Army Civilian Pay Rate Review:
Data Retrieval and Rate Calculation Methodology

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Purpose

This document supports Army PPBE stakeholders in reviewing and assessing the accuracy of the Army Civilian Pay Rates. It provides basic instructions on how to pull civilian pay and labor data from GFEBS and use it to calculate notional pay rate estimates to compare to the official rates generated for PPBE products. The intended audience for this guide is the broad cross-section of Army command and program managers whose programs execute in the GFEBS financial environment, where approximately 80% of the Army's civilian pay and labor data is sourced.

This quick reference does not go into specific details for special data pulls such as legacy data systems, Foreign Nationals, or non-GFEBS systems, all of which require specialized instructions found in Appendix A.

Retrieving Pay and Labor Data from GFEBS

To access Pay and Labor data from GFEBS, you must be both an authorized GFEBS user and possess the Payroll Audit Reporter role. Access to the Payroll Audit Reporter role can be provisioned by your organization's local GRC Role Approver.

The following instructions and examples pertain to pulling Fiscal Year 2022 execution data for U.S. Direct Hires.

1. **Access the GFEBS portal at https://gfebs.army.mil/**
2. **Select the Business Intelligence tab**
3. **Click on Payroll Audit Reporter**
4. **Select Detail Labor Management Report from the Detailed Navigation menu**

   Note that the Detail Labor Management Report contains Personally Identifiable Information (PII) subject to the Privacy Act. Please remove employee First Name, Last Name, Middle Name, and Personnel Number from the report when you pull it.

5. **Input General Variables/Selection criteria**

   This step involves filtering the GFEBS data request based on your criteria. Table 1 provides a list of pertinent GFEBS criteria and sample criteria. The column labeled R/O indicates whether the variable is Required (R) or Optional (O) for data retrieval and pay rate analysis.

Table 1 - GFEBS DLMR Selection Criteria

Variable	R/O	Selection (examples)	Comments
Cost Center*	R	ARMY/60 AMC	To retrieve a specific command's total data, select their cost center parent node. ARMYARMY ARMY selects all assigned cost centers.
Fiscal Period*	R	1 - 25	Enter a range that ensures all fiscal periods in the fiscal year will be selected.
Fiscal Year*	R	2022 - 2023	This field corresponds to the Date Paid for payroll, not the Fiscal Year issue of the fund. For example, the final two pay periods with compensable days in FY22 have pay dates in FY23.
Key Date*	R	10/08/2022	
Source System*	R	DCPS	Refers to the pay file source system. DCPS = U.S. Hires FFPO = German Nationals ILNPS = Italian Nationals MLN = Belgium and Netherlands KNPS = Korean Nationals
Fund	R	202010D22 202010F22	The fund code serves as the criteria for the desired appropriation, reimbursable flag, and fiscal year of issue. For Department 21 (Army) funds, the fund code is delimited by character position into the following sub-elements: • Appropriation symbol (1-4); **2020** for OMA • Years of availability (5); 1 (OMA) • Supplemental Id (6); **not used in FY22** • Fund Group (7); e.g. **D** for Direct and **F** for Reimbursable • Fiscal Year (8-9)**;** enter 22 for FY22
Pay Period Ending Date	R	10/01/2021 – 10/08/2022	Ensure that your PPED range captures all pay periods with compensable days in the year of execution
Functional Area	R	131079QEMS	Functional Area appends the first six characters of the Program Element code with the MDEP code.
MDEP	O	QEMS	Optional if keying on Functional Area
Program Element	O	131079	Optional if keying on Functional Area

6. Select Free Characteristics/Fields

The default DLMR report does not contain all of the mandatory fields you will need to calculate the rates, so you will need to drag and drop fields in as necessary. Table 2 provides a list of data elements the CPWG recommends users pull into their GFEBS report. Not every field is strictly relevant or required for rate calculation purposes, but optional fields may be useful for disaggregating data for further analysis.

