

Appendix B. Summary of optioneering process to identify shortlist

B.1. Introduction

The Strategic Outline Case (SOC) (submitted January 2019) set out the process for identifying a long list of options (structured around the spending objectives / critical success factors), in order to identify a shortlist of better performing packages of options to take forward to Outline Business Case (OBC). This section summarises the process and reviews the short list in the context of the current understanding of the Strategic Case, as set out in this OBC.

B.2. Identification of long list for the SOC

In line with the Green Book recommended approach to developing policy options, a long list of options was identified based around the following framework (and evidence available at the time):

- Scope options – Potential interventions should meet the following criteria:
 - City-wide focus, but with targeted focus on exceedance areas (reflecting the island geography of the city with only three roads linking to the mainland and significant potential for displacement of emissions);
 - Targeting all vehicles (especially the most polluting vehicles); and
 - Targeting all day / all-purpose trips (but with a particular focus on peak period trips, where appropriate).
- Service solution options – A long list of 64 options was generated comprising individual policies and interventions which could potentially address the problems, issues, and scope identified; structured around the following themes identified in the logic map prepared as part of the SOC Strategic Case chapter:
 - Charging Clean Air Zone (CAZ);
 - Measures to reduce private vehicle use (including reducing the need to travel);
 - Road network changes and traffic management measures to reduce traffic flow / congestion;
 - Measures to re-time vehicle trips;
 - Measures to encourage use of cleaner vehicles and more sustainable driving (to reduce tailpipe emissions);
 - Measures to encourage mode shift to sustainable modes (including reducing the need to travel);
 - Communications and marketing; and Other.

The list was based on:

- suggestions put forward by local authority officers and members at a workshop for the Targeted Feasibility Study in August 2018;
- a review of options considered by other local authorities developing Air Quality Local Plans, and other examples of best practice;
- a review of the problems and issues and scope identified, and recent policy developments in Portsmouth, to identify any gaps.

An initial sift was undertaken in order to sift out options which:

- are unlikely to improve air quality;

- are unlikely to be deliverable in the required timescale;
- are not considered technically feasible, deliverable under current legislation, or would be seen as wholly unacceptable by stakeholders.

As a result, 10 schemes were rejected, leaving a long list of 55 for further consideration. See Table E1 in the Strategic Outline Case, for more information.

- Service delivery options – Options relating to who will deliver the local plan:
 - Fully delivered in house by local authority;
 - Fully delivered by external consultant; and
 - Some elements delivered by each.
- Funding options – Options around who will provide the funding required to deliver the plan:
 - Public funding only;
 - Public funding with substantial private funding support for non-charging measures; and
 - Public funding with private partners sought where possible.

B.3. Assessment of sifted long list for the SOC

The options in the sifted long list were assessed in two stages:

- firstly considering the potential of each option to achieve or contribute (as part of a package) to compliance in the shortest possible time (Primary Critical Success Factor); and
- secondly considering how each option performs in terms of strategic fit, value for money, distributional impacts, commercial delivery, affordability, and achievement issues (Secondary Success Factors).

B.3.1. Multi-criteria analysis framework

The analysis used to undertake this assessment is set out in Table B-1.

Figure B-1 Multi-criteria analysis framework used for SOC

Criteria	Description / consideration	Scoring
Primary Critical Success Factor		
Compliance	a) Does the option allow PCC to achieve NO ₂ compliance in the shortest possible time? <i>At the time it was expected that the earliest possible time a charging CAZ could be implemented would be within 12-18 months of the delivery of the business case in October 2019, which would be in 2021. Further work around the programme has indicated that the earliest date for implementing a CAZ is late 2021, with compliance expected in 2022.</i> b) Does the option allow PCC to achieve NO ₂ compliance in the shortest possible time, if combined with other options? <i>Options which meet this criterion, but not criterion (a) should be packaged with other options and re-assessed.</i>	Scored as Pass or Fail. Only options that 'pass' to be taken forward for further consideration.

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Secondary Critical Success Factors		
Local objective	a) Does the option reduce emissions on identified links, without significantly worsening emissions elsewhere (for example, due to displacement of traffic to alternative routes)?	Score using a 5 point scale.
Strategic fit	a) Does the option promote economic growth, reduce levels of social deprivation, and/or encourage sustainable and active travel?	Score using a 5 point scale.
Value for money	a) Do the likely benefits of this option exceed the costs? b) Has the option been designed to deliver effectively while maximising benefits and minimising cost? <i>At the time of the SOC there was felt to be insufficient evidence or information to make a meaningful assessment of value for money. Instead value for money has been assessed as part of the Outline Business Case.</i>	Score using a 5 point scale.
Distributional impacts	a) Does the option significantly affect one or a number of particular groups of stakeholders (in a transport context)? b) Is there potential to insure some groups against the detrimental impacts of an option? <i>The locations with the highest NO₂ emissions are in areas with high levels of deprivation and high proportions of children, people with disabilities, and non-white ethnicity. All options which score strongly against the compliance objective are assumed to result in positive health benefits for these groups. This assessment therefore focuses on other distributional impacts.</i>	Score using a 5 point scale.
Supply side capacity and capability	a) Are there capable contractors available to provide the required services? b) Is there a sufficiently well-developed market to support the efficient delivery of the option? c) Who will deliver this solution (LA, external party, or both), and who will lead organisation for the delivery of this option? <i>Options which PCC have experience in delivering and a clear route to procurement score most highly. Those which require third parties to lead delivery (e.g. business, transport operators, etc.) are scored less favourably.</i>	Score using a 5 point scale.
Affordability	a) Is the option likely to be affordable in both the short and long run in comparison to other options considered? b) How will this option be funded (public, private or mix of funding sources)? <i>Options categorised using the nominal monetary value bandings.</i>	Score using a 5 point scale.
Achievability	a) Can it be delivered on a local scale / in the local context? b) Given market limitations, are adequate resources available (currently or can be obtained in sufficient time) to manage and implement such an option successfully?	Score using a 5 point scale.

	<p>c) Is it based on proven / existing technology?</p> <p><i>Conventional options with low deliverability risks have been scored most highly. Options requiring extensive mitigation, likely to require challenging consultation and engagement to secure political and public support, where there are limited applications of the intervention to date, or where PCC have limited ability to influence the extent to which the intervention is successfully delivered are scored less favourably.</i></p>	
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The primary CSF was scored using a pass/fail score as recommended by JAQU. The secondary CSFs were scored using a five-point scale (+2 to -2, where +2 represents the most positive assessment and -2 represents the least positive assessment), with key metrics and statistics used as a guide to support the scoring where possible.

B.3.2. Compliance (and local objective) assessment

In order to determine the relative performance of options in achieving compliance in the shortest possible time, each option was assessed against the following sub-criteria:

- delivery timescales, where the Charging CAZ benchmark was assumed to be 12-18 months (at the time of the SOC);
- potential scale of NO₂ reduction, based on emissions modelling undertaken as part of the 2018 Targeted Feasibility Studies or proxy estimates based on the potential change in vehicle flow, speeds and/or delay;
- certainty of delivering the estimated change identified above, e.g. high certainty for options which ban traffic or reduce per vehicle emissions and low certainty for options which rely on individuals choosing to change their behaviour (e.g. travel planning initiatives); and
- risk of displacement of traffic or air quality limit exceedance to other AQMAs (reflecting the local objective).

Options which will take more than 24 months were assumed to have failed in the context of the Primary Critical Success Factor, and were not taken forward for further assessment against the Secondary Critical Success Factors. Schemes assessed as taking 18-24 months to deliver were retained, as further investigation may conclude that the intervention can be delivered within a similar or shorter time to a Charging CAZ.

It was acknowledged that many of the options would have a low impact if implemented on their own but are likely to be effective if implemented as part of a package of measures. Options which scored less favourably than a Charging CAZ in terms of 'potential scale of NO₂ reduction' were therefore retained and taken forward for assessment against the Secondary Critical Success Factors and subsequent packaging as part of the short listing process.

See Table E2 in the Strategic Outline Case, for assessment evidence.

B.3.3. Secondary critical success factor assessment

In order to determine the relative performance of options in achieving compliance in the shortest possible time, each option was assessed against the following sub-criteria:

- Strategic case
- Supply side capacity and capability

- Affordability
- Achievability

At this stage (SOC) there was felt to be insufficient evidence or information to make a meaningful assessment of value for money.

See Table E3 in the Strategic Outline Case, for assessment evidence.

B.4. Shortlisted options and packages for SOC

The SOC submitted in January 2019 identified a Benchmark Charging Clean Air Zone (CAZ) option and three non charging air quality improvement package options as summarised in Table B-2.

CAZ Benchmark - A Class B CAZ (focused on Portsea Island) was selected as the benchmark option at this stage. The emissions source apportionment data available at the time suggested that buses, coaches and HGVs combined make a significant contribution to emissions on the exceedance links, particularly the A2047 where the exceedances are greatest. Although the specific emissions impact of taxis was not available at the time, their volumes were known to be high on the A3 and A2047. Therefore, on the basis of evidence available at the time, the view was taken that a Class B CAZ has the potential to bring forward compliance to the earliest possible date.

Non-charging options – Evidence available at the time suggested that the most effective non-charging interventions were focused around traffic management measures on the A2047 (London Road), junction improvements on A3, and use of cleaner buses. However, they would only be successful with modal shift and cleaner vehicle uptake and so these relevant supporting measures were also brought forward as part of the package approach.

The three non-charging packages identified each included a major traffic management measure on London Road (the location with the highest exceedance at the time), supported by a range of complementary measures.

Figure B-2 Shortlisted package options for SOC

Proposed packages		Comprising long list measures	Estimated delivery timescale
1	Charging Clean Air Zone	Citywide, Class B Charging CAZ	12 to 18 months
2	Ban traffic except buses and cycles between Stubbington Avenue and Kingston Crescent with complementary traffic management and junction improvements at other key locations and the promotion of modal shift and uptake of cleaner vehicles.	B11, B21, B6, D8, D10, D11, D2, D3, E1, E7, D12, E2, F1, E12, D1, A6, D13, A8, E3, E4, A9, E9, E11	12 to 18 months
3	Ban traffic except buses, taxis and cycles between Stubbington Avenue and Kingston Crescent with complementary traffic management and junction improvements at other key locations and the promotion of modal shift and uptake of cleaner vehicles.	B12, B21, B6, D8, D10, D11, D2, D3, E1, E7, D12, E2, F1, E12, D1, A6, D13, A8, E3, E4, A9, E9, E11	12 to 18 months

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4	One-way system on London Road between Stubbington Avenue and Kingston Crescent with complementary traffic management and junction improvements at other key locations and the promotion of modal shift and uptake of cleaner vehicles.	B13, B21, B6, D8, D10, D11, D2, D3, E1, E7, D12, E2, F1, E12, D1, A6, D13, A8, E3, E4, A9, E9, E11	12 to 18 months
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Key for long list measures:

Intervention option	
B11	Ban traffic except buses and cycles between Stubbington Avenue and Kingston Crescent during all or part of the day (AQMA6)
B12	Ban traffic except buses, taxis (but not private hire vehicles), cycles between Stubbington Avenue and Kingston Crescent during all or part of the day (AQMA6)
B13	One-way system on London Road between Stubbington Avenue and Kingston Crescent during all or part of the day (AQMA6)
B21	Time restrictions on deliveries on London Road (AQMA6)
B6	Change traffic priorities at Unicorn Gate Junction, with bus priority on Queen Street (Road Link 18114, A3 Alfred Road)
D8	Retrofitting buses on A2047 routes to Euro 6 standards
D10	Encourage use of lower emission taxis through incentives / review and update existing taxi licensing policies
D11	Introduce charging points for taxis
D2	On-street charging points in residential areas
D3	Public charging points in the city centre
E1	Workplace Travel Planning (including Workplace Sustainable Travel Fund; personal journey planning; cycle training; Bike Doctor; promotional activities; encourage flexible working; etc.)
E7	Promotion of Portsmouth Park & Ride amongst commuters
D12	Encourage use of lower emission vehicles for business fleets (HGV / LGV fleets) – through subsidies and promotional campaigns
E2	School Travel Planning (including travel to school initiatives; pedestrian, cycle and scooter training; parking for cycles and commuters; promotional activities; etc.)
F1	Targeted communications and marketing
E12	Improve cycling and walking facilities (e.g. cycle lanes, secure cycle storage, safe crossings, etc.)
D1	Anti-idling campaign
A6	Advance and real time (social and conventional media, VMS) messaging to discourage driving on days of high pollution and incentivise alternative behaviour
D13	Eco-driver training for businesses (wide scale / intensive application)
A8	Introduce car clubs and car hire schemes (using low emission vehicles) in exceedance areas, with subsidised hire rates
E3	Personal Journey Planning for residents (and as associated incentives to develop and promote walking and cycling)
E4	Promote easitNETWORK and easitSHARE (easitPORTSMOUTH)
A9	Scrappage scheme for the most polluting vehicles
E9	Improve bus connectivity
E11	Mobility as a Service (MaaS)

B.5. Review of options and packages for OBC

The SOC shortlist has been re-assessed following the submission of the SOC, to take into account the current understanding of exceedances across the city, their underlying causes, and emerging evidence on the likely effectiveness of different solutions.

The process has been based on the following activities:

- A PCC workshop with officers to discuss further options
- Input from the Air Quality Stakeholder Group and the Air Quality Project Board
- Inputs from Members
- Initial modelling of traffic and emissions impact, prior to detail transport and air quality modelling*
- Further research and data collection relating to the various options.

