MAYOR OF LONDON

Greater London Authority: Circular Economy Monitoring 2023

Analysis of circular economy data monitored from applications received by GLA and determined during the 2023 calendar year

November 2024

THIS REPORT

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The report summarises the monitored circular economy outcomes of applications reviewed by the Mayor and considers how these perform against London Plan's Circular Economy and Waste policy SI 7. This includes all applications that were called in by the Mayor and subsequently approved, or where, after consultation, the Mayor gave consent of the Boroughs to determine them. There were 93 such cases in the calendar year 2023 (referred to as **'2023 cases'**), with respect to which a total of 71 Circular Economy Statements were received by GLA.

The second annual Circular Economy Monitoring Report also seeks to compare outcomes from '2023 cases' with both the monitored data from '2022 cases' (as published in the Circular Economy Monitoring Report 2022) and London Plan Guidance: Circular Economy Statements Appendix 4 figures.

CONTEXT

The **London Plan 2021** saw the introduction of planning policy in several areas, including definitions: **Policy SI7 Reducing waste and supporting the circular economy,** and Policy D3 Optimising site capacity through the design-led approach. Policy SI 7 B sets out that all referable planning applications should include a Circular Economy Statement. **London Plan Guidance: Circular Economy Statements was published on 25th March 2022** following an initial primer document and subsequent consultation guidance version.

The **London Plan Guidance (LPG)** explains how to prepare a Circular Economy Statement to comply with London Plan Policy SI 7. It also includes guidance on how the design of new buildings, and prioritising the reuse and retrofit of existing structures, can promote Circular Economy (CE) outcomes. A **Circular Economy Statement template document was also published alongside the LPG,** which applicants should complete and submit alongside an accompanying written report.

Policy SI 7 Reducing waste and supporting the circular economy

"Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted, to demonstrate:

1) *how all materials arising from demolition and remediation works will be re-used and/or recycled*
2) *how the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life*
3) *opportunities for managing as much waste as possible on site*
4) *adequate and easily accessible storage space and collection systems to support recycling and re-use*
5) *how much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy*
6) *how performance will be monitored and reported."*

CONTEXT cont.

The March 2022 LPG sets out how applicants should develop **Circular Economy Statements** in accordance with London Plan Policy SI 7 “Reducing waste and supporting the circular economy” for referable planning applications. The LPG sets out that the Circular Economy Statement must include two parts: **a written report and the CE template spreadsheet**. The LPG also sets out that the CE submission should include a **Pre-Redevelopment Audit, Pre-Demolition Audit, and Operational Waste Management Plan** as supporting information.
The template is broken down into **five key reporting tables** for applicants to complete at planning stage. These are as follows:

- Circular Economy Targets
- Circular Economy Design Approaches
- Circular Economy Design Principles
- Recycling and Waste Reporting
- Bill of Materials

This monitoring report is structured around these key reporting tables to examine how applicants are responding to these requirements. This report also includes a spotlight on Pre-Redevelopment Audits, as the requirement for these was newly introduced with the publication of the March 2022 LPG and was not required for applications submitted prior to the LPG publication.
The **pink text boxes** throughout the report provide an explanation of how applicants should respond to the guidance to demonstrate that proposals comply with London Plan Policy SI 7.

CIRCULAR ECONOMY STATEMENTS

In the 2023 calendar year, a total of **71 Circular Economy Statements were received by GLA with respect to the 2023 cases**. Details of these cases are broken down in Table 1 below. The proportion of referable applications accompanied by a Circular Economy Statement has increased compared to 2022. Around a **quarter of applications that did not submit a Circular Economy Statement** were **made prior to the publication of The London Plan (2021)** and its policy SI 7 B, which requires that a Circular Economy Statement be submitted with referable applications. More than half of all applications without Circular Economy Statements were submitted / proceeded beyond referral / were called-in and favourably decided by the Mayor before the LPG was adopted in March 2022. These applicants may have concluded that they did not have to be consistent with the emerging LPG, as it was not adopted guidance at the time their applications were being made / determined.