Table 2 - Required GFEBS Free Characteristics/Fields

Characteristic	R/O	Description
Source System	R	Designates the pay file source system of the pay and labor data, and more broadly the personnel country of origin
Fund	R	The fund code is used to derive the appropriation symbol (i.e. 2020 for OMA), , Reimbursable Source (D = Direct; F = Reimbursable), and Fiscal Year of issue.
Pay Period Ending Date	O	Identifies the last compensable day in a given pay period. This field is useful for observing seasonal workforce trends, or for verifying that all pay periods pertinent to the desired fiscal year are included in the data set.
Funds Center	R	Used to derive a command's Operating Agency (OA) code for PPBE documentation. Required only if pulling data for more than one command.
UIC UC for Manpower	O	Used to derive the ROC id assignment for civilian execution. This field sometimes conflicts with the OA code derived from the Funds Center. Note: this is *not* the same field as 'UIC' under the free characteristics panel. To pull UIC for Manpower, right click on Cost Center > Properties > Characteristics. Under the General tab, select "Do not Display" under Display. On the Attributes tab, scroll down to and select 'UIC UC for Mnpwr', then click the Add button.
Functional Area	R	Used to derive the SAG (characters 1-3) or BA (1-2), APE (1 – 6) and MDEP (7 – 9) used in rate development and PPBE documentation.
Program Element	O	Program Element code; generally a 9 character code used in Army PPBE documentation. Truncated in GFEBS to 6 characters.
MDEP	O	Management Decision Package
Cost Element	R	Identifies the specific element of pay corresponding to the object classification standards defined in OMB A-11. Used to derive the Payment Category displayed in the Army's budget justification exhibits.
GRC Type/Hour Code	R	Identifies the type of hour reported through time and attendance record keeping. Only Hour Type Codes beginning with C%, H$, L%, R%, S%, and T% are counted for Paid Hours.
Civilian Type	R	A manpower field which differentiates between U.S. Hires, Foreign National Direct Hires, or Foreign National Indirect Hires. For U.S. Hires, CTYPE further differentiates between general, executive, special, and wage grade plans, as well as exempted or special workforces (i.e. reserve military technicians, interns, or the acquisition workforce).
Pay Plan (HR)	R	An OPM approved pay code that differentiates between civilian personnel on general schedule, wage grade, executive schedule, or special schedule pay systems. Pay Plan sometimes conflicts with the Civilian Type (CTYPE) field, but is considered the more accurate record for determining CType because it is linked to an employee's individual pay file and personnel records by SSN.
Amount Paid (Detail)	R	
Paid Hours (Detail)	R	

After retrieving the data and organizing the GFEBS report to include the required and/or optional fields, your GFEBS display should resemble the picture below. Save the report by clicking **Export to Excel**.

