

ATTACHMENT J40

Example Completion of Schedules for FP-PPR Type Contracts

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ATTACHMENT J40

Example Completion of Schedules for FP-PPR Type Contracts

The objective of this document is to illustrate through examples how to complete the required schedules in the request for proposal (RFP) for a **Fixed Price - Prospective Price Redetermination (FP-PPR)** type contract. The schedules covered in these examples are Schedule B-4, *Payment by the Government for Utility Service*, Schedule 1, *Utility Service Charge*, Schedule 2, *Renewals and Replacements – 50 Year Schedule*, Schedule 3, *Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period*, and Schedule 4, *Recoverable Portion of Purchase Price*.

Offerors proposing a FP-PPR contract MUST prepare their schedules in accordance with the methodology set forth in this Section.

The timing of renewal and replacement (R&R) investments is critical to the development of the schedules required for the FP-PPR type contract. The timing of investments is a function of the age and condition of the utility systems, which is illustrated in the following examples. Depending on the timing of investments, the required capital may be provided by the Government (i.e., R&R payments by Government in excess of investments made by the contractor), by the Contractor (i.e., investments by Contractor exceeding R&R payments from Government), or by the Government and Contractor alternately over the contract term.¹

In projecting R&R investments, offerors should make explicit assumptions with respect to the cost, timing, and components of Contractor and Government provided capital. The “annual interest rate” used in the J40 calculations should also transparently reflect the Offeror’s assumptions regarding the Contractor’s cost of capital for funding these replacements. (For example, the Offeror should clearly identify whether they anticipate borrowing funds, relying on internal reserves, or unexpended funds saved from prior Government payments, to pay for their forecast renewals and replacements). The most important part of this J40 exercise is for the Offeror to outline their detailed assumptions and calculations that go into their schedules.

All proposals utilizing Schedule B-4 MUST develop a residual value as described herein and MUST remove that calculated amount from the total amount used to calculate the proposed R&R annual/monthly charge.

The Government anticipates that pricing for each redetermination period will be accomplished in substantial part by recomputing their schedules for the remainder of the contract term in accordance with the J40 methodology. Contractors will be expected to

¹ The terms Offeror and Contractor are used somewhat interchangeably, but are intended to be the same entity, e.g., defined as the Offeror prior to contract award and as the Contractor after contract award.

make explicit and justify assumptions regarding prices of material, interest rates, provision of capital and other relevant components.

Any proposal utilizing Schedule B-4 must provide the following information with the initial and final proposal revisions:

1. The profit level and mark-ups used in development of the R&R and Operations and Maintenance (O&M) charges. Also indicate if the same interest rate is used throughout the proposal (e.g., Purchase Price and Purchase Price Recovery, Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period, and service charge for R&R).
2. The source of any necessary funding required to complete the R&R work and any associated interest or return on capital used in the rate development.
3. Any and all assumptions used to develop an adequate cash flow for both R&R and O&M, to include any inflationary effects built into pricing. Prices proposed for the utility service charge (CLIN 0001) in Schedules 1 and 2 shall be based on expected price levels during the first two years of operation. The effect of price inflation on costs incurred in years subsequent to the first 2 years of operation will be considered as part of the price redetermination process.
4. Contract time line definitions:
 - Contract Award Date (CAD) =Date contract is awarded
 - Contract Start Date (CSD) = CAD + Transition Period
 - First Redetermination Date (R1) = CSD + 2 years
 - Year Dollar used as basis for inflation at R1 = CSD + 1 Year
 - After first redetermination, redetermination occurs every 3 Years
 - Year dollar for subsequent redeterminations is the mid-point between the redetermination dates

The following examples are for illustration purposes only and should not be taken as representative of any DoD utility system. Similarly, the values used or assumptions presented herein are hypothetical and offerors should not place any importance on them.

J40.1 Example #1 [Distributed Renewals & Replacements]

The Government is considering privatization of a wastewater collection system at one of its installations. It plans to complete the privatization in year 2007, resulting in a 50-year contract for utility service. The Government has issued an RFP that, among other things, requires Offerors to complete Schedule B-4 presented in Section B.4 of the RFP and Schedules 1, 2, 3, and 4 presented in section B.7 of the RFP. The Government's inventory of the wastewater system is shown in **Table J40-1.1**.

TABLE J40-1.1
 Example 1 Wastewater System Inventory
Utility Privatization

Component/Item	Size	Quantity	Unit	Approximate Year of Installation
Concrete Pipe	4-in.	2,000	Lf	1957
Concrete Pipe	12-in.	2,000	Lf	1957
Concrete Pipe	24-in.	4,000	Lf	1957
CI Pipe	4-in.	1,000	Lf	1970
CI Pipe	12-in.	4,000	Lf	1970
PVC Pipe	4-in.	3,000	Lf	1985
PVC Pipe	12-in.	8,000	Lf	1985
PVC Pipe	24-in.	4,000	Lf	1985
PVC Pipe	4-in.	3,000	Lf	2000
PVC Pipe	12-in.	8,000	Lf	2000
PVC Pipe	24-in.	4,000	Lf	2000
Manhole		20	Ea	1957
Manhole		10	Ea	1970
Manhole		30	Ea	1985
Manhole		30	Ea	2000
Lift Station #1		1	Ea	1970
Lift Station #2		1	Ea	1985
Lift Station #3		1	Ea	2000

In addition to the inventory, the RFP indicated there are no existing meters and no new meters need to be installed. The Government-recognized system deficiencies, including the approach the Government would take to remedy them if the system is not privatized, are shown in **Table J40-1.2**.

TABLE J40-1.2
 Example 1 Government Recognized System Deficiencies
Utility Privatization

System Component	Description of Deficiency	Type
Collection System	The system has excessive infiltration and inflow (I&I)	Initial System Deficiency Correction
Lift Station #2	Lift Station #2 is inappropriately sized and causes overflows of sewage into the street	Initial System Deficiency Correction

Table Notes: Deficiencies may be categorized as an Initial System Deficiency Correction, renewal and replacements and/or operation and maintenance.

J40.1.1 Example 1 Schedule B-4

Schedule B-4 is prepared based on the amortized purchase price credit and the data presented in Schedule 1, *Utility Service Charge*, Schedule 2, *Renewals and Replacements – 50 Year Schedule*, and Schedule 4, *Recoverable Portion of Purchase Price*. Projects shown in Schedule 3, *Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period*, are not included in the totals shown in Schedule B-4, but are added to the monthly charge in accordance with the amortization schedule for each Initial System Deficiency Correction(s) / Connection Charge(s) project. The completed Schedule B-4 for **Example 1** is presented in **Exhibit J40-1.1**.

Installation name, State		
	Wastewater System: _____	
CLINS	SUPPLIES/SERVICES	MONTHLY SERVICE CREDIT/CHARGE
0001	Utility Service Charge (see B.6.1 and B.7.2) The Contractor shall provide utility service in accordance with Section C, <i>Descriptions, Specifications, and Work Statement</i> . ^b Monthly Credit as Payment for Purchase Price. (see B.6.2) (\$4,219.28) _____ Monthly Credit 600 _____ # of months 6% _____ Interest Rate TOTAL FOR CLIN 0001:	<u>\$5,971.72</u> <u>(\$4,219.28)</u> <u>\$1,752.44</u>
0002	Initial System Deficiency Corrections / Connection Charges – (see B.6.3 and B.7.4 (Schedule 3). This amount should not be included price Offered for CLIN 0001.)	\$Varies – See Schedule 3

Installation name, State		
	Wastewater System: _____	
0003	Recoverable Portion of Purchase Price (see B.6.4 and B.7.5 (Schedule 4). This amount should not be included in the price offered for CLIN 0001	<u>\$3,586.39</u> See Schedule 4
0004	Transition Period	<u>\$5,000</u> See Schedule 3
<p>^a Utility system to be filled in by the Offeror. A B-4 must be completed for each utility system offered. Utility system are shown in Schedule A paragraph B.3, <i>Systems to be Privatized</i>.</p> <p>^b The Offeror should enter the Utility Service Charge, as computed in Schedule 1 (see B.7.2).</p> <p>NOTE: The Purchase Price, Recoverable Portion of the Purchase Price, interest rate and amortization period proposed by the Offeror.</p>		

J40.1.2 Example 1 Supporting Calculations

The following sections describe the calculations used to determine the values for CLINs 0001, 0002, 0003 and 0004 in Schedule B-4.

J40.1.2.1 Example 1 CLIN 0001 Utility Service Charge Supporting Calculations

The *Utility Service Charge* (CLIN 0001) is comprised of two components – O&M and R&R. Based on their assessment of the requirements in the RFP, their evaluation of the system, and their experience with wastewater systems, *Party X* determines the *utility service charge for O&M* to be \$2,500.² This amount includes all costs for operations, maintenance, repair, and associated administration and general costs. *Party X* is a public entity; therefore, it pays no U.S. Federal taxes.

The *utility service charge for R&R* is developed starting with the example Schedule 2 developed by *Party X* shown in **Table J40-1.3**. R&R project costs are entered into Schedule 2 in constant dollars. The useful life is based on *Party X's* experience. The Present Value is calculated using the current Real Discount Rate, 3.0 percent as of January 2007, as published in OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs, Appendix C and middle of the year discounting. The Residual Value is the unrecovered investment in the utility system remaining at the end of the contract term.³ It is calculated based on the remaining useful life at the end of the contract term (% of Useful Life remaining x R&R Project Cost). The present value of the cumulative Residual Value is subtracted from the cumulative present value of R&R project costs to determine the total present value of the R&R investment.

² Demonstrating how to develop the monthly charge for O&M is beyond the intent of this guidance document.

³ The Government recognizes the residual value as a Government liability at the end of the contract term representing the Contractor's unrecovered investment in the utility system.

Please note: The description of Renewal or Replacement must be specific enough to identify the exact component/item from the inventory listing. The R&R schedule for each of the inventory items is clearly delineated. As shown in Table J40-1.3 Parts 1 and the following must be clearly listed:

- The specific inventory line item (including component/item, size, quantity and installation date) undergoing R&R
- The type of replacement component/item if different from the original inventory item (i.e. if steel pipe is being replaced by PVC)
- The lifespan and expected replacement date(s) for the inventory line item and its replacement
- The cost per unit for the inventory line item and its replacement if different
- The impact of any Initial System Deficiency Correction(s) / Connection Charge(s) projects on the R&R schedule
- The residual value for each inventory line item (or respective replacement) at the end of the contract period

Table J40-1.3 Part 1: Example 1 Schedule 2, Renewals and Replacements – 50 Year Schedule

