



**SWEEP 002 short report
on the recreational importance of selected coastal-facing locations in the Plymouth area**

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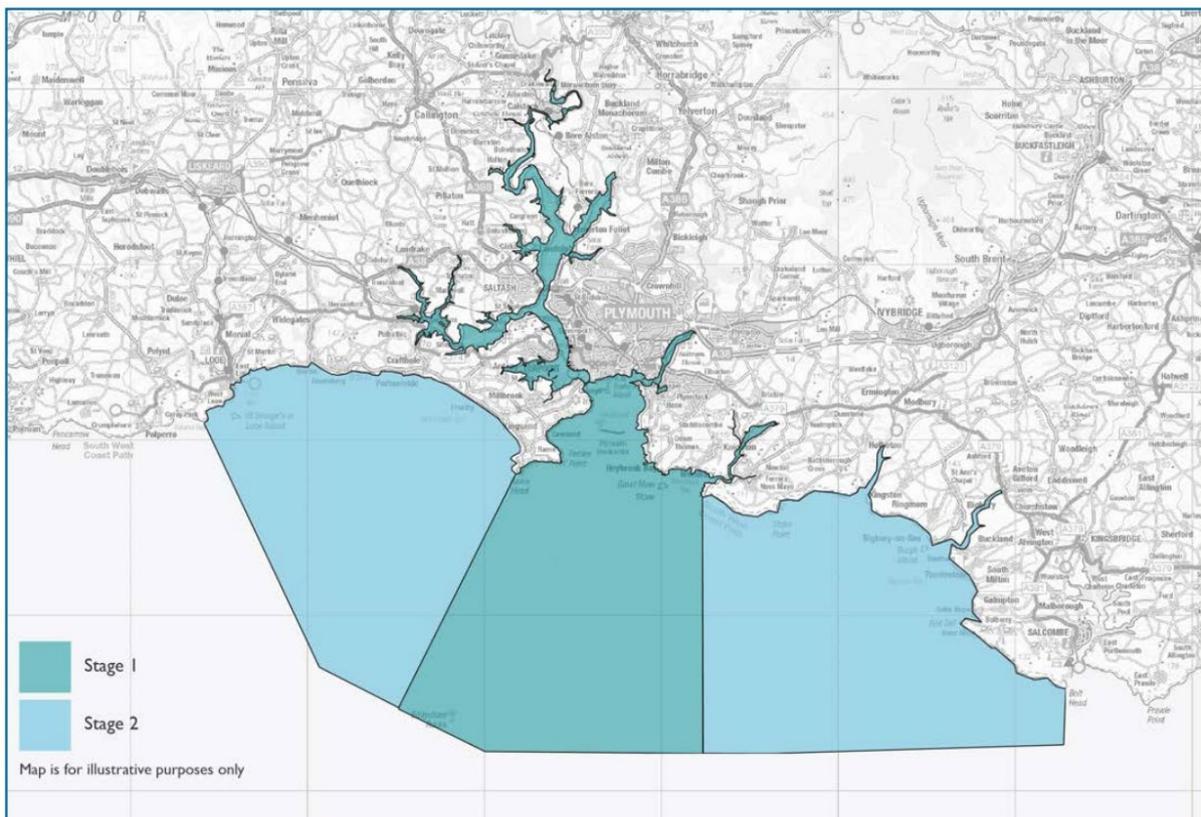
Acknowledgements:

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Scope:

This short document aims to summarise information on visitor numbers and recreational values associated with selected coastal-facing locations of interest in the Plymouth area. This information can be used to set a baseline regarding the current recreational importance of locations that will be part of the newly constituted National Marine Park in Plymouth. The locations of interest have been identified in discussion with colleagues from Plymouth University and include:

- 1) Mt Edgcombe
- 2) the city (the ferry to Laira bridge)
- 3) The coast path from Laira bridge round to the National Marine Park Phase one boundary on the east of the city (see Map below)



[Source: <https://www.plymouth.gov.uk/sites/default/files/PlymouthSoundNationalMarineParkDocument.pdf>]

The present document, in particular, summarises the visitor numbers and recreational values associated with the existence of coastal paths, access points and beaches for each of the three case study locations considered (where applicable). The reported information was obtained using the freely available tool ORVal (Outdoor Recreation Valuation Tool) developed by the LEEP Institute at the University of Exeter: <https://www.leep.exeter.ac.uk/orval/> (Day and Smith 2018).

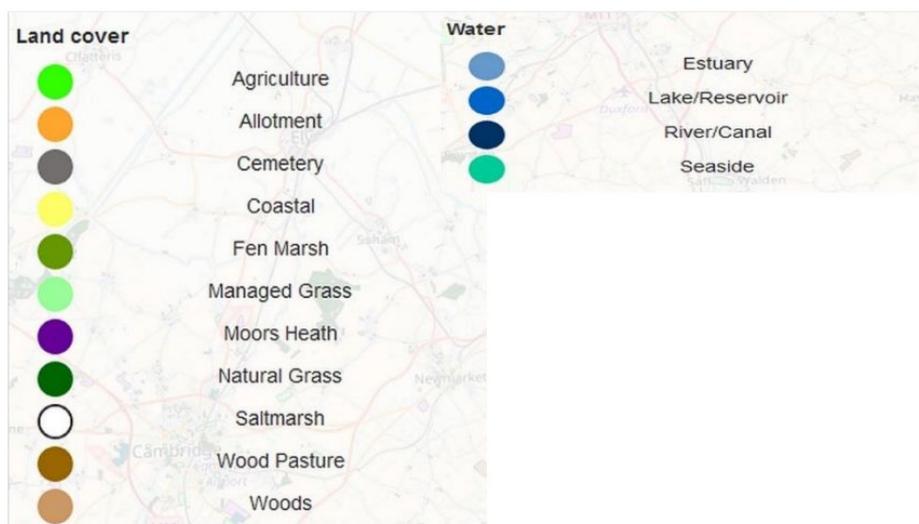
Methodology:

This section will present more details on the technical features of ORVal, to provide the reader with a user-friendly but still technical understanding of how this tool works and how it was used to carry out the analysis reported in this document. Many of the details come from a condensed version of the more extensive help and technical support documents produced by the authors of the tool (B. Day

and G. Smith from the University of Exeter) and publicly available from: https://www.leep.exeter.ac.uk/orval/pdf-reports/ORVal2_User_Guide.pdf and https://www.leep.exeter.ac.uk/orval/pdf-reports/ORValIII_Modelling_Report.pdf.

ORVal is a map-based interface that allows to learn more about the distribution of currently accessible greenspaces in England and Wales, their characteristics and the visitation numbers and welfare values associated with a recreational day visit to specific greenspaces. ORVal relies on a sophisticated model, which combines different layers of data:

- **Visitation information** - based on 2009-2016 data from the Monitor of Engagement with the Natural Environment (MENE) survey for England and the Welsh Outdoor Recreation Survey (WORS) for Wales. Survey data on visitors include information on the visited location, the activities carried out at the location, the respondent's place of residence, their socio-demographic profile (including social grade, as a proxy for income) and mode of transport (whether the visitor accessed the site by car or on foot).
- **Greenspace information**. The greenspaces identified as Recreational Sites in the ORVal map are of three different types: areas (i.e. accessible greenspace contained within well-defined boundaries), paths (i.e. confined walkable routes of passage) or beaches.
- **Land cover data**. For each recreational site, information on the type of land cover is also reported. In ORVal fifteen different types of land cover are considered, as reported here:



- **Special designation areas**. An additional layer of data reports information regarding whether the site of interest is subject to any special designation (i.e. whether it belongs to a National Park, National Trail, Nature Reserve, etc.)
- **Background map**. The background map layer underlying the map-based interface in ORVal is based on OpenStreetMaps.

