LOCAL AUTHORITY NO_2 PLANS

CHANGE REQUEST FORM

JAQU recognises that local authorities (LAs) may need to adjust some elements of the delivery of their local NO_2 plans based on their practical experience of implementation or a change in local circumstances. To consider such requests JAQU needs a clear audit trail to understand the reasons for, and the impact of, any proposed change to an FBC. Changes to measures or their delivery may have implications for compliance and/or the legal direction placed on LAs. This form asks local authorities to set out:

- What change is proposed and when?
- Why is the change needed?
- How is the change to be implemented?
- What is the impact of the proposed change?

Based on this JAQU should be able to consider changes to plans. Please discuss the change and the level of information needed with your account manager before completion. For significant and material changes further information may be requested.

CHANGE REQUEST FORM
Local Authority: Transport for Greater Manchester on behalf of the 10 local authorities of Greater Manchester
Change Title: Update to Bus and Local Measures
Approver (senior LA approver): Group Chief Executive, GMCA, GMFRS & TfGM
Requester (main LA contact): Head of Logistics & Environment, TfGM
Date: 29 August 2025

CHANGE OVERVIEW (LOCAL AUTHORITY TO COMPLETE)

The measure this request relates to

This Change Request relates to the approved measures set out in the Appraisal Report[1], 'Evidence Submission for a new GM Clean Air Plan' of the Greater Manchester Authorities dated October 2024, and specifically the following:

- Cleaner Buses; provision of Euro VI buses; zero emission buses (ZEBs); charging infrastructure and associated support (Bus Measures)
- Local traffic management measures (Local Measures) at:
  - A57 Regent Road and
  - St John's Area

It does not relate to:

- Support for moving the hackney carriage fleet to cleaner vehicles.

In summary, the proposed adjustments to the Bus Measures and Local Measures are as follows:

Remove measure from the JAQU funding request:

- **Cleaner Buses – 77 new OEM Euro VIs** – New Original Equipment Manufacturer (OEM) Euro VIs were deployed onto the GM fleet in Tranche 3 of Bus Franchising and are operating on services that have been identified by the Clean Air Plan ('the Plan'). The 77 new OEM Euro VIs at Stockport remain in the Plan, however funding is not required as they are operating using funding from other sources.
- **Bus Electric Charging Infrastructure – Queens Road** – The depot is now not expected to be electrified by the timescales required for the Clean Air Plan.
- **Bus Service Relocation** – Update of modelling identifies that the 163 bus service does not need to be moved to Bolton depot and electrified, therefore there is no requirement for the relocation of buses from Bolton to Wigan depot (to accommodate the additional buses for the 163 service at Bolton).
- **A57 Regent Road Local Measures – Speed Limit Enforcement** – Delivery of speed limit camera enforcement is unlikely be operational within the first half of 2026 and therefore would have limited benefit to the Plan. The other Local Measures on the A57 Regent Road (signal optimisation, speed limit reduction and yellow box enforcement) have been retained, helping to achieve compliance at this exceedance location in the shortest possible time and by 2026 at the latest and providing robustness to the Plan.
- **St John's Area Local Measures – Prohibition of Driving:** Update of modelling and analysis of 2024 air quality monitoring data identifies that the prohibition of driving on Lower Byrom Street is no longer required, with additional headroom shown at the exceedance location at A34 Quay Street. Through discussions with Manchester City Council, it has been agreed that the prohibition of driving on Lower Byrom Street measure will no longer be implemented. The yellow box enforcement measures, including cameras, have been retained, helping to achieve compliance at this location by minimising blocking of junctions and improving traffic flows leading to a reduction in emissions and providing robustness to the Plan.

[1] https://assets.ctfassets.net/tlpgbvy1k6h2/79kb4MJlHn34cdLbanapxj/ee30bedfb995a337c61fade9796cb707/Appraisal_Report_-_Approved.pdf

Add measure to the JAQU funding request:

- **Cleaner Buses – 38 More ZEBs** – These buses will operate from Bolton depot on routes 8, 10, V1, and V2, addressing new exceedance locations found in updated modelling.
- **Bus Electric Charging**
    - **Depot Electrification - Bolton (Additional)** – Additional 4 dual chargers to support the 128 ZEBs that are planned to be operated from the depot.
    - **Free Bus Charging -** Shunting buses to/and from alternative depot for charging. The City Centre Free Bus (Services 1 and 2) will continue to be housed at Queens Road but will have to be charged at an alternative depot, as there will no charging infrastructure at Queens Road and there is no capacity to house the buses at alternative depots that have charging infrastructure.
- **Additional Bus Operational Costs -** Nominal amount for operational inefficiencies derived from changes to the optimal bus fleet deployment plan for clean air purposes.

A summary of all the measures that require funding in the updated Plan is included in the table below. Full details of the updated Bus Measures are provided in **Appendix A**.

Investment-led Plan	**Description**
GM-Wide Measures	
Cleaner Buses - ZEBs	Funding to purchase ZEBs that operate on services that pass remaining exceedance sites to achieve compliance in the shortest possible time and by 2026 at the latest. The funding requirement for this measure is £46.4 million for 78 ZEBs.
Bus Electric Charging	Funding to provide electric charging infrastructure to support: • the additional 78 ZEBs at Bolton depot, and • the City Centre Free Bus at Manchester Picadilly Approach The ZEB services using this infrastructure are required to operate on modelled exceedance routes to achieve compliance at these locations, alongside other investment-led measures. Funding to support the City Centre Free Bus charging. The City Centre Free Bus fleet will be housed at Queens Road depot and will be charged at an alternative depot. The funding requirement for to these measures is £4.4 million.
Additional Bus Operational Costs	Funding to cover operational inefficiencies to the optimal bus fleet deployment plan derived from changes required for Clean Air purposes. The funding allocated to this measure £0.3 million.
Taxi Measures - Hackney Carriages	Funding to provide grant contributions for the upgrade of hackney carriages licensed in GM to cleaner vehicles. Eligible applicants will be offered a running cost grant towards the running costs of a new Zero Emission Capable (ZEC) vehicle, or a contribution towards a replacement vehicle. The funding allocated to this measure is £8 million. The per-vehicle funding amounts are split into funding for upgrade to wheelchair accessible vehicles (WAVs) and funding for upgrade to non-wheelchair accessible vehicles (non-WAVs), as follows: <u>Upgrade to WAV</u> • Up to £12,560 towards the running costs of a new purpose-built WAV ZEC replacement vehicle. This option is available when the compliant