**Early option development has been informed by an emissions spreadsheet model. This uses traffic flow and speed output by vehicle type, time period and link from the Sub-Regional Transport Model (SRTM) in conjunction with the local fleet composition and emissions factors from the latest Emissions Factor Toolkit (EFT, as used in the air quality modelling) to estimate NOx emissions on each link for the baseline and early modelled scenarios (such as London Road closure). This has allowed the scale of impact of the modelled measures to be assessed in terms of percentage change of NOx emissions on the links nearest to each exceedance location to provide an indication of the extent to which the measure might contribute to reducing the exceedance (recognising that the link between NOx emissions and NO2 concentration is not linear). The spreadsheet also enables simple tests of the impact of measures relating to changing fleet composition, such as a indicative representations of CAZ options (by removing the relevant proportion of trips to reflect cancelled or avoided trips and changing the fleet composition to represent the upgrade effect).*

As the focus of the emissions spreadsheet is on percentage changes in emissions, 2026 SRTM model runs only were used at this stage (with 2021/2022 fleet mix). This approach was considered proportionate for this stage of the process as the production of 2022 flows would have involved the modelling of 2 years (2019 and 2026) and interpolation.

This process has resulted in the following revised shortlist of options for further consideration (Table B-3).

Table B-4 (at the end of this section) provides details of the full long list (as updated for the OBC, including a number of new or refined options), and the evidence used to produce the revised short list.

Figure B-3 Shortlisted package options for OBC (based on high level assessment)

(Complementary or mitigation measures are underlined, potential package (abatement) options are in **bold**)

ID	Description	OBC status
Charging Clean Air Zone		
CAZ B	Targeting taxis and Private Hire Vehicles (PHVs), buses and coaches, and HGVs on Portsea island.	Potential package component.
CAZ C	Targeting taxis and Private Hire Vehicles (PHVs), buses and coaches, HGVs, LGVs on Portsea Island. Higher charges for buses and HGVs.	Expected Benchmark CAZ.
CAZ ? Small Area	CAZ B or C, focused on City Centre area only	Potential package component.
CAZ ? (Ext/int trips only)	Portsea Island CAZ B or C, focused on int/ext trips only (i.e. exempting local trips)	Potential package component.
A. Measures to reduce private car use		
A1	Increase car-parking charges to discourage car use	Potential package component to encourage mode shift.
A2	Reduce number of car parking spaces to discourage car use	Potential package component to encourage mode shift.
<u>A4</u>	Increase on-street parking charges for residents (or vary charges based on vehicle emissions) to discourage car ownership or purchase of a cleaner vehicle	Potential complementary measure to discourage car ownership or use of a cleaner vehicle amongst Portsea Island residents. (See also D7)
<u>A6</u>	Advance and real time (social and conventional media, VMS) messaging to discourage driving on days of high pollution	Potential complementary measure to raise awareness and change behaviour.
<u>A8</u>	Introduce car clubs and car hire schemes (using low emission vehicles) in exceedance areas, with subsidised hire rates. To discourage car ownership and use	Potential complementary measure to discourage car ownership (but most effective as potential CAZ D mitigation measure).
<u>A10</u>	Mobility credit scheme - Provision of 'mobility credit' in return for giving up car use i.e. credit for use on other modes of transport or low emission car club cars	Potential complementary measure to discourage car ownership (but most effective as potential CAZ D mitigation measure).
B. Road network Measures to reduce private car use		
B6	Change traffic priorities at Alfred Road / Queen Street (Additional green time to s/bound movements from Alfred Road to Queen Street)	Potential package component (as a temporary measure, prior to introduction of additional bus priority measures as part of the proposed SE Hants Rapid Transit (TCF bid)
B22b	Rapid transit - Full TCF proposal for sub-region	Potential medium term solution (i.e. post 2022), subject to securing funding (i.e. sensitivity test).
D. Measures to encourage use of cleaner vehicles and more sustainable driving (to reduce tailpipe emissions)		
<u>D1</u>	Anti-idling campaign	Potential complementary measure to raise awareness and change behaviour.

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<u>D7</u>	Discounted charges for residents on-street parking permits for low emission vehicles (vary charges based on vehicle emissions)	Potential complementary measure to discourage car ownership or use of a cleaner vehicle amongst Portsea residents. See also A4.
<u>D9</u>	Support to convert buses to lower emission fuels (including hybrid buses, biofuel powered buses, and electric buses, as an alternative to petrol and diesel)	Potential complementary measure (based on operator commitment, subject to securing TCF funding for rapid transit proposals – medium term measure). See B22b.
D10,D11	Encourage use of lower emission taxis through incentives and tightening of existing licensing policies. Introduce charging points for taxis	Potential package component or potential CAZ mitigation measure
D12	Encourage use of lower emission vehicles for business fleets (HGV / LGV fleets)	Options being developed as part of Solent Mobility Zone Bid
<u>D13</u>	Eco-driver training for businesses	Potential complementary measure
E. Mode shift to sustainable modes		
<u>E1</u>	Workplace Travel Planning	Potential complementary measure to raise awareness and change behaviour
<u>E2</u>	School Travel Planning	Potential complementary measure to raise awareness and change behaviour
<u>E3</u>	Personal Journey Planning for residents	Potential complementary measure to raise awareness and change behaviour
<u>E4</u>	Promote easitNETWORK and easitSHARE	Potential complementary measure to raise awareness and change behaviour
<u>E7a</u>	Promotion of Portsmouth Park & Ride amongst commuters	Potential complementary measure (most effective if combined with a CAZ D or significant parking restraint in city centre / The Hard area)
<u>E9b</u>	Contactless payment	Potential complementary measure to encourage mode shift (as part of TCF Tranche 2 bid). See B22b.
<u>E11</u>	Mobility as a Service (MaaS)	Potential complementary measure to encourage mode shift (part of Solent Mobility Zone bid).
E12	Improve cycling and walking facilities (e.g. cycle lanes, secure cycle storage, safe crossings, etc.)	Potential package component
F. Communications and marketing		
<u>F1</u>	Targeted communications and marketing	Potential complementary measure (an important element of any package of measures).
G. Other		
G2a	Freight consolidation measures (via Solent Consolidation Centre, and micro-trials)	Potential package component to reduce freight impact (part of Solent Mobility Zone bid).
G2b	Service and Delivery Plans	Potential package component to reduce freight impact (part of Solent Mobility Zone bid).
G3	Port-specific measures	Being considered further

Figure B-4 Updated long list for OBC

(Complementary or mitigation measures are underlined, potential package (abatement) options are in **bold**)

ID	Description (Further detail in SOC)	SOC Status	OBC Status (to date)
Charging Clean Air Zone			
Portsea Island CAZ A	CAZ A - Targeting taxis and Private Hire Vehicles (PHVs), buses and coaches on Portsea island.	Not shortlisted as thought that a CAZ B would achieve necessary compliance.	Not shortlisted. Estimated scale of NOx reduction is Low . Indicative analysis shows (emissions spreadsheet based on 2026 SRTM outputs and 2022 fleet mix) shows that a CAZ A would achieve only a small amount of the required reduction in road NOx (3% at Commercial Road and ~1% at Alfred Road). Based on £10 charge for taxis, LGVs, and £50 for buses and HGVs. Survey results show that, based on a small sample of 26 non-compliant taxi drivers and assuming a £10 CAZ charge, 9 drivers said they would retire early or leave the taxi trade, and 8 said they would stop working in the CAZ area. This would have significant consequences for the taxi trade in Portsmouth if representative of the wider taxi driver population.
Portsea Island CAZ B	CAZ B - Targeting taxis and Private Hire Vehicles (PHVs), buses and coaches, and HGVs on Portsea island.	Identified as likely benchmark.	Potential package component. Delivery time is 18-24 months ; Estimated scale of NOx reduction is Med/High - Indicative analysis shows (emissions spreadsheet based on 2022 SRTM outputs and 2022 fleet mix) shows that a CAZ B would achieve the required reduction in road NOx at Commercial Road (~14%) but not quite at Alfred Road (~11%, leaving ~1% residual emissions). Based on £10 charge for taxis, LGVs, and £50 for buses and HGVs. Certainty of delivering change is High ; Risk of displacement is Low . Potential adverse impact on businesses with HGV fleets. See also potential impact on taxi drivers described above.
Portsea Island CAZ C	CAZ C - Targeting taxis and Private Hire Vehicles (PHVs), buses and coaches, HGVs, LGVs on Portsea Island. Higher charges for buses and HGVs.	Not shortlisted as thought that a CAZ B would achieve necessary compliance.	EXPECTED BENCHMARK Delivery time is 18-24 months ; Estimated scale of NOx reduction is High - Indicative analysis shows (emissions spreadsheet based on 2022 SRTM outputs and 2022 fleet mix) shows that a CAZ C would achieve the required reduction in road NOx at Commercial Road (~18%) and Alfred Road (~13%). Based on £10 charge for taxis, LGVs, and £50 for buses and HGVs. Certainty of delivering change is High ; Risk of displacement is Low . Potential adverse impact on businesses with LGV and HGV fleets. See also potential impact on taxi drivers described above.
Portsea Island CAZ D	CAZ D - Targeting taxis and Private Hire Vehicles (PHVs), buses and coaches, HGVs, LGVs, and cars on Portsea Island. Higher charges for buses and HGVs.	Not shortlisted as thought that a CAZ B would achieve necessary compliance.	Not shortlisted (this level of intervention not required). Estimated scale of NOx reduction is High - Indicative analysis shows (emissions spreadsheet based on 2022 SRTM outputs and 2022 fleet mix) shows that a CAZ D would significantly exceed the required reduction in road NOx at Commercial Road (~34%) and Alfred Road (~29%). Based on £10 charge for taxis, LGVs, and £50 for buses and HGVs. Potential to isolate drivers with a disability and encourage leisure and retail shoppers to go elsewhere or stay at home based on survey feedback. Widespread concern amongst survey respondents that a CAZ would have a detrimental effect on local businesses. See also potential impact on taxi drivers, and businesses with LGV and HGV fleets, described above.
Portsea Island CAZ D.1 (Car-focused)	Car-focused CAZ D – As CAZ D, but with low charges for buses, HGVs, and LGVs (to protect local businesses)	Not considered. New OBC option.	Not shortlisted (this level of intervention not required). Estimated scale of NOx reduction is High - Indicative analysis shows (emissions spreadsheet based on CAZ D – CAZ C) shows that a car-focused CAZ would achieve the required reduction in road NOx at Commercial Road (~16%) and Alfred Road (~16%). Note - test does not fully represent likely responses of car drivers (indicative only). Would minimise economic impact on businesses dependent on HGVs / LGVs; but significantly impact businesses dependent on car commuting and business-related car use. Potential to isolate drivers with a disability and encourage leisure and retail shoppers to go elsewhere or stay at home based on survey feedback. Widespread concern amongst survey respondents that a CAZ would have a detrimental effect on local businesses. See also potential impact on taxi drivers, and businesses with LGV and HGV fleets, described above.
CAZ ? (Small Area)	CAZ B or C, focused on Central Portsmouth only.	Not considered. New OBC option.	Potential package component. Delivery time is 18-24 months ; Estimated scale of NOx reduction is Med/High ; Certainty of delivering change is High ; Risk of displacement is Med/High . Potential to create exceedances elsewhere, e.g. London Road, Eastern Road Water Bridge.
CAZ ? (Ext trips only)	Portsea Island CAZ B or C, focused on int/ext trips only (i.e. exempting local trips)	Not considered. New OBC option.	Potential package component. Delivery time is 18-24 months ; Estimated scale of NOx reduction is Med/High ; Certainty of delivering change is High ; Risk of displacement is Med/High . Evidence suggests that only a small proportion of the traffic on Commercial Road and Alfred Road is making local trips (within Portsea Island).
CAZ X1	Portsea Island boundary, excluding Anchorage Park, Mountbatten Centre, etc. (to protect local businesses, which are not contributing to exceedances)	Not considered. New OBC option.	Potential refinement of a Portsea Island CAZ. If implemented as part of a CAZ B or C, HGVs going to Anchorage Park would not be affected. Less relevant if the focus is on a Car-focused CAZ D scenario, as HGVs would be affected less anyway.
CAZ X2	Portsea Island boundary, excluding Princess Royal Road to allow non-chargeable access to the Naval Port (to protect major local employer)	Not considered. New OBC option.	Not shortlisted. Not feasible. Would need to also exclude Mile End Road and Church Street roundabout (major exceedance locations), to allow s/b traffic on the M275 to access the Naval Base. Under Section 349 of the Armed Forces Act 2006 military vehicles are exempt from charges. Suggested by Councillors.
CAZ X3	Portsea Island boundary, excluding trips to / from Wightlink. <i>See also B23 - Relocation of Wightlink freight services to Portsmouth International Port</i>	Not considered. New OBC option.	Potential refinement of a Portsea Island or City Centre CAZ (for further consideration at FBC stage). Wightlink operate car and passenger ferries between Portsmouth and the Isle of Wight. Given the location of Wightlink terminals in the south of Portsmouth, users would be unable to avoid a Portsea Island CAZ boundary and any diversion to avoid a potential City Centre CAZ would create problems elsewhere. Wightlink is an important part of the local economy. If a CAZ were introduced, there is a risk that freight and passengers may choose to use Red Funnel ferries at Southampton instead. Wightlink is particularly concerned about the volume of freight that might transfer given the number of operators they were approached by when Southampton was considering a CAZ; although the crossing time from Portsmouth to Southampton is substantially shorter which may mean that Wightlink retains its competitive advantage to a greater extent. An indicative test based on a 2015 base year, shows that with a £50 charge in place for HGVs and £10 for LGVs (applied to both compliant and non-compliant vehicles in this case), there is not any re-routing via Southampton by LGVs or HGVs using Wightlink (Portsmouth) to access the Isle of Wight. In practice the response may be different, and the same may not apply for car-based passengers.

