CONTRACT #1
RFS # 309.01-15010
FA # NA
Edison # 24409

Department of Treasury
Tennessee Consolidated Retirement System (TCRS)

VENDOR:
Deloitte Consulting, LLP

STATE OF TENNESSEE

DAVID H. LILLARD, JR.
STATE TREASURER

TREASURY DEPARTMENT

615.741.2956
David.Lillard@tn.gov

STATE CAPITOL
NASHVILLE, TENNESSEE 37243-0225

Sender's telephone: 615.253.6150
Sender's email: Alison.Cleaves@tn.gov

MEMORANDUM

TO: Fiscal Review Committee

THROUGH: Christy Allen, Assistant Treasurer
Legal, Compliance and Audit

FROM: Alison Cleaves, Assistant General Counsel

DATE: July 23, 2013

SUBJECT: **Noncompetitive Amendment Requests – Deloitte and North Highland**

This memorandum details the terms of the Department of Treasury's ("Department") contract amendments with Deloitte Consulting LLP ("Deloitte") and The North Highland Group ("North Highland") that is before the Fiscal Review Committee on the Committee's August, 2013 agenda as well as the justification for the noncompetitive amendment requests.

Both of the Department's original contracts were procured pursuant to Tenn. Code Ann. §8-34-321, which authorized the Concord Project as an initiative to replace the existing Tennessee Consolidated Retirement Systems' ("TCRS") retirement operating systems and to implement other technology improvements by consolidating the various retirement administration systems into one (1) centralized system that may be accessed by retirement system members. Statute specifically provides that the cost for the development and implementation of the Concord Project will come from retirement system fund earnings; however, the costs for the maintenance of the project shall not be funded pursuant to this section of the law.

In employing this statutory provision to procure services for the development and implementation of the Concord Project, the Department released Request for Proposal ("RFP") documents seeking the services of an individual or entity who/that could develop an operation system and an individual or entity who/that could provide proper oversight and quality control over the development of the system. The RFP process yielded contracts between the Department

and Deloitte for the development of the system as well as North Highland for oversight services. The Department's contract with Deloitte contained a contract term from December 1, 2010 to November 30, 2015 with a maximum liability of thirty million six hundred eighty-six thousand five hundred forty-one dollars and no cents ($30,686,541.00). The Department's contract with North Highland contained a contract term from December 1, 2008 to November 30, 2013 with a maximum liability of three million one hundred fifty thousand dollars and no cents ($3,150,000.00). The noncompetitive amendment requests for both contracts are asking for amendments with one (1)-year term extensions for each contract as well as additional funds to be added to the contract's maximum liability – four hundred thousand dollars ($400,000.00) to be added to the North Highland contract and one million six hundred thousand dollars ($1,600,000.00) to be added to Deloitte contract. The increased funding for both contracts does not exceed the total Concord Project budget. All of the other terms in the scope of services sections for each of the original contracts will not be amended.

The justification for procuring these amendments as noncompetitive procurements is that another competitive procurement for the completion of the Concord Project would be a detriment to TCRS and the State. Both Contractors have been working on the Concord Project continuously for years, during which period of time, both have developed a thorough understanding and expertise in TCRS' current administration systems, and have put an enormous amount of work and resources into the development, implementation and oversight of this new system. By engaging in a competitive procurement to complete the remainder of the Concord Project, which could be awarded to another Contractor, the retirement system would lose all of Deloitte's valuable knowledge and expertise; it would lose is rate of progress on the project while another Contractor becomes knowledgeable about TCRS' current systems; it may lose more money to a new Contractor as it spends time and resources completing the project that would not otherwise have been spent by the current Contractor; and ultimately, the retirement system may not meet its deadlines for implementation of the project. The negative consequences of engaging in another competitive procurement would be a disservice to the retirement system as well as its membership, and would necessitate the noncompetitive amendment requests to continue the Department's contracts with Deloitte and North Highland.

Supplemental Documentation Required for Fiscal Review Committee

*Contact Name:	Alison Cleaves	*Contact Phone:	253-6150
*Original Contract Number:	24409	*Original RFS Number:	30901-15010
Edison Contract Number: (*if applicable*)	13516	Edison RFS Number: (*if applicable*)	
*Original Contract Begin Date:	December 1, 2010	*Current End Date:	November 30, 2015

Current Request Amendment Number: (*if applicable*)	1
Proposed Amendment Effective Date: (*if applicable*)	October 1, 2013
*Department Submitting:	Department of Treasury
*Division:	Tennessee Consolidated Retirement System
*Date Submitted:	July 23, 2013
*Submitted Within Sixty (60) days:	Yes
If not, explain:	
*Contract Vendor Name:	Deloitte Consulting, LLP
*Current Maximum Liability:	30,686,541.00

*Current Contract Allocation by Fiscal Year:
(as Shown on Most Current Fully Executed Contract Summary Sheet)

FY:2011	FY:2012	FY:2013	FY:2014	FY2015	FY2016
$30,686,541	$0	$0	$0	$0	$0

*Current Total Expenditures by Fiscal Year of Contract:
(attach backup documentation from STARS or FDAS report)

FY:2011	FY:2012	FY:2013	FY:	FY	FY
$1,131,872.20	$5,802,628.50	$10,495,311.33	$	$	$

IF Contract Allocation has been greater than Contract Expenditures, please give the reasons and explain where surplus funds were spent:	
IF surplus funds have been carried forward, please give the reasons and provide the authority for the carry forward provision:	
IF Contract Expenditures exceeded Contract Allocation, please give the reasons and explain how funding was acquired to pay the overage:	

*Contract	State:		Federal:	

Supplemental Documentation Required for Fiscal Review Committee

Funding Source/Amount:				
Interdepartmental:			*Other*:	Earnings from the retirement system funds.
If "*other*" please define:				

Dates of All Previous Amendments or Revisions: (*if applicable*)	Brief Description of Actions in Previous Amendments or Revisions: (*if applicable*)
N/A	N/A

Method of Original Award: (*if applicable)*	RFP
*What were the projected costs of the service for the entire term of the contract prior to contract award?	$30,686,541.00

Supplemental Documentation Required for Fiscal Review Committee

For all new non-competitive contracts and any contract amendment that changes Sections A or C.3. of the original or previously amended contract document, provide estimates based on information provided the Department by the vendor for determination of contract maximum liability. Add rows as necessary to provide all information requested.

If it is determined that the question is not applicable to your contract document attach detailed explanation as to why that determination was made.

Planned expenditures by fiscal year by deliverable. Add rows as necessary to indicate all estimated contract expenditures.

Deliverable description:	FY:2017	FY:	FY:	FY:	FY:
Implementation of the Concord Project	$1,600,000.00				

Proposed savings to be realized per fiscal year by entering into this contract. If amendment to an existing contract, please indicate the proposed savings to be realized by the amendment. Add rows as necessary to define all potential savings per deliverable.

Deliverable description:	FY:	FY:	FY:	FY:	FY:
The proposed savings that will be realized are all of the costs associated with a new vendor developing an expertise in the Concord Project, a complex and long-term project for the consolidation of the retirement operating systems.					

Supplemental Documentation Required for Fiscal Review Committee

Comparison of cost per fiscal year of obtaining this service through the proposed contract or amendment vs. other options. List other options available (including other vendors), cost of other options, and source of information for comparison of other options (e.g. catalog, Web site). Add rows as necessary to indicate price differentials between contract deliverables.					
Proposed Vendor Cost: (name of vendor)	FY:	FY:	FY:	FY:	FY:
It is difficult to quantify the costs associated with having a new vendor achieve a level of understanding and expertise for a multi-year project that is nearing completion.					
Other Vendor Cost: (name of vendor)	FY:	FY:	FY:	FY:	FY:
Other Vendor Cost: (name of vendor)	FY:	FY:	FY:	FY:	FY:

Total Payments to a Vendor				Deloitte Consulting LLP				
	25							
Unit	Voucher	Invoice	Remit Vndr	Name	Gross Amt	Reference	Pymnt Date	Message
30901	00022241	8001424677	0000135163	Deloitte Consulting LLP	1,131,872.20	0000846169	6/3/2011	Phase 1- Project setup and initiation
						##########	FY 2011	
30901	00027598	8001533104	0000135163	Deloitte Consulting LLP	1,697,808.30	0001081167	12/1/2011	Phase 3 Infrastructure Installation
30901	00029079	8001564073	0000135163	Deloitte Consulting LLP	81,600.00	0001149178	1/25/2012	Implementation Services
30901	00029080	8001563733	0000135163	Deloitte Consulting LLP	509,342.49	0001149178	1/25/2012	Implementation services Phase 4
30901	00029703	8001586845	0000135163	Deloitte Consulting LLP	848,904.15	0001198108	3/2/2012	Phase 4 FileNet Imaging Construction
30901	00031160	8001629035	0000135163	Deloitte Consulting LLP	679,123.32	0000038708	4/30/2012	Phase 4 Acceptance Testing Concord Project
30901	00031161	8001629033	0000135163	Deloitte Consulting LLP	679,123.32	0000038708	4/30/2012	Concord Project Phase 4 Integrated Testing
30901	00031185	8001637022	0000135163	Deloitte Consulting LLP	47,047.50	0000046324	5/4/2012	Concord Project-Datacap Change Hours 276.75
30901	00032395	8001655242	0000135163	Deloitte Consulting LLP	679,123.32	0000120528	6/27/2012	Phase 4 Filenet Implementation-Go Live
30901	00032396	8001655173	0000135163	Deloitte Consulting LLP	14,620.00	0000120528	6/27/2012	Concord Change Order 15- Post Implementation Support
30901	00032397	8001670007	0000135163	Deloitte Consulting LLP	565,936.10	0000120528	6/27/2012	Concord Phase 4: 60 Day Acceptance Filenet Imaging
						##########	FY 2012	
30901	00033503	8001699885	0000135163	Deloitte Consulting LLP	20,230.00	0000174186	8/6/2012	Implementation Services, Change Order 13 & 15
30901	00033504	8001706266	0000135163	Deloitte Consulting LLP	2,263,744.40	0000190082	8/15/2012	Phase 2 - Requirements Confirmation
30901	00034417	8001715146	0000135163	Deloitte Consulting LLP	1,018,684.98	0000212445	9/5/2012	Implementation Services Phase 5 design
30901	00036184	8001716524	0000135163	Deloitte Consulting LLP	12,750.00	0000289879	10/31/2012	CHG-015 Post Implementation Support
30901	00039433	8001823530	0000135163	Deloitte Consulting LLP	1,697,808.30	0000461661	3/11/2013	Phase 5 retired payroll construction
30901	00039432	8001829513	0000135163	Deloitte Consulting LLP	38,640.00	0000474827	3/18/2013	Change Orgder 27
30901	00039993	8001844956	0000135163	Deloitte Consulting LLP	13,800.00	0000502841	4/9/2013	Change Order 27-Data Conversion Resources
30901	00040420	8001870048	0000135163	Deloitte Consulting LLP	1,273,356.23	0000525647	4/24/2013	Phase 6 Active Member Design
30901	00040426	8001863536	0000135163	Deloitte Consulting LLP	1,358,246.64	0000529284	4/29/2013	Phase 5 System Testing
30901	00040577	8001892031	0000135163	Deloitte Consulting LLP	27,200.00	0000569290	5/24/2013	CHG-024 Datacap Implementation
30901	00041129	8001864317	0000135163	Deloitte Consulting LLP	41,352.50	0000582393	6/5/2013	Change Order 15 P4
30901	00041228	8001916474	0000135163	Deloitte Consulting LLP	1,358,246.64	0000608856	6/21/2013	Phase 5 Implementation
30901	00041225	8001914773	0000135163	Deloitte Consulting LLP	1,358,246.64	0000608856	6/21/2013	Phase 5 Acceptance Testing
30901	00041229	8001919650	0000135163	Deloitte Consulting LLP	13,005.00	0000619814	6/28/2013	Change Order 37
						##########	FY 2013	
						##########		

Non-Competitive Amendment Request

NOT required for a contract with a federal, Tennessee, or Tennessee local government entity or a grant.
Route a completed request, as one file in PDF format, via e-mail attachment sent to: Agsprs.Agsprs@state.tn.us

APPROVED
COMMISSIONER OF FINANCE & ADMINISTRATION

Request Tracking #	30901-15010
1. Procuring Agency	Department of Treasury
2. Contractor	Deloitte Consulting LLP
3. Contract #	24409
4. Proposed Amendment #	1
5. Edison ID #	13516

6. Contract Begin Date	December 1, 2010
7. Current Contract End Date *– with ALL options to extend exercised*	November 30, 2015
8. Proposed Contract End Date *– with ALL options to extend exercised*	November 30, 2016
9. Current Maximum Contract Cost *– with ALL options to extend exercised*	$ 30,686,541.00
10. Proposed Maximum Contract Cost *– with ALL options to extend exercised*	$ 32,286,541.00
11. Office for Information Resources Endorsement *– information technology service (N/A to THDA)*	☒ Not Applicable ☐ Attached
12. eHealth Initiative Support *– health-related professional, pharmaceutical, laboratory, or imaging*	☒ Not Applicable ☐ Attached
13. Human Resources Support *– state employee training service*	☒ Not Applicable ☐ Attached

14. Explanation Need for the Proposed Amendment

The Department's current contract with Deloitte Consulting LLP ("Deloitte") needs to be amended to extend the term of the contract for a period of one (1) year and to increase the contract maximum liability by one million six hundred thousand dollars ($1,600,000.00) to complete the almost completed process for the development and implementation of the Tennessee Consolidated Retirement System ("TCRS") Concord Project. The request for increased compensation to Deloitte will not exceed the overall Concord Project budget.

Request Tracking #	30901-15010

Tenn. Code Ann. §8-34-321 provides that the TCRS is authorized to charge to and pay from the earnings of the funds of the retirement system the cost for implementing the Concord Project, the project being intended to replace existing retirement operating systems and to implement other technology improvements; provided, however, that no cost associated with the ongoing maintenance of the improvements, or the state personnel necessary for maintaining the improvements, shall be funded pursuant to this section. Pursuant to this statutory authority, the Department entered into a contract with Deloitte in 2010 as a result of a competitive procurement for the development, implementation and administration of the Concord Project. The statute further provides that this section of the law shall cease to be effective on June 30, 2016, meaning that the Concord Project must be functional and operational by that date.

The purpose of implementing this project was to provide a consolidated and comprehensive system of retirement system records that could be maintained and updated electronically and through automated functions. The integration of the various current retirement benefits systems would centralize and modernize all TCRS functions into a user-friendly web-based system. Through the Department's contract with Deloitte, the Concord Project was developed and implemented through a multi-phased and labor intensive process, which included, but was not limited to the acquisition and installation of hardware for the system infrastructure; the conversion and migration of current retirement system records; and the training of all system users, administrators and developers. As a part of the current contract, the Department retained the ability to request changes to the scope of services by submitting "change orders" to Deloitte in the event that an unexpected task or problem arose in the course of developing this new system. The current contract also provides that Deloitte shall be compensated for the "change order" work, but that the compensation shall not exceed ten percent (10%) of Deloitte's total compensation. In order for Deloitte to complete this project while it is in its final phases, the Department is also requesting that this percentage restriction on "change order" hours be removed so that TCRS may be able to use Deloitte as necessary for the completion of this project, which may require an increased number of "change order" hours.

Currently, Deloitte is in the process of implementing the final phase of the project (Phase 6) which consists of inputting active member retirement system data into the new Concord system, which will allow employers, Department employees and active members to interact with the system; it is anticipated that this phase will be completed in the Spring of 2013. It is anticipated that the Concord Project will be functional and operational by June 30, 2014. The imaging phase and the retired payroll phase has been successfully implemented and is functional.

As TCRS is entering the final phase of this multi-year project, the Department is asking for additional funds to be paid to Deloitte for the completion of the project and to grant Deloitte some additional time in which to bring the project to fruition. The reasons for the requests are that TCRS had to utilize the "change order" option in its current contract with Deloitte with greater frequency than what was anticipated. By utilizing the "change order" option, this allowed Deloitte to provide additional resource support to the Department with database administration, UAT-testing support and post-production enhancements. Without Deloitte using its expertise to provide this support, the Department would not have met its project benchmarks or been successful at each stage of development and implementation. In addition, a new user interface was adopted which expended change order hours. In preparing for the final phase of implementation, it is anticipated that Deloitte will need to provide additional resource support and production enhancements that the Department will request by using the change order function. Accompanying the Department's request to expand the length of the contract as well as the contract's maximum liability, is a request to remove the provision in the contract limiting the percentage of compensation that can be paid to Deloitte through "change order" work.

15. Name & Address of the Contractor's Principal Owner(s)
– NOT required for a TN state education institution

Deloitte Consulting, LLP; 4022 Sells Drive, Hermitage, Tennessee 37076-2930.

Request Tracking #	30901-15010

16. Evidence Contractor's Experience & Length Of Experience Providing the Service

Deloitte Consulting, LLP is one of the subsidiary organizations, which is part of the larger organization of Deloitte, Touche, Tohmatsu Limited. Deloitte Consulting, LLP has provided consulting services in the areas of enterprise applications; technology integration; strategy and operations; human capital and short-term outsourcing since 1995.

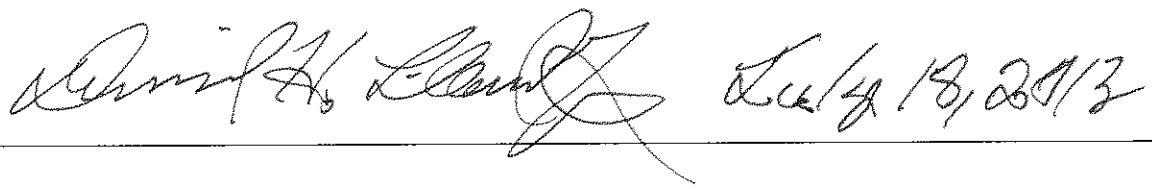
17. Efforts to Identify Reasonable, Competitive, Procurement Alternatives

There are no other reasonable, competitive procurement alternatives that would allow TCRS to complete the Concord Project successfully within the timeframe established by TCRS as dictated by applicable law. Deloitte has been working on this project consistently for almost three (3) years, during which period of time, it has developed a thorough understanding of TCRS' current systems and has put an enormous amount of work and resources into the development and implementation of this new system. It would be a disservice to TCRS as well as its membership to waste its time and resources to engage in a competitive procurement when the current contractor has spent its time and resources for approximately three (3) years developing an expertise in this area that would allow the contractor to successfully complete the project. Additionally, to the extent that the Department engaged in a competitive procurement to complete the final phase of this project and it was awarded to another contractor, TCRS would lose all of Deloitte's valuable knowledge and expertise, it would lose is rate of progress on the project while another contractor becomes knowledgeable about TCRS' current systems, and ultimately, TCRS may not meet its deadlines for implementation of the project.

18. Justification – *specifically explain why non-competitive negotiation is in the best interest of the state*

The noncompetitive amendment request is in the best interest of the State because it will allow the TCRS to successfully complete the Concord Project within the established timeframes without having to engage in another competitive negotiation to complete the remainder of the project. The time and effort that would be spent on another competitive negotiation would only detract from the progress the Deloitte has made in implementing this new system, and may prevent TCRS from meeting its established timeframes for completion.

Agency Head Signature and Date – *MUST be signed by the ACTUAL agency head as detailed on the current Signature Certification. Signature by an authorized signatory is acceptable only in documented exigent circumstances*



Approved for signature by CH 7/10/13

Rule Exception Request

Route completed request, as one file in PDF format, via e-mail attachment sent to: Agsprs.Agsprs@state.tn.us

APPROVED
COMMISSIONER OF FINANCE & ADMINISTRATION

Request Tracking #	30901-15010
1. Contract #	24409
2. Service Caption	The provision of a new, integrated pension administration system for the Tennessee Consolidated Retirement System
3. Contractor	Deloitte Consulting LLP
4. Contract Period *(with ALL options to extend exercised)*	60 months
5. Contract Maximum Liability *(with ALL options to extend exercised)*	$ 32,286,541.00

6. Rule *(for which the exception is requested)*

- ☐ **0620-3-3-.03(2)(a)** OR **0620-3-3-.05** requiring compliance with relevant model guidelines (only if required by oversight authorities)
- ☐ **0620-3-3-.05(5)** requiring the prescribed Nondiscrimination contract provision
- ☒ **0620-3-3-.07(5)** prohibiting a contract term greater than five (5) years
- ☐ **0620-3-3-.07(8)** prohibiting a contract with a former state employee in within six (6) months of termination
- ☐ **0620-3-3-.07(22)** requiring contractor travel reimbursement in accordance with state travel regulations
- ☐ OTHER *(cite the relevant rule below)*

7. Explanation of Rule Exception Requested

The rule exception request to extend the five (5) year contract term for a period of one (1) year is necessary in order for Deloitte Consulting LLP ("Deloitte") to complete its work in the development and implementation of the Concord Project for the integration of various retirement benefits administration systems into one centralized system. By extending the term of the contract for a one (1) year period, this would allow Deloitte to use its skill and expertise to complete its work that is currently in progress to make the new, web-based retirement benefits system functional.

Request Tracking #	30901-15010
8. Justification	The Tennessee Consolidated Retirement System ("TCRS") is entering the final phase of this multi-year project, the Department is asking for a one (1) year extension of the contract term so that Deloitte may bring the project to fruition. By allowing TCRS an extension of time relative to this contract, would allow TCRS to complete the Concord Project successfully within the timeframe established by TCRS as dictated by applicable law. Deloitte has been working on this project consistently for almost three (3) years, during which period of time, it has developed a thorough understanding of TCRS' current systems and has put an enormous amount of work and resources into the development and implementation of this new system. It would be a disservice to TCRS as well as its membership to waste its time and resources to engage in a competitive procurement when the current contractor has spent its time and resources for approximately three (3) years developing an expertise in this area that would allow the contractor to successfully complete the project. Additionally, to the extent that the Department engaged in a competitive procurement to complete the final phase of this project and it was awarded to another contractor, TCRS would lose all of Deloitte's valuable knowledge and expertise, it would lose is rate of progress on the project while another contractor becomes knowledgeable about TCRS' current systems, and ultimately, TCRS may not meet its deadlines for implementation of the project.
Agency Head Signature and Date *(contracting agency head or authorized signatory)*	July 18, 2013

Approved for signature by CH 7/18/13

CONTRACT AMENDMENT

Agency Tracking #	Edison ID	Contract #	Amendment #
30901-15010-	24409	24409	1

Contractor Legal Entity Name	Edison Vendor ID
Deloitte Consulting LLP	13516

Amendment Purpose & Effect(s)

To extend the term of the contract and to increase the maximum liability.

Amendment Changes Contract End Date:	End Date:
☒ YES ☐ NO	November 30, 2016

TOTAL Contract Amount INCREASE or DECREASE per this Amendment (zero if N/A): $ 1,600,000.00

Funding —

FY	State	Federal	Interdepartmental	Other	TOTAL Contract Amount
2016				$1,600,000.00	$1,600,000.00
TOTAL:				$1,600,000.00	$1,600,000.00

American Recovery and Reinvestment Act (ARRA) Funding: ☐ YES ☒ NO

Budget Officer Confirmation: There is a balance in the appropriation from which obligations hereunder are required to be paid that is not already encumbered to pay other obligations.

OCR USE

Speed Chart (optional)	Account Code (optional)

AMENDMENT 1
OF CONTRACT 24409

This Amendment is made and entered by and between the State of Tennessee, Department of Treasury, hereinafter referred to as the "State" and Deloitte Consulting LLP, hereinafter referred to as the "Contractor". It is mutually understood and agreed by and between said, undersigned contracting parties that the subject contract is hereby amended as follows:

Section B in the Contract shall be amended by deleting the language "November 30, 2015" and substituting it instead with the language "November 30, 2016".

Subsection C.1. in the Contract shall be amended by deleting the language and numbers "thirty million six hundred eighty-six thousand five hundred forty-one dollars and no cents ($30,686,541.00)" and substituting it instead with the language and numbers "thirty-two million two hundred eighty-six thousand five hundred forty-one dollars and no cents ($32,286,541.00)".

Section C.3.b. in the Contract shall be amended by deleting the number "$28,296,805.00" and substituting it instead with the number "$29,896,805.00".

Section C.3.c. is amended by deleting the language in its entirety and substituting it instead with the following:

c. The Contractor shall be compensated for changes requested and performed pursuant to Contract Section A.3., without a formal amendment of this contract for "change order" work based upon the payment rates detailed in the schedule above and as agreed pursuant to Section A.3.

Required Approvals. The State is not bound by this Amendment until it is signed by the contract parties and approved by appropriate officials in accordance with applicable Tennessee laws and regulations (depending upon the specifics of this contract, said officials may include, but are not limited to, the Commissioner of Finance and Administration, the Commissioner of Human Resources, and the Comptroller of the Treasury).

Amendment Effective Date. The revisions set forth herein shall be effective October 1, 2013. All other terms and conditions of this Contract not expressly amended herein shall remain in full force and effect.

IN WITNESS WHEREOF,

DELOITTE CONSULTING LLP:

SIGNATURE **DATE**

PATRICK D. BAUER, PRINCIPAL (above)

DEPARTMENT OF TREASURY:

DAVID H. LILLARD, JR., STATE TREASURER **DATE**

CONTRACT

(fee-for-service contract with an individual, business, non-profit, or governmental entity of another state)

Begin Date	End Date	Agency Tracking #	Edison Record ID
December 1, 2010	November 30, 2015	30901-15010	

Contractor Legal Entity Name	Edison Vendor ID
Deloitte Consulting LLP	

Subrecipient or Vendor	CFDA #	FEIN or SSN (optional)
☐ Subrecipient ☒ Vendor		

Service Caption (one line only)

The provision of a new, integrated pension administration system for the Tennessee Consolidated Retirement System.

FY	State	Federal	Interdepartmental	Other	TOTAL Contract Amount
2011				$30,686,541.00	$30,686,541.00
2012				$00.00	$00.00
2013				$00.00	$00.00
2014				$00.00	$00.00
2015				$00.00	$00.00
2016				$00.00	$00.00
TOTAL:				$30,686,541.00	$30,686,541.00

American Recovery and Reinvestment Act (ARRA) Funding: ☐ YES ☒ NO

Ownership/Control

☐ African American ☐ Asian ☐ Hispanic ☐ Native American ☐ Female

☐ Person w/Disability ☐ Small Business ☐ Government ☒ NOT Minority/Disadvantaged

☐ Other:

Selection Method & Process Summary (mark the correct response to confirm the associated summary)

☒ RFP	The procurement process was completed in accordance with the approved RFP document and associated regulations.
☐ Competitive Negotiation	The predefined, competitive, impartial, negotiation process was completed in accordance with the associated, approved procedures and evaluation criteria.
☐ Alternative Competitive Method	The predefined, competitive, impartial, procurement process was completed in accordance with the associated, approved procedures and evaluation criteria.
☐ Non-Competitive Negotiation	The non-competitive contractor selection was completed as approved, and the procurement process included a negotiation of best possible terms & price.
☐ Other	The contractor selection was directed by law, court order, settlement agreement, or resulted from the state making the same agreement with all interested parties or all parties in a predetermined "class."

Budget Officer Confirmation: There is a balance in the appropriation from which obligations hereunder are required to be paid that is not already encumbered to pay other obligations.

Mary Roberts-Krause

Speed Code	Account Code

OCR USE - FA

CONTRACT
BETWEEN THE STATE OF TENNESSEE,
DEPARTMENT OF TREASURY
AND
DELOITTE CONSULTING LLP

This Contract, by and between the State of Tennessee, Department of Treasury, hereinafter referred to as the "State" and Deloitte Consulting LLP, hereinafter referred to as the "Contractor," is for the provision of a new, integrated pension administration system for the Tennessee Consolidated Retirement System, as further defined in the "SCOPE OF SERVICES."

The Contractor is limited liability partnership.
Contractor Federal Employer Identification or Social Security Number: 06-1454513
Contractor Place of Incorporation or Organization: State of Delaware

A. SCOPE OF SERVICES:

A.1. The Contractor shall provide all service and deliverables as required, described, and detailed by this Scope of Services and shall meet all service and delivery timelines specified in the Scope of Services section or elsewhere in this Contract.

A.2. Implementation and Application Warranty Services. The Contractor shall implement an integrated pension and benefits administration solution for the Tennessee Consolidated Retirement System, hereinafter referred to as "TCRS". The solution must enable TCRS staff to perform all of their duties using the workstations (PCs) on each desk tied together through a TCRS-wide network via a fully browser-based application system. If it does not meet all performance specifications, the Contractor shall correct the hardware and software configurations in a timely manner at no cost to the State.

a. The high level functionality of the new solution shall include the following:

(1) Existing core line-of-business (LOB) functions, which include the rules, regulations, procedures, practices and applications that permit TCRS to perform all of its operations including those operations described in Contract Attachment 6 and documents described in Contract Attachment 8, e.g.: receive wage and contribution reporting, generate benefit estimates, issue refunds, calculate the cost of purchased service, process retirement applications, produce retiree payroll, withhold and remit taxes, produce 1099s, and produce member annual statements.

(2) Support for the execution of all processes required in accordance with enabling legislation, TCRS Board policies, etc. that are in effect on the commencement date of this Contract as defined in Section B below.

(3) Technical functionality as specified in Contract Attachment 2, including

(a) Browser-based solution to facilitate ease of application system deployment and maintenance.
(b) Licensing sufficient to support unlimited use and access by State staff, TCRS active members, employers, retirees, and vendors.
(c) Enablement of all required interfaces with other entities (e.g., State Enterprise Resource Planning solution (Edison system), deferred compensation vendors, banks, Federal and State Government Agencies, providers of health and life insurance, actuary, and other service providers).
(d) Ability to perform all functions using the workstations (PCs) on each desk tied together through a TCRS-wide network via a fully browser-based application system. If it does not meet the performance specifications, the

Contractor shall correct the hardware and software configurations in a timely manner at no cost to the State.

(4) New LOB functionality as specified in Contract Attachments 1 and 3 and the Contractor's proposal, including:

(a) Internet-based, self-service functionality to improve access to TCRS by members, retirees, and other appropriate stakeholders (i.e., employers).
(b) Defined Contribution (DC) retirement savings plan.
(c) Support for accounting and actuarial records for each employer.
(d) Customer Relationship Management, including contact management correspondence generation, and correspondence management.
(e) Web-based employer reporting.
(f) Financial management.
(g) Enterprise Content Management (i.e. imaging, print archive, workflow management, electronic forms, correspondence generation, data capture, and knowledge management repository).
(h) Integration of Enterprise Content Management with the LOB solution – to include both "tight" workflow (i.e., enabling a transaction/function as part of a defined workflow path), as well as the ability to perform a transaction/function "directly" (i.e., 'outside' of the defined workflow path).
(i) Addition and modification of plans by users.
(j) Performance metrics.
(k) Collection, storage and presentation of performance metrics.
(l) Reports as described in the Contractor's proposal.
(m) Ad hoc reporting capabilities.

b. In addition to the integrated pension and benefits administration solution itself, the Contractor shall further provide to the State:

(1) Specification of all hardware components required to support the proposed solution, including the environments that support quality assurance (QA)/user acceptance testing (UAT) and production, and those systems necessary to support project management and collaboration.

(2) Assistance with the procurement, installation, configuration, etc. of the State-standard hardware purchased by the State for purposes of this project.

(3) Acquisition, installation and configuration of all specified Non-State standard hardware components.

(4) Advisory services and guidance with respect to the installation of the specified hardware.

(5) List of Commodity Software (such as operating systems, network software, middleware, database management software, software creation tools, and office suite) – both new and upgrades – that will be required to support the solution.

(6) List of Commodity Software (such as collaboration software, project management software, business analysis software, requirements traceability tool) that will be required to satisfy the tracking, management, and communication and other needs of the project, as specified in this contract.

(7) Acquisition, installation, configuration and testing of all specified Non-State standard software.

(8) Assistance with installation, configuration, and testing of all specified State-standard software.

(9) System software tools, including performance measurement tools, operations support tools, intruder login/alert software, and development tools.

(10) System security plan.

(11) Any necessary software configurations and customizations to meet business and functionality requirements.

(12) Configuration management for the pension administration software.

(13) Version management and control for the pension administration software.

(14) Conference room pilot that provides a high-level demonstration of base functionality.

(15) Concept of Operations document and walk-through for the State to increase their understanding of the look and feel capabilities to be expected in the next system – i.e., what will be delivered.

(16) Development methodology document and walk-through for the State to increase their understanding of the development process and the effectiveness of the deliverables review and revision cycle when the project is in progress.

(17) High Level Demonstration of Base Functionality – Conference Room Pilot – to be delivered within sixty (60) days of contract start.

(18) Business Process Reengineering (BPR) of TCRS current business processes as necessary to increase processing efficiency and take best advantage of the LOB solution.

(19) Experienced-based expertise and consultation to TCRS management on topics such as suggested changes in staffing levels, roles, communications, reorganization, and transition.

(20) Thorough test and quality assurance of the entire solution, including cooperation with the QA / IV&V Contractor in execution of its responsibilities and resolution of issues raised by the QA / IV&V Contractor, particularly in terms of code review and database analysis.

(21) Full implementation of the new solution (including as-built documentation of system configurations and customizations).

(22) Conversion and migration of TCRS data and existing image data (e.g. index values in TCRS' legacy records management system) to the new solution and bridging of data as necessary based on a phased implementation.

(23) Conversion audit report summarizing the work done and listing all data fixes that were made.

(24) Project management services for the implementation effort as provided herein and as indicated in Contract Attachment 4, including:

a. Project management, monitoring, and control.
b. Detailed requirements definition and confirmation.
c. Requirements analysis.
d. Requirements traceability.
e. Project change control.

f. Project scheduling.
g. Document repository and document management.
h. System design specification.
i. Written statements of work which define reasonable components of work. When viewed in aggregate, these statements of work comprise the entire project.
j. Hardware/Software installation planning and testing.
k. Risk management.
l. Issues and action item management.
m. Resource management, including projected resources needed from the State.
n. Communications plan.
o. Problem incident reporting.
p. Weekly status reports and project status meetings and minutes.
q. Monthly executive level reporting and steering committee meetings and minutes.
r. Deliverable repository.
s. Project management software, including necessary licenses, installation, configuration, testing, administration, training and support.
t. Problem incident management software.
u. Configuration/version control software.

(25) Meet the requirements of the Federal Government program and guidelines (NIST Special Publication 800-37, *Guide for the Security Certification and Accreditation of Federal Information Systems*.) under which the security of IT systems in support of the government can be evaluated in a repeatable, comparable, and consistent fashion.

(26) TCRS-specific manuals and documentation for system users (including employers), administrators, and developers; in addition to all baseline functionality, all such documentation must reflect the customized, as-built status of the solution; standard documentation reflecting only the Contractor's un-customized base solution shall not be accepted.

(27) Training for TCRS project staff and QA / IV&V Contractor staff on project-specific tools and processes.

(28) Training for system users, administrators, and developers (but not employers, members or retirees) – not only in application navigation and the use of screens and windows, but also in the use of the new solution to perform all of their various job functions, processes, and sub-processes in the new environment.

(29) Ongoing knowledge transfer and software support for the new pension administration solution during the implementation, during the warranty, and during the Post-Warranty IS Support period described in Contract Attachment 3, Section 10.4.

(30) Transfer of all application source code, database source code (e.g. stored procedures, functions, triggers, etc.), UML and database schema models, system and user documentation, or any other programming elements or technical documentation necessary for the proper operation and maintenance of the new system to the appropriate State applications (e.g., Subversion, PowerDesigner) by no later than the end of the warranty period.

(31) Transfer of all open issues, bugs, and enhancements recorded in the Contractor's issues tracking system to Treasury's issues tracking system (i.e., Countersoft's Gemini) by no later than the end of the warranty period.

(32) A warranty that starts with the rollout of the first functional capability and concludes 12-months after the rollout of the final capability.

(33) Willingness and capability (if the State elects) of providing on-going post-implementation warranty support for one-year after the completion of the warranty period.

A.3. Change Orders. The State may, at its sole discretion and with written notice to the Contractor, request changes in the scope of services that are necessary but were inadvertently unspecified in the scope of services of this Contract.

a. Memorandum of Understanding. In no event more than ten (10) business days after receipt of a written change order request from the State, the Contractor shall respond with a written proposal for completing the service. Said proposal must specify:

(1) the effect, if any, of implementing the requested change(s) on all other services required under this Contract;

(2) the specific effort involved in completing the change(s);

(3) the expected schedule for completing the change(s);

(4) the maximum number of person hours required for the change(s); and

(5) the maximum cost for the change(s), PROVIDED THAT such maximum cost shall not exceed the product of the person hours required multiplied by the appropriate payment rate proposed for change order work.

The Contractor shall not perform any change order service until the State has approved the change order proposal. If approved, the State will sign the change order proposal, and it shall constitute a Memorandum of Understanding (MOU) between the Contract Parties pertaining to the specified change(s) and shall be incorporated, hereby, as a part of this Contract.

b. Change Order Performance. Subsequent to State approval of an MOU, the Contractor shall complete the required change order services. The State will be the sole judge of the acceptable completion of change order work and, upon such determination, shall provide the Contractor written approval of the work.

c. Change Order Remuneration. The State will remunerate the Contractor only for acceptable work. All acceptable work performed pursuant to an approved MOU, without a formal amendment of this Contract, shall be remunerated in accordance with and further limited by contract section C.3.b. The State shall be liable to the Contractor only for the cost of the actual person hours worked to complete the change order work, not to exceed the maximum cost for the change detailed in the MOU. In no instance shall the State be liable to the Contractor for the cost of any person hours worked in excess of the maximum person hours indicated in or of any amount exceeding the maximum cost specified by the approved MOU authorizing the service. Upon State approval of the change order work, the Contractor shall invoice the State in accordance with the relevant provisions of this Contract.

A.4. Post Warranty IS Support. The Contractor agrees to provide continuing warranty services as described in Section 10.4 of Contract Attachment 3 as the State transitions itself to receive such services from the subsequent Contractor. The services shall be provided on a month-to-month basis for a period not to exceed twelve (12) months. Charges for

emergency maintenance services to correct code problems shall be at the same unit rates as Change Order Work in the Contractor's Cost Proposal.

B. CONTRACT TERM:

This Contract shall be effective for the period commencing on December 1, 2010 and ending on November 30, 2015. The State shall have no obligation for services rendered by the Contractor which are not performed within the specified period.

C. PAYMENT TERMS AND CONDITIONS:

C.1. Maximum Liability. In no event shall the maximum liability of the State under this Contract exceed thirty million six hundred eighty-six thousand five hundred forty-one dollars and no cents ($30,686,541.00). The payment rates in Section C.3 shall constitute the entire compensation due the Contractor for the Service and all of the Contractor's obligations hereunder regardless of the difficulty, materials or equipment required. The payment rates include, but are not limited to, all applicable taxes, fees, overheads, and all other direct and indirect costs incurred or to be incurred by the Contractor.

The Contractor is not entitled to be paid the maximum liability for any period under the Contract or any extensions of the Contract for work not requested by the State. The maximum liability represents available funds for payment to the Contractor and does not guarantee payment of any such funds to the Contractor under this Contract unless the State requests work and the Contractor performs said work. In which case, the Contractor shall be paid in accordance with the payment rates detailed in Section C.3. The State is under no obligation to request work from the Contractor in any specific dollar amounts or to request any work at all from the Contractor during any period of this Contract.

C.2. Compensation Firm. The payment rates and the maximum liability of the State under this Contract are firm for the duration of the Contract and are not subject to escalation for any reason unless amended.

C.3. Payment Methodology. The Contractor shall be compensated based on the payment rates herein for units of service authorized by the State in a total amount not to exceed the Contract Maximum Liability established in Section C.1.

a The Contractor's compensation shall be contingent upon the satisfactory completion of units, milestones, or increments of service defined in Section A.

b The Contractor shall be compensated for said units, milestones, or increments of service based upon the following payment rates:

Service Description	**Amount** (per compensable increment)
Implementation Services (Described by the contract scope of services, contract attachments, and the Contractor's proposal subject to Contract Section E.8. Note: Compensation for Implementation Services shall be paid in the manner provided in Contract Attachment 9)	$28,296,805.00
Application Warranty (Described in Contract Attachment 3, Section 10.1, 10.2, and 10.3. Note: Compensation for Application Warranty shall be payable at conclusion of the 12 month Application Warranty period which is to begin following final turnover and acceptance of the last phase of the project.)	$464,832.00

Post Warranty IS Support (Described in Contract Attachment 3, Section 10.4, a and b. Note: Compensation for Post Warranty IS Support shall be payable monthly after conclusion of Application Warranty period, as requested, up to 12 months)	$18,742.00 per month
Change Order Work (for changes requested and performed pursuant to Contract Sections A.3 and A.4., Contract Attachment 3, Section 10.4,c and Attachment 4, Section 18)	$170.00 per person hour

c. The Contractor shall be compensated for changes requested and performed pursuant to Contract Section A.3, without a formal amendment of this contract based upon the payment rates detailed in the schedule above and as agreed pursuant to Section A.3, PROVIDED THAT compensation to the Contractor for such "change order" work shall not exceed TEN PERCENT (10%) of the Compensation for Implementation Services. If, at any point during the Contract period, the State determines that the cost of necessary "change order" work would exceed said maximum amount, the State may amend this Contract to address the need.

C.4. Travel Compensation. The Contractor shall not be compensated or reimbursed for travel, meals, or lodging.

