Engineering Justification Paper

# Fleet

Final Version

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# 2 Introduction

SGN operates a large fleet of commercial vehicles to support its operation. The size and makeup of the operational fleet is driven by either the necessity to be agile and responsive to emergency situations for both repair and leaks, or as a means to transport operatives and equipment to carry out scheduled maintenance or upgrade works. The vehicles and operatives are often required to be on site for an unknown duration, the vehicle being pivotal in responding promptly to emergencies and is often a support vehicle to facilitate the repair and support the SGN operative once on site. The core vehicle types in the light commercial fleet are repair, maintenance and (FCO) emergency, supported by a mixture of other vehicles types which include small vans, 4x4s, flat beds and tippers, as well as more specialist HGV vehicles such as the syphon tankers, Core and Vac, etc. Operational teams will be on standby and are required to respond to emergency situations, therefore it is critical that they always have access to a vehicle.

Figure 1: Example of our current Fleet


## 2.1 General Background

The fleet takes a standard manufacturers vehicle to an agreed size and specification, a bespoke internal and external fitout is undertaken to meet the specialist operational requirements for the role that the vehicle will be deployed in. The fitout varies from simple livery, beacons and chapter 8 markings, to full racking, power and air systems. The vehicles are designed to be as far as possible self-contained, transporting the team and equipment to the location and support them whilst they carry out their work safely.

## 2.2 Site Specific Background

The number and types of vehicles at each site will be largely dependent on the operational and geographical requirements of the depot, the vehicles are retained by operational teams to help avoid additional travel to and from depots, the mileage and journeys covered will again depend on the operational requirements and geographical location.

# 3 Equipment Summary

The makeup of our commercial fleet is shown in the table below, the fleet is split approximately 39% Scotland and 61% Southern.

Table 1: Fleet Make up

| Vehicle Type | No of Vehicles | Specification |
|---|---|---|
| **4x4 (RCA, Plant Protection, Team Managers)** | 42 | Standard Vehicle – Minor modification |
| **Medium van (FCO)** | 494 | Standard Vehicle - Modification, racking, storage and safety equipment |
| **Large van (Repex & Connections, Maintenance & Repair team)** | 950 | Significantly Modified vehicle to include racking, PTO, safety equipment |
| **Small van (RCA, Plant Protection, Team Managers)** | 153 | Standard Vehicle – Minor modification |
| **Support – (Dropside, tipper, stores delivery vans)** | 225 | Standard Vehicle – Minor modification |
| **HGV** | 42 | Specialist vehicle |
| **Hired** | 207 | Standard Vehicle |
| **Total** | **2113** | |

The 4x4s are used by RCA's, Plant Protection teams and Team Managers. They are a standard pickup truck with a truckman body and storage, in SGN livery, with additional safety equipment.

Medium vans are 2.9t GVW and are primarily used by First Call Operatives (FCO). They are typically a short wheelbase van with a high roof (for example a Ford Transit Connect). Internally they are racked for the safe storage of tools and equipment and externally they SGN livery and chapter 8 compliant safety markings and beacons.

Large vans are 3.5t GVW, make up nearly 50% of the fleet and are used by Maintenance, Repair, Replacement and Connections Teams. They are typically short or medium wheelbase vans with a high roof (typically Mercedes Sprinter) and then modified to meet the operational requirement, such as racking and storage for parts and equipment or a power take off system for air and electric to operate required tooling and equipment. The van is in SGN livery with chapter 8 markings and beacons. A rear step and towing eye are also part of the standard equipment.

Small vans are used by RCAs, Plant Protection and Team Managers. They are a standard small van (typically Ford Fiesta) in SGN livery.

Support vehicles are 3.5t GVW and include drop side with tail lift, tippers and box vans. They are typically used to deliver parts and equipment to operatives whilst they are on a job. They are livered and have chapter 8 markings and lights but otherwise are a standard vehicle type.

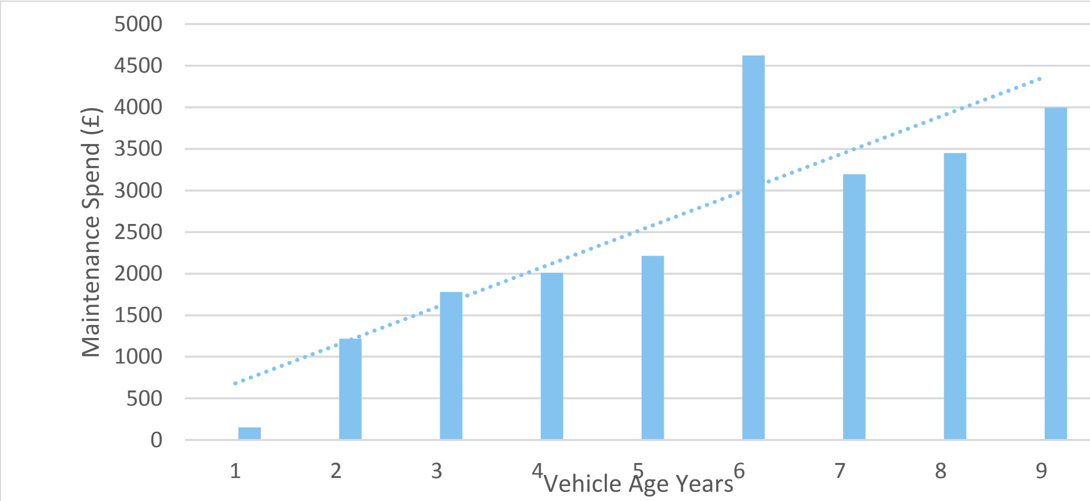
HGVs operate at various different weights and include box vans and syphon tankers being reasonably standard vehicles, or the incident support and Core & Vac vehicles which are custom build to SGN's requirements. All are liveried and have Chapter 7 safety markings and beacons.