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Item	Size	Quant	Unit	Approx Year Installed	Existing Unit RCN	Existing Item Service Life	First Expected Replace Date	New Item	New Item Service Life	New Unit Cost RCN	New Item RCN	Next Replace Dates
Row 1	Concrete Pipe	4-in.	2,000	Lf	1957	\$15	50	2007	PVC	50	\$10	\$20,000	2057
Row 2	Concrete Pipe	12-in.	2,000	Lf	1957	\$20	50	2007	PVC	50	\$20	\$40,000	2057
Row 3	Concrete Pipe	24-in.	4,000	Lf	1957	\$60	50	2007	PVC	50	\$50	\$200,000	2057
Row 4	CI Pipe	4-in.	1,000	Lf	1970	\$25	50	2020	PVC	50	\$10	\$10,000	2070
Row 5	CI Pipe	12-in.	4,000	Lf	1970	\$100	50	2020	PVC	50	\$20	\$80,000	2070
Row 6	PVC Pipe	4-in.	3,000	Lf	1985	\$10	50	2035	same	50	\$10	\$30,000	2085
Row 7	PVC Pipe	12-in.	8,000	Lf	1985	\$20	50	2035	same	50	\$20	\$160,000	2085
Row 8	PVC Pipe	24-in.	4,000	Lf	1985	\$50	50	2035	same	50	\$50	\$200,000	2085
Row 9	PVC Pipe	4-in.	3,000	Lf	2000	\$10	50	2050	same	50	\$10	\$30,000	2100
Row 10	PVC Pipe	12-in.	8,000	Lf	2000	\$20	50	2050	same	50	\$20	\$160,000	2100
Row 11	PVC Pipe	24-in.	4,000	Lf	2000	\$50	50	2050	same	50	\$50	\$200,000	2100
Row 12	Manhole		20	Ea	1960	\$3,500	60	2020	same	60	\$3,500	\$70,000	2080
Row 13	Manhole		10	Ea	1970	\$3,500	60	2030	same	60	\$3,500	\$35,000	2090
Row 14	Manhole		30	Ea	1985	\$3,500	60	2045	same	60	\$3,500	\$105,000	2105
Row 15	Manhole		30	Ea	2000	\$3,500	60	2060	same	60	\$3,500	\$105,000	2120
Row 16	Lift Station #1		1	Ea	1970	\$25,000	50	2020	same	50	\$25,000	\$25,000	2070
Row 17	LS Controls,#1		1	Ea	1970	\$50,000	20	2007	same	20	\$50,000	\$50,000	2027, 2047
Row 18	Lift Station #2		1	Ea	1985	\$25,000	50	2007*	same	50	\$25,000	\$25,000	2057
Row 19	LS Controls #2		1	Ea	1985	\$50,000	20	2007	same	20	\$50,000	\$50,000	2027, 2047
Row 20	Lift Station #3		1	Ea	2000	\$25,000	50	2050	same	50	\$25,000	\$25,000	2100
Row 21	LS Controls,#3		1	Ea	2000	\$50,000	20	2020	same	20	\$50,000	\$50,000	2040

This table represents a sample R&R plan. **For display purposes, the R&R table is split into two parts.** The first part shows the inventory items, the associated costs and the respective replacement costs of the replacement items, if different from the original. The second part shown in Table J40-1.3 Part 2, shows the annual cost breakouts. Impacts of Initial System Deficiency Correction(s) / Connection Charge(s) projects on inventory must be accounted for in R&R plan.

- **Columns A-E:** Lists the original inventory description
- **Columns F:** Details the cost at the unit level
- **Column G:** Lists the service/design life of the existing component/item
- **Column H:** Lists the expected replacement date. Replacement date = Approx year Installed + Service Life
- **Column I-J:** Describes the replacement component/item and the replacement component’s service life
- **Columns K-L:** Details the cost of the replacement component/item at the unit and total quantity levels
- **Column M:** Lists the next expected R&R dates. Replacement date = Approx year Installed + Service Life
- ***Row 18:** Per Table J40-1.2 Lift Station #2 is listed as a deficiency. Contractor chose to replace LS #2 via R&R in first year.

Table J40-1.3 Part 2: Example 1 Schedule 2, Renewals and Replacements - 50 Year Schedule

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Item	Size	2007 Const \$ Year 1	2020 Const \$ Year 14	2027 Const \$ Year 21	2030 Const \$ Year 24	2035 Const \$ Year 29	2040 Const \$ Year 34	2045 Const \$ Year 39	2047 Const \$ Year 41	2050 Const \$ Year 44	Cumulative Total	Residual Value Const \$ Year 50
Row 1	Concrete Pipe	4-in.	\$20,000									\$20,000	\$0
Row 2	Concrete Pipe	12-in.	\$40,000									\$40,000	\$0
Row 3	Concrete Pipe	24-in.	\$200,000									\$200,000	\$0
Row 4	CI Pipe	4-in.		\$10,000								\$10,000	\$2,800
Row 5	CI Pipe	12-in.		\$80,000								\$80,000	\$22,400
Row 6	PVC Pipe	4-in.					\$30,000					\$30,000	\$17,400
Row 7	PVC Pipe	12-in.					\$160,000					\$160,000	\$92,800
Row 8	PVC Pipe	24-in.					\$200,000					\$200,000	\$116,000
Row 9	PVC Pipe	4-in.									\$30,000	\$30,000	\$26,400
Row 10	PVC Pipe	12-in.									\$160,000	\$160,000	\$140,800
Row 11	PVC Pipe	24-in.									\$200,000	\$200,000	\$176,000
Row 12	Manhole			\$70,000								\$70,000	\$28,000
Row 13	Manhole					\$35,000						\$35,000	\$19,833
Row 14	Manhole								\$105,000			\$105,000	\$85,750
Row 15	Manhole											\$0	\$5,250
Row 16	Lift Station #1			\$25,000								\$25,000	\$7,000
Row 17	LS Controls #1		\$50,000		\$50,000					\$50,000		\$150,000	\$27,500
Row 18	Lift Station #2*		\$25,000									\$25,000	\$0
Row 19	LS Controls #2		\$50,000		\$50,000					\$50,000		\$150,000	\$27,500
Row 20	Lift Station #3										\$25,000	\$25,000	\$22,000
Row 21	LS Controls #3			\$50,000				\$50,000				\$100,000	\$10,000
Row A	Total Const \$		\$385,000	\$235,000	\$100,000	\$35,000	\$390,000	\$50,000	\$105,000	\$100,000	\$415,000	\$1,815,000	\$827,433
Row B	Present Values		\$379,352	\$157,676	\$54,555	\$17,474	\$167,959	\$18,575	\$33,648	\$30,206	\$114,717	\$974,161	\$191,554

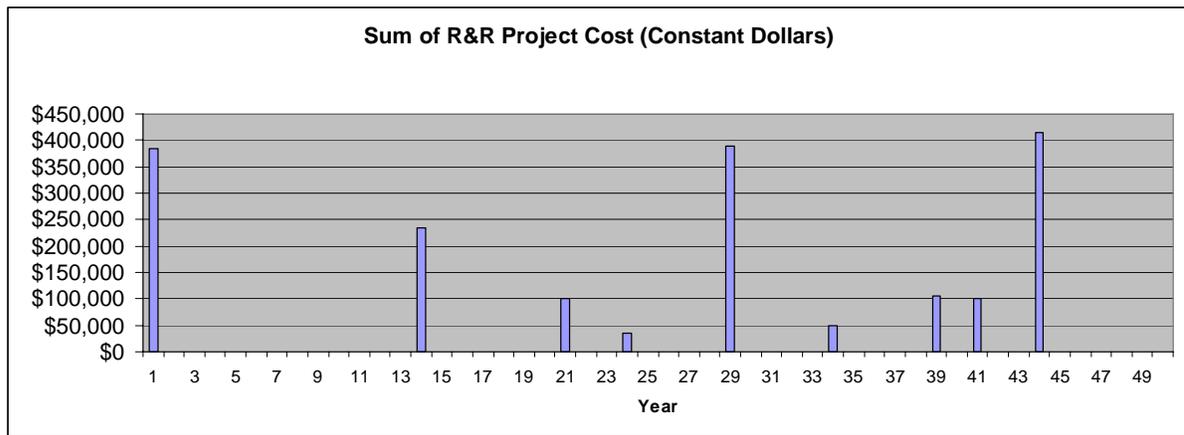
This is the second part of the R&R schedule. It shows the annual R&R totals for each inventory line item.

- **Columns A-B:** Lists original inventory as described in Part 1
- **Columns C-K:** Corresponds to the year that R&R occurs. In accordance with B.5.2.1, dollar amounts are in constant year dollars based on the expected price levels during the first two years of the utility privatization service contract.
- **Column L:** Totals of Columns C-K
- **Column M:** The Residual Value (RV) is the value of the investment, in constant year dollars, at the end of the contract term. $RV = \text{Future Value} \times (\text{Contract Year item installed} + \text{Design Life} - \text{Remaining Contract length}) / \text{Design Life}$. Contract Year is 1 thru 50.
- **Row A:** Lists the R&R totals in Const \$per column
- **Row B:** Present Value of Row A, where $\text{Present Value} = \text{Future Value} \times [1 / (1 + i)^n]$ with Future Value is the R&R cost in const year dollars, i = the current Real (constant dollar) Discount Rate, 3.0%, as published in OMB Circular A-94, Appendix C (see for most recent rate) and n representing middle of the year discounting (i.e 2007 is year one so $n = 0.5$, in 2008 $n = 1.5$ and so on)
- ***Row 18:** Per Table J40-1.2 Lift Station #2 is listed as a deficiency. Contractor chose to replace LS #2 via R&R in first year.

As shown in **Table J40-1.3**, *Party X* proposes to spend \$1,815,000.00 (in constant year dollars) on planned R&R over the 50-year contract term. The cumulative present value of R&R investments is \$974,162, using the 3.0 percent Real Discount Rate published in January 2007 OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs, Appendix C, and middle of the year discounting. The cumulative residual value at the end of the contract term is \$827,433. The present value of the cumulative residual value is \$191,554. Therefore, the present value of *Party X's* total investment in R&R during the contract term is \$782,608 (\$974,162 - \$191,554).⁴

Exhibit J40-1.2 shows the projected R&R investment by year. This chart shows a distribution of investments (costs) over the entire 50-year term of the contract, including early, middle and late investments.

EXHIBIT J40-1.2
 Example 1 Renewals and Replacements Investment by Year
Utility Privatization



Party X must develop a *utility service charge for R&R* to pay for the investments proposed in Schedule 2. The utility service charge is calculated by amortizing the Present Value of Total Investment in R&R (\$782,608) over 600 months, using an interest rate that results in a monthly charge sufficient for *Party X* to pay for all of its R&R investments. It is important to emphasize that the interest rate must be carefully chosen. Some of the key factors that must be considered include the timing of investments (e.g., distributed, front-end loaded or back-end loaded) and the source(s) of capital to be used (borrowed funds, internal capital, an "escrow account," etc.). The basis (reasoning) for the interest rate chosen must be documented in, or as supporting documentation to, the proposed schedules. Based on the timing of the investments as shown in **Exhibit J40-1.2**, and their access to capital and financing, *Party X* uses a 4.85 percent annual interest rate to develop their *utility service charge for R&R*:

⁴ The present value of the cumulative residual value is subtracted from the present value of R&R investments to account for the value in the system at the end of the contract term.