	replacement vehicle acquired with GM CAP funds has also been eligible for a government plug-in grant; or • Up to £12,560 towards a second-hand purpose-built WAV ZEC replacement vehicle; or • Up to £6,280 towards a compliant purpose-built WAV replacement vehicle (Euro IV petrol or Euro VI diesel or better). <u>Upgrade to non-WAV</u> • Up to £7,530 towards the running costs of a new ZEC replacement vehicle; or • Up to £7,530 towards a second-hand ZEC replacement vehicle; or • Up to £3,770 towards a compliant replacement vehicle (Euro 4 petrol or Euro 6 diesel or better); or • Up to £6,280 towards a compliant replacement 6+ seater vehicle (Euro IV petrol or Euro VI diesel or better). All funding is subject to meeting eligibility criteria.
Local Measures	
A57 Regent Road - Signal Optimisation	Funding to adjust signal timing to A57 Regent Road green times applied at the junctions of A57 Regent Road / Oldfield Road and M602 J3 West arm approach to the junction. Supplementary adjustments are to be applied to parallel routes, namely: Oldfield Road / Middlewood Street, Ordsall Lane / Middlewood Street / Hampson Street and Hampson Street / Trinity Way. By implementing these signal changes, traffic flow will become steadier, reducing unnecessary accelerations and deceleration, and leading to a reduction of emissions through the exceedance site.
A57 Regent Road - Speed Reduction	Funding for the implementation of a speed reduction from 40mph to 30mph on A57 Regent Road between Oldfield Road and M602. This measure would influence trips outside of the peak periods, during free-flow conditions, making Regent Road a less attractive route and therefore reducing traffic flow leading to a reduction in emissions.
A57 Regent Road - Yellow Box Enforcement	Funding for the implementation and operation of yellow box enforcement along the A57 Regent Road. The aim of this measure is to minimise blocking of junctions and improve traffic flows leading to a reduction in emissions and better reflect modelled performance and providing robustness to the Plan.
St John's Area - Yellow Box Enforcement	Funding for the implementation and operation of yellow box enforcement along the A34 Quay Street corridor in the St John's area. The aim of this measure is to minimise blocking of junctions and improve traffic flows leading to a reduction in emissions and better reflect modelled performance and providing robustness to the Plan.
Local Measures – Total	The funding allocated to the package of local measures at the A57 Regent Road and the A34 Quay Street (in the St John's area) is £3.0 million.

The Investment-led Plan, following the above changes, is still modelled to achieve compliance in 2026 and in-line with the legal direction.

Why Now?

- Ongoing work to electrify Queens Road bus depot has found that electrification would permanently reduce depot capacity, with up to 48 buses requiring relocation on a permanent basis. Extensive searches have not been able to find an alternative location for the 48 buses within the timescales required for the Plan.
- This means that the approved GM CAP would be unable to realise the full year benefit in 2026 of the ZEBs operating from this depot on CAP specified routes, triggering a need to change the Investment-led Plan.
- The TfGM bus and clean air teams have been working closely to develop a bus-based alternative to electrification of the Queens Road bus depot which would still achieve compliance with the legal direction, in the shortest possible time and by 2026 at the latest.
- The updates to the bus modelling for the 'As Is' with Updated Bus Measures 2026 model run, along with the 2024 monitoring, has enabled a review by TfGM, Manchester City Council and Salford City Council of the requirements at exceedance locations covered by the Investment-led Plan Local Measures (A34 Quay Street at the St John's Area and A57 Regent Road).
- Modelling and compliant monitoring data, show additional headroom shown at the exceedance location at A34 Quay Street and through discussions with Manchester City Council, it has been agreed that the prohibition of driving on Lower Byrom Street measure will no longer be part of the funding requirement. The yellow box enforcement measures have been retained, helping to achieve compliance at this location by minimising blocking of junctions, improving traffic flow, reducing emissions and providing robustness to the Plan.
- The delivery of speed limit camera enforcement is unlikely be operational within the first half of 2026 and therefore would have limited benefit to the Plan. Through discussions with Salford City Council, and, it has been agreed that the speed limit camera enforcement will no longer be part of the funding requirement. The other Local Measures on the A57 Regent Road (signal optimisation, speed limit reduction and yellow box enforcement) have been retained, helping to achieve compliance at this exceedance location in the shortest possible time and by 2026 at the latest and providing robustness to the Plan.
- Following conclusion of a desktop-based review using the bus fleet data, GM CAP modelling suite and 2024 air quality monitoring data, and discussion with the local highway authority teams implementing the Local Measures, TfGM has advised JAQU officers (June 2025) of the nature of these proposed adaptation to the Plan and are now commencing the change control process, as detailed in this form.

How is the change to be implemented?

- There is no change to the parties responsible for implementing the Bus and Local Measures. The TfGM bus team are responsible for Bus Measures, by procuring additional ZEBs, electrifying GMs bus depots and managing the operational changes required. Manchester City Council are responsible for delivery of the St John's Local Measures and Salford City Council are responsible for delivery of the A57 Regent Road Local Measures.
- No public consultation will be required as a result of this Change Request as the components of the Investment-led Plan containing Bus, Taxi and Local Measures remain unchanged as part of GM's Investment-led, non-charging approach.
- The need to adjust some elements of the Bus and Local Measures delivery plans, based on a change in local circumstances, has been advised to GM's Air Quality Administration Committee (31 July 2025).
- Delivery risk to the updated Investment-led Plan is to be covered as part of the Delivery Plan, following the review and approval of this Change Request. However, risks associated with the updated Investment-led Plan have significantly reduced and are not considered to be of a similar magnitude to the delivery of the Queens Road bus depot.

Impacts (Implementation measures)

The adjustments to the Plan are not forecast to change the projected date of compliance, which remains 2026.

The emissions and air quality modelling has been updated to reflect the monitored operations of bus fleet after the completion of Bus Franchising across GM in January 2025. This has shown a greater proportion of OEM Euro VI vehicles than expected, although there are some localised exceptions where depots are currently being operated with higher mix of retrofitted buses than OEM Euro VI fleet.