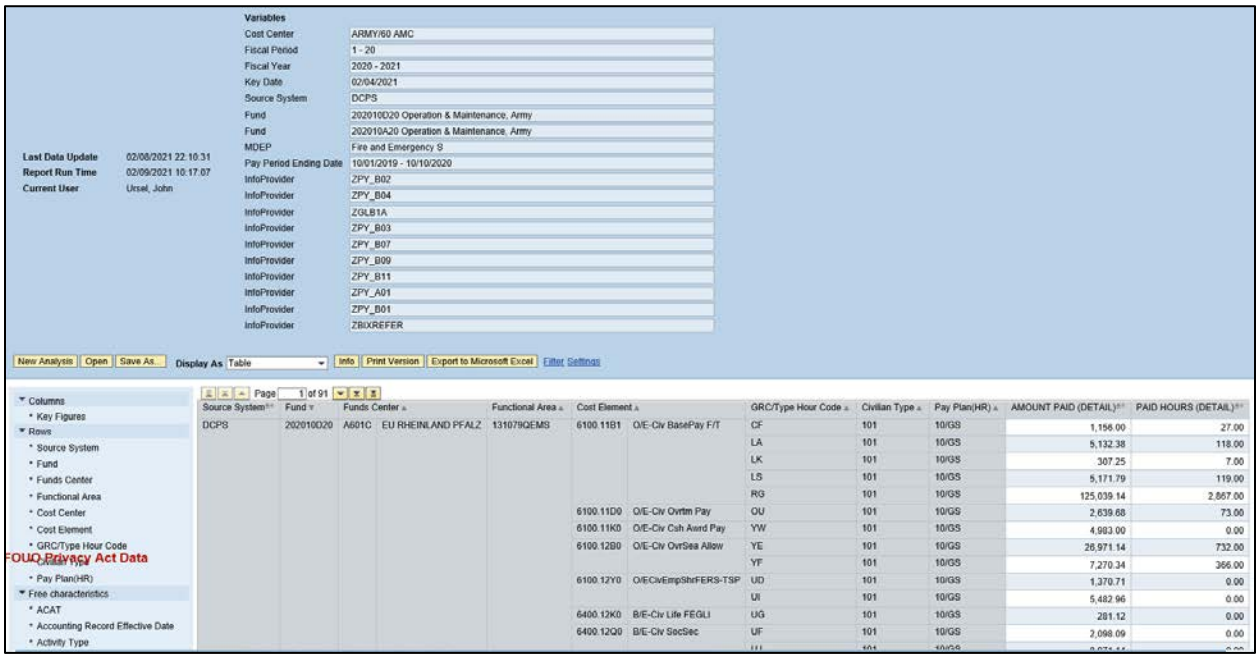

Figure 1 - An example of a GFEBS DLMR report with all required data fields. Note: This snapshot displays FY 2020 data.

Preparing GFEBS Pay and Labor data for Rate Calculation

Before the raw GFEBS execution data can be used to calculate the rates, it must be transformed to fit the budget and rate formats. This involves converting the data to the budget format, removing extraneous data not used in rate formulation, and verifying the accuracy of certain fields.

1. Transform GFEBS data elements to KEY-5 format

The civilian pay rates are constructed around the Key-5 format. Key-5 refers to the four essential fiscal code data elements used in all Army PPBE database accounting, as well as one used for civilian manpower. The Key-5 fiscal codes are: Appropriation, Army Program Element; Management Decision Package, Operating Agency, and Civilian Type. The sample report pulled above conforms to the Key-5 format, but requires some modification before it can be used for rate calculation.

Table 3 maps each of the Key 5 elements to their GFEBS equivalent.

Table 3 - Key-5 Fiscal Codes and GFEBS derivations

Key:	GFEBS data element:	How to derive:
Appropriation (APPN)	Fund	First 4 characters: 202010D22 (OMA)
Army Program Element (APE)	Functional Area or Program Element	First 6 characters: 131079QEMS
Management Decision Package (MDEP)	Functional Area or MDEP	Last 4 characters: 131079QEMS
Operating Agency (OA)	Funds Center or UIC	Second and third characters: A601C (6A/AMC)
Civilian Type (CTYPE)	Civilian Type and Pay Plan(HR)	Reconcile GFEBS Civilian Type with Pay Plan (HR) field

2. Verify Civilian Type using the Pay Plan (HR) field

The Civilian Type field in GFEBS is not always consistent with an employee's actual Pay Plan as reported by DCPS. To assess whether the Civilian Type field is accurate, compare the Pay Plan (HR) field to the index below. If the Pay Plan and Civilian Type are synchronized, then the Civilian Type can be considered accurate.

Note: This only applies to U.S. Hires. Foreign National CTYPEs are derived from their respective pay file source system.

Table 4 – Pay File/Pay Plan Codes and Valid CTYPE combinations

Pay File Source	Pay Plan (begins with)	Description	Valid CTYPEs
DCPS	**G%**	General Schedule	101, 151, 124, 424, 130 (DA interns)
DCPS	**W%, X%**	Wage Grade	102, 125, 425
DCPS	**ES, EX, IE**	Executive Schedule	121, 150
DCPS	**AD, IG, CA, D%, ED, EF, EH, IP, N%, S%, TP, EE**	Special Schedule	131, 132
FFPO	***null***	German Nationals	202
ILNPS	***null***	Italian Nationals	109
MLN	***null***	BENELUX	207
KNPS	***null***	Korean Nationals	105

3. Exclude Invalid Paid Hours based on Cost Element and GRC/Type Hour Code

When pulling Paid Hours data from GFEBS, only include values where:

1) Cost Element = 6100.11B1 (Civilian Base Pay); 6100.11B3 (Civilian Base Pay Temp/Term); or 6100.28B0 (Foreign National Base Pay); and

2) GRCTypeHourCode begins with "C-, H-, L-, R-, S-, T-" for U.S. Hires, or is otherwise null (# or not assigned or other) for Foreign Nationals.

