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Mid-year Population Estimates Improvement Plan

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Summary

Mid-year population estimates (MYEs) are a tier 1 statistic produced by ONS and are critical to decision making. MYEs roll forward Census data using registration data on births and deaths, and administrative data to measure internal and international migration. Following Census, the uncertainty in the MYEs increases over time, potentially impacting policies and decisions. This uncertainty is primarily attributed to the migration component of change and is more significant at the local authority (LA) level. Our aim is to continue to explore the use of administrative data and other sources to improve the Trustworthiness, Quality and Value of MYEs and minimise this increasing uncertainty. The Methodological Assurance Review Panel is asked for comment on our improvement plans for MYEs.

Background

Mid-year population estimates (MYEs) are one of the most important core statistics produced by the Office for National Statistics (ONS). They underpin many key government decisions and policies at both the national and local levels, as well as being used by a wide range of non-governmental stakeholder groups. They also provide a denominator to enable other key statistics (including economic) to be produced.

The current MYE approach takes census data as the starting point and then estimates the population in subsequent years (at local and national levels) using four key inputs: births, deaths, international migration (disaggregated to local authorities) and internal migration (i.e. transitions of people between local authorities, and other regions of the UK from one year to the next). Between censuses, uncertainty in the MYEs increases over time, we call this 'intercensal drift', (especially at the local authority level). The estimates are rebased following the next census and the back series revised based on where the uncertainty is likely to have arisen. For some areas, the change between the census-based estimates and the rolled-forward MYEs cannot be explained by any of the components of change, we define this as Unattributable Population Change (UPC).

This 'intercensal drift' is the biggest challenge the population statistics system faces and can have substantial consequences in relation to a wide variety of stakeholder decisions.

As part of the Future of Population and Migration Statistics transformation programme, a project was commissioned to develop an enhanced modelling-based approach to producing accurate estimates of the population at local and national levels that was not reliant on the use of census data. The method, named the 'Dynamic Population Model (DPM)' retained the underlying MYE approach at its heart, but included an

annual stock estimate based on our best estimate of the population from administrative data alone (known as the Statistical Population Dataset - SPD), and used a Bayesian estimation approach to incorporate uncertainty and triangulate between the stocks and flows data included in the model. The resulting estimates were referred to as Admin Based Population Estimates (ABPEs).

Based on our assessment of the accuracy of the ABPEs, ABPEs without Census 2021 data were generally more biased than the rolled-forward MYEs at the national level, but less biased when disaggregated, e.g. at the local authority (LA) level or LA by age and sex. However, the complexity of the DPM made it hard to operationalise (both computationally and in terms of the deep expert knowledge required to run it) and to explain to users and gain their confidence. Additionally, its reliance on a diverse range of administrative data caused challenges in producing timely statistics due to supply challenges, and biases in this data also required a coverage adjustment to be applied to the population stock for which a non-Census based solution has yet to be found.

Consequently, following an internal (ONS) review of the population estimates which included an assessment of the ABPEs against the acceptance criteria, the evidence based decision was made to not adopt ABPEs as official estimates, rather to continue to improve our population estimates using administrative data, in an iterative way. Building on the learnings from the ABPEs, the focus will be on improving the methods and data underpinning the current MYE approach. This will be done under a philosophy of continuous improvement (rather than transformation) which aims to ensure we improve the Trustworthiness, Quality and Value (TQV) of the MYEs following the guiding principles set out in the review (ANNEX 1).

In addition to the ONS review of the ABPEs, the Office for Statistics Regulation (OSR) has published a review of the existing MYE system which sets out a series of recommendations and requirements that will support improvements in TQV (ANNEX 2). We aim to ensure user needs are met by making improvements to the entire MYE statistical value chain, building on learnings from the ABPE review and by addressing OSR recommendations and requirements. The following plan outlines our approach to developing the data, methods and validation approaches.

Actions requested of MARP

1. Review and comment on the proposed plan.
2. Suggest alternative areas of focus and highlight any potential gaps.
3. Comment on the success criteria and suggest potential key performance indicators we should consider in the context of our continuous improvement philosophy.
4. Comment on whether the plan provides confidence that it will address methodological recommendations from the ONS population estimates review and OSR reviews (Annex 2 in bold).
5. Consider including a summary statement of the panel's thoughts regarding the plan in the meeting readout.

