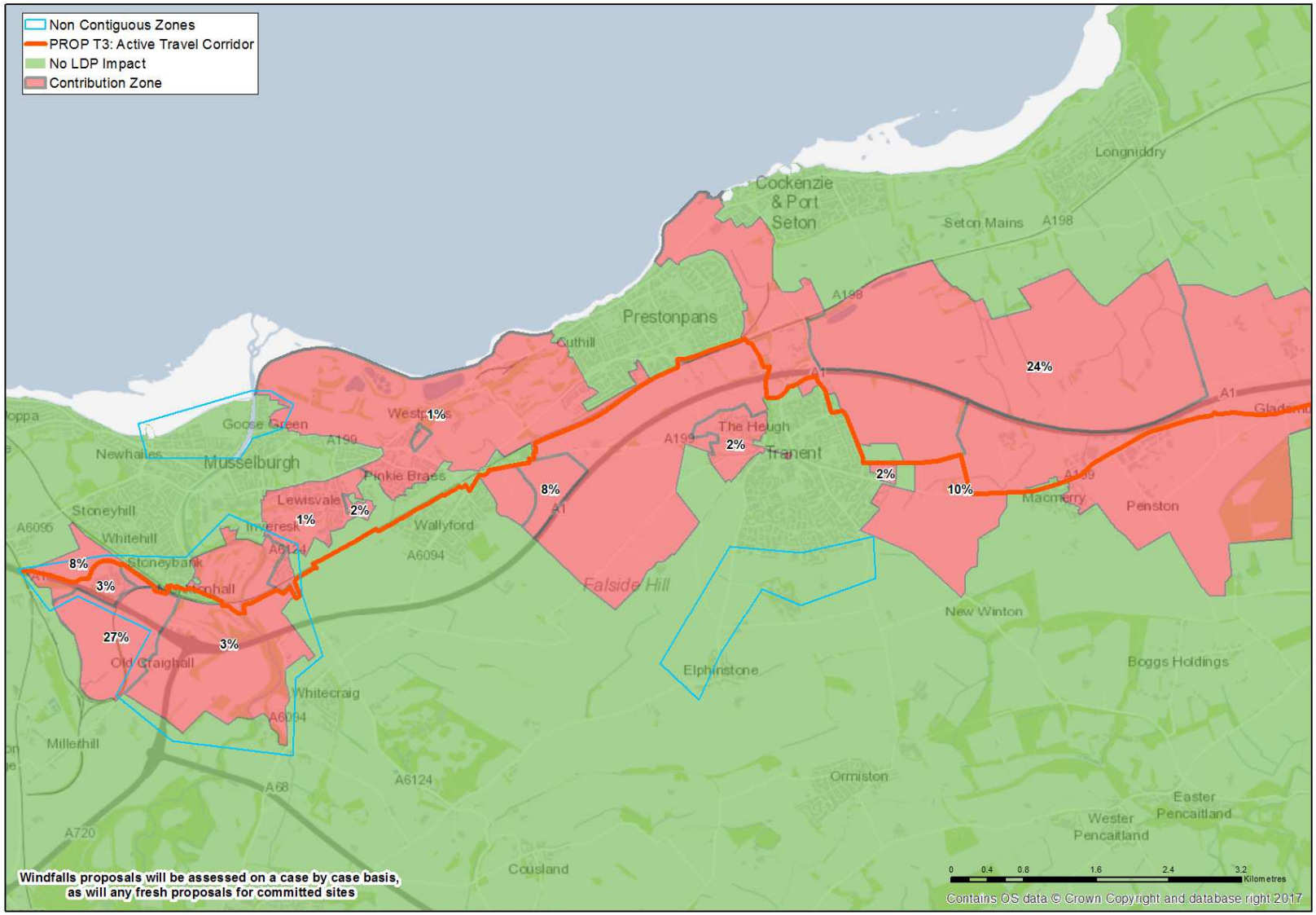

Figure D.18 Contribution Zone Plot – Active Travel Corridor (Local)