# 4 Problem Statement

### Why are we doing this work and what happens if we do nothing?

Vehicles are critical to the way SGN responds to and deals with the work it undertakes as its engineers and operatives are required to be mobile, responding to both emergency and regular maintenance works. The vehicle is not just the method of getting there, but also carries essential parts and equipment and is often the power source for such equipment. The vehicle is also pivotal in supporting the safety of our operatives whilst they carry out essential work in often hazardous environments. By carrying out this project a balance is maintained between vehicle use and utilisation and the cost to maintain and repair them.

Table 2: Maintenance Spend by Vehicle Age




If we do nothing, in the short-term as the fleet aged, the vehicles would become more expensive to maintain, breakdown more often and spend longer in the garage being repaired, eventually costing more to repair the vehicle than it was worth. Ultimately the vehicles would get to a point where they would just be worn out, difficult to repair, and/or new parts were unavailable or difficult to locate. The poor reliability and down time would have a significant impact on our ability to service our commitments and would likely result in additional short-term rental vehicle costs.

One of the circumstances that could change this project would be a significant improvement in the reliability of the gas network and therefore a reduction in leaks and the requirement to carry out less maintenance or repairs, this could change the size and make-up of the fleet and affect the requirement for the replacement investment.

### What is the outcome SGN are looking to achieve?

The project maintains and refreshes the fleet to an acceptable level in order to support operatives in the delivery of services to customers. Keep vehicle maintenance cost to an acceptable level ensure vehicle breakdown are maintained at a manageable level. The significant challenge to this project is the reducing payload of new vans, this reduction is to accommodate the additional weight of manufacturer developments to reduce emissions.

### How will we understand if the spend has been successful?

The key milestone dates for the project are annually on delivery of the new vehicles into the fleet. The understanding on the success of the project would be measured in improving vehicle reliability in reduced breakdown and repair times and keeping maintenance cost down, being within or under the budgeted maintenance cost.

## 4.2 Narrative Real-Life Example of Problem

Reliability problem when running older vans as demonstrated in tables 2 and 3.- A repair team van with a crew of 2 and towing wheeled plant are on the way to an emergency repair at 10pm, the vehicle suffers a loss of power and the engine warning lights illuminate. The breakdown services are contacted and attend within 2 hours, diagnosing the fault as not repairable at roadside.

After a further hour the recovery vehicle arrives and proceeds to load and recover the vehicle and wheeled plant back to the depot arriving just under 4 hours after the initial breakdown. The crew transfers equipment over to a spare van, carries out vehicle safety checks and proceed to go home, the emergency repair now being covered by another team which was mobilised on the original breakdown being advised to the team manager. The following day the vehicle was recovered to a local garage where the fault was further investigated and identified that it would require a couple of major components to be replaced, however because of the age of the vehicle one part was not readily available, being on back order of around 2 weeks. Once the part has arrived and the van repaired the vehicle is collected from the garage and its equipment reloading losing further productivity.

The example is to outline the impact of a vehicle breaking down, the lost productivity, additional resource (Cost) required to cover the job, and the lost vehicle whilst in for repair. Table 3. Compiled from available historic data demonstrates that as vehicles get older typically, they breakdown more often and when broken down take longer to fix. On occasion at peak demand (typically winter months), and vehicles under most stress, a spare vehicle has not been available, result in a costly daily rental being hired, which adds further delays waiting for its delivery, rental vans not being as efficient and unable to power tooling and equipment that a bespoke repair vehicle can, which is likely to require additional resource being deployed on a job.

## 4.3 Spend Boundaries

The project includes the purchase of the standard vehicle and the additional cost to make the vehicle operationally ready to include interior and exterior equipment such as racking, livery, rear step, chapter 8 markings and lights, power take off and other vehicle fittings and delivered to the business. It does not cover parts, tooling or operative equipment such as PPE.