Calculation	Result
Present Value of Proposed R&R Cost (from Schedule 2) =>	\$974,161.90
Cumulative Residual Value due to R&R Investments (from Schedule 2) =>	\$191,553.63
(PV) Present Value of Total Investment in R&R = 974,161.90 – 191,553.63 =>	\$782,608.27
(n) # Months to Recover R&R Cost =>	600
Annual Interest Rate =>	4.85%
(i) Monthly Interest Rate = 0.0485 / 12 =>	0.40%
(A) Monthly R&R Charge ^a =>	\$3,471.72

Table Notes:

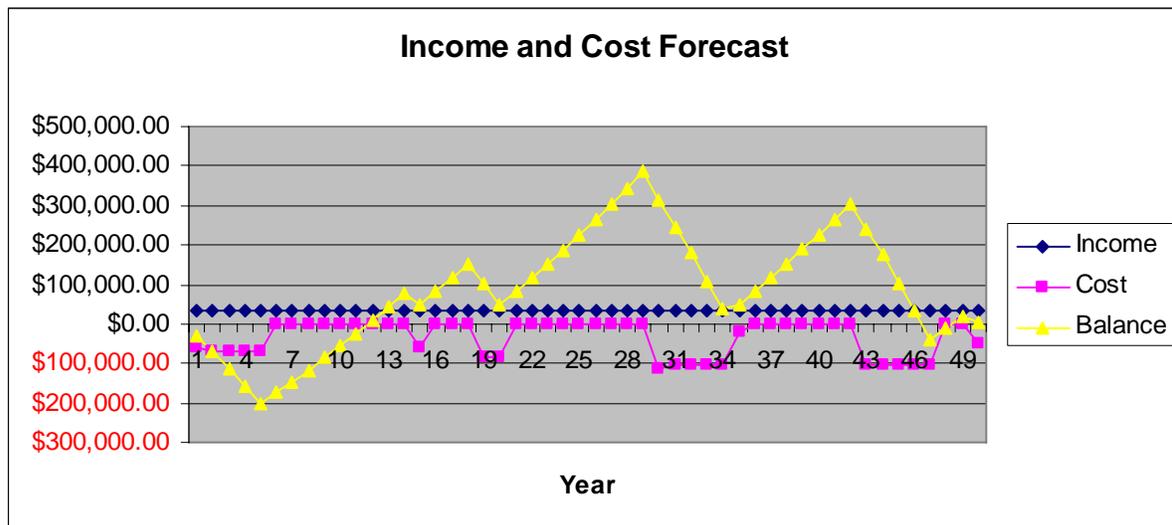
^a Monthly R&R Charge calculated based on uniform series of payments. $A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$

Exhibit J40-1.3 shows the projected income and cost based on *Party X's utility service charge for R&R and Schedule 2* respectively. The balance is the year to year cumulative sum of the income and cost. The chart shows an initial negative balance where costs exceed income, followed by a longer period of income exceeding costs, ending with a near zero balance. The resulting near zero balance is provided to illustrate the example and should not be construed as a de facto requirement. For an actual proposal, it may be reasonable for the ending balance to be negative, positive or zero.⁵ It is incumbent upon the Offeror to consider all pertinent factors when developing their schedules, to include the resulting forecast of income and costs.⁶

EXHIBIT J40-1.3

Example 1 Income and Cost Forecast by Year

Utility Privatization



⁵ The Offeror should explain their reasoning for the resulting income and cost forecast based on their proposed service charge for R&R and their forecast of R&R investments from Schedule 2. I.e., why a net gain, loss or zero balance?

⁶ The Government would expect the residual value to be part of the subsequent contract for utility service (after the 50 year term) or that the Contractor would be due compensation if the contract was not renewed.

The *Total Utility Service Charge* (CLIN 0001) proposed by *Party X* is calculated as demonstrated in the example Schedule 1 shown in **Table J40-1.4**.

TABLE J40-1.4
 Example 1 Schedule 1, Utility Service Charge
Utility Privatization

Component	Monthly Charge
1. Operations and Maintenance (O&M)	\$2,500
2. Renewals and Replacements (R&R)	\$3,471.72
Total Utility Service Charge (to be entered into CLIN 0001 for Schedule B-4)	\$5,971.72

J40.1.2.2 Example 1 CLIN 0001 Monthly Credit as Payment for Purchase Price Supporting Calculations

The Monthly Credit as Payment for Purchase Price (CLIN 0001) is calculated by amortizing the purchase price over the number of contract periods (months) the Offeror proposes to credit the purchase price.

- *Party X* proposes to purchase the wastewater system for \$500,000.00.
- The \$4,219.28 monthly credit is calculated by amortizing the \$500,000.00 Purchase Price over 15 years (180 months) at a 6.0 percent annual interest rate (1.2 percentage points over the U.S. Treasury Bond rate of 4.8% assumed for this example)⁷. The \$50,631.36 annual credit is calculated by multiplying the monthly credit by 12 months.

Calculation	Results
Proposed Purchase Price =>	\$500,000.00
(n) # Months to Amortize Purchase Price =>	180
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
CLIN 0001, (A) Monthly Credit for Purchase Price ^a =>	\$4,219.28
Annual Credit for Purchase Price = 12 x 4,219.28=>	\$50,631.36

Table Notes:

^a Monthly Credit as Payment for Purchase Price is calculated based on uniform series of payments.

$$A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$$

⁷ Source: 4.8% based on 4.93% for the 20-year U.S. Treasury Bond rate (www.federalreserve.gov/releases/H15/update/) plus the -0.13% adjustment for estimating the 30-year rate (www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html).

J40.1.2.3 Example 1 CLIN 0002 Initial System Deficiency Corrections/Connection Charges Supporting Calculations

Initial System Deficiency Correction(s) / Connection Charge(s) are documented in Schedule 3. Transition costs are also included in Schedule 3, however, these costs are addressed in CLIN 0004—see section J40.1.2.4. Additions include Initial System Deficiency Corrections to remedy deficiencies. Based on their assessment of the utility system, *Party X* identified three deficiencies in the wastewater system.

- All of the 1950s-era collection system piping needs to be replaced because it has reached the end of its useful life, requires excessive maintenance, and has unacceptable infiltration and inflow (I&I). The cost to replace the collection piping was determined to be \$260,000. The replacement is to be done in year 1 of the contract term as planned renewal and replacement (R&R) costs. Even though this project may be a deficiency, *Party X* determined that it was actually the result of the system reaching the end of its useful life and therefore addressed it as a R&R project by including it in Schedule 2.
- Cross connections between the Installation's wastewater system and stormwater system were determined to be the cause of the I&I problem. The cost to remedy the cross connections was determined to be \$125,000. *Party X* included an Initial System Deficiency Correction(s) / Connection Charge(s) project in Schedule 3 to address this deficiency. The project is amortized over 15 years at a 6.0 percent annual interest rate. *Party X* also determines a program to periodically televise and test the system for I&I needs to be implemented. *Party X* determines the annual cost for this program will be \$2,000 per year, which is included in the \$2,500 monthly operating cost.
- The inappropriately sized lift station was evaluated and determined to be relatively new (built in 1985), in good condition, but inappropriately sized for the facilities served. The cost to replace the lift station was determined to be \$25,000 and was incorporated into the first year of privatization as a planned R&R cost. Even though this project may be a deficiency, *Party X* accounted for it under R&R because it is a replacement and impacts the overall schedule of replacements.

Two of the deficiencies, replacing the 1957-era collection piping and lift station #2, were included in the first five years of planned R&R. A portion of the other deficiency was accounted for in the O&M component of the utility service charge. Remediating the cross-connections in the system was not included as R&R and it must be included in the Initial System Deficiency Corrections in Schedule 3.

- *Party X* proposes a \$125,000.00 Initial System Deficiency Correction to remedy the cross connections in the system. This project is scheduled to be completed in the 12th month of privatization and amortized over the next 60 months (months 13 through 73) at a 6.0 percent annual interest rate. Therefore, the addition to the utility service charge is based on a \$125,000.00 investment, amortized over 60 months at a constant interest rate of 0.50 percent per month:

Calculation	Result
(PV) Project Cost =>	\$ 125,000.00
(n) # Months to Amortize Project Cost =>	60
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
(A) Monthly Charge ^a =>	\$2,416.60

Table Notes:

^a Monthly Charge calculated based on uniform series of payments. $A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$

The example Schedule 3 developed for Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period (CLIN 0002) is shown in **Table J40-1.5**.

TABLE J40-1.5

Example 1 Schedule 3, Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period
Utility Privatization

Project Name	Interest Rate	Project Cost (Constant \$) ^a	First Full Month Project will Be In Service	Amortization Period (Months)	Monthly Charge
Project 1 - Remedy Cross Connections	6.0%	\$125,000	12	60	\$2,416.60
Transition	0.0%	\$5,000	0	1	\$5,000

J40.1.2.4 Example 1 CLIN 0003 Recoverable Portion of the Purchase Price Supporting Calculations

The Monthly Charge for the Recoverable Portion of the Purchase Price (CLIN 0003) is calculated by amortizing the recoverable amount of the purchase price over the number of contract periods (months) the Offeror proposes to recover the purchase price.⁸

- Party X proposes to purchase the wastewater system for \$500,000.00.
- Party X identifies excess capacity in the system that can potentially be used for customers other than the Government. This excess capacity is determined to be worth 15 percent of the system FMV; therefore, Party X proposes to recover \$425,000.00 (85 percent of the purchase price).
- The \$3,586.39 monthly charge is calculated by amortizing the \$425,000.00 Recoverable Portion of the Purchase Price over 15 years (180 months) at a 6.0 percent annual interest rate (1.2 percentage points over the U.S. Treasury Bond rate of 4.8% assumed for this

⁸ The Recoverable amount cannot exceed the Purchase Price. Additionally, recovery terms (interest rate, number of periods) should be the same as used when calculating the monthly credit for the Purchase Price (CLIN 0001).

example)⁹. The \$43,036.68 annual charge is calculated by multiplying the monthly credit by 12 months.

Calculation	Results
(PV) Proposed Recoverable Portion of Purchase Price =>	\$425,000.00
(n) # Months to Amortize Recovery =>	180
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
CLIN 0003, (A) Monthly Charge for Purchase Price ^a =>	\$3,586.39
Annual Credit for Purchase Price Less Recovery = 12 x -632.89 =>	\$43,036.68

Table Notes:

^a Monthly Credit as Payment for Purchase Price is calculated based on uniform series of payments.

$$A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$$

TABLE J40-1.6

Example 1 Schedule 4, Recoverable Portion of Purchase Price
Utility Privatization

Item	Interest Rate	Amount (Constant \$) ^a	First Full Month Project will Be In Service	Amortization Period (Months)	Monthly Charge
Recoverable Portion of Purchase Price	6.0%	\$425,000	N/A	180	\$3,586.39

J40.1.2.4 Example 1 CLIN 0004 Transition Period Supporting Calculations

The Transition Period charge (CLIN 0004) comes directly from Schedule 3 (TABLE J40-1.5). . . If the Contractor chooses to amortize the transition period payments, the same methodology as used to calculate the Initial System Deficiency Correction(s) / Connection Charge(s) must be used. Refer to Example 1 CLIN 0002 Supporting Calculations.

⁹ Source: 4.8% based on 4.93% for the 20-year U.S. Treasury Bond rate (www.federalreserve.gov/releases/H15/update/) plus the -0.13% adjustment for estimating the 30-year rate (www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html).

J40.2 Example #2 [Front-end Loaded Renewals & Replacements]

The Government is considering privatization of a wastewater collection system at one of its installations. It plans to complete the privatization in year 2007, resulting in a 50-year contract for utility service. The Government has issued an RFP that, among other things, requires Offerors to complete Schedule B-4 presented in Section B of the RFP and Schedules 1, 2, and 3 presented in section B.7 of the RFP. The Government's inventory of the wastewater system is shown in **Table J40-2.1**.

TABLE J40-2.1
Example 2 Wastewater System Inventory
Utility Privatization

Component/item	Size	Quantity	Unit	Approximate Year of Installation
Concrete Pipe	4-in.	2,000	Lf	1957
Concrete Pipe	12-in.	2,000	Lf	1957
Concrete Pipe	24-in.	4,000	Lf	1957
CI Pipe	4-in.	1,000	Lf	1965
CI Pipe	12-in.	4,000	Lf	1965
PVC Pipe	4-in.	3,000	Lf	1970
PVC Pipe	12-in.	8,000	Lf	1970
PVC Pipe	24-in.	4,000	Lf	1970
PVC Pipe	4-in.	3,000	Lf	1975
PVC Pipe	12-in.	8,000	Lf	1975
PVC Pipe	24-in.	4,000	Lf	1975
Manhole		20	Ea	1955
Manhole		10	Ea	1965
Manhole		30	Ea	1970
Manhole		30	Ea	1975
Lift Station #1		1	Ea	1965
Lift Station #2		1	Ea	1970

TABLE J40-2.1
Example 2 Wastewater System Inventory
Utility Privatization

Component/item	Size	Quantity	Unit	Approximate Year of Installation
Lift Station #3		1	Ea	1975

In addition to the inventory, the RFP indicated there are no existing meters and no new meters need to be installed. The Government-recognized system deficiencies, including the approach the Government would take to remedy them if the system is not privatized, are shown in **Table J40-2.2**.