C.5. Invoice Requirements. The Contractor shall invoice the State only for completed increments of service and for the amount stipulated in Section C.3, above, and as required below prior to any payment.

a. The Contractor shall submit invoices no more often than monthly, with all necessary supporting documentation, to:

Concord Project Manager
Tennessee Treasury Department
11th Floor, Andrew Jackson State Office Building
502 Deaderick Street
Nashville, Tennessee 37243-0225

b. The Contractor agrees that each invoice submitted shall clearly and accurately (all calculations must be extended and totaled correctly) detail the following required information.

(1) Invoice/Reference Number (assigned by the Contractor);
(2) Invoice Date;
(3) Invoice Period (period to which all invoiced charges are applicable);
(4) Contract Number (assigned by the State to this Contract);
(5) Account Name: Tennessee Treasury Department, Division of Retirement;
(6) Account/Customer Number (uniquely assigned by the Contractor to the above-referenced Account Name);
(7) Contractor Name;
(8) Contractor Federal Employer Identification Number or Social Security Number (as referenced in this Contract);
(9) Contractor Contact (name, phone, and/or fax for the individual to contact with billing questions);
(10) Contractor Remittance Address;
(11) Complete Itemization of Charges, which shall detail the following:

i. Service or Milestone Description (including name /title as applicable) of each service invoiced;
ii. Number of Completed Units, Increments, Hours, or Days as applicable, of each service invoiced;
iii. Applicable Payment Rate (as stipulated in Section C.3.) of each service invoiced;
iv. Amount Due by Service; and
v. Total Amount Due for the invoice period.

c. The Contractor understands and agrees that an invoice to the State under this Contract shall:

(1) include only charges for service described in Contract Section A and in accordance with payment terms and conditions set forth in Contract Section C;
(2) not include any future work but will only be submitted for completed service; and
(3) not include sales tax or shipping charges.

d. The Contractor agrees that timeframe for payment (and any discounts) begins when the State is in receipt of each invoice meeting the minimum requirements above.

e. The Contractor shall complete and sign a "Substitute W-9 Form" provided to the Contractor by the State. The taxpayer identification number contained in the Substitute W-9 submitted to the State shall agree to the Federal Employer Identification Number or Social Security Number referenced in this Contract for the Contractor. The Contractor shall not invoice the State for services until the State has received this completed form.

f. The Contractor shall provide an updated report or spreadsheet with each invoice indicating what has been billed (and when), what has been paid (and when), what invoices may be in dispute, and the remaining potential unbilled amounts, not to exceed in total the maximum liability of the State under this Contract as described in C.1 and C.3 . The format and detail of the tracking report or spreadsheet shall be reviewed and approved by the State. Invoice dates, invoice numbers, warrants/ACH numbers, and warrant/ACH dates must be included.

C.6. Retention of Final Payment. An amount equal to TEN PERCENT (10%) of each amount payable for Implementation Services detailed in Section C.3.b above shall be withheld by the State. In total, such amount withheld by the State shall not exceed two million eight hundred twenty-nine thousand six hundred eighty dollars and fifty cents ($2,829,680.50).

a. The Contractor shall invoice the State for one-half of the total amount withheld by the State pursuant to this section upon achieving sixty-day acceptance of the final functionality rollout.

b. The Contractor shall invoice the State for one-quarter of the total amount withheld by the State pursuant to this section upon the conclusion of the Application Warranty period as described in Section 10.1, 10.2 and Section 10.3 of Contract Attachment 3.

c. The Contractor shall invoice the State for the remaining portion of the amount withheld by the State pursuant to this section upon the conclusion of the Post Warranty IS Support period described in Section 10.4 of Contract Attachment 3.

C.7. Payment of Invoice. The payment of the invoice by the State shall not prejudice the State's right to object to or question any invoice or matter in relation thereto. Such

payment by the State shall neither be construed as acceptance of any part of the work or service provided nor as an approval of any of the amounts invoiced therein.

C.8. Invoice Reductions. The Contractor's invoice shall be subject to reduction for amounts included in any invoice or payment theretofore made which are determined by the State, on the basis of audits conducted in accordance with the terms of this Contract, not to constitute proper remuneration for compensable services.

C.9. Deductions. The State reserves the right to deduct from amounts which are or shall become due and payable to the Contractor under this or any Contract between the Contractor and the State of Tennessee any amounts which are or shall become due and payable to the State of Tennessee by the Contractor.

C.10. Automatic Deposits. The Contractor shall complete and sign an "Authorization Agreement for Automatic Deposit (ACH Credits) Form." This form shall be provided to the Contractor by the State. Once this form has been completed and submitted to the State by the Contractor all payments to the Contractor, under this or any other Contract the Contractor has with the State of Tennessee shall be made by Automated Clearing House (ACH). The Contractor shall not invoice the State for services until the Contractor has completed this form and submitted it to the State.

D. STANDARD TERMS AND CONDITIONS:

D.1. Required Approvals. The State is not bound by this Contract until it is approved by the appropriate State officials in accordance with applicable Tennessee State laws and regulations.

D.2. Modification and Amendment. This Contract may be modified only by a written amendment executed by all parties hereto and approved by the appropriate Tennessee State officials in accordance with applicable Tennessee State laws and regulations.

D.3. Termination for Convenience. The State may terminate this Contract without cause for any reason. Said termination shall not be deemed a Breach of Contract by the State. The State shall give the Contractor at least ninety (90) days written notice before the effective termination date. The Contractor shall be entitled to receive compensation for satisfactory, authorized service completed as of the termination date, but in no event shall the State be liable to the Contractor for compensation for any service which has not been rendered. Upon such termination, the Contractor shall have no right to any actual general, special, incidental, consequential, or any other damages whatsoever of any description or amount.

D.4. Termination for Cause. If the Contractor fails to properly perform its obligations under this Contract in a timely or proper manner, or if the Contractor violates any terms of this Contract, the State shall have the right to terminate the Contract and withhold payments in excess of fair compensation for completed services.

a. The State will provide notification of termination for cause in writing. This notice will: (1) specify in reasonable detail the nature of the breach; (2) provide the Contractor with a reasonable opportunity to cure, which must be requested in writing no less than 10 days from the date of receipt of the Termination Notice; and (3) shall specify the effective date of termination in the event the Contractor fails to correct the breach. The Contractor must present the State with a written request detailing the efforts it will take to resolve the problem and the time period for such resolution. This opportunity to "cure" shall not apply to circumstances in which the Contractor intentionally withholds its services or otherwise refuses to perform. The State will not consider a request to cure contract performance where there have been repeated problems with respect to identical or similar issues, or if a cure period would cause a delay that would impair the

effectiveness of State operations. In circumstances where an opportunity to cure is not available, termination will be effective immediately.

b. Notwithstanding the foregoing, the Contractor shall not be relieved of liability to the State for damages sustained by virtue of any breach of this Contract by the Contractor.

D.5. Subcontracting. The Contractor shall not assign this Contract or enter into a subcontract for any of the services performed under this Contract without obtaining the prior written approval of the State. If such subcontracts are approved by the State, they shall contain, at a minimum, sections of this Contract below pertaining to "Conflicts of Interest," "Nondiscrimination," and "Records" (as identified by the section headings). Notwithstanding any use of approved subcontractors, the Contractor shall be the prime contractor and shall be responsible for all work performed.

D.6. Conflicts of Interest. The Contractor warrants that no part of the total Contract Amount shall be paid directly or indirectly to an employee or official of the State of Tennessee as wages, compensation, or gifts in exchange for acting as an officer, agent, employee, subcontractor, or consultant to the Contractor in connection with any work contemplated or performed relative to this Contract.

D.7. Nondiscrimination. The Contractor hereby agrees, warrants, and assures that no person shall be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination in the performance of this Contract or in the employment practices of the Contractor on the grounds of disability, age, race, color, religion, sex, national origin, or any other classification protected by Federal, Tennessee State constitutional, or statutory law. The Contractor shall, upon request, show proof of such nondiscrimination and shall post in conspicuous places, available to all employees and applicants, notices of nondiscrimination.

D.8. Prohibition of Illegal Immigrants. The requirements of Public Acts of 2006, Chapter Number 878, of the state of Tennessee, addressing the use of illegal immigrants in the performance of any Contract to supply goods or services to the state of Tennessee, shall be a material provision of this Contract, a breach of which shall be grounds for monetary and other penalties, up to and including termination of this Contract.

a. The Contractor hereby attests, certifies, warrants, and assures that the Contractor shall not knowingly utilize the services of an illegal immigrant in the performance of this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant in the performance of this Contract. The Contractor shall reaffirm this attestation, in writing, by submitting to the State a completed and signed copy of the document at Contract Attachment 10, hereto, semi-annually during the period of this Contract. Such attestations shall be maintained by the Contractor and made available to state officials upon request.

b. Prior to the use of any subcontractor in the performance of this Contract, and semi-annually thereafter, during the period of this Contract, the Contractor shall obtain and retain a current, written attestation that the subcontractor shall not knowingly utilize the services of an illegal immigrant to perform work relative to this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant to perform work relative to this Contract. Attestations obtained from such subcontractors shall be maintained by the Contractor and made available to state officials upon request.

c. The Contractor shall maintain records for all personnel used in the performance of this Contract. Said records shall be subject to review and random inspection at any reasonable time upon reasonable notice by the State.

d. The Contractor understands and agrees that failure to comply with this section will be subject to the sanctions of Public Chapter 878 of 2006 for acts or omissions occurring after its effective date. This law requires the Commissioner of Finance and Administration to prohibit a contractor from contracting with, or submitting an offer, proposal, or bid to contract with the State of Tennessee to supply goods or services for a period of one year after a contractor is discovered to have knowingly used the services of illegal immigrants during the performance of this Contract.

e. For purposes of this Contract, "illegal immigrant" shall be defined as any person who is not either a United States citizen, a Lawful Permanent Resident, or a person whose physical presence in the United States is authorized or allowed by the federal Department of Homeland Security and who, under federal immigration laws and/or regulations, is authorized to be employed in the U.S. or is otherwise authorized to provide services under the Contract.

D.9. Records. The Contractor shall maintain documentation for all charges under this Contract. The books, records, and documents of the Contractor, insofar as they relate to work performed or money received under this Contract, shall be maintained for a period of three (3) full years from the date of the final payment and shall be subject to audit at any reasonable time and upon reasonable notice by the State, the Comptroller of the Treasury, or their duly appointed representatives. The financial statements shall be prepared in accordance with generally accepted accounting principles.

D.10. Prevailing Wage Rates. All contracts for construction, erection, or demolition or to install goods or materials that involve the expenditure of any funds derived from the State require compliance with the prevailing wage laws as provided in *Tennessee Code Annotated*, Section 12-4-401 *et seq.*.

D.11. Monitoring. The Contractor's activities conducted and records maintained pursuant to this Contract shall be subject to monitoring and evaluation by the State, the Comptroller of the Treasury, or their duly appointed representatives.

D.12. Progress Reports. The Contractor shall submit brief, periodic, progress reports to the State as requested.

D.13. Strict Performance. Failure by any party to this Contract to insist in any one or more cases upon the strict performance of any of the terms, covenants, conditions, or provisions of this Contract shall not be construed as a waiver or relinquishment of any such term, covenant, condition, or provision. No term or condition of this Contract shall be held to be waived, modified, or deleted except by a written amendment signed by the parties hereto.

D.14. Independent Contractor. The parties hereto, in the performance of this Contract, shall not act as employees, partners, joint venturers, or associates of one another. It is expressly acknowledged by the parties hereto that such parties are independent contracting entities and that nothing in this Contract shall be construed to create an employer/employee relationship or to allow either to exercise control or direction over the manner or method by which the other transacts its business affairs or provides its usual services. The employees or agents of one party shall not be deemed or construed to be the employees or agents of the other party for any purpose whatsoever.

The Contractor, being an independent contractor and not an employee of the State, agrees to carry adequate public liability and other appropriate forms of insurance, including adequate public liability and other appropriate forms of insurance on the Contractor's employees, and to pay all applicable taxes incident to this Contract.

D.15. State Liability. The State shall have no liability except as specifically provided in this Contract.

D.16. Force Majeure. The obligations of the parties to this Contract are subject to prevention by causes beyond the parties' control that could not be avoided by the exercise of due care including, but not limited to, natural disasters, riots, wars, epidemics, or any other similar cause.

D.17. State and Federal Compliance. The Contractor shall comply with all applicable State and Federal laws and regulations in the performance of this Contract.

D.18. Governing Law. This Contract shall be governed by and construed in accordance with the laws of the State of Tennessee. The Contractor agrees that it will be subject to the exclusive jurisdiction of the courts of the State of Tennessee in actions that may arise under this Contract. The Contractor acknowledges and agrees that any rights or claims against the State of Tennessee or its employees hereunder, and any remedies arising therefrom, shall be subject to and limited to those rights and remedies, if any, available under *Tennessee Code Annotated*, Sections 9-8-101 through 9-8-407.

D.19. Completeness. This Contract is complete and contains the entire understanding between the parties relating to the subject matter contained herein, including all the terms and conditions of the parties' agreement. This Contract supersedes any and all prior understandings, representations, negotiations, and agreements between the parties relating hereto, whether written or oral.

D.20. Severability. If any terms and conditions of this Contract are held to be invalid or unenforceable as a matter of law, the other terms and conditions hereof shall not be affected thereby and shall remain in full force and effect. To this end, the terms and conditions of this Contract are declared severable.

D.21. Headings. Section headings of this Contract are for reference purposes only and shall not be construed as part of this Contract.

E. SPECIAL TERMS AND CONDITIONS:

E.1. Conflicting Terms and Conditions. Should any of these special terms and conditions conflict with any other terms and conditions of this Contract, these special terms and conditions shall control.

E.2. Communications and Contacts. All instructions, notices, consents, demands, or other communications required or contemplated by this Contract shall be in writing and shall be made by certified, first class mail, return receipt requested and postage prepaid, by overnight courier service with an asset tracking system, or by EMAIL or facsimile transmission with recipient confirmation. Any such communications, regardless of method of transmission, shall be addressed to the respective party at the appropriate mailing address, facsimile number, or EMAIL address as set forth below or to that of such other party or address, as may be hereafter specified by written notice.

The State:

Jill Bachus, Director
Tennessee Consolidated Retirement System
10th Floor, Andrew Jackson State Office Building
502 Deaderick Street
Nashville, Tennessee 37243-0201
Email Address: jill.bachus@tn.gov
Telephone Number: (615) 741-7063

Facsimile Number: (615) 401-6819

The Contractor:

Patrick D. Bauer, Principal
111 South Wacker Dr
Chicago, IL 60606-4301
Email address: PBauer@deloitte.com
Telephone Number: (312) 486-1519
Facsimile Number: (312) 247 1519

All instructions, notices, consents, demands, or other communications shall be considered effectively given upon receipt or recipient confirmation as may be required. Notwithstanding the foregoing, any notice of default under this Contract shall be sent by certified, first class mail, return receipt requested and postage prepaid or by overnight courier service with an asset tracking system.

E.3. Subject to Funds Availability. The Contract is subject to the appropriation and availability of State and/or Federal funds. In the event that the funds are not appropriated or are otherwise unavailable, the State reserves the right to terminate the Contract upon written notice to the Contractor. Said termination shall not be deemed a breach of Contract by the State. Upon receipt of the written notice, the Contractor shall cease all work associated with the Contract. Should such an event occur, the Contractor shall be entitled to compensation for all satisfactory and authorized services completed as of the termination date. Upon such termination, the Contractor shall have no right to recover from the State any actual, general, special, incidental, consequential, or any other damages whatsoever of any description or amount.

E.4. Tennessee Consolidated Retirement System. The Contractor acknowledges and understands that, subject to statutory exceptions contained in *Tennessee Code Annotated*, Section 8-36-801, *et. seq*., the law governing the Tennessee Consolidated Retirement System (TCRS), provides that if a retired member of TCRS, or of any superseded system administered by TCRS, or of any local retirement fund established pursuant to *Tennessee Code Annotated*, Title 8, Chapter 35, Part 3 accepts state employment, the member's retirement allowance is suspended during the period of the employment. Accordingly and notwithstanding any provision of this Contract to the contrary, the Contractor agrees that if it is later determined that the true nature of the working relationship between the Contractor and the State under this Contract is that of "employee/employer" and not that of an independent contractor, the Contractor may be required to repay to TCRS the amount of retirement benefits the Contractor received from TCRS during the period of this Contract.

E.5. Voluntary Buyout Program. The Contractor acknowledges and understands that, for a period of two years beginning August 16, 2008, restrictions are imposed on former state employees who received a State of Tennessee Voluntary Buyout Program (VBP) severance payment with regard to contracts with state agencies that participated in the VBP.

a. The State will not contract with either a former state employee who received a VBP severance payment or an entity in which a former state employee who received a VBP severance payment or the spouse of such an individual holds a controlling financial interest.

b. The State may contract with an entity with which a former state employee who received a VBP severance payment is an employee or an independent contractor. Notwithstanding the foregoing, the Contractor understands and agrees that there may be unique business circumstances under which a return to work by a former state employee who received a VBP severance payment as an

employee or an independent contractor of a State contractor would not be appropriate, and in such cases the State may refuse Contractor personnel. Inasmuch, it shall be the responsibility of the State to review Contractor personnel to identify any such issues.

c. With reference to either subsection a. or b. above, a contractor may submit a written request for a waiver of the VBP restrictions regarding a former state employee and a contract with a state agency that participated in the VBP. Any such request must be submitted to the State in the form of the *VBP Contracting Restriction Waiver Request* format available from the State and the Internet at: www.state.tn.us/finance/rds/ocr/waiver.html. The determination on such a request shall be at the sole discretion of the head of the state agency that is a Party to this Contract, the Commissioner of Finance and Administration, and the Commissioner of Human Resources.

E.6. State Ownership of Work Products. The State shall have ownership, right, title, and interest, including ownership of copyright, in all work products, including computer source code, created, designed, developed, derived, documented, installed, or delivered under this Contract subject to the next subsection and full and final payment for each "Work Product." The State shall have royalty-free and unlimited rights and license to use, disclose, reproduce, publish, distribute, modify, maintain, or create derivative works from, for any purpose whatsoever, all said Work Products.

a. To the extent that the Contractor uses any of its pre-existing, proprietary or independently developed tools, materials or information ("Contractor Materials"),including any software and its associated documentation that is already owned by the Contractor or its subcontractors prior to entering into this Contract including any modifications or changes made to such software in the performance of this Contract ("Licensed Software), the Contractor shall retain all right, title and interest in and to such Contractor Materials and Licensed Software, and the State shall acquire no right, title or interest in or to such Contractor Materials EXCEPT the Contractor grants or shall cause to be granted to the State a nonexclusive, perpetual, unlimited, and non-transferable license to install, execute, use, copy and distribute internally, solely for the State's internal purposes, any Contractor Materials and Licensed Software reasonably associated with any Work Product provided under the Contract.

b. The Contractor shall furnish such information and data as the State may request, including but not limited to computer code, that is applicable, essential, fundamental, or intrinsic to any Work Product and Contractor Materials reasonably associated with any Work Product, in accordance with this Contract and applicable state law.

c. Nothing in this Contract shall prohibit the Contractor's use for its own purposes of the general knowledge, skills, experience, ideas, concepts, know-how, and techniques obtained and used during the course of providing the services requested under this Contract.

d. Nothing in the Contract shall prohibit the Contractor from developing for itself, or for others, materials which are similar to and/or competitive with those that are produced under this Contract.

E.7 State Furnished Property. The Contractor shall be responsible for the correct use, maintenance, and protection of all articles of nonexpendable, tangible, personal property furnished by the State for the Contractor's temporary use under this Contract. Upon termination of this Contract, all property furnished shall be returned to the State in good order and condition as when received, reasonable use and wear thereof excepted.

Should the property be destroyed, lost, or stolen, the Contractor shall be responsible to the State for the residual value of the property at the time of loss.

E.8 Incorporation of Additional Documents. Included in this Contract by reference are the following documents:

a. The Contract document and its attachments

b. All Clarifications and addenda made to the Contractor's Proposal

c. The Request for Proposal and its associated amendments

d. Technical Specifications provided to the Contractor

e. The Contractor's Proposal

In the event of a discrepancy or ambiguity regarding the Contractor's duties, responsibilities, and performance under this Contract, these documents shall govern in order of precedence detailed above.

E.9 Confidentiality of Records. Strict standards of confidentiality of records shall be maintained in accordance with the law. All material and information, regardless of form, medium or method of communication, provided to the Contractor by the State or acquired by the Contractor on behalf of the State shall be regarded as confidential information in accordance with the provisions of State law and ethical standards and shall not be disclosed, and all necessary steps shall be taken by the Contractor to safeguard the confidentiality of such material or information in conformance with State law and ethical standards.

The Contractor will be deemed to have satisfied its obligations under this section by exercising the same level of care to preserve the confidentiality of the State's information as the Contractor exercises to protect its own confidential information so long as such standard of care does not violate the applicable provisions of the first paragraph of this section.

The Contractor's obligations under this section do not apply to information in the public domain; entering the public domain but not from a breach by the Contractor of this Contract; previously possessed by the Contractor without written obligations to the State to protect it; acquired by the Contractor without written restrictions against disclosure from a third party which, to the Contractor's knowledge, is free to disclose the information; independently developed by the Contractor without the use of the State's information; or, disclosed by the State to others without restrictions against disclosure or as required to be disclosed by law or legal process.

It is expressly understood and agreed the obligations set forth in this section shall survive the termination of this Contract.

E.10. HIPAA Compliance. The State and Contractor shall comply with obligations under the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and its accompanying regulations.

a. Contractor warrants to the State that it is familiar with the requirements of HIPAA and its accompanying regulations, and will comply with all applicable HIPAA requirements in the course of this Contract.

b. Contractor warrants that it will cooperate with the State, including cooperation and coordination with State privacy officials and other compliance officers

required by HIPAA and its regulations, in the course of performance of the Contract so that both parties will be in compliance with HIPAA.

c. The State and the Contractor will sign documents, including but not limited to business associate agreements, as required by HIPAA and that are reasonably necessary to keep the State and Contractor in compliance with HIPAA. This provision shall not apply if information received by the State under this Contract is NOT "protected health information" as defined by HIPAA, or if HIPAA permits the State to receive such information without entering into a business associate agreement or signing another such document.

E.11. Copyrights and Patents. The Contractor agrees to indemnify and hold harmless the State of Tennessee as well as its officers, agents, and employees from and against any and all claims or suits which may be brought against the State for infringement of any laws regarding patents or copyrights which may arise from the Contractor's performance of this Contract. In any such action brought against the State, the Contractor shall satisfy and indemnify the State for the amount of any final judgment for infringement. The Contractor further agrees it shall be liable for the reasonable fees of attorneys for the State in the event such service is necessitated to enforce the terms of this Contract or otherwise enforce the obligations of the Contractor to the State. The State shall give the Contractor written notice of any such claim or suit and full right and opportunity to conduct the Contractor's own defense thereof, together with reasonable cooperation from the State. The State will use reasonable efforts to provide such written notice to the Contractor within ten (10) business days of the State's receipt of any such claim or suit. The State agrees to allow the Contractor to participate in the defense and settlement of any such claim; provided, however, nothing contained herein shall be deemed to accord to the Contractor, through its attorney(s), the right to represent the State of Tennessee in any legal matter, such rights being governed by Tennessee Code Annotated, Section 8-6-106. The State shall have final approval of any settlement on behalf of the State which shall be subject to those statutory approvals and procedures for the compromise and settlement of litigation involving the State.

In addition to the above indemnity, if the State's use of any deliverable, or any portion thereof, provided under this Contract, is or is likely to be enjoined by order of a court of competent jurisdiction as such an infringement or unauthorized use, the Contractor, at its expense, shall (x) procure for the State the continued use of such deliverable, (y) replace such deliverable with a non-infringing counterpart, or (z) modify such deliverable so it becomes non-infringing; provided that, if (y) or (z) is the option chosen by the Contractor, the replacement or modified deliverable must be capable of performing substantially the same function.

The forgoing indemnity does not apply to the extent that the infringement arises from the State's (i) use of the deliverable not in accordance with instructions, documentations, or specifications ("Misuse"), (ii) alteration, modification or revision of the deliverables not expressly authorized by the Contractor ("Alteration"), (iii) failure to use or implement corrections or enhancements to the deliverables made available by the Contractor to the State at no additional cost to the State, or (iv) combination of the deliverables with materials not provided, specified, or approved by the Contractor.

E.12. Contractor Commitment to Diversity. The Contractor shall comply with and make reasonable business efforts to exceed the commitment to diversity represented by the Contractor's proposal responding to RFP-30901-15010 (Attachment 6.2 Section B.15) and resulting in this Contract.

The Contractor shall assist the State in monitoring the Contractor's performance of this commitment by providing, as requested, a quarterly report of participation in the performance of this Contract by small business enterprises and businesses owned by minorities, women, and persons with a disability. Such reports shall be provided to the

state of Tennessee Governor's Office of Diversity Business Enterprise in form and substance as required by said office.

E.13. Limitation of Liability. The parties agree that the Contractor's liability under this Contract shall be limited to an amount equal to one and one-half (1½) times the Maximum Liability amount detailed in Section C.1. and as may be amended, PROVIDED THAT in no event shall this section limit the liability of the Contractor for intentional torts, criminal acts, or fraudulent conduct.

E.14. Assignment of Key Personnel. The Contractor agrees to assign the individuals named on pages 19 through 34 of Section B.13 of the Contractor's Proposal as the key personnel to perform the services under this Contract. Except upon the State's prior written consent, which consent may be withheld in the State's reasonable discretion, the Contractor shall not remove or temporarily reassign any of the seven named individuals until such time as the individual has completed the services to be performed by them under this Contract. Should the State consent to such removal or reassignment, the State reserves the right to approve the candidates proposed by the Contractor as a replacement.

Notwithstanding the foregoing, the Contractor shall have the right to remove or reassign such personnel upon notice to the State if such removal or reassignment is required due to voluntary or involuntary termination of employment, death, disability, or extended illness. The Contractor shall inform the Concord Project Manager as soon as the Contractor knows of a likely change in key personnel. In such event, the State reserves the right to approve the candidates proposed by the Contractor as a replacement. The Contractor shall propose a qualified replacement to the State within ten (10) business days of notification. Further, the Contractor shall provide, at a minimum, a five (5) business day overlap/transition period for the departing staff member to assist the new staff member in the new staff member's role under this Contract and to other transfer knowledge of the Contract project to the new staff member, unless such a period is not possible due to extenuating circumstances.

E.15. Insurance. The Contractor shall carry adequate liability and other appropriate forms of insurance.

a. The Contractor shall maintain, at minimum, the following insurance coverage:

(1) Workers' Compensation/ Employers' Liability (including all states coverage) with a limit not less than the relevant statutory amount or one million dollars ($1,000,000) per occurrence for employers' liability whichever is greater.

(2) Comprehensive Commercial General Liability (including personal injury & property damage, premises/operations, independent contractor, contractual liability and completed operations/products) with a bodily injury/property damage combined single limit not less than one million dollars ($1,000,000) per occurrence and two million dollars ($2,000,000) aggregate.

(3) Automobile Coverage (including owned, leased, hired, and non-owned vehicles) with a bodily injury/property damage combined single limit not less than one million dollars ($1,000,000) per occurrence.

(4) Errors and Omissions Coverage not less than one million dollars ($1,000,000) per occurrence and two million dollars ($2,000,000) aggregate.

b. At any time State may require the Contractor to provide a valid Certificate of Insurance detailing Coverage Description; Insurance Company & Policy Number;

Exceptions and Exclusions; Policy Effective Date; Policy Expiration Date; Limit(s) of Liability; and Name and Address of Insured. Failure to provide required evidence of insurance coverage shall be a material breach of this Contract.

E.16. Permitted Uses and Restrictions Related to Licensed Software. The State agrees that (i) it shall not disassemble, decompile, or otherwise reverse engineer the Licensed Software described in Section A of this Contract above, (ii) it shall not sublicense, assign, or otherwise transfer its rights to the Licensed Software without the prior written consent of the Contractor and (iii) it shall not use or permit the use of the Licensed Software to provide service bureau, outsourcing or third-party services. The State shall use commercially reasonable efforts to assure the confidentiality and physical security of the Licensed Software and documentation related thereto and to prevent the unauthorized copying, reproduction, publication, or utilization thereof. This Section E.16 shall not restrict any disclosure as is required by law. Provided, however, the State shall give prior notice of such disclosure to the Contractor to permit the Contractor to seek a protective order, and absent the entry of such protective order, the State shall disclose only such information that the State is advised by its counsel must be disclosed by law. The Contractor shall have ten (10) business days from the date of notification to file a request for a protective order, and shall provide the State with a copy of such filing.

E.17. Unauthorized Disclosure of Confidential Information. The Contractor shall report to the State any instances of unauthorized disclosure of confidential information that come to the attention of the Contractor. Any such report shall be made by the Contractor in the most expedient time possible and without unreasonable delay after the instance has come to the attention of the Contractor, provided that such report must be made within twenty-four (24) hours after the instance has come to the attention of the Contractor. The Contractor, at the sole discretion of the State, shall provide no cost credit monitoring services for TCRS members and beneficiaries that are deemed to be part of a potential disclosure. The Contractor shall bear the cost of notification to TCRS's members and beneficiaries that are involved in a potential disclosure event, including individual letters and/or public notice. The State reserves the right to review and approve all notifications made to TCRS members and beneficiaries under this Section.

E.18. Prompt Pay Act of 1985. Both the State and the Contractor shall be subject to Tennessee Code Annotated, Sections 12-4-701, et seq. in the performance of this Contract.

E.19. Application Warranty - Nonconformities with Contract Requirements and Specifications. If the State notifies the Contractor of an error, malfunction or defect in a deliverable provided under this Contract (a “nonconformity”) during the Application Warranty, the Contractor shall remedy the nonconformity at no additional cost to the State. However, the State shall pay the Contractor for its services in remedying the nonconformity at the change order rate described in Section A.3 of this Contract if such nonconformity arises from the State's: (i) use of the deliverable not in accordance with instructions, documentations, or specifications (“Misuse”); (ii) alteration, modification or revision of the deliverable not expressly authorized by the Contractor (“Alteration”); (iii) the State's failure to use or implement corrections or enhancements to the deliverable made available by the Contractor to the State at no additional cost to the State; or (iv) combination of the deliverable with materials not provided, specified, or approved by the Contractor.

IN WITNESS WHEREOF,

DELOITTE CONSULTING LLP:

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IN WITNESS WHEREOF,

DELOITTE CONSULTING LLP:

Patrick D Baver — 11/22/2010

CONTRACTOR SIGNATURE — **DATE**

PATRICK D BAVER — PRINCIPAL

PRINTED NAME AND TITLE OF CONTRACTOR SIGNATORY (above)

DEPARTMENT OF TREASURY:

David H. Lillard Jr. — November 23, 2010

DAVID H. LILLARD, JR., STATE TREASURER — **DATE**

BUSINESS REQUIREMENTS

The following sections provide detailed information on the business requirements that must be satisfied by the new system. The information is divided into the functional business areas that TCRS supports.

The Contractor is required to provide:

- Existing functional results of TCRS' business must be reproduced, albeit with a greater degree of automation and integration, imaging enabled, with improved business processes and workflow, with improved data accuracy, and with an improved degree of user and customer satisfaction, as indicated in pages 1 through 157 of Section C.2 of the Contractor's proposal. Please refer to Contract Attachment 6, Current Business Processes and Workflows for information regarding documentation and diagrams related to current business of TCRS.

- Functionality to support the execution of all processes required in accordance with enabling legislation, Board policies, etc. that are in effect on the day of contract execution.

- New functionality (the defined business requirements in the following sections) as indicated in pages 1 through 78 of Section C.4 of the Contractor's Proposal that must be developed with a high degree of automation, integration, and improved business processes and workflow.

Further, the TCRS environment is governed by a myriad of rules, regulations, "standard" operating procedures, and long-standing practices (both formal and informal, documented and undocumented). Developing a full set of all of the rules, regulations, procedures, and practices that need to be accommodated in the new solution is a critical, integral part of the project – and the key to its eventual success. The Contractor is responsible for understanding, documenting, and implementing these rules, regulations, procedures, and practices into its solution, as directed and agreed by TCRS.

In developing the requirements definition of the new system, the State expects the Contractor to involve TCRS staff members in many requirements and design "workshop" sessions. This involvement of staff members is understood by TCRS as essential to preparing correct, comprehensive requirements definitions and systems designs. Yet the time required of TCRS staff for this level of participation may inhibit the day-to-day business of TCRS. Therefore, the State requires that staff participation in the requirements definition process be as efficient as possible. To this end, any written materials supplied by the Contractor for use in requirements and design meetings with TCRS staff must be targeted specifically to TCRS. TCRS recognizes that the Contractor may utilize materials prepared for other retirement system customers to initiate the design definition effort. However, such materials must be purged of any specifics (including but not limited to name references, forms, and calculation routines) that relate to another of the Contractor's customers. Ideally, these materials should be tailored to TCRS' specific business practices from the time they are first exposed to TCRS staff members. At a minimum, they must be neutral, that is, they must not contain any overly specific references to specific practices of other retirement systems so as to avoid any confusion or wasted effort during the requirements definition and design sessions with TCRS staff.

Any and all functions inherent to manual calculations and standalone spreadsheets in the "as is" environment are to be automated and seamlessly integrated in the new system. In this context, integrated means the system does the calculation, and not that the spreadsheet is loaded with data and then manually executed by a user and the resulting data re-entered into the LOB system.

The Contractor affirms that it has included sufficient manpower, cost, and schedule to fulfill completely their responsibility to:

- Explore and define all such rules, regulations, procedures, and practices – both those that currently exist and those to be added in the new environment – to a level of detail sufficient to obtain sign-off from TCRS staff during the Requirements Confirmation phase of the project.
- Develop pertinent specifications.
- Implement those capabilities.

DETAILED BUSINESS REQUIREMENTS

The following subsections list the many detailed business function capabilities that the proposed integrated retirement system solution must provide.

Requirement ID – an internal indicator of the specific requirement.

Description – a detailed description of the requirement.

Included – checked by the Contractor to indicate functionality included in the base product with no customization required. (Configuration of tabular parameters by user administrator or business analyst is acceptable herein).

Modification – checked by the Contractor to indicate functionality **not** included in the base product but will be provided to TCRS by a modification to the base product.

Third Party – checked by the Contractor to indicate functionality **not** included in the base product but will be provided to TCRS via another product, software solution, or third party.

Excluded – checked by the Contractor to indicate functionality **not** included in the base product and will not be provided to TCRS.

1. General Requirements

General Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for members to maintain login information without intervention from TCRS staff, including lost or forgotten PINs.	X			
2	Ability to provide end-to-end performance monitoring and control as well as incremental steps/check-points as part of a business process.		X		
3	Ability to capture and accept digital signatures that conform to federal and State statutes.	X			
4	Ability to capture manual notes at a variety of levels within the database structure including (but not limited to) member and workflow.	X			
5	Ability to capture member-submitted address changes through the web site.		X		
6	Ability to capture new web-based forms as the need evolves.		X		
7	Ability to capture user-administered, date-sensitive, system-wide parametrically set numerical values	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	and rules.				
8	Ability to capture user-entered, free form notes on contacts with TCRS customers (e.g., capture user-id, user name, date, time stamp). Maximum record length must be a parameter determined by the TCRS system administrator. Records must be able to be sorted based on various criteria such as date/time, TCRS contact, type of contact, etc., and viewable by any other user.		X		
9	Ability to support the import of data from other external Open Database Connectivity (ODBC) compliant sources.	X			
10	Ability for the system to handle both of the following correspondence generation options: 1. TCRS staff members generate their own correspondence and print it themselves (locally). 2. TCRS staff members generate their own correspondence then send it to centralized system for consolidation, mail assembly and distribution.	X			
11	Ability to display basic member information on all applicable application screens and have the information displayed in various font size, styles as required.	X			
12	Ability to display monetary amounts in whole dollars or dollars and cents.	X			
13	Ability to generate additional information correspondence when further documentation is needed and/or data are missing; ability to generate follow-up correspondence as needed.	X			
14	Ability to generate all forms and correspondence (including appropriate redesign and combining of current forms and correspondence and creation of new ones) using OCR/ICR and barcode capability.	X			
15	Ability to generate automatic reminder correspondence to the person as well as to TCRS end-user when the specified “wait” period has been exceeded for a response from a user, employer, etc.		X		
16	Ability to produce on demand mailing labels for mass mailings in up to 7 different formats, with appropriate selection and sort options.		X		
17	Ability to provide online, context-sensitive error and help messages/screens, with the ability for TCRS to edit/enhance that information as needed.	X			
18	Ability to sign correspondence with staff names (electronic signatures).	X			
19	Ability to use a standardized correspondence format for TCRS documents.	X			
20	Ability to have parameter values, table driven, with user maintainable, date sensitive capability.	X			
21	Ability to “filter” user comments so that a user can see all comments, just comments related to a business area, just comments for a business process, just comments for a window, etc.		X		
22	Ability to accommodate different parameter values for different time periods.	X			
23	Ability to accommodate parameters that vary between plans, funds or employers.	X			
24	Ability to add a new plan to the system, to modify an existing plan, and to delete an existing plan from the system.	X			
25	Ability to allow for varying data structures (e.g., not forcing a single “name” structure or “address” structure) based upon the business need for that information and the type of correspondence to be generated.	X			
26	Ability to archive data controlled by distinct business-based rules.		X		
27	Ability to calculate the member’s “age” within the system for various purposes according to TCRS set rules and parameters.	X			
28	Ability to close and/or re-open existing plans to new members.	X			
29	Ability to comply with all applicable external rules and regulations (e.g., TCRS, TCRS technical authority, HIPPA, IRS, Postal) that are defined during the contract period (i.e., contract signing thru post-warranty support).	X			
30	Ability to comply with all applicable federal and State tax laws and statutes.	X			
31	Ability to customize system generated correspondence using different paragraphs based on member account information and/or unique situations by using an indicator.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
32	Ability to enter data into the system and set its status to “pending” (also keep its status of “pending” in workflow) for those cases where a document comes in before the document that should have arrived first to initiate the process.	X			
33	Ability to integrate all data insertion (e.g., name, address, service credits) in forms and correspondence using appropriate tools.			X	
34	Ability to maintain (add, edit and delete) pre-defined value lists such as cities, employer codes, etc.; the system should be table driven to the maximum extent possible; therefore, tables which contain lists of valid values are to be maintained by a single common program.	X			
35	Ability to maintain and manage the various versions of documents over time when changes are made to standardized forms, correspondence, and reports.	X			
36	Ability to maintain and update the schema definitions associated with the data warehouse over time.			X	
37	Ability to maintain holiday, payroll, closing calendars for processes.	X			
38	Ability to maintain those table-values (i.e., tax tables, service credit factors, interest rates) that are more complex than simple list-values via a standard user-interface.	X			
39	Ability to match entered data with database values without regard to case (i.e., a system that is NOT case-sensitive).	X			
40	Ability to navigate through screens based on standard Windows and/or browser based navigation.	X			
41	Ability to navigate through screens using hot keys and retain the key identifier (e.g., Social Security number) throughout.	X			
42	Ability to override reciprocities (multiple service), re-employment within 90 days, returning from deferred status, or re-deposits.	X			
43	Ability to prevent the entry of duplicate transactions, when appropriate.	X			
44	Ability to process business transactions and display information in a concise and consolidated manner so as to avoid end-users from having to access numerous screens in order to accomplish their business task.	X			
45	Ability to provide “rules management” capabilities.	X			
46	Ability to provide a “mass” data entry capability that will permit users to execute a large number of “like” transactions in a “short-cut” fashion (i.e., mass change e.g., COLA, interest based on query).	X			
47	Ability to provide a common error handling mechanism, including error correction, recovery processing, and related quality control procedures and processes.	X			
48	Ability to provide a data warehouse available for query without negatively impacting production environment performance.			X	
49	Ability to provide an online knowledge management repository of information supported by an integrated search engine that is capable of returning possible matches to key words and other searches.			X	
50	Ability to provide for correspondence to be generated presorted with barcode and 9-digit postal code.	X			
51	Ability to query and print the history of all changes, showing before and after values, as well as when the change was made and by whom.	X			
52	Ability to restore archived data or specific members or groups of members, and/or based on distinct time periods.		X		
53	Ability to size and adjust all screens and have their settings saved at the workstation level so end-users can display/position screens based on business needs.		X		
54	Ability to store and retrieve all parameters used, calculations performed, and corresponding results for all calculations.	X			
55	Ability to subtotal member history by different time frames (e.g., month, quarter, years).	X			
56	Ability to support foreign addresses and segregate checks and correspondence by country for ease-of-	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	handling for distribution purposes.				
57	Ability to support name in three distinct components – first, middle and last.	X			
58	Ability to support various error level severities (warning, fatal, etc.).	X			
59	Ability to support various types of transaction and status codes throughout the system.	X			
60	Ability to tie the data warehouse to the system's ad-hoc query and reporting functions.			X	
61	Ability to track and manage email messages and faxes as electronic correspondence.			X	
62	Ability to track the receipt of triggering documents and the status of the business process through completion for all business processes.	X			
63	Ability to transfer service credits or monies between plans.	X			
64	Ability to use soundexing, partial field values and/or wild cards for lookups in key fields.	X			
65	Ability to maintain the existing employer/department numbers in use, as well as to assign new numbers to newly added employers/departments.	X			
66	Ability to "clean-up", delete, or hide any erroneous transaction (i.e., estimates, prior service billings, mis-keyed data) that a TCRS user wants to designate (applicable only to those estimates that the user has created); so that they are not viewable/printable/available for member self-service.	X			
67	Ability to have both standard and customized comment fields on the benefit estimate.	X			
68	Ability to make available the Benefit Estimate functionality outside of the line-of-business functionality so that a non registered member can use that functionality via Self-Service without a user-id, password, or identifying information.		X		
69	Ability to provide secure storage and transmission of data.	X			
70	Support for the execution of all processes required in accordance with enabling legislation, TCRS Board policies, etc. that are in effect on the commencement date of this Contract.		X		
71	Ability for the system to validate "good" dates and reject "bad" dates (e.g., 2/30/xx, 13/15/xx).	X			
72	Ability for system to display messages to members during online transactions.	X			
73	Ability for system to image and store messages displayed to members during online transactions.		X		
74	Ability to have a "how to" or FAQ list for all members and employers.	X			
75	Ability for Employers to maintain Login information without intervention from TCRS staff, including lost or forgotten PINs.	X			
76	Ability for website to be viewed and or accessed via mobile devices.		X		
77	Ability to require member to accept certain terms (disclaimer) to continue processing of certain transactions.	X			
78	Ability for all messages displayed to member to be converted to printer friendly format during online transactions.	X			
79	Ability for member to request email confirmation verifying message displayed to member during online transactions.		X		
80	Ability to identify and retain calculation details such that TCRS can quickly identify to the lowest level of detail the composition of all totals, subtotals, and grand totals displayed or reported by the pension solution.		X		
81	Ability to require comments to be entered for TCRS determined actions. (e.g., change requests, cancel requests, pay deceased members).	X			
82	Ability for TCRS staff to edit text of automatically-produced correspondence for a one-time use.	X			
83	Ability for the system to generate reports on a predetermined schedule as well as on demand as determined by TCRS staff.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
84	Ability to accept different formats at data entry (e.g., xxx-xx-xxxx or xxxxxxxxx, (615) 555-1212 or 6155551212 or 615-555-1212).	X			
85	Ability for system to perform edit checks for obvious errors (e.g., employees less than 16 years old, employees over 100 years old, a historical date = current date or current year) with override ability in case the data are correct.	X			
86	Provide a prominent location within the application for TCRS Supplied Content.		X		
87	Ability to redact Social Security numbers to XXX-XX-####, including in reports, tax documents, and correspondence.	X			
88	Ability to generate and use retirement identification numbers as primary identifiers within the system and in outbound communications.	X			
89	Ability for the system to generate ACH transactions to collect overpayments.	X			