Table 1. Circular Economy Statements (CES) received by the GLA

	2022 Cases	2023 Cases
Total number of 2023 Cases	142	93
Number of CES received by GLA with respect to 2023 cases	82 (58%)	71 (76%)
of which referenced CES Guidance Draft for Consultation October 2020	77 (94%)	46 (65%)
of which referenced London Plan Guidance CES March 2022	5 (6%)	25 (35%)
of which of applications submitted following LPG publication	8 (10%)	36 (51%)
of which were accompanied by a completed GLA CE template	4 (5%)	39 (55%)

CIRCULAR ECONOMY TARGETS

Demolition Waste

to meet or exceed 95% reuse / recycling / recovery

London Plan Policy SI 7

average target of **96%**

Construction Waste

to meet or exceed 95% reuse / recycling / recovery

London Plan Policy SI 7

average target of **95%**

Excavation Waste

to meet or exceed 95% beneficial reuse

London Plan Policy SI 7

average target of **95%**

Municipal Waste

to meet or exceed 65% recycling rate by 2030

London Plan Policy SI 7

average target of **65%**

Reused or Recycled Content

at least 20% by value for the whole building

London Plan Guidance

average target of **21%**

The London Plan and the Mayor's associated strategies set out a range of targets which support aims to conserve resources, reduce waste and promote material reuse and recycling across London. As part of the Circular Economy Statement, applicants should provide a commitment to these policy targets as a minimum. The actual performance against these targets should be reported by applicants as part of the post-completion reporting.

CIRCULAR ECONOMY DESIGN APPROACHES

In order to implement circular economy principles most effectively, applicants should explore high-level strategic opportunities as early in the development process as possible. Applicants should consider strategies which prioritise retention of existing buildings and strategies which are appropriate to the expected lifespan of new development.

79 per cent of 2023 cases had an existing building on the development site. On **13%** of sites with an existing building, an element of **retention, refurbishment or repurposing was proposed,** compared to 10% in 2022. Similarly to in 2022, retention, refurbishment or repurposing was primarily proposed in non-domestic schemes and mixed-use masterplan developments.

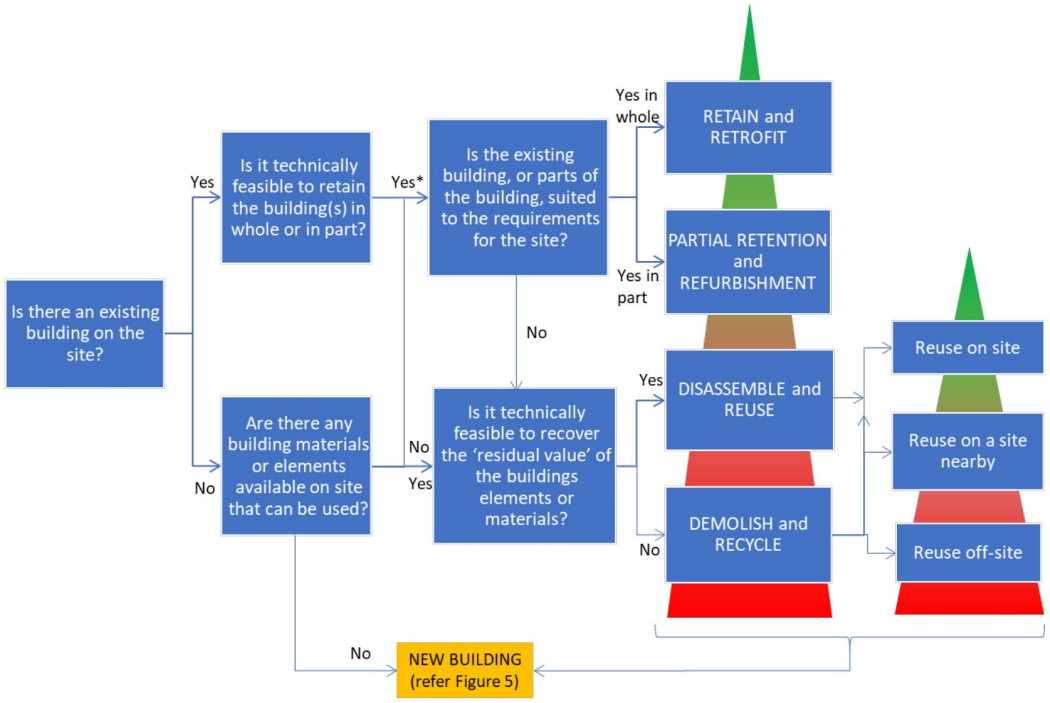
Once again, **nearly all the 2023 cases are developments expected to have a long life** on the site and prioritise strategies for disassembly, adaptability and longevity. There were a small number of developments for which a more frequent change in use is anticipated, with a greater focus on adaptability as a result.