TABLE J40-2.2
Example 2 Government Recognized System Deficiencies
Utility Privatization

System Component	Description of Deficiency	Type
Collection System	The system has excessive infiltration and inflow (I&I)	Initial System Deficiency Correction
Lift Station #2	Lift Station #2 is inappropriately sized and causes overflows of sewage into the street	Initial System Deficiency Correction

Table Notes: Deficiencies may be categorized as an Initial System Deficiency Correction, renewal and replacements and/or operation and maintenance.

J40.2.1 Example 2 Schedule B-4

Schedule B-4 is prepared based on the amortized purchase price credit and the data presented in Schedule 1, *Utility Service Charge*, Schedule 2, *Renewals and Replacements – 50 Year Schedule*, and Schedule 4, *Recoverable Portion of Purchase Price*. Projects shown in Schedule 3, *Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period*, are not included in the totals shown in Schedule B-4, but are added to the monthly charge in accordance with the amortization schedule for each Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period project. The completed Schedule B-4 for **Example 2** is presented in **Exhibit J40-2.1**.

Installation name, State		
	Wastewater System: _____	
CLINS	SUPPLIES/SERVICES	MONTHLY SERVICE CREDIT/CHARGE
0001	Utility Service Charge (see B.6.1 and B.7.2) The Contractor shall provide utility service in accordance with Section C, <i>Descriptions, Specifications, and Work Statement</i> . ^b Monthly Credit as Payment for Purchase Price. (see B.6.2) (\$4,219.28) _____ Monthly Credit 600 _____ # of months 6% _____ Interest Rate TOTAL FOR CLIN 0001:	<u>\$6,532.60</u> <u>(\$4,219.28)</u> <u>\$2,313.32</u>
0002	Initial System Deficiency Corrections / Connection Charges – (see B.6.3 and B.7.4 (Schedule 3). This amount should not be included in the price offered for CLIN 0001.)	\$ <u>Varies</u> – See Schedule 3
0003	Recoverable Portion of Purchase Price (see B.6.4 and B.7.5 (Schedule 4). This amount should not be included in the price offered for CLIN 0001	<u>\$3,586.39</u> See Schedule 4
0004	Transition Period	<u>\$5,000</u> See Schedule 3
<p>^a Utility system to be filled in by the Offeror. A B-4 must be completed for each utility system offered. Utility systems are shown in Schedule A paragraph B.3, <i>Systems to be Privatized</i>.</p> <p>^b The Offeror should enter the Utility Service Charge, as computed in Schedule 1 (see B.7.2).</p> <p>NOTE: The Purchase Price, Recoverable Portion of the Purchase Price, interest rate and amortization period proposed by the Offeror.</p>		

J40.2.2 Example 2 Supporting Calculations

The following sections describe the calculations used to determine the values for CLINs 0001, 0002, 0003 and 0004 in Schedule B-4.

J40.2.2.1 Example 2 CLIN 0001 Utility Service Charge Supporting Calculations

The *Utility Service Charge* (CLIN 0001) is comprised of two components – O&M and R&R. Based on their assessment of the requirements in the RFP, their evaluation of the system, and their experience with wastewater systems, *Party X* determines the *utility service charge*

for O&M to be \$2,500.¹⁰ This amount includes all costs for operations, maintenance, repair, and associated administration and general costs. *Party X* is a public entity; therefore, it pays no U.S. Federal taxes.

The *utility service charge for R&R* is developed starting with the example Schedule 2 developed by *Party X* shown in **Table J40-2.3**. R&R project costs are entered into Schedule 2 in constant dollars. The useful life is based on *Party X's* experience. The Present Value is calculated using the current Real Discount Rate, 3.0 percent as of January 2007, as published in OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs, Appendix C and middle of the year discounting. The Residual Value is the unrecovered investment in the utility system remaining at the end of the contract term.¹¹ It is calculated based on the remaining useful life at the end of the contract term (% of Useful Life remaining x R&R Project Cost). The present value of the cumulative Residual Value is subtracted from the cumulative present value of R&R project costs to determine the total present value of the R&R investment.

Please note: The description of Renewal or Replacement must be specific enough to identify the exact component/item from the inventory listing. The R&R schedule for each of the inventory items is clearly delineated. As shown in Table J40-2.3 Parts 1 and the following must be clearly listed:

- The specific inventory line item (including component, size, quantity and installation date) undergoing R&R
- The type of replacement component/item if different from the original inventory item (i.e. if steel pipe is being replaced by PVC)
- The lifespan and expected replacement date(s) for the inventory line item and its replacement
- The cost per unit for the inventory line item and its replacement if different
- The impact of any Initial System Deficiency Correction(s) / Connection Charge(s) projects on the R&R schedule
- The residual value for each inventory line item (or respective replacement) at the end of the contract period

¹⁰ Demonstrating how to develop the monthly charge for O&M is beyond the intent of this guidance document.

¹¹ The Government recognizes the residual value as a Government liability at the end of the contract term representing the Contractor's unrecovered investment in the utility system.

Table J40-2.3 Part 1: Example 2 Schedule 2, Renewals and Replacements – 50 Year Schedule

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Item	Size	Quant	Unit	Approx Year Installed	Existing Unit RCN	Existing Item Service Life	First Expected Replace Date	New Item	New Item Service Life	New Unit Cost RCN	New Item RCN	Next Replace Dates
Row 1	Concrete Pipe	4-in.	2,000	Lf	1957	\$15	50	2007	PVC	50	\$10	\$20,000	2057
Row 2	Concrete Pipe	12-in.	2,000	Lf	1957	\$20	50	2007	PVC	50	\$20	\$40,000	2057
Row 3	Concrete Pipe	24-in.	4,000	Lf	1957	\$60	50	2007	PVC	50	\$50	\$200,000	2057
Row 4	CI Pipe	4-in.	1,000	Lf	1965	\$25	50	2015	PVC	50	\$10	\$10,000	2065
Row 5	CI Pipe	12-in.	4,000	Lf	1965	\$100	50	2015	PVC	50	\$20	\$80,000	2065
Row 6	PVC Pipe	4-in.	3,000	Lf	1970	\$10	50	2020	same	50	\$10	\$30,000	2070
Row 7	PVC Pipe	12-in.	8,000	Lf	1970	\$20	50	2020	same	50	\$20	\$160,000	2070
Row 8	PVC Pipe	24-in.	4,000	Lf	1970	\$50	50	2020	same	50	\$50	\$200,000	2070
Row 9	PVC Pipe	4-in.	3,000	Lf	1975	\$10	50	2025	same	50	\$10	\$30,000	2075
Row 10	PVC Pipe	12-in.	8,000	Lf	1975	\$20	50	2025	same	50	\$20	\$160,000	2075
Row 11	PVC Pipe	24-in.	4,000	Lf	1975	\$50	50	2025	same	50	\$50	\$200,000	2075
Row 12	Manhole		20	Ea	1955	\$3,500	60	2015	same	60	\$3,500	\$70,000	2075
Row 13	Manhole		10	Ea	1965	\$3,500	60	2025	same	60	\$3,500	\$35,000	2085
Row 14	Manhole		30	Ea	1970	\$3,500	60	2030	same	60	\$3,500	\$105,000	2090
Row 15	Manhole		30	Ea	1975	\$3,500	60	2035	same	60	\$3,500	\$105,000	2095
Row 16	Lift Station #1		1	Ea	1965	\$25,000	50	2015	same	50	\$25,000	\$25,000	2065
Row 17	LS Controls,#1		1	Ea	1965	\$50,000	20	2007	same	20	\$50,000	\$50,000	2027, 2047
Row 18	Lift Station #2		1	Ea	1970	\$25,000	50	2007*	same	50	\$25,000	\$25,000	2057
Row 19	LS Controls #2		1	Ea	1970	\$50,000	20	2007	same	20	\$50,000	\$50,000	2027, 2047
Row 20	Lift Station #3		1	Ea	1975	\$25,000	50	2025	same	50	\$25,000	\$25,000	2075
Row 21	LS Controls,#3		1	Ea	1975	\$50,000	20	2007	same	20	\$50,000	\$50,000	2027, 2047

This table represents a sample R&R plan. **For display purposes, the R&R table is split into two parts.** The first part shows the inventory items, the associated costs and the respective replacement costs of the replacement items, if different from the original. The second part shown in Table J40-2.3 Part 2, shows the annual cost breakouts. Impacts of Initial System Deficiency Correction(s) / Connection Charge(s) projects on inventory must be accounted for in R&R plan.

- **Columns A-E:** Lists the original inventory description
- **Columns F:** Details the cost at the unit level
- **Column G:** Lists the service/design life of the existing component/item
- **Column H:** Lists the expected replacement date. Replacement date = Approx year Installed + Service Life
- **Column I-J:** Describes the replacement component/item and the replacement component’s service life
- **Columns K-L:** Details the cost of the replacement component/item at the unit and total quantity levels
- **Column M:** Lists the next expected R&R dates. Replacement date = Approx year Installed + Service Life
- ***Row 18:** Per Table J40-2.2 Lift Station #2 is listed as a deficiency. Contractor chose to replace LS #2 via R&R in first year.

Table J40-2.3 Part 2: Example 2 Schedule 2, Renewals and Replacements Schedule - 50 Year Schedule

	A	B	C	D	E	F	G	H	I	J	K	L
	Item	Size	2007 Const \$ Year 1	2015 Const \$ Year 9	2020 Const \$ Year 14	2025 Const \$ Year 19	2027 Const \$ Year 21	2030 Const \$ Year 24	2035 Const \$ Year 29	2047 Const \$ Year 41	Cumulative Total	Residual Value Const \$ Year 50
Row 1	Concrete Pipe	4-in.	\$20,000								\$20,000	\$0
Row 2	Concrete Pipe	12-in.	\$40,000								\$40,000	\$0
Row 3	Concrete Pipe	24-in.	\$200,000								\$200,000	\$0
Row 4	CI Pipe	4-in.		\$10,000							\$10,000	\$1,800
Row 5	CI Pipe	12-in.		\$80,000							\$80,000	\$14,400
Row 6	PVC Pipe	4-in.			\$30,000						\$30,000	\$8,400
Row 7	PVC Pipe	12-in.			\$160,000						\$160,000	\$44,800
Row 8	PVC Pipe	24-in.			\$200,000						\$200,000	\$56,000
Row 9	PVC Pipe	4-in.				\$30,000					\$30,000	\$11,400
Row 10	PVC Pipe	12-in.				\$160,000					\$160,000	\$60,800
Row 11	PVC Pipe	24-in.				\$200,000					\$200,000	\$76,000
Row 12	Manhole			\$70,000							\$70,000	\$22,167
Row 13	Manhole					\$35,000					\$35,000	\$16,917
Row 14	Manhole							\$105,000			\$105,000	\$59,500
Row 15	Manhole								\$105,000		\$105,000	\$68,250
Row 16	Lift Station #1			\$25,000							\$25,000	\$4,500
Row 17	LS Controls #1		\$50,000				\$50,000			\$50,000	\$150,000	\$27,500
Row 18	Lift Station #2*		\$25,000								\$25,000	\$0
Row 19	LS Controls #2		\$50,000				\$50,000			\$50,000	\$150,000	\$27,500
Row 20	Lift Station #3					\$25,000					\$25,000	\$9,500
Row 21	LS Controls #3		\$50,000				\$50,000			\$50,000	\$150,000	\$27,500
Row A	Total Const \$		\$435,000	\$185,000	\$390,000	\$450,000	\$150,000	\$105,000	\$105,000	\$150,000	\$1,970,000	\$536,933
Row B	Present Values		\$428,618	\$143,898	\$261,675	\$260,450	\$81,833	\$52,422	\$45,220	\$45,309	\$1,319,425	\$124,302