The ORVal tool relies on a sophisticated travel cost model, which estimates the probability for a particular person to visit a particular greenspace with particular characteristics. The fundamental assumption of the model is that a visitor chooses to visit a given greenspace because the “welfare” (or sense of pleasure/wellbeing) experienced when taking that trip exceeds the costs of taking the trip¹

¹ In ORVal, the costs of taking a trip to a given greenspace are calculated as the sum of the travel costs (e.g. costs of petrol, entry tickets, etc.) and, if applicable, the opportunity costs of travel time (i.e. the costs of giving up e.g. time at work to travel).

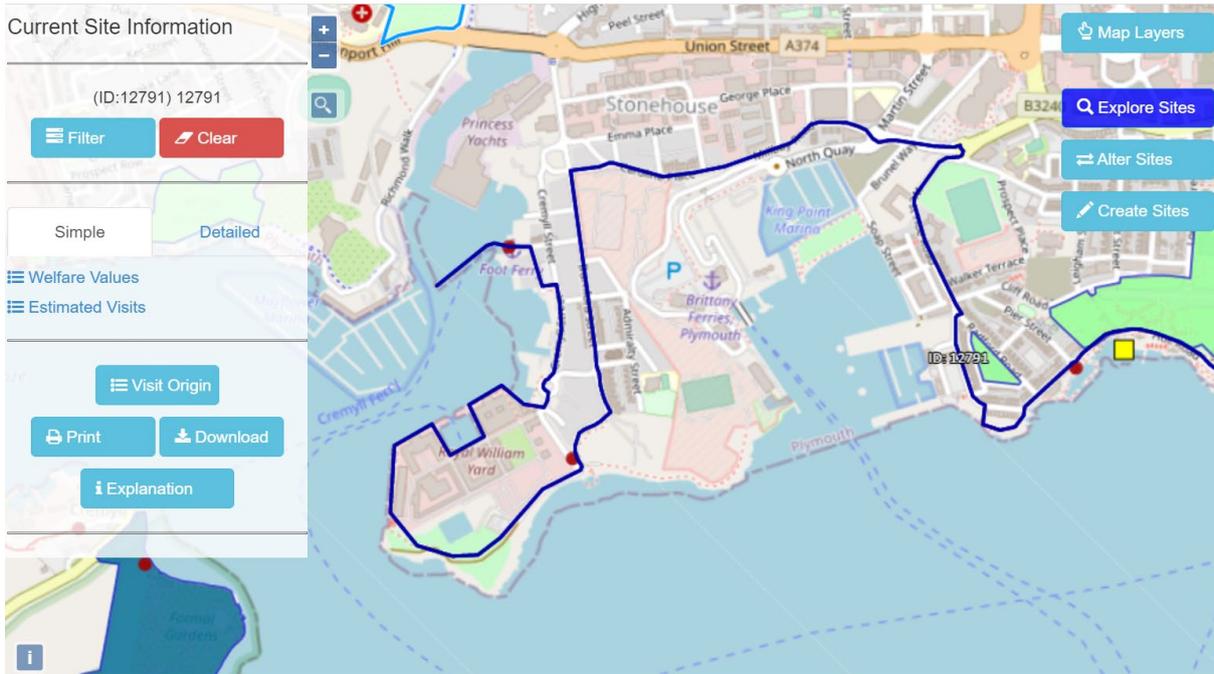
as well as the “welfare” of doing anything else. The model also contextualises visitors’ choices by considering all alternative greenspaces which the person had available but decided not to visit. In these terms, if people are willing to take longer trips to visit a specific location, this provides an indication that the value placed on visiting that greenspace is higher compared to the value of visiting alternative sites closer to home. Similarly, choosing to visit a specific site over other greenspaces with similar characteristics (e.g. in terms of land cover type, distance, degree of accessibility by mode of transport, etc.) implies that the chosen site is more valuable or attractive for the recreationist.

The ORVal tool has many functionalities, but we will only focus on the feature that we used in this report: the ‘explore sites’ function. This function can be accessed by clicking on the ‘Explore Sites’ button on the right-hand side of the ORVal homepage. This feature allows to estimate the degree of usage of given sites and the welfare values associated with the recreational enjoyment of the different existing greenspaces.

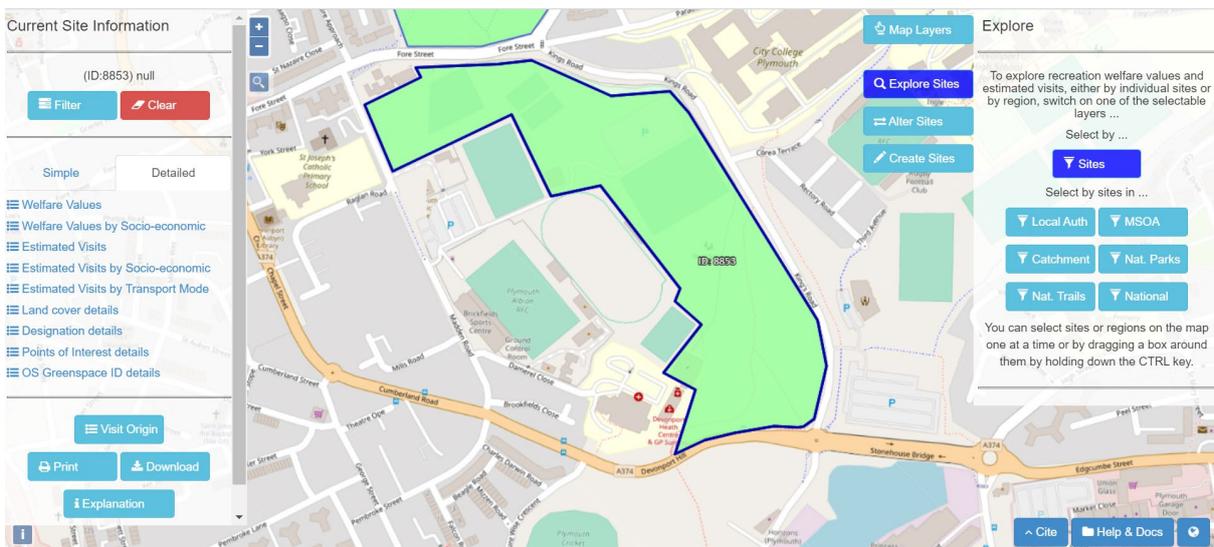


For the purposes of our analysis, we mostly focused on information at ‘Sites’ level. In ORVal, after clicking on the  button, a panel opens on the left-hand side of the page, called “Current Site Information”. To visualise the ORVal model output, a specific area/path/beach location (or set thereof) need to be selected on the map. On the ORVal map, areas are represented by coloured

polygons (e.g. ) , paths are indicated by red lines ) , access points by red dots (i.e. ) and beaches are marked by ). Once the location (or locations) of interest is (are) selected, the site ID will automatically appear in the Current Site Information window (as well as on the map), so the reader can have a clear idea regarding what sites have been selected (which will turn ‘blue’ after selection) and what locations the estimates refer to. Please, see example below:



The information on visitation numbers and welfare values is then provided as totals (by clicking on the 'simple' tab) or in disaggregate form (by clicking on the 'detailed' tab). In the detailed tab, information on estimated visits and welfare values are, in fact, not only reported in aggregate form (as totals) but also by socio-economic group (AB, C1, C2 and DE, based on National Readership Survey social grades classification)² and transport mode (by car or not by car). Further details about the land cover characteristics of the selected site(s), the type of designation (if applicable), any points of interest present and the OS Greenspace ID details for the site(s) are also reported in the bottom part of the 'Detailed' tab.