Outline workplan

To ensure we retain trust in MYEs it is important we take action to follow the guiding principles for development set out in the ONS population estimates review recommendations (ANNEX 1) and address the OSR requirements and wider requirements (ANNEX 2). The plan aims to develop MYEs in a way that reduces intercensal drift and uncertainty, whilst increasing user confidence by demonstrating improvements across all dimensions of TQV (Table 1). Under this approach we will not wait for system-wide change or a specific target metric to be achieved before improvements are implemented. Rather, developments will be rolled out incrementally based on whether they help achieve the objectives set out in Table 1 by addressing the success criteria.

Table 1. Objectives and success criteria linked to Trustworthiness, Quality and Value (TQV) against which MYE improvements must help to deliver.

High level Objectives	Success Criteria
Accurate & reliable	• Aim to reduce intercensal drift compared to current state. • Consistent accuracy at National & Local Authority levels (by age and sex) with minimal bias, across time (over intercensal period). • Able to produce (plausible) uncertainty estimates.
Coherent & comparable	• Coherent population and migration estimates can be produced including over time and area. • Estimates are comparable across the UK. • Areas of non-coherence or comparability are clear, and plans are in place to address them.
Assured methods & processes	• Methods developed following the Research Maturity Framework (ANNEX 3) and assured by independent review panels. • Effective sensitivity and impact analysis performed. • Statistical quality management framework implemented.
Timely & punctual	• Ability to publish within 12 months after the reference period. • A stable publication schedule that meets core user requirements with delays communicated as soon as possible. • Publication schedule with sufficient contingency to minimise the risk of delays, taking account of input data timelines.
Clear & accessible	• Methods are published and accepted by key stakeholders. • Users can access estimates in a format that suits their systems. • Evidence that users understand how estimates should be used. • Uncertainty and limitations of estimates clearly communicated.
Relevant & acceptable to users	• Evidence that estimates are used to inform decision-making by users of MYEs. • Demonstrate value for money.
Confident in data supplies and quality	• Confident that data sources will continue to be available and to the required quality. • Methods are flexible to changes to existing data, or alternative data sources.
Robust systems & sustainable resourcing	• Systems enable methods and processes to iteratively improve. • Processes are documented, Reproducible Analytical Pipelines (RAPs) are in place, and appropriate corporate platforms are used. • Infrastructure and processes in place to ensure sufficient resources and sustainable skills, knowledge and expertise.

Improvements to the MYE system have been identified across the whole statistical value chain and these will be addressed by developing the plan into a project

comprising five key work packages that will be brought together by a synthesis, management and co-ordination function (Figure 1).