Exclude all other Cost Elements and Type Hour Codes. **Note: This rule applies only to Paid Hours, not Dollars.**

4. Transform execution data into the Budget format

Map the cost elements in the execution data to their respective civilian payment category, as provided in the index at Table 1. The budget format used in rate formulation breaks out civilian pay into eight payment categories, or sub-elements of expense, which are consistent with budget presentation guidance issued by OMB A-11 and the DoD FMR. The eight payment categories are:

- Basic Compensation (BCOMP)
- Other Compensation (OCOMP)
- Basic Benefits (BBENE)
- Cash Awards (CASHA)
- Former Employee Compensation (FECMP)
- Holiday Pay (HOPAY)
- Overtime (OTIME)
- Severance Pay (SVPAY)

5. Exclude cost elements that are not included in rate estimation.

Table 5 identifies which cost elements are excluded from the pay rates; exclude or remove data attributed to these cost elements.

Table 5 – Civilian Pay – Payment Category – Rate Rule Index

Payment Category	Cost Element	Cost Element: Text	Data rate pre-processing rule
BCOMP	6100.11B1	O/E-Civ BasePay F/T	Retain
	6100.11B3	O/E-CivBasePayNonPrm	Retain
	6100.11L0	O/E-Civ Otr Prem Pay	Treat as BCOMP for CTYPE 105 only
	6100.11N0	O/E-Title38MedPrmPay	Retain
	6100.11P0	O/ECivStafDifPyFTPrm	Retain
	6100.12S1	O/ECivKoreanHrvstPay	Retain
	6100.28B0	O/E-Frgn Natl Bs Pay	Retain
	6100.28T0	O/E-FrgnNatlOtrPy	Retain
OCOMP	6100.11C1	O/E-Civ Trm Lv Perm	Retain
	6100.11C3	O/E-CivTrmLv O/TPerm	Retain
	6100.11F0	O/E-Civ Sunday Pay	Retain
	6100.11G0	O/E-Civ NightDiffPay	Retain
	6100.11H0	O/E-Civ HzrdsDutyPay	Retain (except for SES)
	6100.11J0	O/E-CivOvrSeaDiffPay	Retain (except for SES)
	6100.11L0	O/E-Civ Otr Prem Pay	Retain (except for SES and CTYPE 105)
	6100.11Q0	O/E-Civ SuperSpclPay	Retain
	6100.11R0	O/E-CivRmtWkstAlwPy	Retain
	6100.11T0	O/E-CivPhysCompPy	Retain (except for SES)
	6100.11U0	O/E-Civ Frgn Lang Py	Retain
BBENE	6100.12A1	O/E-Civ PCSTmpQrtSub	Retain

Payment Category	Cost Element	Cost Element: Text	Data rate pre-processing rule
	6100.12A2	O/E-CivPCSRealestate	Exclude
	6100.12A3	O/E-CivPCSOtrBnfit	Exclude
	6100.12A4	O/ECivPCSRelocTxAlow	Retain
	6100.12A5	O/ECivPCSRelocSvcComp	Exclude
	6100.12A6	O/E-Civ PCS Relo Bns	Exclude
	6100.12B0	O/E-Civ OvrSea Allow	Retain
	6100.12C0	O/ECivNonFrgnCOLAlow	Retain
	6100.12D0	O/E-Civ Unifrm Allow	Retain
	6100.12E0	O/E Civ Rtn Allow	Exclude
	6100.12F0	O/E-Civ RecruitBonus	Exclude
	6100.12JC	O/E-CivMassTrnstSubs	Exclude
	6100.12S2	O/ECivOtrBnftNotClas	Retain
	6100.12Y0	O/ECivEmpShrFERS-TSP	Retain
	6400.12K0	B/E-Civ Life FEGLI	Retain
	6400.12L0	B/E-Civ Ret CSRS	Retain
	6400.12M0	B/E-Civ Ret TSP	Retain
	6400.12N0	B/E-Civ Health FEHB	Retain
	6400.12Q0	B/E-Civ SocSec	Retain
	6400.12R0	B/E-Civ FECA	Exclude except for Ctype 105
	6400.12V0	O/ECvSepAlowCFDHCFIH	Exclude except for Ctype 105
	6400.12X0	B/E-Civ Ret FERS	Retain
CASHA	6100.11K0	O/E-Civ Csh Awrd Pay	Retain for BEPER Factor
	6100.11S0	O/E-CivPerfCshAwrdPy	Retain for BEPER Factor
FECMP	6400.13P0	B/E-Civ Health	Exclude
	6400.13S0	O/E-CivBntNotOtrClas	Exclude
	6400.13T0	B/E-Civ UnEmp Comp	Exclude
	6400.13Z0	B/E-Civ VSIP VERA	Exclude
HOPAY	6100.11E0	O/E-Civ Holiday Pay	Retain
OTIME	6100.11D0	O/E-Civ Ovrtm Pay	Retain for BEPER Factor
	6100.28D0	O/E-FrgnNatlOvrtmPy	Retain for BEPER Factor
SVPAY	6100.28V0	O/E-FrgnNtlSepAllow	Exclude except for Ctype 105
	6400.13U0	O/E-Civ Sev Pay Bnft	Exclude