² https://en.wikipedia.org/wiki/NRS_social_grade

Highlight of the results:

This short report summarises information about the baseline number of visitors and welfare values associated with the recreational enjoyment of three popular areas in Plymouth: 1) Mount Edgcumbe; 2) the city (the ferry to Laira bridge) and 3) the coast path from Laira bridge round to the National Marine Park Phase I boundary (east of the city). It's important to know that the figures provided by ORVal are per year and they refer to the estimated number of visitors and values associated with the current recreational use of the greenspaces of interest, relative to a scenario in which the greenspace did not exist. This section only provides the highlight results. For full details on the specific output generated by ORVal (at site, type of greenspace and socio-economic level), please refer to the Appendix at the end of this document.

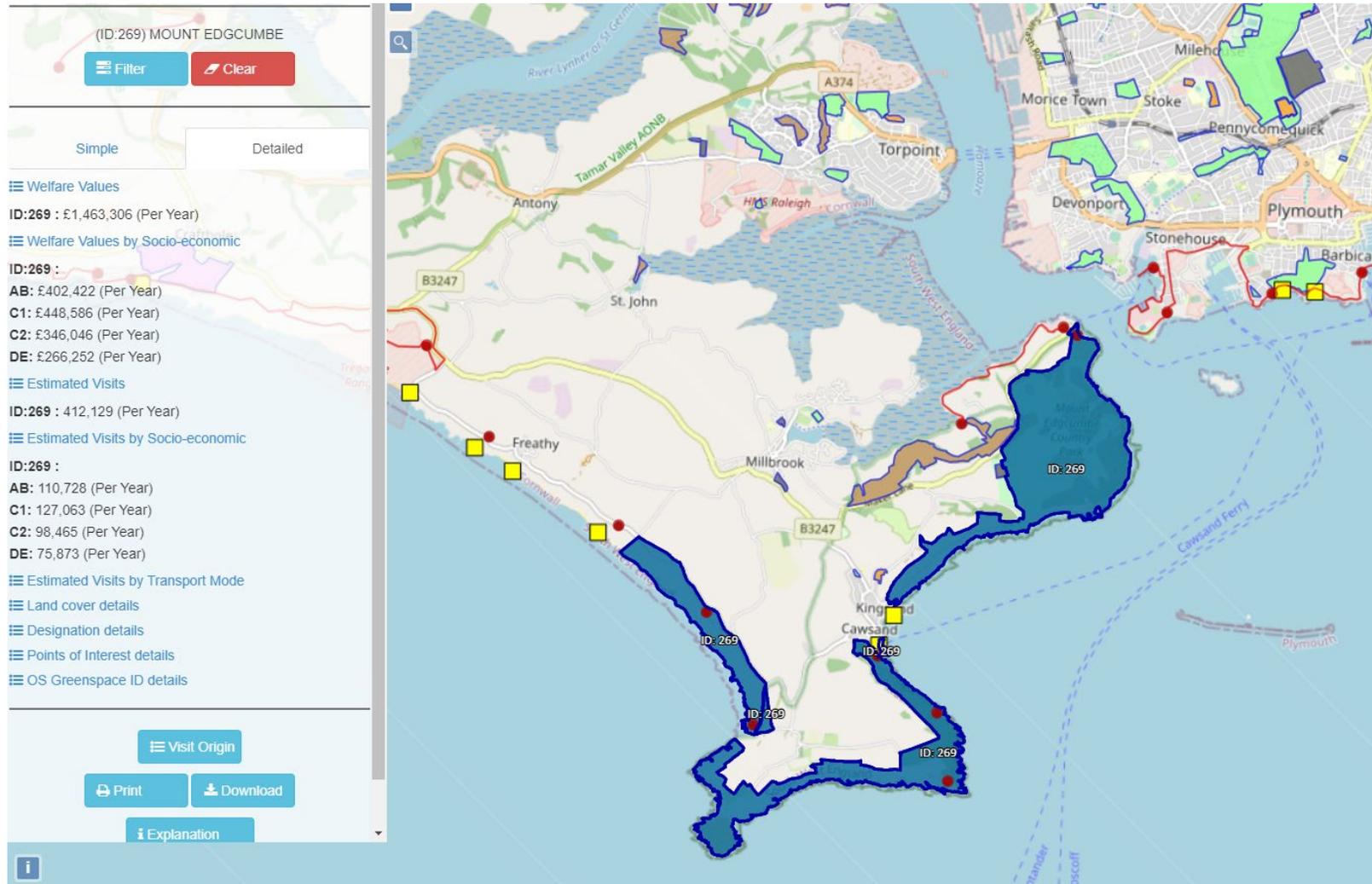
Out of the three case study sites of interest, the most valuable location (from a recreational point of view) is the city stretch (ferry to Laira bridge). This is not too surprising given the concentration of people living in this area and visiting it for recreational purposes. The existence of a coastal path, access points to the coastal path and the beaches in this area is estimated to generate £12,667,964 (per year) in terms of welfare for visitors and attract about 2,794,831 day visitors (per year). As a comparison, visiting the coastal area and beaches at Mt. Edgcumbe generates an estimated total welfare for visitors of £2,953,230 (per year) and attracts about 671,227 visitors (per year). Similarly, the coastal path, access points to the coastal path and beaches from Laira bridge to the National Marine Park (Phase I boundary) are estimated to generate £5,942,554 (per year) in terms of total welfare for visitors and attract around 1,415,655 day visitors (per year).

Regardless of the location considered, beaches are a very valuable recreational feature of the greenspace for visitors. In all three case study areas of interest, beaches provide between 37% of the total recreational value of the location (in the case of the coast path from Laira bridge to the National Marina Phase I boundary) and 58% of the total recreational value of the site (in the case of the city stretch).