# 5 Probability of Failure

Table 3: Vehicle repairs lost time

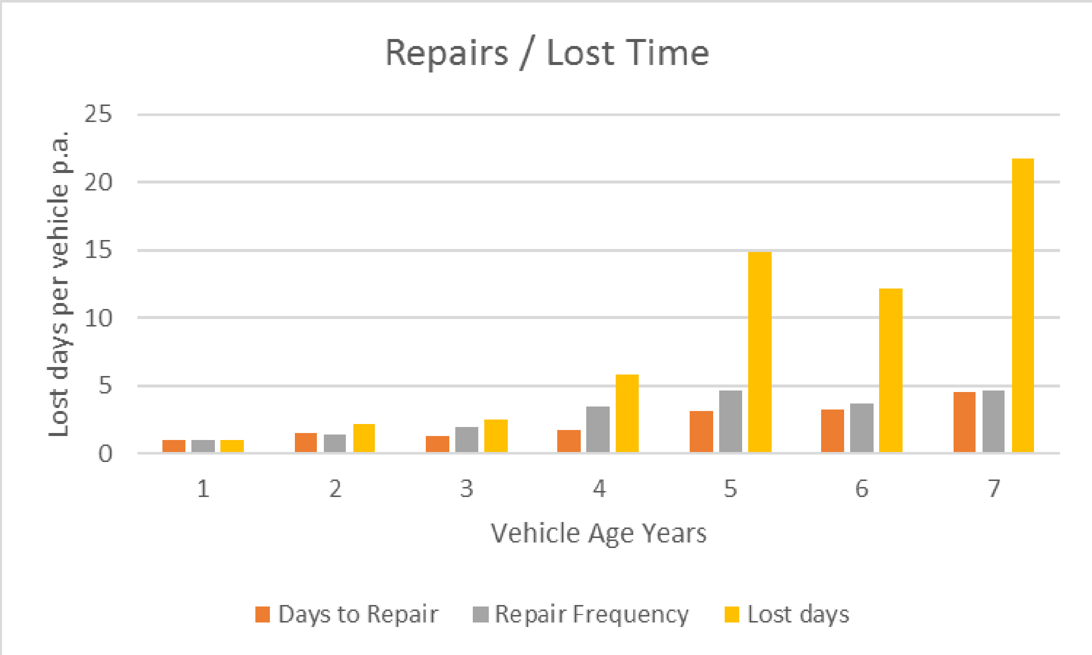



Table 3 shows the trend from available historic maintenance data that as a vehicle ages it requires repair more frequently and that when being repaired the repairs take longer. Usable data for our fleet is not available from year 8 onwards but assuming the trend continues the likely impact of vehicle breakdowns and lost time would most likely seriously affect our ability to meet operational requirements. Some of the more costly failures as vehicle reach 5 years plus are clutch and flywheel replacement, rear spring/ torsion bar failure, then at year 7 plus there are occurrences of engine and gearbox failure, however as a rule the older the vehicle more things fail

## 5.1 Probability of Failure Data Assurance

Whilst historic data may not necessarily predict future trends, and changes to vehicle manufacturing techniques and materials that are seeing extended service intervals would indicate more confidence in the reliability of new vehicles, this is countered by the requirement to make them cleaner, add additional features and the interdependency on a number of the new features, giving more opportunity for areas of the vehicle to fail.

The historic data is the main source of information and from the analysis shown in table 3. *Vehicle Repairs lost time* – which has been produced using the available SGN historic data supplied by our fleet management company who manage the maintenance for our owned and leased vehicles, the data whilst not complete clearly demonstrates as a vehicle ages, on average it breaks down more often, and takes longer to repair, which is general accepted assumption in the automotive industry, with van manufacturers only offering warranty for the first 3 to 5 years. The historic maintenance information analysis does not give any clear trend in terms of changes in vehicle fault /breakdown to allow forecasting of any significant change going forward.

# 6 Consequence of Failure

Essentially the consequence of failure (if failure is measured as not investing and not changing the fleet) is that we retain high fuel costs, similar levels and spend on maintenance and not achieving any tangible drop in our carbon footprint. By not replacing the fleet with newer and cleaner vehicles including EV's will result in us not meeting our target reduction in CO2 emissions and have a continuous environmental impact. The additional reliability issues and frequency of repair of older vehicles could affect and delay our ability to attend emergency repairs or maintenance site visits that could affect customers supply and safety.