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			Wightlink are proposing to install ANPR cameras at the entrance to the ferry terminal. These could be used to cancel any CAZ charges incurred by ferry users resulting from capture on a CAZ ANPR camera when entering / leaving Portsmouth. Excluding Wightlink users would be comparable with the exclusion of Portsmouth International Port from the Portsea Island CAZ boundary. This would essentially exclude all 'through' trips from a CAZ charge. However, it would limit the effectiveness of any CAZ proposed . Wightlink traffic has been estimated as accounting for approximately 6% to 7% of all traffic on Alfred Road. This is based on data collected by the Isle of Wight Council relating to annual commercial vehicle and car crossings on the Portsmouth Fishbourne route (extracted from a report produced for the Isle of Wight Transport Infrastructure Taskforce in 2017, https://www.iow.gov.uk/azservices/documents/1190-TITF-Ferry-Assessment-FINAL.PDF , main data source was Figure 5.15). The annual flow was then converted to daily traffic flows and it was assumed at least 85% would travel via Alfred Road to reach the terminal.
A. Measures to reduce private car use			
A1	Increase car-parking charges to discourage car use	Not shortlisted. Limited effectiveness.	Potential package component to encourage mode shift Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low/Med ; Certainty of delivering change is Medium ; Risk of displacement is Low . Numbers of trips affected would be small compared to average daily flows on compliance links of ~30,000 vehicles, but could form part of a package of measures to discourage car use and promote sustainable modes. Only around a quarter of off-street public parking spaces in the City Centre are controlled by the Council. With the exception of the Isambard Brunel car park, the largest and most popular car parks are all under the control of private owners / operators. Any increase in parking charges in Council-owned car parks is likely to be offset by reduced charges applied in privately operated car parks, which have spare capacity. In addition, there is a substantial amount of private non-residential parking available including key employers such as the Naval Base which has substantial on-site parking. However, there are specific opportunities to increase car parking charges in specific locations and for specific groups, including: <ul style="list-style-type: none"> • free or discounted charges for PCC staff using Isambard Kingdom Brunel multi-story car-park; • charges for annual parking permits for University staff wishing to park on site; • increasing parking tariffs at Harbour car park (62 spaces, PCC owned, mainly used for shopping / leisure trips) to match tariffs at nearby Gunwharf Quay car park; • increase in seafront parking tariffs (off-street and on-street) – mainly used for leisure trips / limited direct competition from private sector. These changes would potentially reduce traffic on both Alfred Road and Commercial Road, if existing car drivers choose to change modes.
A2	Reduce number of car parking spaces to discourage car use	Not shortlisted. Limited effectiveness.	Potential package component to encourage mode shift Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low/Med ; Certainty of delivering change is Medium ; Risk of displacement is Low . Numbers of trips affected would be small compared to average daily flows on compliance links of ~30,000 vehicles, but could form part of a package of measures to discourage car use and promote sustainable modes. As described above, the Council have limited control over off-street public parking. However, a number of car parks have been identified for closure to enable future redevelopment / re-purposing of the land. This includes Market Way car park (500 spaces, PCC owned/NCP leased), Clarence Street car park (154 spaces, PCC owned), and other car park space reduction within the outer city centre ring zones (183 spaces).
A3	Introduce workplace parking levy in Portsmouth (city centre or citywide) to discourage car use	Not shortlisted. Not deliverable in timescales.	Not shortlisted. Evidence from Nottingham City Council suggests a minimum delivery timescale of at least four years.
A4	Increase on-street parking charges for residents (or vary charges based on vehicle emissions) to discourage car ownership or purchase of a cleaner vehicle	Not shortlisted. Limited effectiveness.	Potential complementary measure to discourage car ownership or use of a cleaner vehicle Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Medium ; Risk of displacement is Low . Unlikely to reduce car ownership or car use substantially. As for car parking measures, the number of cars targeted would be low compared to overall flows on compliance links. The 2018 Targeted Feasibility Study showed that reducing the numbers of cars by 1-2% would have a corresponding reduction in NOx emissions and roadside concentrations. Councillors are considering changes to Residents Parking Zone permit charges to encourage: <ul style="list-style-type: none"> • the use of cars with lower emissions (allowing households with one vehicle which is powered solely by electricity to obtain a free permit and those who have one vehicle which emits less than 100g of CO₂ per Km for obtain permits for £15); • discourage students from bringing cars to the city (eligibility for permits changed to exclude student halls of residents); and • encourage car sharing (by allowing permits to be obtained for more than one zone, subject to conditions).
A5	Travel Plans for new development to limit car ownership	Not shortlisted. Limited effectiveness.	Not shortlisted No large developments expected in next 2 years, so unlikely to achieve measurable benefits within timeframe of study. Any substantial new development will be required to produce a travel plan anyway.
A6	Advance and real time (social and conventional media, VMS) messaging to discourage driving on days of high pollution	Identified as a potential package component	Potential complementary measure to raise awareness and change behaviour Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low/Med ; Certainty of delivering change is Low/Med ; Risk of displacement is Low . The impact of this type of complementary measure to encourage people to shift away from private cars is difficult to quantify. There is evidence for large reductions if cars are banned on high pollution days for example, but over the course of the year, the impact is likely to be low. Variable Message Signs on motorways can be effective if located early enough to allow drivers to make an informed choice (requires joint working with Highways England). However, in general there is limited evidence available to date on the effectiveness of this type of approach. Already done to some extent on high pollution days through anti idling campaign; but there is scope to increase profile and intensity of messaging.
A7	Improve broadband coverage and quality to reduce the need to travel (especially commuting during peaks)	Not shortlisted. Limited effectiveness.	Not shortlisted. Poor broadband coverage not perceived to be an issue, and unlikely to be a deterrent to working from home. A lot of major employers in the city centre are not in the professional services sector, and options for home working are therefore generally limited. This is likely to have a negligible impact on the number of people driving to work in comparison to the high AADT flows on the compliance links.

A8	Introduce car clubs and car hire schemes (using low emission vehicles) in exceedance areas, with subsidised hire rates. To discourage car ownership and use	Identified as a potential package component	<p>Potential complementary measure to discourage car ownership (but most effective as a potential CAZ D mitigation measure) Delivery time is 0-6 months; Estimated scale of NOx reduction is Low; Certainty of delivering change is Low; Risk of displacement is Low. Potential to reduce the number of car trips undertaken and reduce per vehicle emissions (as car club vehicles will be cleaner than average vehicle). Impact would be small, particularly in the absence of a strong demand management measure such as parking restraints or a CAZ D. However, could play an important role as a complementary measure to discourage car ownership or a CAZ D mitigation measure. Assessment of the potential for a car club in the city has identified a market of c.40 vehicles could developed within the required timescales (subject to a full commercial assessment), across seven priority areas with greatest potential for car club use. Priority areas of most relevance to the exceedance locations are Buckland, Charles Dickens, and Old Portsmouth; and to a lesser extent, Southsea, Fratton, London Road, and North End. Research shows that for each car club vehicle introduced in an area, the number of privately-owned vehicles falls by a minimum of 5^a, and the average private vehicle mileage reduction of each member is 572 miles per annum. Furthermore, based on car club membership in London, the introduction of each car club vehicle can expect, on average, to support 55 car club membership. Based on the percentage of compliant / non-compliant vehicles by ward, it has been possible to forecast that a total of 540,704 non-compliant vehicle miles per annum could be reduced from the Portsmouth highway network (not just the exceedance links) by introducing a car club into Portsmouth. a. Carplus (2016) Making car clubs work: The social, environmental and financial case for car clubs. https://como.org.uk/wp-content/uploads/2018/06/Making-Car-Clubs-Work-guide-BK2.pdf b. This figure is derived from an average of the car club members per car club bay in London Boroughs. A Car Club Strategy for London: Growing car clubs to support London's Transport Future.</p>
A9	Scrappage scheme (potentially prioritising low income residents / workers) to remove the most polluting vehicles from the road	Identified as a potential package component	<p>Not shortlisted (focus changed to a mobility credit scheme – see below; concerns about deliverability) Potential to remove the most polluting vehicles from the road that are owned by Portsmouth residents. A scheme costing £7.5-10 million could result in scrapping of 2,000-5,000 vehicles (out of the 102,200 cars and 17,500 light goods vehicles licensed in Portsmouth at the end of 2017) from the road (based on a £2,000 per vehicle incentive; or £5,000 for the first 500 vehicles, £4,000 for the next 500 vehicles, and £3,000 for the next 1,000 vehicles). But, would have no impact on vehicles from outside Portsmouth. Likely to be most effective if implemented alongside a Charging CAZ, which would motivate individuals to give up or stop using the most polluting vehicles. Derby originally proposed a scrappage scheme as an alternative to a CAZ, but this was rejected by Defra / DfT. Analysis of the UK's 2009 scrappage scheme and other schemes abroad suggests that the main beneficiaries are people who were planning to replace their vehicle anyway and could already afford to purchase a new vehicle¹. But could be targeted at low income groups. The focus of the vehicle scrappage scheme has been adjusted to increase the emphasis on the provision of 'mobility credit' in return for giving up car use i.e. credit for use on other modes of transport or low emission car club cars. This change in emphasis reflects the approach being adopted by Derby (a second wave city) as they progress their Local NO2 Plan and the DfT trial being undertaken by Coventry.</p>
A10	Mobility credit scheme - Provision of 'mobility credit' in return for giving up car use i.e. credit for use on other modes of transport or low emission car club cars	Not considered. New OBC option.	<p>Potential complementary measure to discourage car ownership (but most effective as a potential CAZ D mitigation measure) Delivery time is 12-18 months; Estimated scale of NOx reduction is ???; Certainty of delivering change is Med; Risk of displacement is Low. Mobility credits plans in return for abandoning an individual car are being trialled in Grenoble and Paris. The schemes provide financial support to public transport and cycling use when giving up a car. A similar scheme has operated in Brussels for more than 10 years (a LEZ has also been introduced in the last 2 years. Coventry are undertaking a small DfT funded trial in Coventry to give people credit for PT/EV/Bike hire for committing not to use their cars. The Solent Future Mobility Zone bid is seeking funding for a small scale trial of mobility credits through provision of "free" spend (£30-£100/month) on a smartphone travel planning/ ticketing MaaS app each month to a trial group of residents within Havant Borough (a suburban area in Portsmouth city region). The project would be targeted at users in low income groups, aged 35 and under. Estimated scale of NOx reduction is ????. Evidence from Brussels suggests take up will be low if implemented without a strong demand management measure (such as a CAZ D). However, could play an important role as a complementary measure to discourage car ownership or a CAZ D mitigation measure. But, if incentive is provided in the form of a mobility credit, then most likely to be taken up by those who use their car occasionally, which may limit impact on overall emissions. Could be packaged with car club or car hire scheme, to encourage residents with the most polluting vehicles and low levels of use to give up car ownership. Could be an important complementary measure if a CAZ D was introduced.</p>
B. Road network changes and traffic management measures to reduce congestion			
B1	Tipner Bridge	Not shortlisted. Not feasible in timescales.	Not shortlisted. Scheme is currently not funded. Not possible to construct within the relevant timescales.
B2	Build new strategic road into the city centre	Not shortlisted. Not feasible in timescales.	Not shortlisted. Not possible to construct within the relevant timescales.
B3	City Centre Transport Link - Modification of existing road network around A3 to facilitate future development. Through traffic (to Gunwharf Quay / The Hard) would be diverted via a new dual carriageway section, while local traffic and buses would be diverted via an alternative route. (Various designs considered)	Not shortlisted. Not feasible in timescales.	<p>Not shortlisted (displaces air quality problem, and does not deliver a net improvement in air quality). Estimated scale of NOx reduction is ADVERSE. Re-considered at OBC stage, as could be delivered as permitted development by end of 2019 (<6 months), or in mid-2020 if planning permission required (6-12 months). Scheme would support the redevelopment of the City Centre area. However, detailed modelling showed that the scheme displaces the air quality problem in the city centre, but does not deliver a net improvement.</p>
B4	Inbound flow control - Regulate the flow of traffic travelling into Portsmouth via the western corridor using traffic	Not shortlisted.	Not shortlisted.