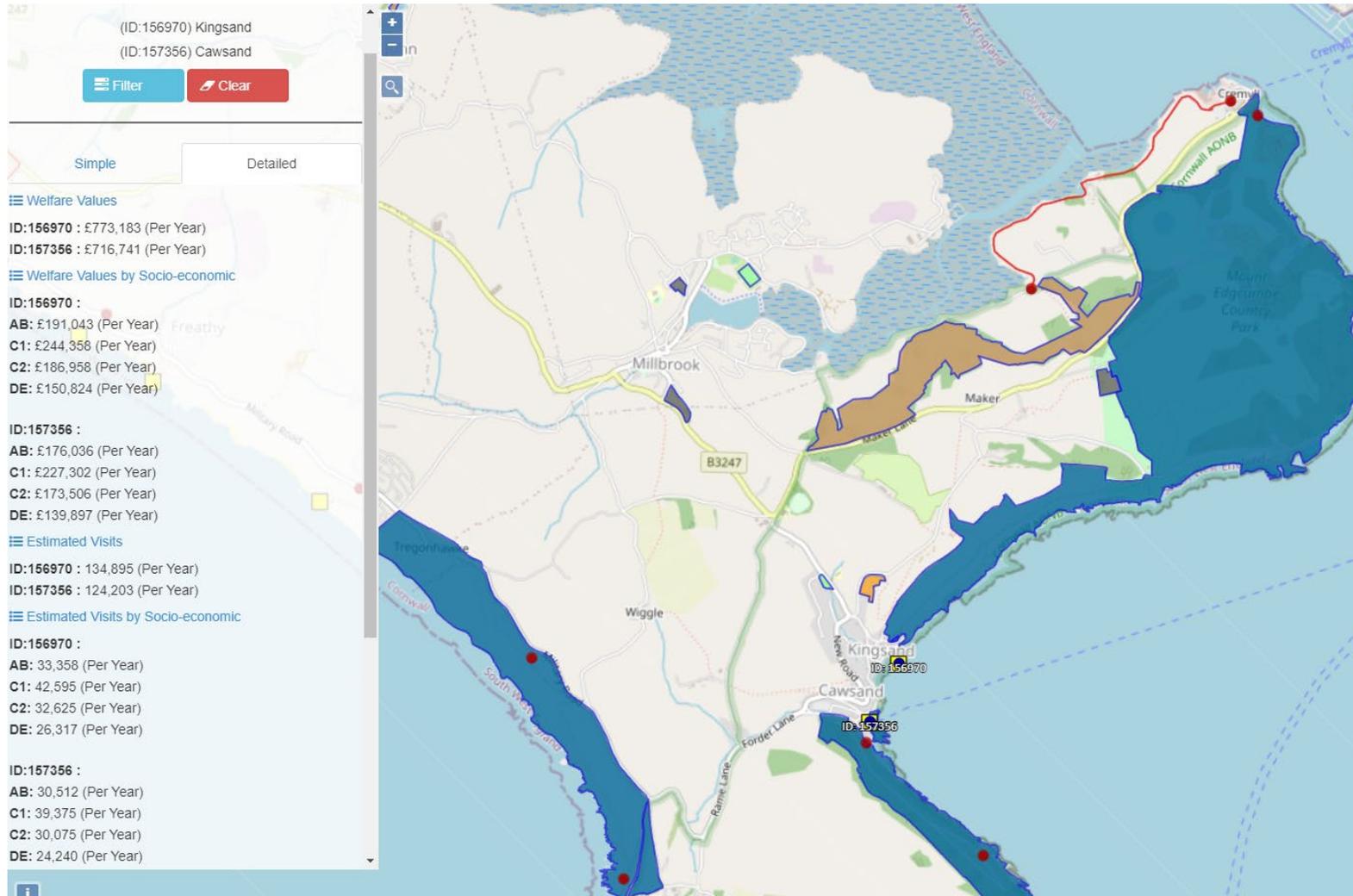
In terms of the distribution of the recreational visitation rates and values across the different socio-demographic groups (approximated by the social grades' classification, ranging from "AB" referring to the higher income groups, to "DE", referring the lower income group), some interesting patterns can also be observed in the data. The recreational benefits supplied by the Mt Edgcumbe area seem to accrue proportionately less to the people in lower socio-economic groups (DE) compared to other income groups. In the city stretch, the group of visitors that appear to display higher rates of visitation to the area and higher recreational benefits is the C1 (middle income) group, while less prominent differences are to be observed across the remaining socio-economic groups. In the area east of the city (from Laira bridge to the National Marine Park Phase I boundary) visitation rates and the welfare accruing from outdoor visitation of the greenspaces seems to be highest for visitors in the C1 socio-economic group but lowest for visitors in the lower socio-economic group (DE). While a deeper analysis is required to better understand the distribution of recreational benefits across groups of visitors, this analysis provides a first indication of possible differences across socio-economic segments of society, in terms of their access to and interaction with greenspaces.

Appendix:

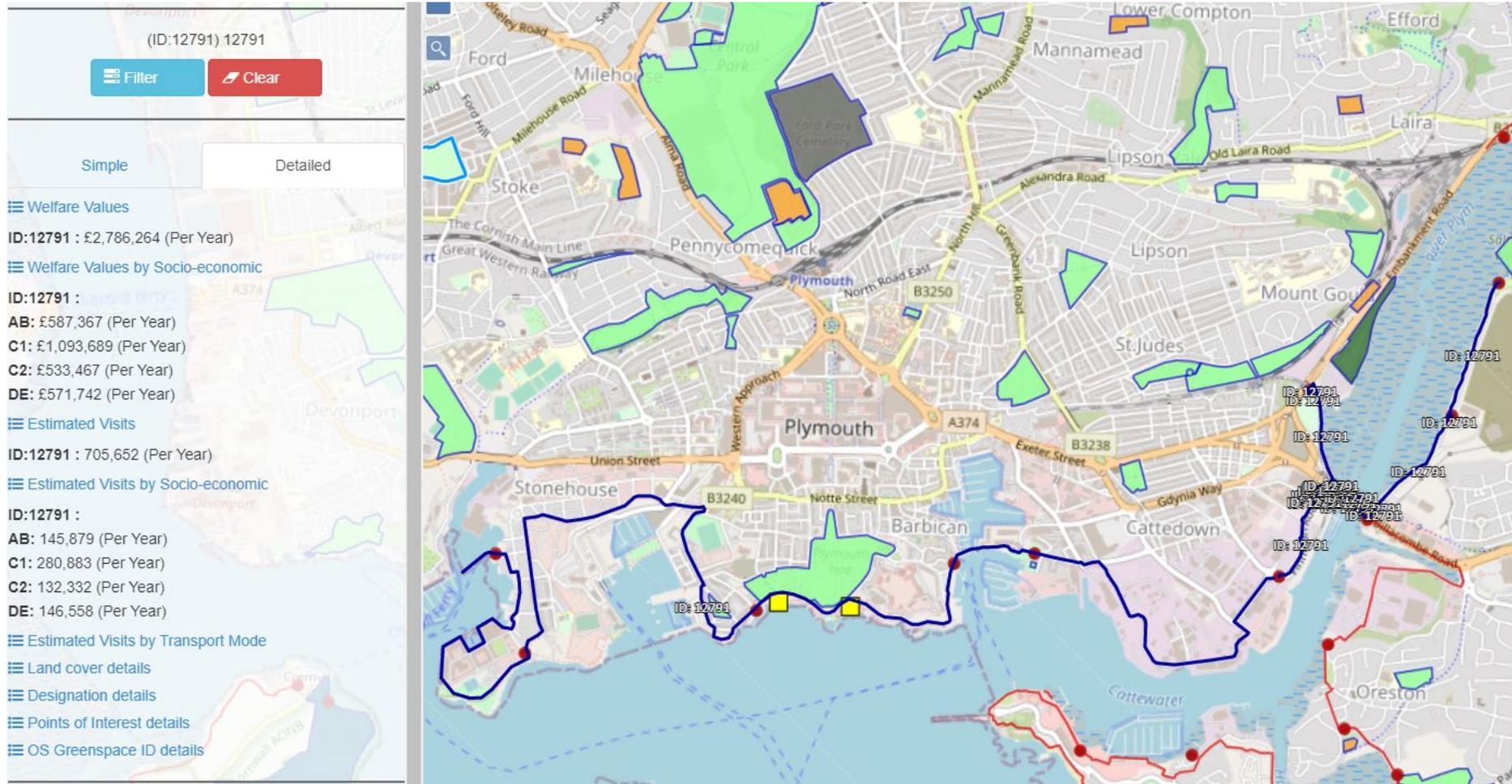
Mount Edgcumbe (blue area below, ID 269): Baseline situation - coastal area