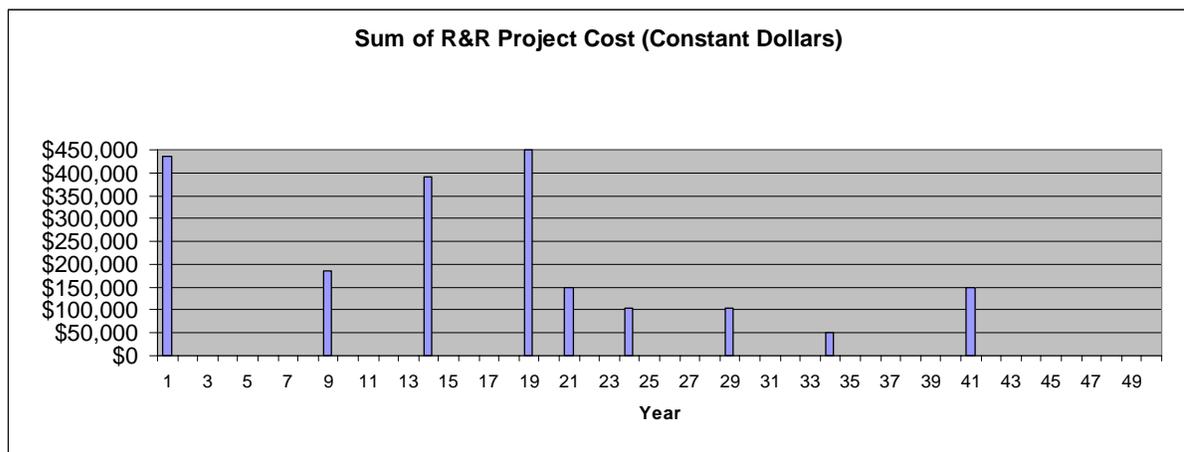
This is the second part of the R&R schedule. It shows the annual R&R totals for each inventory line item.

- **Columns A-B:** Lists original inventory as described in Part 1
- **Columns C-J:** Corresponds to the year that R&R occurs. In accordance with B.5.2.1, dollar amounts are in constant year dollars based on the expected price levels during the first two years of the utility privatization service contract.
- **Column K:** Totals of Columns C-J
- **Column L:** The Residual Value (RV) is the value of the investment, in constant year dollars, at the end of the contract term. $RV = \text{Future Value} \times (\text{Contract Year item installed} + \text{Design Life} - \text{Remaining Contract length}) / \text{Design Life}$. Contract Year is 1 thru 50.
- **Row A:** Lists the R&R totals in Const \$per column
- **Row B:** Present Value of Row A, where Present Value = $\text{Future Value} \times [1 / (1 + i)^n]$ with Future Value is the R&R cost in const year dollars, i = the current Real (constant dollar) Discount Rate, 3.0%, as published in OMB Circular A-94, Appendix C (see for most recent rate) and n representing middle of the year discounting (i.e 2007 is year one so $n = 0.5$, in 2008 $n = 1.5$ and so on)
- ***Row 18:** Per Table J40-2.2 Lift Station #2 is listed as a deficiency. Contractor chose to replace LS #2 via R&R in first year.

As shown in **Table J40-2.3**, *Party X* proposes to spend \$1,970,000 (in constant year dollars) on planned R&R over the 50-year contract term. The cumulative present value of R&R investments is \$1,319,425 using the 3.0 percent Real Discount Rate published in January 2007 OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs, Appendix C, and middle of the year discounting. The cumulative residual value at the end of the contract term is \$536,933. The present value of the cumulative residual value is \$124,302. Therefore, the present value of *Party X*'s total investment in R&R during the contract term is \$1,195,123 (\$1,319,425- \$124,302).¹²

Exhibit J40-2.2 shows the projected R&R investment by year. This chart shows a distribution of investments (costs) over the entire 50-year term of the contract, with a heavy concentration of early investments.

EXHIBIT J40-2.2
 Example 2 Renewals and Replacements Investment by Year
Utility Privatization



Party X must develop a *utility service charge for R&R* to pay for the investments proposed in Schedule 2. The utility service charge is calculated by amortizing the Present Value of Total Investment in R&R (\$1,195,123) over 600 months, using an interest rate that results in a monthly charge sufficient for *Party X* to pay for all of its R&R investments. It is important to emphasize that the interest rate must be carefully chosen. Some of the key factors that must be considered include the timing of investments (e.g., distributed, front-end loaded or back-end loaded) and the source(s) of capital to be used (borrowed funds, internal capital, an "escrow account," etc.). The basis (reasoning) for the interest rate chosen must be documented in, or as supporting documentation to, the proposed schedules. Based on the timing of the investments as shown in **Exhibit J40-2.2**, and their access to capital and financing, *Party X* uses a 3.25 percent annual interest rate to develop their *utility service charge for R&R*:

¹² The present value of the cumulative residual value is subtracted from the present value of R&R investments to account for the value in the system at the end of the contract term.

Calculation	Result
Present Value of Proposed R&R Cost (from Schedule 2) =>	\$1,319,424.76
Cumulative Residual Value due to R&R Investments (from Schedule 2) =>	\$124,301.89
(PV) Present Value of Total Investment in R&R = 1,319,424.76 - 124,301.89 =>	\$1,195,122.87
(n) # Months to Recover R&R Cost =>	600
Annual Interest Rate =>	3.25%
(i) Monthly Interest Rate = 0.0325 / 12 =>	0.27%
(A) Monthly R&R Charge ^a =>	\$4,032.60

Table Notes:

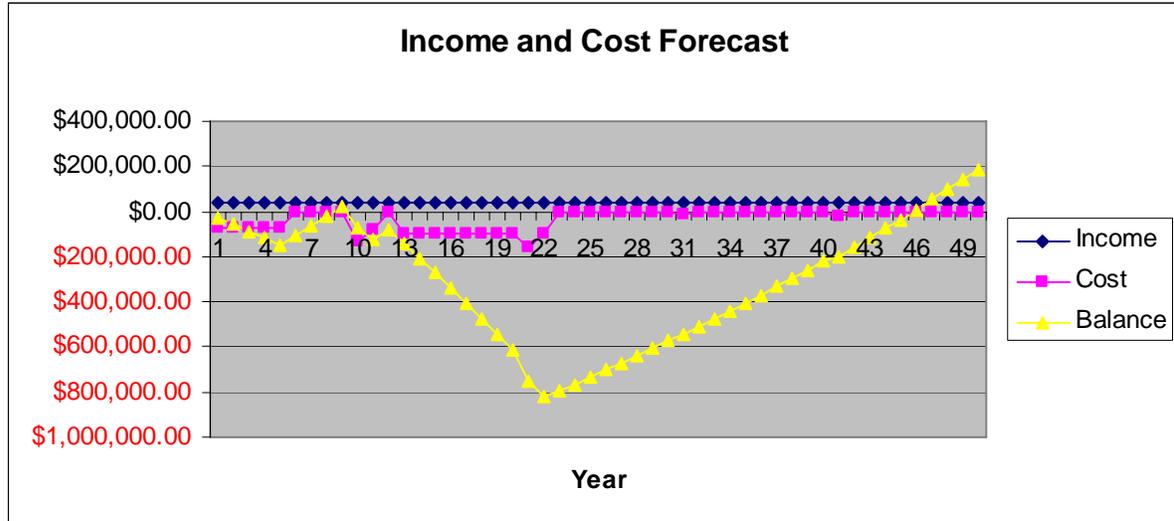
^a Monthly R&R Charge calculated based on uniform series of payments. $A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$

Exhibit J40-2.3 shows the projected income and cost based on *Party X's utility service charge for R&R* and Schedule 2 respectively. The balance is the year to year cumulative sum of the income and cost. The chart shows an initial negative balance where costs exceed income, followed by a longer period of income exceeding costs, ending with a near zero balance. The resulting near zero balance is provided to illustrate the example and should not be construed as a de facto requirement. For an actual proposal, it may be reasonable for the ending balance to be negative, positive or zero.¹³ It is incumbent upon the Offeror to consider all pertinent factors when developing their schedules, to include the resulting forecast of income and costs.¹⁴

¹³ The Offeror should explain their reasoning for the resulting income and cost forecast based on their proposed service charge for R&R and their forecast of R&R investments from Schedule 2. I.e., why a net gain, loss or zero balance?

¹⁴ The Government would expect the residual value to be part of the subsequent contract for utility service (after the 50 year term) or that the Contractor would be due compensation if the contract was not renewed.

EXHIBIT J40-2.3
 Example 2 Income and Cost Forecast by Year
Utility Privatization



The *Total Utility Service Charge* (CLIN 0001) proposed by *Party X* is calculated as demonstrated in the example Schedule 1 shown in **Table J40-2.4**.

TABLE J40-2.4
 Example 2 Schedule 1, Utility Service Charge
Utility Privatization

Component	Monthly Charge
1. Operations and Maintenance (O&M)	\$2,500
2. Renewals and Replacements	\$4,032.60
Total Utility Service Charge (to be entered into CLIN 0001 for Schedule B-4)	\$6,532.60

J40.1.2.2 Example 1 CLIN 0001 Monthly Credit as Payment for Purchase Price Supporting Calculations

The Monthly Credit as Payment for Purchase Price (CLIN 0001) is calculated by amortizing the purchase price over the number of contract periods (months) the Offeror proposes to credit the purchase price.

- *Party X* proposes to purchase the wastewater system for \$500,000.00.
- The \$4,219.28 monthly credit is calculated by amortizing the \$500,000.00 Purchase Price over 15 years (180 months) at a 6.0 percent annual interest rate (1.2 percentage points

over the U.S. Treasury Bond rate of 4.8% assumed for this example)¹⁵. The \$50,631.36 annual credit is calculated by multiplying the monthly credit by 12 months.

Calculation	Results
Proposed Purchase Price =>	\$500,000.00
(n) # Months to Amortize Purchase Price =>	180
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
CLIN 0001, (A) Monthly Credit for Purchase Price ^a =>	\$4,219.28
Annual Credit for Purchase Price = 12 x 4,219.28=>	\$50,631.36

Table Notes:

^a Monthly Credit as Payment for Purchase Price is calculated based on uniform series of payments.

$$A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$$

J40.2.2.3 Example 1 CLIN 0002 Initial System Deficiency Corrections/Connection Charges Supporting Calculations

Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period projects are documented in Schedule 3. Transition costs are also included in Schedule 3, however, these costs are addressed in CLIN0004 – see section J40.2.2.4. Additions include Initial System Deficiency Corrections to remedy deficiencies. Based on their assessment of the utility system, *Party X* identified three deficiencies in the wastewater system.