For the modelling, GM have built bus service specific fleet mixes based on the actual monitored bus fleet operations from March 2025. This is termed the 'As Is' scenario (rather than the Do Minimum), because the actual monitored bus fleet incorporates some of the bus service upgrades required for to achieve NO2 compliance, which have already been implemented, as well as some changes to the bus fleet that were assumed in the Do Minimum (such as Wigan depot operating with some retrofit fleet and Middleton depot not being electrified, as explained later in this section).

The 'As Is' scenario has then been modelled for 2026, incorporating programmed bus schemes that are guaranteed to be delivered and do not require any Clean Air funding (such as Ashton depot electrification, which went live in June 2025 with an all-electric fleet), but excluding the Local Measures and Taxi Measures. This identified there would be 7 remaining exceedances in GM in 2026.

TfGM has then worked through further deliverable service-level bus fleet upgrades required, as set out in **Appendix A,** to tackle each of these remaining exceedances, which provided sufficient emissions improvements that no sites are forecast to exceed in 2026. The exceedance locations by scenario for 2025 and 2026 are shown in **Appendix B**, with the summary of total exceedances shown in **Table 1**.

The air quality monitoring for 2024 has been reviewed, and overall shows good alignment with the modelled forecasts. The result of the highest measured concentration (for a site meeting the Limit Value guidance siting criteria) for each road link has been presented in **Appendix B**, for links which

have forecast an exceedance across any scenario. In the locations where the Local Measures had been specified, measured concentrations indicate they will be lower than forecasts for 2025, and in compliance in 2024 at the A34 Quay Street (St John's Area). This provides additional reassurance that the updated modelling, which excludes the Local Measures, is not likely to be to be too optimistic, and these areas – which should continue to improve as natural vehicle fleet turnover further reduces future concentrations – would be compliant with the updated Plan in 2026.

However, in some locations there are variances between modelled forecasts of 2026 and the measured concentrations for 2024, and concentrations >50ug/m3 at four locations. Many of these could be expected, with the bus fleet either being cleaner or more polluting due to changes as a result of Bus Franchising between modelled assumptions for 2026 and on-road conditions in 2024, plus two years of natural turnover of vehicle fleet. The monitoring data will continue to be reviewed as part of the monitoring and evaluation process.

Sensitivity testing of the A57 Regent Road measures for the October 2024 submission showed minor re-routing and did not indicate risk of any new areas of exceedance being created. All of the A57 Regent Road measures remain in the updated Plan with the exception of the removal of the proposed speed limit camera enforcement.

The air quality monitoring for 2024 shows some headroom at the A34 Quay Street with results for 2024 and further reductions expected in 2025 and 2026 as a result of natural fleet upgrades. Through discussions with Manchester City Council, it has been agreed that the prohibition of driving on Lower Byrom Street measure will no longer be implemented on the basis of modelling and monitoring data with additional headroom shown at the exceedance location at A34 Quay Street. The yellow box enforcement measures for A34 Quay Street have been retained, helping to achieve compliance at this location by minimising blocking of junctions and improving traffic flows leading to a reduction in emissions and providing robustness to the Plan.

The Taxi Measures will also provide further resilience beyond the updated plan modelling.

Air quality monitoring data will continue to be reviewed through 2025 and 2026.

The table below shows the total modelled exceedances for 2025 and 2026 for a number of modelled scenarios.

Table 1: Total Modelled Exceedances by Scenario

Number of NO_2 Exceedance Sites	**2025**	**2026**
Do Minimum (Oct-24 evidence submission)	26	17
Do Something (Oct-24 evidence submission)	n/a	0
As Is (Change Request July 2025)	n/a	7*
Do Something (Change Request July 2025)	n/a	0

*** Appendix B** identifies the 7 exceedance locations for the 'As Is' modelling.

It should be noted that of the 7 exceedance locations for the 'As Is' modelling, four of the locations; A664 Shudehill (Manchester), Lever Street (Manchester), Wallgate (Wigan) and King Street West

(Wigan) were not forecast in the 2025 Do Minimum as set out in the October 2024 Appraisal Report. These four additional exceedances were created as a result of changes in the bus fleet between the assumptions included in the Do Minimum modelling for 2025 and the 'As is' modelling. The main changes to the assumptions are:

- It was expected that Wigan depot would be operated with a full fleet of OEM Euro VI vehicles (which was higher than the specified franchising standards). The bus data collected for the 'As Is' modelling identified that approximately 25% of the fleet was retrofit buses and discussion with the bus team concluded this would not change in 2025/26. Therefore the 'As Is' modelling includes the reduced proportion of OEM Euro VI vehicles at the Wigan depot.
- It was expected that Middleton depot would be a fully operational all electric depot in 2025 and therefore all services operating from Middelton depot were identified as ZEBs in the Do Minimum modelling. Challenges relating to ownership of the site meant it was not possible to commence the electrification works and the depot is currently operating with a diesel fleet. Therefore the 'As Is' modelling includes the current diesel vehicles at the Middleton depot.

As a result, the measures in this Change Request address the sites forecast for exceedance in 2025 (26 locations), which have been updated to include the additional sites identified in the March 2025 'As Is' modelling (4 locations) and therefore addresses 30 exceedance locations in total. The Change Request measures achieve compliance across all sites in 2026.

As referenced in the Supplementary Appraisal Report, part of the October 2024 evidence submission to government, the electrification of Queens Road bus depot was highlighted as a delivery risk to meet the timescales required for the GM CAP. The bus-based measures included in the Plan, as a result of the Change Request, will provide additional confidence of delivery. The 'As Is' modelled scenario demonstrates the progression of air quality improvements forecast in Greater Manchester through CAP and non-CAP funded investment, largely through deployment of cleaner buses and further depot electrification.

Implementation Funding

JAQU guidance states "It is expected that for any changes to Implementation Measures needed for compliance, local authorities should first look to cover these through existing funds provided and/or from any revenues where charging CAZs are in operation". This guidance has been followed, and details of the funding requirements as a result of this Change Request are set out below.

Table 2 sets out the funding for the Bus Measures included in the October 2024 submission compared against the updated funding required as identified in the Change Request. GM has carefully developed these proposals with a view to ensuring no additional costs beyond the existing funding envelope.