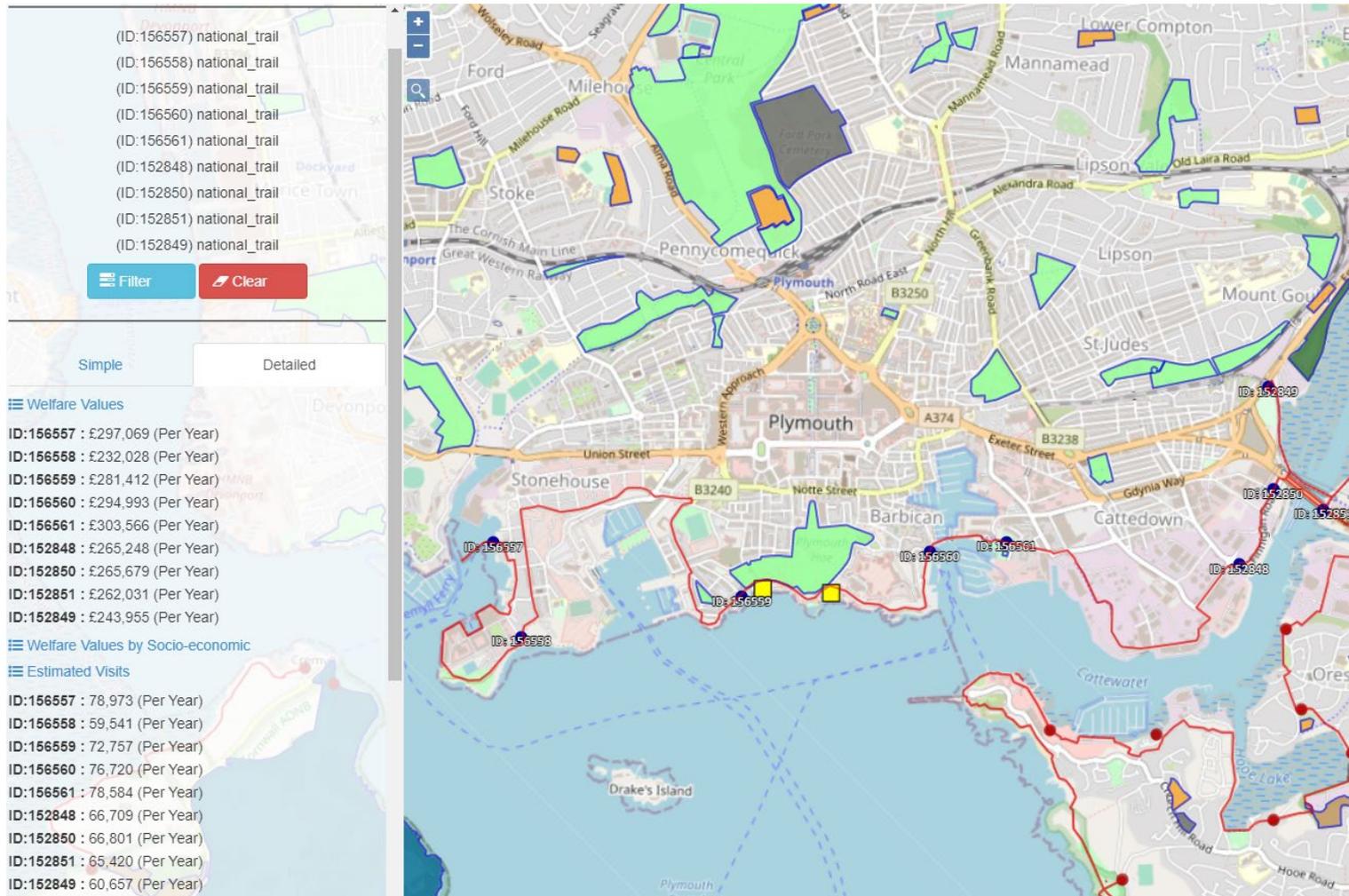
Mount Edgcombe: Baseline situation – beaches (Kingsand and Cawsand)



The city (the ferry to Laira bridge) – baseline - coastal path (dark blue line)



The city (the ferry to Laira bridge) – baseline – access points to coastal path (dark blue points below)



Welfare Values by socio-economic group:

ID:156557 :

AB: £59,103 (Per Year)

C1: £109,019 (Per Year)

C2: £58,132 (Per Year)

DE: £70,816 (Per Year)

ID:156558 :

AB: £47,289 (Per Year)

C1: £83,860 (Per Year)

C2: £46,029 (Per Year)

DE: £54,850 (Per Year)

ID:156559 :

AB: £57,961 (Per Year)

C1: £111,194 (Per Year)

C2: £52,010 (Per Year)

DE: £60,247 (Per Year)

ID:156560 :

AB: £60,651 (Per Year)

C1: £120,135 (Per Year)

C2: £53,238 (Per Year)

DE: £60,969 (Per Year)

ID:156561 :

AB: £62,799 (Per Year)

C1: £126,581 (Per Year)

C2: £54,885 (Per Year)

DE: £59,302 (Per Year)

ID:152848 :

AB: £57,077 (Per Year)
C1: £107,027 (Per Year)
C2: £50,121 (Per Year)
DE: £51,023 (Per Year)

ID:152850 :

AB: £56,658 (Per Year)
C1: £107,241 (Per Year)
C2: £50,302 (Per Year)
DE: £51,478 (Per Year)

ID:152851 :

AB: £58,008 (Per Year)
C1: £103,373 (Per Year)
C2: £51,070 (Per Year)
DE: £49,579 (Per Year)

ID:152849 :

AB: £51,443 (Per Year)
C1: £94,761 (Per Year)
C2: £49,140 (Per Year)
DE: £48,611 (Per Year)

Estimated visits by socio-demographics:

ID:156557 :

AB: 15,430 (Per Year)
C1: 28,901 (Per Year)
C2: 15,279 (Per Year)
DE: 19,362 (Per Year)

ID:156558 :

AB: 11,942 (Per Year)

C1: 21,408 (Per Year)
C2: 11,682 (Per Year)
DE: 14,509 (Per Year)

ID:156559 :

AB: 14,754 (Per Year)
C1: 29,206 (Per Year)
C2: 13,067 (Per Year)
DE: 15,730 (Per Year)

ID:156560 :

AB: 15,460 (Per Year)
C1: 31,928 (Per Year)
C2: 13,404 (Per Year)
DE: 15,928 (Per Year)

ID:156561 :

AB: 15,871 (Per Year)
C1: 33,687 (Per Year)
C2: 13,719 (Per Year)
DE: 15,308 (Per Year)

ID:152848 :

AB: 14,063 (Per Year)
C1: 27,450 (Per Year)
C2: 12,320 (Per Year)
DE: 12,876 (Per Year)

ID:152850 :

AB: 13,938 (Per Year)
C1: 27,507 (Per Year)
C2: 12,361 (Per Year)
DE: 12,995 (Per Year)

ID:152851 :