- All of the 1950s-era collection system piping needs to be replaced because it has reached the end of its useful life, requires excessive maintenance, and has unacceptable infiltration and inflow (I&I). The cost to replace the collection piping was determined to be \$260,000. The replacement is to be done in year 1 of the contract term as planned renewal and replacement (R&R) costs. Even though this project may be a deficiency, *Party X* determined that it was actually the result of the system reaching the end of its useful life and therefore addressed it as a R&R project by including it in Schedule 2.
- Cross connections between the Installation's wastewater system and stormwater system were determined to be the cause of the I&I problem. The cost to remedy the cross connections was determined to be \$125,000. *Party X* included an Initial System Deficiency Correction(s) / Connection Charge(s) project in Schedule 3 to address this deficiency. The project is amortized over 15 years at a 6.0 percent annual interest rate. *Party X* also determines a program to periodically televise and test the system for I&I needs to be implemented. *Party X* determines the annual cost for this program will be \$2,000 per year, which is included in the \$2,500 monthly operating cost.
- The inappropriately sized lift station was evaluated and determined to be relatively new (built in 1985), in good condition, but inappropriately sized for the facilities served. The

¹⁵ Source: 4.8% based on 4.93% for the 20-year U.S. Treasury Bond rate (www.federalreserve.gov/releases/H15/update/) plus the -0.13% adjustment for estimating the 30-year rate (www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html).

cost to replace the lift station was determined to be \$25,000 and was incorporated into the first year of privatization as a planned R&R cost. Even though this project may be a deficiency, *Party X* accounted for it under R&R because it is a replacement and impacts the overall schedule of replacements.

Two of the deficiencies, replacing the 1957-era collection piping and lift station #2, were included in the first five years of planned R&R. A portion of the other deficiency was accounted for in the O&M component of the utility service charge. Remedying the cross-connections in the system was not included as R&R and it must be included in the Initial System Deficiency Corrections in Schedule 3.

- *Party X* proposes a \$125,000.00 Initial System Deficiency Correction to remedy the cross connections in the system. This project is scheduled to be completed in the 12th month of privatization and amortized over the next 60 months (months 13 through 73) at a 6.0 percent annual interest rate. Therefore, the addition to the utility service charge is based on a \$125,000.00 investment, amortized over 60 months at a constant interest rate of 0.50 percent per month:

Calculation	Result
(PV) Project Cost =>	\$ 125,000.00
(n) # Months to Amortize Project Cost =>	60
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
(A) Monthly Charge ^a =>	\$2,416.60

Table Notes:

^a Monthly Charge calculated based on uniform series of payments. $A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$

The example Schedule 3 developed for Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period (CLIN 0002) is shown in **Table J40-2.5**.

TABLE J40-2.5

Example 2 Schedule 3, Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period
Utility Privatization

Project Name	Interest Rate	Project Cost (Constant \$) ^a	First Full Month Project will Be In Service	Amortization (Months)	Monthly Charge
Project 1 - Remedy Cross Connections	6.0%	\$125,000	12	60	\$2,416.60
Transition	0.0%	\$5,000	0	1	\$5,000

J40.2.2.4 Example 2 CLIN 0003 Recoverable Portion of the Purchase Price Supporting Calculations

The Monthly Charge for the Recoverable Portion of the Purchase Price (CLIN 0003) is calculated by amortizing the recoverable amount of the purchase price over the number of contract periods (months) the Offeror proposes to recover the purchase price.¹⁶

- *Party X* proposes to purchase the wastewater system for \$500,000.00.
- *Party X* identifies excess capacity in the system that can potentially be used for customers other than the Government. This excess capacity is determined to be worth 15 percent of the system FMV; therefore, *Party X* proposes to recover \$425,000.00 (85 percent of the purchase price).
- The \$3,586.39 monthly charge is calculated by amortizing the \$425,000.00 Recoverable Portion of the Purchase Price over 15 years (180 months) at a 6.0 percent annual interest rate (1.2 percentage points over the U.S. Treasury Bond rate of 4.8% assumed for this example)¹⁷. The \$43,036.68 annual charge is calculated by multiplying the monthly credit by 12 months.

Calculation	Results
(PV) Proposed Recoverable Portion of Purchase Price =>	\$425,000.00
(n) # Months to Amortize Recovery =>	180
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
CLIN 0003, (A) Monthly Charge for Purchase Price ^a =>	\$3586.39
Annual Credit for Purchase Price Less Recovery = 12 x -632.89 =>	\$43,036.68

Table Notes:

^a Monthly Credit as Payment for Purchase Price is calculated based on uniform series of payments.

$$A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$$

¹⁶ The Recoverable amount cannot exceed the Purchase Price. Additionally, recovery terms (interest rate, number of periods) should be the same as used when calculating the monthly credit for the Purchase Price (CLIN 0001).

¹⁷ Source: 4.8% based on 4.93% for the 20-year U.S. Treasury Bond rate (www.federalreserve.gov/releases/H15/update/) plus the -0.13% adjustment for estimating the 30-year rate (www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html).

TABLE J40-2.6
 Example 2 Schedule 4, Recoverable Portion of Purchase Price
Utility Privatization

Item	Interest Rate	Amount (Constant \$) ^a	First Full Month Project will Be In Service	Amortization Period (Months)	Monthly Charge
Recoverable Portion of Purchase Price	6.0%	\$425,000	N/A	180	\$3,586.39

J40.2.2.4 Example 2 CLIN 0004 Transition Period Supporting Calculations

The Transition Period charge (CLIN 0004) comes directly from Schedule 3 (TABLE J40-2.5). . If the Contractor chooses to amortize the transition period payments, the same methodology as used to calculate the Initial System Deficiency Correction(s) / Connection Charge(s) must be used. Refer to Example 2 CLIN 0002 Supporting Calculations.

J40.3 Example #3 [Back-end Loaded Renewals & Replacements]

The Government is considering privatization of a wastewater collection system at one of its installations. It plans to complete the privatization in year 2007, resulting in a 50-year contract for utility service. The Government has issued an RFP that, among other things, requires Offerors to complete Schedule B-4 presented in Section B of the RFP and Schedules 1, 2, 3 and 4 presented in section B.7 of the RFP. The Government’s inventory of the wastewater system is shown in **Table J40-3.1**.

TABLE J40-3.1
 Example 3 Wastewater System Inventory
Utility Privatization

Component/item	Size	Quantity	Unit	Approximate Year of Installation
Concrete Pipe	4-in.	2,000	Lf	1980
Concrete Pipe	12-in.	2,000	Lf	1980
Concrete Pipe	24-in.	4,000	Lf	1980
CI Pipe	4-in.	1,000	Lf	1985
CI Pipe	12-in.	4,000	Lf	1985

TABLE J40-3.1
 Example 3 Wastewater System Inventory
Utility Privatization

Component/item	Size	Quantity	Unit	Approximate Year of Installation
PVC Pipe	4-in.	3,000	Lf	1990
PVC Pipe	12-in.	8,000	Lf	1990
PVC Pipe	24-in.	4,000	Lf	1990
PVC Pipe	4-in.	3,000	Lf	2000
PVC Pipe	12-in.	8,000	Lf	2000
PVC Pipe	24-in.	4,000	Lf	2000
Manhole		20	Ea	1980
Manhole		10	Ea	1985
Manhole		30	Ea	1990
Manhole		30	Ea	2000
Lift Station #1		1	Ea	1985
Lift Station #2		1	Ea	1990
Lift Station #3		1	Ea	2000

In addition to the inventory, the RFP indicated there are no existing meters and no new meters need to be installed. The Government-recognized system deficiencies, including the approach the Government would take to remedy them if the system is not privatized, are shown in **Table J40-3.2**.

TABLE J40-3.2
 Example 3 Government Recognized System Deficiencies
Utility Privatization

System Component	Description of Deficiency	Type
Collection System	The system has excessive infiltration and inflow (I&I)	Initial System Deficiency Correction
Lift Station #2	Lift Station #2 is inappropriately sized and causes overflows of sewage into the street	Initial System Deficiency Correction

TABLE J40-3.2
 Example 3 Government Recognized System Deficiencies
Utility Privatization

System Component	Description of Deficiency	Type
------------------	---------------------------	------

Table Notes: Deficiencies may be categorized as an Initial System Deficiency Correction, renewal and replacements and/or operation and maintenance.

J40.3.1 Example 3 Schedule B-4

Schedule B-4 is prepared based on the amortized purchase price credit and the data presented in Schedule 1, *Utility Service Charge*, Schedule 2, *Renewals and Replacements – 50 Year Schedule*, and Schedule 4, *Recoverable Portion of Purchase Price*. Projects shown in Schedule 3, *Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period*, are not included in the totals shown in Schedule B-4, but are added to the monthly charge in accordance with the amortization schedule for each Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period project. The completed Schedule B-4 for **Example 3** is presented in **Exhibit J40-3.1**.

Installation name, State		
	Wastewater System: _____	
CLINS	SUPPLIES/SERVICES	MONTHLY SERVICE CREDIT/CHARGE
0001	Utility Service Charge (see B.6.1 and B.7.2) The Contractor shall provide utility service in accordance with Section C, <i>Descriptions, Specifications, and Work Statement</i> . ^b Monthly Credit as Payment for Purchase Price. (see B.6.2) (\$4,219.28) _____ Monthly Credit 600 _____ # of months 6% _____ Interest Rate TOTAL FOR CLIN 0001:	<u>\$5,324.68</u> (\$4,219.28) <u>\$1,105.40</u>
0002	Initial System Deficiency Corrections / Connection Charges – (see B.6.3 and B.7.4 (Schedule 3). This amount should not be included in the price offered for CLIN 0001.)	\$ <u>Varies</u> – See Schedule 3
0003	Recoverable Portion of Purchase Price (see B.6.4 and B.7.5 (Schedule 4). This amount should not be included in the price offered for CLIN 0001	<u>\$3,586.39</u> See Schedule 4
0004	Transition Period	<u>\$5,000</u> See Schedule 3

Installation name, State	
	Wastewater System: _____
<p>^a Utility system to be filled in by the Offeror. A B-4 must be completed for each utility system offered. Utility systems are shown in Schedule A paragraph B.3, <i>Systems to be Privatized</i>.</p> <p>^b The Offeror should enter the Utility Service Charge, as computed in Schedule 1 (see B.7.2).</p> <p>NOTE: The Purchase Price, Recoverable Portion of the Purchase Price, interest rate and amortization period proposed by the Offeror.</p>	

J40.3.2 Example 3 Supporting Calculations

The following sections describe the calculations used to determine the values for CLINs 0001, 0002, 0003 and 0004 in Schedule B-4.

J40.3.2.1 Example 3 CLIN 0001 Utility Service Charge Supporting Calculations

The *Utility Service Charge* (CLIN 0001) is comprised of two components – O&M and R&R. Based on their assessment of the requirements in the RFP, their evaluation of the system, and their experience with wastewater systems, *Party X* determines the *utility service charge for O&M* to be \$2,500.¹⁸ This amount includes all costs for operations, maintenance, repair, and associated administration and general costs. *Party X* is a public entity; therefore, it pays no U.S. Federal taxes.

The *utility service charge for R&R* is developed starting with the example Schedule 2 developed by *Party X* shown in **Table J40-3.3**. R&R project costs are entered into Schedule 2 in constant dollars. The useful life is based on *Party X's* experience. The Present Value is calculated using the current Real Discount Rate, 3.0 percent as of January 2007, as published in OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs, Appendix C and middle of the year discounting. The Residual Value is the unrecovered investment in the utility system remaining at the end of the contract term.¹⁹ It is calculated based on the remaining useful life at the end of the contract term (% of Useful Life remaining x R&R Project Cost). The present value of the cumulative Residual Value is subtracted from the cumulative present value of R&R project costs to determine the total present value of the R&R investment.

Please note: The description of Renewal or Replacement must be specific enough to identify the exact component/item from the inventory listing. The R&R schedule for each of the inventory items is clearly delineated. As shown in Table J40-3.3 Parts 1 and the following must be clearly listed:

- The specific inventory line item (including component, size, quantity and installation date) undergoing R&R

¹⁸ Demonstrating how to develop the monthly charge for O&M is beyond the intent of this guidance document.

¹⁹ The Government recognizes the residual value as a Government liability at the end of the contract term representing the Contractor's unrecovered investment in the utility system.