Table 2: GM CAP Funding Requirement

Measures	Previous Cost (£m)	Updated Cost (£m)	Comments
Cleaner Buses – 77 new OEM Euro VIs	8.4	-	Remains in the Plan and the 77 new OEM Euro VIs are now operational. Funding is not required as the fleet is operating using funding from other sources.
Cleaner Buses – 40 ZEBs	23.8	23.8	Remains in the Plan and 20 of the 40 ZEBs have been procured and are operational. Funding previously approved.
Cleaner Buses – Additional 38 ZEBs	-	22.6	Additional fleet requirement added to the Plan. Funding required for the additional fleet.
Bus Electric Charging Infrastructure – Bolton	5.4	3.5	Remains in the Plan and has been delivered within the funding previously approved.
Bus Electric Charging Infrastructure – Bolton (Additional)	-	0.7	Additional charging capacity added to the Plan and required for the additional fleet. Additional charging capacity has been delivered. Requires funding, however, all Bolton depot electrification costs are within the funding previously approved.
Bus Electric Charging Infrastructure – Queens Road	12.1	-	Removed from the Plan and funding not required.
Bus Electric Charging Infrastructure – Piccadilly Approach	0.3	-	Remains in the Plan, but for costing purposes is now included in 'Bus Electric Charging - Free Bus' item below.
Bus Service Relocation	1.1	-	Removed from the Plan and funding not required.
Bus Electric Charging – Free Bus (inc Piccadilly Approach charger)	-	0.2	Added to the Plan and funding required for the nominal amount for shunting buses to/from an alternative depot, as well as the cost for the Picadilly Approach charger.
Additional Bus Operational Costs	-	0.3	Added to the Plan and funding required for the nominal amount for operational inefficiently of restricting fleet.
OEM Euro VI at Wigan	-	Nil	Added to the Plan but funding is not required as the OEM fleet will be cascaded from other depots.
Totals	**51.1**	**51.1**	

Cleaner Buses – ZEBs

In developing the costs for the ZEB bus fleet, the same assumptions as used in the October 2024 submission have been made.

- All the vehicles are ZEBs.
- Following operator feedback the maximum range per day of a vehicle was estimated to be 120 miles.
- Based on Tranche 1 and Tranche 2 operator feedback and the range assumption noted above, a circa 10% factor on the number of vehicles ZEBs required (compared to diesel buses) has been used.
- A spare ratio of 17.5% has been added to the peak vehicle requirement.
- The vehicle costs are based on previous tender activities.
- The receipt from selling the vehicle the ZEB would replace has not been included. It is expected it would replace an older vehicle towards the end of its useful life and the residual value from this is expected to be minimal.
- The lease cost is passed from the operator to TfGM through the franchise service fee.
- The cost comparator covers a 5-year period (2025-2030).

Bus Electric Charging Infrastructure - Bolton

Table 3 sets out the actual costs for the depot electrification.

Table 3: Depot Electrification Costs

	Depot / Location	
Element	**Bolton**	**Bolton Additional**
No. of Dual Chargers	20	4
Actual Cost (£m)	£3.5	£0.7
Total (£m)	**£3.5**	**£0.7**
	£4.2 million	

Further details in relation to the depot electrification at Bolton to achieve compliance with nitrogen dioxide legal limits in the shortest possible time, are as follows:

- The installation of 24 dual chargers is an extension of the previous electrification works undertaken in 2023 to install 25 dual chargers. Bolton depot now has 49 dual chargers with a total charging capacity of 98 ZEBs simultaneously.
- The previous charging strategy was 1 charger per ZEB, however 128 ZEBs are required to operate from Bolton Depot to achieve compliance, with 98 chargers available. Operational investigations have concluded that it will be possible to operate the fleet of 128 ZEBs with 49 dual chargers.

Bus Electric Charging – Free Bus (inc Piccadilly Approach charger)

In developing the costs for the City Centre Free Bus Charging (Services 1 and 2), the following factors have been considered:

- The electrification of the Free Bus 1 and 2 services are required to achieve compliance with nitrogen dioxide legal limits in the shortest possible time.
- The Free Bus 1 and 2 services are interworked and use the same fleet of 12 ZEBs.
- The Free Bus 1 and 2 services are housed at Queens Road Depot, which is now not being electrified.
- There is not capacity at other electrified depots to relocate the Free Bus fleet and it will not be operationally feasible to switch services between depots.
- To enable the Free Bus to be charged, the fleet will be housed at Queens Road depot and taken to another depot for charging. Top-up charging will also be provided at Picadilly Approach.

The October 2024 submission included £0.31 million for the provision of a dual charger on Piccadilly Approach to enable top-up charging of the Free Bus fleet. Further investigations have identified the existing charger can be replaced and upgraded (rather than a full new installation and supply) which will significantly reduce the costs. The costs for the Piccadilly Approach charger have been included within the £0.2 million estimate for the 'Bus Electric Charging – Free Bus'.

Additional Bus Operational Costs

In developing the costs for the Additional Bus Operational Costs, the following considerations have been taken into account:

- To achieve compliance with nitrogen dioxide legal limits in the shortest possible time, restrictions will be placed on bus operators to require them to operate ZEBs and OEM Euro VIs on specific services.
- The bus operators have tendered for the services based on a specification of maximum vehicle age, and some services operating with ZEBs. They have designed their operational approach using pools of vehicles to achieve the most cost effective and operationally resilient approach.
- Experience from previous instructions to provide specific fleet on specific services have led to increased operational costs, which are contractually provided for, resulting from factors including; additional fleet (as limiting ability to interwork services / additional spares

required), additional resources (from rota-based inefficiencies and needing to move drivers between locations or creating additional journey times), and additional bus operational costs (from increased dead mileage).

- Discussions with operators are ongoing to understand the operational and cost implications of requiring specific services to be operated with ZEBs and OEM Euro VIs. Based on previous experience it is the expected the additional cost will be a minimum of £150k per year and will be required for a minimum of 2 years.

OEM Euro VI at Wigan

The upgrade of fleet from OEM Euro VI to ZEBs at Bolton depot, and other depots, enables a cascade of OEM Euro VI fleet to replace the retrofit vehicles. The additional ZEBs at Bolton depot will increase the number OEM Euro VI vehicles available, allowing the fleet plans to be updated to cascade sufficient OEM Euro VI vehicles to Wigan depot at no additional cost.