¹ Consultation on additional measures to support individuals and businesses affected by local NO2 plans (Defra, 2017)

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	signals or variable speed limits with the aim of reducing congestion on Mile End Road, Commercial Road, Marketway, and Alfred Road.	Not feasible in timescales and adverse impacts.	Existing VMS alone insufficient to effectively control inbound flow. Implementation of required technology not likely within the relevant timeframes. Significant adverse impact on strategic road network.
B5	Change traffic priorities on Church Street roundabout - Make changes to the configuration of the Church Street roundabout to maintain free-flowing traffic from the A3 Mile End Road through the Church Street roundabout and into Commercial Road.	Not shortlisted. Likely adverse impacts.	Not shortlisted. Would displace queue downstream to Alfred Road, and result in higher emissions on this and adjacent roads. Mile End Road not expected to be an exceedance location in 2022.
B6	Change traffic priorities at Alfred Road / Queen Street (Additional green time to s/bound movements from Alfred Road to Queen Street)	Not considered. New OBC option.	Potential package component (as a temporary measure, prior to introduction of additional bus priority measures as part of the proposed SE Hants Rapid Transit (TCF bid)) Delivery time is 6-12 months ; Estimated scale of NOx reduction is ??? ; Certainty of delivering change is Medium/High ; Risk of displacement is Med . Queuing of s/bound traffic on Alfred Road is believed to be contributing to the exceedance at this location. Scheme would involve giving more green time to s/b traffic on Alfred Road turning right into Queen Street to reduce queuing and associated emissions. Delay per vehicle in 2022 is 63 secs in the AM peak, and 113 secs in the PM peak, higher than on other arms. Indicative junction modelling shows that delay per vehicle in the PM peak could be reduced to 41 secs in the PM peak, if delay is increased on the other three arms (by an additional 20 secs per vehicle). Similar benefits could be achieved by keeping green time for east-west movements constant (i.e. transferring the increased delay to the southern arm). This would minimise the disruption to buses, which are primarily making east-west movements. This measure is not consistent with the SE Hants Rapid Transit proposals (TCF Tranche 2 bid) for this junction which are seeking to give more priority to east-west bus movements, so would need to be implemented as a temporary measure, prior to introduction of additional bus priority measures as part of the proposed SE Hants Rapid Transit (TCF bid).
B7	Introduce priority lane aimed at promoting car sharing, public transport and the use of low emission vehicles along A3.	Not shortlisted. Limited effectiveness	Not shortlisted. Could create increased congestion in non-priority lane if volume of traffic eligible to use this lane is not substantial. It is anticipated that the majority of transfer would involve multi-occupancy cars. The number of low emission vehicles is expected to be low over the next few years, and on its own this measure is unlikely to encourage substantial transfer to cleaner vehicles. Not compatible with TCF proposal for rapid transit which is seeking to prioritise road space for express bus services.
B8	Introduce HGV lanes along the A3 - Conversion of one southbound lane to HGVs only, to prevent HGVs getting delayed in traffic.	Not shortlisted. Likely adverse impacts.	Not shortlisted. HGVs account for only a small proportion of emissions on the A3 links and would create queuing for general traffic (with potential increase in emissions).
B9	Reduce speed limit from 30mph to 20mph on Alfred Road	Not shortlisted. Limited benefits for air quality.	Not shortlisted. Due to polynomial relationship between speed and emissions, a further reduction to 20mph on Alfred Road is unlikely to result in significant benefits.
B10	A2047 London Road – Traffic gating of London Road. Installation of a gate at the northern end of London Road (either at the London Road / Copnor Road 'Coach and Horses' gyratory, or further south on London Road) to allow vehicles to be held back at peak times and reduce congestion through the exceedance area	Not shortlisted. Not feasible in timescales (24+ months needed for design and build) and likely displacement issues.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Modelling as part of the 2018 Targeted Feasibility Study considered a gate at the northern end of London Road at Copnor Road gyratory. It forecast a reduction of traffic flow by 10%, with a small increase in average speeds to give a reduction of 2% in emissions in London Road, with some smaller reductions across a wider area. Further improvements to help free-flow of vehicles on London Road may result in greater benefits. Strategic fit – Could create backlog of traffic north of London Road gyratory, which could extend back through Portsbridge Roundabout and adversely impact the performance of the M27, A27, A397. A high proportion (over half) of the traffic using London Road are making local trips (within Portsea Island), with Hilsea and Fratton as key trip ends. There may be some re-routing via the A3 Northern Parade or A288 Copnor Road, but re-routing via the M275 western corridor route may not be extensive.
B11	A2047 London Road - Ban traffic except buses and cycles between Stubbington Avenue and Kingston Crescent during all or part of the day	Identified as a potential package component	Not shortlisted (London Road not expected to be an exceedance location in 2022) Indicative modelling / emissions analysis shows AQ benefits on London Road, but negative impacts elsewhere on the network (including Commercial Road and Alfred Road). Potential for AQ problem to shift to A3 Stamshaw Road and A3 Twyford Avenue. Local diversion routes (e.g. Stubbington Avenue) estimated to experience a 50% increase in emissions. Likely to result in rat running through nearby deprived neighbourhoods (adversely affecting safety, and the quality of the walking and cycling environment). Already significant parking problems on these roads, and localised congestion resulting from vehicles entering / leaving parking spaces.
B12	A2047 London Road - Ban traffic except buses, taxis (but not private hire vehicles), cycles between Stubbington Avenue and Kingston Crescent during all or part of the day	Identified as a potential package component	Not shortlisted (London Road not expected to be an exceedance location in 2022) Indicative modelling / emissions analysis shows AQ benefits on London Road, but negative impacts elsewhere on the network (including Commercial Road and Alfred Road). Potential for AQ problem to shift to A3 Stamshaw Road and A3 Twyford Avenue. Local diversion routes (e.g. Stubbington Avenue) estimated to experience a 50% increase in emissions. Likely to result in rat running through nearby deprived neighbourhoods (adversely affecting safety, and the quality of the walking and cycling environment). Already significant parking problems on these roads, and localised congestion resulting from vehicles entering / leaving parking spaces.
B13	A2047 London Road - One-way system on London Road between Stubbington Avenue and Kingston Crescent during all or part of the day	Identified as a potential package component	Not shortlisted (London Road not expected to be an exceedance location in 2022) Indicative modelling / emissions analysis shows AQ benefits on London Road, but negative impacts elsewhere on the network (including Commercial Road and Alfred Road). Potential for AQ problem to shift to A3 Stamshaw Road and A3 Twyford Avenue. Local diversion routes (e.g. Stubbington Avenue) estimated to experience a 50% increase in emissions. Likely to result in rat running through nearby deprived neighbourhoods (adversely affecting safety, and the quality of the walking and cycling environment). Already significant parking problems on these roads, and localised congestion resulting from vehicles entering / leaving parking spaces.
B14	A2047 London Road - Pedestrianisation of London Road between Stubbington Avenue and Kingston Crescent	Not shortlisted. Adverse strategic fit impact.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Would compromise wider policy to encourage use of sustainable modes, due to compromised bus routes, potentially resulting in more car use overall. This is an important bus corridor for the city and forms a key element of the proposed rapid transit scheme being progressed through the Transforming Cities fund.

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			Could negatively impact small retailers, due to reduction in passing trade or short visits. In addition, scheme would need to accommodate a large amount of vehicle loading / unloading for businesses without rear access.
B15	A2047 London Road - Narrowing of London Road to reduce vehicle speeds and prioritise pedestrians, and removal of signalised junctions to encourage free-flowing non-congested traffic.	Not shortlisted. Limited benefits for air quality.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Impact on flows and speeds expected to be small, resulting in a low impact on emissions. Modelling for the 2018 Targeted Feasibility Study shows an average speed of 17.9 km/h on the road. Increasing this could result in a beneficial impact on emissions. However, changes in flows or speeds of less than 5-10% are likely to have a low impact on emissions (<5%). May not be compatible with TCF proposals which seek to give priority to buses on London Road.
B16	A2047 London Road - Remove on-street parking from London Road (Laburnum Grove - Chichester Rd) and Kingston Road (Malthouse Rd - Stirling St)	Not shortlisted. Limited effectiveness.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Reduces delays to traffic caused by vehicles manoeuvring into and out of spaces. However, impact on flows and speeds expected to be small, resulting in a low impact on emissions.
B17	A2047 London Road - Extend southbound bus lane through to Kingston Crescent, and potentially beyond (involving removal of on-street parking) There is already a s/bound bus lane along the majority of the northern section of London Road, from the gyratory to Stubbington Avenue and on to Laburnum Grove, and a small section further south between St Mary's Road and Alver Road. Removal of on-street parking would create scope to extend bus lane along sections between Laburnum Grove and Kingston Crescent. There are longer term proposals to improve bus priority on this route as part of the TCF rapid transit proposals.	Not shortlisted. Limited effectiveness.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Potential impact of bus priority lane on traffic flow is not known but may be low across the day, if priority lanes operate in peak time only. Potential for bus lane to increase delay for general traffic (and diesel cars are the main source of NOx emissions on London Road). The bus lane could be in operation at peak times to prevent vehicles manoeuvring into spaces during the busiest times and also give greater reliability of service for buses. Outside of the peaks the lane could allow short stay parking to aid businesses. Similar schemes are quite common in Surrey. <i>Note - SE Hants Rapid Transit proposal (TCF Tranche 2 bid) proposes traffic signals to replace Stubbington Avenue, bus priority at signals, bus lanes where possible, capacity improvements at Lake Road / Fratton Road junction (scheme being reviewed / refined).</i>
B18	A2047 London Road - Conversion of existing s/bound bus lane on London Road to a priority lane aimed at promoting car sharing, public transport and the use of low emission vehicles; and extension through to Kingston Crescent and potentially beyond	Not shortlisted. Limited effectiveness.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Could create increased congestion in non-priority lane if volume of traffic eligible to use this lane is not substantial. It is anticipated that the majority of transfer would involve multi-occupancy cars. The number of low emission vehicles is expected to be low over the next few years, and on its own this measure is unlikely to encourage substantial transfer to cleaner vehicles. In practice, this bus lane is already well used by buses, and there may not be sufficient capacity to accommodate car share and low emission vehicles as well. Not compatible with TCF proposal for rapid transit which is seeking to prioritise road space for express bus services.
B19	A2047 London Road - Reduce speed limit from 30mph to 20mph on London Road	Not shortlisted. Limited effectiveness.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Average speeds in the peak are almost certainly less than 20mph between Stubbington Avenue and New Road (southbound). In addition, polynomial relationship between speed and emissions means that impact on emissions is likely to be low.
B20	A2047 London Road - Optimisation of traffic signals to smoother traffic movement along London Road	Not shortlisted. Limited effectiveness.	Not shortlisted (London Road not expected to be an exceedance location in 2022) Smoothing traffic flow and increasing average speeds has the potential to reduce emissions along road corridors. These impacts will depend on the details of the changes to average speeds due to the polynomial nature of the relationship between speed and emissions. However, there are relatively few signals along London Road, and work has already been undertaken to optimise signals. PCC has already undertaken significant work in this area. The ORTMCS (Optimisation of Road Traffic Management Control Systems) project reviewed several corridors in Portsmouth including AQMA 6 (London Road) and found that no tangible benefit would be derived by further optimisation of traffic signals, with a slight benefit gained in PM peak from some minor bus stop alterations.
B21	A2047 London Road - Time restrictions on deliveries on A2047	Identified as a potential package component	Not shortlisted (London Road not expected to be an exceedance location in 2022) HGVs only make up around 1.5% of the vehicle flow (and LGVs 15%) on the road, therefore restricting deliveries at certain peak times is unlikely to change 24 hour AADT flows. There may be a small increase in average speeds which could result in small emission benefits. Potential complementary measure.
B22a	Rapid transit - TCF Tranche 1 bid – Real-Time Information (RTI) on corridors from Portsmouth city centre to Havant and Waterlooville, and three MOVA (Microprocessor Optimised Vehicle Actuation) installations at key junctions on Portsea Island (where).	Identified as a dependency only	Assumed to be part of baseline (delivered scheme, but does not specifically benefit exceedance locations / routes) The bid was successful and these schemes are now being delivered (2019). Will contribute to making public transport more attractive across the city, but none of the junctions receiving MOVA will directly impact on the exceedance locations.
B22b	Rapid transit - Full TCF proposal for sub-region – Current proposal (June 2019 SOBC) comprises infrastructure improvements at 13 locations across Portsmouth and 12 locations elsewhere; a branded network of fast, frequent, reliable and quality services; investment in new vehicles (latest diesel or electric); contactless payment; first/last mile access; and complementary policy measures (including parking restraint) to help drive mode shift.	Identified as a dependency only Not considered feasible in timescales.	Considered as a potential medium term solution (i.e. post 2022), subject to securing funding (i.e. sensitivity test) Delivery time is 24+ months ; Estimated scale of NOx reduction is ???? ; Certainty of delivering change is Medium ; Risk of displacement is Med . A draft Strategic Outline Business Case (SOBC) was submitted to the DfT in June 2019 setting out a holistic proposition for South East Hampshire Rapid Transit (SEHRT), and making the case for funding from Tranche 2 of the DfT's Transforming Cities Fund (TCF). It sets out three potential investment packages, representing high, medium and low levels of TCF investment. A Final Business Case will be submitted in Dec 2019; funding decision in Apr 2020. The SOBC (June 2019) sets out the economic case for the high investment scenario only. The analysis shows a Benefit:Cost Ratio of 1.154. This is largely driven by overall negative user benefits - the decongesting effect of mode shift to public transport and active modes is outweighed by the congesting effect of reduced highway capacity, meaning net increases in journey times and hence net dis-benefits to these users. The individual proposals will be refined over the next six months in order to minimise the impact on general traffic, which is likely to change the overall picture. Further emissions analysis to be undertaken as the TCF proposals are developed. There is no certainty that the proposal will receive funding. Survey results show that 'a fast, quality bus service' is a popular solution for helping to reduce pollution from private cars.
B22c	Rapid transit – Portsmouth Fastrack elements (Portsbridge Roundabout, City Centre Road Scheme, and	Not considered. New OBC option.	Not shortlisted