AB: 14,278 (Per Year)

C1: 26,177 (Per Year)

C2: 12,556 (Per Year)

DE: 12,410 (Per Year)

ID:152849 :

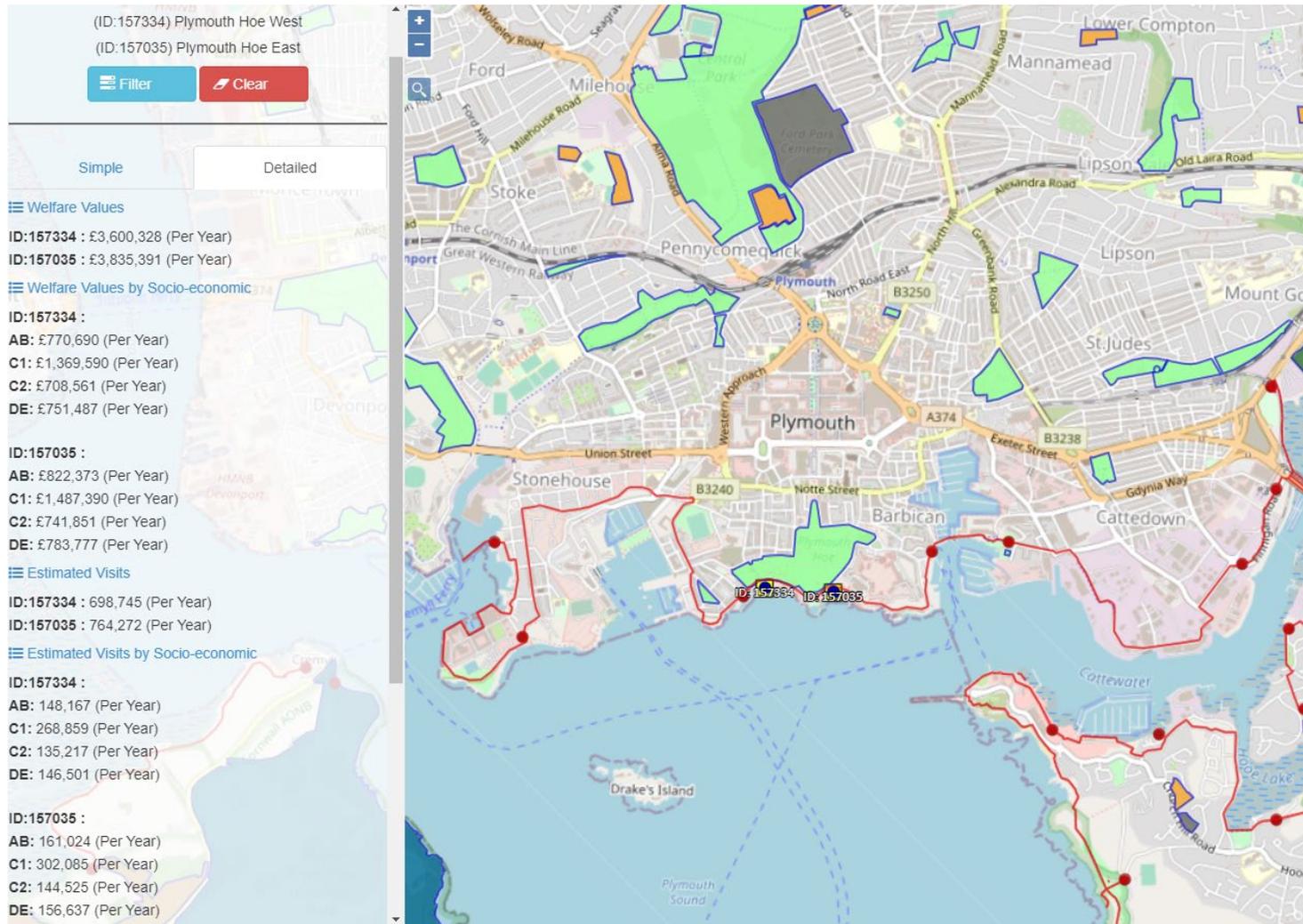
AB: 12,498 (Per Year)

C1: 23,827 (Per Year)

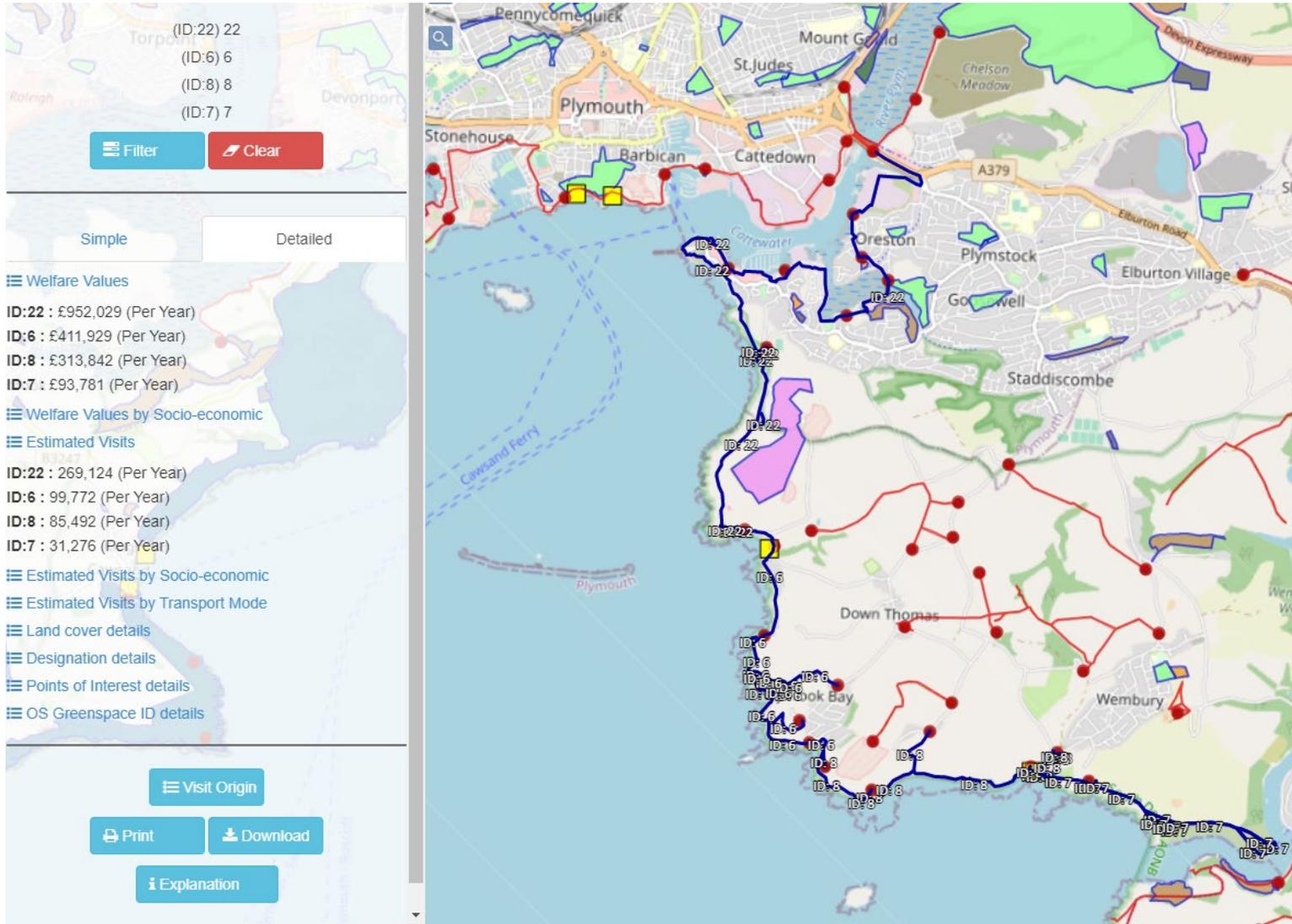
C2: 12,099 (Per Year)