PRE-REDEVELOPMENT AUDITS

Where there are existing buildings, structures and components on a development site, applicants should provide a Pre-Redevelopment Audit. A Pre-Redevelopment Audit should provide a detailed description of the existing buildings, structures and materials on the site and demonstrate that in-situ retention has been fully explored in the first instance.

There were **a total of 14 Pre-Redevelopment Audits received** as part of submissions accompanying 2023 cases. The best examples of these fully considered each question set out in the **decision tree for design approaches for existing structures / buildings** (Figure 4 of the LPG), providing responses to each with evidence to illustrate.

Applicants should consider whether existing buildings can be used for any new or continued use or clearly demonstrate the condition does not permit retention, before considering how the building(s) respond to the needs of the brief of the new development. Several applicants provided an appraisal of a range of development options ranging from full retention and refurbishment, to full demolition and new build.



Decision tree for design approaches for existing structures/buildings (Source: GLA)

CIRCULAR ECONOMY DESIGN PRINCIPLES

Applicants should respond to the Circular Economy principles as part of the Circular Economy Statement submission. This is achieved by setting out key measures and commitments with respect to the development proposals and explaining how these are being secured within the design at planning stage. Applicants should highlight where the proposals seek to go beyond standard practice.

96 per cent of Circular Economy Statements receive provided information to demonstrate how the development **responds to the Circular Economy design principles. More than three-quarters** of these proposed measures and commitments which represent **good or best practice.** This is a slight increase compared to the 2022 cases. None of the 2022 cases proposed **best practice measures** in response to the Circular Economy design principles, this increased to four for 2023.

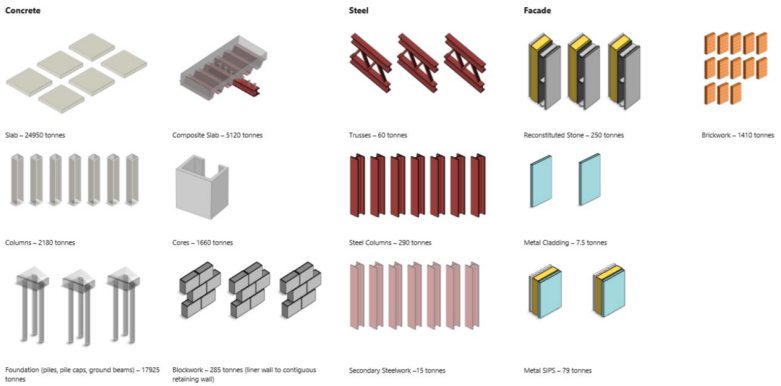
As a result of engagement with the GLA throughout the planning process, **15 applicants reviewed their proposed circular economy measures and commitments and demonstrated improvement** from minimum practice to good practice, or beyond.

CIRCULAR ECONOMY DESIGN PRINCIPLES cont.

Three of the 2023 cases proposed **best practice measures** in response to the Circular Economy design principles. These measures and commitments included:

- Retaining existing buildings or structures in-situ wherever possible. Where a greater level of retention was not possible, some of these schemes retain the existing foundations only.
- Linking with local sites and secondary materials market to drive reuse. This included an application where an upcycling catalogue was developed, with supporting 3D scans of the existing building.