Local Measures – Updated Funding

Table 4 sets out the funding for the Local Measures included in the October 2024 submission compared against the updated funding required as identified in the Change Request.

Table 4: Local Measures Costs

Measures	Previous Cost (£m)	Updated Cost (£m)	Comments
Local Measures	5.0	-	High level estimate for all local measures development, implementation, operational and decommissioning costs
Local Measures - St John's Area	-	1.1	Updated estimate for the updated measures (formerly referred to as A34 Quay Street / Great Bridgewater St in the October 2024 Appraisal Report)
Local Measures - A57 Regent Road	-	1.9	Updated estimate for the measures
Totals	**5.0**	**3.0**	

The concept design for the measures has been completed which has enabled an updated estimate for the implementation, operational and decommissioning costs, as well as the risk and contingency, and the actual costs for the development work to date.

The updated Local Measures costs show a £2.0m reduction from the October 2024 submission. As identified in the October 2024 submission, the estimated whole life total cost of the Investment-led Plan is £15.2m greater than the awarded funding. It is proposed that following the approval of the

change request, the £2.0m is reallocated within the Clean Air Plan to reduce the funding shortfall. An updated cost plan will be produced upon approval of this Change Request.

Clean Air Fund grant variations only

It is not expected that additional Clean Air Fund awards to that already provided will be considered. This form is expected to address any variation LAs may wish to make in delivery.

CAF Impacts and delivery to date

N/A – covered in 'Implementation Funding' section.

CAF awards to date and proposed variation

N/A – covered in 'Implementation Funding' section.

Agreement to Proceed

JAQU to complete **Approved / Declined** Authorised Approver: Date:_____ **Conditions of Approval/Reason for rejection:**

Appendix A: Bus Measures

1. Bus Investment

1.1. The Do Minimum modelling undertaken to support the Appraisal Report submission in October 2024 identified 26 exceedance locations for 2025 and 17 exceedances for 2026. The bus measures set out as part of the Investment-led Plan comprised funding for the purchase of 40 new ZEBs in Bolton, upgrade to 77 OEM Euro VIs at Stockport, depot electrification of Bolton, Queens Road and Picadilly Approach, along with other measures. Since the October 2024 submission, there have been extensive changes and upgrades to the GM bus fleet as part of the full rollout of bus franchising, which includes the implementation of a number of CAP bus measure upgrades set out in the October 2024 Appraisal Report.

1.2. As it will not be possible to electrify Queens Road in the timescales required for Clean Air, alternative bus measures have been identified to achieve compliance for 2026, varying some of the bus measures set out in the October 2024 Appraisal Report.

1.3. The following text provides an update to the equivalent text set out in paragraphs 7.2.12 to 7.2.26 of the Appraisal Report (including Table 4), submitted as part of the October 2024 evidence submission. For completeness, all 2025 exceedance locations (26 locations) that were set out in the October 2024 evidence submission, and updated from the 'As Is' modelling (an additional 4 locations) have been included, and therefore 30 exceedance locations in total.

1.4. As part of this change request to the Investment-led Plan, the funding for cleaner buses is comprised of upgrades to ZEBs. Funding is no longer required for the upgrades to OEM Euro VI standard.

1.5. The funding requirement for ZEB upgrades is for 78 ZEBs where it is modelled that compliance cannot be achieved through upgrade to OEM Euro VIs alone. These ZEBs operate on bus corridors that pass persistent exceedance sites forecast for 2025, which have been updated to include the additional sites identified in the March 2025 'As Is' modelling.

1.6. In addition to the ZEBs that require funding, 158 ZEBs will be allocated to services at Hyde Road, Middleton, Oldham and Queens Road depots on the services that pass exceedance sites. Funding is not required for the ZEBs at these depots as they will be provided by other committed franchising funding sources.

1.7. The upgrade to OEM Euro VIs consists of 77 vehicles to be operated from the Stockport depot and 17 to be operated from Wigan depot onto routes for clean air purposes where compliance can be achieved via an OEM Euro VI fleet. Funding is no longer required for the 77 OEM Euro VIs at Stockport as they are provided by other bus funding sources, and funding is not required for the 17 OEM Euro VIs at Wigan as they will be cascaded from other depot locations.

1.8. Funding is required for the depot electric charging infrastructure at Bolton and for the charging associated with the ZEBs located at Queens Road depot.

2. ZEB upgrade

2.1. The Investment-led Plan targets deployment of 78 additional ZEBs from Bolton depot, and 158 ZEBs allocated to services at Queens Road, Hyde Road, Middleton and Oldham depots, at the following persistent exceedance locations based on the inability to achieve compliance at these locations through OEM Euro VI upgrades alone:

- **A34 Bridge Street, Manchester (3 locations)** – Six bus services (8, V1, V2, 36, 37 & X39) pass these exceedance locations that require upgrade to ZEBs using the GM CAP funds. Funding is not required for a further two services (1 & 38) that require upgrade to ZEBs at these exceedance locations.
- **A34 Quay Street, Manchester / Gartside Street, Manchester (2 locations)** – Funding is not required for the one bus service (1 - the City Centre Free Bus 1) that requires upgrade to ZEBs at these exceedance locations.
- **A57 Regent Road, Salford / Great Bridgewater Street (2 locations)** – Based on the results from the 'As Is' modelling, compliance is achieved at these locations with no upgrades required to the buses.
- **A58 Bolton Street, Bury (2 locations)** – Three bus services (471, 472 & 474) pass these exceedance locations that require upgrade to ZEBs using the GM CAP funds. Funding is not required for one further service (469) that requires upgrading to ZEB at these exceedance locations.
- **A6 Piccadilly, Manchester (2 locations)** – Funding is not required for the two bus services (1 & 2) that require upgrade to ZEBs at these exceedance locations. No funding is required for a further two services (192 & X92) that pass these exceedance locations as they have already been upgraded to OEM Euro VI.
- **A664 Shudehill, Manchester (2 locations)** – Two bus services (8 & 10) pass one of these exceedance locations that require upgrade to ZEBs using the GM CAP funds. Funding is not required for one further service (2) that requires upgrading to ZEB at the same exceedance location. Funding is not required for eleven further services (17, 17A, 18, 56, 112, 113, 114, 117, 118, 119 & 156) that require upgrading to ZEB at both these exceedance locations.
- **King Street, Manchester (2 locations)** – Three bus services (36, 37 & X39) pass these exceedance locations that require upgrade to ZEBs using the GM CAP funds. Funding is not required for a further two services (1 & 2) that require upgrade to ZEBs at these exceedance locations.
- **New York Street, Manchester (1 location)** – Three bus services (36, 37 & X39) pass this exceedance location that require upgrade to ZEBs using the GM CAP funds. Funding is not required for a further one service (1) that require upgrade to ZEBs at this exceedance location.