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	London Road options could all be delivered in <18 months)		Portsbridge Roundabout not relevant in terms of exceedance locations. City Centre Road Scheme covered above (B3). For A2047 London Road impacts see various options above. Operators unlikely to change timetables in response to just these changes, which means that potential benefits to passengers will not be realised.
B23	Relocation of Wightlink freight services to Portsmouth International Port	Not considered. New OBC option.	Not shortlisted As summarised in CAZ X3, Wightlink traffic has been estimated as accounting for approximately 6% to 7% of traffic on Alfred Road. Consideration was given to relocating Wightlink freight services to Portsmouth International Port, to remove the need to travel through the city centre exceedance locations. However, costs involved in this would be too prohibitive.
C. Measures to re-time vehicle trips			
C1	A2047 London Road - Time restrictions on deliveries on A2047	See B21	Not shortlisted (London Road not expected to be an exceedance location in 2022)
C2	Flexible working	See E1	See E1
D. Measures to encourage use of cleaner vehicles and more sustainable driving (to reduce tailpipe emissions)			
a) General			
D1	Anti-idling campaign	Identified as a potential package component	Potential complementary measure to raise awareness and change behaviour Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . This could potentially reduce localised emissions substantially if there was a particular area of concern (e.g. taxi rank). While idling taxis are not known to be a problem, queuing traffic occurs on both the A3 and A2047 (especially in the peaks). However, PCC already run an anti-idling campaign with promotional banners attached to lampposts on both roads. The scope for additional benefits is therefore limited.
b) Private cars and LGVs			
D2	On-street charging points in residential areas to encourage residents to swap to cleaner vehicles	Not shortlisted Funding already received from OLEV	Not shortlisted Delivery time is 6-12 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . In the short-term this is unlikely to be encourage a substantial proportion of residents to swap to electric vehicles. Modelling for the Targeted Feasibility Study showed that if up to 5% of cars were replaced with electric/hybrids this would result in a reduction in concentrations of up to 4%. DfT forecast that Ultra Low Emissions Vehicles (ULEV) will account for between 3% and 6% of new car sales in 2020 and that approximately 8% of the car fleet is replaced each year with a brand new vehicle. New ULEVs in 2020 would therefore account for up to 0.5% of the fleet. Although the rate of uptake is forecast to increase significantly through the 2020s, achieving a significant reduction in emissions in 2021 (or 2022) would require a very significant increase in the predicted rate of uptake. A large proportion of houses in Portsmouth have no off-street parking (especially in the vicinity of the exceedance links). On-street charging points are therefore a necessity for many residents, which may slow uptake. In addition, many residents in Portsmouth (particularly in the vicinity of exceedance links) are on low income and are less likely to be able to afford an electric vehicle. PCC have already received funding from OLEV to install charging points in residential areas.
D3	Public fast charging points in the city centre (and citywide) to encourage residents and visitors to swap to cleaner vehicles	Not shortlisted Funding already received from OLEV	Not shortlisted Delivery time is 6-12 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . In the short-term this is unlikely to be encourage a substantial proportion of drivers to swap to electric vehicles. Modelling for the Targeted Feasibility Study showed that if up to 5% of cars were replaced with electric/hybrid this would result in a reduction in concentrations of up to 4%. As outlined in D2, DfT forecasts suggest that even doubling the forecast rate of uptake of all ULEVs in 2020 would only add a further 0.5% to the car fleet. Research shows that use of public charging points tends to be low, with most EV owners relying on home charging. However, they are important in providing a fall-back option and alleviating range anxiety. In addition, usage may be higher in Portsmouth due to the more limited opportunities for home charging. PCC have already received funding from OLEV to trial fast chargers in three public car parks, in addition to charge points at the P&R.
D4	Ensure new developments (new housing and new commercial facilities) provide charging points	Not shortlisted Limited benefits in timescales	Not shortlisted Estimated scale of NOx reduction is Low . In the short-term this is unlikely to encourage a substantial proportion of drivers to swap to electric vehicles. There are no large developments expected in next 2 years.
D5	Electric vehicle promotion (e.g. financial incentives for electric cars and LGVs over and above OLEV £5k grant, salary sacrifice schemes for ULEVs amongst local businesses) Incentives for taxi drivers covered separately.	Not shortlisted Limited effectiveness, poor strategic fit and adverse distributional impacts	Not shortlisted Estimated scale of NOx reduction is Low . In the short-term this is unlikely to be encourage a substantial proportion of residents to swap to electric vehicles. Modelling for the Targeted Feasibility Study showed that if up to 5% of petrol/diesel cars were replaced with electric/hybrids this could result in a reduction in roadside NO2 concentrations of up to 4%. As outlined in D2, DfT forecasts suggest that even doubling the forecast rate of uptake of all ULEVs in 2020 would only add a further 0.5% to the car fleet. However, many residents in Portsmouth (particularly in the vicinity of exceedance links) are on low income and are less likely to be able to afford an electric vehicle. This option particularly favours the most affluent residents who are most likely to be able to afford an electric car, and will therefore be able to benefit from the lower fuel costs associated with these vehicles. Does not represent a fair and equal apportionment of funds.
D6	Free or discounted city centre parking for ultra-low emission vehicles	Not shortlisted Limited effectiveness, poor strategic fit and adverse distributional impacts	Not shortlisted Estimated scale of NOx reduction is Low . Only around ~1000 of the ~4,500 off-street public parking spaces in the City Centre are controlled by the Council. Numbers affected would be very small compared to average daily flows on compliance links of ~30,000 vehicles. The impact on overall vehicle emissions on the exceedance links would therefore be negligible in the short-term. Could be seen as promoting car ownership / use. Not consistent with wider policies to encourage use of sustainable modes for trips into the City Centre. Favours the most affluent residents who are most likely to be able to afford an electric car and will therefore be able to benefit from the lower fuel costs associated with these vehicles.

D7	Discounted charges for residents on-street parking permits for low emission vehicles (vary charges based on vehicle emissions)	Not shortlisted Limited effectiveness, poor strategic fit and adverse distributional impacts	Potential complementary measure to discourage car ownership or use of a cleaner vehicle Delivery time is 6-12 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . See A4 - Councillors are considering changes to Residents Parking Zone permit charges to encourage: <ul style="list-style-type: none"> the use of cars with lower emissions (allowing households with one vehicle which is powered solely by electricity to obtain a free permit and those who have one vehicle which emits less than 100g of CO₂ per Km for obtain permits for £15); discourage students from bringing cars to the city (eligibility for permits changed to exclude student halls of residents); and encourage car sharing (by allowing permits to be obtained for more than one zone, subject to conditions).
c) Buses and coaches			
D8	Retrofitting buses on A2047 routes (and other exceedance locations) to Euro 6 standards	Identified as a potential package component	Not shortlisted Estimated scale of NOx reduction is Low . Further investigation shows that by the end of 2019, the majority of bus mileage in Portsmouth will be undertaken by Euro 6 vehicles: <ul style="list-style-type: none"> PCC has been awarded £1.5 million from Defra to retrofit 105 buses (68 First buses and 37 Stagecoach buses) passing through Mile End Road and Alfred Road to meet Euro 6 standards. Following the 2019 retrofit, Stagecoach's local bus services operating in Portsmouth will almost exclusively be operated by Euro 6 equivalent vehicles. Exceptions are Hoverbus (Euro 5, operating south of the city centre), and a small number of contracts with Portsmouth College (Euro 3, via London Road and Eastern Road, two trips per day) and local businesses (Euro 3). Following the 2019 retrofit, 90 of First's local buses operating in Portsmouth will be Euro 6 equivalent vehicles. The remaining 21 will be Euro 3 and Euro 5 standard, of a type that aren't viable for retrofitting. First is seeking to get these vehicles replaced – e.g. 24 new diesel vehicles scheduled for 2019/20 (latest clean vehicle specification). First have confirmed (Sep 2019) that 7 of their remaining 18 Euro 3 vehicles will be replaced by the new vehicles being purchased. This leaves 11 remaining which operate on a number of routes and may operate on Commercial Road some of the time. All National Express services are operated using Euro 6 vehicles. Pete's Airlink runs various school buses under contract (mainly minibuses). There are 40 vehicles in use, of which 13 are rated Euro 5 and 27 are rated Euro 6. Other school bus services are run by Aqua Taxis, Citywide Taxis, Wheel Drive, AMK, PDS, PCC Minibuses (information to follow). Buses account for a high proportion of emissions on Queen Street. This may be due to large number of coaches used by BAE. BAE operate 9 full size coaches (55-56 seaters), 5 smaller coaches (26-29 seaters), and 3 minibuses (13-17 seaters). All are Euro 6 standard. The Port is issuing a new tender (5 year contract) in June 2019 for buses between the terminal and berths. This will require all vehicles to be Euro 6 standard. There are a small number of Euro 3 and 4 vehicles in use, but mainly used for special services with limited frequency, or are likely to be replaced by 2022. There is therefore limited potential for further bus retrofitting in Portsmouth. Buses (compliant and non-compliant) predicted to account for 9% of emissions in the 2022 baseline.
D9	Support to convert buses to lower emission fuels (hybrid buses, biofuel powered buses, and electric buses, as an alternative to petrol and diesel)	Not shortlisted. Not feasible in timescales.	Potential complementary measure (based on operator commitment, subject to securing TCF funding for rapid transit proposals – medium term measure) Delivery time is 24+ months ; Estimated scale of NOx reduction is Med ; Certainty of delivering change is High ; Risk of displacement is Low . Although Euro 6 emissions rates are much lower than previous diesel buses, converting buses to electric or hybrid would have greater benefits. In support of the TCF rapid transit proposals, Stagecoach is looking to invest in new electric double decker buses (over the period 2021-2023). First is looking to invest in 40 new diesel vehicles (latest technology, over the period 2021-2023).
d) Taxis			
D10,D11	Encourage use of lower emissions taxis through incentives / review and update existing licensing policies. Introduce charging points for taxis	Identified as a potential package component	Potential package component or potential CAZ mitigation measure Delivery time is 6-12 months ; Estimated scale of NOx reduction is Low/Med ; Certainty of delivering change is Med ; Risk of displacement is Low . PCC is currently considering tightening taxi licensing rules so that all new license applicants are required to have a Euro 6 vehicle, and to reduce the age limit for existing vehicles (to remove older more polluting vehicles from the fleet). This would represent a reversal of a recent policy change to increase the permissible taxi age (to support low income taxi drivers). Drivers will need to be given time to upgrade their vehicle, which means that benefits will be phased over time. Options to support taxi drivers in upgrading their vehicle are being considered, e.g. <ul style="list-style-type: none"> Interest free loans, subsidised license fees or service costs, or other financial support. ULEV leasing scheme (but potential financial and practical risks to Council to be considered), ULEV try-before-you-buy scheme, EV charging points at taxi ranks. As of Jan 2019, there were 976 private hire vehicles and 232 licensed hackney carriage vehicles – 1120 diesel (93%), 50 petrol (4%), 37 hybrid (3%), and 1 electric (0%). To further summarise: <ul style="list-style-type: none"> Some 155 hackney carriages are diesel vehicles which are more than 3 years old (i.e. 67% are non-compliant). Some 513 private hire vehicles are diesel vehicles which are more than 3 years old (i.e. 52% are non-compliant). Overall, 668 (or 55%) of all taxis are estimated to be non-compliant. Analysis of the ANPR data (considering each separate observation of a vehicle at a camera as a vehicle movement), suggests that: <ul style="list-style-type: none"> 59% of identified diesel hackney carriage trips in Portsmouth are made by vehicles that would not be compliant with the requirements of a charging CAZ, accounting for 0.2% of all vehicle movements in Portsmouth; and 52% of movements by other taxis and private hire vehicles are non-compliant with CAZ requirements, accounting for 2.8% of total movements captured by the ANPR. Overall an estimated 3% of movements in Portsmouth are made by non-compliant taxis (hackney carriages or private hire vehicles). Indicative analysis shows that: <ul style="list-style-type: none"> If all taxis were required to be compliant vehicles (Euro 6 diesel or Euro 4 petrol), emissions would fall by just 0.3% on Alfred Road (against a required reduction of 12%). This is very much a worse case scenario, as it assumes all Euro 6 vehicles meet the basic Euro 6 requirement, rather than the more stringent Euro 6c standard (required from September 2017) or Euro 6d (which will be required from 2020). The basis Euro 6 standard represents a relatively small improvement