Example material inventory (Source: Buro Happold)



Example design for adaptability illustrating soft spots (Source: 3GXN Architects)

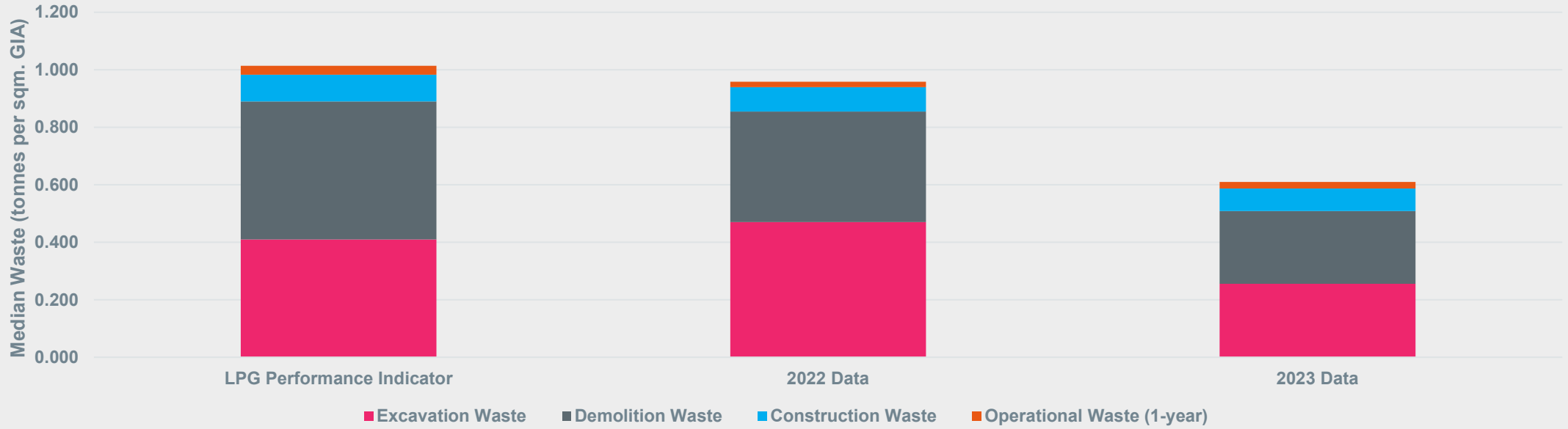
- Evidence of design for adaptability, via plans and other supporting drawings to illustrate how the design of the development proposals supports this. One of these schemes proposed the use of soft spots within the floor plate to aid adaptability.
- Evidence of consideration of design for disassembly. For example, illustration of the mechanical connection types proposed with respect to key elements.

RECYCLING AND WASTE REPORTING

As part of the Circular Economy Statement submission, applicants should provide a Recycling and Waste Reporting table with estimates of the quantity of key waste streams which are expected to arise as a result of the development proposals.

Chart 1 below illustrates how the estimated waste associated with the delivery of development proposed by 2023 cases compares to the valid data from Appendix 4 of the 2022 LPG and monitored data from 2022 cases.