2. Records Management (Microfilming/Imaging)

Records Management (Microfilming/Imaging) Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to consolidate and review all information associated with an SSN and/or member id number, including images, microfilm, microfiche, and electronic records.		X		
2	Ability to create document reports summarizing the number of documents by identification number (TR number), date range, employer, and SSN.		X		
3	Ability to correct documents assigned to the wrong person or the wrong document number.	X			
4	Ability to indicate if multiple users are accessing the same documents simultaneously, and provide ability to see a refreshable list of who those users are to all of the simultaneous users to prevent duplication of effort.	X			
5	Ability to provide employers and employees access to their images via the web either automatically or as requested.	X			
6	Ability for management to restrict access of certain images to specified TCRS personnel; i.e., confidential documents.	X			
7	Ability to automatically or manually purge documents that are no longer needed based upon business rules.		X		
8	Ability for management to determine who has reviewed a document, who a document is assigned to, who is currently viewing/annotating a document (i.e., color coded thumbnails), or what queue the document is in.	X			
9	Ability to email a document using a standard MAPI conversion to GroupWise and Outlook.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
10	Ability to change, delete, purge, re-index, re-scan or re-assign any document with appropriate permissions.	X			
11	Ability to perform a backfile conversion of a specific microfiche/microfilm record on an as-needed or ad-hoc basis (i.e., Just in Time conversion).	X			
12	Ability to archive, purge, and delete documents based upon its type or other defined business rules.	X			
13	Ability to image documents at different resolutions based upon their readability.	X			
14	Ability to create, edit, and inactivate forms, including the assignment of form numbers.	X			
15	Ability to audit controls to ensure that all documents contained in a batch get scanned once and only once (no omissions).	X			
16	Ability to automatically route/send unknown or illegible document types to an investigation queue for resolution without suspending the entire batch.	X			
17	Ability to capture, display and print metrics on throughput and accuracy of individual steps within the image acquisition process.	X			
18	Ability to provide audit controls to ensure that scanned documents get indexed correctly (e.g., only once, not under multiple id numbers).	X			
19	Ability to sample and verify indexed documents prior to the committal/update to the imaging system.	X			
20	Ability for the new system to receive the scan date index from the imaging system for various business process date logic/edits.	X			
21	Ability on scanning to group documents into like batches based on document properties (e.g., document size, document type, color, orientation, etc.).	X			
22	Ability to add any of the following annotations to images, while still preserving the original (unaltered) version: • Highlighter • Sticky notes • Black out (redaction) – without changing the underlying document • Digital stamp • Watermark • Author id stamp, to identify annotation author and date • Date stamping • User annotations • Sticky notes with callouts • Annotations with callouts • Shapes (e.g., circles, clouds) • Bates stamping (sequential number increments)	X			
23	Ability to attach a separate file (Microsoft Word, Microsoft Excel, etc.) to the imaged document for additional clarification/explanation related to that image when the simple add annotations feature is not sufficient.	X			
24	Ability to automatically assign a unique batch numbering/batch naming standard.	X			
25	Ability to automatically identify and eliminate blank pages during document scanning and indexing, including the blank, back sides of documents.	X			
26	Ability to automatically remember the last set of index attributes used (persistent indexing) for cases where all documents in a batch belong to the same person or where all documents in a batch belong to	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	the same document type.				
27	Ability to capture metrics on image indexing to monitor efficiency.	X			
28	Ability to ensure that multiple users are prevented from selecting and indexing the same batch, without preventing re-indexing for error correction.	X			
29	Ability to format the data entered from web self-service into a standard template so that it can be stored as an image in the imaging system for historical reference.	X			
30	Ability to handle the imaging of generated correspondence whether generated online by TCRS users or from bulk processing.	X			
31	Ability to index a single page, a single document, or a set of documents.	X			
32	Ability to manage the scanning process with multiple industry-standard scanners, scanning simultaneously, operating within the TCRS LAN environment.	X			
33	Ability to perform a double key entry index validation/verification process to ensure accuracy.	X			
34	Ability to perform re-scans of a single page, single document, or all documents in a batch.	X			
35	Ability to represent a multi-page document as a single document within the imaging archive.	X			
36	Ability to scan both single-sided and double-sided (duplex) documents.	X			
37	Ability to scan color paper and save as a white document with black text.	X			
38	Ability to trigger a workflow process for each specific document in a batch of scanned documents when that batch is released to the archive.	X			
39	Ability to verify or look up index attributes against the LOB database (or an extract therefrom) to avoid having to key-in attributes that already exist in electronic format and minimize the probability of data-entry error or duplication.	X			
40	Ability to perform automatic form/document recognition and auto population of data into the workflow/pension application using appropriate confidence levels and thresholds.	X			
41	Ability to read bar codes and perform optical character recognition (OCR) to assist in validation/verification.	X			
42	Ability to group documents into like batches based on member or retiree properties (e.g., SSN, member number).	X			
43	Ability to scan documents in duplex mode and use thresholding to determine automatically whether the back side of a document is to be retained or discarded.	X			
44	Ability on a case-by-case basis to convert an imaged document into an OCR readable document so that the information contained in the document can be searched upon.	X			
45	Ability for the results of any query (a list of available documents or an image itself) to be easily copied into a user's desktop application for inclusion in another document such as a Word or Excel document.	X			
46	Ability to copy selected portions of viewed documents and paste into other applications, specifically Microsoft Office Suite, SQL forms documents, etc.	X			
47	Ability to export images into various file extension formats, including ASCII, BMP (Windows Bitmap), GIF, HTML, JPEG, PDF, RTF, TIFF CCITT IV (tiled), XML, etc.			X	
48	Ability to identify documents printed from the imaging system, (i.e., a watermark or similar notation).		X		
49	Ability to integrate the imaging system to an industry standard facsimile system in order to support outbound transmittal of images as well as to support inbound transmittal of faxes into the imaging system.	X			
50	Ability to print a range of pages within an imaged document.	X			
51	Ability to print a single page of an imaged document.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
52	Ability to print a summary of query results.	X			
53	Ability to print an entire imaged document.	X			
54	Ability to print an individual's entire set of imaged documents.		X		
55	Ability to print annotations superimposed on image.	X			
56	Ability to print search criteria.	X			
57	Ability to print selected documents of any format from the query results list without opening the documents individually. The printing should include the ability to optionally show annotations associated with the documents.	X			
58	Ability to print: • the contents of the current screen • the entire document • a page or selection of a document	X			
59	Ability to provide a user/security specified printing "on/off" switch. The imaging system should have user/security features that control whether a given user can print documents.		X		
60	Ability to route output from the imaging system to any printer on the network or attached to a PC.	X			
61	Ability to print images without annotations.	X			
62	Ability to perform full page browsing through a member's document, a set of a member's documents, or all of a member's documents from any starting point.	X			
63	Ability for integration of the imaging retrieval and viewing capability with LOB member screens so that any user looking at member data in the LOB solution can retrieve and view member-related documents in a seamless, integrated manner (such as the provision of an "Images" button) without having to provide retrieval keys into the imaging system a second time.	X			
64	Ability for the new system to support the existing imaging indices used by TCRS.	X			
65	Ability for the system to query based on standard criteria (indices).	X			
66	Ability to abort lengthy searches without aborting the client workstation or the server.		X		
67	Ability to allow a document to be viewed by more than one user concurrently.	X			
68	Ability to allow access to annotations based on security attributes.	X			
69	Ability to allow the viewing of documents at "fit-to-page" as the default, not requiring users to resize each page.	X			
70	Ability to apply further search criteria to the results of a search.		X		
71	Ability to browse from page to page.	X			
72	Ability to compare multiple documents on the same screen.	X			
73	Ability to create and distribute pre-defined searches for multiple users.	X			
74	Ability to easily move either a single page or multiple pages from a multi page TIFF to another multi page TIFF file, with full auditing.	X			
75	Ability to easily perform re-indexing of document properties. Available only at the appropriate security level.	X			
76	Ability to easily reorganize (re-order, rotate, etc.) pages in a multi-page TIFF at any time, with full auditing.		X		
77	Ability to enlarge specific areas of an electronic file.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
78	Ability to have pre-defined search templates.	X			
79	Ability to jump to: • the first page of a document • the last page of a document • the previous page of a document • the next page of a document • a bookmarked page • a specific page of a document	X			
80	Ability to inform the user that a search is being processed (i.e., display the Windows hourglass or a percent complete status bar).	X			
81	Ability to modify stored searches.	X			
82	Ability to name and save search criteria for reuse.	X			
83	Ability to open multiple windows for multiple documents.	X			
84	Ability to overlap documents for comparison.			X	
85	Ability to pan (electronically grab the imaged document and move it around to the location desired) and zoom viewed content.	X			
86	Ability to perform Boolean searches of index attributes (i.e., “and”, “or”, “not”, etc.) with grouping operators (usually represented as parenthesis).	X			
87	Ability to perform range searches for dates and numbers that are indexed (e.g., all documents indexed between a date range).	X			
88	Ability to provide an image viewing and record locking mechanism to allow multiple users to view an image at the same time, yet allowing only one user at a time to modify/annotate/mark up an image.	X			
89	Ability to re-index a document as the result of assignment of an incorrect index attribute (without rescanning).	X			
90	Ability to remember user settings for viewing across documents and user sessions.	X			
91	Ability to retrieve documents to a workstation from a query hit list.	X			
92	Ability to rotate one page in a two-sided documents.	X			
93	Ability to save search criteria into folders for frequently accessed documents.	X			
94	Ability to search on date variations (e.g., using 7/1/08 or 07-01-08, or 2008-07-01, or July 1, 2008 should all work and all provide the same result).	X			
95	Ability to search using special characters as literals in the search string.	X			
96	Ability to size and zoom images.	X			
97	Ability to specify the opening of landscape documents in landscape view. The users should not have to rotate a landscape document.	X			
98	Ability to synchronize index values between the LOB and Imaging systems, including name and status changes.		X		
99	Ability to temporarily store all search queries in a particular search session until the sets are released or the session ended by the user.		X		
100	Ability to view multiple thumbnails at once.	X			
101	Ability to view sheets of correspondence, legal size, and non-standard-sized documents.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
102	Ability to view the following document/image formats: ASCII, BMP (Windows Bitmap), GIF, HTML, JPEG, PDF, RTF, TIFF CCITT IV (tiled), XML and Microsoft Office documents. Use of a proprietary document/image format is discouraged.	X			
103	Ability to view thumbnail sketches (miniature versions of full page images) to allow users to browse rapidly through pages.	X			
104	Ability with any search, that exceeds 5 seconds, to display the first [500, a configurable number] records, notify the user that only the first 500 were displayed, and then prompt the user with the following options: • Cancel or • Refine search or • Continue for another 500 records		X		
105	Ability, at a minimum, to sort within categories by document name, date range, or index fields.	X			
106	Ability for each user individually to specify the location and size of the viewing window on their screen so that the window always appears in the same size and location until the user changes those parameters.	X			
107	Ability to index documents from the legacy microfilm/microfiche retrieval system so they are recognized within the new LOB and imaging systems.		X		
108	Ability to cross reference the indexing information used for imaged data against existing member data and assign a workflow item if no match is found.		X		
109	Ability for the system to automatically populate index fields when not all information is available (e.g., populate the SSN field when only the Retirement ID is given and vice versa).	X			
110	Ability for the system to index using multiple fields (e.g., SSN, Retirement ID, Document Number, Date).		X		

3. Telephone Calls (Call Center)

Telephone Calls (Call Center) Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for staff to log in and out of the phone system.				X
2	Ability for the system to keep a log of all incoming and outgoing calls (including caller, date, length of call, staff member).	X			
3	Ability for management to monitor call center activity on screen (such as number of calls, number of staff members available to take calls, staff members on calls, call activity within the last hour).				X
4	Ability for the system to provide messages to the members waiting to speak to a staff member.				X
5	Ability for the member to obtain information about their retirement account by an automatic telephone system (status of account, balances, etc).				X
6	Ability for the system to automatically bring up a log of previous calls the member has made (date,		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	length, staff member and any notes).				
7	Ability of the system to give the time and date of the call on the message that is left on voice mail.				X
8	Ability to allow messages to be left on intercom/local call.				X
9	Ability of the system to allow entering an alternate voice mail greeting.				X
10	Ability for call center agent to retrieve member record, including LOB data, notes of previous calls, imaged documents, etc.		X		
11	Ability for CTI integration to accept member unique identifier or caller ID from member while in queue so that line of business screen is “primed” with member data when agent actually takes call and the system prompts the operator to confirm the member’s identity.		X		
12	Ability to integrate recorded .wav files into the member records.		X		
13	Ability to capture text of all in-bound and out-bound emails into notes section of member record.		X		
14	Ability to capture typed notes within member record following every phone call, categorizing calls based upon the type of issue and its current status.	X			
15	Ability for call center agent to check status of all pending member requests from a simple query.	X			
16	Ability to email substance of a received call to a specific member of staff for them to follow-up on call.	X			
17	Ability to provide for the conversion of call center notes from the existing member database into new LOB system to ensure continued access to notes within the new system.	X			
18	Ability for system to play music/radio while caller waits.				X
19	Ability to program specific messages for peak call times (annual statements, etc.) and system down times.				X
20	Ability for the member to change account information using an automated phone system per parameters set by TCRS staff.				X
21	Ability to generate report of all calls which generate an action in the workflow.	X			
22	Ability to interface with TDD and Disability software.				X
23	Ability for a caller to speak to a representative without providing any identifying information.				X
24	Ability for call center functionality to include outgoing reminder phone calls for counseling appointment by an automated voice similar to those now sent by doctor's offices, Comcast, etc.				X
25	Ability to support current day standard telephone functionality (hold, transfer, 3-way calling internal and external) as well as upgradable to future industry-wide adopted technologies.				X
26	Ability for the system to display individuals other than the member who are authorized to make changes on the account per TCRS rules.		X		

4. Activity Tracking

Activity Tracking Requirements Matrix

The following table provides Deloitte’s Consulting’s response for meeting the requirements for this business process within DPAS.

Item	Description	Response

		Included	Modification	Third Party	Excluded
1	Ability to automatically display all past activity tracking events that are similar to the member's current request in order to alert the user that the member is perhaps "fishing" for a different TCRS response to his/her previous inquiry.	X			
2	Ability to limit access for certain activities, such as being able to modify or delete an appointment.			X	
3	Ability to automatically capture user-id, user name, data, and time stamp for all contacts (automatically user-id, user name, date and time stamped) all contacts and inquiries, including comment, status, routing, requestor, caller, relationship, etc. (via email, correspondence, telephone calls, counseling sessions, personal contact).	X			
4	Ability to capture activity/contact with customers by providing users with standard codes as well as the ability to input free form text.	X			
5	Ability to capture and access in the activity tracking log all information that was provided/sent to the member and when it was sent.	X			
6	Ability to capture information from counseling sessions, such as questions asked, answers provided, information entered, forms/correspondence generated, etc.	X			
7	Ability to capture information on mass mailings (type, to whom, and when).	X			
8	Ability to capture request for income verification.	X			
9	Ability to capture, at the individual member level, the preferred means of communication (e.g., mail, telephone, email, fax, language preference, relay telephone, Braille).	X			
10	Ability to generate reports based on telephone call statistics (type of call, type of caller, forecasting).		X		
11	Ability to report statistics on each type of form/correspondence generated.	X			
12	Ability to generate a counseling appointment schedule, assign counselors to specific counseling appointments, and generate various listings, etc. as needed.			X	
13	Ability to generate a listing of counseling appointments based on various parameters (by day, week, month, etc; by an individual counselor or all counselors, etc.).			X	
14	Ability to generate a report of mass mailings (type, to whom, and when).	X			
15	Ability to generate an "appointment reminder" correspondence informing the member about an upcoming counseling session.			X	
16	Ability to generate activity log reports based on various criteria (SSN, name, date, user, business process, etc.).		X		
17	Ability to print all activity tracking entries for a contact.	X			
18	Ability to print any activity tracking view exactly as it appears on the user's screen.	X			
19	Ability to provide managers with an end of day appointment change report for review.			X	
20	Ability to integrate activity tracking log capabilities with the line-of-business system, not requiring duplicate input of data or separate action and/or access modes.	X			
21	Ability for users to tie documents, images, spreadsheets, and similar or related items to any activity tracking log entry.	X			
22	Ability to access any activity tracking log entry by SSN, name, date of birth, phone number, or other lookup fields.	X			
23	Ability to access the member address update screen (both active and retired) from any customer service screen.	X			
24	Ability to accommodate "returned mail" as one of the imaging document types and to trigger a returned mail workflow process for processing, investigation, etc.	X			
25	Ability to automatically link calendar activities to contacts.			X	
26	Ability to automatically pass the document code/document name of imaged documents from the imaging system to the line-of-business system and update the activity tracking log contained in the line-	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	of-business system.				
27	Ability to automatically update the activity tracking database for life events, including but not limited to beneficiary designation, request for retirement benefit estimate, retirement application, disability application, termination of employment, refund requests, service credit purchases, death of member, retiree, or beneficiary, etc.	X			
28	Ability to display all activity tracking transactions dates and times.	X			
29	Ability to display comments/notes attached to a member's account.	X			
30	Ability to easily access all pertinent information on a "customer" (member, retiree, or beneficiary) when a contact occurs.	X			
31	Ability to initiate workflow processes both automatically (via the imaging of documents or captured from member/employer use of web portal) and manually based on the receipt of a phone-call, walk-in, fax, email, etc.	X			
32	Ability to produce forms/correspondence online; consolidate multiple documents for the same person and print in a single print job, add image copy to member folder; and update activity tracking log.	X			
33	Ability to provide a user interface for customer service/activity tracking screens that "looks and feels" to the user like the screens used in the line-of-business solution (but the screens are to be customer inquiry and service oriented, and not necessarily process work process oriented).	X			
34	Ability to provide the same activity tracking features applicable to organizations (employers, banks, third parties, etc.) as those that are applicable to people (members, beneficiaries, etc.).	X			
35	Ability to provide densely packed customer service screens (inquiry only) that contain as much summary information as possible for given functional areas (death, refund, pension payroll, disability, beneficiary, etc.) and the ability to drill-down for detailed information if so desired by the user; as well as the ability to scroll through entire member's account to see all pertinent information at a glance rather than searching numerous screens and programs in a piece-meal fashion.	X			
36	Ability to schedule counseling appointments based on counselor availability.			X	
37	Ability to scroll through activity log chronologically (oldest first, newest first) and to sort by category of contact.	X			
38	Ability to track all member and employer related events as defined by TCRS business areas.	X			
39	Ability to update activity tracking information to reflect the most recent transaction or information provided to the customer via the system (i.e., change in beneficiary, retirement estimate, etc.) or as a result of a communication between TCRS and the customer – phone, email, mail, fax, or in person.	X			

5. Workflow

Workflow Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Req ID	Description	Response

		Included	Modification	Third Party	Excluded
1	Ability for management to set the frequency of when automatically generated change letters are produced.		X		
2	Ability for supervisor to monitor and be notified of staff's assigned work and progress.	X			
3	Ability to "turn on" and "turn off" the audit/review step of various workflow business processes based on TCRS defined parameters (e.g., by user, by business process).	X			
4	Ability to prevent a work object from being removed from the workflow system without an entry being made in the workflow tracking log.	X			
5	Ability to query on work objects that have been assigned/retrieved/reserved by an individual.	X			
6	Ability to report on how much "lapsed time" a work object was in every work step/work process in order to ascertain how long it took to perform various processing on an account (e.g., establish "normal" processing time from start to finish).	X			
7	Ability to search such that the status (active, suspended awaiting additional information, etc.) of any work-item can be determined through a simple query based on multiple criteria such as member name, date-initiated, member id, etc.	X			
8	Ability to support measurement capabilities, including but not limited to average/maximum/minimum queue time, queue lengths, performance metrics, and process bottleneck identification; provide workflow tracking, statistics and process/user throughput reports.	X			
9	Ability for the system to trigger various workflow processes based upon the initial value or a change in value of a field in the associated member account.		X		
10	Ability to assign and prioritize a work object based on business processing logic such that the processing of that work object takes precedence over other work objects within a work process; the default priority of all work objects should be the same and work objects of the same priority should be processed on a first-in/first-out basis.	X			
11	Ability to utilize electronic forms to initiate workflow. The same sequencing must be used across scanned, imported, or electronically initiated workflows to allow either FIFO or FILO processing of work items.	X			
12	Ability to produce the following workflow reports (at a minimum): • All suspended work items. • All work items in process. • User-oriented work throughput to include information such as work items processed by each user, the average/maximum/minimum time required for processing, etc. • Queue-oriented work throughput to include information such as queue lengths, average/maximum/minimum queue time, and other performance metrics. • All work processed through the system during a user-specified period of time, identifying the work items by type, member id, etc.	X			
13	Ability to "leave" a work process in order to access another process without exiting/stopping the first process (i.e., multi-tasking).	X			
14	Ability to "route back" to the original worker a work object that is sent back by a reviewer so that the original worker can make the needed correction/changes; upon completion the item should "route forward" to the same reviewer.	X			
15	Ability to assign a work object to either a work queue or to a specific user.	X			
16	Ability for the system to handle conditional routing of a work object based on defined business purposes.	X			
17	Ability for the system to identify those cases where the processing of a work object has been suspended for a defined period of time and create and/or forward the work object to the appropriate work process/unit for processing.	X			
18	Ability for the system to show the status of all work objects in the system by workflow processes and any sub-processes (what activity/step it is in, who's working on it, when it was completed, etc.).	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
19	Ability to adjust the movement of work objects throughout the workflow to reflect organizational changes, changing process responsibilities, effective dates, etc.	X			
20	Ability to age suspended work objects and automatically route work objects depending upon aging criteria.	X			
21	Ability to allow for reassignment of a work object that has been assigned/retrieved/reserved by an individual in cases of sickness, injury, employee terminations, date range, or absence and retain the reason(s) for such reassignment including the identification of the individuals from and to involved in the reassignment.	X			
22	Ability to attach and save notes, a standardized workflow review form, and/or a standalone file (e.g., Word document, Excel spreadsheet, text file, voice file) to a work object and make the attachment visible to other users.	X			
23	Ability to automatically generate reminders/ticklers, both in correspondence to members who have not responded to requests for additional information and to staff who may need to provide personal follow-up on incomplete tasks.	X			
24	Ability to build workflows or modify existing workflows for all of those processes TCRS elects to workflow enable based on TCRS needs.	X			
25	Ability to create/read/update/delete users assigned to work queues without interrupting the workflow processing.	X			
26	Ability to identify/indicate due dates/completion dates and assign them to a particular work object and/or work step within a workflow process; exceeding the due date/completion date would cause the associated work object to follow a user-defined “exception route”.	X			
27	Ability to identify/notify/restrict (selectively) all parties when there are multiple work processes activated.	X			
28	Ability to merge a work object created as the result of an incoming document to an already existing work object.	X			
29	Ability to perform version control of workflows, and the migration of workflow folders from one version to another, including documentation of changes made to the workflow processes.	X			
30	Ability to query on workload individually by process and/or by all processes (i.e., daily, weekly, monthly, calendar year, fiscal year). Identify how many accounts are at each work step.	X			
31	Ability to recognize if an account/folder needs special processing in another work area and allow the manual, “on-the-fly” definition of an alternative routing of the work object.	X			
32	Ability to recognize the Account Status (active, retired, inactive, etc.) in a member’s database record and based upon the action or request of the member, generate and forward multiple work objects for simultaneous processing by the appropriate work areas.		X		
33	Ability to record forms received and correspondence sent and notify other workflows that are in-process.	X			
34	Ability to support a checklist of documents that are required to process a work object within a particular work step/work process. The checklist must be updated, without manual intervention, as the notification of the documents is sent from the imaging system or as the result of a TCRS user screen entry.	X			
35	Ability to support a time-based alarm/reminder capability for follow-up tracking of functions within a workflow (e.g., non-receipt of the bank information within a definable number of business days).	X			
36	Ability to support work process suspension capability such that, for example, the processing of a request for direct deposit can be suspended while awaiting the receipt of bank confirmation of the account number and routing information.	X			
37	Ability to suspend the processing of a work object because TCRS is awaiting information from an external entity (member, employer, third party, etc.) or from an internal entity (users, audit, reviewer, etc.) and resume, without requiring manual intervention, the processing of that work object once the information has been received.	X			
38	Ability to, within any work step/work process, modify the contents of “status indicators” within the database record associated with the work object.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
39	Ability to display unique identifying member information on each screen when focused on a single member.	X			
40	Ability to collaborate or share information with another process or individual outside of the normal workflow process, with visibility as to who collaborated or shared the process.		X		
41	Ability to have visibility/disclosure of other work being performed, and knowledge/notification of any changes occurring to a member account.	X			
42	Ability for the system to assign, change values of, and query against the value of any work object attribute.	X			
43	Ability for the system to handle conditional routing of a work object based on the state of any work item attribute.	X			
44	Ability to simultaneously create and test multiple additional workflow routes without impact to other users doing the same thing.	X			
45	Ability to release to production tested modifications to workflow routes without significant impact to the production system. Existing work objects must continue to be processed, not lost because of the deletion of a work step in the modified route.	X			
46	Ability to initiate multiple work objects upon the receipt of a single document (e.g., initiate a change of address process as well as a service retirement upon receipt of a service retirement form that contains a new address).	X			
47	Ability to display the status (not-started, in-process, pending more information, completed, etc.) of all workflow processes.	X			
48	Integration of imaging, print archive, and workflow management, collectively also known as Enterprise Content Management or ECM, with the LOB solution – to include both "tight" workflow (i.e., enabling a transaction/function as part of a defined workflow path), as well as the ability to perform a transaction/function "directly" (i.e., 'outside' of the defined workflow path).		X		
49	Ability to measure performance of individual staff (e.g., work items completed, amount of time between assignment and completion, error count, average time per task to completion).		X		
50	Ability of the system to notify a supervisor if a work item is returned for correction xx number of times.		X		
51	Ability for reviewer, if any errors/irregularities are detected, to correct the problem him/herself or to send the transaction back to the originator for re-work (at the reviewer's discretion).	X			
52	Ability to send a transaction to a reviewer for approval and/or audit.	X			
53	Ability to assign benefit calculations, prior service requests and other requests to specific staff members.	X			

6. Enrollment and Beneficiary

Enrollment and Beneficiary Requirements Matrix

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to edit member information.	X			
2	Ability for employers to add member information through the contribution reports.	X			
3	Ability to designate "Estate" as the default beneficiary.	X			
4	Ability to edit beneficiary information and add an unlimited number of beneficiaries.	X			
5	Ability for members to view their own account information and update certain information such as address, date of birth, beneficiary data, etc.	X			
6	Ability for employers to update member demographic information such as employee address, date of birth, etc.	X			
7	Ability to indicate in a status field when an active employee is deceased.	X			
8	Ability to generate a customized change of beneficiary letter.	X			
9	Ability to accept member enrollments from ERP solutions such as PeopleSoft or SAP.	X			
10	Ability for employers to enroll new members online.	X			
11	Ability to identify and report through a workflow process that a member is earning salary, contributions, and service under more than one employer for the same period of time.	X			
12	Ability to identify duplicate names with the same or similar SSN and/or date of birth for staff intervention/validation then automatically generate a correspondence to the member requesting verification of SSN and/or date of birth and suspend the account until verification is received.	X			
13	Ability to identify duplicate SSN conditions and flag them for staff intervention/validation.	X			
14	Ability to capture enrollment of members who transfer from one affiliated employer to another.	X			
15	Ability to capture membership waiver information provided on a waiver form or web utility via the web (i.e., employer name, employer number, and school year).		X		
16	Ability to capture the enrollment of new employees, transferring employees, employees returning to service, returning from a furlough, or returning from a leave of absence.	X			
17	Ability to communicate all invalid entries in “real-time” and edit/validate “real-time” corrections.	X			
18	Ability to easily switch between enrolling new members and updating existing members.	X			
19	Ability to validate incoming data formats from employer and other TCRS affiliates (e.g., numeric, field size, physical file attributes).	X			
20	Ability to distribute enrollment-related forms (welcome correspondence, enrollment application, beneficiary nomination, etc.) initiated via request by workflow or web.	X			
21	Ability to generate a membership waiver acknowledgement correspondence.	X			
22	Ability to generate a pre-filled eligibility questionnaire to an employee or an employer and track the distribution, turn-around, and processing of that form.	X			
23	Ability to generate a pre-filled membership application and track the distribution, turn-around, and processing of that form.	X			
24	Ability to generate a pre-filled membership waiver eligibility form and track the distribution, turn-around, and processing of that form.	X			
25	Ability to generate correspondence for the approval or denial of membership eligibility with distribution	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	to both the employee and employer.				
26	Ability to generate the enrollment welcome packet (e.g., cover/welcome correspondence, member handbook, enrollment application form, return to service form, beneficiary nomination form, previously refunded service form) and determine the contents of the packet based on member status.	X			
27	Ability to produce a member's employer history information in a single report.	X			
28	Ability to produce a member's plan history information in a single report.	X			
29	Ability to produce a report of all employees for whom wages and contributions are reported by the employer but no enrollment information has been received and optionally automatically generate a pre-filled membership application for each such employee.	X			
30	Ability to produce statistical, demographic, and error reports associated with enrollments, including the method by which the enrollment information was obtained (e.g., paper form, Web-interface).	X			
31	Ability to support both mandatory and non-mandatory fields and automatically generate an additional information correspondence from an incomplete enrollment record and include a pre-filled membership application highlighting the areas that need to be completed or corrected.	X			
32	Ability to flag an enrollment record if enrollment information is received for an individual currently receiving a monthly pension benefit or if the individual previously waived membership.	X			
33	Ability for the employer and/or TCRS staff to create, update, and display enrollment information (i.e., member demographics and employment information) provided from an enrollment form, Web utility, or various other media (e.g., tape, diskette, CD, etc.).	X			
34	Ability to accept beneficiary information without Social Security number. (Members may choose beneficiaries who reside outside the United States and therefore have no SSN.)	X			
35	Ability to assign and continue to use an established employee ID number for members.	X			
36	Ability to assign/associate members to their appropriate retirement plan, corresponding contribution rate, coverage, and class based on eligibility rules.	X			
37	Ability to automatically set up a web account for a new member and therefore provide access to his/her account and/or files via the web through use of an ID and PIN numbers upon successful member enrollment.	X			
38	Ability to create, revise, display and print members' information including name, address, Social Security number, date of birth, employment date, employment details, membership class, etc.	X			
39	Ability to create, revise, maintain, inquire and display enrollment information (address, phone, employment information, etc.) with effective dates.	X			
40	Ability to enforce edits on addresses based on postal regulations and have those edits prompt users to follow the standard prior to successful update. (e.g., a user enters a postal code; the system will pre-fill the corresponding city and State and allow overwriting of same without validation against the postal code). The system will ensure synchronization, so if a user enters (St., Street, street or st.) the system will convert it to a single standardized format.	X			
41	Ability to enroll members from their first day of employment and then, if the employee waives membership within the waiver period (XX days), either credit the employer with the employer and member portions of the contributions that need to be returned (the employer would be responsible for returning the employee's portion to the employee) or automatically credit the employer with their portion of the contributions that need to be returned and directly refund the employee's portion.	X			
42	Ability to ensure (possibly through workflow) that if a minor is added as a primary beneficiary that a guardian is also established.	X			
43	Ability to manually enroll a member outside of the control of workflow and automatic enrollment through the wage and contribution reporting process.	X			
44	Ability to name and set up a primary, secondary, guardian, trust, estate, charity, etc. as a beneficiary as well as establish the percentages, payment priority, etc.	X			
45	Ability to provide an online web utility that "leads" employers, employees, or TCRS staff through an eligibility questionnaire so that membership eligibility can be verified, as well as the ability to track the		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	usage of that feature (e.g., who, when, how often).				
46	Ability to retrieve and update an incomplete enrollment once the additional information is received from either the member or employer.	X			
47	Ability to review enrollment information captured through various media (e.g., tape, diskette, CD, web) prior to the data being committed to the database.	X			
48	Ability to store, retrieve and resume an incomplete enrollment.	X			
49	Ability to support bi-directional links between member(s) and beneficiary(ies) so searches can be performed on a beneficiary's SSN and locate the original member's account.	X			
50	Ability to support different enrollment rules pertaining to different time periods and to accommodate members who are "grand-fathered" in based on those rules.	X			
51	Ability to update member demographic information while processing an enrollment.	X			
52	Ability to validate against enrollment eligibility requirements.	X			
53	Ability to validate against membership waiver eligibility requirements.	X			
54	Ability to compare beneficiary information on the retirement application with data already present within the LOB system, identify discrepancies, and suspend the retirement process until all discrepancies have been resolved.		X		
55	Ability to capture an "indicator" to determine if the member's beneficiary change should be printed on the membership statement.	X			
56	Ability to capture and maintain guardians, conservators, power-of-attorney and other legal designations.	X			
57	Ability to capture and maintain marital status information (single, married, widowed, and divorced).	X			
58	Ability to capture and maintain honorifics (e.g., Dr., Mr., Ms., Mrs., Jr.).	X			
59	Ability to generate a report on members that have been enrolled, but there have been no contributions or service reported after a TCRS determined time frame.		X		
60	Ability to capture and maintain multiple beneficiaries, their entitlement grouping and/or percentage allocation, or flat dollar amount.	X			
61	Ability to capture and maintain separate disbursement addresses for refunds, death benefits and annuity.	X			
62	Ability to capture and track date of birth of member and beneficiary.	X			
63	Ability to capture and track Social Security number of member and beneficiary.	X			
64	Ability to capture detailed beneficiary (including survivor annuitant) information, including beneficiary name, benefit amount or percent, sex, SSN, etc.	X			
65	Ability to capture, update, inquire, and delete beneficiary change information.	X			
66	Ability to (in the case in which a member is both a retiree and a beneficiary), "tie" together information so that users can view all the benefits an individual is receiving.	X			
67	Ability to cross reference member, beneficiary, alternate payee, survivor annuitant Social Security numbers showing relationship, etc.	X			
68	Ability to determine whether the retiree is allowed to change beneficiary based on the retirement option chosen or restrictions placed on account (e.g., divorce).	X			
69	Ability to enclose a "Nomination of Beneficiary" correspondence explaining what corrections are needed and include a pre-filled new form with the correct information and what missing/incorrect information is still needed.	X			
70	Ability to generate follow up correspondence on flagged beneficiary changes at regular intervals for those that are pending based on "aging" criteria.	X			
71	Ability to generate a report identifying members who have not elected a beneficiary and send them a correspondence and a pre-filled Beneficiary Change form to be completed and returned.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
72	Ability to generate various acknowledgement correspondences (beneficiaries, estate and trust).	X			
73	Ability to maintain a flag that indicates a beneficiary change has been initiated but not completed.	X			
74	Ability to perform an edit to ensure that a secondary beneficiary cannot be added unless a primary beneficiary has already been added.	X			
75	Ability to perform an edit to determine that a member did not name self as a beneficiary.	X			
76	Ability to track information regarding the member's classification or job group within the plan.	X			
77	Ability to manage beneficiaries per State law.	X			
78	Ability to capture and maintain race and ethnic demographic information on members, retirees, and beneficiaries. Information is not required for enrollment.		X		
79	Ability to capture and maintain the addresses of all beneficiaries if different from member's address.	X			
80	Ability to generate correspondence to Employer indicating employees who are missing data.	X			
81	Ability to generate change letters via email, online notification and paper letter.	X			

7. Member Statements

Member Statements Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for the system to automatically create annual member statements.	X			
2	Ability for the system to create member statement(s) at any date.	X			
3	Ability to provide control report of all members who did not receive membership statements and reason for each member.	X			
4	Ability to provide various management reports that provide various statistics about the total number of accounts, number of statements generated, number unable to be generated, number un-deliverable, total occurrences of missing information by type, etc.	X			
5	Ability to default the membership statement distribution method to be delivered to employer with ability for members to modify it to be delivered via email/web to them directly.	X			
6	Ability to display and print individual membership statements by the member or staff.	X			
7	Ability to display online and print historic membership statement information "identical" in both content and format to the original.	X			
8	Ability to extract and provide all appropriate membership statement data in the format prescribed by TCRS with statement content (e.g., plan description, text, benefit estimates) driven by membership characteristics.	X			
9	Ability to generate a report to be sent to each employer indicating member's name, SSN, contributions, interest, and service totals through fiscal year end each year.	X			
10	Ability to provide Employer Annual Statements to the employers detailing their service, contribution, and interest by employee and in total.	X			
11	Ability to provide employers with a summary, sub-totals, etc. of membership statement information.	X			
12	Ability to display the lowest level of detail of account transactions and date (e.g., bi-weekly, semi-monthly) on membership statements, as well as identification of the type of transaction.	X			
13	Ability to display the most recent/current employer number and employer name on the membership statement.	X			
14	Ability to extract and provide retirement estimate information on the membership statement for those members that are eligible for a retirement benefit based on various levels of qualifications (e.g., if the member is within 5 years of normal retirement the membership statement should provide both an early and normal retirement benefit estimate).	X			
15	Ability to extract the desired information to be sent to OIR for generating the membership statements.	X			
16	Ability to generate a revised membership statement for those members that are affected by an adjustment.	X			
17	Ability to generate a new statement for the member when a SSN problem has been corrected.	X			
18	Ability to handle a new format for the membership statement should TCRS elect to change/modify the format.	X			
19	Ability to identify if a member is refunded, retired, or deceased and, if so, optionally bypass production of the membership statement.	X			
20	Ability to identify members eligible to receive a membership statement.	X			
21	Ability to identify/store/display why an estimate was not included on the membership statement.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
22	Ability to print messages on membership statement based upon specified parameters being fulfilled.	X			
23	Ability to provide for beneficiary information to be displayed on membership statements.	X			
24	Ability to provide for earliest retirement date and various retirement option amounts to be displayed, including disability, on membership statements.	X			
25	Ability to provide service credit total and a break-out of service credit by type (Military, Accrued, etc) on membership statements.	X			
26	Ability to re-run the membership statement job for a specific retirement system, employer, members within an employer, or a specific member.	X			
27	Ability to send one consolidated membership statement to members who have participation in more than one plan or group.	X			
28	Ability to sort membership statements by one or more of a number of fields (including postal code, distribution indicator, etc.).	X			
29	Ability to store and display on the membership statement various purchase of service contributions with the status of “not to be withdrawn” to inform member that upon retirement these monies cannot be withdrawn.	X			
30	Ability to support the fields desired on the membership statement and to allocate space for this information in the file layout.	X			
31	Ability to automatically suspend accounts that are inactive (7 years) and not vested to stop interest from accumulating and generate correspondence to member (suspense letter).		X		
32	Ability for the system to stop annual statement correspondence for members that fall between a time range set by TCRS. (i.e., after 7 years we stop mailing statements, but have the ability to mail a group in bulk at a later date).		X		

