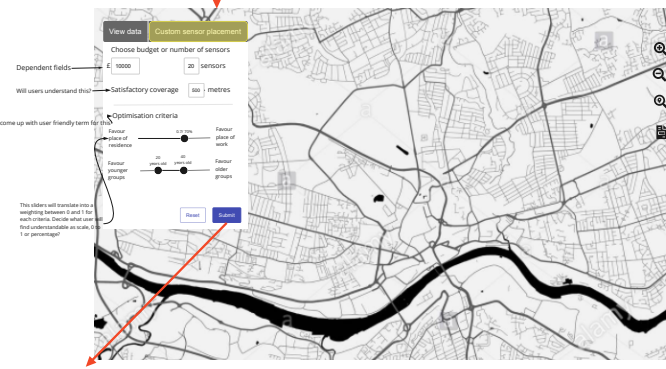
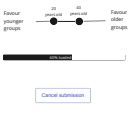
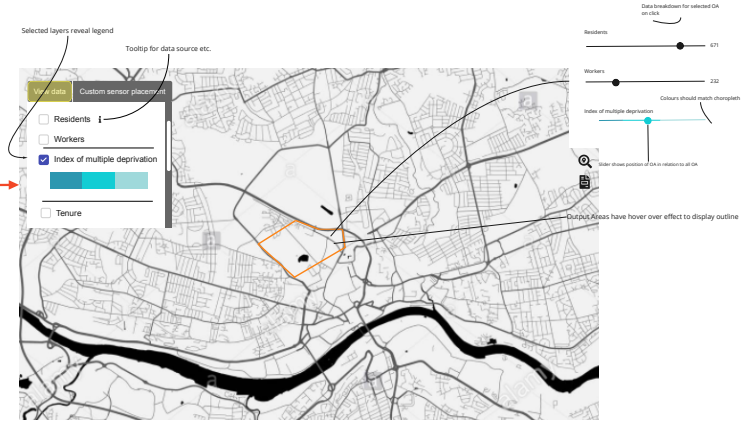
TODO: develop system for choosing between the 2 ways to interact with the map:

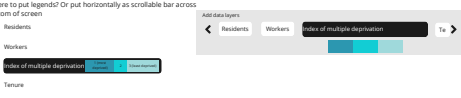
1. Filter data layers
2. Submit and view a custom sensor placement query

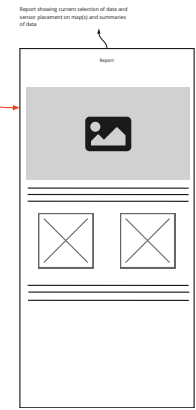




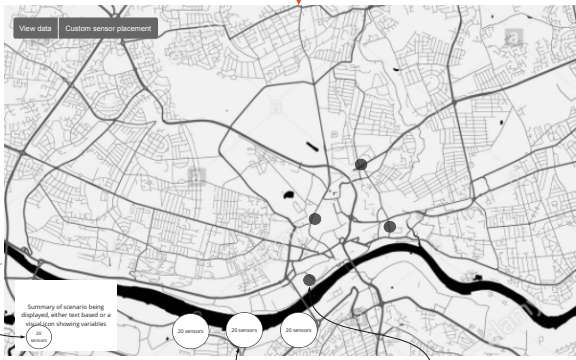


Less intrusive data layers as pill badges. Potentially always present?
Where to put legends? Or put horizontally as scrollable bar across bottom of screen





custom sensor placement - possible locations should show when making changes. In other modes they should be hidden.



scenario criteria displayed, sually

Sensors plotted on map along with coverage

Selected previously submitted scenarios, either user's (from current session) or submitted by others

Map Layers

TBC: default. Rules for which can/can't be on at the same time.

Basemap: potential tonal to allow maximum contrast with data overlaps. River Tyne is key landmark so could be blue to help users place locations. Street network could be included at this level or form data layer.		Always on	**Context**
Street network: could be conceptually thought of as data if street importance indicates potential traffic level and therefore colour coded. (data to get beyond basemap)	Lines. Code as hazard.	on/off default?	**Data**
Places of interest: schools, hospitals (data to get)	Points. Consider icons. Consider coding as vulnerability/ exposure.	on/off Consider progressively revealing as zoom in closer	
Population characteristics: by Output Area • Size • Age (in gs) - ideally pie chart icons • Population (in csv) • Workers (in csv) • Tenure (in gs) - ideally pie charts • Ethnic group (in gs) - ideally pie charts • Disability (in gs) - chloro • Index of multiple deprivation (in gs) - chloro • Traffic flow points (in gs) • Centroids (in csv) (data from ONS)	Polygons represent OAs. Chloropleth to encode data. Consider also using icons such as pie charts to display breakdowns within areas. Consider coding as to whether they relate to vulnerability or exposure. Select OA to view detailed data breakdown in side panel. Do we want to include data that we don't then use in the optimisation? Should there be an additional layer to each dataset which identifies served and not served groups by sensors?	on/off Consider automatically turning on relevant layers to optimisation query or highlighting relevant options	
Area divisions: • Output areas (in gs) • Local authorities (do we need if not used to organise data) (in gs)	Visible as outline or hover over. When click should show detailed data for that area.	on/off	
Current sensors (in gs) (data from UO) • NO2 • PM2.5 • PM10	Points. Consider showing coverage. Independently choose different sensors or colour code?	on/off	
Sensor layout resulting from optimisation query (data received from optimisation API)	Points. Potentially overlay multiple selections favouring criteria differently.	on/off On only available after query submitted. Select which optimisation to view if multiple returned.	
Map controls: Zoom, pan, search, reset, change basemap, fullscreen	Overlay on map	on off when building query/ selecting data	**Controls**
Query builder: Determine workflow here	Consider whether data selection or query builder should be prioritised equally or differently on opening screen. Progressively disclose query? How much should the 'behind the scenes' of the query be suggested to avoid 'magically' arriving results. Wait while optimisation takes place	off until basemap has loaded	
Data layers selection	Make selection as icon based as simple as possible. Side panel displays legend and source only of data currently selected. Consider how readable multiple selections are (e.g. multiple choropleths).	off until basemap has loaded	
Interactions	• Hierarchy of data layers. Prioritise sensors, decide on the rest. • Selected OA highlighted • Report generation, saving queries (caution - accounts needed), sharing queries. • Double click should zoom, as should scroll button • Touchscreen capability? • Mobile?		**Interaction**

Components and data flow