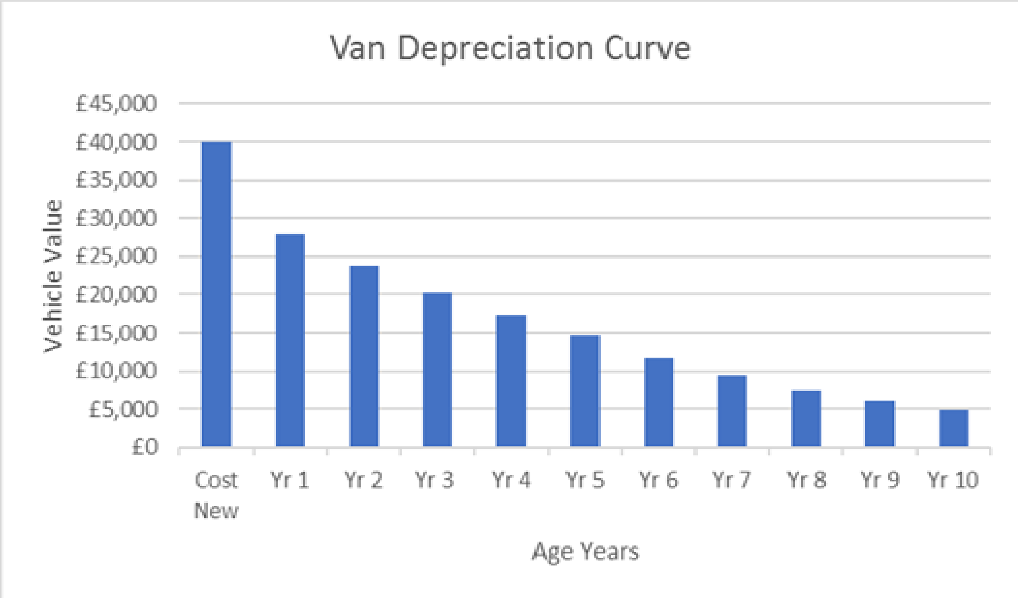
As previously stated earlier in the Fleet EJP, we operate a large fleet of commercial vehicles to support its operation. The size and makeup of the operational fleet is driven by either the necessity to be agile and responsive to emergency situations for both repair and leaks, or as a means to transport operatives and equipment to carry out scheduled maintenance or upgrade works. The vehicles and operatives are often required to be on site for an unknown duration, the vehicle being pivotal in responding promptly to emergencies and is often a support vehicle to facilitate the repair and support the SGN operative once on site. The core vehicle types in the light commercial fleet are repair, maintenance and (FCO) emergency, supported by a mixture of other vehicles types which include small vans, 4x4s, flat beds and tippers, as well as more specialist HGV vehicles such as the syphon tankers, Core and Vac, etc. Operational teams will be on standby and are required to respond to emergency situations, therefore it is critical that they have access to a vehicle at all times. The consequence of vehicle failure could be delayed response in attending an emergency situation, or plant and equipment delays facilitating repairs, or delays in completing scheduled maintenance work. Delay in repairing any gas leak has an environmental, safety and customer impact, the scale of which is dependent on the size of the leak and length of the delay resulting for a vehicle breakdown. Vehicle breakdowns can also have an additional impact on the safety of our operatives, particularly in poor weather or when broken down in a vulnerable position, the requirement to deploy breakdown and recovery vehicles along with an additional SGN team to attend the work will also have an environmental impact.

The consequence of vehicle failure could be delayed response in attending an emergency gas leak, or plant and equipment late arrival causing delayed repairs and restoring supply to our customers, or delays in completing scheduled maintenance work having a knock-on effect in delaying the restoring of supply. Delay in repairing any gas leak has an Environmental, safety and customer impact, the scale of which is dependent on the size of the leak and length of the delay resulting from a vehicle breakdown.

# 7 Options Considered

The option to do nothing and continue to operate the existing vehicle fleet was considered, but the likely operational impact on vehicle breakdowns, repair time and repair cost is believed to be prohibitive. Also, the older vehicles environmental impact and fuel usage is very poor when compared to the newer technology. The replacement options considered all revolve around replacement scenarios that for ease of commercial comparison were based on the age of the vehicles, as the tipping point for repair or replacement can vary widely dependent on use, mileage and operating environment, which realistically can only be assessed at the point of replacement. As a general rule the newer the vehicle the more fuel efficient it is, the lower the maintenance cost and it is more reliable. It is also very likely to have enhanced safety features compared to older models. The typical depreciation curve of a new vehicle varies for different model types but typically is as shown in table 4 below, losing nearly 50% of its value in the first 3 years.

Table 4: Typical vehicle depreciation Curve




As shown in table 2, typically the older the vehicle the higher its maintenance cost. The option to repair on failure was considered but the immediate requirement for the vehicle and vehicle order to delivery time and fit out scheduling meant this option was not practical.

The scenarios considered were replace on a like for like basis on 1. Failure 2. 6-year replacement Program 3. 8-year replacement program 4. 10-year replacement program, additionally following feedback from customer engagement groups fleet environmental action plan was developed (EAP), the fleet EAP has a separate engineering justification paper.

## 7.1 Do nothing Replace on Failure

The option to do nothing and continue to operate the existing vehicle fleet was considered, but the likely operational impact on vehicle breakdowns, repair time and repair cost is believed to be prohibitive. Also, the older vehicles environmental impact and fuel usage is very poor when compared to the newer technology. The replacement options considered all revolve around replacement scenarios that for ease of commercial comparison were based on the age of the vehicles, as the tipping point for repair or replacement can vary widely dependent on use, mileage and operating environment, which realistically can only be assessed at the point of replacement. As a general rule the newer the vehicle the more fuel efficient it is, the lower the maintenance cost and it is more reliable. It is also very likely to have enhanced safety features compared to older models. The impact of additional vehicle breakdowns and extended repair times as the vehicles age (table 3.) are likely to significantly affect operational efficiency (lost working time) and additional vehicle cost (additional spares or Rentals), more so towards the end of GD2 and beyond.