			<p>(about 17% lower than Euro 5 and 9% lower than Euro 4), and hence the very small net impact on emissions. Furthermore, some taxis are already Euro 6c, and by 2022 a higher proportion of the fleet will have been upgraded to Euro 6c/Euro 6d regardless of any changes in licensing rules.</p> <ul style="list-style-type: none"> At the other end of the scale, if all taxis were electric, resulting in zero tailpipe NO2 emissions, emissions on Alfred Road would fall by 5% (against a required reduction of 12%). These results show that in order to make a significant contribution to improving air quality, the Council needs to encourage drivers to upgrade to fully electric vehicles. While there may be substantial long term operating cost benefits for taxi drivers, the upfront financial impact of requiring this level of upgrade by 2022 would be significant, and it may be more appropriate to set this as a longer term aim. However, if the requirement could be increased to Euro 6c or 6d, requiring all taxis to be 2018 or 2020 models or later, this might achieve around 20% to 60% of the electric vehicle effect. Euro 6d will deliver a much bigger improvement than previous standards, resulting in a reduction of emissions of around 65%/68%/62%/50% vs Euro 4/Euro 5/Euro 6/Euro 6c.
e) Business fleets			
D12	Encourage use of lower emission vehicles for business fleets (HGV / LGV fleets) – See also G2	Identified as a potential package component	Options being developed as part of Solent Mobility Zone bid.
D13	Eco-driver training for businesses (wide scale / intensive application) to encourage efficient driving behaviour Continuation of the eco-driver training initiative for local businesses, previously run between 2013 and 2017. This involves PCC working with businesses in the city with large fleets, to encourage smarter driving behaviour, and providing advice on the possibilities of improving the environmental impact of their fleets by converting to vehicles with lower emissions.	Identified as a potential package component	Potential complementary measure Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low/Med ; Certainty of delivering change is Low/Med ; Risk of displacement is Low . Driving style can save fuel and improve vehicle emissions with smoother driving (less braking and accelerating). Evidence from ROSPA2 suggests that companies that send drivers on eco driving courses may see a 10% saving in fuel which could potentially save the same magnitude on NOx emissions from the business fleet, if rolled out on a very wide scale.
E. Mode shift to sustainable modes			
a) General			
E1	Workplace Travel Planning (including Workplace Sustainable Travel Fund; personal journey planning; cycle training; Bike Doctor; promotional activities; etc.). Targeted at the largest employers in the City Centre and near the exceedance links. PCC have been working with local businesses since 2010 (including some of the largest employers in the City), most recently through the Air Quality Grant programme, and could easily continue / increase this activity.	Identified as a potential package component	Potential complementary measure to raise awareness and change behaviour Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . Impact of this measure alone on car trips throughout the day is likely to be low but could be combined with other sustainable transport measures. The 2018 Targeted Feasibility Study showed that reducing the numbers of cars by 1-2% would have a corresponding reduction in NOx emissions and roadside concentrations (*see E13 for evidence on estimated reduction). Previous experience in Portsmouth shows that workplace travel planning can be effective if the package of measures is tailored to the businesses concerned, and if businesses are keen to work with PCC and actively promote sustainable modes. For example, 1,250 people participated in a previous My Commuter Challenge (2015), logging a total of 22,900 miles of sustainable journeys. After the challenge 74% of challenge participants stated that they were already switching to walking or cycling instead of driving for short journeys, and intend to keep it up; 64% of challenge participants increased the number of days on which they cycle and 57% increased the number of days they walk; and 35% of challenge participants that weren't cycling regularly before the challenge said that they were now cycling on a weekly basis. Supports complementary measures focused on infrastructure and service improvements, as part of an on-going programme to encourage behaviour change.
E2	School Travel Planning (including travel to school initiatives; pedestrian, cycle and scooter training; parking for cycles and commuters; promotional activities; etc.). Targeted at schools near the exceedance links. PCC have worked closely with schools for many years most recently through the Air Quality Grant programme and could easily continue / increase this activity.	Identified as a potential package component	Potential complementary measure to raise awareness and change behaviour Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . Impact of this measure alone on car trips throughout the day is likely to be low but could be combined with other sustainable transport measures. The 2018 Targeted Feasibility Study showed that reducing the numbers of cars by 1-2% would have a corresponding reduction in NOx emissions and roadside concentrations (*see E13 for evidence on estimated reduction). Previous experience in Portsmouth shows that school travel initiatives can be effective at reducing car use. For example, Bikeability and more recently, Scootability training saw a doubling of children travelling to school by bicycle or scooter on a regular basis, from 5% of primary aged children in 2013 to 11% in 2015. The Pompey Monsters Walk School Challenge was run across 3 schools in 2016/17 using Sustainable Travel Transition Year Funding. 68% of pupils signed up; 73% of parents agreed or strongly agreed that the monsters theme encouraged their children to walk more; and over 97% of parents said they are likely or very likely to continue walking to school. In addition, 2400 pupils across 14 schools received Scootability training and nine schools received scooter racks. A recent study projected that for every £1 invested in walking to school there is a £7.64 return in benefits to the wider community. <i>An Enhanced cycling economy - Engaging Commuters, British Cycling, 2014 (www.livingstreets.org.uk)</i> Supports complementary measures focused on infrastructure and service improvements, as part of an on-going programme to encourage behaviour change.
E3	Personal Journey Planning for residents (and as associated incentives to promote walking and cycling including Family Cycle Training and Bike Grants, Community Cycle Hub, Pedal Portsmouth mass cycle ride, Bike Doctor sessions). Targeted at residents near the exceedance links. PCC undertook personalised journey planning using Local Sustainable Transport Fund and Transition Year funding between 2011 and 2016) and could easily resume this activity.	Identified as a potential package component	Potential complementary measure to raise awareness and change behaviour Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . Impact of this measure alone on car trips throughout the day is likely to be low but could be combined with other sustainable transport measures. The 2018 Targeted Feasibility Study showed that reducing the numbers of cars by 1-2% would have a corresponding reduction in NOx emissions and roadside concentrations (*see E13 for evidence on estimated reduction). Previous experience in Portsmouth shows that this approach works best when linked to promotion of new infrastructure and is targeted at households most likely to respond positively to behavioural change measures (identified using mapping of Mosaic propensity to change). Previous interventions have included Family Cycle Training and Bike Grants (which won the Healthy Streets Award 2017 for Best Behaviour Change Initiative), Community Cycle Hub, Pedal Portsmouth mass cycle ride, Bike Doctor sessions).

² <https://www.rospace.com/safety-training/on-road/driver-training/develop/eco-driving/>

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			Supports complementary measures focused on infrastructure and service improvements, as part of an on-going programme to encourage behaviour change.
E4	Promote easitNETWORK and easitSHARE (easitPORTSMOUTH) easitPORTSMOUTH is a social enterprise focused on encouraging more people to travel sustainably and to consider their environment. Initiatives include discounts on rail travel, purchase and hire of bicycles, and discounts on electric vehicle charging units. easitSHARE is a new initiative to encourage people to share their journey to work. Promoting easitPORTSMOUTH could help encourage modal shift from private car to sustainable travel options.	Identified as a potential package component	Potential complementary measure to raise awareness and change behaviour Delivery time is 0-6 months ; Estimated scale of NOx reduction is Low ; Certainty of delivering change is Low ; Risk of displacement is Low . Impact of this measure alone on car trips throughout the day is likely to be low but could be combined with other sustainable transport measures. The Targeted Feasibility Study showed that reducing the numbers of cars by 1-2% would have a corresponding reduction in NOx emissions and roadside concentrations (*see E13 for evidence on estimated reduction).
b) Public transport			
E7a	Promotion of Portsmouth Park & Ride amongst commuters	Identified as a potential package component	Potential complementary measure (most effective if combined with a CAZ D or significant parking restraint in city centre / The Hard area) Currently spare capacity at the P&R site in the morning, but much higher usage at weekends and during holiday periods.
E7b	Park & Ride expansion – Proposal to deliver up to 1,000 additional spaces by the end of 2021.	Not shortlisted. Not feasible in timescales.	Not shortlisted. Now considered deliverable within timescale, but benefits focused on the longer term horizon. Case for an expanded facility is driven from strategic policy objectives and cross-cutting priorities which are of city-wide and long-term importance and critical to the city's future. A number of scenarios for future demand have been considered as part of a very high level Business Justification Case but are based on long term proposals such as WPPL, very significant reduction in public car park spaces, a potential CAZ D (not required), or serving the Cruise market.
E8	Priority lanes – See B7	-	-
E9	Improve bus connectivity (especially in peak periods) – frequency and service improvements	Identified as a potential package component	Not shortlisted. There are already a large number of buses serving the M275/A3 corridor, the A2047 (London Rd) corridor, and A2030 Eastern Road corridor, and bus connectivity is good. The potential for mode shift as a result of a small number of service improvements is therefore limited. The SE Hants Rapid Transit proposal (TCF Tranche 2 bid) will result in significant service improvements, and represents a more effective means of encouraging mode shift (see B22).
E9b	Contactless payment	Not considered. New OBC option.	Potential complementary measure (as part of HE Hants Rapid Transit proposal, TCF Tranche 2 bid) Both operators are supportive of upgrading ticket machines for Tap On Tap Off (TOTO) across the TCF network (due to be implemented by the end of 2021).
E10	Improve rail connectivity (especially in peak periods – Promote greater use of rail travel in the peak periods, through investment in new routes and increased service frequency.	Not shortlisted. Not feasible in timescales.	Not shortlisted. From 2019, South Western Railway are operating additional and faster train services to / from Southampton and London. Scope for other substantial rail improvements in the short-term are limited.
E11	Mobility as a Service (MaaS)	Identified as a potential package component	Potential complementary measure to change behaviour Delivery time is <24 months ; Estimated scale of NOx reduction is ??? ; Certainty of delivering change is Low ; Risk of displacement is Low . Mobility as a Service (MaaS) integrates planning and payment for multiple modes of transport, capitalising on technology to provide an end-user with convenient and seamless travel. As part of the Solent Mobility Zone bid, funding is being sought for a range of MaaS projects which will provide a common platform to support the user experience regarding initiatives to grow Solent Go, and promote Demand Responsive Transit, Bike / e-bike share, and Car and lift sharing proposals. The MaaS platforms will offer a range of mobility options and will be flexible and able to evolve and change as new mobility options become available. The project will initially focus on the Universities of Portsmouth (located in the city centre) and Southampton, which are amongst the largest employers in each city (about 11-12% of each city's workday population) and jointly have over 50,000 students and 7,500 staff.
E14	Free bus travel for Portsmouth residents	Not considered. New OBC option.	Not shortlisted. The majority of traffic contributing to the exceedances on Commercial Road and Alfred Road is from outside Portsmouth. To be effective the scheme would need to be implemented across the Portsmouth travel-to-work area (e.g. covering the same area as the proposed SE Hampshire Rapid Transit, or across the Solent LEP area). Significant deliverability issues – No specific UK legislation to enable free bus travel for all, and therefore no means of compelling bus operators to take part. Scheme would need to be based on a voluntary arrangement with operators under the 2011 Localism Act (general power of competence). High cost option ~£25 million per annum (based on ~150 buses operating in Portsmouth and an annual operating cost of ~£170,000 per annum). Potential equality / distributional impact as would be benefitting those travelling within Portsmouth, but not those travelling to work in Fareham / Havant for example. No precedence for such a scheme in the UK, although there are overseas examples. Dunkirk in Northern France introduced free bus travel in 2018, alongside significant service improvements. Initial findings show that ridership has spiked over the last year, more than doubling on weekends and increasing by around 60 percent during the week. However, historically, the lack of travellers on Dunkirk's buses meant that ticket sales contributed only a small amount – about 10 percent – of the system's funding. The rest was publicly subsidised. This meant that the city could get rid of fares without a major impact on its budget. This represents a very different scenario to Portsmouth, where the bus service is largely operated on a commercial basis. https://www.france24.com/en/20190831-france-dunkirk-free-transportation-bus-success-climate-cities?ref=fb_i
c) Cycling and walking			
E12	Improve cycling and walking facilities (e.g. cycle lanes, secure cycle storage, safe crossings, etc.)	Identified as a potential package component	Potential package component Delivery time is 0-6 months ; Estimated scale of NOx reduction is ??? ; Certainty of delivering change is Low ; Risk of displacement is Low . Survey results show that 'high quality cycle routes' was a popular solution for helping to reduce pollution from private cars.