8. Counseling and Benefit Estimates

Counseling and Benefit Estimates Requirements Matrix

The following table provides Deloitte Consulting’s response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to calculate actual value of a lump sum or monthly annuity payment for a member’s retirement service credit accrued during time of marriage.	X			
2	Ability to identify the current employer or employers for a member.	X			
3	Ability for the estimate to reflect the annual amount of the Regular plan (benefit x 12) and the percentage of AFC that it represents.	X			
4	Ability to define and display the date range used to calculate the AFC.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
5	Ability to calculate multiple estimates for a member with the user having to enter only those fields that are changed on each iteration.	X			
6	Ability to edit benefit calculation information and view the resultant benefit estimate on the same workstation screen simultaneously.	X			
7	Ability to identify and flag frequent callers who repeatedly request benefit estimates.	X			
8	Ability to easily create benefit estimates for an entire department.		X		
9	Ability to uniquely identify each benefit estimate that is generated by automatically assigning a benefit estimate number, source of the estimate, name of the estimator, and the date and time it was created.	X			
10	Ability to calculate in-service death benefits.	X			
11	Ability to capture a benefit estimate request whether received by mail, email, phone, fax, hand delivery, or web.	X			
12	Ability to capture both standard and customized comment fields for inclusion on the benefit estimate.	X			
13	Ability to generate benefit estimate results in a standardized correspondence format.	X			
14	Ability to generate printed benefit estimate for all applicable retirement causes (service, disability, multiple plans, early, vested, etc.) and all available benefit plans that can also be distributed to the member/employer in electronic or paper format.	X			
15	Ability for staff to generate benefit estimates off-site via the web.	X			
16	Ability for user to modify or delete estimates that are still "work in progress" and have not been made a part of the member's preserved history (applicable only to those estimates that the user has created).	X			
17	Ability to archive, recall, and display estimates in both a summary and detailed view that can also be distributed to the member/employer in electronic or paper format.	X			
18	Ability to calculate contributions, interest and service through member's projected date of retirement based on the member's employment status (using different period-specific growth rates applicable to salary and COLA within the same estimate scenario) and calculate benefit estimates accordingly.	X			
19	Ability to determine the member's earliest retirement date based on the retirement eligibility rules.	X			
20	Ability to display benefit estimate results in either whole dollars or dollars and cents.	X			
21	Ability to display multiple benefit estimates for side-by-side comparison analysis.		X		
22	Ability to estimate benefits payable to beneficiaries under various benefit plans.	X			
23	Ability to generate an estimate for BA (Beneficiary Allowance) including DD (Deceased Disability). Currently, an estimate can be generated, but the language on the estimate is not specific to BA's monthly benefit.	X			
24	Ability to identify special conditions within a member's account (outstanding purchase of service, active account, inactive account, vested, previously retired, judge, law enforcement, etc.) as it relates to performing the benefit estimate.	X			
25	Ability to perform all Final Average Salary computations for all TCRS supported retirement systems, retirement types, employer benefit options, and retiree benefit plans.	X			
26	Ability to pre-populate the estimate calculation with real-time data.	X			
27	Ability to provide a standardized online form for a member to initiate an estimate request via the web.	X			
28	Ability to provide a user interface to accommodate benefit estimate parameter entry, viewing of calculation results, overriding of system-supplied information, and conducting an estimate based upon "what-if" analysis.	X			
29	Ability to provide a web-based benefit estimate calculator to assist members with estimating their pension amount using "real" production data.	X			
30	Ability to reflect taxes and other deductions in benefit estimates, yielding a "net" benefit estimate.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
31	Ability to review current data in member's account (both in summary and in detail) prior to performing an estimate.	X			
32	Ability to save the parameters and results of the generated estimate directly from the end-user's workstation.	X			
33	Ability to support IRS 415 limitations in generating benefit estimates.	X			
34	Ability to include cost of living adjustments and `inflation rates in calculating benefit estimates.	X			
35	Ability to use member's beneficiary information on file when performing an estimate and to over-ride/change for calculation purposes if needed.	X			
36	Ability to include prior service that has not yet been established in the estimate and pre-populate with details from the prior service establishment subsystem if a request has already been processed.	X			
37	Ability to consolidate separately calculated split estimates into a single benefit estimate display if the same retiree benefit plan choices are available to each of the separately calculated estimates in the split scenario.	X			
38	Ability for the system to indicate if multiple employers are included and indicate if multiple service types were used in calculating the estimate. (e.g., retirement type 251, out-of-state service (department code 5XXXX)).	X			
39	Ability to display all details used in calculating a benefit on a benefit estimate.	X			
40	When a member is requesting an estimate online for a future date of retirement based on service earned the system should indicate whether the estimate assumes that the member will continue to work under the same conditions or retire with current service.	X			
41	Ability to update the disability earnings limit to the system as the limit is updated by the IRS.	X			
42	Ability to limit the preparation of divorce estimates to TCRS Staff only.	X			
43	Ability for members to schedule counseling appointments online.		X		
44	Ability for the system to prompt members who schedule appointments online to answer a list of questions (yes/no, dates).		X		
45	Ability for the system to provide counseling prompts (e.g., prompt counselor to verify hire date and reported service date if member's employer has probationary service period, prompt counselor to ask about gaps in reported service)	X			
46	Ability to set appointment duration and intervals to TCRS specifications.	X			
47	Ability for the system to generate an initial estimate and include it in the workflow that the counselor will have access to prior to the appointment.		X		
48	Ability to generate the counseling prompts when an online appointment is made.		X		
49	Ability to request specific counselors for online appointments.		X		
50	Ability for TCRS staff, including call center staff, to create and manage online appointments.		X		
51	Ability for user to override benefit estimate parameters.	X			
52	Ability to create an estimate for the "Social Security leveling" (SSL) option incorporating information provided by the Social Security Administration regarding the member's projected Social Security benefit at age 62 and using level income factors base on an individual's age at retirement from covered service.		X		
53	Ability to generate a break even date for various employee benefit payment plans (e.g., Social Security leveling, early vs. service retirement).		X		
54	Ability for retirees, members, or payroll officers to self-register via the web for classes, counseling sessions or other services.		X		
55	Ability to set date parameters in calculating benefit estimates.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
56	Ability for system to generate divorce estimates for specific date ranges.	X			

9. Purchase of Service Credits

Purchase of Service Credits Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to automatically calculate the cost to purchase refunds based on plan requirements.	X			
2	Ability to calculate back-payments based on rules specific to each retirement type, kind of service and department code.	X			
3	Ability to add salary without service to months which already have salary and service reported for them.	X			
4	Ability to delete requests if they were found to be incorrect.	X			
5	Ability for system to update interest cost from previous prior service cost statements.		X		
6	Ability to allow service to be established within the same date range as existing service as long as it is not greater than the maximum amount of time within the date range.	X			
7	Ability to support (with appropriate controls) an override function to approve or deny requests the system is not capable of handling due to law changes or special circumstances such as non-elect service.	X			
8	Ability to automatically produce correspondence to the member notifying them of the result of their request, missing information, etc. and include staff comments.	X			
9	Ability to automate the approval of future educational leave service after all conditions for service update have been met.	X			
10	Ability to store payment information for the installment payment plan.	X			
11	Ability to track multiple payments made through the rollover process within the XX day deadline on the system.	X			
12	Ability to automatically identify types of military service and determine approval or denial.		X		
13	Ability to receive a weekly report of specialist activity, including the number of cases worked, returned, deleted, and assigned.	X			
14	Ability to generate reports (weekly, monthly, quarterly, annually) of amount worked and paid by types of prior service per group.	X			
15	Ability to automatically update approved service to active employee records.	X			
16	Ability to process prior service for retirees and automatically create the appropriate adjustments to the benefit calculations.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
17	Ability for members to request prior service, monitor its status, review payment history, and change bank account information online.		X		
18	Ability for TCRS management to determine which staff members can access the prior service system.	X			
19	Ability for management to review and update kinds of service information such as update code, name, description, begin date, end date, contribution date, interest date, service type free, and service type paid.	X			
20	Ability for management to update historical employer and employee contribution rates to the system.	X			
21	Ability to keep an online action log for each prior service claim on the system (to include action, staff member name, date).	X			
22	Ability for staff members to make notes on the system for each prior service claim.	X			
23	Ability for the auditor to audit the prior service claim online and put the claim back in the workflow to be corrected by the staff member.	X			
24	Ability for staff to review and edit all information associated with a prior service claim.	X			
25	Ability for staff to modify prior service claims that are on the system but not yet audited/approved.	X			
26	Ability to view all images from the document database needed to process a prior service billing.	X			
27	Ability to purchase any amount of service credit as allowed by business rules, including service less than 1 month including partial months. (e.g., .05 months).	X			
28	Ability to automatically generate approval letters for current educational leave once the required information is provided and the member is designated as eligible.	X			
29	Ability to determine the balance of the salary required for interrupted service (educational leave, temporary disability, military service, etc) after the annual salary is entered or populated from last reported salary prior to the break.	X			
30	Ability to enable the specialist to change beginning and ending dates for prior service, subject to approval by audit.	X			
31	Ability to automatically generate correspondence to members requesting to purchase out-of-State service that explains the effect on the benefit using TCRS defined criteria.	X			
32	Ability to split military service automatically between types of service, with automatic validation of appropriate time period and calculation of billing amounts.	X			
33	Ability to approve partial service credits, denying service for overlapping time periods.	X			
34	Ability to review employer information and determine the correct kind of service and identify service as either employer paid, employee paid, or denied. If the service is denied, the reason for the denial should be easily identified.	X			
35	Ability to handle ACH returns, to establish receivable (if needed), and track collection.	X			
36	Ability to handle returned checks, to establish receivable (if needed), and track collection.	X			
37	Ability to create an un-remitted contribution report so that TCRS knows what money is still owed on all outstanding service purchases.	X			
38	Ability to provide the employer and/or TCRS staff with the capability to extract purchase of service reports through a Web utility (e.g., report listing all satisfied/outstanding purchase of service agreements, report listing any outstanding purchase of service receivable against the employer).	X			
39	Ability to capture a transaction date, effective date, and amount remitted for each purchase of service payment received from member, employer, or financial institution.	X			
40	Ability to capture a request for all types of service purchases via a purchase of service application form.	X			
41	Ability to capture from the employer, member, or TCRS staff a request for a purchase of service cost statement or update to a previous cost statement (for all types of service purchases) through a Web utility.		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
42	Ability to report how many service credit purchase agreements were requested, processed, paid for in a single lump-sum payment or are continuing to be paid.	X			
43	Ability to extract certain purchase of service information so that the actuary can review and determine the cost of purchase for those cases that must be handled/calculated in this manner.	X			
44	Ability to automatically generate a correspondence requesting additional information relating to an incomplete purchase of service record and include the appropriate application highlighting the areas that need to be completed or corrected.	X			
45	Ability to automatically generate reimbursement (with a correspondence of explanation) to the employer, member, or financial institution for an overpaid or member-rescinded purchase of service agreement.	X			
46	Ability to automatically generate a denial correspondence if member is ineligible to purchase service credit.	X			
47	Ability to automatically generate a service purchase agreement/cost sheet/invoice (turn-around document) for the member which provides the member cost of the purchase, choice of payment plans, terms and conditions for each payment plan, and a comparison of the member's estimated future retirement benefit with and without the purchase.	X			
48	Ability to automatically generate a service purchase agreement/cost sheet/invoice (turn-around document) for the employer (if applicable) which provides the employer's share of the cost of the member's purchase and the terms and conditions.	X			
49	Ability to automatically generate a statement (revised purchase agreement/cost sheet/invoice) when an overdue payment arrives.	X			
50	Ability to automatically generate delinquency correspondence (e.g., 90-days, 120-days, etc.).	X			
51	Ability to automatically generate correspondence of TCRS decision to cancel the purchase due to overdue payments including intent to return all payments made to date.	X			
52	Ability to produce a correspondence to acknowledge completion of a purchase of service.	X			
53	Ability to produce a correspondence to acknowledge receipt of each application.	X			
54	Ability for TCRS to cancel purchase if payment is overdue by more than XX days, and set up an account payable to return all payments made by member and employer prior to cancellation.		X		
55	Ability for members and/or employers to make payments directly via an electronic payment (Web-based, ACH, wire transfer).		X		
56	Ability to "pend" purchase of service payments (from both employer and member) until the purchase has been completed, then post the full amount of service credit purchased to the member's account. TCRS does not want partial postings.	X			
57	Ability to accept incoming rollover payments from financial institutions toward a member's purchase of service receivable.	X			
58	Ability to accommodate a member's election to rescind a purchase of service agreement and reverse all service credit purchases that were posted prior to the decision to rescind.		X		
59	Ability to accommodate multiple purchases of the same kind of service and track the employer associated with each.	X			
60	Ability to allow a retiree to purchase additional service after retirement.		X		
61	Ability to allow for various member payment methods, including a lump sum payment, rollover, installment payments, and payroll deductions.		X		
62	Ability to automatically apply interest to an already established purchase agreement/cost sheet/ invoice (receivable) if a late-payment is made.	X			
63	Ability to apply the appropriate service credit amount (in the appropriate service credit "buckets") to a member's account based on the purchase of service agreement and payments received.	X			
64	Ability to automatically create, update, and maintain a history of each purchase of service receivable record (e.g., amount of service, type of service, cost of service, payments received, etc.) for a member	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	and/or employer purchase of service agreement.				
65	Ability to calculate amount of service credit member is eligible to purchase for each type of service credit purchase.	X			
66	Ability to compute a comparison of the member's future retirement benefit with and without an eligible service credit purchase.	X			
67	Ability to detect insufficient funds on automatic drafts and take appropriate action, including the ability to suspend the current installment purchase and prevent the set-up of a "new" re-purchase for a designated time period. (These rules would need to have the ability for management to override them.)		X		
68	Ability to automatically determine member's eligibility to purchase service for each type of service credit purchase using TCRS defined rules.	X			
69	Ability to determine the cost (member and employer share if applicable) and payment plan(s) for the various types of service credit purchases.	X			
70	Ability to generate pre-filled purchase of service applications and track the distribution, turn-around, and processing of each form.	X			
71	Ability to grant service credit with no cost up to the limit applicable to the plan.	X			
72	Ability to handle legislation, business rules, prior period adjustments, etc. related to those types of service credit adjustments that have no cost associated with them (approved leave for professional study, workers compensation, temporary, etc.).	X			
73	Ability to include a calculation of recovery time of the cost to purchase prior service with the estimated increase in benefit. (e.g., $1000 cost to purchase will be recovered in 10 months with a $100 increase in benefit due to the additional service).	X			
74	Ability to maintain a history of individual purchase records for each purchase applied for at the level of detail desired by TCRS.	X			
75	Ability to maintain a table of purchase of service types with an associated code including the ability to add a new type when legislation warrants it.	X			
76	Ability to maintain all rates, factors, and tables associated with each type of service credit purchase (e.g., employer rate, member rate, interest rates).	X			
77	Ability to maintain in member account a detailed history of all refunds such that, when the member elects to purchase service corresponding with a historical refund, the cost of the purchase can be calculated automatically and, when payment is received, the account can be re-built automatically (to avoid users having to manually re-build the account).	X			
78	Ability to maintain the eligibility requirement rules and associated calculation for each type of service credit purchase.	X			
79	Ability to recalculate a purchase based on receipt of additional information and generate a revised Service Purchase Agreement/Cost Sheet/Invoice.	X			
80	Ability to recalculate the remaining balance due when an overdue payment arrives.	X			
81	Ability to route the account for audit and/or review prior to issuing a Service Purchase Agreement/Cost Sheet/Invoice.	X			
82	Ability to track the tax status (i.e., before tax or after tax) of all service credit purchase payments.	X			
83	Ability to update member demographic information while processing a purchase of service application.	X			
84	Ability to maintain scheduled installment payments to occur via ACH debit transactions to the member's bank account.		X		
85	Ability to create an ACH file for members making a purchase via installment or via web application.		X		
86	Ability to update a file of ACH returns and corrections.		X		
87	Ability to inquire/report on "pending" prior service purchases where payments have not been completed or updated to the member account.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
88	Ability for the system to automatically notify members that have paid off accounts and/or had their service records updated with prior service.	X			
89	Ability for the system to convert current and historical billings into the new system.	X			
90	Ability to add new periods for military prior service.		X		
91	Ability to modify periods for military service.		X		
92	Ability to calculate the cost to transfer between groups in TCRS according to established rules and procedure.	X			
93	Ability to accept payment for prior service from multiple bank accounts.		X		
94	Ability of the system to generate a report of work items that have been returned for corrections.	X			
95	Ability to provide front end validation for Prior Service bank draft payments.		X		
96	Ability to charge service fees for transactions using a debit or credit card.		X		
97	Ability to waive or modify interest or service fees.	X			
98	Ability to produce billings based on variable contribution rates, (e.g., based on the IRS wage base).	X			
99	Provide a function to convert salaries certified as Calendar Year to their Fiscal Year equivalents, ensuring that the total amount of all salaries certified, CY & FY, add up to the same total.	X			
100	Ability for the system to prevent reinstatement of an ACH installment plan and disallow beginning of a new ACH installment plan for a TCRS-configured number of months when a member cancels an existing ACH installment plan.		X		

10. Optional Retirement Plan (ORP)

Optional Retirement Plan (ORP) Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to post the contribution amount to employer reserve and track the after-tax portion in order to calculate the exclusion ratio.	X			
2	Ability to enroll and report ORP service in the system.	X			
3	Ability for the system to calculate the ORP transfer cost and generate the TCRS benefit if the member chooses to transfer.	X			
4	Ability for the system to determine eligibility for the ORP transfer.	X			
5	Ability for the system to record, process, and update ORP transfers.	X			
6	Ability for the member to inquire as to the status of an ORP transfer online.	X			
7	Ability for the member to inquire as to the eligibility and cost of an ORP transfer online.	X			
8	Ability for the member to apply for an ORP transfer online.	X			
9	Ability for the member to pay for an ORP transfer online.	X			
10	Ability for the system to generate letters to the member concerning ORP transfers (either in or out) such as cost letters and service establishment letters.	X			
11	Ability for the system to track overpayments for transfers and generate refunds.	X			
12	Ability for the system to record and identify payments as taxable or non-taxable.	X			
13	Ability for staff to make notes on the system concerning a member's ORP transfer.	X			
14	Ability for staff to make manual changes for an ORP transfer.	X			
15	Ability for the system to record and keep a history of payments throughout the payment process (including before all payments are received).	X			
16	Ability for staff to audit ORP transfers on the system.	X			
17	Ability for the system to identify the staff member assigned each ORP transfer.	X			
18	Ability for the system to keep an online log of action taken on each ORP transfer.	X			
19	Ability for the system to record if the ORP transfer cost is based on the salary calculation or the ORP balance.	X			
20	Ability for the employer to make adjusting entries for purposes of an ORP transfer online.	X			
21	Ability for the employer to review and certify the ORP salary and the ORP service online.		X		
22	Ability to create a report on demand containing the salary information for ORP members.	X			
23	Ability to update non-creditable service to creditable service upon completion of payments for an ORP transfer.	X			
24	Ability to update payments made for an ORP transfer to the appropriate employer account.		X		
25	Ability to designate and then change business rules for transfer to and from ORP.	X			
26	Ability to automatically identify ORP members who are eligible to transfer participation to TCRS. ORP		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	members are eligible to transfer to TCRS under certain conditions.				
27	Ability of the system to receive and store employee ORP investment account balance from multiple third parties (e.g., ORP investment management vendors).	X			
28	Ability to automatically calculate the cost to an eligible ORP member to purchase prior service credits required to transfer to TCRS as-of a permissible user-identified date.		X		
29	Ability to generate correspondence to an ORP member showing salary and service by fiscal year and description of the ORP transfer process.	X			
30	Ability to produce and display a report for an ORP member showing salary and service by fiscal year and a description of the ORP transfer process. This report must be available only to the ORP member and to appropriate TCRS staff.	X			
31	Ability to automatically present the higher of the prior service credits cost or employee ORP investment account balance as the cost for an ORP member to transfer to TCRS.		X		
32	Ability for TCRS staff to run "what if" analyses on alternative ORP eligibility transfer rules.		X		

11. Refunds

Refunds Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to receive data from external parties, print checks and produce ACH transactions, produce check file for printing by an external or third party processor.		X		
2	Ability for a member to apply for and track status of a refund online.	X			
3	Ability for the system to automatically process partial/special refunds and appropriately update the member's account.		X		
4	Ability for the system to reissue refund payments.	X			
5	Ability for the member to inquire about the account balance online, including what portion is taxable and non-taxable.	X			
6	Ability for the system to track members who receive multiple refunds.	X			
7	Ability to create a file of payments issued to interface with the check reconciliation system.	X			
8	Ability to receive and update a file of stopped/paid items from the check reconciliation system.	X			
9	Ability to link from the payment history to the check image file.		X		
10	Ability to receive and update a file of ACH return and correction transactions.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
11	Ability to automatically stop a refund from being processed if a new enrollment or contributions are received for the member.	X			
12	Ability to confirm that there is no legal-hold on member's account before issuing a refund.	X			
13	Ability to determine the status of application for withdrawal while in process.	X			
14	Ability to generate a "non-zero balance" report (i.e., negative/positive) after a refund has been processed and trigger additional refund processing if necessary.	X			
15	Ability to receive notification of an additional refund if earlier refund did not zero account.	X			
16	Ability to capture direct rollover related information (e.g., percentage or specific amount to be rolled, financial institution information, account number).	X			
17	Ability to capture refund related information (e.g., last day worked, termination date, unreported salary, unreported contributions, comments) from refund document.	X			
18	Ability to capture the employer number and/or employer name associated with each refund application received.	X			
19	Ability to provide statistical, managerial, and demographic data for various reporting purposes, such as number of refunds generated in total, by fund, by employer, by job classification.	X			
20	Ability to automatically generate an additional information correspondence from an incomplete refund record and include the appropriate application (e.g., refund application, direct rollover application) highlighting the areas that need to be completed or corrected.	X			
21	Ability to create a system generated payment correspondence and other refund-related correspondence.	X			
22	Ability to generate 1099s for those individuals who received a refund.	X			
23	Ability to generate a "statement of withdrawal" for each refund payment.	X			
24	Ability to generate all the following refund-related documents, tracking their distribution, turn-around, and processing status: • Refund Application • Rollover Form • Waiver of Retirement Benefit Form • General Refund Correspondence	X			
25	Ability to generate an overpayment correspondence where applicable.	X			
26	Ability to produce an Acknowledgement correspondence to acknowledge receipt of each form; if multiple forms are received, one Acknowledgement correspondence would be produced listing the multiple forms received.	X			
27	Ability to "split" the amount to be refunded between the member and one or more financial institutions (direct rollover) in one transaction.	X			
28	Ability to assign to a refund cancellation status, status date, and reason as a transaction in the member's account.	X			
29	Ability to automatically initiate a refund for members who are not vested and have been inactive for XX years.		X		
30	Ability to calculate and apply interest (i.e., interest is updated to date of termination or date of payment).	X			
31	Ability to calculate the amount to be refunded.	X			
32	Ability to confirm that a member has an application for enrollment/membership on file, prior to processing a refund request.	X			
33	Ability to confirm the member was an employee of the employer associated with the refund application				

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	submitted.				
34	Ability to correct/reverse a refund transaction already posted against a member's account.	X			
35	Ability to determine direct rollover eligibility and minimum distribution amount.	X			
36	Ability to determine retirement eligibility of member requesting a refund.	X			
37	Ability to determine whether member is eligible for retirement benefits prior to issuing refund; if so, generate a retirement eligibility correspondence and either process retirement or refund according to member's preference.	X			
38	Ability to display a payment summary and/or a payment detail (including check number) pertaining to each refund payment.	X			
39	Ability to display the current employer(s) for each member, including employer number, name, etc.	X			
40	Ability to ensure that refunded transactions are not included in the benefit calculation.	X			
41	Ability to identify and resolve a termination date discrepancy between the refund application and employer reporting. The termination date supplied through employer reporting supersedes the refund application resulting in an overpayment correspondence or an additional refund payment.	X			
42	Ability to inform user that member is active with more than one employer when attempting to refund.	X			
43	Ability to make refund payments through various methods (i.e., paper checks, direct deposit, electronic transfer).	X			
44	Ability to notify members of refund status via an IVR system.		X		
45	Ability to post the refund of contributions and service directly against the member's account.	X			
46	Ability to recalculate a refund based on receipt of additional information and re-verify payment options (direct rollover versus direct payment).	X			
47	Ability to refund both regular contributions and purchase of service contributions, creating appropriate tax records, reducing service credit according to the amount refunded, and voiding any outstanding purchases of service.	X			
48	Ability to release refund for payment based on predefined rules.		X		
49	Ability to retain original withdrawal/rollover distribution when original transaction is adjusted/corrected.	X			
50	Ability to retrieve previously identified financial institution information (e.g., name, federal identification number, routing information) to avoid re-keying common information.	X			
51	Ability to route the account for audit and/or review prior to issuing refund check.	X			
52	Ability to save an incomplete refund record for future processing.	X			
53	Ability to support and track deferred vs. non-deferred contributions in refund processing.	X			
54	Ability to support both mandatory and non-mandatory fields on refund forms.	X			
55	Ability to support QDRO processing where there are multiple payments to be issued.	X			
56	Ability to suspend the payment of a refund until the final salary and service information is received from the employer; then automatically calculate refund and release for payment.		X		
57	Ability to track termination date, last wage and contribution reporting date, refund request date, refund-processed date, check date, etc.	X			
58	Ability to track the distribution, turn-around, and processing of multiple direct rollover forms (i.e., if member requests payment to be distributed to multiple financial institutions) and confirm the member has completed a rollover form for each financial institution.	X			
59	Ability to track the distribution, turn-around, and processing of multiple refund applications per member (i.e., member employed with multiple employers); suspend payment of a refund until refund applications	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	are received for all employers and termination information has been submitted by each employer.				
60	Ability to update contributions and service based on future salary and service information input from the refund application, if certified by the employer.	X			
61	Ability to update member demographic information while processing a refund application or direct rollover form.	X			
62	Ability to rebuild a refunded account automatically in accordance with internal control policies.		X		
63	Ability to select members for refund who had contributions reported after the initial refund, most likely the result of certification errors by the employer.	X			
64	Ability to define business rules for issuing refund checks (e.g., minimum time lapse since request, employer certification of resignation, and one or more payroll runs with no contribution for refunding member, 4 month waiting period or teachers.).	X			
65	Ability to track and report on number of refunds requested by each member.	X			
66	Ability to process multiple rollovers and/or cash disbursements in one request.	X			
67	Ability to update name and address information after the refund processes has begun.	X			
68	Ability to reissue checks, void, delete and reverse refunds and restore service and contributions.	X			
69	The solution must include status updates for refunds including returns, cancels, and reissues. The solution should allow for these updates to be uploaded to the system. These updates should also include check/ACH numbers.	X			
70	Ability to automatically stop a refund from being processed if a retirement application has been received or is received prior to completion of processing the refund application.	X			
71	Ability to automatically generate a report and notification for members who return to work after receiving a refund within a TCRS defined time frame.	X			

12. Benefit Calculations-Retirement

Benefit Calculations Retirement Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to process service, early, disability, and deceased applications (including the calculation of benefit, determination of factors, etc.).	X			
2	Ability for staff to enter and delete applications and benefits manually.	X			
3	Ability for member to apply for retirement benefits via the web.		X		
4	Ability of the system to work up the benefit and add the benefit to the system in a ready to audit status upon receipt of the application (including finding and calculating highest AFC , calculating service with sick leave, etc.).	X			
5	Ability to display the history of the benefit including base-benefit, COLAs, ad-hoc increases, permanent adjustments, etc.	X			
6	Ability to display a list of the benefits a member has or had on one screen with status, date of retirement, total to date payments for each benefit.	X			
7	Ability to display the payment history for the member.	X			
8	Ability for staff to manually add/change one-time adjustments during the retirement process and after the member has been retired.	X			
9	Ability to automatically propose one-time adjustments based on other transaction activity and allow for a manual review before performing the update.	X			
10	Ability to create completed worksheets for retirement benefit calculations as specified by TCRS.	X			
11	Ability to indicate and not calculate a benefit if a member is not eligible to retire based on the information provided in the system.	X			
12	Ability to track the remaining account balance versus the benefit payments made.	X			
13	Ability for the member to check the status of a retirement application online.	X			
14	Ability to add notes to the system concerning the benefit.	X			
15	Ability to create a report of daily changes to benefits, including what change was made, when the change was made, and who made the change.	X			
16	Ability to create a historical online report of changes to the benefit, including what change was made, when the change was made, and who made the change.	X			
17	Ability to generate letters to the member or employer when additional information is required for the retirement application (including the ability of management to change text and information included in the letters).	X			
18	Ability of the system to send automatic emails to the member to confirm that an application has been received and accepted or rejected, that the application has been added including dates, benefit amount, etc (including the ability of management to change text and information included in those emails).		X		
19	Ability to setup accounts receivable for overpaid members on the system.	X			
20	Ability to calculate overpayments or underpayments for deceased benefit processing and return to service processing.	X			
21	Ability to track the status of overpayments of retirement benefits and generate letters to members for those overpayments (including a summary screen of overpayment totals).	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
22	Ability for management to override the system and correct members incorrectly put into a deceased status.		X		
23	Ability to calculate Line of Duty death benefits.	X			
24	Ability to determine if a member has a monthly benefit below xx-dollars; and distribute and actuarially determined lump-sum.		X		
25	Ability to determine if a member has a monthly benefit below xx-dollars and upon member request pay a monthly benefit instead of actuarially determined lump sum.		X		
26	Ability of the system to calculate an actuarial equivalent of an age 65 benefit (AE-65) in the event a member retires after age 65.		X		
27	Ability of the system to limit the aggregate benefit calculations of multiple accidental disability benefits to a set percentage (e.g., 50% or 33.3%) of the AFC depending on the accidental disability type without manual intervention.	X			
28	Ability of the system to identify and handle accidental disability benefits for members with a date of membership 07/01/1997 or after.	X			
29	Ability of the system to handle disability benefits whose combined actual and projected service is the minimum of 10 years without manual intervention.	X			
30	Ability of the system to handle and identify reductions to disability benefits due to workers compensation payments.	X			
31	Ability to automatically assign files to the specialists based on a table with a list of those specialists.	X			
32	Ability of the system to notify staff when requested additional information has been received.	X			
33	Ability for the member to make changes online to their beneficiaries (where eligible).	X			
34	Ability to calculate the cost of retiree benefit plan changes.	X			
35	Ability for the member to pay for retiree benefit plan changes online.		X		
36	Ability for the member to inquire online as to all aspects of their benefit (including what data were used in the calculation).	X			
37	Ability for the member to inquire online as to their retirement eligibility (based on their age, vesting requirements, service requirements for their job classification)	X			
38	Ability for the employer to submit changes online.		X		
39	Ability to indicate and notify staff when a member has applied for retirement and also has prior service in process.	X			
40	Ability to automatically determine the “optimal” date of retirement subject to TCRS legislation for those members who failed to file in a timely fashion (backdate applications).	X			
41	Ability to calculate political subdivision benefits based on option tables (5% BIP, COLA, vesting, etc.).	X			
42	Ability to recalculate political subdivision benefits already on the system when new options are added (without requesting special jobs).		X		
43	Ability to generate letters to the member notifying the member when the retirement calculation has been completed and the benefit details (including the ability of management to change text and information included in the letters).	X			
44	Ability to keep an online and updated list and count of retirement applications that are in process with the ability to sort and filter by SSN, name, date of retirement, status, the staff member assigned the file, and most recent staff member to work on the file.	X			
45	Ability to make changes/updates to multiple members’ benefits (specifically retired judges and attorney generals) when their annual AFC changes are reported and updated like a batch job based on department code and retirement type or SSN list.		X		
46	Ability for the staff to add permanent adjustments to benefit files.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
47	Ability for the staff to add multiple permanent adjustments simultaneously.	X			
48	Ability to calculate balances for return to service rebuilds.	X			
49	Ability to provide an audit process/step to ensure the accurate calculation and review of benefit calculations performed in prior step. TCRS currently uses a “blind key” process.		X		
50	Ability to calculate a hypothetical teacher annuity.		X		
51	Ability to compare projected information used in the benefit calculation to information reported after the calculation is completed.	X			
52	Ability to compare the aggregate AE-65 benefit to the aggregate regular benefit and adjust to use both AE-65 totals or both regular totals.		X		
53	Ability to handle, track, and display an unlimited number of calculations and recalculations of the same benefit when changes occur.	X			
54	Ability of the system to generate notice letters for return to service retirees with 3+ additional years of service and an informational letters regarding the second benefit for return to service retirees with less than 3 years additional service.	X			
55	Ability of the system to calculate the first payment of benefits after a change has been made to the date of retirement, service, salary, etc.	X			
56	Ability of the system to perform the alternate calculation for Social Security leveling when the system indicates a negative net at age 62.	X			
57	Ability of the system to calculate retiree benefits for previously established retirement system plans (i.e., locals, Metro, etc).	X			
58	Ability of the system to allow the Social Security leveling option for previously established retirement systems (i.e., locals, Metro, etc.).	X			
59	Ability of the system to indicate and not calculate an AE-65 benefit when a member over age 65 is ineligible based on vesting at 65, employer option, not working at age 65, retirement type, etc..		X		
60	Ability of the system to recognize benefit limits.	X			
61	Ability to track the status of benefits including the date of retirement and user id of the person working the file.	X			
62	Ability of the system to start the transfer of assets process when a member is put into a paying status.	X			
63	Ability for user to create, update and maintain retirement age and factor tables (dollar annuity value, early retirement factor, option factors, joint-and-survivor factor, etc.).	X			
64	Ability to capture reasons for inaccuracies or incompleteness on the retirement application and /or other related documents.	X			
65	Ability to determine if the difference between the initial and final benefit amounts exceeds the TCRS defined threshold and if so, notify staff via workflow for further investigation.	X			
66	Ability to enter audit messages explaining what changes/corrections need to be made by a TCRS user when auditor returns work after completion of audit pass.	X			
67	Ability to notify auditors of various case specifics/special situations prior to their auditing work/accounts.	X			
68	Ability to release record for payment only after benefit calculation is verified/audited.	X			
69	Ability to return record for changes if verification unsuccessful.	X			
70	Ability to route all types of benefit calculations to an audit pass in accordance with TCRS business rules and operational procedures.	X			
71	Ability to validate all record changes against existing business rules.	X			
72	Ability to capture retirement application information (option selection, tax withholding, beneficiary, survivor annuitant, etc.) from both website and paper applications.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
73	Ability to record, track, and display the receipt of the benefit application.	X			
74	Ability to track information and generate reports by user identifying the number of retirement calculation requests received, dates received, and date completed.	X			
75	Ability to generate a correspondence regarding the employer's portion of a member's benefit for purposes of applying Workers' Compensation.	X			
76	Ability to generate a member "Recomputation correspondence" detailing the under or over payment of benefits and the steps that will be taken to either recoup the overpayment or provide a "catch-up" payment to offset the underpayment.	X			
77	Ability to generate an employer form XX days prior to retirement to verify the number of hours worked, the member's gross wages, and the contributions for the last month of employment.	X			
78	Ability to generate correspondence to member acknowledging receipt of payment.	X			
79	Ability to print benefit account detail report.	X			
80	Ability to produce "Return Annuity" correspondence to member requesting returned annuity amount and/or lump sum payments.	X			
81	Ability to produce "Return Funds" correspondence to a financial institution to recover the overpaid rollover/direct deposit amount.	X			
82	Ability to produce system generated correspondence informing new retirees of their initial benefit.	X			
83	Ability to support the generation of retirement application kits containing a cover correspondence and all necessary forms appropriate to the member's situation (retirement application, rollover, beneficiary nomination, etc.).	X			
84	Ability to remove (in cases where retiree rescinds retirement) retiree from payroll and calculate amount of funds (benefits paid to date) to be returned to TCRS.	X			
85	Ability for employers to enter termination dates, unpaid leave dates, last year of service, etc.		X		
86	Ability to age accounts/transactions to automatically generate follow-up correspondence based upon last activity (e.g., after 30 days, 60 days).	X			
87	Ability to automatically calculate gross annuity, disbursements, transfer amount and taxes according to business rules and laws and to update payroll and tax files as indicated by benefit calculations.	X			
88	Ability to automatically determine retirement special legislation "windows of eligibility" and apply to benefit calculation rules accordingly.		X		
89	Ability to automatically pre-fill user defined member information on all benefit calculation forms.	X			
90	Ability to automatically record receipt of benefits returned and update member's account.	X			
91	Ability to automatically calculate interest on account balances for retiring members per TCRS law.	X			
92	Ability to calculate and apply the IRS 415 limitations to the benefit calculation.	X			
93	Ability to calculate and distribute multiple annuities for multiple periods of employment.		X		
94	Ability to calculate Final Average Salary in accordance with plan provisions.	X			
95	Ability to calculate retirement benefit using the service "buckets" defined in the TCRS member system.	X			
96	Ability to calculate the "transfer amount" (dollar annuity value of a member's benefit) to be removed from the member's savings/accumulation accounts to the pension accumulation fund.	X			
97	Ability to calculate the benefit for members with multiple retirement types and to automatically determine and use the appropriate final average salary when doing so.		X		
98	Ability to close out a member account for any trailing monies (contributions and interest) that may have been received after the initial or finalized benefit calculation and set up payment accordingly.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
99	Ability to compare initial benefit amount to final benefit amount automatically without the user having to re-enter or re-calculate this information and calculate underpayment/overpayment.	X			
100	Ability to create a benefit calculation for members who have service in multiple systems and/or groups within each system (mixed members), with the ability to view each calculation as well as the combined calculation.		X		
101	Ability to create appropriate tax records upon processing benefit calculation.	X			
102	Ability to define and enhance benefit calculation logic/specifications, including changes due to legislation for calculating a final average salary, final contributions, final interest, final service, etc.	X			
103	Ability to determine eligibility for all types of retirement, including early, normal, disability, vested, death in service, etc.	X			
104	Ability to determine if member's request to change terms of retirement was filed with TCRS prior to the generation of the retiree's first pension check.	X			
105	Ability to determine, extract, and display what portion of the member's total benefit is funded by the member's and employer's contribution, respectively.	X			
106	Ability to display detailed benefit calculations if requested by user.	X			
107	Ability to flag or delete incomplete benefit calculation information transactions when member rescinds retirement prior to retirement date or after intent to change process.	X			
108	Ability to follow up on flagged beneficiary, address, direct deposit changes that are pending.	X			
109	Ability to handle and apply both fiscal year end (June) and calendar year end (December) closing as it relates to benefit calculation and payroll.		X		
110	Ability to handle retroactive payments and disburse them in the same manner as the normal pension check.	X			
111	Ability to identify when the final salary, contribution, and service information have been reported by the employer and recalculate the monthly annuity.	X			
112	Ability to include deductions in the initial benefit calculation to yield estimated net benefit.	X			
113	Ability to maintain at the participant and the summary level an excess benefit file in correspondence with IRS 415 (b) and (c) rules.	X			
114	Ability to perform benefit calculations under all applicable benefit options, including Maximum, Option 1, Option 2, Option 3, Option 4, Deceased, Line-of-Duty, Social Security leveling, Disability/Specific Percentage, etc.	X			
115	Ability to perform retirement benefit calculations for all retirement systems in accordance with plan provisions.	X			
116	Ability to process returned benefit checks and update member's account accordingly.	X			
117	Ability to support "what-if" analysis by allowing user to adjust benefit estimate parameters and view new calculation results.	X			
118	Ability to provide a checklist detailing which documents have been sent, received, and/or which are still outstanding.	X			
119	Ability to provide a web-based benefit estimate calculator to assist members with estimating their pension amount.	X			
120	Ability to provide direct access to a member's detailed account information from a benefit calculation screen(s) for viewing and research purposes, with the additional ability to print this information.	X			
121	Ability to provide reason and reason code for any overpayments so that users can explain situations without other users having to review the detailed transactions.		X		
122	Ability to recalculate finalized benefit for a person who dies after the benefit calculation was performed and pass information to TCRS financial services.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
123	Ability to regenerate, at any time, an electronic copy of the eligible-to-retire form that is identical to the one generated during the end of the month process.	X			
124	Ability to support existing special member contribution classes, including law enforcement, appellate court judges, etc.	X			
125	Ability to update a benefit calculation based on newly received information after having released the record for payment but before issuing the first pension check (e.g., option changes received before retirement date).	X			
126	Ability to update certain member data with new information (name change, address, etc.) during the benefit calculation process or to direct to a different work queue if necessary (i.e., SSN changes).	X			
127	Ability to verify/cross-reference the termination date provided on the retirement application against the termination date transmitted from the employer, and if a discrepancy exists, notify TCRS end-user.	X			
128	Ability, in case of underpayment, to issue supplemental “catch-up” payment	X			
129	Ability, in the case of overpayment, to request repayment by member in lump sum, or to determine and apply temporary reduction in benefit necessary to recover the overpayment within user-defined number of months.	X			
130	Ability to determine the member’s earliest retirement date based on the retirement eligibility rules.	X			
131	Ability to calculate a benefit for a member who has designated multiple beneficiaries.	X			
132	Ability to automatically recalculate and post benefits en-mass when an eligibility condition, formula, or other calculation factors change.		X		
133	Ability to retain and access multiple historical gender-based and non-gender-based survivorship option factors and other actuarial factors.	X			
134	Ability to calculate and pay lump sum benefit in lieu of annuity payments for specific benefits.		X		
135	Ability to recreate all payment history from date of retirement forward including changes and adjustments to the benefit calculation and compare to actual payment history.		X		
136	Ability to provide a warning message or alert when someone is retiring and the months of service are close to service milestones (300 months, 360 months, vesting, etc.) and a change in service amount could affect the benefit.		X		
137	Ability to identify changes after a specific date (i.e., date of death, date of divorce, change of beneficiary).		X		
138	Ability of the member to withdraw an application for retirement online.		X		
139	Ability of the system to put a retirement application in withdrawn status, while retaining the ability for TCRS staff to review, notate, and re-activate the application.		X		
140	Ability of the member to modify and re-submit a retirement application in withdrawn status per TCRS parameters.		X		
141	Ability of the system to notify the appropriate TCRS staff member when a member changes the status of a retirement application.		X		
142	Ability to automatically prompt members and staff when a retirement application is submitted if there is service credit available for purchase.		X		