## 7.2 6-Year Replacement Programme

A 6-year replacement programme would require the highest capital investment during GD2 and would see 83% of the fleet replaced, with a positive improvement on the overall age of the fleet with corresponding improvements on reliability and reductions in maintenance cost as we move through the GD2 period. This shorter replacement period has an impact on both the asset and residual value, meaning that whilst the residual value will have reduced significantly, it will require a shorter write down period or have an asset value to offset against sales proceeds. This will have a negative effect on the cost effectiveness on this option.

The basis for the cost estimate/unit cost has been derived by analysing our current core vehicle fleet and breaking it down by vehicle types (6 vehicle types), each vehicle type including its fit-out cost was given a value based on recent estimates or recently purchased vehicles. The number of vehicles to be replaced each year in the 6-year replacement cycle is the core fleet divided by 6 (1864/6= 310). The oldest 310 vehicles multiplied by the replacement cost by vehicle type to give the capex required in that replacement year, the same method was applied for each of the following years in GD2.

The estimated maintenance budgets have been created by a simple model that assigns an annual cost to a vehicle type, the value of cost is dependent on the age of the vehicle and increases as the vehicle ages.

The annual maintenance value is based on available historic maintenance data and external maintenance budgets supplied by our fleet management provider. The maintenance values are applied to the fleet annually, the total maintenance budget changes with the fleet as new vans added and the old de-fleeted.

The benefits of this option are a reduction in maintenance cost as the fleet becomes newer, which we believe will reduce the number and duration of vehicle breakdowns. Operating a newer fleet will have the benefit of being more fuel efficient, figures suggest this could be up to 10%n, have the latest features for collision avoidance and driver's safety, less pollution and improved colleague satisfaction.

In producing the maintenance and capital purchase model we have assumed, we will continue to operate the same size and make up of fleet, covering the same mileage, and that the new and existing fleet will continue to cost the same and perform in the same manner as the historic fleet did.

## 7.3 8-Year Replacement Programme

An 8-year replacement programme would see 62.5% of the fleet replaced in GD2 which is roughly in line with what has happened during GD1. The residual value curve is flatter, and the investment can be written down over a longer period, and there will also be a lower asset value. The maintenance cost as shown in table 2 will increase and the cost of reliability also increases during the latter part of the vehicle's operational life, with some critical component failure and extended repair periods.

The basis for the cost estimate/unit cost has been derived by analysing our current core vehicle fleet and breaking it down by vehicle types (6 vehicle types), each vehicle type including its fit-out cost was given a value based on recent estimates or recently purchased vehicles. The number of vehicles to be replaced each year in the 8-year replacement cycle is the core fleet divided by 8 (1864/8= 233). The oldest 233 vehicles multiplied by the replacement cost by vehicle type to give the capex required in that replacement year, the same method was applied for each of the following years in GD2.

The estimated maintenance budgets have been created by a simple model that assigns an annual cost to a vehicle type, the value of cost is dependent on the age of the vehicle and increases as the vehicle ages. The annual maintenance value is based on available historic maintenance data and external maintenance budgets supplied by our fleet management provider. The maintenance values are applied to the fleet annually, the total maintenance budget changes with the fleet as new vans added and the old de-fleeted.

We believe by following this option that maintenance cost will remain approximately in line with the current cost, a small reduction has been applied to accommodate longer service intervals. No allowance has been made for any change in the number and duration of vehicle breakdowns. The new vehicles will have the benefit of being more fuel efficient, figures suggest this could be up to 10%, have the latest features for collision avoidance and driver's safety, less pollution and improved colleague satisfaction.

In producing the maintenance and capital purchase model we have assumed, we will continue to operate the same size and make up of fleet, covering the same mileage, and that the new and existing fleet will continue to cost the same and perform in the same manner as the historic fleet did.

## 7.4 10-Year Replacement Programme

A 10-year replacement programme would see 50% of the fleet replaced in GD2. The residual value of the vehicle is low, but the investment can be written off over a longer period and the maintenance costs, as shown in table 2, will continue to increase. The repair frequency and duration will also increase, as shown in table 3, with the assumption on both that it would be on the same trend in terms of cost and frequency of repair.

The basis for the cost estimate/unit cost has been derived by analysing our current core vehicle fleet and breaking it down by vehicle types (6 vehicle types), each vehicle type including its fit-out cost was given a value based on recent estimates or recently purchased vehicles. The number of vehicles to be replaced each year in the 10-year replacement cycle is the core fleet divided by 10 (1864/10 = 186. The oldest 186 vehicles multiplied by the replacement cost by vehicle type to give the capex required in that replacement year, the same method was applied for each of the following years in GD2.