DE: 12,233 (Per Year)

The city (the ferry to Laira bridge) – baseline – beaches (Plymouth Hoe West and Plymouth Hoe East, two points marked in blue at bottom below)



The coast path from Laira bridge round to the NMP Phase one boundary on the east of the city – baseline – coastal path (blue line)



Welfare values by socio-economic group:

ID:22 :

AB: £241,811 (Per Year)

C1: £343,291 (Per Year)

C2: £202,139 (Per Year)

DE: £164,789 (Per Year)

ID:6 :

AB: £106,567 (Per Year)

C1: £141,058 (Per Year)

C2: £90,879 (Per Year)

DE: £73,425 (Per Year)

ID:8 :

AB: £91,744 (Per Year)

C1: £106,406 (Per Year)

C2: £65,556 (Per Year)

DE: £50,136 (Per Year)

ID:7 :

AB: £29,312 (Per Year)

C1: £32,112 (Per Year)

C2: £18,340 (Per Year)

DE: £14,017 (Per Year)

Estimated visits by socio-economic group:

ID:22 :

AB: 69,445 (Per Year)

C1: 97,353 (Per Year)

C2: 56,691 (Per Year)

DE: 45,635 (Per Year)

ID:6 :

AB: 26,342 (Per Year)

C1: 34,273 (Per Year)

C2: 21,745 (Per Year)

DE: 17,411 (Per Year)

ID:8 :

AB: 26,385 (Per Year)

C1: 28,967 (Per Year)

C2: 17,296 (Per Year)

DE: 12,843 (Per Year)

ID:7 :

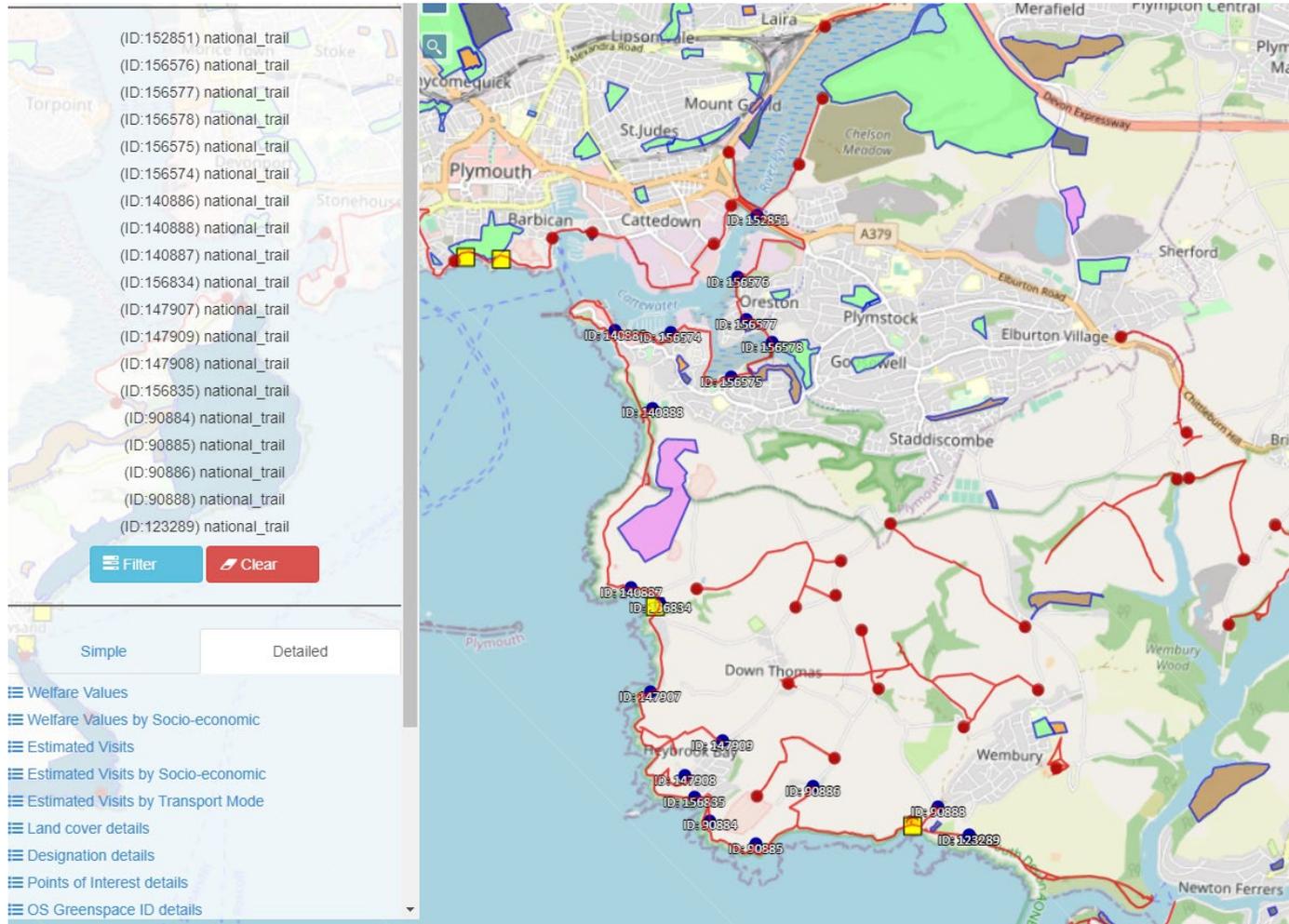
AB: 10,373 (Per Year)

C1: 10,706 (Per Year)

C2: 5,856 (Per Year)

DE: 4,341 (Per Year)

The coast path from Laira bridge round to the NMP Phase one boundary on the east of the city – baseline – access points (blue points)



Welfare values:

ID:152851 : £262,031 (Per Year)
ID:156576 : £169,194 (Per Year)
ID:156577 : £166,711 (Per Year)
ID:156578 : £157,230 (Per Year)
ID:156575 : £125,426 (Per Year)
ID:156574 : £97,772 (Per Year)
ID:140886 : £87,251 (Per Year)
ID:140888 : £91,491 (Per Year)
ID:140887 : £56,954 (Per Year)
ID:156834 : £71,833 (Per Year)
ID:147907 : £77,233 (Per Year)
ID:147909 : £97,193 (Per Year)
ID:147908 : £87,441 (Per Year)
ID:156835 : £78,229 (Per Year)
ID:90884 : £47,774 (Per Year)
ID:90885 : £42,534 (Per Year)
ID:90886 : £82,633 (Per Year)
ID:90888 : £72,972 (Per Year)
ID:123289 : £93,781 (Per Year)

Welfare values by socio-economic group:

ID:152851 :

AB: £58,008 (Per Year)
C1: £103,373 (Per Year)
C2: £51,070 (Per Year)
DE: £49,579 (Per Year)