Calculating Pay Rates

1. Methodology

The pay rate calculation methodology employed by the CPWG is a multi-step process. Distilled to its basic elements, it involves using the execution data pulled from GFEBS and performing the following steps:

1) Calculate Full-Time Equivalents
2) Calculate Average Yearly Salary (AYSAL) and Benefits Percentages in the Year of Execution
3) Age AYSAL for future years by adjusting for Foreign Currency fluctuation and Pay Raise adjustments
4) Calculate Total Work Year Cost by multiplying AYSAL in each year by Benefits Percentage and Cash Awards Percentage

2. Calculate Full-Time Equivalents (FTE)

To derive the Average Yearly Salary of a population set, you'll first need to calculate FTE. To calculate FTE, divide the total number of worked hours by the number of compensable hours in the fiscal year of execution (from 1-OCT thru 30-SEP).

$$FTE = \frac{total\ worked\ hours}{total\ compensable\ hours\ in\ FY} = \frac{8{,}933{,}420}{2{,}088} = 4{,}278.5\ FTE$$

The number of compensable hours can vary between fiscal years. To derive the total number of compensable hours in any fiscal year, first determine the number of compensable days in the year and multiply by a factor of 8. This method assumes a standard 40-hour work week between M-F.

You can easily calculate the number of compensable days using Microsoft Excel's NETWORKDAYS function. The function returns the number of workdays between two dates; simply input the first and last days of the fiscal year into the formula to get the number of compensable days in-between. Multiply that number by 8 to acquire the number of compensable hours in the year. Below is an extract from Excel displaying how to utilize this function.

	A	B	C	D	E	F	G
1	**Fiscal Year**	**Start Date**	**End Date**	**Formula**	**Formula Output**	**Hours/Day**	**Compensable Hours**
2	2020	10/01/2019	09/30/2020	=NETWORKDAYS(B2,C2)	262	8	2,096
3	2021	10/01/2020	09/30/2021	=NETWORKDAYS(B3,C3)	261	8	2,088
4	2022	10/01/2021	09/30/2022	=NETWORKDAYS(B4,C4)	261	8	2,088
5	2023	10/01/2022	09/30/2023	=NETWORKDAYS(B5,C5)	260	8	2,080

Figure 2 - Example of the Networkdays FN used to derive Compensable Days and Hours

Exceptions: German, Italian, Belgian, and Netherlander employees have reduced work schedules compared to their U.S. counterparts. For these populations, consult the table below for the appropriate FTE conversion factor.

CTYPE	Country	Pay File Source System	Compensable Hours
202	Germany	FFPO	2,004
109	Italy	ILNPS	2,076
207	Belgium/Netherlands (Benelux)	MLN	1,992

3. Calculate Average Yearly Salary and Benefits Percentages in Year of Execution

The pay rates are calculated as the product of the average yearly salary of an FTE's basic compensation multiplied by a total benefits factor, or the sum of each payment category expressed as its percentage of base pay. The formula to calculate the fully-burdened pay rate is provided below.

$$Total\ Work\ Year\ Cost = AYSAL * (\ 1 + OCPER + BEPER + Special\ Benefits\ Guidance + CAPER + FEPER + HOPER + OTPER + SVPER\ )$$

Table 5 provides definitions of each of the rate factors as well as the formulas used to derive them. Table 6 provides examples of the rate factor calculations with sample data derived from the GFEBS query above for CTYPE 101, OMA, OA 6A, SAG 131, MDEP QEMS.