13. Disability Support

Disability Support Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to generate an estimate to be mailed with every disability packet.	X			
2	Ability for the member to fill out and submit all disability forms online.		X		
3	Ability to send the medical panel information for their review (i.e., access to the system or send them an electronic file).	X			
4	Ability to keep an online narrative for each disability applicant from the date the application is received through the end of the process, noting all action taken including re-evaluations over the years.	X			
5	Ability to enter the re-evaluation summary into the system and access the data by the member's SSN or name.	X			
6	Ability to view all scanned/filmed images associated with the member.	X			
7	Ability to note on the system reasons and explanations for permanent adjustments (such as worker's compensation coordination) and set up future notifications for the counselor based on end dates.	X			
8	Ability to access the Checklist Sheet document ("Medical Panel Memo", "On the Job Accident Memo", "Last Date Worked Memo") and fill in dates to be sent to the medical panel and for subsequent reconsiderations if needed.	X			
9	Ability to generate a report of all retirees to be re-evaluated each month.	X			
10	Ability to draw information (summary details of each person approved or denied disability for a TCRS defined time period) and merge this information with specific system information to form the TCRS Board of Trustees report.	X			
11	Ability to generate a report of all accidental disability retirees receiving 50% of their AFC in the month they would have turned age 62 (and in the case of a beneficiary receiving benefits, a report for when the deceased retiree would have turned age 62).	X			
12	Ability to validate that member is not on pension payroll nor is in the process of applying for retirement when filing for a disability claim.	X			
13	Ability to capture a denial of benefits type and denial type code for the case.		X		
14	Ability to capture and track a member's request for an appeal.	X			
15	Ability to capture an appeal type and appeal type code for the case.	X			
16	Ability to capture and track benefit adjustment reason type and code.	X			
17	Ability to capture and track disability review status and status code.	X			
18	Ability to capture appeal decision and appeal decision code for the case.	X			
19	Ability to capture information from application for disability retirement.	X			
20	Ability to automatically record receipt of application for disability retirement, physician's medical report, earnings statement, marital status form, student status form, appeals, and other disability related documents.	X			
21	Ability to automatically generate a report identifying disability applications/cases to be presented to the disability review committee.	X			
22	Ability to automatically generate disability reevaluation form, with cover correspondence stating due date for return, to disability annuitants XX months prior to their reevaluation date.	X			
23	Ability to automatically generate follow-up correspondence for non-receipt of disability reevaluation form a specified number of days after the form was sent. The correspondence must include a copy of the	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	original disability reevaluation form.				
24	Ability to automatically generate follow-up correspondence if annual earnings statement form has not been received a specified number of days after the form was sent. The correspondence must include a copy of the original earnings statement form.	X			
25	Ability to automatically generate correspondence to disability annuitants explaining reason for payroll adjustments.	X			
26	Ability to gather information from the system in order to generate a summary “Appeal Fact Sheet” for an appeal write-up (name, SSN, date of birth, employment history, retirement information and payment history, if applicable).	X			
27	Ability to generate a “fact sheet” based on the system’s history of disability events relating to a particular member to be used for appeal presentation/litigation.	X			
28	Ability to generate a report identifying all appeals that were not requested within 12 months from when TCRS received the member’s disability application.	X			
29	Ability to generate a report identifying applications that are ready for review by the Medical Board.	X			
30	Ability to generate a report listing history of appeals: type, date received, date presented to review committee, decision (grant, deny, tabled-need flag, etc.), date presented to Board of Trustees, etc.	X			
31	Ability to generate an appeal acknowledgement correspondence and necessary follow-up correspondence to member.	X			
32	Ability to generate an application for disability retirement acknowledgement correspondence and necessary follow-up correspondence to the member.	X			
33	Ability to generate an application for disability retirement form.	X			
34	Ability to generate annual earnings statement form, with cover correspondence stating due date for return, to all applicable disability annuitants under XX years of age.	X			
35	Ability to generate correspondence explaining “catch-up” payments.	X			
36	Ability to generate correspondence to member either denying appeal or approving appeal and reinstating benefits.	X			
37	Ability to generate correspondence to member either denying or approving disability benefits, including scheduled date of first check if applicable.	X			
38	Ability to generate correspondence to member either denying or granting request for appeal.	X			
39	Ability to generate correspondence to retiree regarding automatic transfer from disability to regular retirement status.	X			
40	Ability to generate correspondence to appellants requesting various additional information.	X			
41	Ability to generate a follow-up allowable earnings correspondence stating the amount that the disability retiree can earn for the current year.	X			
42	Ability to produce various disability denial correspondence including reasons.	X			
43	Ability, if disability claim is denied and member is eligible for regular retirement or refund, to generate appropriate correspondence to member and employer with follow-ups to both automatically.	X			
44	Ability for physicians to submit disability information remotely from their office via the web.		X		
45	Ability for users to manually (i.e., outside of workflow) adjust a disability benefit amount and generate correspondence of explanation to retiree.	X			
46	Ability for user to manually (i.e., outside of workflow) suspend a disability benefit check and generate correspondence of explanation to retiree.	X			
47	Ability for user to override automatic suspension of benefits due to non-receipt of annual earnings statement by due date.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
48	Ability for user to override automatic suspension of benefits due to non-receipt of disability reevaluation form by due date.	X			
49	Ability to add appeal decision codes.	X			
50	Ability to add appeal type codes.	X			
51	Ability to add benefit adjustment reason type and code.	X			
52	Ability to add denial of benefits type codes.	X			
53	Ability to add new disability review status type and code.	X			
54	Ability to automatically produce a correspondence notifying the member of excess earnings, the amount of the benefit reduction, and options for how to pay/reimburse TCRS for any overpayment. Alternatively, the ability to recoup any overpayment due to excess earnings via a temporary reduction in monthly disability benefit amount, spread over a user-defined number of months.	X			
55	Ability to automatically record the result (approved, denied, tabled, pending, withdrawn, etc.) of the appeal and close the appeal.	X			
56	Ability to automatically suspend disability benefits if annual earnings statement form is not received by final due date.	X			
57	Ability to automatically suspend disability benefits if disability reevaluation form is not received by due date.	X			
58	Ability to automatically transfer member from disability retirement to regular retirement upon retiree attaining a specified age in accordance with plan provisions.		X		
59	Ability to close disability account after appeal process is completed.	X			
60	Ability to forward a work request item to the disability processing activity to reinstate or calculate for initial payment disability benefits if an appeal is approved.	X			
61	Ability to generate disability-related payroll adjustments.	X			
62	Ability to handle all tax related implications with respect to disability payments, overpayments and reimbursements.	X			
63	Ability to hold disbursements of funds until the earnings affidavit is returned and verified.	X			
64	Ability to identify all payments made to disability retirees.	X			
65	Ability to identify disability retirees by disability review status type.	X			
66	Ability to identify members who have not responded to TCRS request for additional medical information.		X		
67	Ability to maintain accounts receivable for all excess earnings situations.	X			
68	Ability to maintain a tracking system to record pertinent information for all disability applications received, searchable via all fields.		X		
69	Ability to mass produce/print all pertinent imaged documents and forward them to the appeals staff to review, edit, and include in the appeals package.	X			
70	Ability to provide a single disability summary screen, possibly with multiple tabs, containing all information desired by TCRS users.	X			
71	Ability to restrict access to sensitive information.	X			
72	Ability to retain paper form for the disability cases with the option to image the information and make it available in electronic form for review by staff and physicians.	X			
73	Ability to reverse benefit reduction (either because of error or because of late receipt of earnings statement form) and automatically compute and generate “catch-up” payment.	X			
74	Ability to reverse suspension of benefits (either because of error or because of late receipt of forms)	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	and automatically compute and generate “catch-up” payment.				
75	Ability to screen for disability retiree and suspend the retiree’s benefit(s) in the event the retiree returns to work for a TCRS employer.	X			
76	Ability to track allowable earnings and compare with disability annuitant’s earnings per annual earnings statement; if the member’s earnings are greater than allowable earnings, automatically reduce the benefit amount by the difference based on TCRS defined parameters; the system must be able to capture the actuarial reduction specifically for disability annuitants.	X			
77	Ability to validate that member meets the disability eligibility requirements (service, age, etc.).	X			
78	Ability for system to create/assemble package for disability medical panel AND/OR access to this info for medical panel board members.	X			
79	Ability of a designated TCRS staff member to indicate for certain disability cases that no re-evaluation is required.	X			
80	Ability of the Medical Panel to submit their decisions online.	X			
81	Ability for TCRS staff or management to designate specific information as sensitive.	X			
82	Ability to allow external medical advisors of TCRS with on-line access to view and print medical records in the possession of TCRS for the purpose of evaluating applications for disability retirement.	X			
83	Ability for external medical advisors of TCRS to approve or disapprove disability retirement applications on-line.	X			
84	Ability for external medical advisors of TCRS to enter notes on-lines.	X			

14. Payroll (Retirees)

Payroll (Retirees) Requirements Matrix

The following table provides Deloitte Consulting’s response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to reissue payments as ACH or check.	X			
2	Ability for the member to change address and bank account information online.	X			
3	Ability for failed ACH transaction returned with corrected information to be imported into the system to correct source of errors.		X		
4	Ability for the system to update the employer account with the applicable accounting entries for the benefit payments.		X		
5	Ability to process a response from the member relating to un-cashed check and trigger workflow for TCRS user to reissue a new check.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
6	Ability to create a file of payments issued to interface with the check reconciliation system.	X			
7	Ability to receive and update a file of stopped/paid items from the check reconciliation system.	X			
8	Ability to link from the payment history to the check image file.		X		
9	Ability to generate correspondence required for the recall of overpayment from a financial institution.	X			
10	Ability for the system to process payments to multiple payees from a single member's account, including partial voiding and reissue.	X			
11	Ability to generate ACH payments for cumulative deductions (TRTA dues, TSEA dues, BEST, Local Teacher Plans, etc.).	X			
12	Ability for the system to have unlimited number of deductions.	X			
13	Ability to produce various reconciliation reports used to reconcile the Cost of Living Allowance (COLA) increase and ensure that the overall pension payroll is balanced.	X			
14	Ability to recalculate unattended process totals after a payroll exception/error is corrected or if records are created or deleted; new summaries must be displayed for the corresponding payroll process.	X			
15	Ability to support a reconciliation process for all payroll transactions against TCRS accounting system (to be performed after payroll validation).	X			
16	Ability to track and reconcile benefit recipients receiving insurance coverage against amounts deducted for insurance in payroll run.	X			
17	Ability to capture and update direct deposit information for a retiree.	X			
18	Ability to capture and update key financial institution information for a retiree.	X			
19	Ability to alter file format changes for deposits and disbursements through a parameter driven menu requiring no recoding.		X		
20	Ability to capture, update, and validate bank routing numbers and cross match with financial institution name and address.	X			
21	Ability to enter one or more messages (to be determined conditionally) to be printed on a check stub or ACH advice for all or a subset of disbursements.	X			
22	Ability to receive and update electronic transfer information (e.g., financial institution name and address, routing numbers, check digit error listing, etc.).	X			
23	Ability to combine check change correspondence with COLA correspondence	X			
24	Ability to generate a "Check Change" correspondence when a benefit payroll amount is adjusted/changed (combining multiple adjustments into a single correspondence), including variable paragraphs based on nature of the adjustment.	X			
25	Ability to generate a comprehensive report listing all changes that took effect since previous month's pension payroll (additions, deletions, modifications, old amount vs. new amount, changes in tax withholding, name changes, etc.).	X			
26	Ability to generate a correspondence to accompany the first check for new retirees.	X			
27	Ability to generate a correspondence to the retiree explaining the disposition of his/her disability account when converted to a regular (service) retirement.	X			
28	Ability to generate an additional information correspondence to the member, beneficiary, survivor annuitant, financial institution, etc.	X			
29	Ability to generate Check Register Report.	X			
30	Ability to generate Deduction Register Report.	X			
31	Ability to generate Direct Deposit Register Report.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
32	Ability to generate exception reports after the COLA adjustments have been applied.	X			
33	Ability to generate correspondence requesting additional documentation (death certificate, divorce decree, marriage certificate, proof of date of birth of new survivor annuitant) as it relates to a post retirement adjustment.	X			
34	Ability to generate Monthly Benefit Adjustment Detail Report.	X			
35	Ability to generate New Retirees Detail Report.	X			
36	Ability to generate Payment Register Report.	X			
37	Ability to generate Pension Exception Report.	X			
38	Ability to generate Reinstated Retirees Detail Report.	X			
39	Ability to generate Retirees Suspended/Closed Detail Report.	X			
40	Ability to generate acknowledgement correspondence for changes such as name, address, tax, and direct deposit.	X			
41	Ability to generate various correspondence to the member (annuitant) regarding attachments, garnishments, IRS payoff amounts for tax levies, end of benefit date, etc.	X			
42	Ability to generate various payroll control reports.	X			
43	Ability to include MICR encoding on checks and to include MICR code numbers, when appropriate and applicable, in check file transmitted to check print provider.		X		
44	Ability to process year end payroll reporting for fiscal and/or calendar year.	X			
45	Ability to produce a MICR-encoded check image file for transmission to the Office of Information Resources (OIR).		X		
46	Ability to produce a standard COLA correspondence to all recipients, accommodating both automated and ad-hoc generated correspondence.	X			
47	Ability to produce correspondence to payees listing specific COLA(s) information and change in gross check, FWT, etc.	X			
48	Ability to provide a report identifying all demographic changes made to retirees accounts for a user defined period.	X			
49	Ability to reprint the COLA correspondence on an as needed individual basis.	X			
50	Ability to produce income verifications, (i.e., member/company/agency requesting income verification, including date received and date information was returned for both active and retired members).	X			
51	Ability for retiree to review and update beneficiary data on file.	X			
52	Ability for user to maintain the COLA percentage at the fund level.	X			
53	Ability to accommodate bank mergers/acquisitions and apply the pertinent information where appropriate, including the update all affected payee records with a new routing number.	X			
54	Ability to accommodate QDRO payments (fixed amount or fixed percentage of benefit) and related COLA processing.	X			
55	Ability to accommodate the addition of one-time special Ad-hoc increases based on legislation.	X			
56	Ability to add a new individual to payroll and transfer information to an “auditor” via workflow for an approval step; only after the approval process, officially place the individual on payroll.	X			
57	Ability to add survivors to payroll for either recurring payments or one-time payments. Such payments must be linked to deceased member records.	X			
58	Ability to apply a COLA to a payroll transaction when applicable.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
59	Ability to apply a deduction to either gross or net pay.	X			
60	Ability to apply the new pension benefit automatically depending on various retiree benefit plans chosen (e.g., accelerated or joint coverage) and applicable life events (e.g., death, attainment of age 62).	X			
61	Ability to assess a recurring warrant or check charge for those members electing to receive their benefit by check rather than direct deposit or EFT.		X		
62	Ability to automate the addition of a beneficiary to the monthly pension payroll.		X		
63	Ability to automatically adjust a monthly benefit payment amount according to TCRS set parameters to recover disability/retirement overpayments until the debt is satisfied.	X			
64	Ability to automatically calculate transfer amounts when moving from active membership to retirement.	X			
65	Ability to automatically determine and apply actuarial reduction to monthly benefit based on option selections and other criteria.	X			
66	Ability to automatically determine COLA increases based on each plan's requirements.	X			
67	Ability to automatically determine, process and pay retroactive annuity due to COLA increase, if applicable.	X			
68	Ability to automatically redistribute pension amounts to remaining dependent children when one of the dependent children reaches TCRS determined age for cases of line-of-duty death.		X		
69	Ability to automatically terminate benefits to a dependent child upon individual reaching TCRS determined age, subject to exclusions and exceptions, for cases of line-of-duty death.		X		
70	Ability to automatically update payroll system with new (adjusted) benefit information (e.g., gross annuity, taxable, FWT).	X			
71	Ability to calculate and apply COLA adjustment based on legislation.	X			
72	Ability to calculate and issue retroactive payments to a member who has been suspended from payroll for a period of time.	X			
73	Ability to calculate Federal and State withholding tax (based on a fixed dollar amount and current tax tables) and update the taxable amount.	X			
74	Ability to calculate new monthly benefit under all options based on the appropriate factors.	X			
75	Ability to calculate tax levies or support payments and apply/update attachments (percentages or fixed dollar amount).	X			
76	Ability to compare an estimated benefit amount versus a final benefit amount automatically without the user having to re-enter or re-calculate this information.		X		
77	Ability to control the addition and deletion of individuals from payroll with status codes and status effective dates.	X			
78	Ability to correct invalid payroll data by manual entry.	X			
79	Ability to create and update selected data including gross check amount, Federal and State withholding tax, and other type of deductions.	X			
80	Ability to create and/or update a detail payroll record.	X			
81	Ability to create deduction-ending dates that automatically suspend deductions when applicable and generate a notification correspondence.	X			
82	Ability to create payroll ending dates and automatically remove the account from payroll and optionally reinstate when applicable (e.g., termination of benefit upon age of majority, life certain options).		X		
83	Ability to cross reference account information (e.g., member, beneficiary, alternate payee, survivor annuitant, etc.) and display the associated account.	X			
84	Ability to determine COLA amount partially based on whether the recipient receives an "annuity" or a "pension". (i.e., ten-year annuity, survivor benefit annuity).		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
85	Ability to determine eligible annuitants for existing and future COLAs.	X			
86	Ability to determine payroll month of conversion from disability to service retirement.	X			
87	Ability to determine, calculate and apply exclusion ratio/excludable amount if the adjustment is a result of additional contributions received.	X			
88	Ability to display all detailed benefit payment information (current/historical) for each electronic transfer/direct deposit or “paper” check initiated (e.g., check number, payment type, gross payment amount, net payment amount, deduction amounts, check address used).	X			
89	Ability to generate multiple payments per payee in a single payroll run.	X			
90	Ability to include all deductions on check stub – current period and year to date.	X			
91	Ability to issue one-time payments.	X			
92	Ability to maintain a flag to indicate payees that want the annual COLA increase “applied” or “rejected”.	X			
93	Ability to maintain more than one benefit account for a payee, (e.g., annuitant, beneficiary).	X			
94	Ability to maintain payroll status types and codes.	X			
95	Ability to maintain yearly gross check amount, taxable amount, deductions, excludable amounts, ratios, and recovered amounts for 1099R reporting.	X			
96	Ability to make a payment payable to a guardian on behalf of a minor.	X			
97	Ability to monitor the usage/depletion of a member’s account balance which is recouped through an exclusion ratio (IRS simplified general rule).	X			
98	Ability to perform manual COLA calculations for cases where there are exceptions that could not be updated by the system.	X			
99	Ability to perform payroll “production run” after successful validation.	X			
100	Ability to perform payroll “trial run” to validate payroll data prior to the generation of the payroll tapes/checks and payroll reconciliation reports.	X			
101	Ability to place a “hold” on a benefit payment check and release when applicable.	X			
102	Ability to process special deductions to financial institutions and provide for reconciliation and payments to the appropriate institution.	X			
103	Ability to provide adequate check numbering, voucher numbering, and payroll controls to ensure accurate information is sent to third party payroll service provider, banks, and financial institutions.	X			
104	Ability to provide an online web utility for TCRS members (annuitants) to calculate/estimate the effects of various Federal and State withholding tax amounts.		X		
105	Ability to provide an online web utility for TCRS members (annuitants) to update/maintain their federal and State withholding tax amount, multiple check addresses, and other pertinent information.	X			
106	Ability to provide an online web utility for TCRS members (annuitants) to view/print benefit summary information.	X			
107	Ability to recalculate a benefit amount based on a change in date of birth.	X			
108	Ability to recognize a change to the member’s account and trigger a post-retirement adjustment workflow with the ability (if TCRS desires) to have the system perform the re-calculation of benefits and the comparison of benefit amounts.	X			
109	Ability to re-execute payroll edits once a correction has been made in response to an exception/error or a new record is created.	X			
110	Ability to reissue a direct deposit to a different financial institution.		X		
111	Ability to retain both the rates used in calculating the COLAs for past years as well as the actual COLA	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	increases applied to individuals' benefit amounts.				
112	Ability to retain history of check addresses, the member's address, and their survivor's addresses, with effective dates 'attached' to all historical addresses.	X			
113	Ability to reuse prior month deductions for third parties in cases where current month deductions have not been received.	X			
114	Ability to create a journal voucher when payroll is run to remit tax withholding amounts to Department of Finance and Administration (F&A).	X			
115	Ability to send the payroll file to an outside agency for printing of checks.	X			
116	Ability to set up, process and transfer a disability retirement to a regular (service) retirement if member no longer qualifies for disability and is eligible for regular (service) retirement.	X			
117	Ability to store and display the before check amount, the COLA increase, the COLA percentage, and check amount after application of the COLA – including all applicable deductions.	X			
118	Ability to store reasons for not receiving a specific COLA (per account).	X			
119	Ability to support both one-time and recurring deductions.	X			
120	Ability to support different levels of exceptions/errors, both fatal and non-fatal (i.e., payroll runs versus payroll does not run).	X			
121	Ability to support joint and survivor annuity payments and provide detailed tracking of this annuity, with the ability to transfer the annuity to the survivor after eligibility validation and certification of the death of the retiree.	X			
122	Ability to support multiple check addresses, each in effect for a portion of a year (e.g., "snowbirds") and the ability to distribute address changes to related parties as necessary.	X			
123	Ability to support negative, zero, and positive account balances but generate only positive check amounts and direct deposits.	X			
124	Ability to support multiple direct deposits to multiple financial institutions and/or multiple accounts within one financial institution.		X		
125	Ability to support the entry of federal and State tax withholding for a future date and implement the change with the benefit payroll corresponding to the date.	X			
126	Ability to support void, forgery, and stop pay situations, and generate replacement checks where applicable.	X			
127	Ability to suspend and reactivate a member's payroll record.	X			
128	Ability to test a direct deposit disbursement via pre-note capability.	X			
129	Ability to track individual payroll deductions (e.g., member name, name of entity, address, amount paid, date of payment, check number).	X			
130	Ability to track receipt of notification of change in marital status or death of survivor annuitant or divorce.	X			
131	Ability to transfer the collection of an overpayment deduction from a disability account when converted to a regular retirement.	X			
132	Ability to update benefit amounts and issue a supplemental payment or establish an accounts receivable as needed.	X			
133	Ability to update COLA processing should a benefit recipient become eligible after the normal COLA unattended execution, for all or a subset of members.	X			
134	Ability to update related fields (transfer amount, gross, taxable, survivor check, etc.) after recalculating the COLA.	X			
135	Ability to withhold various third party deductions from a benefit payment.	X			
136	Ability to capture "bulk" changes in bank routing numbers (supporting bank mergers) for direct deposit	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	of retiree payments.				
137	Ability to capture check status including stop payments (retirements, refunds, direct rollover, vendor payments, etc.), cashed, not cashed, etc.		X		
138	Ability to capture changes in individual and bank routing numbers for direct deposit of retiree payments.	X			
139	Ability to capture response from member relating to outstanding check that has not been cashed.	X			
140	Ability to generate a correspondence notifying annuitant of a reissued payment and reason.	X			
141	Ability to generate correspondence and/or emails to members notifying them of stop payment.	X			
142	Ability to automatically suspend payment after predetermined number of consecutive ACH rejects and/or outstanding warrants (checks).		X		
143	Ability to allocate a benefit to multiple designated beneficiaries.	X			
144	Ability for payee to change direct deposit information online without TCRS verification.	X			
145	Ability for payees to log onto our member portal and view their previous check stubs.	X			
146	Ability to calculate tax withholding based on a percentage of the gross benefit amount.	X			
147	Ability to establish future effective dates for changes to direct deposit, address, withholding, etc.	X			
148	Ability to notify the member of the effective date of a change via email and message on screen. For example: when will a direct deposit change take effect.	X			
149	Ability to notify member by email of monthly deposit (also to see previous emails).	X			
150	Ability for member to request and print higher education fee waiver or discount online and to give explanation of eligibility.	X			
151	Ability to provide links to TCA code.	X			
152	The payment history must include the routing number and account number for each monthly benefit payment or supplemental payment made by direct deposit.	X			
153	The payment history must include the redemption date or returned date and reason for return for each monthly benefit payment or supplemental payment regardless of payment type.	X			
154	Ability to charge fees for payments issued in paper format and mailed (e.g., $0.50 per check issued).	X			

15. Health Insurance

Health Insurance Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for the system to determine eligibility for insurance based on application data submitted and data residing online with staff approval before the system updates.		X		
2	Ability for the system to generate a bill for selected employers' portion of the retiree's premium.		X		
3	Ability for the system to accept insurance files from agencies through the employer portal (Shelby County, Memphis City, etc) and have staff approval before the system updates.		X		
4	Ability for the system to determine the State support due for a Medicare Supplement plan with totals by support level and include a count of participants by support level.		X		
5	Ability to provide for a browser-based enrollment application for both under-65 State health plans and over-65 Medicare health plans.		X		
6	Ability to export data (i.e., applications, change items, terms, qualifying events, to the Division of Insurance Administration (DIA)).	X			
7	Ability to generate insurance discrepancy report.	X			
8	Ability to generate open enrollment mailing for eligible accounts.	X			
9	Ability to produce automated correspondence for recurring communications to retirees.	X			
10	Ability to acknowledge receipt of insurance application noting deduction amounts.	X			
11	Ability to automatically adjust all necessary insurance amounts when account is updated due to address changes, service adjustments, retirement date corrections.	X			
12	Ability to determine an appropriate insurance premium based upon certain criteria.		X		
13	Ability to deduct insurance premiums from annuities and to deposit the balance into a retiree's banking account.	X			
14	Ability to determine if the retiree's monthly benefit has sufficient funds to cover the monthly insurance premium and, if not, forward application to DIA.	X			
15	Ability to easily accommodate system-wide structure changes in insurance plans, premiums, options, and levels.		X		
16	Ability to handle both over-65 and under-65 insurance payments to DIA.		X		
17	Ability to handle qualifying events (i.e., disabilities, death, marriage).	X			
18	Ability to issue and track correspondence and other correspondence to document changes to a retiree's insurance account.	X			
19	Ability to maintain history of insurance rates, import current rate history, including breakdown of insurance amounts of individual accounts.	X			
20	Ability to pre-populate enrollment forms with appropriate member or retiree information and to allow for correction of that information by the user.	X			
21	Ability to process health applications or adjustments in multiple pay periods through the use of an effective date.	X			
22	Ability to provide a detailed accounting of all insurance based transactions, (i.e., payroll, refunds, etc. for any specified time frame that is searchable and sortable).	X			
23	Ability to reconcile data differences with DIA (demographic, enrollment).	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
24	Ability to report on insurance (census) information overall for upper management and the Comprehensive Annual Financial Report (CAFR).	X			
25	Ability to review and update pending transactions separately or as a group.	X			
26	Ability to review historical data sent to DIA.	X			
27	Ability to track unlimited dependents and associated information (age, full-time enrollment in school, etc.) and to generate appropriate correspondence and premium adjustments/terminations when a dependent no longer meets insurance qualification criteria.	X			
28	Ability to view insurance detail and summary reports generated from payroll.	X			
29	Ability to provide a data extract for insurance including eligible months of service, date of birth, and date of retirement to Edison in a compatible format.		X		
30	Ability to accept an insurance file from Edison to update Concord with insurance deductions (e.g., Dental, health and long term care premiums).		X		
31	Ability for the system to provide an interface with Edison to receive and update insurance information (e.g., Deductions, enrollment, refunds).		X		
32	Ability to generate reports listing discrepancies in data from Edison.		X		
33	Ability to process insurance premium refunds to members as checks and/or ACH transactions.	X			
34	Ability to track insurance refunds between Concord and Edison.		X		
35	Ability to include multiple insurance plans and multiple deductions for insurance for members enrolled in more than one insurance plan.	X			

16. Return to Work

Return to Work Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for system to identify an employee as Return to Work (Temporary Employment, Limited Reemployment) with exception that permits a continued receipt of benefit.	X			
2	Ability to track reporting by the employer to verify that salary and service remain under the limits during Temporary Employment and Limited Reemployment periods.	X			
3	Ability to automate letters sent to members for Temporary Employment, Limited Reemployment, Stopping the Benefit, and Benefit Overpayment.	X			
4	Ability to automate the rebuild process for retirees returning full-time and stopping their benefit.	X			
5	Ability to track the begin and end dates for individuals returning to work.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
6	Ability to receive a report of retired individuals who are also being reported as active members.	X			
7	Ability for the member to notify TCRS of Temporary Employment online.		X		
8	Ability for the employer to report members under Temporary Employment online.		X		
9	Ability for the member to inquire as to their Temporary Employment status online (i.e., amount of time worked, salary earned, the remaining amount of salary and time allowable).	X			
10	Ability for the staff to add notes online concerning the member's return to work.	X			
11	Ability for the system to produce a report indicating those members on Temporary Employment who have exceeded the 120 day and/or salary limit.	X			
12	Ability for the system to track the number of years that the member has been on Temporary Employment and adjust the salary limitation accordingly.	X			
13	Ability of the system to notify the member returning to work that TCRS shows them as a retiree and that they need to contact TCRS.	X			
14	Ability of the system to calculate salary service limits for purposes of return to work as specified by TCRS rules.	X			
15	Ability to generate return to work reports.	X			
16	Ability to reverse salary and/or service from the system that was reported in error after audit.	X			
17	Ability to apply system/plan/group specific standards and conditions in event of return to work.	X			
18	Ability to automatically generate correspondence when a retiree returns to work to ensure that the member adheres to the return to work requirements.	X			
19	Ability to create and maintain a receivable for retirement benefits that need to be returned upon reemployment.	X			
20	Ability for the system to automatically determine if a member is retired and the status of that retirement and trigger a workflow at the time of reemployment, prompting the employer to report them in a return to work status or suspending retirement and reporting the member as active.	X			
21	Ability to identify if a member is a multiple group member when returning to work and apply the correct rules according to TCRS plan.		X		
22	Ability to track those retirees working under the "limited reemployment" rule (i.e., specialized teachers) or other such legislation that creates a special case.		X		
23	Ability to automatically identify retirees who have been overpaid as a result of return to service, calculate amount of overpaid benefits owed to TCRS, generate a correspondence to request repayment and automatically create accounts receivable.		X		
24	Ability to change business rules associated any return to work rules.	X			
25	The ability to apply a reduction based on XX% of the gross benefit for the period in which a retired member returns to work for a different employer under TCRS. The system should be able to calculate this reduction without the need for a manual adjustment.		X		
26	The ability to automatically recalculate a member benefit to what it would have been without the "return to service" reduction factor when that member re-retires. The system should have the ability to make this calculation without the need for a manual adjustment.		X		
27	The ability to identify different categories of return to work.	X			
28	Ability for the system to generate sortable reports of members who have returned to work including date of return to work, duration, and salary information.	X			
29	Ability for the system to notify member/employer by mail and/or email of acknowledgment of beginning of temp emp/limited, warning notice when limits are approaching, and a "final summary" when the temp emp/limited period has ended showing the employer name, begin and end dates, total salary reported and non-creditable service reported.		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
30	Ability to generate web based reports on demand for employers for their employees under the return to work provisions.	X			

17. Death Processing

Death Processing Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for the system to make payments if funds are returned after death.	X			
2	Ability for the system to indicate deceased (active) members who are not due a benefit.	X			
3	Ability for the system to generate ACH transactions to collect overpayments.		X		
4	Ability to "freeze" account in the event of a contested death benefit.	X			
5	Ability to automatically stop/hold monthly retirement benefit payment if date of death precedes payment date, and record the stop/hold on the account level so that staff processing the account are aware of the stop/hold.	X			
6	Ability to identify if a refund application, disability retirement application, or retirement application was filed prior to the member's death and, if so, trigger appropriate workflow (and set the item as high priority).		X		
7	Ability to track returned benefit checks (in the case of a death); checks are to be returned if issued after the month of death.	X			
8	Ability to capture information from contested death benefit correspondence (e.g., name of person contesting death benefit, reason contesting, TCRS response); conditional routing will occur based on correspondence between TCRS and the person contesting the death benefit.		X		
9	Ability to capture information related to a death notification (e.g., date received, date of death, contact person(s) name, address, and phone number, relationship to deceased member, death certificate received indicator).	X			
10	Ability to record receipt of all forms received throughout the process (e.g., death certificate, next-of-kin affidavit, annuity election form, tax forms, rollover form) and ability to capture pertinent information from each document/form.	X			
11	Ability to "age" death benefit accounts for the purpose of automatically generating follow-up correspondence (i.e., a "simple" cover correspondence explaining that a prior correspondence was sent (mm/dd/yyyy) and that TCRS is still waiting for a response with a copy of the original correspondence attached).	X			
12	Ability to create a system generated payment correspondence.	X			
13	Ability to determine that benefit checks for the month of death and/or subsequent months were not returned and if so, generate a correspondence requesting reimbursement and set-up a receivable;	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	alternatively, deduct the amount of benefits paid after death from the death benefit.				
14	Ability to generate a “check stub” for each death benefit payment.	X			
15	Ability to generate an acknowledgement correspondence when a death notification is received and contact person information is available.	X			
16	Ability to generate an additional information correspondence based on further information needed to process the death benefit payment; include appropriate forms to be sent with the correspondence.	X			
17	Ability to generate an death benefit overpayment correspondence when applicable.	X			
18	Ability to generate an Estimated Death Benefit/Death in Service correspondence to include the estimated death benefit amount, beneficiary/survivor annuitant information, and what is needed to process the benefit payment (i.e., premium assistance reimbursement, monthly benefit payment reimbursement, etc.); include appropriate forms based on situation (e.g., rollover form, annuity election form).	X			
19	Ability to generate various prefilled (e.g., member, survivor annuitant, and/or beneficiary information) death benefit related documents.	X			
20	Ability to recognize if contact person information was entered at the time of notification, and if not, automatically generate a correspondence to the estate of the deceased requesting contact person information.	X			
21	Ability for the reviewer to assign a reason code for the return of the account (i.e., error, inquiry, or additional information required).		X		
22	Ability to add a survivor annuitant to monthly benefit payroll using a specific dollar amount or percentage.	X			
23	Ability to calculate the active and retiree death benefit (estimated and finalized) for all payment types (i.e., prorated, survivor, and balance) and store not only the estimated benefit payment calculation information but also the final calculation results, preserving the detailed calculation for future reference.	X			
24	Ability to create a survivor annuitant payroll record immediately upon notification of a member’s death where appropriate.	X			
25	Ability to cross-reference a survivor annuitant added to payroll and the associated deceased member (e.g., both member and spouse were in the retirement system).	X			
26	Ability to determine the member status (i.e., active or retired) when notified of death in order to route the notification of death to the appropriate work area.	X			
27	Ability to display a payment summary and/or payment detail pertaining to each death benefit payment.	X			
28	Ability to display appropriate beneficiary information (e.g., last named beneficiaries/survivor annuitant on file, associated percentages, identification of multiple beneficiaries, beneficiary’s/survivor annuitant’s relationship to member).	X			
29	Ability to identify if the deceased member had a previous retirement/frozen annuity and process in accordance with plan provisions.	X			
30	Ability to identify if the deceased member previously retired, received a retirement benefit, and then returned to service, and process in accordance with plan provisions.	X			
31	Ability to identify the benefit payment type (i.e., survivor annuity or pension account balance refund) established at the time of member retirement to route the death benefit work request to the appropriate queue.	X			
32	Ability to identify those accounts where no response was received from a follow-up correspondence after a TCRS-defined time period.	X			
33	Ability to identify where there are multiple payees (e.g., beneficiary, next-of-kin, survivor annuitant) and process separately, tracking the information TCRS is waiting for from each beneficiary, and authorizing payment to those who have returned all necessary information while holding payment to payees whose information remains incomplete.	X			
34	Ability to preclude or prevent tax reporting number of the death beneficiary from being the same as the	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	member's.				
35	Ability to process death benefits according to specific "death in service" plan provisions.	X			
36	Ability to process multiple payments to multiple financial institutions in one transaction.		X		
37	Ability to process separate death benefits, possibly according to different processing rules, in cases where the deceased was receiving more than one monthly benefit check.	X			
38	Ability to provide a web utility for employers to electronically report the information currently reported on a Notification of Death form (e.g., deceased member's name, date of death, unreported salary and wages, employer name, employer number).	X			
39	Ability to recalculate the death benefit when new information is received.	X			
40	Ability to recalculate the distribution of the death benefit in the event a beneficiary pre-deceases the member or a beneficiary waives the benefit.	X			
41	Ability to receive notification of death in various ways (e.g., Notification of Death form, phone, correspondence, returned check, web) and trigger a workflow request.	X			
42	Ability to reverse a death entered in error; reinstate a payroll record removed in error without interrupting monthly payments or pay the benefit payments that were missed prior to the reversal (i.e., "catch up").	X			
43	Ability to route work for audit/review prior to release for payment; if errors are found, route the account/folder to the original processor, who makes the correction which is automatically routed back to the original reviewer.	X			
44	Ability to standardize the content, information, and format on a notification of death whether received through a standard TCRS form, phone call, or web utility.	X			
45	Ability to store a summary transaction of the death events ("dead", payment made, payment amount, payee for each, etc.) based on detailed account transactions.	X			
46	Ability to support the handling of member death payments where there are multiple payments to be issued.	X			
47	Ability to suspend the death benefit process and generate a work request to a specialized area for processing (e.g., Legal, Health Care).	X			
48	Ability to track the distribution, turn-around, and processing of each document used in death processing.	X			
49	Ability to trigger automatic reminder to user if the Estimated Death Benefit correspondence is not sent out within a specified number of days of the death of date notification.	X			
50	Ability to update the tax files when a reimbursement amount (for benefits paid after date of death) is deducted from a death benefit.	X			
51	Ability to pay a remaining balance or a portion of the remaining balance of a deceased member, where applicable, to a beneficiary or beneficiaries, in the form of a rollover. The payment must follow IRS rules and be included with IRS reporting.	X			
52	Ability to pay amounts due to person in deceased status.	X			
53	Ability to restrict ability to process payments to members in deceased status to authorized users.	X			
54	Ability to generate reports for all activity regarding members in deceased status.	X			
55	Ability to automatically notify insurance area when a member with an insurance segment is put into or taken out of deceased status.	X			
56	Ability to process double rollovers for multiple beneficiaries on one request.	X			
57	Ability to process a rollover and cash disbursements in one request for multiple beneficiaries.	X			
58	Ability to place a member record in a pending status while TCRS waits to confirm death.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
59	Ability to rollback the calculation based on an effective date (i.e., date of death)	X			
60	Ability to pay contingent beneficiaries per TCRS rules.	X			
61	Ability for the system to accept a death match file in any format from a third party vendor.	X			
62	Ability for the system to accept a death match file as a death notification for each specific SSN match.	X			
63	Ability for the system to create a separate workflow item for each specific SSN on the death match report.	X			
64	Ability to distinguish where a death notification originated, including a description in the workflow.	X			
65	Ability for TCRS staff to set and/or change date and function parameters regarding the death match file process. (e.g., upon receipt of the file mail generate a letter, wait 30 days then place file in pending status, immediately begin reconciliation of funds).	X			
66	Ability for TCRS staff to bypass any set date and function parameters in the death match process.	X			
67	Ability for the system's workflow to display the death match SSN's with descriptions of where they are in the process (e.g., SSN's listed in workflow: first 10 SSN's display "need 15 day letter", next 5 SSN's display "send to General Counsel").	X			
68	Ability for the system to automatically create an accounts receivable to a retiree account once a file has been sent to General Counsel.	X			
69	Ability for the system to handle ongoing death match reports and automatically update the current report.	X			
70	Ability for the system to track the death match report and discontinue generating letters to non-responsive accounts.	X			
71	Ability for the system to create a report of all death match records who have not responded in a time frame set by TCRS.	X			
72	Ability for the system to allow TCRS staff the option of running the active members' SSNs or the retirees' SSNs in the death match file to generate the workflow.	X			
73	Ability for the system to generate reports on overpayments by date, total paid and by amounts returned.	X			
74	Ability to project interest on account balances for deceased benefit estimates per TCRS rules and State law.	X			
75	Ability to generate and use retirement identification numbers as primary identifiers within the system for beneficiaries receiving benefits from a deceased member(s).	X			

18. Power of Attorney

Power of Attorney Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Item	Description	Response