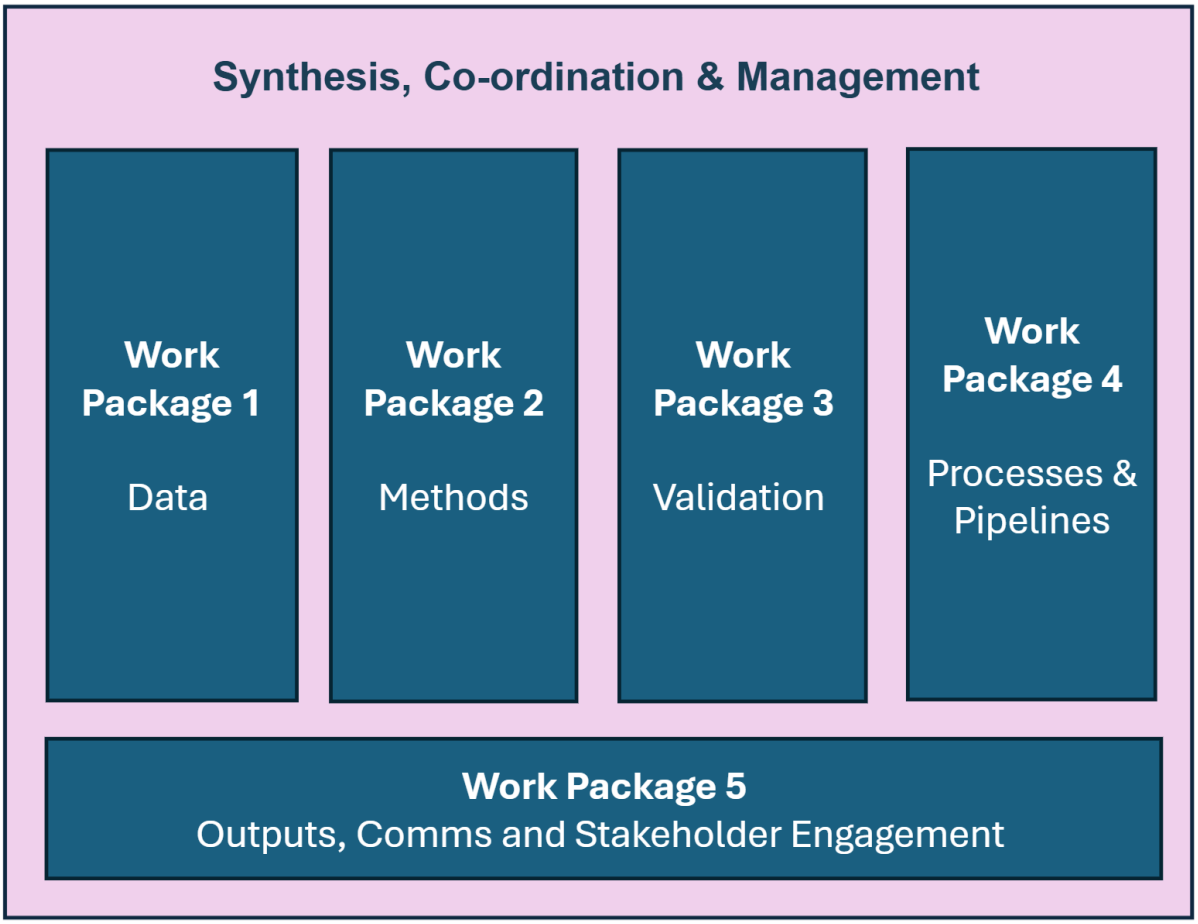

Figure 1. Structure of the Mid-Year Estimates (MYE) development project

Work package outline:

- **WP 1** will focus on securing, exploring, and evaluating the quality and sustainability of different data supplies that can be used to improve methods and/or act as validation sources against which we can cross-check results.
- **WP 2** will primarily focus on improvements to the methods underpinning the current MYE cohort component method, including local authority estimates of internal and international migration by age and sex. The future need for a DPM-like approach will continue to be evaluated, alongside exploratory research into wider options.
- **WP 3** aims to develop an intercensal validation protocol to help assure that results from new methods provide a more accurate representation of the true population in the absence of a benchmark. This will include sharing early research outputs with local users and making use of new data sources and assets.

- **WP 4** will evaluate existing processes and pipelines to identify and implement efficiencies, improve documentation, and provide greater assurance that the existing system does not contain process errors.
- **WP 5** will review our existing approach to outputs, communications, and stakeholder engagement. This will be critical to meeting stakeholder needs and ensuring that they trust and understand changes in methods and findings.

For the purposes of MARP, we provide additional detail on the data, methods, and validation work packages below for comment.

Work package 1 - Data sourcing, supply and quality:
Fundamental to both current methods and future improvements to MYEs, is a data strategy that prioritises the sustainable supply of high-quality data and data linkage practices. The importance of the data strategy increases as the exploration and use of additional data sources expands.

We are working with data suppliers on several important developments affecting our current data supplies;

- Higher Education Statistics Agency (HESA) student record data - The Joint Information Systems Committee (JISC) has ambitions to introduce an 'in year' collection for HESA data. ONS is supporting this initiative, which would significantly improve the timeliness of the supply in the future.
- Home Office Borders and Immigration data – ONS is working with HO on improving the timeliness and quality of data supplies.
- NHS Personal Demographics Service (PDS) data - ONS is working with NHS England on future data supplies of patient registration data . This will ensure ONS continues to receive high-quality data as NHS systems evolve.