- The type of replacement component/item if different from the original inventory item (i.e. if steel pipe is being replaced by PVC)
- The lifespan and expected replacement date(s) for the inventory line item and its replacement
- The cost per unit for the inventory line item and its replacement if different
- The impact of any Initial System Deficiency Correction(s) / Connection Charge(s) projects on the R&R schedule
- The residual value for each inventory line item (or respective replacement) at the end of the contract period

Table J40-3.3 Part 1: Example 3 Schedule 2, Renewals and Replacements – 50 Year Schedule

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Item	Size	Quant	Unit	Approx Year Installed	Existing Unit RCN	Existing Item Service Life	First Expected Replace Date	New Item	New Item Service Life	New Unit Cost RCN	New Item RCN	Next Replace Dates
Row 1	Concrete Pipe	4-in.	2,000	Lf	1980	\$15	50	2030	PVC	50	\$10	\$20,000	2080
Row 2	Concrete Pipe	12-in.	2,000	Lf	1980	\$20	50	2030	PVC	50	\$20	\$40,000	2080
Row 3	Concrete Pipe	24-in.	4,000	Lf	1980	\$60	50	2030	PVC	50	\$50	\$200,000	2080
Row 4	CI Pipe	4-in.	1,000	Lf	1985	\$25	50	2035	PVC	50	\$10	\$10,000	2085
Row 5	CI Pipe	12-in.	4,000	Lf	1985	\$100	50	2035	PVC	50	\$20	\$80,000	2085
Row 6	PVC Pipe	4-in.	3,000	Lf	1990	\$10	50	2040	same	50	\$10	\$30,000	2090
Row 7	PVC Pipe	12-in.	8,000	Lf	1990	\$20	50	2040	same	50	\$20	\$160,000	2090
Row 8	PVC Pipe	24-in.	4,000	Lf	1990	\$50	50	2040	same	50	\$50	\$200,000	2090
Row 9	PVC Pipe	4-in.	3,000	Lf	2000	\$10	50	2050	same	50	\$10	\$30,000	2100
Row 10	PVC Pipe	12-in.	8,000	Lf	2000	\$20	50	2050	same	50	\$20	\$160,000	2100
Row 11	PVC Pipe	24-in.	4,000	Lf	2000	\$50	50	2050	same	50	\$50	\$200,000	2100
Row 12	Manhole		20	Ea	1980	\$3,500	60	2040	same	60	\$3,500	\$70,000	2100
Row 13	Manhole		10	Ea	1985	\$3,500	60	2045	same	60	\$3,500	\$35,000	2105
Row 14	Manhole		30	Ea	1990	\$3,500	60	2050	same	60	\$3,500	\$105,000	2110
Row 15	Manhole		30	Ea	2000	\$3,500	60	2060	same	60	\$3,500	\$105,000	2120
Row 16	Lift Station #1		1	Ea	1985	\$25,000	50	2035	same	50	\$25,000	\$25,000	2085
Row 17	LS Controls,#1		1	Ea	1985	\$50,000	20	2007	same	20	\$50,000	\$50,000	2027, 2047
Row 18	Lift Station #2		1	Ea	1990	\$25,000	50	2007*	same	50	\$25,000	\$25,000	2057
Row 19	LS Controls #2		1	Ea	1990	\$50,000	20	2007*	same	20	\$50,000	\$50,000	2027, 2047
Row 20	Lift Station #3		1	Ea	2000	\$25,000	50	2050	same	50	\$25,000	\$25,000	2100
Row 21	LS Controls,#3		1	Ea	2000	\$50,000	20	2020	same	20	\$50,000	\$50,000	2040

This table represents a sample R&R plan. **For display purposes, the R&R table is split into two parts.** The first part shows the inventory items, the associated costs and the respective replacement costs of the replacement items, if different from the original. The second part shown in Table J40-3.3 Part 2, shows the annual cost breakouts. Impacts of Initial System Deficiency Correction(s) / Connection Charge(s) projects on inventory must be accounted for in R&R plan.

- **Columns A-E:** Lists the original inventory description
- **Columns F:** Details the cost at the unit level
- **Column G:** Lists the service/design life of the existing component/item
- **Column H:** Lists the expected replacement date. Replacement date = Approx year Installed + Service Life
- **Column I-J:** Describes the replacement component/item and the replacement component’s service life
- **Columns K-L:** Details the cost of the replacement component/item at the unit and total quantity levels
- **Column M:** Lists the next expected R&R dates. Replacement date = Approx year Installed + Service Life
- ***Rows 18 and 19:** Per Table J40-3.2 Lift Station #2 is listed as a deficiency. Contractor chose to replace LS #2 via R&R in first year.

Table J40-3.3 Part 2: Example 3 Schedule 2, Renewals and Replacements - 50 Year Schedule

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Item	Size	2007 Const \$ Year 1	2020 Const \$ Year 14	2027 Const \$ Year 21	2030 Const \$ Year 24	2035 Const \$ Year 29	2040 Const \$ Year 34	2045 Const \$ Year 39	2047 Const \$ Year 41	2050 Const \$ Year 44	Cumulative Total	Residual Value Const \$ Year 50
Row 1	Concrete Pipe	4-in.				\$20,000						\$20,000	\$9,600
Row 2	Concrete Pipe	12-in.				\$40,000						\$40,000	\$19,200
Row 3	Concrete Pipe	24-in.				\$200,000						\$200,000	\$96,000
Row 4	CI Pipe	4-in.					\$10,000					\$10,000	\$5,800
Row 5	CI Pipe	12-in.					\$80,000					\$80,000	\$46,400
Row 6	PVC Pipe	4-in.						\$30,000				\$30,000	\$20,400
Row 7	PVC Pipe	12-in.						\$160,000				\$160,000	\$108,800
Row 8	PVC Pipe	24-in.						\$200,000				\$200,000	\$136,000
Row 9	PVC Pipe	4-in.								\$30,000		\$30,000	\$26,400
Row 10	PVC Pipe	12-in.								\$160,000		\$160,000	\$140,800
Row 11	PVC Pipe	24-in.								\$200,000		\$200,000	\$176,000
Row 12	Manhole							\$70,000				\$70,000	\$51,333
Row 13	Manhole								\$35,000			\$35,000	\$28,583
Row 14	Manhole										\$105,000	\$105,000	\$94,500
Row 15	Manhole											\$0	\$5,250
Row 16	Lift Station #1						\$25,000					\$25,000	\$14,500
Row 17	LS Controls #1		\$50,000		\$50,000					\$50,000		\$150,000	\$27,500
Row 18	Lift Station #2*		\$25,000									\$25,000	\$0
Row 19	LS Controls #2*		\$50,000		\$50,000					\$50,000		\$150,000	\$27,500
Row 20	Lift Station #3										\$25,000	\$25,000	\$22,000
Row 21	LS Controls #3			\$50,000				\$50,000				\$100,000	\$10,000
Row A	Total Const \$		\$125,000	\$50,000	\$100,000	\$260,000	\$115,000	\$510,000	\$35,000	\$100,000	\$520,000	\$1,815,000	\$1,066,567
Row B	Present Values		\$123,166	\$33,548	\$54,555	\$129,807	\$49,526	\$189,462	\$11,216	\$30,206	\$143,742	\$765,230	\$246,914

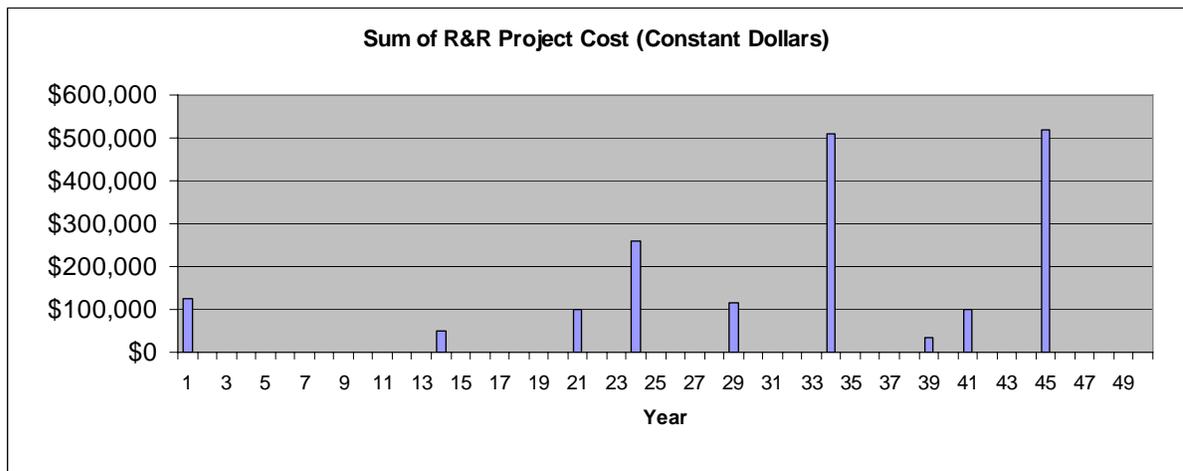
This is the second part of the R&R schedule. It shows the annual R&R totals for each inventory line item.

- **Columns A-B:** Lists original inventory as described in Part 1
- **Columns C-K:** Corresponds to the year that R&R occurs. In accordance with B.5.2.1, dollar amounts are in constant year dollars based on the expected price levels during the first two years of the utility privatization service contract.
- **Column L:** Totals of Columns C-K
- **Column M:** The Residual Value (RV) is the value of the investment, in constant year dollars, at the end of the contract term. $RV = \text{Future Value} \times (\text{Contract Year item installed} + \text{Design Life} - \text{Remaining Contract length}) / \text{Design Life}$. Contract Year is 1 thru 50.
- **Row A:** Lists the R&R totals in Const \$ per column
- **Row B:** Present Value of Row A, where $\text{Present Value} = \text{Future Value} \times [1 / (1 + i)^n]$ with Future Value is the R&R cost in const year dollars, i = the current Real (constant dollar) Discount Rate, 3.0%, as published in OMB Circular A-94, Appendix C (see for most recent rate) and n representing middle of the year discounting (i.e 2007 is year one so $n = 0.5$, in 2008 $n = 1.5$ and so on)
- ***Rows 18 and 19:** Per Table J40-3.2 Lift Station #2 is listed as a deficiency. Contractor chose to replace LS #2 via R&R in first year.

As shown in **Table J40-3.3**, *Party X* proposes to spend \$1,815,000 (in constant year dollars) on planned R&R over the 50-year contract term. The cumulative present value of R&R investments is \$765,230, using the 3.0 percent Real Discount Rate published in January 2007 OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs, Appendix C, and middle of the year discounting. The cumulative residual value at the end of the contract term is \$1,066,567. The present value of the cumulative residual value is \$246,914. Therefore, the present value of *Party X*'s total investment in R&R during the contract term is \$518,316 ($\$765,230 - \$246,914$).²⁰

Exhibit J40-3.2 shows the projected R&R investment by year. This chart shows a distribution of investments (costs) over the entire 50-year term of the contract, with a heavy concentration of late investments.

EXHIBIT J40-3.2
 Example 3 Renewals and Replacements Investment by Year
Utility Privatization



Party X must develop a *utility service charge for R&R* to pay for the investments proposed in Schedule 2. The utility service charge is calculated by amortizing the Present Value of Total Investment in R&R (\$518,316) over 600 months, using an interest rate that results in a monthly charge sufficient for *Party X* to pay for all of its R&R investments. It is important to emphasize that the interest rate must be carefully chosen. Some of the key factors that must be considered include the timing of investments (e.g., distributed, front-end loaded or back-end loaded) and the source(s) of capital to be used (borrowed funds, internal capital, an "escrow account," etc.). The basis (reasoning) for the interest rate chosen must be documented in, or as supporting documentation to, the proposed schedules. Based on the timing of the investments as shown in **Exhibit J40-3.2**, and their access to capital and financing, *Party X* uses a 6.25 percent annual interest rate to develop their *utility service charge for R&R*:

²⁰ The present value of the cumulative residual value is subtracted from the present value of R&R investments to account for the value in the system at the end of the contract term.