Chart 1. Waste estimated to arise from development proposed by 2023 cases



RECYCLING AND WASTE REPORTING: TRENDS

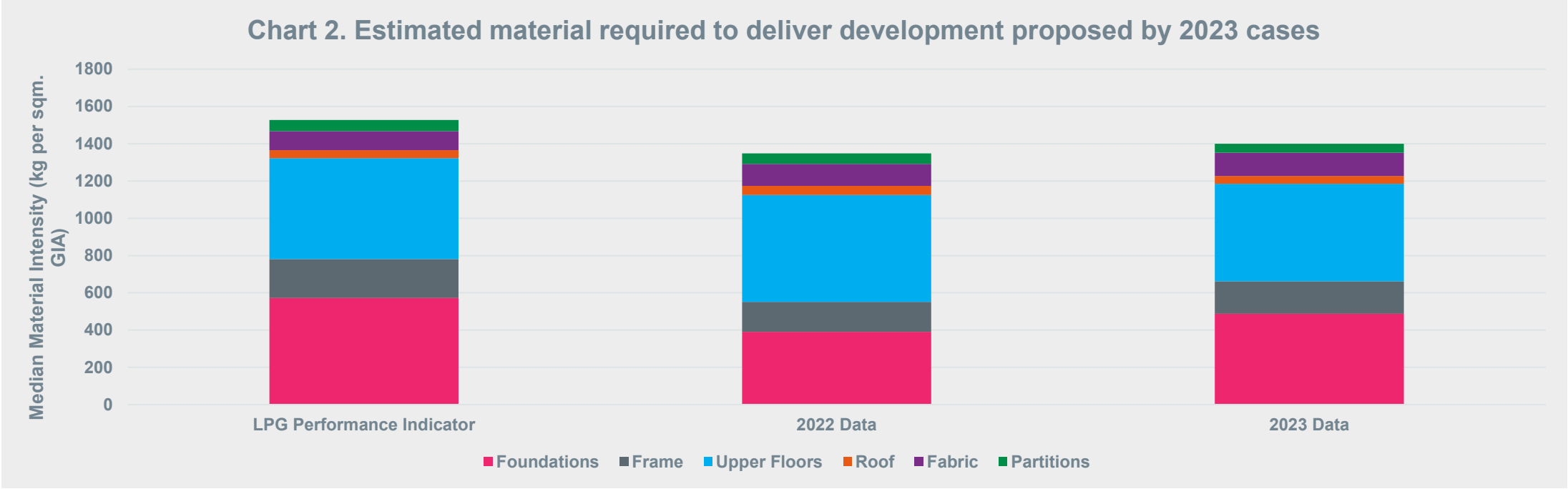
Chart 1 illustrates that waste estimated to arise from development approved in 2022 shows an overall reduction compared to the data presented in Appendix 4 of the LPG and recorded outcomes from 2022 cases reporting in the Greater London Authority: Circular Economy Monitoring 2022. Notable trends include:

- Median excavation waste illustrates a 38% reduction compared to the LPG data, an improvement compared to the 15% increase observed in 2022. Where basements are a key contributor to excavation waste arising, cases where retention of the substructure is proposed allow for a substantial reduction in excavation waste.
- The data illustrates a reduction of 47% in median estimated demolition waste arising compared to LPG data, beyond the 20% reduction observed in 2022. The key sensitivities to the reduction of demolition waste are the delivery of higher-density development, and the retention of existing building structures, components and materials, which increased in 2023.
- The estimated construction waste from development proposed by 2023 cases is similar to the data reported in the LPG data and associated with 2022 cases. The figures suggest that this continues to be dictated by industry standard and best practice. Once again, the construction waste upper and lower quartiles align with BREEAM Wst 01 one credit and two credit requirements; 0.111 t/m^2 GIA and 0.065 t/m^2 GIA respectively. These figures are acknowledged in Table 3 of the LPG.
- There has been a reduction of 26% in median estimated operational waste arising reported for 2023 cases compared to the LPG. This is an increase compared to the 42% reduction with respect to 2022 cases. Where operational waste is significantly led by occupancy, this is sensitive to typology. For example, industrial and data centre use types with largely vacant floorspace with small ancillary offices will have a low associated operational waste generation relative to total GIA.

BILL OF MATERIALS

As part of the Circular Economy Statement submission, applicants should provide a Bill of Materials table with estimates of the quantity of materials required to deliver the development proposals with respect to key waste building layer categories.

Chart 2 below illustrates how the estimated material associated with the delivery of development proposed by 2022 cases compares to the valid data from Appendix 4 of the 2022 LPG and monitored data from 2022 cases.