The estimated maintenance budgets have been created by a simple model that assigns an annual cost to a vehicle type, the value of cost is dependent on the age of the vehicle and increases as the vehicle ages. The annual maintenance value is based on available historic maintenance data and external maintenance budgets supplied by our fleet management provider. The maintenance values are applied to the fleet annually, the total maintenance budget changes with the fleet as new vans added and the old de-fleeted.

We believe by following this option that maintenance cost will increase as the average age of the fleet increase during GD2. It is expected that there would be an increase in the number and duration of vehicle breakdowns, resulting in the additional vehicle being operated to compensate for the increased down time. The new vehicles will have the benefit of being more fuel efficient, figures suggest this could be up to 10%, have the latest features for collision avoidance and driver's safety, less pollution and improved colleague satisfaction.

In producing the maintenance and capital purchase model we have assumed, we will continue to operate the same size and make up of fleet, covering the same mileage, and that the new and existing fleet will continue to cost the same and perform in the same manner as the historic fleet did.

As a result of operating fewer new vehicles there is a possibility that as ULEZ increase in major cities and towns we may incur additional cost by operating older vans in these zones.

## 7.5 Options Technical Summary Table

Financially vehicle replacement age is a trade-off between the cost of the vehicle and maximising that investment versus repair and increasing maintenance costs and reaching that optimum point for both. Operationally the vehicle is required to carry out SGN's business, so there is also a balance when considering vehicle reliability and the impact of unreliable vehicles in terms of both the operation and the cost of additional vehicles to cover breakdown and repair.

Table 5: Options Technical Summary

| Option | First Year of Spend | Final Year of Spend | Volume of Interventions | Equipment / Investment Design Life | Total Cost |
|---|---|---|---|---|---|
| **Do Nothing Baseline** | 2021 | 2026 | 100 | | 84.40 |
| **Fleet 8y Replacement** | 2021 | 2025 | 1148 | 8 | 91.85 |
| **Fleet 6y Replacement** | 2021 | 2025 | 1526 | 6 | 99.08 |
| **Fleet 10y Replacement** | 2021 | 2025 | 915 | 10 | 92.28 |

## 7.6 Options Cost Summary Table

The projected cost of doing nothing in GD2 is C.£48.6m, this figure does not include, lost productivity, additional vehicle rental cost or the impact on service delivery or safety, and whilst there is limited data to support that maintenance and repair costs would continue to increase, with reliability becoming a more significant issue, it is believed they would continue to increase during and post GD2. Capital investment would still be required to replace vehicles written off being unrepairable for mechanical or damage reasons. The impact of additional vehicle breakdowns and extended repair times as the vehicles age (table 3.) are likely to significantly affect operational efficiency (lost working time) and additional vehicle cost (additional spares or Rentals), more so towards the end of GD2 and beyond.

Table 6: Cost Summary of investment options

| Option | Capex (£m) | Maintenance (£m) | Total (£m) |
|---|---|---|---|
| **Do Nothing** | 2.8 | 45.8 | 48.6 |
| **6-year Replacement** | 49.5 | 19.3 | 68.8 |
| **8-year Replacement** | 37.4 | 22.2 | 59.6 |
| **10-year Replacement** | 29.9 | 28.9 | 58.8 |

Capex (£m) is the total cost to purchase the replacement vehicles and includes the fitting out of the vehicle internal and external equipment to meet our operational requirement for each of the options during GD2.

Maintenance (£m) is the estimated cost to maintain the fleet for maintenance and repair during GD2, the cost is derived from a model that takes into account a vehicles age and type, then applied across the fleet and adjusted as new vehicles are added and old removed.

# 8 Business Case Outline and Discussion

The high cost to maintain the existing fleet and the operational impact of running the current fleet into GD2 and beyond would, because of reliability issues, result in breakdown and repair times having a negative impact on service delivery.

Our fleet has a requirement to support operatives and engineers in delivering services both in an emergency or planned operation. The vehicle is pivotal to cost effective delivery of those services.

As in table 2. Vehicle maintenance cost increase through the life of a vehicle.

Table 3 demonstrates vehicle lost time which is key driver when considering the options.

The environmental impact of aging vehicles should also be taken into consideration when considering the options.

Vehicle safety features incorporated in newer vehicles will have a positive benefit in driver safety and accident avoidance.

## 8.1 Key Business Case Drivers Description

Table 7: Option Summary

| | Options | Costs | Business impact |
|---|---|---|---|
| **1** | Replace on failure | £48.6m | Additional spare vehicles cost<br>High likelihood on breakdown / extended repairs<br>Poor working environment for operatives<br>Negative environmental impact<br>Worsening cost trend beyond GD2 |
| **2** | 6-year replacement cycle | £68.8m | High capital investment requirement<br>Short investment write-down period<br>Lower maintenance cost Improved reliability<br>More fuel efficient lower environmental impact<br>Modern safer working environment |
| **3** | 8-year replacement cycle | £59.6m | Reduced capital investment, longer write-down period<br>Increased maintenance cost, reliability manageable<br>Strategic placement to help avoid ULEZ charges<br>Some fuel efficiency and Environmental benefit<br>Cost effective solution |
| **4** | 10-year replacement cycle | £58.8m | Low capital investment/ longer write-own period<br>High maintenance cost<br>Reliability (breakdown) and extended repair times<br>Additional short-term vehicle cost / lost time cost<br>Poor working environment and vehicle safety<br>Less fuel efficient and poor environmental impact |