Calculation	Result
Present Value of Proposed R&R Cost (from Schedule 2) =>	\$765,229.51
Cumulative Residual Value due to R&R Investments (from Schedule 2) =>	\$246,913.81
(PV) Present Value of Total Investment in R&R = 765,229.51 – 246,913.81 =>	\$518,315.70
(n) # Months to Recover R&R Cost =>	600
Annual Interest Rate =>	6.25%
(i) Monthly Interest Rate = 0.0625 / 12 =>	0.52%
(A) Monthly R&R Charge ^a =>	\$2,824.68

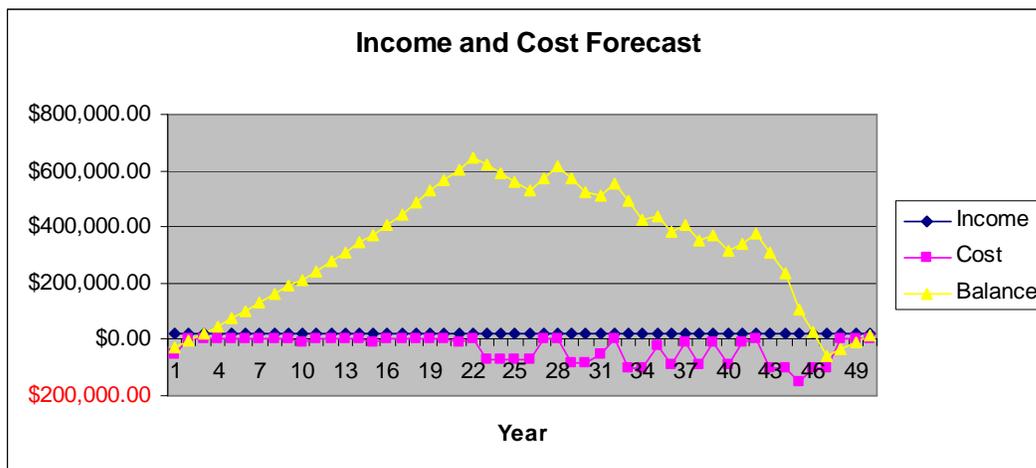
Table Notes:

^a Monthly R&R Charge calculated based on uniform series of payments. $A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$

Exhibit J40-3.3 shows the projected income and cost based on *Party X's utility service charge for R&R* and Schedule 2 respectively. The balance is the year to year cumulative sum of the income and cost. The chart shows an initial negative balance where costs exceed income, followed by a longer period of income exceeding costs, ending with a near zero balance. The resulting near zero balance is provided to illustrate the example and should not be construed as a de facto requirement. For an actual proposal, it may be reasonable for the ending balance to be negative, positive or zero.²¹ It is incumbent upon the Offeror to consider all pertinent factors when developing their schedules, to include the resulting forecast of income and costs.²²

EXHIBIT J40-3.3

Example 3 Income and Cost Forecast by Year
Utility Privatization



²¹ The Offeror should explain their reasoning for the resulting income and cost forecast based on their proposed service charge for R&R and their forecast of R&R investments from Schedule 2. I.e., why a net gain, loss or zero balance?

²² The Government would expect the residual value to be part of the subsequent contract for utility service (after the 50 year term) or that the Contractor would be due compensation if the contract was not renewed.

The *Total Utility Service Charge* (CLIN 0001) proposed by *Party X* is calculated as demonstrated in the example Schedule 1 shown in **Table J40-3.4**.

TABLE J40-3.4
 Example 3 Schedule 1, Utility Service Charge
Utility Privatization

Component	Monthly Charge
1. Operations and Maintenance (O&M)	\$2,500.00
2. Renewals and Replacements	\$2,824.68
Total Utility Service Charge (to be entered into CLIN 0001 for Schedule B-4)	\$5,324.68

J40.3.2.2 Example 3 CLIN 0001 Payment for Purchase Price Supporting Calculations

The Monthly Credit as Payment for Purchase Price (CLIN 0001) is calculated by amortizing the purchase price over the number of contract periods (months) the Offeror proposes to credit the purchase price.

- *Party X* proposes to purchase the wastewater system for \$500,000.00.
- The \$4,219.28 monthly credit is calculated by amortizing the \$500,000.00 Purchase Price over 15 years (180 months) at a 6.0 percent annual interest rate (1.2 percentage points over the U.S. Treasury Bond rate of 4.8% assumed for this example)²³. The \$50,631.36 annual credit is calculated by multiplying the monthly credit by 12 months.

Calculation	Results
Proposed Purchase Price =>	\$500,000.00
(n) # Months to Amortize Purchase Price =>	180
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
CLIN 0001, (A) Monthly Credit for Purchase Price ^a =>	\$4,219.28
Annual Credit for Purchase Price = 12 x 4,219.28=>	\$50,631.36

Table Notes:

^a Monthly Credit as Payment for Purchase Price is calculated based on uniform series of payments.

$$A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$$

²³ Source: 4.8% based on 4.93% for the 20-year U.S. Treasury Bond rate (www.federalreserve.gov/releases/H15/update/) plus the -0.13% adjustment for estimating the 30-year rate (www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html).

J40.3.2.3 Example 3 CLIN 0002 Initial System Deficiency Corrections/Connection Charges Supporting Calculations

Initial System Deficiency Correction(s) / Connection Charge(s) projects are documented in Schedule 3. Transition costs are also included in Schedule 3, however, these costs are addressed in CLIN 0004 – see section J40.3.2.4. Additions include Initial System Deficiency Corrections to remedy deficiencies. Based on their assessment of the utility system, *Party X* identified three deficiencies in the wastewater system.

- All of the 1950s-era collection system piping needs to be replaced because it has reached the end of its useful life, requires excessive maintenance, and has unacceptable infiltration and inflow (I&I). The cost to replace the collection piping was determined to be \$260,000. The replacement is to be done in year 1 of the contract term as planned renewal and replacement (R&R) costs. Even though this project may be a deficiency, *Party X* determined that it was actually the result of the system reaching the end of its useful life and therefore addressed it as a R&R project by including it in Schedule 2.
- Cross connections between the Installation's wastewater system and stormwater system were determined to be the cause of the I&I problem. The cost to remedy the cross connections was determined to be \$125,000. *Party X* included an Initial System Deficiency Correction(s) / Connection Charge(s) project in Schedule 3 to address this deficiency. The project is amortized over 15 years at a 6.0 percent annual interest rate. *Party X* also determines a program to periodically televise and test the system for I&I needs to be implemented. *Party X* determines the annual cost for this program will be \$2,000 per year, which is included in the \$2,500 monthly operating cost.
- The inappropriately sized lift station was evaluated and determined to be relatively new (built in 1985), in good condition, but inappropriately sized for the facilities served. The cost to replace the lift station was determined to be \$25,000 and was incorporated into the first year of privatization as a planned R&R cost. Even though this project may be a deficiency, *Party X* accounted for it under R&R because it is a replacement and impacts the overall schedule of replacements.

Two of the deficiencies, replacing the 1957-era collection piping and lift station #2, were included in the first five years of planned R&R. A portion of the other deficiency was accounted for in the O&M component of the utility service charge. Remediating the cross-connections in the system was not included as R&R and it must be included in the Initial System Deficiency Corrections in Schedule 3.

- *Party X* proposes a \$125,000.00 Initial System Deficiency Correction to remedy the cross connections in the system. This project is scheduled to be completed in the 12th month of privatization and amortized over the next 60 months (months 13 through 73) at a 6.0 percent annual interest rate. Therefore, the addition to the utility service charge is based on a \$125,000.00 investment, amortized over 60 months at a constant interest rate of 0.50 percent per month:

Calculation	Result
(PV) Project Cost =>	\$ 125,000.00
(n) # Months to Amortize Project Cost =>	60
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
(A) Monthly Charge ^a =>	\$2,416.60

Table Notes:

^a Monthly Charge calculated based on uniform series of payments. $A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$

The example Schedule 3 developed for Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period (CLIN 0002) is shown in **Table J40-3.5**.

TABLE J40-3.5

Example 3 Schedule 3, Initial System Deficiency Correction(s) / Connection Charge(s)/Transition Period
Utility Privatization

Project Name	Interest Rate	Project Cost (Constant \$) ^a	First Full Month Project will Be In Service	Amortization Period (Months)	Monthly Charge
Project 1 - Remedy Cross Connections	6.0%	\$125,000	12	60	\$2,416.60
Transition	0.0%	\$5,000	N/A	1	\$5,000

J40.3.2.4 Example 3 CLIN 0003 Monthly Charge for the Recoverable Portion of the Purchase Price Supporting Calculations

The Monthly Charge for the Recoverable Portion of the Purchase Price (CLIN 0003) is calculated by amortizing the recoverable amount of the purchase price over the number of contract periods (months) the Offeror proposes to recover the purchase price.²⁴

- *Party X* proposes to purchase the wastewater system for \$500,000.00.
- *Party X* identifies excess capacity in the system that can potentially be used for customers other than the Government. This excess capacity is determined to be worth 15 percent of the system FMV; therefore, *Party X* proposes to recover \$425,000.00 (85 percent of the purchase price).
- The \$3,586.39 monthly charge is calculated by amortizing the \$425,000.00 Recoverable Portion of the Purchase Price over 15 years (180 months) at a 6.0 percent annual interest rate (1.2 percentage points over the U.S. Treasury Bond rate of 4.8% assumed for this

²⁴ The Recoverable amount cannot exceed the Purchase Price. Additionally, recovery terms (interest rate, number of periods) should be the same as used when calculating the monthly credit for the Purchase Price (CLIN 0001).

example)²⁵. The \$43,036.68 annual charge is calculated by multiplying the monthly credit by 12 months.

Calculation	Results
(PV) Proposed Recoverable Portion of Purchase Price =>	\$425,000.00
(n) # Months to Amortize Recovery =>	180
Annual Interest Rate =>	6.00%
(i) Monthly Interest Rate = 0.06 / 12 =>	0.50%
CLIN 0003, (A) Monthly Charge for Purchase Price ^a =>	\$3,586.39
Annual Credit for Purchase Price Less Recovery = 12 x -632.89 =>	\$43,036.68

Table Notes:

^a Monthly Credit as Payment for Purchase Price is calculated based on uniform series of payments.

$$A = PV \times [i \times (1 + i)^n] / [(1 + i)^n - 1]$$

TABLE J40-3.6

Example 3 Schedule 4, Recoverable Portion of Purchase Price

Utility Privatization

Item	Interest Rate	Amount ^a	First Full Month Project will Be In Service	Amortization Period (Months)	Monthly Charge
Recoverable Portion of Purchase Price	6.0%	\$425,000	N/A	180	\$3,586.39

J40.3.2.4 Example 3 CLIN 0004 Transition Period Supporting Calculations

The Transition Period charge (CLIN 0004) comes directly from Schedule 3 (TABLE J40-3.5). If the Contractor chooses to amortize the transition period payments, the same methodology as used to calculate the Initial System Deficiency Correction(s) / Connection Charge(s) must be used. Refer to Example 3 CLIN 0002 Supporting Calculations.

²⁵ Source: 4.8% based on 4.93% for the 20-year U.S. Treasury Bond rate (www.federalreserve.gov/releases/H15/update/) plus the -0.13% adjustment for estimating the 30-year rate (www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html).