We are exploring the viability of using 'new' data sources to improve the quality of our data inputs and methods, including;

- improve the coverage of our estimates of children. These include Department for Education (DfE) Schools, pupils and their characteristics data and Early Years Census data.
- Improvements to the coverage and quality of the Statistical Population Dataset including; HMRC Real Time Information data to replace aggregated PAYE returns (P14 data), the use of NHS prescriptions data as an additional source of activity and DVLA data as a source of activity and location data.
- Department for Work and Pensions' (DWP) Registration and Population Interaction Database (RAPID) – following the receipt of DWP RAPID data in 2025, ONS is taking forward a programme of work to evaluate the data for use in population statistics. This is informing the future requirements for DWP data that will be communicated to DWP in 2026.
- Other data sources being explored as part of methodological improvements have been referenced across the work package sections, some examples

include: HESA graduate outcomes survey data, DVLA data and HMRC Frameworks for internal migration, and Person, Object, Location, Event (POLE) data to improve estimation of British National migration. Further details on the use of new data sources are outlined in the 'Methods' and 'Validation' work package sections.

Building on the learnings from the quality strategy developed for the future population and migration statistics system and our internal population estimates review, we will continue to implement our statistical management quality plan for the mid-year population estimates, focusing on;

- Completion of our data dashboard that will enable the exploration of trends in admin comparator sources to Long-term International Migration estimates and mid-year population estimates. This tool identifies unusual changes in the population estimates diverging from the other population indicators as part of the quality assurance process.
- Enhancing the quality assurance processes of all administrative and commercial data sources used in the mid-year estimate research and developments.
- Continuing work to better understand the quality of our data linkage processes (Demographic and Location Index) and Statistical Population Dataset which may improve the population estimates in the future.

Work package 2 – Methods:
Work Package 2 covers the methodological work that will drive improvements in the quality of the mid-year population estimates. The primary focus of the work package will be on improving estimates of internal and international migration by local authority, age and sex. Recognising the risk that improvements to estimates of migration may not achieve the level of improvements in MYEs desired by users, a second-order priority is the continued exploration of alternative approaches to population estimation.

Internal migration estimates aim to capture all movements of people between LAs in England and Wales from one mid-year point to the next. Cross-border flows (CBFs) include all moves between the constituent countries of the UK. For both, the aim is for MYEs to produce an accurate estimate of in and out flows for each local authority, by age and sex. Current estimates are primarily produced by identifying changes of address in PDS data (e.g. when an individual registers with a new GP). For internal migration estimates only, HESA data is also linked to the PDS to better estimate student moves to university. Current estimates are subject to lags due to delays in people updating their addresses. This is most prominent in young adults, particularly males, who are also the most mobile age group in the population. The approach also suffers from coverage limitations associated with both datasets currently used. Future research on internal migration will focus on four strands:

1) Improvements to existing methods: Over the past year, the exploration of alternative sources of data on internal migration has opened the possibility of introducing direct improvements to the existing methods. This package of work includes an assessment of the Higher Education Leavers Methodology (HELM), which users have routinely identified as a source of concern. Potential improvements being scoped include an improved linkage between PDS and HESA (which underpins HELM), as well as the integration of HMRC tax data (otherwise known as Frameworks) into the method. Initial analysis of Frameworks highlights its potential for providing improved coverage of some demographic groups (e.g. working age males). This work will be conducted in parallel to research to disaggregate international migrants by LA (described below), as both methods share sources so it is important to ensure that movements are treated logically, and that individuals who move are not double counted, or missed entirely.

2) Error analysis: This work will undertake an examination of the sources of error in internal migration estimates. By linking the administrative data with survey sources, individuals and their movements can be compared on different sources. Taking the view that address data on surveys are generally of a higher standard than in admin data, comparing matched individuals across admin and survey will help provide a more detailed understanding of the accuracy of location on admin data. Further, by exploiting specific questions on previous addresses (e.g. Census 2021) or the longitudinal nature of some social surveys (LFS) we will be able to extract intelligence on the extent of lag of address updates in (e.g.) PDS. These findings will be instrumental in developing a new and refined approach to estimating internal migration, detailed in the next section.

3) Development of new transitions dataset: While workstream 1 aims to make incremental improvements to the existing methods, workstream 3 starts to build towards a new approach entirely. The most fundamental change will switch from a moves-based to a transitions-based approach. The current approach aims to estimate all moves across LAs between mid-year reference points. While this information is useful to some users, the level of detail is more than is required for mid-year estimates and most users. For the purposes of population estimation, all that is required is an estimate of the number of people who have transitioned into and out of LAs from one mid-year point to the next. A transitions-based approach is anticipated to be simpler to implement and to provide a cleaner basis for modelling (as described in the next section).