**NPVs based on Payback Periods (absolute, £m)**

Table 8: Summary of CBA Results

| Option No. | Desc. of Option | Preferred Option (Y/N) | Total Forecast Expenditure (£m) | Total NPV | 2030 | 2035 | 2040 | 2050 |
|---|---|---|---|---|---|---|---|---|
| Baseline | Do Nothing / Do minimum | N | -84 | -216 | -154 | -185 | -196 | -209 |
| 1 | Option 1 Absolute NPV | Y | -92 | -183 | -138 | -160 | -168 | -178 |
| 2 | Option 2 Absolute NPV | N | -99 | -184 | -140 | -161 | -170 | -179 |
| 3 | Option 3 Absolute NPV | N | -92 | -191 | -142 | -166 | -175 | -186 |
| 1 | Option 1 NPV relative to Baseline | Y | -92 | -183 | 16 | 25 | 28 | 31 |
| 2 | Option 2 NPV Relative to Baseline | N | -99 | -184 | 15 | 24 | 27 | 30 |
| 3 | Option 3 NPV Relative to Baseline | N | -92 | -191 | 12 | 19 | 21 | 24 |

## 8.2 Business Case Summary

This project is driven by two primary requirements, to operate a cost-effective reliable fleet that meets our commitment to our customers in terms of service delivery and safety, and from stakeholder engagement and feedback, have an ambitious plan to reduce the environmental impact of the necessary operation of a large commercial fleet of vehicles.

Table 9: Business Case Matrix

| | Fleet 8y Replacement | Fleet 6y Replacement | Fleet 10y Replacement |
|---|---|---|---|
| GD2 Capex (£m) | 37.40 | 49.45 | 29.85 |
| Number of Interventions | 1148 | 1526 | 915 |
| Carbon Savings ktCO2e (GD2) | 0.00 | 0.00 | 0.00 |
| Carbon Savings ktCO2e /yr | 0.00 | 0.00 | 0.00 |
| Carbon Emission Savings (35yr PV, £m) | 0.00 | 0.00 | 0.00 |
| Other Environmental Savings (35yr PV, £m) | 4.36 | 5.33 | 3.70 |
| Safety Benefits (35yr PV, £m) | 0.00 | 0.00 | 0.00 |
| Other Benefits (35yr PV, £m) | 0.00 | 0.00 | 0.00 |
| Direct Costs (35yr PV, £m) | 28.03 | 25.65 | 20.66 |
| NPV (35yr PV, £m) | 32.39 | 30.98 | 24.36 |
| **High Carbon Scenario** | | | |
| Carbon Emission Savings (35yr PV, £m) | 0.00 | 0.00 | 0.00 |
| High Carbon NPV (35yr PV, £m) | 32.39 | 30.98 | 24.36 |

# 9 Preferred Option Scope and Project Plan

## 9.1 Preferred option

The full impact of each investment scenario will not be felt until the later part of GD2, when the age and maintenance effect of less or more new vans will reduce or increase maintenance costs, along with an improved or worsened reliability problem.

An 8-year replacement cycle is the most cost-effective option and hence the preferred option on a like for like replacement program. From the analysis it gives the best compromise on age and maintenance, by maximising the asset life, and balancing that against the rising maintenance cost as the vehicle ages, thus giving the overall most cost-effective operating cost. Following feedback from stakeholder engagement and a desire to reduce our fleet environmental impact an environmental action plan has been produced that will see an increased investment for a 6-year replacement programme with the addition of ultra-low emission vehicles onto the fleet giving the added benefit of reduced maintenance and fuel costs.

## 9.2 Asset Health Spend Profile

The following is a summary of the annual spend for the 8yr replacement option (1) and 6y Replacement option (2).

Table 10: Asset Health Spend Profile (£m) for options 1. and 2.

| | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 |
|---|---|---|---|---|---|
| Fleet 8y Replacement | 18.51 | 19.17 | 19.18 | 17.06 | 17.93 |
| Fleet 6y Replacement | 20.63 | 20.46 | 18.36 | 19.81 | 19.81 |

## 9.3 Investment Risk Discussion

From the options discussed on the replacement vehicle program, and the risk of allowing the fleet to age from a reduced investment of a 10-year replacement program, which we believe from the current data would have a progressively bigger impact on maintenance cost, reliability and adverse operational impact and cost as a result of the reliability issues. To maintain the current risk and replace on 8-year was considered, this making the assumption the current fleet including future replacements would continue to perform the same on cost and reliability.