- **Portland Street, Manchester (3 locations)** – Four bus services (36, 37, V1 & V2) pass one of these exceedance locations that require upgrade to ZEBs using the GM CAP funds. Funding is not required for one further service (38) that requires upgrading to ZEB at the same exceedance location. Funding is not required for one service (2) that requires upgrade to a ZEB at the other two exceedance locations and no funding is required for a further two services (192 & X92) that pass the same two exceedance locations as they have already been upgraded to OEM Euro VI. Funding is not required for four further services (1, 18, 113 & 114) that require upgrading to ZEB at all three of the exceedance locations.
- **Lever Street, Manchester (1 location)** – Funding is not required for eleven bus services (18, 76, 76A, 83, 84, 112, 113, 114, 117, 118 & 119) that require upgrade to ZEBs at this exceedance location.

3. OEM Euro VI upgrade

3.1. The locations where additional OEM Euro VIs are required for clean air compliance are concentrated along the A6 Manchester/Stockport corridor, a single exceedance location in Stockport, located close to the M60 motorway (B1604 Carrington Road) and two locations in Wigan town centre.

- **A6 Ardwick Green, Manchester (1 location)** – Two bus services (192 & X92) pass this exceedance location and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7.
- **A6 London Road, Manchester (1 location)** – Two bus services (192 & X92) pass this exceedance location and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7.
- **A6 Piccadilly, Manchester (2 locations)** – Two bus services (192 & X92) pass these exceedance locations and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7. Two further service (1 & 2) that require upgrade to ZEBs pass these exceedance locations.
- **A6 Stockport Road, Manchester (3 locations)** – Two bus services (192 & X92) pass these exceedance locations and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7.
- **A6 Wellington Road South, Stockport (1 location)** – Four bus services (192, X92, 383 & 384) pass this exceedance location and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7.
- **A6 Whitworth Street, Manchester (1 location)** – Two bus services (192 & X92) pass this exceedance location and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7.
- **B6104 Carrington Road, Stockport (1 location)** – Two bus services (325 & 330) pass this exceedance location and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7.

- **Portland Street, Manchester (2 locations)** – Two bus services (192 & X92) pass these exceedance locations and have been upgraded to OEM Euro VIs. Funding for this was previously designated for GM CAP funds but has now been provided as set out in paragraph 1.7. A further five services (1, 2, 18, 113 & 114) that require upgrade to ZEBs pass these exceedance locations.
- **Wallgate, Wigan (1 location)** – Five bus services (601, 602, 603, 604 & 609) pass this exceedance that require upgrade to OEM Euro VI's. Funding is not required for these services as the upgrade of fleet from OEM Euro VI to ZEBs at Bolton depot, and other depots, enables a cascade of OEM Euro VI fleet.
- **King Street West, Wigan (1 location)** – Five bus services (601, 602, 603, 604 & 609) pass this exceedance that require upgrade to OEM Euro VI's. Funding is not required for these services as the upgrade of fleet from OEM Euro VI to ZEBs at Bolton depot, and other depots, enables a cascade of OEM Euro VI fleet.

4. Fleet upgrade summary

4.1. **Table A1** illustrates the changes to fleet type (ZEB / OEM Euro VI) that is required to deliver compliance in 2026. This assumes delivery of committed franchising service upgrades to ZEB and OEM Euro VI. The ability of the bus fleet investment to be deployed and be effective at the forecast exceedance locations are dependent on having sufficient capacity of depot charging infrastructure, which is captured in **Section 5**.

Table A1: Summary of fleet requirements to achieve compliance

Route	Tranche	Depot	Bus Type	Vehicles *	Indicative Changes to Fleet Type	Exceedance
36	1	Bolton	ZEB	20	78 additional ZEBs required with depot electrification additional capacity requiring funding (128 ZEBs required in total, of which 50 ZEBs provided from other funding sources).	A34 Bridge St, Manchester King St, Manchester New York St, Manchester Portland St, Manchester
37	1	Bolton	ZEB	20		
471	1	Bolton	ZEB	20		A58 Bolton St, Bury
472/ 474	1	Bolton	ZEB	10		
X39	1	Bolton	ZEB	0**		A34 Bridge St, Manchester King St, Manchester New York St, Manchester
8/10	1	Bolton	ZEB	28		A34 Bridge St, Manchester A664 Shudehill, Manchester
V1/V2	1	Bolton	ZEB	30		A34 Bridge St, Manchester Portland St, Manchester
1	2	Queens Road	ZEB	7	12 ZEBs required (no funding required for ZEBs) with bus electric charging requiring funding.	A6 Piccadilly, Manchester A34 Bridge St, Manchester A34 Quay St, Manchester Gartside St, Manchester King St, Manchester New York St, Manchester Portland St, Manchester
2	2	Queens Road	ZEB	5		A6 Piccadilly, Manchester A664 Shudehill, Manchester King St, Manchester Portland St, Manchester