BILL OF MATERIALS: TRENDS

Chart 2 demonstrates that the estimated material required to deliver development proposed by 2023 cases shows an overall reduction compared to the data presented in Appendix 4 of the LPG, whilst a slight increase compared to data collected from 2022 cases. Notable trends include:

- Overall, there was a high degree of similarity within the datasets collected for the range of reported building element categories; substructure, superstructure, frame, roof, external fabric, and internal partitions. This is suggestive of reliability associated with standard industry methods of estimation. The Bill of Materials reported in the Circular Economy Statement (and its associated template document) should be informed by the Whole Life-Cycle Carbon Assessment. There are interdependencies between the two reports, where applicants should also consider how CE outcomes assist in reducing WLC, and to define end-of-life scenarios which facilitate a decreased impact at end-of-life.

- A similar correlation between total material and Module A embodied carbon has been recorded from 2022 to 2023. The total median material estimated to deliver development associated with 2022 cases was 1,349 kg / m^2 GIA, with an associated 582 $kgCO_2e$ / m^2 GIA (Module A). The total median material estimated to deliver development associated with 2023 cases was 1,399 kg / m^2 GIA, with an associated 598 $kgCO_2e$ / m^2 GIA (Module A). A degree of proportionality can be expected between these two metrics where materials which have a high mass such as concrete often make up a significant fraction of the building, and also come at a high embodied carbon cost.

CONCLUSIONS

The analysis presented in this report demonstrates that applicants are responding to London Plan Policy SI 7 to support waste reduction and the circular economy in London. Through this process, a total of 71 Circular Economy Statements were received by GLA relating to the 93 2023 cases.

The findings of this report demonstrate that in 2023 applicants are:

- Considering how London's existing buildings can be retained for the future
- Delivering development proposing best practice and industry-leading strategies
- Reducing materials and waste associated with development proposals
- Providing commitments to policy targets as a minimum

APPENDIX – RECYCLING AND WASTE REPORTING

Table 2, below, illustrates the data used to plot Chart 1 on Page 9 of this report.
This compares how the estimated waste associated with the delivery of development proposed by 2023 cases varies from the valid data from Appendix 4 of the LPG and monitored data from 2023 cases.

Table 2. Waste estimated to arise from development proposed by 2023 cases compared to past data

[tonnes / m^2 GIA]	Upper Quartile LPG Data	Upper Quartile 2022 Data	Upper Quartile 2023 Data	Median LPG Data	Median 2022 Data	Median 2023 Data	Lower Quartile LPG Data	Lower Quartile 2022 Data	Lower Quartile 2023 Data
Demolition Waste	0.958	0.710	0.493	0.480	0.385	0.253	0.138	0.125	0.137
Excavation Waste	0.770	0.730	0.485	0.410	0.470	0.256	0.150	0.215	0.107
Construction Waste	0.113	0.112	0.112	0.093	0.085	0.078	0.065	0.065	0.065
Operational Waste	0.080	0.038	0.046	0.031	0.018	0.023	0.014	0.012	0.010

APPENDIX – BILL OF MATERIALS

Table 3, below, illustrates the data used to plot Chart 2 on Page 11 of this report.
This compares how the estimated material associated with the delivery of development proposed by 2023 cases varies from the valid data from Appendix 4 of the LPG and monitored data from 2023 cases.

Table 3. Estimated material required to deliver development proposed by 2023 cases compared to past data

[kg / m² GIA]	Upper Quartile LPG Data	Upper Quartile 2022 Data	Upper Quartile 2023 Data	Median LPG Data	Median 2022 Data	Median 2023 Data	Lower Quartile LPG Data	Lower Quartile 2022 Data	Lower Quartile 2023 Data
Foundations	907.73	659.21	753.50	572.50	391.23	488.00	222.51	241.78	237.53
Frame	368.89	279.42	344.55	208.04	159.90	174.00	92.38	96.99	60.50
Upper Floors	702.27	719.90	649.00	542.33	573.59	522.50	294.75	282.00	220.90
Roof	77.09	94.54	82.00	42.37	49.04	41.50	17.52	19.00	18.00
Fabric	192.48	248.23	217.20	102.00	118.30	125.89	42.29	44.08	74.20
Partitions	118.37	124.63	76.00	60.22	56.50	48.00	18.05	20.15	25.80