



PRC Windows-based CRA/Cost Rollforward Model

**Presentation
and
Demonstration**

February 26, 2004



Summary of Presentation

- **Brief Overview of Rollforward Process**
- **History of PRC Cost Model**
- **Reasons for Development of New Version**
- **Demonstration**
 - **R2001-1 USPS Cost Data**



Brief Overview of CRA/Rollforward

- Rollforward model develops future costs by multiplying base year cost components by a series of factors
- Model consists of several components:
 - a cost matrix
 - factors used to adjust cost matrix
 - instructions on how costs are adjusted using factors
- A comprehensive description can be found in the R2001-1 testimony of Karen Meehan (USPS-T-11) and Richard Patelunas (USPS-T-12)



Brief Overview of CRA/Rollforward

- **There are seven types of cost change factors**
 - **Cost Level:** impact of resource price changes
 - **Mail Volume:** impact of change between current and prior years volumes
 - **Non-Volume Workload:** impact of change due to network or system-wide changes
 - **Additional Workday:** impact of change due to changes in number & type of days
 - **Cost Reductions:** impact of USPS programs resulting in cost savings.
 - **Other Programs:** impact of all other programs or system-wide changes not reflected in the previous effects.
 - **Workyear Mix Adjustment:** changes in mix of employees and overtime use.



Brief Overview of CRA/Rollforward

■ Five reports created by rollforward

- “A” report: reflects effects of all cost effects. Only report to be rolled forward from year to year
- Factor Development Report: develops space, space-related, and equipment capital and maintenance keys.
- “B” report: Uses factors in previous section to distribute “PESSA” (Property, Equipment, Supplies, Services, & Administrative) costs.
- “C” report: Summation of the “A” and “B” reports
- “D” report: reports summary of costs including final adjustments.



Cost Roll Forward Process

1. Base Year 2000 (Witness Meehan, T-11)
↓
2. Cost Level Effect (Witness Tayman, T-6)
↓
3. Mail Volume Effect (Witness Tolley, T-7)
↓
4. Non-Volume Workload Effect (Witness Tayman, T-6)
↓
5. Additional Workday Effect (Witness Tayman, T-6)
↓
6. Cost Reduction Programs (Witness Tayman, T-6)
↓
7. Other Programs (Witness Tayman, T-6)
↓
10. Employee Mix Adjustment (Witness Tayman, T-6)
↓
11. FY 2001 Final Adjustments (Witness Eggleston, T-26)
↓
12. Estimated FY 2001 Empl. Mix & Final Adjustments

* Process is repeated, for FY 2002 and the Test Year Before Rates



History of PRC CRA/Cost Rollforward Model

- **First Model Written for Docket No. R80-1**
 - Used Fortran Programming Language
 - Operated on remote mainframe time-share system
 - Documentation appeared as Appendix E in PRC Opinion and Recommended Decision, PRC Library Reference 2 and 3

- **Model Re-written for Docket No. R84-1**
 - Computer production brought “in-house”; Fortran Compiler not available
 - Rewritten in the “C” programming language to accommodate PRC computer system
 - Documentation appeared as Appendix E in PRC Opinion and Recommended Decision.



History of PRC CRA/Cost Rollforward Model

- **Model re-written in “C++” programming language in Docket No. R2000-1**
 - Replaced 16 year old programs
 - Inputs from USPS documentation automated; less manual input
 - Manual input process greatly improved
 - Working storage components expanded
 - Anticipation of conversion to Windows application
 - Basic structure of model relatively unchanged from prior version



Reasons for Change

- **Better compatibility with newer operating systems (Windows 2000, Windows XP)**
- **Easier input/output of data; less manual input**
- **Better compatibility with sources of input data (Excel spreadsheets, SAS output files)**
- **More efficient tie-in with USPS CRA/Rollforward structure**
- **Easier production of output and clearer output produced**



Reasons for Change

Primary Goal:

Make a complex process easier to manage



General Description

- **Uses MS Excel and Visual Basic for Applications**
 - All of the primary data inputs for development of Baseyear and rollforward years included in main spreadsheet. Including:
 - cost matrix definitions
 - PESSA factors
 - cost change factors
 - Variability factors
 - volumes
 - component titles