38	3	Hyde Road	ZEB	16	29 ZEBs required (no funding required for ZEBs).	A34 Bridge St, Manchester Portland St, Manchester
76/76A	3	Hyde Road	ZEB	13		Lever St, Manchester
56/156	2	Middleton	ZEB	6	38 ZEBs required with depot electrification (no funding required for ZEBs or depot electrification).	A664 Shudehill, Manchester
112/ 113/ 114/ 117/ 118/ 119	2	Middleton	ZEB	29		A34 Bridge St, Manchester (113) A664 Shudehill, Manchester Lever St, Manchester Portland St, Manchester (113, 114)
469	2	Middleton	ZEB	3		A58 Bolton St, Bury
17/17A/ 18	2	Oldham	ZEB	46	79 ZEBs required (no funding required for ZEBs).	A664 Shudehill, Manchester Lever St, Manchester (18) Portland St, Manchester (18)
83/84	2	Oldham	ZEB	33		Lever St, Manchester
192/ X92	3	Stockport	Euro VI	47	Upgrade of 77 buses to OEM Euro VI (no funding required).	A6 Ardwick Green, Manchester A6 London Rd, Manchester A6 Piccadilly, Manchester (192) A6 Stockport Rd, Manchester A6 Wellington Rd South, Stockport A6 Whitworth St, Manchester Portland St, Manchester
325	3	Stockport	Euro VI	5		B6104 Carrington Rd, Stockport
330	3	Stockport	Euro VI	16		
383/ 384	3	Stockport	Euro VI	9		A6 Wellington Rd South, Stockport
601 – 604	1	Wigan	Euro VI	5	Upgrade of 17 buses to OEM Euro VI (no funding required).	King St West, Wigan Wallgate, Wigan
609	1	Wigan	Euro VI	12		King St West, Wigan Wallgate, Wigan

* This assumes delivery of committed franchising service upgrades to ZEB and OEM Euro VI.

** The X39 is operated with the fleet used for the 36, 37 & 471 services, therefore no additional ZEBs are required for this service.

4.2. 78 buses operating from Bolton depot require upgrade to ZEBs to achieve compliance at A34 Bridge Street (Manchester), A664 Shudehill (Manchester), King Street (Manchester), New York Street (Manchester), Portland Street (Manchester) and A58 Bolton Street (Bury). The total fleet required to operate the services that pass these exceedance locations is 128 ZEBs and taking account of the 50 ZEBs that currently operate on these routes (funded from other sources as part of the bus franchising programme), the total number of vehicles that require upgrade to ZEBs is 78. The October 2024 Appraisal Report identified 40 additional ZEBs were required, therefore this change request increases the number of ZEBs required by a further 38.

4.3. 12 buses operating from Queens Road depot require upgrade to ZEBs to achieve compliance at A6 Piccadilly (Manchester), A34 Bridge Street (Manchester), A34 Quay Street (Manchester), A664 Shudehill (Manchester), Gartside Street (Manchester), King Street (Manchester), New York Street (Manchester) and Portland Street (Manchester). The total fleet required to operate the services that pass these exceedance locations is 12 ZEBs, however funding is not required for the ZEBs at Queens Road as they will be provided by other committed franchising funding sources, but funding is required for the charging associated with the ZEBs located at Queens Road depot.

4.4. A further 146 ZEBs will be allocated to services at Hyde Road, Middleton and Oldham depots on the services that pass exceedance sites. Funding is not required for the ZEBs at these depots as they will be provided by other committed franchising funding sources.

4.5. It has been determined that there are a number of exceedance sites located in the Regional Centre and along the A6 corridor to Stockport, as well as B6104 Carrington Road (Stockport) which can achieve compliance through 77 buses upgraded to OEM Euro VI. The exceedance sites of Wallgate (Wigan) and King Street West (Wigan) can achieve compliance with 17 buses upgraded to OEM Euro VI.

4.6. From a deliverability perspective, the requirement to operate the additional ZEBs is dependent on there being adequate supporting electric vehicle charging infrastructure at depots to operate these services. Analysis has been undertaken to determine this requirement, which is set out below.

5. Bus Electric Charging Infrastructure

5.1. To meet the ZEB service requirements at exceedance sites, depot electrification is required to support the higher provision of electric vehicles across five sites: Bolton depot, Hyde Road depot, Middleton depot, Oldham depot and Manchester Piccadilly. In addition, electric charging provision needs to be provided for the ZEBs that are housed at Queens Road Depot, but will be charged at other locations. The scale of upgrade varies by depot based on the current provision of electric charging infrastructure to support the existing franchised operation.

5.2. A summary of the infrastructure requirements by depot are set out below:

- **Bolton:** Extension of existing electrification works undertaken in 2023 to provide high and low voltage supply and chargers, associated civils and systems. The provision of an additional 24 dual chargers (49 dual chargers in total - with a total charging capacity for 98 ZEBs simultaneously) will support the additional 78 ZEBs operating out of this location and provide sufficient charging capacity for all 128 ZEBs operating from this depot. Funding is required for the additional 24 dual chargers and all works at Bolton depot are complete. Note: The October 2024 Appraisal Report included funding for 20 dual chargers to support the additional 40 ZEBs required for Clean Air. As part of the works, 24 dual chargers were installed and funding is now sought for the additional 4 dual chargers due to the increased number of ZEBs required for Clean Air.

- **Hyde Road:** Electrification works undertaken in 2025 to provide chargers, associated civils and systems. The provision of 20 chargers with a total charging capacity for 60 ZEBs simultaneously will support the 29 ZEBs required to operate on the specified services for clean air, along with the other ZEBs operating out of this location. No funding is required for depot electrification (as it is funded from other sources) and all works are complete.
- **Middleton:** Electrification of the existing depot to provide high and low voltage supply and chargers, associated civils and systems. The provision of an all-electric depot with charging capacity for 45 ZEBs which will support the 38 ZEBs required to operate on the specified services for clean air, along with the other ZEBs operating out of this location. No funding is required for the depot electrification which is planned to be fully operational in early 2026. The design for the depot has been completed (with no specific complexities, unlike at Queens Road), the contractor has been mobilised for the works and a temporary depot has been established to locate all buses during the construction works.
- **Oldham:** Electrification works undertaken in 2024 to provide chargers, associated civils and systems. The provision of charging capacity for 51 ZEBs simultaneously which will support the 79 ZEBs required to operate on the specified services for clean air. No funding is required for depot electrification and all works are complete.
- **Manchester Piccadilly:** Works to provide one dual charger on Picadilly Approach to support the operation of the 12 buses which operate the City Centre Free Bus (services 1 & 2). As noted below, these buses will be housed at Queens Road depot and will be taken to an alternative electrified depot for charging and then use the Manchester Piccadilly Approach charges for enroute charging. Funding is required for these works, which will be completed within 2025.
- **Queens Road – Free Bus (Services 1 & 2) Charging:** As previously noted, it will not be possible to electrify Queens Road depot in the timescales required for Clean Air, however the City Centre Free Bus needs to be electrified to achieve compliance at a number of locations (as detailed in **Table A1**). There is not sufficient capacity at other electrified depots to relocate the Free Bus fleet, and it will not be operationally feasible to switch services between depots. To enable the Free Bus to be charged, the fleet will be housed at Queens Road depot and taken to another depot for charging. Top-up charging will also be provided at Picadilly Approach. Funding is required for the operational costs associated with charging the ZEBs at an alternative depot, as well as the electrification works at Manchester Piccadilly, as noted above.