			<p>As the majority of trips using Commercial Road and Alfred Road are travelling to / from the mainland, improved cycling routes are considered to be most effective in reducing emissions at these two exceedance locations.</p> <p>The Local Cycling and Walking Implementation Plan is currently being developed (expected to be completed Nov 2019). As part of this process, strategic origins and destinations for walking and cycling have been identified and potential routes proposed. Following a prioritisation process (based on contribution to local objectives, travel to work and travel to school data, and outputs from the DfT Propensity to Cycle Tool), 12 routes were shortlisted and an audit was undertaken to determine existing conditions and improvements required to encourage cycling.</p> <p>There are two sets of shortlisted cycle routes which are particular relevance in terms of reducing emissions at exceedance locations and near exceedances (all longer distance routes starting and ending on the mainland):</p> <ul style="list-style-type: none"> • Routes 108, 205, 301 – Old Portsmouth - City Centre – Eastern Road Water Bridge and beyond to various destinations beyond PCC boundary (Southern Havant, Northern Havant, Waterlooville) • Routes 307, 405, 503 – Southsea – City Centre – London Road – Portsbridge Roundabout and beyond to various destinations beyond PCC boundary (A3 Corridor, employment on Portsdown Hill, Porchester/Fareham) <p>These routes are a mix of quiet routes, on-road and off-road cycle lanes. These routes are shortlisted for further assessment as part of the proposed AQ package. As part of the Solent Future Mobility Zone bid, funding is being sought to kickstart a Solent bike share scheme focused on Portsmouth (with an extension into Gosport along the Eclipse BRT corridor) and Southampton. This scheme would aim to be the most secure bike share scheme in the country.</p>
d) Sustainable travel			
E13	Package of travel planning and infrastructure measures to encourage use of sustainable modes (i.e. best performing E options)	Identified as a potential package component	<p>Potential complementary measure to change behaviour</p> <p>A synthesis of evidence from the Local Sustainable Transport Fund (LSTF) evaluation programme (DfT, 2018) showed that car use (per capita traffic volumes) fell by 2.6% across 12 areas during the five year LSTF period, whereas traffic volumes in a national comparator group of local authorities only fell by 0.3% (a difference of -2.3 percentage points). This superior performance was in contrast to the pattern before the LSTF period, when traffic volumes in the LSTF areas had shown similar trends to the comparator group. Although LSTF schemes were not the only cause of this fall in traffic, the research concluded that they probably made a significant contribution. The LSTF was the biggest-ever competitive funding programme for sustainable transport initiatives in England. The 12 areas each received an average of £4.1 million per year for capital (infrastructure) and revenue (e.g. travel planning, training, service improvements).</p>
F. Communications and marketing			
F1	Targeted communications and marketing	Identified as a potential package component	<p>Potential complementary measure (an important element of any package of measures).</p> <p>Delivery time is 0-6 months; Estimated scale of NOx reduction is Low/Med; Certainty of delivering change is Med; Risk of displacement is Low.</p> <p>Difficult to quantify the impact of a communication and marketing campaign, but this measure would need to be combined with other measures to promote a reduction in private car use.</p>
G. Other			
G1	Physical barriers - Physical barriers on either side of the road to screen pedestrians from vehicle emissions.	Not shortlisted. Lack of information at the time.	Not shortlisted. This would not reduce concentrations at the roadside from the road, but would not reduce the source emissions. Concentrations may be reduced at relevant receptors behind the barrier but this will not affect compliance along the road link.
G2	Freight consolidation centre	Not shortlisted. Not feasible in timescales.	<p>Potential mitigation measure if a CAZ B or higher is required.</p> <p>As part of the Solent Future Mobility Zone bid, funding is being sought to deliver an out-of-city freight consolidation centre for Portsmouth and increase the use of an existing centre in Southampton, to reduce the volume of commercial traffic in urban centres, and transfer deliveries to cleaner vehicles for the "last mile". Supported by Delivery and Service Plans (DSPs) or "Freight Travel Plans" which identify the operational, environmental and financial opportunities related to freight and servicing activities at specific business locations and are the first stage in developing sustainable consolidation approaches. They provide an opportunity to work with businesses to explore scope for more sustainable vehicle use, and will also be used to secure 'subsidised' participation from between five ("do minimum" and 20 ("do maximum") organisations across both cities, to trial and showcase the benefits of the consolidation centre.</p> <p>Estimated scale of NOx reduction is Low/Med. Information from the Southampton CAZ studies showed that an out of city freight consolidation centre and delivery service plan could lead to a reduction in both HGVs and LGVs in the city centre by 5% and 2.5% in the rest of the city. The potential impact of FCC was modelled as part of Portsmouth's updated air quality action plan for AQMA 6, assuming a 5% reduction in flows for HGVs and LGVs. A reduction in the number of HGVs and LGVs entering the city centre was predicted to reduce emissions contributions from these sources by a total of 1.2% compared to the DM scenario, with these reductions coming from Diesel LGVs and Rigid HGVs, as the relative contributions of Petrol LGVs and Articulated HGVs remains relatively constant.</p> <p>Most examples elsewhere are focused on serving retail areas (e.g. Bristol Broadmead Consolidation Centre; Norwich Retail Consolidation Centre) or a single retail landlord (e.g. Heathrow Retail Consolidation Centre; Meadowhall Shopping Centre). In this context, the FCC would need to be targeted at deliveries to the city centre and potentially Gunwharf Quay and London Road.</p> <p>Evidence from elsewhere suggests that public funding is needed in the large majority of the cases, at least during the first couple of years. Few examples of UCC are profitable (Heathrow Airport, Sheffield Meadowhall Shopping Centre, Regent Street), some manage to recover costs after a few years (Broadmead, London Construction, Nijmegen) but some depend on the long term on public subsidies to cover operating costs (La Rochelle, Bristol, Monaco).</p> <p>Evidence from other authorities suggests that take up by freight can be low, even when the FCC is up and running. More likely to be successful if participation can be made compulsory through planning or lease agreements, or if use is encouraged as a result of introducing a CAZ. Participation is likely to be limited without some form of external stimulus, such as limited access restriction (vehicle ban, LEZ / CAZ, pedestrian zone) or road user charging.</p> <p>The provision of additional services can help make the FCC more attractive to retailers: tailoring delivery times to suit supplier / retailer; reducing the need for storage space; regular deliveries throughout the day; and unpacking, hanging, security tagging, etc. The firms needing high frequency, low volume consignments, that contain simple products and do not have an optimised delivery scheme are able to benefit the most from a FCC.</p> <p>Stakeholder buy-in and good cooperation between participants (local authority, carrier, retailer, shipper, consumer) are critical factors of success.</p>
G3	Port-specific measures - A range of measures could be relevant, dependent on current activity at the port including:	Not shortlisted. Lack of information at the time.	<p>Being considered further</p> <p>Delivery time is ???; Estimated scale of NOx reduction is ???; Certainty of delivering change is ???; Risk of displacement is ???.</p>

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	<ul style="list-style-type: none">- Shore-to-ship electrical connections to reduce the need for engines to run on the ships- Development of port-specific air quality strategy- Installation of exhaust abatement- Adoption of alternative technologies, such as micro-generation, fuel cells and EV- Introduction of 'Green Tariffs' – London and Southampton propose such tariffs, which offer cost reductions for vessels that meet certain standards.		<p>Portsmouth International Port are preparing a Port Air Quality Strategy (PAQS) by July 2020. This will outline proposals for reducing emissions intensity associated with port activities, which will also influence NO2 concentrations on Commercial Road and Alfred Road.</p>
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Appendix C. Management Case Supporting Documents

C.1. Risk Management Log

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C.2. Project Timetable

C.3. Monitoring and Evaluation Plan

1.0 Introduction

As part of the Outline Business Case for the Portsmouth Local Air Quality Plan, this Monitoring and Evaluation Plan has prepared. Monitoring and evaluation is a fundamental aspect of understanding the impact of an intervention or policy approach and can be used to demonstrate effectiveness of the preferred approach and to inform the development of futures policy and interventions.

The Monitoring and Evaluation Plan draws on the existing extensive monitoring and evaluation programme that Portsmouth City Council has in place and seeks to exceed the 'do minimum' levels of monitoring that JAQU require. The additional local monitoring proposed will help to assess the impact of the objectives of the project and to provide data on the effectiveness of the interventions proposed within the preferred package that other Local Authorities can learn from.

1.1 PCC and JAQU responsibilities for monitoring and evaluation

A 'Monitoring and Evaluation Note' provided by JAQU in October 2018 set out the responsibilities for local authorities and for the central evaluation team with regards to monitoring and evaluation. It is noted that:

The central evaluation team will:

- Aim to understand the impacts of interventions introduced through a local authority's local plan and ensure that local authorities are on track to reduce NO² concentrations in *the shortest possible time*;
- Utilise existing local and national monitoring;
- Produce quarterly bulletins on the progress of local plans on reducing NO² concentrations and other key factors.

Portsmouth City Council will:

- Maintain the current monitoring sites (on NO² concentrations or traffic flows) for the length of the evaluation;
- Monitor the air quality outcomes in relevant areas but may choose to conduct further monitoring activities or evaluate the wider impact of the measures in more detail;
- Seek to cover any running costs associated with local monitoring and evaluation from the revenue generated from the charging CAZ;
- Share monitoring on NO₂ concentrations and traffic flows with JAQU every three months and liaise with JAQU to understand any issues the report highlights;
- Assist the evaluation team in their requests for additional data and discuss with JAQU the outcome of any case studies and engage on any next steps;
- Assist the evaluation team in their requests for data or in their collection of new data;
- Engage with the evaluation team, assisting them in identifying the impact of the local plan.

1.2 Principles for monitoring and evaluation

Considering the guidance set out in the 'Monitoring and Evaluation Note' the following principles have been developed to guide the proposed monitoring and evaluation activity:

- The preferred methods of monitoring will be through existing data sources where possible to offer best value for money and to ensure a continuity in the use of data across PCC's strategic projects;
- Any additional monitoring costs will be kept to a minimum by considering all existing data sources and sharing resources with other PCC strategic projects where possible;
- Metrics should not only be sourced from traditional transport indicators, but should also take account of wider impacts of the preferred packages such as public health and economic outcomes.

2.0 Realisation of Outcomes and Objectives

2.1 Objectives of the Preferred Package

Portsmouth City Council's preferred package for addressing exceedances in concentrations of nitrogen is focussed on a Class B CAZ, accompanied by a number of non-charging and complementary measures. The primary objective of the preferred package is to:

- Deliver a scheme that leads to compliance with NO₂ concentrations in the shortest possible time, without significantly worsening emissions elsewhere.

In addition, the package selected is intended to meet the following secondary objectives:

- Deliver value for money;
- Ensure that particular groups of stakeholders are not disproportionately impacted by any negative impacts associated with the proposed intervention;
- Complement existing and planned wider policies for the city (including promote economic growth, reduce levels of social deprivation, improve health and encourage sustainable and active travel);
- Be deliverable in terms of supply side capacity and capability;
- Be affordable; and
- Be achievable (taking into account technical, legislative, and political and public acceptability constraints).

This monitoring and evaluation plan sets out the variables that will be observed and the data that will be collected in order to evaluate the effectiveness of the preferred package and to provide insights into its impacts. Evaluation and monitoring will provide accountability that the primary and secondary objectives, as outlined above, will be met and will also help to build an evidence base for future interventions.

2.2 Key Outcomes of the Preferred Package

The main outcome of the preferred package will be the reduction in concentrations of nitrogen dioxide, however there are other measurable outcomes that are linked to the specific measures being proposed. [Table C-3-1](#) below outlines the key outcomes that are expected to be achieved with successful delivery of each of the measures that are proposed as part of the preferred package.

[Table C-3-1 Outcomes expected from successful delivery of measures](#)

Measures	Outcome
Class B CAZ	<ul style="list-style-type: none"> • Improved air quality (reduced NO₂ concentrations)
Changes to parking capacity and pricing	<ul style="list-style-type: none"> • Fewer journeys being taken through the exceedance areas; therefore a reduction in emissions • An increase in use of the Park & Ride, buses and rail to access the city centre
Delivery of two strategic cycle routes	<ul style="list-style-type: none"> • Increase in proportion of journeys made by bicycle and a decrease in car trips made
Changes to Alfred Road traffic signals	<ul style="list-style-type: none"> • Changes to traffic flows leading to reduced vehicle emissions at the junction
Progressive tightening of taxi licensing rules	<ul style="list-style-type: none"> • Decreased use of non-compliant vehicles • A faster improvement in air quality than would be achieved with CAZ B alone
Fast charging points at taxi ranks	<ul style="list-style-type: none"> • Increased use of electric vehicles and a reduction in use of non-compliant vehicles
Reduced/ free permits for low emission vehicles	<ul style="list-style-type: none"> • Increased use of low emission vehicles and reduced use of non-compliant vehicles
Travel planning measures	<ul style="list-style-type: none"> • Greater awareness of the issues associated with poor air quality and the sources of air pollution. • Greater proportion of trips made by low emission, active travel and sustainable modes.
Targeted communication and marketing	<ul style="list-style-type: none"> • Greater awareness of the issues associated with poor air quality and the sources of air pollution. • Greater proportion of trips made by low emission, active travel and sustainable modes.

	<ul style="list-style-type: none"> Awareness of support packages available to individuals and businesses to reduce negative economic impact of CAZ B.
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C.4. Benefits Realisation Plan

1.1 Introduction

This benefits Realisation Plan (BRP) forms part of the Management Case for Portsmouth Local Air Quality Plan to improve air quality in the city. Benefits realisation is a key strand of the implementation, operation and management of the project and all benefits must be tracked efficiently so that mitigation measures can be enacted promptly should the preferred plan of action be shown to be ineffective. Therefore, this BRP should be read alongside the Monitoring and Evaluation Plan which can be found at appendix C3 to the Outline Business Case.

The BRP provides an overview of the benefits expected to be delivered through the project, how and when they will be realised, how they will be monitored and reported on and who has responsibility for realising the benefits.

1.1.1 Identifying Benefits

This BEM will discuss both benefits and dis-benefits that are likely to arise from the project. Benefits are considered to be measureable improvements resulting from an outcome that is perceived as an advantage, whilst dis-benefits are considered to be the adverse to this. Benefits and dis-benefits have been identified at all stages throughout the project from implementation through to decommissioning and project closure. [Table C-4-1](#) below summarises the benefits and dis-benefits that have been identified for this project.

[Table C-4-1 Benefits statement](#)

Benefit	Expected benefit outcome	Benefit Type	Where will the benefit occur?	Who will be affected?
Reduction in concentration of nitrogen dioxide emissions	Reduction in hospital admissions for asthma, COPD and pulmonary cardio diseases	Public Health	Likely to be focused around the CAZ	All residents, but particularly vulnerable groups such as the elderly, the very young and those with pre-existing conditions
Promotion and optimisation of public transport use and walking and cycling infrastructure.	Increase in rates of walking and cycling and a reduction of injury accidents	Public Health	Likely to be focused around corridors with cycleway interventions	All residents who walk or cycle.
Delivery of longer term environmental benefits, and for Portsmouth to become an exemplar city.	Continued reduction in hospital admissions beyond the decommissioning of the project	Public Health	Likely to be focused around the CAZ	All residents, but particularly vulnerable groups such as the elderly, the very young and those with pre-existing conditions
Enhanced understanding of successful measures for achieving air quality improvements, for longer term use in Portsmouth and elsewhere.	Cost savings for delivery of future projects as able to draw on lessons learned	Financial and operational	Citywide and other local authority areas	PCC Officers and other local authorities
Reduction in use of polluting vehicles	Reduction in concentrations of nitrogen dioxide emissions	Primary Objective	Likely to be focused around the CAZ	All residents, visitors and businesses in Portsmouth
Dis-Benefit	Expected dis-benefit outcome	Dis-benefit Type	Where will the dis-benefit occur?	Who will be affected?

Charging measures have a disproportionate impact on low income groups	Businesses and self-employed individuals experience financial hardship	Economic	Likely to be focused around businesses located within the CAZ or those that have to regularly travel within/ through it.	Small businesses and self-employed individuals
Measures could conflict with other local objectives for economic growth and development or other local objectives	Development schemes cannot be pursued because they are likely to have a negative impact on air quality	Economic	In proximity to the exceedance and 'near-exceedance' locations	PCC and developers
Traffic displaced from the CAZ to other congested routes in the city	Exceedances in concentrations of nitrogen dioxide occur in additional locations	Primary Objective	Most likely at 'near-exceedance' locations	All residents, visitors and businesses in Portsmouth

1.2 Measuring Benefits

The primary means of measuring the benefits described in the table above are outlined in the MEP. The overall responsibility for measurement of benefits will sit with the Monitoring and Evaluation Officer, however everyone in the project team will be responsible for ensuring that benefits are realised within their own work area.