   Additionally, this workstream will aim to incorporate additional data sources across all age groups. The error analysis workstream will provide a clearer picture on lag and coverage of admin data, which in turn opens the prospect for

developing a rules-based approach for managing address conflicts (like those applied in the SPD). Initially, this will aim to integrate Frameworks more widely across all demographic groups (rather than just for students under workstream 1). Over the longer term, building on the continued exploration of additional sources, such as RAPID and DVLA (described in the Data work package), it is likely that more sources will be incorporated into the estimation.

4) Modelling: While the outcome of 1-3 above will improve the quality of the internal migration estimates for the MYEs, the expectation is that there will remain some degree of error. For example, coverage gaps will be present simply because some movers will not be present on any administrative data, or data lags may be present due to delays in people updating their records. In response to this, a research stream will evaluate the effectiveness of different modelling approaches to further improve the estimation. While this work is at an earlier stage, current approaches under consideration are survival analysis and coverage adjustment methods.

International migration disaggregation: Disaggregation takes the long-term international migration (LTIM) headline national estimates and calculates it for age/sex/local authority. It uses a wide range of input sources, including age and sex distributions derived from Home Office Border Information (HOBI) data, and local authority information from RAPID, PDS, and HESA. Current approaches differ slightly by each nationality group. Resulting estimates are constrained to align with the LTIM headline totals and are then used to estimate uncertainty through simulations of variability in the data for immigration and emigration, using the different data sources applied to each group.

As part of the continuous improvement of these estimates, we are currently focusing on the assumptions and adjustments made within the method to account for known limitations of administrative data sources. We will explore alternative admin data and linkages that may provide a more complete picture of child migration flows to improve coverage and estimation for children. We will also focus on adults in higher education and developing an updated student adjustment method that better ensures working students are not double counted. This adjustment will then help reflect post pandemic trends.

In addition to investigating how improvement to the data and assumptions affect estimates we are also considering the LTIM disaggregation method as a whole to understand if there are opportunities for different estimation processes to improve quality. We will explore the potential of Bayesian hierarchical modelling, dual system estimation and fractional counting.

Population estimation: ONS has recently conducted an exploration to identify alternative modelling approaches to the current MYE Cohort Component Model (CCM)

approach and DPM. This has identified four methods that we will develop proof of concepts for. This will determine whether they have the potential to improve accuracy compared with the CCM but are also easier to implement than the DPM.

The four approaches currently being assessed are:

1) Bayesian t+1: This method builds on previous research into the DPM, using a Bayesian framework to estimate just the latest time point rather than the full time series. This Bayesian state-space method estimates population counts by LA, sex and age for one year keeping LTIM and cross-border migration national totals as fixed and known (thereby maintaining population and migration totals in line with the statistical goals.) It then models gross migration flows to break net migration down into external ins and outs, and into an internal origin-destination matrix using Iterative Proportional Fitting.
2) Quadratic Optimisation: This method builds on approaches used within ONS National Accounts to support the balancing of the three measures of GDP. In this setting, different demographic measures (including population stocks, migration flows, birth rates, or sex ratios) are set as a quadratic optimisation problem. These are then solved using software such as Fico Xpress (currently used within National Accounts) or other open-source solvers which are also being explored in both Python and R (e.g. quadprog R package).
3) DPM without System Models: This is essentially a shortened version of the DPM process that will involve exploring the impact of excluding systems models in step 1 (rates models) or step 2. This would allow us to understand the impact of running a DPM-light, and whether there is a reasonable trade-off between accuracy and ease of implementation that warrants further investigation.
4) Kannisto-Thatcher Disaggregation: This aims to improve population estimates for very old ages by refining methods used beyond age 90. The current Kannisto–Thatcher (KT) approach relies on stable death rates and uses deaths data to infer population size, which is particularly effective at advanced ages where mortality is high and regular. The proposed approach combines existing methods up to age 90 with KT for older ages. Improvements focus on better handling of administrative data errors, especially misallocation across local authorities, using migration patterns and death registrations. This method is suitable only for older cohorts, so estimates for younger ages will remain largely unchanged.

Work package 3 – Validation:

Uncertainty around MYEs increases over time, potentially drifting further from the true population the longer they are removed from the Census base. Currently, the Census is our best way of validating estimates in terms of precision and accuracy, but in the intercensal period we need a series of comparators to help assure ourselves and users that our MYEs are a good representation of the true population. Our aim is to evaluate

different indicators with a view to developing an Inter-Census Validation Protocol (ICVP). This will focus on alternative measures of population (including its components and population change), exploit our existing statistical rigour and formalise some of the existing quality descriptions listed in the other work packages.