ID:156576 :

AB: £40,533 (Per Year)
C1: £63,280 (Per Year)

C2: £34,900 (Per Year)
DE: £30,481 (Per Year)

ID:156577 :

AB: £40,569 (Per Year)
C1: £61,765 (Per Year)
C2: £34,715 (Per Year)
DE: £29,662 (Per Year)

ID:156578 :

AB: £38,903 (Per Year)
C1: £57,662 (Per Year)
C2: £33,062 (Per Year)
DE: £27,603 (Per Year)

ID:156575 :

AB: £33,749 (Per Year)
C1: £44,304 (Per Year)
C2: £26,912 (Per Year)
DE: £20,461 (Per Year)

ID:156574 :

AB: £26,171 (Per Year)
C1: £34,237 (Per Year)
C2: £21,101 (Per Year)
DE: £16,264 (Per Year)

ID:140886 :

AB: £23,171 (Per Year)
C1: £30,436 (Per Year)
C2: £18,917 (Per Year)
DE: £14,727 (Per Year)

ID:140888 :

AB: £24,347 (Per Year)

C1: £31,953 (Per Year)

C2: £19,831 (Per Year)

DE: £15,361 (Per Year)

ID:140887 :

AB: £14,370 (Per Year)

C1: £19,653 (Per Year)

C2: £12,700 (Per Year)

DE: £10,231 (Per Year)

ID:156834 :

AB: £17,717 (Per Year)

C1: £24,754 (Per Year)

C2: £16,053 (Per Year)

DE: £13,310 (Per Year)

ID:147907 :

AB: £19,341 (Per Year)

C1: £26,448 (Per Year)

C2: £17,265 (Per Year)

DE: £14,179 (Per Year)

ID:147909 :

AB: £26,223 (Per Year)

C1: £33,289 (Per Year)

C2: £21,122 (Per Year)

DE: £16,560 (Per Year)

ID:147908 :

AB: £23,082 (Per Year)

C1: £29,878 (Per Year)
C2: £19,160 (Per Year)
DE: £15,321 (Per Year)

ID:156835 :

AB: £20,204 (Per Year)
C1: £26,690 (Per Year)
C2: £17,279 (Per Year)
DE: £14,055 (Per Year)

ID:90884 :

AB: £13,879 (Per Year)
C1: £16,144 (Per Year)
C2: £10,040 (Per Year)
DE: £7,711 (Per Year)

ID:90885 :

AB: £12,177 (Per Year)
C1: £14,383 (Per Year)
C2: £8,991 (Per Year)
DE: £6,982 (Per Year)

ID:90886 :

AB: £25,202 (Per Year)
C1: £27,956 (Per Year)
C2: £17,006 (Per Year)
DE: £12,470 (Per Year)

ID:90888 :

AB: £21,121 (Per Year)
C1: £24,832 (Per Year)
C2: £15,238 (Per Year)
DE: £11,782 (Per Year)

ID:123289 :

AB: £29,312 (Per Year)

C1: £32,112 (Per Year)

C2: £18,340 (Per Year)

DE: £14,017 (Per Year)

Estimated visits:

ID:152851 : 65,420 (Per Year)

ID:156576 : 48,615 (Per Year)

ID:156577 : 48,138 (Per Year)

ID:156578 : 45,275 (Per Year)

ID:156575 : 36,994 (Per Year)

ID:156574 : 27,409 (Per Year)

ID:140886 : 23,731 (Per Year)

ID:140888 : 25,306 (Per Year)

ID:140887 : 13,655 (Per Year)

ID:156834 : 16,899 (Per Year)

ID:147907 : 18,082 (Per Year)

ID:147909 : 24,683 (Per Year)

ID:147908 : 21,451 (Per Year)

ID:156835 : 18,657 (Per Year)

ID:90884 : 12,702 (Per Year)

ID:90885 : 11,055 (Per Year)

ID:90886 : 24,204 (Per Year)

ID:90888 : 19,624 (Per Year)

ID:123289 : 31,276 (Per Year)

Estimated visits by socio-economic group:

ID:152851 :

AB: 14,278 (Per Year)

C1: 26,177 (Per Year)
C2: 12,556 (Per Year)
DE: 12,410 (Per Year)

ID:156576 :

AB: 11,760 (Per Year)
C1: 18,179 (Per Year)
C2: 10,007 (Per Year)
DE: 8,668 (Per Year)

ID:156577 :

AB: 11,864 (Per Year)
C1: 17,810 (Per Year)
C2: 10,013 (Per Year)
DE: 8,451 (Per Year)

ID:156578 :

AB: 11,376 (Per Year)
C1: 16,578 (Per Year)
C2: 9,509 (Per Year)
DE: 7,812 (Per Year)

ID:156575 :

AB: 10,157 (Per Year)
C1: 13,153 (Per Year)
C2: 7,835 (Per Year)
DE: 5,850 (Per Year)

ID:156574 :

AB: 7,505 (Per Year)
C1: 9,665 (Per Year)
C2: 5,825 (Per Year)
DE: 4,414 (Per Year)

ID:140886 :

AB: 6,440 (Per Year)

C1: 8,335 (Per Year)

C2: 5,070 (Per Year)

DE: 3,887 (Per Year)

ID:140888 :

AB: 6,885 (Per Year)

C1: 8,901 (Per Year)

C2: 5,403 (Per Year)

DE: 4,118 (Per Year)

ID:140887 :

AB: 3,458 (Per Year)

C1: 4,732 (Per Year)

C2: 3,029 (Per Year)

DE: 2,436 (Per Year)

ID:156834 :

AB: 4,169 (Per Year)

C1: 5,852 (Per Year)

C2: 3,756 (Per Year)

DE: 3,122 (Per Year)

ID:147907 :

AB: 4,536 (Per Year)

C1: 6,222 (Per Year)

C2: 4,020 (Per Year)

DE: 3,304 (Per Year)

ID:147909 :

AB: 6,917 (Per Year)

C1: 8,468 (Per Year)
C2: 5,263 (Per Year)
DE: 4,036 (Per Year)

ID:147908 :

AB: 5,822 (Per Year)
C1: 7,346 (Per Year)
C2: 4,630 (Per Year)
DE: 3,653 (Per Year)

ID:156835 :

AB: 4,897 (Per Year)
C1: 6,385 (Per Year)
C2: 4,077 (Per Year)
DE: 3,297 (Per Year)

ID:90884 :

AB: 3,901 (Per Year)
C1: 4,283 (Per Year)
C2: 2,592 (Per Year)
DE: 1,926 (Per Year)

ID:90885 :

AB: 3,325 (Per Year)
C1: 3,734 (Per Year)
C2: 2,276 (Per Year)
DE: 1,720 (Per Year)

ID:90886 :

AB: 7,918 (Per Year)
C1: 8,153 (Per Year)
C2: 4,792 (Per Year)
DE: 3,340 (Per Year)

ID:90888 :

AB: 5,934 (Per Year)

C1: 6,693 (Per Year)

C2: 3,975 (Per Year)

DE: 3,023 (Per Year)

ID:123289 :

AB: 10,373 (Per Year)

C1: 10,706 (Per Year)

C2: 5,856 (Per Year)

DE: 4,341 (Per Year)

The coastal path from Laira bridge round to the NMP Phase one boundary on the east of the city – baseline – beaches