		Included	Modification	Third Party	Excluded
1	Ability to ensure that all correspondence will be sent to an appointed guardian after the guardian certificate has been reviewed/approved by TCRS legal staff.	X			
2	Ability to notify TCRS staff, if applicable, throughout all processes (including the submission of a power of attorney form or trust certificate) that a court appointed guardian has been reviewed/approved by TCRS legal staff or that one is pending legal review, and that all account transactions must be initiated by the court appointed guardian as indicated on the guardian certificate.	X			
3	Ability to reject a transaction based on the agent's approved powers (e.g., if agent must "act" in conjunction with another agent, signatures from both are required prior to processing transaction).	X			
4	Ability to restrict transactions against an account which has an appointed/approved guardian (i.e., the member may no longer conduct business on his/her own behalf except in certain limited circumstances, for example, a change to member demographic data supported by "valid proof" documentation).		X		
5	Ability for user to enter the appropriate agent, guardian, or trustee information upon approval (e.g., designated or court appointed agent(s) name and address, whether agent "acts" alone or together with another agent, agent "powers", whether agent can name him/herself as beneficiary or survivor annuitant of the member's retirement plan, durable, non-durable, specific, general).	X			
6	Ability to capture a specific time duration (date from and date to) noted in a power of attorney form, guardian certificate, or trust certificate.		X		
7	Ability to capture and track the status of a power of attorney form, guardian certificate, or trust certificate (e.g., pending, approved, rejected, legal review, revoked).	X			
8	Ability to capture, update, and display submittal of power of attorney form, guardian certificate, and trust certificate.	X			
9	Ability to "pend" (when a document designating power of attorney, guardianship, or trusteeship is received from someone other than the member or court) the transaction until the designation request is submitted by the member or a court of competent jurisdiction.	X			
10	Ability to "pend" (when a request/document (e.g., application for refund), is submitted by a person representing him/herself as power of attorney, guardian, or trustee) the transaction if there is no corresponding record in the system of an approved power of attorney, guardianship, or trusteeship for the requester.	X			
11	Ability for TCRS to approve/reject a power of attorney form, guardian certificate, or trust certificate; approval or rejection should also trigger workflow to route the work request to the next appropriate step.	X			
12	Ability to accommodate multiple power of attorney designations; all approved power of attorney designations will remain in effect until they are revoked by the member.	X			
13	Ability to automatically change the power of attorney, guardian, or trustee status from "approved" to "revoked" or "expired" when the specified duration has been exhausted and automatically generate correspondence to the agent, guardian or trustee and the member that the POA has been revoked due to duration being exhausted.		X		
14	Ability to automatically generate an approval correspondence to both the member and designated agent(s) when a power of attorney, guardianship, or trusteeship record has been updated with a status of approved.	X			
15	Ability to generate a delay correspondence when a non-TCRS power of attorney form, guardian certificate, or trust certificate is sent to TCRS legal staff for review; if a trust certificate is sent for review, the delay correspondence should be sent to both the contact person and the trustee(s).	X			
16	Ability to generate a disapproval correspondence to both the member and designated agent(s) when a power of attorney, guardianship, or trusteeship record has been updated with a status of disapproved; correspondence should include enclosed prefilled TCRS power of attorney/guardian/trustee form.	X			
17	Ability to generate a correspondence indicating that a transaction cannot be processed based on an agent's (power of attorney, guardian, trustee) approved powers.		X		
18	Ability to generate a correspondence to the member alerting him/her when an approved power of attorney is on file and TCRS receives another power of attorney form.	X			
19	Ability to generate a response (correspondence) to a person seeking to designate him/herself as power of attorney, guardian, or trustee explaining that the transaction cannot be processed until the request is made by either the member or a court of competent jurisdiction and approved by TCRS.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
20	Ability to generate a response (correspondence) to a person submitting requests/documents (e.g., application for refund) and representing him/herself as power of attorney, guardian, or trustee, explaining that the transaction cannot be processed until the designation of power of attorney, guardian, or trustee is requested by either the member or a court of competent jurisdiction and approved by TCRS.	X			
21	Ability to reactivate pending transactions that were suspended for lack of approved power of attorney, guardianship or trusteeship once the record's status has been updated of approved.		X		
22	Ability to view current and historic power of attorney information.	X			
23	Ability to indicate type of Power of Attorney and link to image online (member's POA).		X		
24	Ability to have various types of power of attorney with effective dates. (Power to inquire about account, to request account information, to make specified changes, unlimited power, etc.).		X		
25	Ability to provide login access for individuals with Power of Attorney, with effective end dates for access.		X		

19. QDRO (Qualified Domestic Relation Order)

Qualified Domestic Relation Order (QDRO) Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to "cross-reference" to another member's account (e.g., spouse also within the retirement system) and alert user when a QDRO/DRO is being processed or is in place.		X		
2	Ability to enter and display (QDRO/DRO) related information in cases where a member has been divorced and a QDRO/DRO is on file.	X			
3	Ability, upon receipt of additional QDRO/DRO information, to append it to the existing QDRO/DRO if one is in process; initiate a new QDRO/DRO process if the prior QDRO/DRO information is already either finalized or rejected.		X		
4	Ability to generate appropriate correspondence outlining the rights of individuals with respect to one or more QDROs/DROs in place on a member's account.	X			
5	Ability to generate report of split benefit payments.	X			
6	Ability to produce requested reports for account information during split payment and affidavit proceedings.	X			
7	Ability to link retiree accounts to all split payments and vice versa.	X			
8	Ability to make appropriate benefit adjustments as necessary based on the rules associated with a finalized QDRO/DRO.	X			
9	Ability to monitor split benefit payment amounts.	X			
10	Ability to record and support instances where multiple, legitimate QDROs/DROs are placed against a member's account.	X			
11	Ability to stop payments when the maximum amount has been paid.	X			
12	Ability to support the appropriate allocation of a benefit to multiple alternate payees as defined by a QDRO/DRO.	X			
13	Ability to track Equitable Distribution Orders (EDO) through the attorney general review process.		X		
14	Ability to capture a specific time duration or number of payments are noted in QDRO.	X			
15	Ability to provide for payment to the guardian of an alternate payee.	X			
16	Ability to disperse a refund according to the QDRO.	X			
17	Ability to suspend payments if the QDRO is undergoing a review process.	X			

20. Field Services

Field Services Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to coordinate all correspondence with new employers.	X			
2	Ability to present actuarial data to political subdivision board members.	X			
3	Ability to coordinate the counseling of potential members prior to new employer entry into TCRS.			X	
4	Ability to coordinate the training of payroll officers on contribution reporting.			X	
5	Ability for TCRS staff to view and edit employer benefit options.	X			
6	Ability to track resolutions that employers mail to TCRS approving employer benefit options, etc.		X		
7	Ability to audit resolutions through staff approvals.		X		
8	Ability for employers to enter actuarial data via a Web interface.		X		
9	Ability to maintain information about potential, not-yet active employers.	X			
10	Ability to provide employer information to an actuary via a standard interface.	X			
11	Ability to deactivate employers.	X			
12	Ability to merge multiple employers into a single entity or split one employer into multiple entities.		X		
13	Ability for employers to complete service and salary records for new employees	X			
14	Ability for employers to input employee's service and salary information for use in participation and PC801 studies.	X			
15	Ability for employers to access their actuarial studies on the Web.		X		
16	Ability for TCRS staff to edit and view employee and employer information if employers are unable to do so.	X			
17	Ability for actuarial data to transfer and update to the system (e.g., prior service forms).		X		
18	Ability to generate prior service billings automatically prior to employee becoming a member (and) once they become a member be able to use/update that prior billing.	X			
19	Ability for employers to access all active and retiree employee information with limited edit capability and have the ability produce reports and Excel extracts.	X			
20	Ability to view corresponding resolution/documents for employer benefit options.	X			
21	Ability to produce and track customized correspondence for all field service activities.	X			
22	Ability to determine whether a member has attended an education seminar within the past (specified number of) years.			X	
23	Ability, when member is using a Web-based utility to enroll in specific seminars, to accept/reject the enrollment request based on specific criteria (e.g., within 2 years of retirement).			X	
24	Ability to capture text of all in-bound and out-bound emails into notes section of member record.	X			
25	Ability to generate member management reports showing demographics of members who have attended different types of seminars.			X	

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
26	Ability to convert all member data pertaining to past attendance in member seminars (currently stored in spreadsheets, etc.), into the new LOB database.			X	
27	Ability to generate the appropriate benefit estimates for each member pre-enrolled in a scheduled seminar.		X		
28	Ability to display each reference dept. code under the master dept. codes.	X			
29	Ability to image and index documents for those employers and employees that have not yet joined TCRS.	X			
30	Ability to image and store non-elect forms for employees of New Poli-subs joining TCRS.	X			
31	Ability for employers and TCRS staff to view rate history and changes.	X			
32	Ability for the system to pre-fill employer benefit options for reference codes under a master code.	X			
33	Ability to track attendance to Employer and Employee TCRS meetings.			X	
34	Ability to set-up and register for Employer and Employee TCRS meetings online.			X	
35	Ability to restrict Employer view to available employer benefit options only.		X		
36	Ability for the system to retain all PC801 information under both the employer and employee records.		X		

21. Maintain Employers

Maintain Employers Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to maintain various employer benefit options by group and ability to calculate benefits for employees based on the options of the group to which they belong.	X			
2	Ability to maintain asset balances (i.e., cash flow statement) for each employer including (but not limited to) contributions, non contributory contributions, interest paid, benefit payments, transfers, investment income and expenses.		X		
3	Ability to maintain employer and employee assets and statistical data by group (e.g., Consolidated State, Johnson City).		X		
4	Ability to maintain separate reserve accounts for employee and employer assets.		X		
5	Ability to transfer employee assets to the employer reserve account at retirement and perform appropriate reversal of that the transaction for any remaining monies for those retirees returning to service.		X		
6	Ability to calculate and charge administrative cost to each employer's account using both an average		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	asset balance or a per head charge.				
7	Ability to maintain table of maximum allowable service for each employer.		X		
8	Ability to maintain table of valid retirement types by employer.	X			
9	Ability to allocate investment income and investment expenses to employers based on average employee and employer assets.		X		
10	Ability to make asset adjustments to employer accounts.		X		
11	Ability to update contributions received, benefits paid, etc to the employer asset.		X		
12	Ability to automatically update to employee assets by employer via various processes (e.g., refunds, interest).		X		
13	Ability to add new employers, groups, or plans.	X			
14	Ability to tie employers to an applicable group, and groups to an applicable plan.	X			
15	Ability to update contributions received, benefits paid, etc. based on the combination of the employer, retirement type and TCRS rules.		X		
16	Ability to "roll-up" assets from employer to group, from group to plan, and from plan to control.	X			
17	Ability to update employee interest to employee accounts and transfer funds from the employer to employee reserve.		X		
18	Ability for employers to access their own asset information via the web.		X		
19	Ability for employers to run queries and create reports and Excel files containing employee and retiree information via the web.			X	
20	Ability to establish begin and end date function (effective date) for retirement types for departments (TRACS and CRIS have retirement types. Some types in one database are no longer valid in the other.).		X		
21	Ability to place valid date ranges on service types (e.g., Military service, probationary service, constitutional convention service).		X		
22	Allow non-contributory employers to change to contributory (and back) and track employees based on their date of membership and not just at the employer level.		X		
23	Ability for Employers and staff to generate Asset Balance sheets. These balance sheets should be created by the system and not require the user to manipulate a database.		X		
24	Ability for the system to generate "Board Material Reports" (statistical information for the Retirement system) for use in TCRS board meetings. These reports should be created by the system and not require the user to manipulate a database.	X			
25	Ability to show whether an employer is a participant in the DC plan.		X		
26	Ability to show start date and plan details for DC plan by Employer.		X		
27	Ability to indicate whether a member participates in the state's DC plan under their employer.		X		
28	Ability to maintain separate accounting and actuarial records for each participating employer.		X		
29	Ability to track enrollment and withdrawal, contact information, employer benefit options selected, and accumulated assets for each employer.		X		
30	Ability to update assets by employer for employer contributions, administrative cost allocation, investment income, transfers of employee's accounts at retirement.		X		
31	Ability to maintain actuarial valuations by employer in accordance with funding provisions.		X		
32	Ability to pay retiree benefits differently based on each individual employer's benefit option.		X		
33	Ability to maintain cash flows and account balances for each employer.		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
34	Ability to administer multiple plans and multiple groups of employer benefit options for a single employer (e.g., different groups of employees within the same plan may have different employer benefit options).		X		

22. Contribution Reporting

Contribution Reporting Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to match an employer report to employer remittances and create alerts of mis-matches.	X			
2	Ability to provide notification whenever employer reporting information is received for a person who has applied for retirement, received an initial benefit, or has had a final calculation of benefit performed.	X			
3	Ability to prevent invalid or duplicate data from posting to the member's account.	X			
4	Ability to produce a report comparing a member's current month salary and hours (as adjusted) to preceding months and identifying, by employer, instances where the information submitted violates TCRS business rules (e.g., salary exceeds an acceptable parameter, no salary reported, no hours reported but required for plan).	X			
5	Ability to provide an audit trail of any adjustments in salary, contributions, or service made to a member's account, including the ability to detail a member's salary, contributions, and service by employer throughout the system and the member's history.	X			
6	Ability to accept electronic payments from employers.	X			
7	Ability to accept various forms of media (disk, paper, file transfer, CD-ROM, web, etc.) containing member data submitted by employers.	X			
8	Ability to capture a member's hire date, termination date, demographic information and address from employer reports.	X			
9	Ability to capture a new employer's plan history (i.e., in previous retirement system) and make it available online. Plan history includes the history of individuals (e.g., service and salary history, purchase of prior service) and of the plan (e.g., dates that the plan was contributory and changed to noncontributory, options that were offered to employees).	X			
10	Ability to capture comments or notes regarding an employer.	X			
11	Ability to capture employer demographic information, including the TCRS-assigned employer number, employer name, multiple contacts, multiple addresses, multiple email addresses, and other pertinent information.	X			
12	Ability to capture historical rates and factors with effective dates so that retroactive calculations use the appropriate figures.	X			
13	Ability to capture user-defined parameters for calculating employer penalties and interest charges	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	relating to late reports/remittances.				
14	Ability to capture user-defined rules to validate employer data.	X			
15	Ability to capture user-maintainable parameters to control service credit allocation based on hours worked.	X			
16	Ability to capture user-maintained tables for employer and employee contribution rates, each rate having a corresponding effective date.	X			
17	Ability to capture, track, and report member personnel status codes (including hire date, re-hire, leave without pay, termination, suspension, etc.) from employer reports and “manual” user input. For each status code change, the start/end dates must also be captured.	X			
18	Ability to provide several industry-standard methods of securely submitting member data by employers, including via FTP, the web, and mailed media.	X			
19	Ability to automatically generate a report identifying the employer reports received, employer reports not received, dates when employer reports were received, amounts received and any dollar differences due; automatically notify one or more contacts within an agency that the report is available and can be viewed online.	X			
20	Ability to automatically generate penalty and/or interest correspondence/invoices to employers based on late report/late remittance.	X			
21	Ability to generate a correspondence to employer and employee regarding any adjustment made by TCRS staff to salary, contributions, and service.	X			
22	Ability to generate a report of the status of receivables for employee and employer contributions on demand, available to both staff and to employers.	X			
23	Ability to generate a report presenting summaries of exceptions for each employer that will need to be corrected, including the ability to re-generate the report after corrections have been made.	X			
24	Ability to generate an employer statement showing unpaid monthly charges identified by both prior and current periods, as well as any cash receipt not applied.	X			
25	Ability to generate an invoice to the employer for employee and employer contributions on demand as well as on a fixed schedule; for those situations where the employer is delinquent in the reporting of member wages and salaries, invoiced amount will be a system-generated estimate based on most recent previous employer report.	X			
26	Ability to generate correspondence/emails to employers notifying them of corrections they need to make on their next month’s report.		X		
27	Ability to produce a report of all members being reported who have no enrollment application on file.	X			
28	Ability to produce a report that lists employers who are delinquent in the payment of employee and employer contributions, including an aging of delinquencies.	X			
29	Ability to produce a turn-around document reflecting the employer’s information reported to TCRS showing current salary, contributions, and change balances in the order in which the employer submitted the information.	X			
30	Ability to produce a monthly discrepancy report comparing a member’s current monthly salary with preceding month’s and identify, by employer, members whose salary meets TCRS defined criteria.	X			
31	Ability to provide an online report of member's account history by agency by date range.	X			
32	Ability to accept adjusting entries through the wage and contribution report subject to application of business rules.	X			
33	Ability to check employer entry and termination dates against employee service records to insure that service credited is within the participation period of the employer.	X			
34	Ability to post (when there are individual records with errors) all the validated member records and suspend those member records containing errors and generate a report; OR ability to capture changeable threshold parameters based on the number of errors encountered; X records with errors prevents posting of the entire report; Y prevents only erroneous records from posting; a user (not	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	programmer) maintained parameter is required.				
35	Ability to accommodate employer-reported data adjustments to prior periods as well as information for the current period; adjustments must be “post-able” at either the agency level or the employee level, whichever is appropriate for the type of adjustment being submitted.	X			
36	Ability to accommodate multiple employment status codes (full-time salary, full-time hourly, part-time salary, part-time hourly, part-time per diem, etc.) for a member employed by one employer or multiple employers.	X			
37	Ability to accommodate variances resulting from a member’s working simultaneously for multiple employers (e.g., handling reported hours vs. reported days, part-time vs. full-time).	X			
38	Ability to allow employers to enter termination dates, unpaid leave dates, last year of service, etc.	X			
39	Ability to apply cash receipts or disbursements to outstanding employer and member receivables and payables in an automatic manner.	X			
40	Ability to apply deductions so identified in the wage and contribution report against predefined purchase of service balances.		X		
41	Ability to assign an “effective” period(s) to employer submitted data.	X			
42	Ability to automatically calculate the contribution that is due from the employer by contribution type and by plan type and provide a summary of amounts due by each type identified.	X			
43	Ability to automatically create appropriate general ledger transactions for employer payment receipts (e.g., monthly remittance of contributions) and disbursements (e.g., refunds of employer overpayments).	X			
44	Ability to automatically scan employer reporting disks, CD’s, etc. for viruses prior to processing the report.	X			
45	Ability to automatically trigger appropriate workflow if an employer reported adjustment is received for someone who has terminated/refunded (to address any overpayment/underpayment of refund).	X			
46	Ability to calculate and track both penalties and interest applicable to both late reports and late remittances from employer.	X			
47	Ability to classify employer data errors according to their severity (with posting of data permitted for less severe conditions, but posting suspended for critical errors).	X			
48	Ability to confirm that employer remittance was received within XX days of reporting period end date.	X			
49	Ability to correct all employer-reported data by manual entry, providing an audit trail of all such corrections.	X			
50	Ability to create and delete individual records within the employer data file subject to TCRS internal audit controls, limited to specific users.	X			
51	Ability to create appropriate general ledger debit and credit memos for differences and corrections in employer reports.	X			
52	Ability to display any adjustment made in employee’s salary, contributions, and service and display those adjustments at both the summary level and the detailed transaction level.	X			
53	Ability to create a file of ACH transactions reflecting employer payment made online, submit for draft on due date and generate an email confirmation of transaction to the employer.	X			
54	Ability to communicate information (such as delinquent reporting) to employers via email or web.	X			
55	Ability to indicate when an employer data file is not in balance, online, real-time.	X			
56	Ability to issue credit to employer that reports employer and/or employee contributions paid for a non-qualifying employee.	X			
57	Ability to maintain year-to-date balances of total employer and employee contributions for each employer.	X			
58	Ability to merge employers, combining data from old employers into the new employer, but retaining the		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	ability to query on historical data from the old employer.				
59	Ability to process employer submitted information (salary, contributions, and service) with various reporting frequencies (currently monthly).	X			
60	Ability to provide a real-time summary of any data file received from an employer, including data file totals and number of detail records.	X			
61	Ability to provide an edit for concurrent time (i.e., an employee contributing in two or more places), which may be allowable if the member is enrolled in two different plans, and prompt the user to check further into the circumstances.	X			
62	Ability to provide appropriate validations to ensure that reported service is consistent with reported salary, and that both are properly posted to the member's account.	X			
63	Ability to provide front-end validation that only one period of wages and contributions is being reported or ability to accept employer report covering multiple periods.	X			
64	Ability to provide front-end validations on SSN's, agency numbers, duplicate names, blank fields, negative numbers, dates, etc.	X			
65	Ability to provide front-end validations to determine whether reporting dates have already been posted on a member level, and if so, alert user to investigate.	X			
66	Ability to provide fully Web-enabled employer "self-service" in submitting data, receiving feedback on the validity of that data, and making needed corrections.	X			
67	Ability to provide real-time processing of employer reports.	X			
68	Ability to reconcile the total amount of member contributions and employer portions plus any adjustments to the total remittance made by the employer.	X			
69	Ability to execute data validations and calculate data file totals after a correction is made or records have been created or deleted, subject to TCRS internal audit controls.	X			
70	Ability to retrieve and review prior wage and contribution reports as reported by the employer including the means and media by which it was reported.	X			
71	Ability to reverse the processing of wage and contribution reports that were submitted by an employer in error.		X		
72	Ability to split employers, appropriately allocating/segregating employee data between the two new employers, but retaining the ability to query on all historical data from the "original" (pre-split) employer.		X		
73	Ability to support and track the following dates relating to employer wage and contribution reports: date submitted, date validated, date accepted by TCRS, date processed/posted and date paid.	X			
74	Ability to support future dating of submitted data within a range set by TCRS.	X			
75	Ability to support the lowest level of detail in the member account based on various employer reporting frequencies (e.g., weekly, bi-weekly, semi-monthly, and monthly).	X			
76	Ability to support the processing of multiple employer reporting transactions for a given person in a given time period to handle standard pay, overtime, extra-curricular, etc.		X		
77	Ability to tie contributions posted to the system to a payroll period ending date and update employee salary history for the appropriate month and year.	X			
78	Ability to track received, processed and unprocessed employer data files.	X			
79	Ability to validate and post service credit if member salary and contributions are reported for the month.	X			
80	Ability to validate reported data against tables of employer and employee contribution rates based on matching the payroll ending date with the effective date of the contribution rate.	X			
81	Ability to verify that a member is enrolled with an employer before accepting member wage and contribution data from that employer, while retaining the ability to identify new members (and automatically trigger enrollment workflow) when first reported by an employer and/or prompt employer via web application to supply enrollment data.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
82	Ability to provide a crosswalk that maps the old and new employer name and number for merged employers or split employers.		X		
83	Ability to capture a user-defined parameter for each employer as to whether or not to post out-of-sequence wage and contribution cash receipts.		X		
84	Ability to capture and maintain contribution rates by employer and retirement type.	X			
85	Ability to waive assessed penalties and track waivers.	X			
86	Ability to issue and track warnings for delinquent contribution reports in accordance with TCRS rules/policies.	X			
87	Ability to maintain creditable and non-creditable service.	X			
88	Ability to calculate employer provided contributions for eligible members, post those contributions to the member's account, and charge expense to the employer asset balance.		X		
89	Ability to distinguish among various contribution types.	X			
90	Ability to maintain post-tax and/or pre-tax contributions.	X			
91	Ability for staff to update ad-hoc contributions to an employer account (i.e., appropriations, legislative improvements, etc).		X		
92	Ability to differentiate between an active dept and one that is inactive or withdrawn.	X			
93	Ability to report probationary period service type.	X			
94	Ability to set limits on service credit in a given time period by employer.		X		
95	Ability to update and maintain variable contribution rates based on the IRS wage base.	X			
96	Ability to accept contribution files from employers sent by secured email.		X		
97	Ability to prompt employer to correct unresolved issues with TCRS defined parameters.		X		
98	Ability to accept employer contribution reports at any time.	X			
99	Ability to report temporary employment, limited reemployment, sick bank and reemployment service types.	X			
100	Ability to charge service fees for contribution reports submitted in paper or disc format.		X		
101	Ability to waive service or penalty fees.	X			
102	Ability to set parameters to accept the full contribution, salary, and service report based on certain edit checks.	X			
103	Ability for the system to update contribution, salary, and service reports after the report has passed all edit checks without TCRS intervention.	X			
104	Ability to reject contribution until all edit checks have been met.	X			
105	Ability to Post contributions even though all edit checks have not been passed and generate of a report identifying the discrepancies.		X		
106	Ability for the system to notify the Employer by email when XX days have passed since a contribution, salary, and service report was rejected and has not been resubmitted. The same notification should be made on screen when the employer logs on to the system.		X		
107	Ability for the system to notify the Employer by email every XX days past the report deadline until the contribution, salary, and service report is submitted. The same notification should be made on screen when the employer logs on to the system.		X		
108	Ability for the system to charge a service fee of XX percent of contributions and/or a flat fee when a contribution, salary, and service report is submitted after the deadline. This fee should be added on to the report being submitted late.	X			
109	Ability for system to accept ACH draws from 1 account or multiple accounts.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
110	Ability for Treasury staff to modify parameters for edit checks on contribution reports.		X		
111	Ability for system to prompt employer submitting a contribution report that specific employees are in active retiree pay status and prompts them to select a return to work category from a menu (temp emp, limited, ret to svc with or without xx% reduction, error) that then provides pop-up window of necessary forms if applicable and auto-corrects service type (and contribution amount to zero if temp emp/limited).		X		
112	Ability for system to provide secure browser-based, web-based employer reporting capability having near 24x7 availability.	X			
113	Ability for system to provide all data edits and validations necessary to ensure that only correct employer wage and contribution data are posted to the production database.	X			
114	Ability for system to perform all employer-reporting data edits and validations online in real-time without any required intervention by TCRS personnel.		X		
115	Ability for system to enable posting of employer wage and contribution data must also occur in real-time and also without intervention by TCRS personnel.	X			
116	Ability for system to maintain a log of all wage and contribution records that failed to pass edit criteria and continue to present these erroneous records to the employer each time the employer accesses the employer reporting interface.		X		
117	Ability for system to ensure that reported contributions are accurately recorded as to both the fund and the employer portion vs. member portion (based on the percentage of salary contribution factors pertaining to the particular plan).	X			
118	Ability for system to ensure that individual member accounts are accurately updated with wage and contribution data.	X			
119	Ability for the system to ensure that any employee for whom data are submitted is first enrolled in the system.	X			
120	Ability for the system to provide for data submitted through the wage and contribution report to be used to automatically update member demographic information previously submitted.	X			
121	Ability for the system to ensure that the wage and contribution reporting process results in a new member being automatically sent a blank beneficiary designation form to complete and return.		X		
122	Ability for the system to ensure that changes to the member and employer balances in the pension solution database match the change in the general ledger reserves.	X			
123	Ability for the system to provide for employers to make payments directly via ACH.	X			
124	Ability for the system to provide predefined queries enabling employers to generate listings/reports of information that they need.		X		
125	Ability for the system to ensure that employer reporting web page includes a test reporting area.		X		
126	Ability for the system to ensure that employer reporting web page includes a training reporting area.		X		
127	Ability for the system to ensure that employer reporting web page includes a production reporting area.	X			
128	Ability for the system to ensure that employer reporting web page includes employer reporting instructions, FAQs, streaming videos that educate the employers in the use of the web page, and a detailed user guide.		X		
129	Ability for the system to ensure that employer reporting web page includes a detailed user guide.	X			
130	Ability for the system to ensure that employer reporting web page includes tools, including basic edits and validations, including applicable codes (such as occupation class codes and country codes); file layouts, reporting alternatives for small employers, and a list of publications and forms available for printing.	X			
131	Ability for the system to ensure that employer reporting web page includes an employer message area.		X		
132	Ability for the system to ensure that employer reporting web page includes a facility for updating employer “demographic” information.	X			
133	Ability for the system to develop the file format to be utilized by employers in submitting wage and	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	contribution data via the employer web page.				
134	Ability for the system to support wage and contribution data submitted via means other than the web (e.g., paper and manual data entry, tape, diskette, and CD).	X			
135	Ability for the system to provide a workflow that supports the scanning, data entry, and quality assurance of paper-based employer wage and contribution reports.	X			

23. Cash Receipts and Disbursements

Cash Receipts and Disbursements Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to ensure that all transactions have a transaction number, user ID, and transaction date associated with them.	X			
2	Ability to ensure that, if one of TCRS business areas enters a cash receipt, then another TCRS business area cannot enter the same cash receipt.	X			
3	Ability to provide various controls to ensure accuracy (e.g., ensure that money already entered for a given entity, for a specific time period cannot be re-entered).	X			
4	Ability to provide various reconciliation controls to ensure that last month's fund balance plus any activity during the month equals this month's fund balance.	X			
5	Ability to capture both member and employer cash receipts data at the employer level, with the ability to roll-up as necessary.	X			
6	Ability to capture cash receipt information, via ACH, wire transfer, check, etc.	X			
7	Ability to capture check/payment statuses, including cancellation status at the check level, the account level and the person level (since some individuals receive multiple checks for numerous reasons).	X			
8	Ability to capture employer remittance cash receipt date (defaulted to today's date), pay period end date, and report end date.	X			
9	Ability to capture employer remittance type as either check, wire transfer or ACH.	X			
10	Ability to capture information from checks that were returned to TCRS but not deposited and initiate a workflow process for investigation and corrective action.	X			
11	Ability to capture payment frequency for each employer so that the system can track all reporting dates (not just the last reporting date) to ensure that a pay-period has not been missed.	X			
12	Ability to automatically generate a correspondence to the member, XX days after the check date, explaining that he/she has received a check that has not been cashed.	X			
13	Ability to generate a collection correspondence for a receivable.	X			
14	Ability to generate a fund transfer reconciliation (i.e., a listing of any funds that may have been transferred from one account to another).	X			
15	Ability to generate a general ledger mapping report (i.e., a report/matrix listing the LOB transactions and their corresponding GL transaction).	X			
16	Ability to generate a daily report of projected funding requirements to ensure that adequate funds are available in the appropriate TCRS accounts.	X			
17	Ability to generate an insufficient funds correspondence to member.	X			
18	Ability to generate a report at the end of each business day relating to the collection and disbursement of funds.	X			
19	Ability to generate a report of employer overpayments and underpayments, both daily and on an as-requested basis.	X			
20	Ability to generate separate monthly benefit and refund reports identifying the monthly journal entries posted to GL and a summary of all benefit payrolls, taxes, and adjustments.	X			
21	Ability to produce various reconciliation reports with enough detail to accurately reconcile the payments made and cash received.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
22	Ability to provide a monthly report of the projected total benefit payments for the next month for each plan, including withdrawals, death benefits, disability benefits, and monthly retirement payments.	X			
23	Ability to provide a monthly report of the projected vendor payments for the next month, including both payroll expenses and administrative expenses.		X		
24	Ability to provide adequate reconciliation reports to help end-users verify the transactions processed, including daily, weekly, monthly and fiscal year reconciliations.	X			
25	Ability to provide on demand a report of the total contributions received that have not been posted to pension system accounts.	X			
26	Ability to track employer account balances and generate reports of the amount of cash receipts remitted by employer over time.	X			
27	Ability to default the cash receipt transaction date to today's date (to eliminate need for user entry in most cases).	X			
28	Ability to accommodate within the general ledger the addition, modification, closing and deletion of plans such that duplicate data entry is not required.	X			
29	Ability to define new transaction types at the user-level via a table driven parameter and ensure that they are appropriately applied throughout the application and GL.	X			
30	Ability to (at the time a member retires) transfer the member's account balance from the appropriate member-related GL account to the appropriate pension-related GL account.	X			
31	Ability to accommodate an automatic check reconciliation process (as opposed to a manual paper reconciliation process) for multiple checking accounts – with all accounts being handled in the same manner.		X		
32	Ability to accommodate appropriate interest calculations when a member terminates employment after the interest posting date but before it is earned; in such cases, the last interest posting must be reversed.	X			
33	Ability to accommodate retroactive interest posting for those cases in which a refund/withdrawal should not have been taken and is reversed.	X			
34	Ability to adhere to Governmental Accounting Standards Board (GASB) statements and Generally Accepted Accounting Principles (GAAP).	X			
35	Ability to adjust an account to prevent out-of-balance conditions including a reason code and an explanation of historical transactions.		X		
36	Ability to automatically match funds received to the correct employee or employer account.	X			
37	Ability to capture and maintain interest rate tables in support of functions such as purchase of service, member account interest, etc.	X			
38	Ability to detect employer overpayments and underpayments and process accordingly, either setting up an account receivable/ account payable or carrying a positive/negative balance on the employer's account.	X			
39	Ability to determine that a check received from a member or employer has insufficient funds and take corrective business actions.	X			
40	Ability to display cash disbursement information necessary to permit user to complete bank reconciliation processes.	X			
41	Ability to distinguish types of financial transactions (e.g., internal transfer, cash).	X			
42	Ability to distribute incoming funds to more than one receivable for the same member if appropriate.	X			
43	Ability to ensure, for all funds, that member and employer reserves as indicated in the pension solution database are continuously in agreement with the general ledger reserve balances for same.	X			
44	Ability to export transaction detail to the GL in sufficient detail such that all deductions are accommodated (i.e., pension benefits "gross to net").	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
45	Ability to generate a transaction to Treasury/PEP+ to retry a failed ACH transaction upon electronic notification from Treasury.	X			
46	Ability to identify the type of payment made to a vendor or member (i.e., system-generated check, manual check, or wire transfer).	X			
47	Ability to identify those members that are eligible for account interest posting, and calculate and apply interest accordingly.	X			
48	Ability to initiate a cash receipt investigation process if incoming funds are received and a receivable does not exist.	X			
49	Ability to interface to the existing chart of accounts with sufficient flexibility to maintain that interface should the chart of accounts change and to allow for the creation of new systems, funds, plans, etc.	X			
50	Ability to maintain a history of purged accounts.	X			
51	Ability to match cash receipt information relating to incoming funds with corresponding receivable records.	X			
52	Ability to post out-of-sequence wage and contribution cash receipts so as not to delay posting of subsequent months due to “problem” months.		X		
53	Ability to process all financial transactions, including accounts receivable, cash receipts, accounts payable, cash payments and transfer transactions and post them to the GL using the chart of accounts defined by the GL and by user defined timeframes.	X			
54	Ability to process ACH rejects via electronic notification from Treasury.	X			
55	Ability to process collected GL postings according to a changeable user-defined frequency parameter (daily, weekly, monthly, etc.).	X			
56	Ability to process cash receipts resulting from the reversal of a disbursement.	X			
57	Ability to process manual payment transactions for situations where an immediate disbursement must be made with management approval.	X			
58	Ability to process receipts (cash, checks, etc.) from both organizations and individuals.	X			
59	Ability to provide a defined and structured matrix mapping line-of-business transactions to their corresponding GL transactions and the appropriate accounts.	X			
60	Ability to provide a detailed history of all transactions processed.	X			
61	Ability to provide direct integration of the line-of-business system to the general ledger system without the need for any interim programmatic or manual reformatting process.	X			
62	Ability to query on financial transactions based on SSN, payment types (including personal checks), check number, etc.	X			
63	Ability to recognize, calculate and track member overpayment receivables.	X			
64	Ability to reconcile the remittances of employer cash receipts with reported amounts.	X			
65	Ability to record and report the number of consecutive ACH rejects for each payee or payer.	X			
66	Ability to support a (table driven) mapping mechanism to map business transactions to the general ledger by a user administrator.	X			
67	Ability to support a defined date format and ensure the consistent synchronization of various dates (business date, transaction date, effective date, etc.) between the LOB and GL systems.	X			
68	Ability to support all TCRS systems/plans and all of their accounting funds, journals, chart of accounts, general ledger transactions, etc.	X			
69	Ability to support the processing/posting of a collection of GL transactions.	X			
70	Ability to support the creation of one-time special checks.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
71	Ability to support the existing Treasury/bank rules, procedures, codes in use, etc.	X			
72	Ability to support different types of check payment types, such as original, replacement, re-issue, re-sent, etc.	X			
73	Ability to automatically increment the cash receipt batch number each day.	X			
74	Ability to update interest to a member's account on a periodic basis as determined by TCRS.	X			
75	Ability to generate a report of all cash receipts that have not been posted to a member or employer account.	X			
76	Ability to post cash to a member overpayment receivable.	X			
77	Ability to track overpayment activity by individual member and by type of overpayment.	X			
78	Ability to assign type to overpayment receivables for reason.	X			
79	Ability to capture receivables by department, member, and type for financial reporting.	X			
80	Ability to assign fiscal year to cash receipts transactions for financial reporting (i.e., cash received in July assigned to June for a previous fiscal year).	X			
81	Ability to generate a report on demand of outstanding receivables.	X			
82	Ability to inquire on receivables and capability to drilldown to the lowest level of detail.	X			
83	Ability to workflow aged receivables to the staff attorney for processing in accordance with TCRS policy.	X			
84	Ability to issue multiple checks to an individual during any time period (including several checks within the same day).	X			
85	Ability to modify interest rules on Employee contributions left in TCRS.	X			
86	Ability to validate direct deposit routing transit number against Composite Receiver File for valid routing transit numbers.	X			
87	Ability to perform mass changes to routing transit numbers when numbers are changed as in the case of a bank mergers or consolidations.	X			
88	Ability to pass daily general ledger entries to Treasury Internal General Ledger system and the State-wide accounting system for all financial transactions.	X			
89	Ability to update financial institution information automatically from the Federal Reserve Database, with ability to generate change reports and rollback changes.	X			
90	Ability to ensure that all ACH files and transactions are NACHA compliant.	X			

24. Tax Reporting

Tax Reporting Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability of the system to calculate the excludable amount for Optional Retirement Plan (ORP) transfers without giving the member an account balance.	X			
2	Ability to produce a file containing data from taxable member transactions (including gross distribution, taxes withheld, etc.) to provide to Finance and Administration for the purposes of generating IRS Forms 945, 940 and 941.	X			
3	Ability to track who made a tax adjustment and why that tax adjustment was made.		X		
4	Ability to capture alternate address for mailing of Form 1099-R, without changing the recipient's permanent address.	X			
5	Ability to capture amount, start-date, and end-date associated with a tax levy for a member's benefit.	X			
6	Ability to capture federal and State tax table information.	X			
7	Ability to capture member's preferred distribution method (e.g., email, fax, print) for Form 1099-Rs.	X			
8	Ability to produce an appropriate 1099 for any disbursement made that has an applicable tax consequence.	X			
9	Ability to report the excluded amount (investment in contract amount excluded per calendar year) to tax reporting system to be included on the 1099R.	X			
10	Ability to generate (in the event that a revised or corrected Form 1099-R is issued) a tax information correspondence to the member providing details of the correction.	X			
11	Ability for user having appropriate 'role' (i.e., "auditor") to make corrections to Form 1099-R information online.	X			
12	Ability to accommodate both the "General Rule" and "Simplified General Rule" taxation methods.	X			
13	Ability to accommodate Safe Harbor calculations.	X			
14	Ability to accommodate tax levies, garnishments, bankruptcy, etc.	X			
15	Ability to accommodate the waiving of tax withholding..	X			
16	Ability to assign distribution codes according to IRS regulations.	X			
17	Ability to automatically adjust the tax liability (FWT and State withholding tax) when an adjustment is made to a payee's benefit amount.	X			
18	Ability to calculate and apply check deduction attributable to a tax levy.	X			
19	Ability to calculate taxes correctly based on federal and State tax tables, including the calculation of taxes for prior years.	X			
20	Ability to comply with IRS regulations and reporting requirements, including content, format and timing of file transmissions.	X			
21	Ability to correctly calculate and accumulate those amounts that are required to be included on Form 1099-R.	X			
22	Ability to create, maintain, monitor, and control tax withholding for IRS and State tax authority reporting, including facilitating and tracking the transfer of Federal Withholding Tax (FWT) payments to the IRS and State withholding tax to and State tax authority.	X			
23	Ability to deduct, store and report taxes by payment type (refund, beneficiaries, etc.).	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
24	Ability to generate 1099-R file for the IRS and State tax authority containing payer, payee, control totals and end of transmission codes.	X			
25	Ability to generate a detailed breakdown (Benefit Verification Form) of all transactions that were included in any given Form 1099-R when a member questions the information; this breakdown shall be available to both TCRS staff and to the member via the web.	X			
26	Ability to generate a tape of annual 1099-R information and the corresponding 1099-R.	X			
27	Ability to generate a tax withholding file for the IRS and State tax authority.	X			
28	Ability to generate an accurate facsimile of any given Form 1099-R via the web.	X			
29	Ability to generate and retain corrected Form 1099-Rs, reflecting changes made after the information has been sent to the IRS and State tax authority in accordance with IRS and State tax authority regulations.	X			
30	Ability to generate and retain revised Form 1099-Rs issued between the original run and the date the information was sent to the IRS and State tax authority.	X			
31	Ability to generate and retain the original Form 1099-Rs.	X			
32	Ability to generate and send reprints of Form 1099-Rs to an alternate Form 1099-R address.	X			
33	Ability to generate Federal Tax Withholding Report.	X			
34	Ability to generate individual Form 1099-Rs on an “as-needed” basis.	X			
35	Ability to generate individual Form 1099-Rs through the scheduling of an unattended process for mass production of all Form 1099-Rs, or a subset of Form 1099-Rs based on various selection criteria, as required by TCRS.	X			
36	Ability to generate multiple Form 1099-Rs to a single payee.	X			
37	Ability to generate Recalculated Federal Income Tax Deductions Report and corresponding State income tax deductions report.	X			
38	Ability to query, report on or extract all types of tax information (e.g., by SSN, year, distribution code, payment type).	X			
39	Ability to, when necessary and applicable, initiate State Tax Withholding and reporting capability.	X			
40	Ability to handle all tax related information from all processes in which payments are issued, returned or adjusted.	X			
41	Ability to identify and correctly calculate the tax consequences of both tax-deferred and non tax-deferred transactions.	X			
42	Ability to identify returned/re-deposited payroll checks (either the originally issued check or a personal check submitted as repayment for the original check) and automatically correct the tax records associated with the returned/re-deposited check.	X			
43	Ability to implement a payee’s tax withholding changes entered against a future date at the appropriate time.	X			
44	Ability to maintain each member’s pre-tax dollars, rolled-over funds, and recovered contributions.	X			
45	Ability to maintain one master tax file for creating, updating and deleting all types of tax payments and corresponding information according to IRS and State tax authority regulations.		X		
46	Ability to pass tax transactions, at user defined timeframes, to the general ledger.	X			
47	Ability to process adjustments made to prior tax years and reissue Form 1099-Rs as appropriate.	X			
48	Ability to produce IRS tax publication explanation for inclusion in the envelope with the 1099-R.	X			
49	Ability to produce reprints of Form 1099-Rs.	X			
50	Ability to provide a tax withholding “scratch pad” functionality so that users/members can examine the tax implications of various tax withholding scenarios.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
51	Ability to recognize, combine and report like distribution codes for a payee on one Form 1099-R (e.g., two rollovers, two monthly benefits).	X			
52	Ability to report 1099-R summary information to the IRS and State tax authority as required.	X			
53	Ability to report corrected 1099-R summary information to the IRS and State tax authority as required.	X			
54	Ability to retain and display/print multiple versions of IRS forms according to tax year.	X			
55	Ability to support multiple distributions methods (e.g., email, fax, print) for Form 1099-Rs.	X			
56	Ability for retirees to obtain a replacement 1099-R via the web.	X			
57	Ability for retirees to adjust their withholding election via the web.	X			
58	Ability to create and display previous years' 1099-R.	X			