Users need to have confidence in the estimates they are using and the ICVP will become part of how we communicate quality and uncertainty, especially if discrepancies have been flagged. Where possible, we will publish validation findings through the QMI or other articles.

We will compare MYEs at national and local authority levels, by age and sex with alternative population measures. Some of these will be novel data sources or only focus on a subset of the population. Other data sources enable wider population coverage checks. For example, we will use the Statistical Population Dataset (SPD) as a key independent source from MYEs to provide several different population comparisons. We will also consider how modelling could improve comparator sources (for example utilising the Dynamic Population Model). We will explore the potential of developing a household asset to produce aggregate independent comparators to MYEs. It will tell us which households we believe are occupied and if possible, household size and other attributes that build intelligence at a household level.

Internal and international migration are the two components of change that cause the highest levels of uncertainty in MYEs. Therefore, we will test any new assumptions or methods we aim to implement through sensitivity analysis. Additionally, we will compare SPDs over time longitudinally to provide an internal migration comparator and attempt to derive international migration from net changes. We will define thresholds for material discrepancies to trigger further investigation.

As we are continuously improving, we will ensure that all research goes through our RMF (ANNEX 3), including planned improvements to MYEs listed in the methods section above. To progress the research into a business-as-usual state – and therefore integrate into the official estimates – we have a ‘testing and validation’ stage before implementation. This includes activities such as dual running the estimates to assess the scale and volatility of these changes, effectively providing a form of sensitivity analysis by enabling an understanding of relative change from the baseline MYE model. To aid comparisons between data sources and different model runs, we will develop dashboards and, where possible, also automate QA checks, helping identify outliers, improve clerical review and assess multiple validation checks.

Local Authorities (LAs) are both users and producers of local population data (e.g. in their role in updating the Local Land and Property Gazetteer). We will continue to engage with a subset of LAs which have particular demographic traits which we know provide challenges in the estimation process (e.g. high churn areas). We will evaluate the progress of our engagement to consider how to maximise benefits, improve the representation, and explicitly invite challenge to help validate local level population estimates. This could include sharing our research at an early stage, investigating

alternative data sources they have to understand their strengths and weaknesses, or collectively exploring the quality of existing administrative sources.

Co-ordination, Synthesis and Management

Oversight and management of the work packages will be provided by setting out a clear workplan that outlines what we expect to be able to deliver for each iteration of the MYEs, in a similar way to the migration statistics improvements. For example, what we hope to implement in the mid-2026 population estimates in summer 2027 will be determined by the progress made across all work packages between now and an implementation cut-off point, likely spring 2027.

This approach will enable us to identify and manage dependencies, risks, and issues across the programme, while monitoring progress and maintaining an agile approach to delivery. This will help us to clarify and explain updates to users of population estimates along with providing clarity for the teams working on the improvements.

Addressing lessons learned and user feedbackTo help ensure that research meets user needs, that researchers have the space to innovate, and that the final design has the greatest chance of being successfully adopted as part of the official MYE system, all methodological developments and the integration of new data sources will proceed through the stages of our RMF (Annex 3).

This aims to address learnings from the past by: preventing mission creep, ensuring the right experts are involved at the right time, minimising the risks from single points of failure, involving users throughout the development journey, having robust validation processes to give confidence in our results and by ensuring that approaches are developed in a way that is readily implementable in the production systems.

Users will be involved throughout the process from testing early research outputs at various stages of the RMF to assessing the quality of the MYEs and supporting quality information. We are developing a communication and engagement plan that will enable us to target engagement at the appropriate times, to seek feedback on both the estimates themselves but also the explanations of the quality and uses of the statistics. This will allow us to incorporate local insights and evidence into our methods and supporting information. For example, we will be publishing further information on the strengths and limitations of the current MYEs ahead of the planned improvements.

Assurance and reporting

We have a commitment to ensure progress updates are provided to the Population Statistics System Committee every six months. We will establish the best approach for taking improvements through assurance groups, including MARP, to enable us to seek and implement feedback ahead of these updates.

We aim to publish an outline of the MYE improvement plan, including: our strategic aims for the work and how they align with Census 2031; our work plans to investigate and test improvements; and our success criteria for assessing progress against the requirements listed in Annex 2.