1.2.1 Analysing and Reporting Benefits

The data sources outlined in the MEP will be used to evaluate the effectiveness of the project in realising the proposed benefits as outlined in table xxx. Analysis of the data can also help to capture any lessons learned following key stages of the project, making recommendations for later stages of the project or for other pieces of work. Analysis will also allow for comparison of planned costs with actual costs to assess overall value for money of the project.

1.2.2 Roles and Responsibilities

Whilst the Monitoring and Evaluation Officer will be responsible for measuring and reporting on progress toward achieving the project outcomes and objectives, it is the Senior Responsible Owner (SRO) who will be ultimately accountable for the realisation of benefits across the project. The Project Manager will support the SRO in the realisation of benefits through ensuring that this BRP is regularly updated on reported on to the Air Quality Board, Cabinet and to JAQU.

2.0 Profiling Benefits

In order to effectively manage and realise individual benefits, individual benefit profiles have been developed which will be regularly reviewed and updated throughout all stages of the project. Each of the profiles will be formally reviewed at the following milestones:

- At submission of FBC (establishing the baseline)
- During implementation (assessing any early benefits realisation)
- Post-implementation (assessing after one year of operation)
- Post-implementation (assessing after three years of operation)
- During decommissioning (benefits realisation)
- Post- operation (one year after project closure for lasting benefits)
- Post-operation (three years after project closure for lasting benefits)

Table C-4-2 Benefit profiles

Benefit ID	B1- NO ₂ concentrations
Benefit Type	Public Health
Description	Reduction in concentration of nitrogen dioxide emissions
Feature giving rise to benefit	Introduction of a charging CAZ and supporting non-charging measures
Potential cost of delivery	<i>[confirm final costs of CAZ delivery from financial case]</i>

Activities to secure benefit	Non-compliant vehicles to be replaced with compliant types, reduce the number of trips made or do not make the trips.
Responsible officer	CAZ Project Manager
Performance measure(s)	Concentrations of NO ₂
Expected level of change	From 41.7 ug/m ³ on A3 Alfred Road to <40.4 ug/m ³ From 41.1 ug/m ³ on A3 Commercial Road to <40.0 ug/m ³
Timescale for achieving benefit	By the end of 2022
Measure at each review milestone	<p>Submission of FBC Alfred Road: Commercial Road:</p> <p>During implementation Alfred Road: Commercial Road:</p> <p>Post-implementation 1 Alfred Road: Commercial Road:</p> <p>Post-implementation 3 Alfred Road Commercial Road:</p> <p>During decommissioning Alfred Road: Commercial Road:</p> <p>Post- operation 1 Alfred Road: Commercial Road:</p> <p>Post-operation 3 Alfred Road: Commercial Road:</p>

These benefit profile reviews will be accompanied by the production of a post project review report which will be taken to the Air Quality Board and shared with JAQU one year after the CAZ is decommissioned. This report will provide an assessment of the overall net benefits realised by the project; give an assessment of the value for money provided by the project; and make recommendations for future air quality improvement projects and identify areas for improvements in future projects.

3.0 Data Collection and Reporting for Monitoring and Evaluation

In order to consider the effectiveness of the preferred package of measures it is important that a range of robust data sources are identified and plans are in place for reporting on progress towards achieving objectives. The data collected will be used to assess the ongoing success of the preferred option. Of particular importance will be the reporting of traffic flows and NO₂ concentrations to demonstrate progress towards achieving the primary critical success factor. Collection of data over time will allow for temporal analysis and the identification for patterns and trends for monitoring progress.

Table C-3-2 Sources and approach to data collection and reporting

Metric		Coverage	Reason for inclusion		Frequency	
Description	Type		Objective	Outcome	Collection	Reporting
NO ₂ Concentrations	Diffusion Tubes	Xx tubes across the city	Deliver compliance with NO ₂ concentrations in the shortest possible time without significantly worsening emissions elsewhere	Improved air quality (reduced NO ₂ concentrations). Fewer journeys being taken through the exceedance areas.	Monthly	To Air Quality Board: Monthly To JAQU: Quarterly
Traffic Flow	ANPR (from 2021)	80 cameras in CAZ	Deliver compliance with NO ₂ concentrations in the shortest possible time without significantly worsening emissions elsewhere	Fewer journeys being taken through the exceedance areas. Increased use of electric vehicles and a reduction in use of non-compliant vehicles	Continuous	
	Automatic traffic counters	2 exceedance locations plus 6 'near exceedance' locations		Changes to traffic flows leading to reduced vehicle		
Proportion non-compliant vehicles	ANPR	80 cameras in CAZ		Decreased Use of non-compliant vehicles.	Continuous	
Public transport usage	Industry reported patronage figures	Citywide	Complement existing and planned wider policies for the city	An increase in use of the Park & Ride, buses and rail to access the city centre	Monthly	
	Park and Ride					

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	ticket sales					
Impact on local economy	Job seekers allowance claimant count	Citywide plus Isle of Wight	Ensure that particular groups of stakeholders are not disproportionately impacted by any negative impacts associated with the proposed intervention	Awareness of support packages available to individuals and businesses to reduce negative economic impact of CAZ B.	Monthly	
	Reporting of GVA					
Cycle route usage	Automatic cycle counters	Various locations around the city	Complement existing and planned wider policies for the city	Increase in proportion of journeys made by bicycle and a decrease in car trips made	Monthly	
Hospital admissions for air pollution related illnesses						

3.1 Data reporting cycles

A high-level summary of the data collected will be reported to the Air Quality Board on a monthly as part of the standard reporting procedure. This will enable the SRO and other board members (as decision makers) to have regular oversight of the effectiveness of the preferred package, providing the opportunity to identify any lack of progress or risks to achieving the primary objective at the earliest opportunity.

The data will also be shared with JAQU every three months, during the implementation, operation and decommissioning of the CCAZ scheme. This will enable the tracking of progress against a baseline position, throughout operation and beyond to demonstrate that compliance can be maintained once the CCAZ is decommissioned. The specification for the data provided will be agreed with JAQU.

As well as the data provided within the quarterly monitoring report, PCC will assist the JAQU evaluation team in their requests for additional data, and liaising with partner organisations, for rapid assessment case studies and deep dive case studies.

3.2 Qualitative data

As well as the data outlined above, qualitative data will also be collected and analysed to gain an understanding of the public perception of air pollution in the city as well as response to and acceptance of the measures within PCC's preferred package. The methods for collecting and evaluating qualitative data are outlined in the Communication and Engagement plan.

4.0 Financial Implications of Monitoring and Evaluation

Monitoring and evaluation is an integral part of the proposed preferred package and will be essential for ensuring that the primary objective of the project is successfully achieved. Therefore it is essential that sufficient resource is made available for the collection, analysis and reporting of the data required to monitor the implementation and delivery of the preferred package.

4.1 Monitoring and Evaluation Officer

This post will be an integral part of the central Air Quality Project Team and will be responsible for gathering all of the data outlined in [table C-3-2](#) on a monthly basis, analysing progress and trends and feeding this into the relevant format for the audience (Air Quality Board, Councillors, Stakeholders, JAQU) as well as linking with other PCC projects. It is noted that much of the data collected is relevant to PCC's Transforming Cities Fund (TCF) bid, therefore it is suggested that the Monitoring and Evaluation Officer could provide a dual role supporting both the air quality work and the TCF work.

4.2 New and existing data sources

The majority of the data listed in [table C-3-2](#) come from sources that PCC already has access to, therefore the only costs associated with using this data would be for the Monitoring and Evaluation Officer's time to gather, analyse and report the data.

However, in order to tailor the data collected to this specific project it will be necessary to install a number of new automatic traffic counters. There is already a network of automatic traffic counters in the city and on the Highways England network, however there are not any specifically placed to monitor traffic in the exceedance locations. It is therefore suggested that new automatic traffic counters are installed at the two exceedance locations and also at the six 'near exceedance' locations.

Table C-3-3 outlines the costs for employing a Monitoring and Evaluation Officer to gather, analyse and report on data and the cost of installing and maintaining new automatic traffic counters to specifically monitor traffic at the exceedance locations.

Table C-3-3 Cost for monitoring and evaluation of preferred package

Item	Cost per year	Total cost for life of project
1 x FTE Monitoring & Evaluation Officer (including all overheads)	£44,171	£220,855
Installation of traffic counters (for 8 sites)	£44,595	£44,595
Annual telecommunication and maintenance (total for all sites)	£7,515	£37,575
Total (these costs have been accounted for in the financial case)		£303,025

C.5. Change Management Plan

[not included in 22/10/19 draft]

C.6. Change Request Form Template

Change request form

Programme: Local Air Quality Plan

Project Name:

Project Manager:

Ref:

Title of request:

Date:

1.0 Approvals

Title	Initial	Comments (if necessary)	Date of approval
Senior Responsible Owner			
Directorate Finance Manager			
Air Quality Board			

Once approved, the completed request form will be distributed to all members of the Air Quality Board.

2.0 Change details

2.1 Description of change being requested	
2.2 Justification for the change	
2.3 Impact assessment	
2.3 Senior Accountant comment	
2.4 Approval level required <i>Consider whether the approval for this change can be made through this request form, or whether the change needs to be approved by Section 151 Officer, Regeneration Director, T&T cabinet member or Cabinet</i>	

3.0 Attachments

C.7. Change Notification Template

Change Notification Form

Project name	
Project Manager	
Drafting date	

1.0 Approvals

Title	Initial	Comments (if necessary)	Date of approval
Senior Responsible Officer (SRO)			
Directorate Finance Manager			

Air Quality Board			
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Once approved, the completed request form will be distributed to the approvers and filed with the project documents.

2.0 Change details

<p>2.1 Description of change taken place Describe what needed to be changed. This could be:</p> <ul style="list-style-type: none"> • scope - something is added in or taken away • budget - the project required additional funding • programme - the project is scheduled to go over the agreed timescale 	
<p>2.2 Justification for the change Why the change took place?</p>	
<p>2.3 Options appraisal Identify any other options that were considered and discounted.</p>	
<p>2.4 Impact assessment By implementing the change, what additional impacts has this had on this project or other projects? Conversely, by <i>not</i> implementing the change what would the impact have been?</p>	

3.0 Attachments

<p>3.1 List any attachments to this form here.</p>	
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Appendix D. Engagement and Stakeholder Management

D.1. Communications and Engagement Plan

X

D.2. Stakeholder Report (including results of Stated Preference Survey)

Separate document.

Appendix E. Routes to Market

Route to Market	Advantages	Disadvantages	Rationale for not pursuing
<p>Crown Commercial Service (CCS)</p> <p>Traffic Management Technology 2 framework (RM1089)</p>	<p>Suppliers already pre-selected by CCS</p> <p>Framework suppliers are prepared for CAZ work. The framework has already been used by Leeds and is the preferred route for Manchester.</p> <p>Shorter tender period than a Restricted Procedure (6-8 weeks recommended).</p>	<p>Lack of flexibility in the procurement strategy to accommodate a two stage process.</p>	<p>Discussions with the framework manager has concluded that a two stage tendering strategy is not an appropriate use of the framework.</p> <p>Instead, the framework manager recommended a call-off for professional services from Lot 12 of the framework, before approaching CAZ suppliers. This does not provide the council with the opportunity to test the design and deliverability of the scheme with the preferred CAZ supplier, or include changes as a result of feedback from JAQU and the public consultation. Additional time and cost will be required for the preferred CAZ supplier to review all designs and to allow for re-design where required.</p> <p>Feedback from the supply market and from other Local Authorities suggests that a procurement strategy that allows for some flexibility in the design approach will enable the council and the CAZ supplier/operator to enact any changes quickly and efficiently without disrupting the programme or contractual relationship.</p>
<p>Open Procedure</p>	<p>Shorter timescales - compliant tender period of 30 days.</p> <p>Allows open competition including suppliers not on the CCS framework.</p>	<p>Inability to offer one to one confidential meetings due to number of potential bidders.</p> <p>Traditional clarification process does not encourage commitment of</p>	<p>The Open Procedure does provide small programme benefits during the tender phase because it is a single stage process.</p> <p>However, these benefits are negated by a lengthy and more complex evaluation process as a result of a larger number of returns and the need for greater clarification of tenders. The Restricted Procedure will take a similar amount of time and provide better developed bids that will allow for speedier mobilisation and implementation of the design phase.</p>

bidders. This results in bids of a limited development requiring further clarification.

A brief comparison between the Open and Restricted Procedure is provided below:

Shorter tender period negated by lengthy evaluation period.

	Open Procedure	Restricted Procedure
SSQ Issued		18 th November 2019
SSQ Returned		20 th December 2019
Evaluation		10 th January 2020
Communication		10 th January 2020
ITT issued	18 th November 2019	20 th January 2020
ITT returned	31 st January 2020	28 th February 2020
Evaluation	28 th February 2020	13 th March 2020
Internal approvals	6 th March 2020	20 th March 2020
Standstill	16 th March 2020	30 th March 2020
Contractor secured	17 th March 2020	31 st March 2020

Voluntary Ex-Ante Transparency (VEAT) Notice

Fast award process.

Established working relationships with current supplier.

High risk of challenge from the market.

A VEAT notice could be used to award the contract to the council's current bus lane enforcement supplier, who was selected following an OJEU compliant Open Procedure undertaken in 2014, with contract commencement from July 2015.

Lengthy integration process already completed.

However, the council considers there to be insufficient justification to award this contract without competition.

The extent of the current ANPR camera network goes don't give rise to a persuasive argument for the absence of competition for technical reasons. While integration took approximately 9 months, a new supplier could negate these issues in delivery (e.g. with a standalone system).

Soft market testing has demonstrated the breadth of the supply market which the council has not tested in over five years.

The current supplier has already been awarded a CAZ contract via a VEAT notice and a second may increase the risk of challenge.