25. Year-End Close

Year-End Close Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to immediately determine pending refund applications and amounts payable by account on any given date.	X			
2	Ability to update contributions and expenditures to prior fiscal year accounts until the year is closed.		X		
3	Ability to close the prior fiscal year when all updates are complete and to roll beginning asset balances to the next fiscal year.	X			
4	Ability to process transactions in current fiscal year and the prior one concurrently.	X			
5	Ability to capture employee account balances at fiscal year end.	X			
6	Ability to make adjustments to both current and prior employee data in accordance with appropriate internal control policies.	X			
7	Ability to maintain consistent reports based upon year-end closing; either to include or omit any prior year adjustments.	X			

26. Actuary Extract

Actuary Extract Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to generate a file of active members' data under certain criteria and defined layout as requested by the Actuary for the actuarial valuation or experience study.	X			
2	Ability to generate a file of retired members' data under certain criteria and defined layout as requested by the Actuary for the actuarial valuation or experience study.	X			
3	Ability to generate a file of TCRS employers under certain criteria and defined layout as requested by the Actuary.	X			
4	Ability to generate a file of ORP members under certain criteria and defined layout as requested by the Actuary.	X			
5	Ability to generate a file of prior service purchases made under certain criteria and defined layout as requested by the Actuary.	X			
6	Ability to generate a file of refunds processed under certain criteria and defined layout as requested by the Actuary.	X			
7	Ability to generate asset balance sheets under certain criteria and defined format as requested by the Actuary.	X			
8	Ability to generate a file of all prior service and retirement types in use by TCRS with descriptions.	X			
9	Ability to generate a file comparing changes and updates to political subdivision department codes and differences in reference codes versus the previous valuation.		X		
10	Ability to upload files to the Actuary including but not limited to actuarial information (actuarial assets, actuarial liabilities, actuarial payroll, etc…).	X			
11	Ability for the Actuary to inquire via the web how a file looks on the system (how an active member has been reported).	X			
12	Ability to track and record changes to a member's record of significance to the Actuary based on certain criteria as defined and requested by the Actuary.	X			
13	Ability to calculate "XX year smoothing" based on a formula using the investment gains/losses and actuarial assumptions of the previous XX years.		X		
14	Ability to generate employer contribution rate acknowledgements.	X			
15	Ability to update employer contribution rates by uploading a file of new rates arising from the actuarial study.	X			
16	Ability to generate employer contribution rate resolutions and related correspondence arising from and following the actuarial study.	X			
17	Ability to create prior employer record of service for active members.	X			
18	Ability to create employer benefit options elected file as specified for the actuary.	X			
19	Ability to generate a report showing beginning balance, cash flows in and out and ending balance for each employer, plan or group reflecting transaction activity for a period defined at run time.		X		
20	Ability to extract accurate actuarial information, including for those individuals that span multiple plans.	X			
21	Ability to generate contribution cost estimates for future years based on preliminary rates supplied by the Actuary.		X		

27. Ad-Hoc Reporting and Update

Ad-Hoc Reporting and Update Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for TCRS staff to query the system and create reports without any IS staff intervention.	X			
2	Ability for employers to request/view/print selected types of reports online.	X			
3	Ability to log the run time characteristics of reports including but not limited to the number of times a query or report is run, its impact on system resources, etc.		X		
4	Ability for authorized users to make changes to a data fields outside of the standard user interface in coordination with Information Systems staff.	X			
5	Ability to provide performance reports for each functional area, showing in both tabular and chart form the following information: • Current Month • Year to date • Last year – this month • Last year – year to date	X			
6	Ability to track and report on staff performance (e.g., quantity and quality) individually and as a group on a daily, weekly, monthly, fiscal year, and calendar year basis.	X			
7	Ability to produce a series of standard reports, on a periodic basis and/or on demand, all of which support "drilling down" to various levels of detail in the following areas (including but not limited to): • Deaths: Number of deceased active and retiree beneficiaries during the user selected reporting period • Terminations: Number of members receiving refunds and forfeitures of refunded service during the user specified reporting period • Average Pay: Calculation of the average pay increase for employees continuously employed during the user specified period • Reconciliation of Demographics: Reconciliation of the current membership population by employer with the membership population from the prior period • Retirements: The number of retirements by type, that occurred during the user selected reporting period • Employees Eligible for Retirement: Number of active members who are eligible for retirement as of the report date • Ages at Retirement: Distribution of retirees according to age classifications at retirement • New Members: Number of new members added during the user selected reporting period • Retirement Benefit Computations: Number of estimates and/or final computations performed during the user selected reporting period • Disability Retirements: Number and type of disability retirements during the user selected reporting period • Purchase of Service: Number of purchases and their costs by type during the user selected reporting period		X		
8	Ability to generate member's employment history information on a single report (e.g., salary, contributions, service, payroll period, employer, system, group).	X			
9	Ability to export report information to off-the-shelf spreadsheet programs.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
10	Ability to list, generate, track and report against various types of errors made by various entities that interact with TCRS (employers, members, staff, etc.)	X			
11	Ability to provide a report of counts of active members, inactive members/vestees, and annuitants (including survivor annuitants) for any given date.	X			
12	Ability to send output from a report to: printer, file, screen, and email.	X			
13	Ability for the reporting capabilities to have the same accessibility (hours of operation/access) as the online application.	X			
14	Ability for the reporting tool to support 10 concurrent (or 50 named) licenses.	X			
15	Ability to access a user-friendly report writer for creating custom reports with graphics, headers, footers, totals, subtotals, sorting, and statistics.	X			
16	Ability to add new reports to the report menu for easy access.	X			
17	Ability to direct printing of forms/correspondence to selected printers with an established default setting.	X			
18	Ability to include on all reports detailed heading information, including version/release number, the date of the last modification of the software that generates the report, the name of the program that generates the report, a unique name for the report, and the date of the running of the report.	X			
19	Ability to print customer defined watermarks on various types of outputted correspondence.	X			
20	Ability to print the requesting user's user-id on all reports.	X			
21	Ability to print to existing and future industry standard TCRS printers.	X			
22	Ability to provide a development or query "library" outside of the normal LOB application where users can share queries, information, etc.	X			
23	Ability to provide a graphic, drag-and-drop report design environment.		X		
24	Ability to provide a report generation strategy/tool capable of integrating additional data from any other accessible relational data sources into a single report.			X	
25	Ability to provide various support features ("wizard", help system, etc.) that will enable a user to build a query using a step-by-step process.		X		
26	Ability to query on all system data (business relevant, transaction history, log files, etc.) depending on security profiles.	X			
27	Ability to save all queries for future use.		X		
28	Ability to select and block-out (redact) any portion of a record for printing and identify areas omitted from printed copy.		X		
29	Ability to select and print specific records from a listing of records matching the search criteria.	X			
30	Ability to support dynamic content that incorporates drill-down, charts and graphs.	X			
31	Ability to support industry standard multi-dimensional Online Analytical Processing (OLAP) data source extraction, transmission, formatting as it relates to reporting.	X			
32	Ability to support printing by allowing the user to determine the length of the report prior to printing (e.g., number of pages).	X			
33	Ability to support report sorting, filtering, and summary report output.	X			
34	Ability to support the creation of reports using relational criteria and logical operators (e.g., less than, greater than, equal to or less than, wild cards, Boolean operators, and combinations of each), including searches against message text and key indexed fields.		X		
35	Ability to support the development of parameter driven reports, where the report variables and format are programmatically controlled and certain values are selected (or required) by the user at the time the report is generated.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
36	Ability to support the integration of reports with existing applications using industry accepted programming and scripting languages such as: JavaScript, VBScript, COM, XML.	X			
37	Ability to support the use of various font formatting (font type, font style, font size, etc.).	X			
38	Ability to support the viewing of reports that result in large volumes of data by: • providing a warning of the number of records found • prompting the user to continue/refine/alter the query • displaying a single page of data at a time		X		
39	Ability to terminate a query or report while in process.	X			
40	Ability to track accounts/folders returned from review due to error, inquiry, or need for additional information for staff performance.	X			
41	Ability to generate an extract file per TCRS specifications that can be used to produce the CAFR report.	X			
42	Ability to create queries using standard English language requests.		X		
43	Ability to produce demographic reports on members, retirees, and beneficiaries based upon race and ethnicity.	X			

28. Internal Audit

Internal Audit Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to define/specify the audit trail retention period.	X			
2	Ability to provide a report of all individual users' access detailing the level of access and each functional capability. Reports should be made available by user and/or by function.	X			
3	Ability to automatically generate reports on employee profiles (documenting system access) on a pre-determined schedule and send those reports to division management for review.	X			
4	Ability for the system to generate employee profile reports on a predetermined schedule as well as on demand as determined by TCRS staff.	X			
5	Ability to for the system to provide an extractable detailed log of user activity in an audit trail that can be accessed by external or internal audit. "User activity" must include view/display activity involving critical and/or sensitive data (e.g., SSN, date of birth, salary, bank account numbers, and medical information).		X		
6	Ability to provide access to external and internal auditors to all areas including data structures and lookup tables. Auditor's profiles should not allow any functional capability (add, delete or change) other than inquiry and data extraction.	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
7	Ability to use advanced analytics to identify potential errors, fraud, and other problematic actions. These analytics must be provided in a way that produces an integrated and configurable rules-based parameter-driven process for identifying transaction data anomalies and associated risks in real-time. The threshold rules must be configurable by authorized TCRS. When a threshold is exceeded, an alert must be generated and sent to internal audit and to TCRS management. The ability to change and update parameters and thresholds must be limited by security access and require secondary approval before implementation.			X	
8	Ability to provide open database connectivity that provides internal and external audit direct access to the data warehouse for download to specialized audit software applications.	X			
9	Ability to use advanced analytics to identify potential errors, fraud, and other problematic actions. These analytics must be provided in a way that produces an integrated and configurable rules-based parameter-driven process for identifying transaction data anomalies and associated risks in real-time. The threshold rules must be configurable by authorized TCRS. When a threshold is exceeded, an alert must be generated and sent to internal audit and to TCRS management. The ability to change and update parameters and thresholds must be limited by security access and require secondary approval before implementation.			X	
10	Ability to provide open database connectivity that provides internal and external audit direct access to the data warehouse for download to specialized audit software applications.	X			

29. IRS Regulations

IRS Regulations Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	The ability to update and maintain a history of compensation limits based on IRS section 401(a)(16) and 401(a)(17).	X			
2	The ability to enforce IRS section 401(a)(16) and 401(a)(17) by preventing over reporting from the employer.	X			
3	The ability to reverse or return full or partial contributions that cause a violation of IRS section 401(a)(16) and 401(a)(17).		X		
4	Provide a notification/report of those members whose compensation violates IRS section 401(a)(16) and 401(a)(17).	X			
5	Ability to accept only service (and reject contributions) for those members who have exceeded the compensation limits based on IRS section 401(a)(16) and 401(a)(17).		X		

30. Third Party Interfaces

Third Party Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability to import data in a desired format received electronically from third parties; a dynamic data import feature that can be used to help facilitate this process (setup, use and maintenance) would be preferred.	X			
2	Ability to extract data in a desired format and then transmit it electronically to third parties; a dynamic data extract feature that can be used to help facilitate this process (setup, use and maintenance) would be preferred.	X			
3	Ability to pass daily general ledger entries to State-wide accounting system for all financial transactions.	X			
4	Ability to receive and update the system with the composite receiver file from the Federal Reserve Bank.	X			
5	Provide interface with State Government Agencies.	X			
6	Provide interface with other service providers.	X			

31. Application Security

Application Security Requirements Matrix

The following table provides Deloitte Consulting's response for meeting the requirements for this business process within DPAS.

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
1	Ability for all system security to be role-based.	X			
2	Ability for the system to generate and maintain PINs and passwords for employer and member access.	X			
3	Ability to encrypt all audit information.	X			
4	Ability to encrypt all system security and role related information.	X			
5	Ability to establish and set up web-based application screens as either able to browse back to a screen after going to a new screen or as a time-out/life span of zero screen (i.e., prevent navigating back to a screen).	X			
6	Ability to prompt users, when retrieving a treasury employee's record, to confirm that this is what they intend to do and upon doing so record that action with operator information in an audit log supplemental to the system audit log.		X		

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
7	Ability to provide adequate audit trails of system updates.	X			
8	Ability to provide applicable levels of internal controls and appropriate segregation of duties, including the ability to approve correspondence to be sent or printed.	X			
9	Ability to capture an audit (review) transaction on all TCRS specified transactions.	X			
10	Ability to capture designation of user (staff, members, retirees, etc.) capabilities/ security levels (e.g., add, change, inquiry, delete).	X			
11	Ability to capture user permissions to determine how far back in time a user can post a transaction; only certain users should be able to post to a closed month.		X		
12	Ability to capture and display comments (e.g., transaction level, account folder level) and the ability to restrict comment updates to the users or supervisors who created the comment.	X			
13	Ability for a system administrator to set specifications for format of user-ids, password strength characteristics, frequency of required password changes, and requirements for multifactor authentication.		X		
14	Ability for the system to keep track of last access date/time by user-id	X			
15	Ability for the system to monitor the number of successful and unsuccessful access attempts and to create audit trails showing these events.	X			
16	Ability for the system to retain both before and after images of changes.	X			
17	Ability for the system to segregate or limit presentation and reporting of confidential and private data based on defined roles or criteria.	X			
18	Ability for web-based applications to be secured based on industry standards and TCRS encryption policies/procedures.	X			
19	Ability to assign access to a user for a pre-defined period of time for that role.	X			
20	Ability to assign appropriate priority levels/dates for review of work/audit.	X			
21	Ability to audit member accounts randomly without a triggering event and record the fact the account was audited and by whom (internal auditor, external auditors, etc).	X			
22	Ability to automatically generate a report and direct a message to the system administrator of all unattended processes that encountered a locked account, sorted by locking user-id, that identified the account against which the update was attempted and the source of the data.		X		
23	Ability to ensure data security measures are employed to prevent unauthorized access of data and/or changes to them.	X			
24	Ability to ensure that a locked account will remain locked until the same user-id that locked it unlocks it; the only exception being a user with appropriate authority to unlock any locked account.	X			
25	Ability to ensure that all locked accounts will be “stamped” with the date, time, and user-id of the person who locked and unlocked it.	X			
26	Ability to ensure that an unattended process that attempts to update a locked account does not terminate abnormally for that reason.	X			
27	Ability to ensure that no audit trail data can be deleted.	X			
28	Ability to prevent check file or ACH files produced by the system from being edited or updated by any user including those with supervisory and system administrative privileges.		X		
29	Ability to ensure that security profiles are protected from unauthorized access.	X			
30	Ability to extract audit log information for display and reporting purposes and ability to filter selected data from audit log files to generate meaningful and useful security reports.	X			
31	Ability for the audit trail to track changes made to the data regardless of the means by which the changes were made – i.e., LOB solutions, employer or member web site, etc..	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
32	Ability to generate audit report(s) identifying all people, processes, dates, and/or times involved in changing member and employer data.	X			
33	Ability to include appropriate subtotals on all reports to allow reconcilement of reports within the system, as well as reconcilement of reports within the system with external documentation (to be identified during requirements analysis).	X			
34	Ability to apply a hold on an account due to stolen identity, divorce, child support, court order, etc. which prevents all users (short of those with applicable privileges) from altering the account.	X			
35	Ability to flag or classify the account as one for which all subsequent transactions (until flag or classification is changed) are reviewed or audited before being committed or posted.	X			
36	Ability to maintain a historical record of user ids issued, including the identity of the person associated with the user-id and the timeframe during which the user-id is/was valid.	X			
37	Ability to maintain an audit trail of all access to data which indicates all user access and specifies the nature and date of that data access.	X			
38	Ability to maintain electronic audit trails sufficient to trace all transactions from original source of entry into the system, through all system processing, to the results produced by the system AND to trace all transactions from the final results produced by the system, through all system processing, back to the original source of entry into the system; these audit trails must be protected from modification and deletion.	X			
39	Ability to produce certain security reports on a regular basis (e.g., violations, access to sensitive files).	X			
40	Ability to prompt a person with one or more “challenge phrases” after a user-definable number of unsuccessful log-on attempts. Appropriate response to the challenge phrase or phrases will allow user to reset user's password.	X			
41	Ability to provide a listing of all automatic computer generated entries against the general ledger, such that a TCRS staff member can successfully identify the source of every automated general ledger entry.	X			
42	Ability to provide a security report listing users, their roles and security access.	X			
43	Ability to provide a single integrated user logon into all applications regardless of the number of sub-systems that are being connected (imaging, workflow, etc.).	X			
44	Ability to provide access rules and role assignment which will restrict departmental employees from performing incompatible functions or functions beyond their responsibility.	X			
45	Ability to provide appropriate security surrounding electronic, digital and digitized signatures.	X			
46	Ability to provide encryption that must be used for confidential, private, or restricted information that will be stored in a non-secure location or during transmission. Sensitive data elements (e.g., SSN, Bank account numbers) must be encrypted for storage in the application's database. The encryption key must be stored and secured separate from the program and the data.	X			
47	Ability to provide formatted audit reports that show (for user-selected user id’s, date-range, and/or members [selected by last name, Social Security number, or other unique identifier]) all changes made to member records, including before and after images; an “all” members option must be included.	X			
48	Ability to provide special screens for sensitive data so users are aware of confidentiality (e.g., disability screens).	X			
49	Ability to provide standard interfaces to maintain security permissions.	X			
50	Ability to provide various levels of security and adhere to existing security structures, including network security, application security, development environment security, and web-access security – with procedures for support and maintenance for each.	X			
51	Ability to retain passwords already used by a user and prevent their re-use for a period of two years.	X			
52	Ability to run ad-hoc reports of audit trail history by transaction type, transaction date, input date or any of the fields related to the audit trail records.	X			
53	Ability to set up, maintain, monitor and enforce web access/session inactivity and establish “timeout”	X			

Requirement ID	Description	Response			
		Included	Modification	Third Party	Excluded
	requirements.				
54	Ability to authenticate and track sign-on from another computer by user-id.	X			
55	Ability to track all updates that are made to data validation and edit checks.	X			
56	Ability to, at a minimum, provide the following controls: menu access, screen access, screen function access, transaction access, transaction approval access, workstation location access, workstation time restriction.	X			
57	Ability for the system to adhere to the Health Insurance Portability and Accountability Act (HIPAA).	X			
58	Ability to encrypt file transfer (to/from local governments, etc). Method to be determined (ssh vs pki).	X			
59	Ability to require a multi-step sign in to the system.		X		
60	Ability for member to establish a verbal password to authenticate their identity.		X		
61	Ability to encrypt security data while at rest (e.g., role assignments, role permissions, workflow roles).		X		
62	Ability to retain a record in audit trail of all data extract accounts.		X		

TECHNICAL REQUIREMENTS

1 Browser-Based Solution

The State desires a thin-client, browser-based solution. The State believes such a solution provides a number of advantages, including ease of installation and support, readiness for remote (from TCRS offices) accessibility (when enabled with the appropriate security), while still enabling a rich client interface as well as providing the option/alternative for telecommuting. However, the State recognizes that some scanner controllers are not yet web-enabled (and in the low numbers involved, may not need to be so enabled).

2 Technical Architecture

The thirteen sections that follow provide the Contractor with an overview of the required technical, architectural aspects of the desired solution. Much of the material provided is general in nature, except where the State's preference for a specific platform is described. The Technical Architecture section is included to set the framework within which specific platform requirements are subsequently defined.

2.1 Conceptual Architecture

The solution must support all conceptual architecture guidelines and standards as specified by the State of Tennessee. Such guidelines have been base-lined at the date of this publication as indicated in Contract Attachment 5 Standard Product List.

As noted in the standards, the State has no bias for or against Java, .Net, or any other development platform or language supported within the Standard Product List. However, we are biased towards a solution that provides a good business fit and can be demonstrated to be a mainstream architecture. With that in mind, the solution must make effective use of reusable components in order to improve flexibility, scalability and extensibility into applications.

It is acceptable for a solution to use components that are outside the State guidelines and standards, provided that the State's Enterprise Architecture, Quality Assurance & Testing Director has reviewed and evaluated the proposed variation from State guidelines and standards. If, during the contract, components are identified as 1) outside the guidelines and standards in effect when the RFP was issued, and 2) unacceptable to the State, the Contractor must be prepared to exchange proposed components and make other changes required to meet State guidelines and standards as required by the State. These changes, if required, must be made at no additional cost to the State.

2.2 Application Architecture

Application architecture identifies criteria and techniques associated with the design of applications for the State's distributed computing environment that can be easily modified to respond quickly to the State's changing business needs, as well as to the rapidly evolving information technologies available to support those needs.

The solution must be designed along logical application boundaries that mimic the business processes they support.

The solution must make effective use of reusable components in order to improve flexibility, scalability and extensibility into applications. To improve scalability, reliability, and extensibility, the solution must separate these components into at least three layers: data, business logic, and user interface.

The solution must enable:

- Ease of integration of applications and application services.
- Efficient reuse of existing application assets.
- Faster deployment of new applications.
- Improved responsiveness to changing business needs.
- Date-effective, rules-based configuration of the changing business rules under which TCRS operates.

Based upon an expectation of greatly increased member self-service via web-browsers and the like, TCRS requires that the application architecture must support member web-based access near 24 hours a day, 7 days a week, except during those times specifically scheduled (by TCRS) for system maintenance, backup and downtime.

TCRS' objective with respect to multi-task, typically unattended processing is simple – all processes must run concurrently while the system continues to meet response time and elapsed job processing requirements. To that end, TCRS requires that:

- Response time requirements must be met independent of what other jobs, processes, or scripts are being executed.
- Online response time requirements must be met independently of how many TCRS users are on line, how many web-based users are online, and independently of what processes or scripts are being run – such as wage and contribution edits, wage and contribution posting, interest posting, payroll running, etc.
- Elapsed time performance requirements for various process-intensive activities must be processed within the following timeframes:
  - Wage and contribution edits: 50,000 members/hour
  - Wage and contribution posting[1]: 100,000 members/hour
  - Interest posting: 100,000 members/hour
  - Payroll processing: 100,000 retirees/hour
  - 1099 generation: 50,000 individuals/hour
  - Annual Member Statements: 100,000 statements/hour

The application must be architected such that ALL functionality, including tasks such as employer reporting, can be processed online in real time – both editing and updating. Solutions architected that collect user input during the day and perform off-peak (typically night-time) batch jobs to update the LOB database will be rejected. TCRS understands that some tasks such as the production of monthly payroll checks, annual member statements, and year-end 1099s require minimal interactive input from the TCRS staff member followed by significant processing time. Tasks such as these are the extent of what may be considered acceptable unattended processing tasks.

[1] Must include any processing necessary to do enrollment processing of a new member

Unattended processing tasks must be able to be run outside of normal working hours to avoid compromising system performance during the work day.

2.3 Network Architecture

Network architecture defines a common, uniform network infrastructure providing reliable and ubiquitous communication for TCRS' distributed information-processing environment. It specifies how information processing resources are interconnected, and documents the standards for protocols (for network access and communication), topology (design of how devices are connected together), and wiring (physical medium or wireless assignments).

The solution must support the following network environment:

- Fast Ethernet.
- Gigabit Ethernet through Intel 1000 Pro or equivalent.
- TCP/IPv6 network protocol.
- IEEE 802.11 wireless standards.

2.4 Data Architecture

The mission of Data Architecture is to establish and maintain an adaptable infrastructure designed to facilitate the access, definition, management, security, and integrity of data across TCRS. Refer to Contract Attachment 5, Standard Products List,

The system must employ a relational database management system (RDBMS) within its data storage architecture. One of the following must be supported:

- Microsoft SQL Server.
- Oracle Database.

In its use of the RDBMS, the application must take advantage of transaction processing such that any operations carried out on the database that are interdependent are either all completed successfully or all cancelled successfully. The application must be architected in such a way as to take advantage of:

Rollback – that is, ensuring database integrity by recording intermediate states of the database as it is modified, then using these records to restore the database to a known state if a transaction cannot be committed. For example, copies of information on the database *prior* to its modification by a transaction might be set aside by the system before the transaction can make any modifications (this is sometimes called a *before image).* If any part of the transaction fails before it is committed, these copies would be used to restore the database to the state it was in before the transaction began.

Roll forward – that is, keeping a separate journal of all modifications to a database (sometimes called *after images);* this is not required for rollback of failed transactions, but it is useful for updating the database in the event of a database failure. If the database fails entirely, it would be restored from the most recent back-up. The back-up will not reflect transactions committed since the back-up was made. However, once the database is restored, the journal of after images can be applied to the database (*roll forward)* to bring the database up to date. Any transactions in progress at the time of the failure would then be rolled back. The result is a database in a consistent, known state that includes the results of all transactions committed up to the moment of failure.

Deadlock avoidance – in some cases, two transactions may, in the course of their processing, attempt to access the same portion of a database at the same time, in a way that prevents them from proceeding. For example, transaction A may access portion X of the database, and transaction B may access portion Y of the database. If, at that point, transaction A then tries to access portion Y of the database while transaction B tries to access portion X, a *deadlock* occurs, and neither transaction can move forward. Transaction-processing systems – and the proposed solution – must be designed to detect these deadlocks when they occur. Typically both transactions will be cancelled and rolled back, and then they will be started again in a different order, automatically, so that the deadlock doesn't occur again.

2.5 Componentware Architecture

Componentware architecture enables efficient reuse of existing application assets, faster deployment of new applications, and improved responsiveness to changing business needs. Reusable software components are the building blocks that make a system able to respond quickly to change.

To achieve the benefits of sharing and reusing components, the solution must include:

- A reuse methodology.
- Documentation for each component including a well defined set of input and output parameters for each interface option provided.
- A library, or repository, of information about reusable components.
- Integrated error and exception handling capabilities, which enable each component to operate independently from other components and applications.

The most recent evolution of componentware architecture extends the concept beyond objects to services in the form of a Service Oriented Architecture (SOA). The State believes that the solutions based on a Service Oriented Architecture will allow the solution to be more readily adaptable to changing market and business conditions due to component reuse at the macro (or service) level. Furthermore the use of SOA should simplify the interconnection to and usage of existing or future IT assets such as PeopleSoft financials, FileNet and potentially others.

TCRS has special interest in understanding how the solution incorporates:

- Management of services metadata (which proliferates with the expansion of services).
- Security of the application.

If SOA is defined as services exposed using the Web Services Protocol Stack, the core Web Services standards relevant to SOA include the following:

- EXtensible Markup Language (XML).
- HyperText Transfer Protocol (HTTP or HTTPS).
- Service Oriented Architecture Protocol (SOAP).
- Web Services Description Language (WSDL).
- Universal Description, Discovery and Integration (UDDI).
- WS-Security.
- WS-Reliable Exchange.

2.6 Application Communication Middleware Architecture

Application communication middleware architecture facilitates and simplifies communication within and between heterogeneous, distributed application systems. The focus of this chapter is limited to application communication middleware, as opposed to data access middleware or network middleware, which are separately discussed in the Data Architecture and the Network Architecture chapters respectively.

If needed, the solution must support mainstream technologies such as the following inter-application middleware products and technologies for inter-application communication:

- IBM MQSeries.
- JAVA.
- SOA.
- CORBA.
- ASP.
- .NET.
- Microsoft Component Services.
- Microsoft Message Queue (MS MQ).
- XML.
- IBM WebSphere.
- JBoss.
- Oracle Application Server.
- Enterprise Service Bus (ESB).

2.7 Groupware Architecture

Groupware architecture establishes a foundation for collaboration and communication. Collaboration focuses on local and ad hoc workgroups, while communication focuses on sharing information. Groupware is a combination of technologies enabling an organization to create, share, and leverage an accumulated knowledge base. Groupware technologies include electronic mail (email), calendaring and scheduling, electronic document management, shared file and print services, as well as some newer multimedia technologies. For an enterprise-wide groupware implementation to succeed, the comprised technologies must comply to a set of common protocols and infrastructure standards, allowing them to communicate with one another.

The Contractor's solution must, at a minimum, comply with the following protocols and standards:

- The use of Adobe Acrobat Portable Document Format (PDF) for non-editable electronic documents (except images which may be stored in the TIF format specified elsewhere in this Contract).

- The use of the most recent version of eXtensible Markup Language (XML) when capturing or authoring document content that requires further automated processing by other information systems and web-based clients using standard web services.

- The ability to import or export standard comma delimited files.

- The ability to interface with GroupWise and Outlook (e.g., sending calendar events, tasks) through MAPI.

Contract Attachment 7 Current Technical Environment contains a detailed description of tools being used that may impact the Contractor's Groupware implementation.

2.8 Information Architecture

The State understands Information Architecture, as it applies to pension administration solutions, to be the practice of structuring information (both knowledge and data) for the specific purpose of supporting rapid, accurate processing of member and retirement information. It encompasses both the data modeling and the analysis and design of the information (all data entities and their interrelationships) in the system. As such, a solution's information architecture informs its ability to respond effectively to capabilities such as those required by executive information systems (EIS) and decision support systems (DSS).

The Contractor's solution must, at minimum, meet the following requirements:

- Insulate transaction-processing systems from the large ad hoc queries that are required by analytical processing systems.
- Provide a cross-organizational view of data.
- Provide access to data not found in transaction systems, including summary data, historical data, and external data.
- Provide access to non-structured data such as those found in correspondence and other imaged documents, forms, reports, etc.

2.9 Platform Architecture

Platform architecture identifies hardware platforms and associated operating systems supporting TCRS' business. It describes the platform requirements for building an n-tier infrastructure as well as the storage architecture associated in maintaining the data generated. Technical topics to be discussed under platform architecture include client architecture and server architecture.

The solution must adhere to TCRS' preferred server environments, including the following:

- Windows Server.
- Linux (Red Hat).
- UNIX (Solaris).

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If TCRS agrees to a different platform architecture, that architecture must be interoperable with TCRS' preferred environment. In addition, the solution must support all other platform architecture guidelines and standards as specified by the State of Tennessee. Such guidelines have been base-lined at the date of the RFP publication as indicated in Contract Attachment 5 Standard Product List.

The solution must provide "high availability" as discussed in the Contractor's response.

2.10 Integration Architecture

Integration architecture specifies how various automated applications operating on different platforms can effectively work together. Integration techniques should be used when new application systems need to access existing application systems, while maximizing the investment in existing systems and platforms.

The solution must provide clearly defined application interfaces (APIs), such as web services, for the purposes of documentation and application integration, CRM, and ECM.

The solution must comply with the National Automated Clearing House Association (NACHA) requirements for transactions that are performed electronically (EFTs, ACHs and others).

The Contractor is required to ensure that TCRS staff can perform their work processing with no loss of productivity in:

- The current legacy environment.
- The new solution environment.
- Both environments simultaneously.

The system must be developed with sufficient flexibility to interface with the currently existing systems and provide an integration architecture that allows connection to TCRS' existing email (GroupWise), anticipated future email (Outlook/Exchange), and Directory Services capabilities. Characteristics of such an infrastructure have been base-lined at the date of this publication as indicated in Contract Attachment 5 Standard Product List.

The State desires and the solution must provide a single point of management for all of the system interfaces within the solution environment. Such an "interface gateway" provides a single point to manage design, execution, security, performance, monitoring, documentation, etc.

2.11 Systems Management Architecture

Systems management architecture defines the framework for efficient and effective management of the State's distributed information processing environment in order to support and enhance the productivity of its automated business systems. It identifies the requirements for managing and supporting enterprise-wide technical architecture with primary emphasis on centrally managing distributed systems at geographically dispersed sites. Resources managed include the systems, databases, applications, networks, and Internet components necessary to conduct the automated business functions of the State.

The solution must support the system management architecture through the support of Simple Network Management Protocol (SNMPv2) manageable platforms. The State requires that the Contractor implement application, capacity, and performance monitoring capabilities for all components of its solution. The management suite will monitor the collective system(s), proactively anticipate potential issues, and proactively alert support staff so that problems can be addressed and avoided.

During the implementation, the Contractor shall review the standards and tools used within the system management architecture and develop a report for the TCRS that identifies what shortcomings exists and what tools and practices could be put in place to address concerns the Contractor has in this area.

In addition, the solution must support all other systems management architecture guidelines and standards as specified by State of Tennessee. Please refer to Contract Attachment 5 Standard Product List for additional information.

2.12 Security and Directory Services Architecture

Security and directory services architecture identifies criteria and techniques associated with protecting and providing access to the TCRS' information resources. It facilitates identification, authentication, authorization, administration, audit, and naming services. TCRS' technological resources must be available to users across the enterprise regardless of location or platform. Therefore, TCRS must implement security and directory services in such a manner that its information infrastructure is protected and accessible while, at the same time, its functionality is unimpeded and its

business services are readily available. TCRS data include public record data as well as confidential data related to members of the Retirement System. Treasury requires a highly secure key management solution that separates the cryptographic key storage from the data storage. Encryption capabilities should be equivalent to those utilized by the Federal Reserve banking system.

In addition, the solution must:

- Support the most recent version of Secure Sockets Layer (SSL) for secure communication between web servers and web browsers.
- Support IP protocol security extension (IPSec) where applicable.
- Integrate with a directory services infrastructure including Microsoft Active Directory and eDirectory and must support Lightweight Directory Access Protocol (LDAP) for capabilities such as single sign-on.
- Support open, industry-accepted standards for applicable uses of cryptography such as Advanced Encryption Standard or Triple DES. More specifically, the solution must support the use of unique IDs that are cross-referenced to encrypted Social Security numbers.

Furthermore, the architecture must permit use of the comprehensive system required to provide public-key encryption and digital signature services also known as a public-key infrastructure (PKI). Encryption pertains as follows:

- Any member data and other identity sensitive data transmitted over unsecured connections must be encrypted.
- Any security tables, the breaching of which would endanger the integrity of the system, must be encrypted.
- Any passwords stored under the control of the LOB application must be protected by one-way (hashing) encryption.
- Any other operational or member data (e.g., assignment of user ID to roles, assignment of roles to permissions, assignment of workflow roles), if not protected from access by a determined user, must be encrypted.

Encryption solutions should minimize the in-process exposure of decrypted data. Unencrypted data flows must not transit the most restrictive network firewall or security routing perimeter.

All mobile data must be encrypted in compliance with State or Treasury security requirements.

Sensitive personally identifiable information (PII), such as salary, Social Security number, and bank information, is required to be encrypted at rest to further protect against exposure.

Finally, because security control impacts the entire enterprise, its implementation must be easy to administer, verify and sustain.

The Contractor's solution must comply with Federal law and applicable State statutes with regard to "electronic signatures."

The Contractor must understand and adhere to the State Enterprise Security Policies, which can be found at the following URL:

http://www.state.tn.us/finance/oir/security/secpolicy.html

2.13 Accessibility Architecture

The solution must support the current release and at least one previous version of Microsoft's Internet Explorer, FireFox Mozilla, and Safari. The contractor's solution must continue to support the most recent release for each of these browser platforms through the warranty period of the contract.

For information presented via the web, the solution must support the latest version of the World Wide Web Consortium Web Content Accessibility Guidelines, State of Tennessee standards and Federal ADA Compliance Standards.

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3 Standards

The six sections that follow provide the Contractor with an overview of the standards that must be applied in their provision of a new pension administration system.

3.1 User Interface Standards

The solution must meet the following guidelines:

- The system interface is to be a browser-based, thin client.
- The system is to be fully integrated and all subsystems are to be seamlessly interfaced (e.g., no re-keying of a member identifier required when retrieving an imaged member record).
- The application shall have an intuitive look and feel and allow for easy navigation.
- The application shall have "help" texts and messaging capabilities sufficient to assist users who are unfamiliar with the application.
- The application shall have a consistent style such that users encountering an operation for the first time should feel that the screen is 'familiar" with common options and capabilities available in the same geographic location on the screen. Specifically the system must demonstrate:
  - Learnability (e.g., intuitive navigation) for all users.
  - Efficiency of use.
  - Unambiguous instructions and commands.
  - Design that encourages "clean" data collection.
  - Readable lettering, e.g. fonts, font sizes, color choices, background contrast.
  - Memorability, especially for casual users.
  - Subjective satisfaction on the part of the heads-down user.
- All functionality exposed to members/retirees through the TCRS web site shall have a consistent look and feel and shall conform to agreed-upon style standards and TCRS unique product branding developed throughout the course of the Concord Project.
- There must be a means to validate or cross-check the data collected. For example, screens should have editing checks to obtain the results desired, such as checking basic math, upshifting/downshifting certain text characters, and enforcing the use of valid entries such as state mailing codes; e.g., FL, OH, NY,

CA (thereby prohibiting invalid entries). On-line help should be provided, not just for the screen, but for each entry.

- For any sub-system application utilities (e.g., image scanning) that are client/server based the application must be able to be minimized. When minimizing the application, all subordinate or "children" windows/panels of the LOB must also be minimized. If a user is performing specific work processes, the user should be able to minimize this work, and all related windows/panels for that work should be minimized together – and maximized together at the appropriate time.

3.2 Name and Address

One of the goals of the project is to move to an environment which will allow for various presentation modes with regard to how data are extracted and formatted. (The State hastens to point out that this is a discussion of variety in presentation, not storage. The Contractor is encouraged to use a single format for storage of all names and addresses, measurements, currency amounts, dates, etc.)

The application should not force a single "name" structure or "address" structure. The application must allow for varying structures based upon the business and user need for that information and the type of correspondence to be generated. As an example, if TCRS elects to generate the following with a different name or address structure, the system should not limit this decision:

Varying Name and Address Structures to be Accommodated

ITEM	NAME/ADDRESS STRUCTURE	EXAMPLE
Refund Check	FirstName LastName Address 1 City, State, Postal Code	JOHN DOE 111 STATE ST. ATLANTA, GA 87111
Pension Check	LastName, FirstName Address 1 City, State, Postal Code	Doe, John 111 State St. Atlanta, GA 87111
Estimate Letter	Title FirstName LastName Address 1 City, State Postal Code (Zip+4) Dear <first name>	Mr. John Doe 111 State St. Atlanta, GA 87111-2222 Dear John,
Retirement Form	Information (to be extracted as entered)	john doe 111 state street atlanta, ga 87111
Internal Reports	One Line only – report format	Doe, John Edwards, Steve Erickson, Sally

The application must support the use of 11-digit postal codes required for NCOA, CASS, and DPV list certification. In addition, the application must support the recording, maintenance, presentation and printing of international mailing addresses.

3.3 Enterprise Content Management (ECM)

Enterprise Content Management, ECM, is an Enterprise System managed and maintained by the Office for Information Resources (OIR). This system was built using the FileNet P8 Content Manager Suite of products. The current environments include the following core components:

- Content Manager 4.5.
- Business Process Manager 4.5.

A development, test, and production environments are provided as a part of the ECM environment. The environments are infrastructure-only environments and do not house any custom applications.

The Contractor shall be required to use an application toolkit to create the interface between the LOB and the State's ECM system. The P8 Toolkit for Content Manager is required; the Contractor is responsible for the costs of any P8 Toolkit licenses needed by their personnel. A FileNet P8 Certified Developer is required to develop all interfaces to the ECM system.

The State has developed standards for application integration. There are three potential integration scenarios that may be required with content stored:

- Content Access: Content stored in the ECM system must be accessible from other applications.
- Content Creation: Based on certain events in other applications, content must be created and stored in the ECM system.
- Process Initiation: Based on certain events in other applications, processes and/or transactions must be initiated in the application.

To accommodate the above scenarios the system must be capable of integration with the FileNet-maintained content and/or data through the following FileNet-compatible options:

- Content Engine: Integration through a web services or standard API.
- Process Engine: Integration through a web services or standard API.
- Content/Data in the FileNet environments should be able to be integrated through Web Service/SOAP-compliant means.