Conclusion

This improvement plan is intended to demonstrate our approach to the development of MYEs and will provide the basis for project plans and delivery timelines. We will ensure that the continuous improvement of MYEs is closely aligned with plans for Census 2031 and beyond by embedding joint planning, shared research, and coordinated development across the population statistics system.

This will include aligning work on population definitions, methods, and data sources so that decisions taken in the intercensal period directly inform, and are informed by, Census 2031 design and delivery. We will also maximise the use of existing and emerging population and household data assets, ensuring they are developed with both MYEs and Census needs in mind. This integrated approach will strengthen the entire statistical value chain and provide a coherent foundation for producing population statistics beyond Census 2031.

ANNEX 1: Guiding principles for the development of Mid-Year Estimates (MYEs) from the ONS Population Estimates review (in development, subject to revision)

1. Continue to publish mid-year estimates under the current methodology with incremental improvements.
2. Prioritise improvements to LA level internal migration and international migration disaggregation.
3. Research alternative approaches to population estimation and agree approach for coverage assessment and adjustment post 2031.
4. Continue to build confidence in sustainable data supply and quality across the statistical chain.
5. Provide a clear vision and defined statistical goals and hold regular independent reviews of progress towards that vision.
6. Use the research maturity framework to explore, test and productionise statistical improvements including in the use of admin data and modelling.
7. Develop the current population statistics system so it can be iteratively improved, on sustainable code, platforms, data and people.

ANNEX 2: Summary of recommendations and requirements identified by the ONS population estimates review and OSR assessment of Mid-Year Estimates.

Source	Requirement or Recommendation
OSR & Internal review	Requirement 1: To support user confidence in its decision to continue with the MYEs, ONS must be open and explicit about the strengths and limitations of the current methods and what action ONS is taking, with time scales, to address methodological limitations with independent assurance. A clear vision and defined statistical goals to 2032 should be developed and communicated to guide research and development and support users.
OSR	Requirement 2: To ensure that users have confidence in the population baseline underpinning the MYEs, ONS must: • Clearly set out the pandemic's impacts on the MYEs, prominently linking to its published COVID-19 impacts report, and publish evidence to justify its claim that its estimates since 2021 are unaffected by systemic pandemic effects, particularly in light of acknowledged uncertainties for some areas. • Actively engage with users through its established groups to test the adequacy of current guidance and make necessary improvements, ensuring users are explicitly informed about which data and geographies remain vulnerable to pandemic-related distortions.
OSR & Internal review	Requirement 3: To help users better understand the strengths and limitations of the MYEs, ONS must: • Improve the prominence and clarity of how it communicates uncertainty in its population estimates, particularly for local authority areas with high levels of migration and/or large student populations. This should include enhancing communication for non-technical users so that they can understand what the estimates should and should not be used for. • Improve the accessibility, structure, and navigation of key methodological and quality and methodology information (QMI) documentation to support a broader range of users. Improve understanding and communication of uncertainty around MYEs as the current measures are confusing for users.
OSR	Requirement 4: To avoid the risk of users picking up the wrong number for the purpose that they need, ONS must update and promote its guidance for users on which population estimates should be used for which purposes, setting out the strengths and limitations of each.

OSR	Recommendation 1: To support user confidence in its plans to improve population statistics, ONS should: • Develop and publish, as planned, revised goals and criteria to direct and measure the continuous improvement activities in a structured and accountable way. This should include how the work may or may not intersect with plans for the 2031 census. • Ensure that methodological research and lessons learnt from the development of the ABPEs are incorporated into the plans for the MYEs. • Report continuous improvement activity for the MYEs to the Population Statistics System Committee (updates to the Committee should include progress made against the OSR recommendations every six months).
OSR & Economic Statistics Plan	Recommendation 2: To support user understanding and confidence in the estimates, ONS should improve its transparency on methods used to measure internal migration. ONS should also provide greater clarity on the assurance and effectiveness of the Higher Education Leavers Methodology (HELM) and evaluate its impact as part of its plans to improve the measurement of internal migration. -Developed proof of concept methods for internal migration (March 2027) -Introduced new internal migration methods to official estimates (March 2028)
OSR	Recommendation 3: Given the time passed since 2021, and wider population trends and changes, ONS should conduct and publish deep-dive analyses into areas where users flagged discrepancies to understand how the estimates may have changed since 2021, triangulating its research with other data sources.
OSR	Recommendation 4: To help with understanding the differences between MYEs for school-age children and the Department for Education's (DfE) English school census, ONS should: • Continue reconciliation work with DfE, accompanied by joint statements that summarise findings and provide explanations where differences persist. • Engage with Welsh Government to determine if there are any discrepancies between the Wales school census results and MYEs for school-age children in Wales.