Table 6 - Rate Factor Definitions and Formulas

Factor	Definition	Formula
AYSAL	Average Yearly Salary	= BCOMP / FTE
OCPER	Other Compensation %	= OCOMP / BCOMP
BEPER	Basic Benefits %	= (BBENE – (CASHA + OTIME) * 0.0725) / BCOMP
CAPER	Cash Award %	= CASHA / BCOMP (replaced by Cash Awards Guidance)
FEPER	Former Employee Compensation %	= FECMP / BCOMP (always 0.0%)
HOPER	Holiday Pay %	= HOPER / BCOMP
OTPER	Overtime %	= OTIME / BCOMP (set to 0.0% except for AWCF)
SVPER	Severance Pay %	= SVPER / BCOMP (always 0.0% for U.S. Hires)

Table 7 - Example of Rate Factor Calculations using sample data (FY22 DLMR, CTYPE 101, TC 2020, OA 6A, SAG 131, MDEP QEMS)

Payment Category	Year of Execution	Factor	Formula	Rate Start Values	Spec. Benefits Guidance	FY 2022
BCOMP	$ 221,787,713.20	AYSAL	= 221787713.2 / 4278.4581	$ 51,838.23		$ 51,838.23
OCOMP	$ 1,824,691.86	OCPER	= 1824691.86 / 221787713.2	0.82%		$ 426.48
BBENE	$ 126,440,606.00	BEPER	= (126440606 - (4090640.28 + 10650117.25) * 0.0725) / 221787713.2	56.53%	0.18%	$ 29,397.01
CASHA	$ 4,090,640.28	CAPER	Set to 2.5% (FY21+)	2.50%		$ 1,295.96
FECMP	$ -	FEPER	= 0 / 221787713.2	0.00%		$ -
HOPAY	$ 299,194.76	HOPER	= 299194.76 / 221787713.2	0.13%		$ 69.93
OTIME	$ 10,650,117.25	OTPER	= 0	0.00%		$ -
SVPAY	$ -	SVPER	= 0 / 221787713.2	0.00%		$ -
Total Work Year Cost						**$ 83,027.62**

In the example above, the Total Benefits factor for the year of execution is 57.48% (OCPER + BEPER + HOPER), excluding Cash Awards and Special Benefits guidance. With Cash Awards and Special Benefits included, the Total Benefits factor is 60.16% in FY22.

Basic Benefits % Calculation:

Basic Benefits execution for U.S. Hires captures FICA payroll taxes levied on Cash or Performance Awards and Overtime payments. As these costs cannot be isolated within the execution data, the CPWG normalizes for them during pre-processing. This is done by multiplying the sum of CASHA and OTIME by a factor of 0.0725, subtracting the resulting product from the Basic Benefits total, and then dividing the remainder by Basic Compensation.

This guidance applies only to U.S. Hires, as Foreign Nationals are exempt from the FICA payroll tax. When calculating Foreign National BEPER, simply divide BBENE by BCOMP.

Cash Awards Guidance:

The CPWG replaces the CAPER value with a corporate factor of 2.50% for most CTYPEs. In FY 2021 and out, use the Cash award values:

- 2.50% for most civilians (U.S. Direct Hires and Foreign Direct Hires)
- 0.00% for CTYPEs 130, 202, 205, 206, and 207
- 7.50% for Executive Schedules CTYPEs 121 and 150

Special Benefits Guidance:

For U.S. Hires only, the CPWG includes an additional factor for policy-driven benefits increases. Add the combined factors below to the BEPER factor.

1) Add 0.0725 multiplied by the Cash Awards Factor of 0.0250; or 0.0018. This reflects the FICA payroll tax levied on Cash Awards derived from the corporate rate factor.
2) When applicable, add in mandatory increases for agency contributions to employee retirement funds for U.S. Hires.

   As of the POM25 rate cycle, adjustments for agency contributions to employee retirement funds are within the margin of error, and do not need to be factored into the rate computation.

4. Age Average Yearly Salary for future years

Aging the average yearly salary ensures that the pay rates capture future year budget planning factors, such as foreign currency (FC) and pay raise (PR) adjustments. The latest pay adjustment factors for each budget cycle can be found on the Army Civilian Pay Rates website under Rate Documents.

Aging AYSAL to the next consecutive year requires you to first multiply the base year AYSAL by the foreign currency adjustment (1 + FC), and then by the effective pay raise (EPR) (1 + EPR). Calculating the effective pay raise (as opposed to the ordinal pay raises published in PPBE guidance) is described in greater detail in the following section.