General Description

- **Excel/Visual Basic programs will:**
 - create temporary components for distribution key development
 - electronically input volumes from USPS source
 - create a cost matrix template from user-supplied cost component information
 - electronically input USPS cost matrix files and input selected cost data using matrix template
 - electronically input all cost factors, cost distribution factors, and rollforward factors
 - electronically will create all of the short-run and PESSA control files for the baseyear and rollforward



General Description

- **Excel/Visual Basic programs will:**
 - Operate user created command script files to create baseyear and rollforward, including intermediate cost effect files.
 - Will print user-selected cost segments from any cost matrix
 - Using user-defined print definitions, will produce and print reports similar to USPS Cost Segments and Components reports. Can also print out intermediate files for use as workpapers, exhibits, etc.



Advantages of New Model

- Much less manual input
- Easier and more familiar spreadsheet format
- Combines inputs from many sources into one central location
- Output production easier and more flexible
- Can use Windows “copy (cut) and paste” for edit of matrix
- Input/Output could be linked to other analysis spreadsheets
- Structural changes to matrix easier and more compact



Disadvantages of New Model

- **Consumes significant amount of Windows “System Resources”**
 - If run on a network system could lock out MSExcels after only a few runs
 - Should be run on computer with Excel located on user drive (C: drive) with at least 512 Mb of RAM
 - Operates better with MS Excel 2000 or MS Excel XP



Demonstration of PRC Model

Replication of USPS Baseyear and Cost Rollforward in Docket No. R2001-1 Filing

Files Needed:

USPS LR-J-6

USPS LR-J-54:

Equipvar.xls, facilt00.xls, facilt01.xls, facilt03.xls,
and fy00equip.xls

USPS LR-J-48:

Use_MVE.xls



R2001-1 Test Year After Rates with Mix Adjustments and Pessa Costs: A Comparison Between PRC Excel Model and USPS Cobol Model

	Total Cost		Difference
	PRC EXCEL	USPS COBOL	
First-Letters&Parcels	12065044	12065038	6
-Presort Letters&Parcels	5378761	5378733	28
-Single Piece Cards	543350	543361	-11
-Presort Private Cards	146056	146057	-1
Priority	3489789	3489841	-52
Express	480770	480799	-29
Mailgram	616	618	-2
Periodicals-In County	80428	80471	-43
-Outside County	2276075	2276038	37
Standard A-Enh Car Rte	2629590	2629559	31
-Regular	8787584	8787581	3
Pkg Services-Parcel Post	1184098	1184096	2
-Bound Printed Matter	526407	526408	-1
-Special Rate	270937	270924	13
USPS Penalty	330397	330439	-42
Free for Blind	37711	37634	77
International Mail	1523842	1523858	-16
Special Services	1652028	1651968	60
Total Attributable Costs	41403484	41403423	61
Other Costs	31304092	31304083	9
Total Costs	72707575	72707506	69



Helpful Hints

- ✎ Important to verify and change, if needed pathnames of input files and source path of model in *prcdat*, *lrfactor*, and *cmfactor*.
- ✎ Verify input component numbers in *compinfo* page.
- ✎ Should establish all filenames for cost matrices to be created by model and subsequently create command files (.cmd files) prior to running of model.
- ✎ Check and alter USPS Excel files that are used to input PESSA factors to include PRC factor numbers



Helpful Hints

- ✎ **Make sure the filenames for the *before workload adjustment* cost matrices are located in the *cmfactor* worksheet.**
- ✎ **First time through run the model commands in the exact order as they appear.**
- ✎ **Any subsequent runs of the model for corrections, changes, etc. should be executed in separate folders.**
- ✎ **Remember filenames are not restricted to 8 characters. You can be descriptive.**



Model Availability

Model available on PRC website:

[www.prc.gov\model\craRF.html](http://www.prc.gov/model/craRF.html)



Questions and Comments

Questions, Comments, and/or Suggestions
directed via E-Mail to:

harlerk@prc.gov