OSR & Internal review	Recommendation 5: To enhance the rigour of its quality assurance process and increase user confidence in the accuracy of estimates in some local authority areas, ONS should: • Revisit its quality assurance process now that a decision has been made around the future of population statistics and identify ways to improve learning lessons across both ABPEs and MYEs following the closure of ONS's Future of Population and Migration Statistics (FPMS) programme. • Evaluate and consider the added value that local authorities (LAs) can bring by formally incorporating LA intelligence into the quality assurance process. • Strengthen its documentation to clearly and transparently explain how intelligence from LAs is considered and assessed, and where it cannot be incorporated, set out the rationale for those decisions.
OSR	Recommendation 6*:* In light of ONS's plans to revise its estimates for mid-2022 to mid-2024, reflecting improvements already made to long-term international migration (LTIM) statistics, ONS should, when publishing the mid-2025 estimates in summer 2026, undertake a revisions analysis to assess whether the updated figures align more closely with expectations held by some local authorities.
OSR, Economic Statistics Plan & Internal review	Recommendation 7*:* To help mitigate user concerns about revisions and publication delays, ONS should update its publication schedule and in future promptly explain to users any unexpected/expected revisions and changes to publication dates in line with its revisions policy. Provided clear explanation of coherence of population statistics system in terms of coherence of population and migration estimates and coherence of estimates across the UK.
Economic Statistics Plan	Improved understanding of the quality of the Demographic Index (DI).
Economic Statistics Plan	Meet ONS coding best practice standards and fully delivered on network IT.
Economic Statistics Plan	Requested assessment of migration estimates with view to becoming accredited official statistics.

Economic Statistics Plan & Internal review	Deaths - Decide on merits of moving to occurrence-based reporting, based on earlier access to coronial cases, and to police data for suspected suicide deaths. If decision positive, incorporate change into workflow by end 2025/26 reporting year. Addressing challenges with intercensal drift and unattributable population change in MYEs by focusing on improvements to components of population change, where uncertainty is.

ANNEX 3: Governance and oversight.

All research activities will be logged in the Population Statistics Directorate (PSD) tracker and progress, risk and issues monitored at the monthly PSD Research Delivery Board (RDB). Project milestones will relate to research elements passing through each stage of the RMF, and deliverables relate to the things that need to be done to show the work is ready to progress though a stage gate review panel assessment. Delivery risks and issues will be escalated to the PSD management board and the Continuous Improvement Steering Group (CISG) will be used to help make design decisions and priorities research effort. For research to be implemented in the production system work package leaders will need to ensure that expert working groups, sub-MARP, MARAG and MARP have been consulted at the appropriate stages of the RMF (See ANNEX 3 Table).

ANNEX 3 Table: Outline of the stages of the Research Maturity Framework (RMF) used to assure research meets user needs (in development – subject to revisions). Yellow = Scoping phase, Green = Research Phase, Blue = Engineering Phase, Pink = Transition to BAU.

Stage Descriptor	Goals
Commissioning	Develop understanding of requirements – who needs it and why, what must it deliver by when and how much effort is required for MVP?
Exploration	Innovate, challenge assumptions, review previous work, consider approaches taken by other countries/disciplines, get methodological input, shortlist options for Proof of Concept.
Proof of Concept	Light touch development of key options, benchmark, assess strengths and weaknesses and gather user feedback. Propose the option most likely to succeed or re-evaluate.
Development (Design & Build)	Produce end-to-end design and decisions log, build beta version, undergo internal and external methodological assurance. Publish methods.
Testing & validation	QA and benchmark results, sensitivity analysis, decision log and tree, final developments implemented. Publish statistics in development get stakeholder feedback.
Productionise (Business Change)	Ensures code meets RAP standard, desk instructions and training provided to outputs team. Assessment of the impact of change, the need for revisions and stakeholder comms requirements