The basic formula for aging from the base year to the next consecutive year is expressed below.

$$ASYAL_{n+1} = \mathrm{ASYAL_n} \times (1 + \mathrm{FC_{n+1}}) \times (1 + \mathrm{EPR_{n+1}})$$

Below: example aging FY 2022 AYSAL to FY 2023 AYSAL using sample data. The FY 2022 AYSAL was $51,838.23. The foreign currency adjustment is 0.0% (CTYPE 101). The effective pay raise is 0.04125.

$$ASYAL_{n+1} = \$51{,}838.23 \times (1 + 0.0000) \times (1 + 0.04125) = \$53{,}976.56$$

Table 8 provides an example of the full range of aging calculations needed to age AYSAL from the base year of execution to the last program year for POM 25-29.

Table 8 - Example of AYSAL aging for full POM years

Fiscal Year	2022	2023	2024	2025	2026	2027	2028	2029
Effective Pay Raise	0	0.04125	0.0505	0.02875	0.021	0.021	0.021	0.021
Foreign Currency Adj	0	0	0	0	0	0	0	0
AYSAL	**$51,838.23**	**$53,976.56**	**$56,702.38**	**$58,332.57**	**$59,557.56**	**$60,808.26**	**$62,085.24**	**$63,389.03**
Calculation	Base Year	=AYSALFY22 * (1+FCFY23) * (1+EPRFY23)	=AYSALFY23 * (1+FCFY24) * (1+EPRFY24)	=AYSALFY24 * (1+FCFY25) * (1+EPRFY25)	=AYSALFY25 * (1+FCFY26) * (1+EPRFY26)	=AYSALFY26 * (1+FCFY27) * (1+EPRFY27)	=AYSALFY27 * (1+FCFY28) * (1+EPRFY28)	=AYSALFY28 * (1+FCFY29) * (1+EPRFY29)
Formula	=51838.23	=51838.23 * (1+0) * (1+0.04125)	=53976.56 * (1+0) * (1+0.0505)	=56702.38 * (1+0) * (1+0.02875)	=58332.57 * (1+0) * (1+0.021)	=59557.56 * (1+0) * (1+0.021)	=60808.26 * (1+0) * (1+0.021)	=62085.24 * (1+0) * (1+0.021)

Effective Pay Raise adjustments and How to Annualize Pay Raises:

Pay raise adjustments are not automatically applied at the beginning of the fiscal year, and must be annualized for the period of the fiscal year in which they actually apply. To annualize pay raises, calculate the Effective Pay Raise (EPR) for each fiscal year. To calculate EPR, you will need the Annualization Factor (AF) specific to your CTYPE population (found in the pay adjustment table), the prior year pay raise percent, and current year pay raise percent.

The following steps illustrate how to calculate the Annualization Factor and FY 2023 Effective Pay Raise for a CTYPE 101 population.

1) Calculate the Annualization Factor. The annualization factor is derived from the fiscal month the pay raise is effective, which varies by CTYPE. This example pertains to CTYPE 101s (GS-employees), which receive their pay raise in the first pay period in January, or fiscal month 4.

$$Annualization\ Factor\ (AF) = \frac{Pay\ Raise\ Month - 1}{12}$$

$$Annualization\ Factor\ (AF) = \frac{4 - 1}{12} = 0.25$$

2) Calculate the Effective Pay Raise using the Annualization Factor, Prior Year Pay Raise, and Current Year Pay Raise. When calculating the Effective Pay Raise for FY 2023, the current year (FY 2023) pay raise is 4.6%, the prior year pay raise (FY 2022) is 2.7%, and the previously calculated AF is 0.25.

$$Effective\ Pay\ Raise = AF \times Prior\ Year\ Pay\ Raise + (1 - AF) \times Current\ Year\ Pay\ Raise$$

$$Effective\ Pay\ Raise\ (FY\ 2023) = 0.25\ \times 0.027 + (1 - 0.25) \times 0.046 = 0.0413$$

3) Repeat step 2 for each consecutive fiscal year between the year of execution and last year of the POM. For example, for POM 25-29, calculate the effective pay raise for every year between FY 2023 – FY 2029.