The Preferred option which considers the stakeholder feedback and our ambition to reduce the environmental impact of our fleet is to replace at 6-years, the benefit of this option along with the Environmental Action plan should be as we move through GD2 a reducing cost in vehicle maintenance as the overall age of the fleet reduces and the expected slightly lower maintenance cost of EV's. The additional investment required for the 6-year replacement program and the additional cost of EV's and charging infrastructure is significant, with the risk that available suitable vehicles may not become available during GD2 or until later in GD2, particularly for the larger repair and team vehicles, however by concentrating on the smaller vans where technology looks more likely to be available would help mitigate the risk and achieve our ambition.

Table 11: Sensitivity Analysis

| Spend Area | Scenario | Justification |
|---|---|---|
| **Capex** | High | SGN has applied a 20% increase on the capital expenditure as this we believe to be the potential cost increase, by not tendering and achieving best possible market prices or manufacturer discounts soften and residual values on diesel vehicles has an adverse effect on the market |
| | Mid | No change on original baseline. |
| | Low | SGN has applied a reduction of 10% on the capital expenditure which can be applied if we achieve greater than expected discounts on vehicles or vehicle fitout cost |
| **Opex** | High | SGN has applied a 20% increase in the Opex cost as we believe this to be a potential maintenance and repair cost resulting from modern vehicles increased technology, and the trend to replace components rather than repair |
| | Mid | No change on original baseline. |
| | Low | SGN has applied a 10% reduction in Opex cost, as with modern technology there is a possibility that repairs and fault notifications, may pre-empt expensive repairs. |
| **Environmental Cost** | High | SGN has applied a 20% increase in the environmental cost, the assumption of new vehicles being cleaner or more efficient may not be achievable post Euro VI engines, also as UK roads become more congested there could be a likelihood of increased stationary idling time |
| | Mid | No change on original baseline. |
| | Low | SGN has applied a 10% in the environmental cost, as new vehicles deliver better than expected emissions and technology has a positive impact on routing and drivers environmental driving styles. |

Table 12: Sensitivity Results

| | Low | Mid | High |
|---|---|---|---|
| GD2 Capex (£m) | 33.66 | 37.40 | 44.88 |
| Number of Interventions | 1148 | 1148 | 1148 |
| Carbon Savings ktCO2e (GD2) | 0.00 | 0.00 | 0.00 |
| Carbon Savings ktCO2e /yr | 0.00 | 0.00 | 0.00 |
| Carbon Emission Savings (35yr PV, £m) | 0.00 | 0.00 | 0.00 |
| Other Environmental Savings (35yr PV, £m) | 3.92 | 4.36 | 5.23 |
| Safety Benefits (35yr PV, £m) | 0.00 | 0.00 | 0.00 |
| Other Benefits (35yr PV, £m) | 0.00 | 0.00 | 0.00 |
| Direct Costs (35yr PV, £m) | 25.23 | 28.03 | 33.63 |
| NPV (35yr PV, £m) | 29.15 | 32.39 | 38.87 |

Project payback has not been carried out as part of this analysis due to the effect of the Spackman approach. For a cash-flow traditional project payback period please see scenario 4 of our Capitalisation Sensitivity table.”

# Appendix

Table 13: Acronyms

| Acronym | Description |
|---|---|
| **GVW** | Gross vehicle weight |
| **FCO** | First Call Operative |
| **ULEZ** | Ultra-Low Emission Zone |
| **CBA** | Cost Benefit Analysis |

## Applicable Fleet Legislation

**HEALTH AND SAFETY AT WORK ACT 1974**

No matter what size or type of business, employers have a duty of care for the safety of employees at work, as well as others who may be affected by business activities. In case of fleet drivers, this means all other road users.

**THE ROAD VEHICLES (CONSTRUCTION AND USE) REGULATIONS**

This act sets out the standards for vehicles on UK roads. It ensures that they are kept to a certain standard to ensure that they are following safety procedures and the vehicles are suitable for its use and safe. All converted SGN vehicles undergo type approval for modifications, with signage and markings that comply with chapter 8 vehicle markings.

**THE WORKPLACE (HEALTH, SAFETY AND WELFARE) REGULATIONS 1992**

This act covers the variety of regulations which cover basic health, safety and welfare issues including traffic routes for vehicles. It helps to assist with keeping drivers safe on the road and minimise travel times.

**THE PROVISION AND USE OF WORK EQUIPMENT REGULATIONS 1998**

These regulations make sure work equipment is suitable for its intended use, safe, regularly inspected and properly maintained. They also require that those using the equipment are properly trained.

**ROAD TRAFFIC ACTS - SUPPORTED BY THE HIGHWAY CODE**

The main responsibilities under the road traffic acts are towards the driver of the vehicle. They are responsible for driving a safe vehicle, adequately maintained and insured, in a safe manner having due regard to other road users and pedestrians. The employer has a duty towards providing a safe vehicle. It is an offence to set driver schedules that may cause them to break speed limits and/or have reward schemes which incentivise them to do so. The Highway Code is essential reading for everyone and reinforces the legal obligations of drivers.