6. Bus Measures Summary

6.1. Bus measures represent the most important mechanism for reducing exceedances under the Investment-led Plan and are grounded in the ability of TfGM to operate a bus franchising scheme. TfGM is responsible for operating the franchising scheme on behalf of the GMCA and has the authority to manage franchise agreements in respect of local services, including the specification of fleet requirements and deployment.

6.2. Based on the level of exceedance at each GM site in 2025 (updated from the 'As Is' modelling) and the proportion of buses that pass the exceedance sites, the proportion of ZEBs and OEM Euro VIs identified in the bus measures have been modelled to achieve compliance in 2026.

Appendix B: AQ Modelling Scenario Exceedance Results (ug/m^3)

No.	Site ID	District	Road Name	Modelled					Monitored
				Summer '24 Modelling – DM 2025	March '25 Modelling – 'As Is' 2025	Summer '24 Modelling - DM 2026	March '25 Modelling – 'As Is' with known future upgrades 2026	March '25 Modelling – 'As Is' with Updated Bus Measures 2026	Monitored NO_2 Concentration 2024
1	2237_3790_DW	Bury	A58 Bolton St	42.4	42.1	40.0	39.7	39.5	35.3
2	3790_3652	Bury	A58 Bolton St	40.7	40.5	38.5	38.2	38.0	35.3
3	1268_1269	Manchester	A34 Bridge St	43.7	43.6	42.3	42.2	36.5	**43.2**
4	1269_3272	Manchester	A34 Bridge St	40.6	39.7	39.4	38.6	33.5	28.6
5	NonPCM_207	Manchester	A34 Bridge St	42.1	42.1	40.8	40.7	35.5	**43.2**
6	1322_3273	Manchester	A34 Quay St	48.2	43.8	46.2	41.8	39.1	27.0
7	2607_3056_DW	Manchester	A6 Ardwick Green	43.0	38.2	41.3	36.5	36.3	**53.1**
8	3056_3842_DW	Manchester	A6 London Rd	42.9	38.4	41.1	36.6	36.4	32.6
9	1286_15128	Manchester	A6 Piccadilly	47.7	37.7	46.9	36.9	32.6	-
10	1286_15128_DW	Manchester	A6 Piccadilly	44.9	36.2	44.1	35.4	31.5	-
11	1466_3383_DW	Manchester	A6 Stockport Rd	41.2	29.6	39.8	28.1	28.1	-
12	1469_3669_DW	Manchester	A6 Stockport Rd	44.1	32.4	42.6	30.8	30.7	37.7

No.	Site ID	District	Road Name	Modelled					Monitored
				Summer '24 Modelling – DM 2025	March '25 Modelling – 'As Is' 2025	Summer '24 Modelling - DM 2026	March '25 Modelling – 'As Is' with known future upgrades 2026	March '25 Modelling – 'As Is' with Updated Bus Measures 2026	Monitored NO_2 Concentration 2024
13	1685_1686_DW	Manchester	A6 Stockport Rd	42.8	31.7	41.3	30.2	29.7	**47.5**
14	3016_6022_DW	Manchester	A6 Whitworth St	49.5	39.3	47.4	37.6	37.1	35.8
15	8546_14050	Manchester	A664 Shudehill	41.6	46.4	40.3	40.3	36.1	**43.0**
16	Jct285	Manchester	A664 Shudehill	40.4	44.9	39.3	43.9	35.2	**55.5**
17	1302_8546	Manchester	A664 Shudehill	36.8	40.9	35.8	39.9	32.4	39.7
18	3272_8542_DW	Manchester	Gartside St (between Quay St and Bridge St)	46.2	40.2	44.4	38.4	34.9	28.4
19	1324_3276_DW	Manchester	Great Bridgewater St	41.8	41.6	39.4	39.2	39.1	30.2
20	1268_46301	Manchester	John Dalton St (between Deansgate and Cross St)	40.0	40.8	38.6	39.4	35.6	37.2
21	8547_47130	Manchester	King St	45.7	42.0	43.7	40.0	38.1	30.8
22	8547_47130_DW	Manchester	King St	41.7	38.7	40.0	36.9	35.3	30.8
23	1242_1243	Manchester	Lever St	36.7	41.4	36.1	40.8	30.9	**59.4**

No.	Site ID	District	Road Name	Modelled					Monitored
				Summer '24 Modelling – DM 2025	March '25 Modelling – 'As Is' 2025	Summer '24 Modelling - DM 2026	March '25 Modelling – 'As Is' with known future upgrades 2026	March '25 Modelling – 'As Is' with Updated Bus Measures 2026	Monitored NO_2 Concentration 2024
24	1263_5429	Manchester	New York St	45.3	41.2	43.4	39.3	37.5	33.0
25	1261_6042	Manchester	Portland St	48.2	36.1	47.6	35.5	30.8	-
26	1261_6042_DW	Manchester	Portland St	47.8	35.9	47.2	35.3	30.7	-
27	Jct262	Manchester	Portland St	40.7	33.9	40.0	33.2	33.4	**49.9**
28	1349_2993_DW	Salford	A57 Regent Rd	41.2	41.2	38.6	38.5	38.5	**42.0**
29	Jct355	Stockport	A6 Wellington Rd South	44.9	34.2	43.5	32.7	32.1	-
30	2663_5015_DW	Stockport	B6104 Carrington Rd	43.8	35.9	42.1	34.1	34.0	29.3
31	3103_8156	Wigan	Wallgate	36.8	41.5	36.0	40.7	35.9	**41.8**
32	3103_3435_DW	Wigan	King St West	40.0	48.6	39.3	47.8	37.9	35.0

Note: Grey coloured cells are the 7 exceedances from the March 2025 'As Is' modelling for 2026 with known future upgrades.

Figure B1: Reported Receptor Locations