   Example:

Fiscal Year	2022	2023	2024	2025	2026	2027	2028	2029
Current Year Pay Raise	0.0270	0.0460	0.0520	0.0210	0.0210	0.0210	0.0210	0.0210
Prior Year Pay Raise	n/a	0.0270	0.0460	0.0520	0.0210	0.0210	0.0210	0.0210
Pay Raise Month	n/a	4	4	4	4	4	4	4
Annualization Factor	n/a	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Effective Pay Raise	**n/a**	**0.0413**	**0.0505**	**0.0288**	**0.0210**	**0.0210**	**0.0210**	**0.0210**

5. Calculate Total Work Year for all years and compare to generated rates

The final step in the pay rate calculation process is to calculate the total work year cost in all years. This is done by multiplying the aged AYSAL values by the total benefits factor (calculated in step 3). Note that the total BEPER factor may vary from year to year due to different Cash Awards and Special Benefits guidance specific to each year. Table 9 provides an example of the Total Work Year Cost computed for each fiscal year using the sample data.

Formula for calculating Total Work Year Cost:

$$Total\ Work\ Year\ Cost = ASYAL\ \times (1 + Total\ Benefits\ Factor)$$

Table 9 - Example of Total Work Year Costs computed across all years

Fiscal Year	2022	2023	2024	2025	2026	2027	2028	2029
AYSAL	$51,838.23	$53,976.56	$56,702.38	$58,332.57	$59,557.56	$60,808.26	$62,085.24	$63,389.03
Benefits Factor *	0.5749	0.5749	0.5749	0.5749	0.5749	0.5749	0.5749	0.5749
CAPER	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Special Benefits	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Total Benefits Factor	0.6017	0.6017	0.6017	0.6017	0.6017	0.6017	0.6017	0.6017
Total Work Year Cost	**$83,027.62**	**$86,452.51**	**$90,818.36**	**$93,429.39**	**$95,391.40**	**$97,394.62**	**$99,439.91**	**$101,528.15**

Finally, compare the calculated rates to the CPWG generated rates. If the percent difference is less than 5%, the CPWG generated rate is considered reliable. Variance greater than 5% may be explained by differences in source data, such as the inclusion of data external to the GFEBS Direct Labor Management Report, or adjustments to the source data due to programmatic decisions. If you believe the generated rate is inaccurate, please be prepared to provide your source data and rate calculations to the CPWG for consideration.

Table 10 - Comparison of Calculated Rate vs CPWG Generated Rate

Fiscal Year	2022	2023	2024	2025	2026	2027	2028	2029
Total Work Year Cost:	$83,027.62	$86,452.51	$90,818.36	$93,429.39	$95,391.40	$97,394.62	$99,439.91	$101,528.15
101/OMA/6A/131/QEMS RATE:	$83,585.00	$87,047.00	$91,452.00	$94,045.00	$96,020.00	$98,036.00	$100,095.00	$102,203.00
% DIFF CALCULATED RATE:	-0.67%	-0.68%	-0.69%	-0.65%	-0.65%	-0.65%	-0.65%	-0.66%

Version History

Version Number	Revision Date	Summary of Changes	Revised By
1.0	02/23/2021	Initial version created.	John Ursel
1.1	12/22/2021	Updated: 1) "Verify Civilian Type (…)" to include Foreign National CTypes 2) "Exclude Paid Hours by (…)" to add Cost Element filters and added "H" to list of valid GRCTypeHourCodes 3) "Calculate Full-Time Equivalents (…)" to add separate FTE conversion factors for Italians (109) and BENELUX (207) employees; FTE factor in example set to 2088 hours (vice 2096) 4) Pay raise factors reflect latest PB22 economic assumptions 5) Special Benefits Factors adjusted for roll-over to FY 2022 6) Deleted references to FY 2020 Cash Awards factor of 1.50% 7) Execution source data reflects FY 2021 actuals	John Ursel
1.2	03/01/2022	Updated: 1) Updated Tables 8, 9, 10, and the Effective Pay Raise example to reflect new PB23 Pay Raise assumptions.	John Ursel
1.3	01/26/2023	Updated: 1) Removed references to Supplemental Id codes within the Fund Code. The fund code was not used as a dollar type/supplemental source designator in FY 2022. 2) Removed outdated guidance to delete Supplemental funds from the execution baseline. 3) Updated Tables 8, 9, 10, and the Effective Pay Raise example to reflect new PB24 Pay Raise assumptions. 4) Execution source data reflects FY 2022 actuals.	John Ursel