The Contractor shall be required to work with the ECM team to understand the environment and to adhere to enterprise standards and policies. The Contractor shall confer and obtain approvals from the ECM team as they define system access and security needs, gather requirements, design the storage structure and interfaces, and construct the storage structure and interfaces involving ECM.

FileNet Capture Professional 5.2 is the current standard for acquiring and indexing digital and paper-based content. Customized Capture applications will be required to utilize the Capture development toolkit. Datacap Taskmaster may be used for file capture as an alternative to FileNet Capture.

3.4 Executing Business Processes Regardless of Source of Work

Although the State requires the Line of Business (LOB) processes to be workflow-enabled, the ability to access these processes/functionalities outside of the workflow system must also exist. TCRS users must have access to this information and these processes not only when the work is initiated from "within" the workflow sub-system (such as through the receipt of a document, e.g., Change of Beneficiary Form), but also on a non-workflow (i.e., ad hoc) basis. The system must be sufficiently flexible to ensure that users can perform their work regardless of the technical state of the

workflow sub-system, i.e., such work must be able to be initiated via receipt of a document, a phone message or other event that initiates workflow processes. The work must also be accessible on an ad hoc basis (i.e., not requiring that the user submit a document in order to have it enter a queue from which the user then draws the document in order to execute the work process). At all times the appropriate workflow system must be maintained so that system metrics, status, etc., are updated to reflect work completed.

3.5 Parameterization

Throughout the requirements that are discussed in this contract, reference is made to various, user-administered, date-sensitive, system-wide, parametrically set numerical values and rules. A TCRS system administrator (not an IT staff member) must be able to perform their maintenance. Maintaining parameters must require **no** program or code changes. No such data are to be hard coded in the system

Examples of such parameterized, table-driven parameters include the list below, which is not all-inclusive, but merely representative:

- General data.
  - State codes.
  - Person's title.
  - Person's suffix.
  - Types of addresses.
  - Types of phone numbers.
- Application security.
  - User(s).
  - User group(s).
  - Permission(s) – add, update, delete, read-only.
    - Process level, screen level, and field level.
  - Window(s)/browser(s)/screen(s) listing.
- Business process/menu navigation.
  - Business process choices/listing.
  - Workflow(s) choices/listing.
  - System menu navigation.
- Customer service.
  - Document listing.
  - Standard comments.
  - Frequently asked questions/responses.
  - Check messages.
- Member enrollment.
  - Position codes.
  - Coverage eligibility.
  - Beneficiary types.
  - Beneficiary percentages.

- Employer reporting.
  - Employee contribution rate.
  - Employer contribution rate.
  - Reporting frequency.
  - Reporting method.
- Member account and service credit.
  - Service eligibility.
  - Member interest rates.
  - Wage maximum value(s).
  - Contribution maximum value(s).
  - Contribution minimum value(s).
  - Account statuses.
  - Document receipt options.
    - Types of addresses.
    - Email.
    - Internet.
- Service credit purchases.
  - Interest rates.
  - Actuarial rates.
  - Service credit type(s).
- Refund of account balance.
  - Tax withholding rate(s).
  - Refund type(s).
  - Refund statuses.
- Benefit estimate and retirement processing.
  - Service calculation rates per month, quarter, or year.
  - Member age factors.
  - Beneficiary age factors.
  - Retirement type(s).
  - Option factors (Optional Retirement Plan (ORP)/Deferred Retirement Option Plan (DROP).
  - Eligibility factors.
- Average Final Compensation (AFC) calculation.
  - High ‘n’ months.
  - High contiguous ‘n’ months.
  - Other.
- Pension payroll.
  - Spouse eligibility rules.
  - Child eligibility rules.

- Student eligibility rules.
- Disability eligibility rules.
- Check disbursement methods.
- Tax bracket(s).

- Plan Components.
  - Employees (EES).
  - Employers (ERS).
  - Vesting Period.
  - Retirement eligibility(ies).
    - Age.
    - Service Credit.
  - Effective Dates.
  - Participation Eligibilities.
    - Agency.
    - Hire Date.

- Other.
  - Maximum change (increases or decreases allowed) in salary level or contribution level from a previous reporting period on which retirement benefit calculations are based.
  - Number of days that the daily journal-file will be stored online before being archived.
  - Number of consecutive months of (average) compensation on which retirement benefit is based.
  - Annual maximum percent salary increase allowed for calculation of average final compensation.
  - For all letters generated by the system, accommodate the letter's delivery mechanism to be set as hard copy for mailing purposes, or online, nightly Faxing, or email, or a combination thereof.
  - The capability is required both to maintain detailed transactions and to summarize detailed transactions by the period when they occurred, by the month when they occurred, by fiscal year, and/or by calendar year.
  - The ability to switch back and forth between fiscal and calendar years as required.
  - The amount of time that a member, who has received a refund, must be back in the system as a paying member before he/she can pay back the refund.
  - Variable text of disclaimer pointing out that the information being provided is merely an estimate subject to change upon final account validation.
  - Various parameters relating to determining retirement eligibility and benefits under the various systems.
  - Number of weeks before a member receives his/her first check that a letter is sent summarizing information including but not limited to benefit choices, benefit information, and beneficiary information.

- Number of days since a prospective benefit recipient was sent a request for information before the analyst receives a "tickler" notification.
- Number of days in advance of potential termination of benefits that a warning letter must be sent to members receiving disability benefits, advising them that they must be re-examined and confirm that they are not receiving some other form of compensation.
- Number of days in advance of potential termination of benefits that a warning letter must be sent to beneficiaries receiving retirement benefits advising them that they must certify continuing eligibility.
- Text of message to be printed on check stub (system-wide, by plan, or specifically by a Boolean combination of demographic selection criteria, including but not limited to certain age groups, certain postal codes, and/or certain union and/or association affiliations).
- Text of message to be printed on annual reports (system-wide, by plan, or specifically by a Boolean combination of demographic selection criteria, including but not limited to certain age groups, certain postal codes, and/or certain union and/or association affiliations).
- The appropriate one of the following two mutually exclusive procedures must be accommodated, based on a parameter setting:
  - Posting of contributions even though moneys received do not match or have not been received at all – and the generation of a report identifying the discrepancies.
  - Not posting in such cases; rather putting the transactions in a suspense file and generating a report identifying the discrepancies.

  In summary, TCRS must be able to operate in either mode and to switch between modes on a per-employer basis.

It must be understood by the Contractor that all such values must be treated as user-maintained, date-sensitive parameters (not hard coded) in the new system, regardless of whether this requirement is specifically stated in the description of features and functions provided in other sections of this contract. The new system must include the capability to maintain all such parameters through user-friendly menus and screens or Contractor-developed SQL scripts not requiring IS support. TCRS staff shall not be required to develop any SQL/SQR scripts in order to adjust system parameters. Since these parameters will be maintained from a system administrator screen, the process must be restricted to the highest system security control level. The Contractor must provide a flexible design architecture to allow easy modification, as discussed herein.

Further, for each such parameter, it will be necessary to accommodate different values for different time periods, (i.e., different effective dates). The new system must provide a report showing the effective date of each change, who changed the value, the date the change was entered, and the change in value of the parameter. For example, the maximum annual salary level relative to IRS Revenue Code 401(a)(17) on which benefit calculations are based could be increased from, say, $200,000 to $205,000, effective January 1, 2007. The new system must be capable of maintaining multiple values for this parameter and the time periods to which they pertain. In this example, the system would "save" (and use appropriately in automated retirement benefit calculations) the maximum salary of $200,000 applicable to service through December 31, 2006, and the maximum salary of $205,000 applicable to service on or after January 1, 2007.

In addition, for many such parameters, their values and the dates to which they apply may vary from plan to plan and employer to employer. Therefore, the new system

must include the capability to maintain separate values for each parameter at various logical hierarchical levels:

- Globally (system-wide).
- By sub-plan (school employees, legislative, judicial, etc.).
- By tier.
- By employer.

For any given parameter, the value entered for a particular plan will take precedence over the global (system-wide) value. Similarly, the value entered for a particular *employer* will take precedence over the value entered for the *plan* with which the employer is associated.

"Rules management" capabilities (among which are the "parameter management" capabilities as described above) are required in the new solution. Pension administration rules, including but not limited to those applicable to membership eligibility, contributions, and pension eligibility, must be separate from the application code. They must be stored in tables, as stored procedures, or in a knowledge-based system (which would include a third-party "business rules engine" or "business rules management system") with rule parameters in separate, user changeable tables so that they are maintainable by plan, by employer, and globally without the need for program modifications. Different rules applying to different time periods must also be accommodated.

The system must be implemented so that a system administrator, a non-IT staff person charged with administrative responsibilities for the system (including but not limited to access permissions, system parameters, and help and error messages); or a business analyst; can maintain the rules, data, parameters, and calculations. The rules, data, and calculations must be capable of being addressed system-wide, and/or by specific plan and/or by specific employer in a hierarchical manner (i.e., rules apply "downward" until another rule intercedes). Furthermore, the rules must be capable of being defined to be effective from an input date forward (i.e., within an effective date range).

The Contractor must explain the manner in which a system administrator, a non-IT staff person charged with administrative responsibilities for the system (including but not limited to access permissions, system parameters, and help and error messages); or a business analyst; can maintain the rules, data, parameters, and calculations. TCRS is interested in the manner in which this "expert" or "rules-based" or "decision tree logic" function is implemented (e.g., the language or package to be used).

An audit trail of changes to the parameters must be maintained by the system. Also, any changes must be capable of being reported daily or on-demand and automatically provided for review.

3.6 Maintainability

TCRS requires the Contractor's solution to remain a viable pension administration system for 15-20 years. The State also recognizes that no system can remain viable without regular upgrades and repairs performed in response to changes in technology, changes in functional expectations, changes in statutes, etc. The State defines software maintainability to be the ease with which a software system or component can be modified to correct faults, improve performance or other attributes, or adapt to a changed environment. That maintainability decreases over time as changes are made to the components of the system.

The State requires that the pension administration system be maintainable as defined in the Contractor's proposal.

4 Hardware (Introduction)

The State intends to purchase the hardware necessary to run the proposed solution itself, with the exception of any non-State Standard hardware. The State will purchase the hardware and software that is both 1) specified in the Contractor's proposal, and 2) included in Contract Attachment 5 Standard Product List. The State reserves the right to require the Contractor to procure on the State's behalf and at no additional cost to the State any hardware necessary that is not State standard.

The State understands that hardware models and capabilities evolve with time. The State anticipates reviewing the specified list of hardware relative to that then available on the State negotiated price list with the Contractor prior to hardware procurement to determine the most cost effective configuration (i.e., will work with the Contractor to get the "most bang for the buck").

The State requires a hardware configuration that is fault tolerant. The system must continue to operate in case of failure of an individual hard drive or server component. Additionally, the hardware configure must be scalable. The system must be able to add capacity by adding components without reconstruction of the production environment.

The State requires a dedicated server environment (i.e., the solution components will not reside on shared servers) for each of the application server, business rule repository, and database server. The QA/UAT and production environments must be identically configured and specified.

The Contractor is required to provide approved non-State Standard hardware and to provide advisory services and guidance with respect to the installation of all specified hardware. However, TCRS/OIR itself will be responsible for acquiring State Standard hardware and installing and configuring all required hardware in the State's data center. All hardware, once installed and configured with the Contractor's guidance, must comply with TCRS security requirements. The Contractor's recommended hardware configuration must support all contract requirements and be capable of expansion to support future functionality as described in this contract. The recommended configuration must include the appropriate number of servers, hubs, routers, workstations (desktop PCs), storage, and all other necessary hardware.

Should the Contractor's proposed hardware configuration prove inadequate to support the new solution – in terms of functionality, performance, availability, or scalability – it will be the Contractor's responsibility to fund such additional hardware purchases as may be necessary to bring the solution into compliance with contract requirements. Whether the Contractor itself purchases the additional hardware or reimburses TCRS for its purchase will be determined at the sole discretion of TCRS – in either case, the acquisition of any such additional hardware shall incur no additional cost on the part of the State. The Contractor (not the State and not the hardware provider) shall be responsible for assisting with the testing, installing, and appropriately configuring the additional hardware. Any project costs or delays that result from the need to expand/replace the hardware environment shall be the responsibility of the Contractor. No change orders will be approved by TCRS relating to such a situation.

TCRS' current processing infrastructure includes workstations (desktop PCs) and associated equipment, some of which is likely to be suitable to support proposed solutions. This information can be found in Contract Attachment 7 Current Technical Environment.

The Contractor's completed table for State Standard Hardware and Non-State Standard Hardware submitted in the Contractor's proposal is included in this contract by reference.

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4.1 Servers

The Contractor shall specify servers adequate to support the pension administration solution as designed and implemented, including related network hardware and peripherals. The Contractor shall specify an appropriately sized platform. The platform and the solution that runs on it must serve a number of user groups including TCRS' internal users, members, retirees and select staff at employers. The Contractor shall be responsible for specifying the hardware and server infrastructure and commodity software licenses needed. The Contractor shall supplement and rectify any shortfalls in performance identified during the term of this contract.

4.2 Storage

The Contractor must provide storage configurations that will support the solution as designed and delivered and the method by which data being stored will be secured. OIR is operating currently in an environment utilizing a Storage Area Network (SAN). The infrastructure must operate within and be compatible with that environment.

TCRS requires use of the Enterprise Content Management environment maintained by the Office for Information Resources for the storage of images and documents.

The solution provided must be adequate to support (at the high end) approximately 5,000 documents being imaged each day at the inception of the contract, with an annual growth rate of approximately 10 percent. The Contractor must also identify the data storage needs as identified in the "Current Technical Environment". Actual storage space will be provided by the State and is not the responsibility of the Contractor. See Contract Attachment 7.

4.3 Printers

The Contractor has no responsibility for providing additional printers. However, the Contractor shall be responsible for interfacing with the workgroup printers at TCRS as well as the large capacity, bulk printers at OIR.

4.4 Image Scanners

TCRS' specific scanning requirements are:

Volume:	averages 3,000 images per day; up to a maximum of 5,000 per day
Density:	300 dpi
Duplex:	approximately 10%
Compression:	CCITT Group 4, 2D
Colored Originals:	scan in bi-tonal (except photographs in medical disability records – significantly less than 1% of scan volume)
Image Enhancement:	TCRS' preference is for hardware-assisted de-skew and de-speckle image enhancement capability. Virtual ReScan (VRS) capability, while not required, would be viewed as a plus
Projected Growth:	approximately 10% per annum

TCRS requires that images be scanned at 300 dpi as the default to accommodate use of forms recognition and OCR/ICR. In addition, the scanners must be capable of reading and recognizing any bar-codes used in the automated recognition of modified forms and documents. Finally, all scanners must be TWAIN and/or ISIS compliant.

FileNet Capture Professional version 5.2 or higher is also required.

5 Software

5.1 Overall Software Requirements

The State will purchase the commodity software necessary to run the proposed solution itself, with the exception of any non-State Standard software. The State will purchase the software that is both 1) specified in the Contractor's proposal, and 2) included in Contract Attachment 5 Standard Products List. The State reserves the right to require the Contractor to procure on the State's behalf and at no additional cost to the State any software necessary that is not State Standard.

The Contractor's solution must include NO software or hardware locks, traps, dongle keys, or similar security measures that would in any way deny TCRS full and complete access. The Contractor's solution must not rely on a "license server" to control licensing or to limit the number of simultaneous users.

Licenses, installation disks, training materials, and all other permissions and tools needed to maintain and operate software used for the creation, modification, or management of the Concord application and/or the Concord project must be delivered to the State for the State's use at the end of the Concord project at no additional cost to the State.

The source code for any software (be it the customized line-of-business application, middleware, a code generator, a specialized I/O routine, or any similar or related item) which is developed by the Contractor or an affiliate company or a sub-contractor and used in the new system must be delivered to TCRS. The Contractor must agree to deliver application source code with the delivery of each functional rollout phase during the project. TCRS' acceptance of a phase will be contingent upon this requirement being met. In addition, once the first functional rollout phase has been delivered, source code updates must be delivered no less frequently than quarterly. Source code for linkages to/from the system is similarly to be provided. It is to be updated and delivered to TCRS throughout the duration of the project.

In addition, the source code for any third party software that is delivered and/or licensed to TCRS as part of the new solution must be escrowed on TCRS' behalf if, at the time of final turnover and acceptance of the new system to TCRS, that software product has ever previously been escrowed for the benefit of any other client of the third party provider. In such event, the Contractor must ensure, at its expense, that the then-current software product source code listing and related documentation are placed in the possession of a reputable escrow agent under an agreement providing for the distribution of a copy of the product source code and related documentation to TCRS for TCRS' own use upon the third party's (i) voluntary bankruptcy, liquidation, or similar proceedings or (ii) failure or inability to provide maintenance support for the product. Simultaneously with the execution of any contract resulting from this RFP, the Contractor must notify TCRS in writing of the name of the escrow agent and the location of the source code listing and related documentation. The Contractor must ensure, at its own expense, that the source code listing and related documentation held by the escrow agent are updated annually to reflect the then-current release of the product. The escrow agent and the location of the source code listing may be changed by notifying TCRS in writing at least thirty (30) calendar days in advance of the change. The State does not intend that the Contractor escrow 3rd party commodity software that is widely available, such as Microsoft Office Suite.

The State is agreeable to LOB source code being provided under a non-exclusive license, including appropriate intellectual property protections for the Contractor; however, the State does require the LOB source code.

5.2 LOB Application Software

Subject to TCRS approval, the line-of-business (LOB) application must conform with the Contractor's proposal with respect to the following attributes:

- Language.
- RDBMS.
- Transaction sub-executive (if any).
- Development and deployment environment.
- Screen generator.
- Application security.
- Report generator.
- Middleware.
- Any third party tools.

In addition to the above, subject to TCRS approval, for each application component the application must conform to the Contractor's proposal regarding:

- Middleware.
- Application development tools.
- Source languages.
- Database management system.
- Operating system on servers.
- Operating system on clients.
- Support Internet Explorer, FireFox Mozilla, Safari, and Netscape browsers.
- Audit trail for database data modifications.
- LOB solution (application) architecture.
- Documentation.
- Screen "snapshots," windows and screens.
- All standard reports supplied with the system.

The Contractor shall provide all upgrades and patches to application software over the course of the contract. In addition, TCRS and OIR technical staff shall be trained in the application and installation of such patches and upgrades. Documentation and manual updates, as well as letters of transmittal, shall always accompany such patches and upgrades.

5.3 Software Introduction

The Contractor shall identify all software (such as operating systems, network software, database management software, software tools, and office suite) – both new and upgrades – that will be required to support the solution and provide the software that is not State standard. The software products must support all contract requirements. They must be capable of being upgraded to support future functionality

as described in this contract. The Contractor must understand that any upgrades to software, either during or after implementation, must be coordinated among the Contractor, TCRS, and OIR. The Contractor is required to provide approved non-State Standard software and to provide advisory services and guidance with respect to the installation of all specified software in the production environment. TCRS/OIR will acquire the proposed State Standard software products. The Contractor shall be responsible for assisting with installation, configuration, and testing of required software on hardware at the TCRS-specified location(s).

Despite the fact that the State will procure the State Standard software, should the Contractor's List of Recommended Software (or the version specified or the number of copies/licenses indicated) prove inadequate to support the new solution – in terms of functionality, performance, availability, or scalability – it shall be the Contractor's responsibility to fund the acquisition of such additional software as may be necessary to bring the solution into compliance with contract requirements at no additional cost to the State. The Contractor shall either (at TCRS' sole discretion) itself provide the additional software or reimburse TCRS for its acquisition. In such a situation, the Contractor shall be responsible for assisting with installation, configuration, and testing of required additional software. Any project costs or delays that result from the need for the Contractor to expand/replace software shall be the responsibility of the Contractor. No change orders will be approved by TCRS relating to such a situation.

TCRS' current processing infrastructure includes numerous commodity software products as specified in Contract Attachment 5 Standard Product List. The Contractor is expected to have included existing TCRS commodity software products, to the degree they are suited to support the proposed solution, in the List of Recommended Software. TCRS expects that some of the existing software is acceptable in the new solution, some must be upgraded, and some must be replaced and/or augmented with additional components. Any such required upgrades, replacements, or augmentation will be performed at no additional cost to the State.

The Contractor's completed table for State Standard Software and Non-State Standard Software submitted in the Contractor's proposal is included in this contract by reference.

5.3.1 Operating System

Operating system level software to be included in the new solution must be consistent with the platform architecture discussion and described by the Contractor in its proposal, including version/release information and the Contractor's rationale for selecting each proposed product.

Each platform's operating system must be a stable, proven operating system and must be one supported by OIR.

While it is not mandatory that all platforms use the same operating system, seamless interfaces between each must be provided. TCRS wishes to minimize the number of different operating systems to be maintained and supported by TCRS.

5.3.2 Network Software and Network Management Software

The Contractor has no responsibilities within this procurement for either network software or network management software. However, the solution delivered must work within the operating environment currently supported by OIR.

5.3.3 Relational Database Management Software

The Contractor has no responsibilities for the provision of relational database management software under this procurement. However, the solution delivered must work within one of the database management environments supported by OIR.

The Contractor must ensure the integrity of the database model as customizations are made both for TCRS and for other of their clients, including database optimization and data profiling, as appropriate. Database optimization occurs at OIR. Refer to the section on "LOB Application Software" for additional information relative to RDBMS including encryption of data as they reside in the database at rest.

5.4 System Software Tools

5.4.1 Performance Measurement Tools

The Contractor must provide tools that will record on-going performance information without significant impact on system performance. Performance measurements must include, but not be limited to: CPU utilization, memory utilization, network activity, number of users, and database performance statistics. System response time must be maintained while such tools are in use. These tools also must include reporting capabilities to show trends of all significant system resources over time, reflecting history by date and by time of day, as well as the capability to make projections based on cumulative history.

The Contractor also must provide real-time performance analysis tools, which can be used to trouble-shoot performance problems as they occur. System response time must be maintained while such tools are in use.

5.4.2 Operations Support Tools

The Contractor must provide a variety of tools that will assist and enhance computer operations, including (at a minimum):

- Job scheduler capable of automatically initiating jobs based on time of day, day of week, or calendar date and/or the successful completion of “predecessor” events.

- Export/import capabilities that support straightforward transfer of files (and extracts of files) among the various hardware components, i.e., XML or comma delimited ASCII files.

5.4.3 Intruder Login/Alert Software

The software must log all connections to any platform, including identification of user, point of connection, time and duration of session. TCRS must be able to direct the software to monitor and record all activity that occurred during a session, based on user identification code or point of connection. In addition, the software must alert operations whenever attempted and "failed" log-ins exceed a user-defined threshold. System response time must be maintained while such tools are in use. For additional information in this regard, please refer to the section 7.7 Application Vulnerability Assessment.

5.5 Security and Controls

Note that in addition to the platform security and control requirements outlined below, the Contractor must comply with all functional audit and control requirements described elsewhere in this contract.

The system must provide the capability to ensure that relevant information about actions performed by any user can be linked to the user in question in sufficient detail so that the user can be held accountable. The system must maintain information sufficient for after-the-fact investigation of loss or impropriety and must provide individual user accountability for all security-relevant events. The system must protect this information from unauthorized access or modification.

The system level log must allow review of key security events, including:

- Logon and logoff of users, including failed logins.
- Change or reset of passwords.
- Creation or deletion of users.
- Amendment of user rights.
- Suspension or activation of user accounts.
- Archiving procedures.

The system must provide a real-time capability to monitor and log the occurrence or accumulation of security-relevant events that may indicate an imminent security violation and immediately notify the system administrator when events exceed established thresholds. If the occurrence or accumulation of these security relevant events continues, the system must take the least disruptive action necessary to terminate the event involved.

The system must provide the capability for the system administrator to generate a status report detailing the values of all configurable security parameters.

The system must safeguard individual member and retiree information from fraudulent efforts to gain access to such information.

The system must be designed to control and limit access via logins and/or other security mechanisms. Access control and integrated security in general must be managed by role rather than by authorizing a specific individual.

The Contractor must work closely with TCRS staff to define the roles necessary to perform all required business functions.

Throughout the system, the security administrator will provide access and restrictions based on roles. The security administrator will define and place individual user ids into roles. He/she must be provided with the flexibility to grant or restrict access at the menu, submenu, and discrete screen level as well as to limit access to screens to query only or to allow both query and update. The application must provide controlled access to individual screens and functions based on role. At a minimum, the application or security package must provide the following controls:

- Menu access.
- Screen access.
- Screen function access.
- Transaction access.
- Process access.
- Transaction approval process.
- Database schema access.
- Reports access.

The security and control requirements listed above must interact appropriately with the required account locking or "hold" feature discussed and the audit indicator requirement discussed. Additionally, such security and controls must support appropriate segregation of duties.

The Contractor must populate security repositories by entering the users and their assigned roles into the system using an appropriate security administration tool. The security repository must be populated and tested, and the Contractor must provide written affirmation certifying that it has done so, prior to any user testing activities.

TCRS Users

The solution must provide support of LDAP or SSO authentication to TCRS users. The login process must establish the access rights and associate all automatic and manual transactions initiated by a user with that user. The system must provide an advisory warning message on the login screen regarding the unauthorized use of TCRS' business information and the possible consequences of violations.

End-users (Members and Retirees)

Upon authentication of the login user name and password, the system must display, for that end-user name, the date and time either of the last successful login or the number of unsuccessful attempts to access the system since the last successful system access.

The end-user will either log off the system or be automatically logged out of the system after a system administrator defined period of idle time (the maximum idle time value must be a parameter modifiable by the system administrator). The system must provide a notification one minute prior to a time out. Whether the end-user logs off or the system logs the end-user off after the idle time threshold has been exceeded, the system must then ensure that all objects created for the user at the back-end are destroyed and that the system exits cleanly.

After a number of unsuccessful login attempts (number configurable by TCRS), the system must:

- Disable the end-user account for a period of time previously defined by the security administrator.

- Record the event for audit.
- Inform the end-user of a contact who will unlock the account – or provide another means of authenticating the end-user password.

Passwords must be a minimum of eight characters in length (characters being case sensitive) and include letters, numbers and special characters. Passwords must not be displayed in the application at any time. Passwords must be stored in an encrypted manner so that they cannot be obtained by TCRS systems maintenance personnel or any unauthorized intruder who gains access to the system.

When changing a password, the end-user must enter the old password once and the new password twice. If the password change fails, the user must be informed that the request to change the password has failed and the reason for the failure, in plain English. Then the user should be advised to try again by logging out and logging back in.

If the end-user forgets his/her user ID and/or password, the system should supply a password Q&A to assist in its recall – and if that fails as well, the system must, through some automated method, temporarily assign the password and email the user ID and/or password (on separate email messages) to the user. Upon the next subsequent login attempt, the user will be prompted to change his/her password. The system must disable any account with a temporary password that is more than 8 days old.

The system must provide a security role for the function of managing online accounts for end users. This will include such tasks as resetting a password and activating, suspending, or deleting a user account. The member and retiree self-service web site(s) must provide for a self-registration capability that requires minimal call on system administration resources – short of review and validation of mapping the login to specific member account(s) maintained within the system.

The system must have the capability to suspend or activate an end-user account. This may occur for the following reasons:

- Account is locked out after password is entered incorrectly more than some number of times (number being configurable and determined by TCRS).
- If the user temporarily is not entitled to access.
- The account is suspended by a systems administrator (for example if a security breach is suspected).
- The account has been inactive for an extended period of time.

Employer users

Employer-user security must have the same characteristics as end-user security, with the additional ability to have multiple users enabled for a single employer.

6 Installation and Configuration

The State will itself purchase hardware and commodity software based on the equipment specified in the proposal and following a review of such specified hardware (given possible changes in equipment characteristics) with the Contractor prior to purchase. Though the Contractor will not be responsible for the actual installation of the hardware (such will be the responsibility of OIR), the Contractor shall be responsible for assisting with the procurement, installation, configuration, etc. of the hardware and commodity software purchased by the State for purposes of this project

For any hardware and/or software items not purchased by the State, the Contractor shall be responsible for the acquisition as well as the installation and configuration of any hardware and/or commodity software needed for purposes of this project.

7 Operational Requirements

7.1 System Sizing and Scalability/Performance Requirements

The Contractor's solution must be architected, configured, and sized so that large transaction volume activity, such as wage and contribution reporting or various year-end production processes, can be completed online in real time. In addition, if a process cannot be completed within a reasonable timeframe (i.e., minutes), it is to be processed off-line with notification providing an estimated completion time to the operator.

In general, solutions that require overnight batch jobs to update the LOB database are unacceptable to TCRS. During system design, TCRS will consider permitting a small number of unattended process routines for very limited purposes providing the Contractor can justify the proposed exceptions and can ensure that those exceptions will not in any way compromise TCRS' business processes. TCRS' expectation is that unattended processing will be confined to end-of-period jobs such as the production of monthly payroll checks, year-end 1099s, and annual member statements. Degradation of TCRS' required system availability is not acceptable.

The platform(s) must be sufficiently sized and appropriately configured (in terms of memory, disk capacity, processor speed, and similar or related criteria) to meet the performance requirements specified below for a period of 5 years after the end of the warranty period defined in this contract, based upon an anticipated growth in volume of 10 percent per year. The Contractor shall be required to provide all additional hardware and/or hardware upgrades necessary to meet the following system response time and performance criteria within thirty (30) days of being informed by TCRS that one or more of the criteria are not being satisfied:

Response time averaging three (3) seconds or better, and never more than four (4) second response time, for all online activities, unless TCRS specifically agrees to waive this response time metric. Response time is defined as the amount of time between pressing the RETURN or ENTER key or depressing a mouse button and receiving a data-driven response on the screen, i.e., not just a message or indicator that a response is forthcoming. For this purpose, response time will be measured on a PC connected directly to the TCRS LAN.

For the specific case of imaging, TCRS provides the following clarification of the 3-second response time requirement:

The following example requires an average response time of three (3) seconds: Retrieval of first matching member's folder from a search based on a non-unique indexed item. The entire result set from the query does not need to be returned within an average of three (3) seconds. For instance, upon entering a complete last name search (no wildcards) for "Smith", the imaging application should retrieve the first matching member's folder or indicate no records found with an average response time of three (3) seconds.

The following example is excluded from the three (3) second response time requirement: Advanced search queries utilizing wild cards and Boolean logic. Example: Search for last name like "Smith%" and first name not like "Sa%".

- System uptime as specified in Availability Requirements.
- Batch processing as specified in Application Architecture.

If TCRS requires additional runtime improvements to meet performance requirements stated in this contract, the Contractor must cooperate fully and support any such requests without delay and at no cost to TCRS.

The solution must be capable of scaling beyond current processing demands and by the current growth predictions through the addition of hardware (or hardware components such as CPU and RAM), further partitioning the application to scale across hardware, or other means. Contractor should be aware that it is the policy of OIR to replace hardware every 3 years.

The platforms must be sufficiently scalable (in terms of memory, disk capacity, processor speed, and similar or related criteria) to meet the performance requirements specified above for a period of 15 years after the end of the warranty period defined in this contract, based upon an anticipated growth in volume of 10 percent per year.

A timer capability is to be available that can be readily attached to any screen. The timer must display and log the elapsed time from the moment an on-screen control is activated until the screen has refreshed to show any requested information or additional functionality. Timer data recorded must include date, start time, stop time, and elapsed time.

7.2 Availability Requirements

The solution must provide for a system uptime of 99.9%, or near 24 hours a day, seven days a week, 365 days a year, for all major functions proposed, excluding scheduled downtime or TCRS-initiated scheduled downtime, or the 60 day stabilization period immediately following a rollout. If system availability degrades below the specified system uptime, the Contractor must take the necessary steps to bring the system back to the required level unless the State determines that factors outside the Contractor's control, such as the State's infrastructure, are the cause.

The Contractor must ensure that processor and database intensive processes, such as month-end payroll production or interest application, are completed within 4 hours from their initiation and have no impact on interactive access performance while they are executing.

7.3 Planned Downtime Requirements

Scheduled maintenance of solution software, hardware, and operational infrastructure should not require system downtime of more than 2 (two) hours in any given week, and must be able to occur during overnight or weekend hours. The contractor will provide online tools as well as procedures and techniques to minimize maintenance windows.

7.4 Recoverability Requirements

The solution must provide for recovering from failures if the proposed high-availability solution components or procedures fail. Recovery time (e.g., full database recovery, recovery of imaging capability) must be within industry standards and, at minimum, comparable to recovery times experienced by similar systems given the volume of data maintained.

Provision of interim recovery is expected to be a feature of the system. For example, should a process be 95% complete when the system fails, the process should have been check-pointed and should not have to be re-run in its entirety.

7.5 System Availability Requirements

The Contractor must ensure that the Concord system is available 24 hours a day, every day of the year, except for brief system maintenance periods. To provide this, there must be sufficient redundancy in hardware, software, and data at two different physical locations (provided by the State) to provide near-immediate failover to an alternate site if the primary production site becomes unavailable for any reason. The Contractor shall provide this functionality at no additional cost to the State.

7.6 Operational Support Requirements

Operational support encompasses the personnel, procedures and tools for day-to-day operational support, maintenance, upgrades and monitoring of the system.

To minimize operational support issues, the solution must leverage appropriate operations management tools, including both day-to-day systems management tools (e.g., performance monitoring) and capacity planning tools.

Further, the Contractor must provide assistance with incorporating the solution into the operations management tools and environment.

7.7 Application Vulnerability Assessment

During the development process and subsequent to its configuration on Treasury's production systems, the Contractor shall conduct periodic tests of the solution's susceptibility to any of the following web application vulnerabilities:

- Lack of appropriate or inadequate server-side validation of input (e.g., allowing text entries in numeric or date fields, accepting invalid email address formats).
- Broken or inadequate access control (e.g., processes that allow hackers to masquerade as a legitimate user).
- Broken or inadequate authentication and session management (use of account credential and session cookies).
- Cross-site scripting (XSS) attacks.
- Buffer overflows.
- Injection flaws (e.g., structured query language (SQL) injection).
- Improper error handling.
- Insecure storage.
- Clickjacking.
- Any other common (i.e., top 10) web application vulnerability identified by the Open Web Application Security Project (OWASP) not previously specified.

Prior to the projected "go live" date for any public-facing portions of the application, the Contractor shall conduct penetration testing of the Concord production system in accordance with the Open Source Security Testing Methodology Manual. This would include, at a minimum, testing to determine the system's susceptibility to any of the following security threats:

- Operating system kernel flaws.
- Buffer overflow attacks.
- Improper server or network hardware configuration.
- Password cracking or missing passwords.
- Race conditions.
- Improper database, file, or directory permissions.
- Denial of service attacks.

The Contractor shall be responsible for reporting vulnerability assessment results to the State and for modifying the application to mitigate the vulnerabilities and risks identified by the assessments. Additionally, the Contractor shall inform the State of any attributes and conditions in the State's network that create or exacerbate an identified vulnerability.

The State is aware that the Contractor cannot guarantee that their solution is safe from or immune to a security threat. The State and Contractor will work together to define strategies and techniques that will mitigate the risk to a level acceptable to the State. The Contractor shall implement these strategies and techniques within the Concord application and Concord infrastructure environment.

8 Software Version Control

The Contractor shall provide an orderly and well managed integration of new releases or fixes into the installed system. With this in mind, the Contractor will provide the tools and methodology as outlined in its proposal.

9 Interface Requirements

9.1 Remote Access

TCRS believes that the community of remote access users is divided into four groups:

Members and Retirees – Individuals with controlled access to their member record as well as a range of administrative functions, such as benefit estimates and address change requests.

Employers – Organizations who require remote access in order to complete web-based reporting of member wages and contributions along with any administrative tasks related or unrelated to wage reporting.

Staff Members – TCRS employees who work from home or who log in from remote counseling and member education sites.

IS Support – those members of the Contractor (or State software or hardware support) staff who have been contracted to provide (sometimes remote) support of the system.

TCRS further requires that all four groups be given access via the Internet, with the appropriate level of security. Such access means that staff members, for example, logging into the TCRS system from outside the TCRS office will continue to have access to the same services (such as office automation, LOB application, workflow, imaging, and email) that they enjoy while sitting at their desks.

9.2 Other Applications

The new pension solution must provide interfaces with other systems and processes, including:

- existing Oracle financial application.
- PEP Plus.
- ARP system.
- ACH.
- 1099 processing.
- Unclaimed property.
- Retiree insurance billing.

9.3 Integration with External Entities

The new pension solution must interface with the following external entities:

- Deferred compensation vendors.
- Banks.
- Federal Government Agencies (e.g., Internal Revenue Services, Social Security Administration).

- State and Local Government Agencies (e.g., non-Tennessee State Revenue Services).
- Providers of health and life insurance.
- Any other service providers for whom TCRS may serve as a conduit for employer contributions (e.g., managers of Defined Contribution plans).
- Actuary.

OTHER REQUIREMENTS

1. Introduction

In addition to the detailed business requirements contained in Contract Attachment 1, the new solution must provide additional new functionality as described in the following sections.

These new functionality requirements are set forth separately in this section for the following reasons:

- Many of them span more than one of the business function areas as defined in this contract.
- Some of these requirements may represent functional capabilities that generally do not currently exist at TCRS.

In addition to the requirements explicitly stipulated below, the Contractor shall provide any additional capabilities specified in the Contractor's proposal.

2. Defined Contribution (DC) Retirement Savings Plans

TCRS offers optional 401(k) and 457 plans to employees of the State of Tennessee. The Treasurer's office administers this supplemental retirement savings program with the assistance of a third party administrator (TPA). The TPA acts as the record-keeper for this plan. Additional information on the plans is available at: http://treasury.tn.gov/dc/.

Legislation has been proposed to modify these plans so that they are available to all TCRS-eligible employers as a supplement to their existing retirement programs. The Contractor should be aware that because legislation is pending/recently passed, the rules and processes for the multiple-employer aspect of the DC plans are in development. It will be the responsibility of the Contractor to assist Treasury and the TPA with system implementation consistent with the Plan documents as amended.

The Treasury Department utilizes one TPA for both the 401(k) and 457 plans. The Treasurer is the Trustee charged with daily plan operation. A primary internal control is oversight of the record keeper. Treasury matches the investment management reports received from the fund managers to the record keeper's reports of plan asset values. Data about State employers and political subdivisions participating in the various retirement programs should include the following information for Defined Contribution Retirement Savings Plan(s):

- Employer Election of Participation in Defined Contribution Savings Plan(s).
- Employer information related to transfer from an existing plan, if any.
- Maintain Employer demographic data.
- Maintain Employer historical data (e.g., amount, method, start and end dates for employer match, employer participation and stop dates for each plan in the program, number of employees, number of employees participating in DC Plan(s) by plan, etc.).

General Requirements

The benefits administration solution must be able to support the day-to-day business functions of the supplemental defined contribution savings plan. This includes, but is not limited to:

- Record employer enrollment information (e.g., resolution passage date, resolution effective date, employer demographic data).
- Add, change or delete defined contribution plan administrators maintained within the system.
- Create or receive file of various employer-level demographic data.
- Ability to generate appropriate correspondence when a DC employer terminates its participation.
- Report, receive, and store by date summary DC contribution data from employers.
- Receive and store by date DC contribution data by employer from third party administrator (TPA).
- Reconcile employer reports of daily contributions sent to third party administrator with third party administrator reports of daily contributions received from employers.
- Receive and store by date summary DC balances data from TPA and from investment brokers.
- Reconcile total balance reports received from third party administrator with total balance reports received from investment brokers.
- Trigger workflow items based on variable different data discrepancy levels in DC contribution data for employers.
- Display employer information in a single location/screen.
- Display employer information to include which DC options that employer has chosen (e.g., whether hardship withdrawals and loans are allowed).
- Indicate and display whether a DB-participating employer has chosen to offer TCRS' DC plan.
- Display start date, end date, and plan details for DC plan by employer.
- Display last date of contribution for a participating DC employer.
- Record any prior plan name and TPA, as appropriate, for each employer record.
- Establish and maintain only one record per employer, regardless of whether said employer is a TCRS and/or a DC-participating employer.
- Display employer record with separate contact information (e.g., person, address, phone number, email address, fax number) for DB and for DC plans.
- Record notes for each employer, automatically indexing by date and staff member name and staff member ID.
- Search the notes section by a particular employer and by all employers.
- Generate correspondence to the employer DC plan contact(s) at each employer regarding process, law changes, etc. of universal concern to TCRS and employers.
- Capture payroll dates by employer.
- Receive and track reports in real time of DC deposits sent by employers and received by TPA.
- Generate alerts when expected deposits are not received by TPA and trigger notification to employer per Treasury parameters.

Some of these data will be provided directly by the Employer to the TPA. Other data will be provided directly by the Employer to TCRS. The system must be flexible enough to receive data from Employers and from the TPA as processes are defined and developed.

3. Accounting/Actuarial Records for Each Participating Employer

TCRS maintains records of all the employers that participate. Separate accounting and actuarial records are maintained for each participating employer. The current system tracks enrollment and withdrawal of employers, contact information, benefit options selected by each employer, and the accumulated assets for each employer. Assets are updated by a number of current business processes including employer contributions, administrative cost allocation, investment income, transfers of employee's accounts at retirement, etc. Actuarial valuations are performed on groups of similar employers in accordance with

funding provisions. Diagrams of this concept – as existing currently and how it is envisioned for the future within new solution – are shown below.

The solution must support employers under this arrangement, including paying retiree benefits differently based on each individual employer's option and maintaining cash flows and account balances for each employer.

Diagram of Current Solution

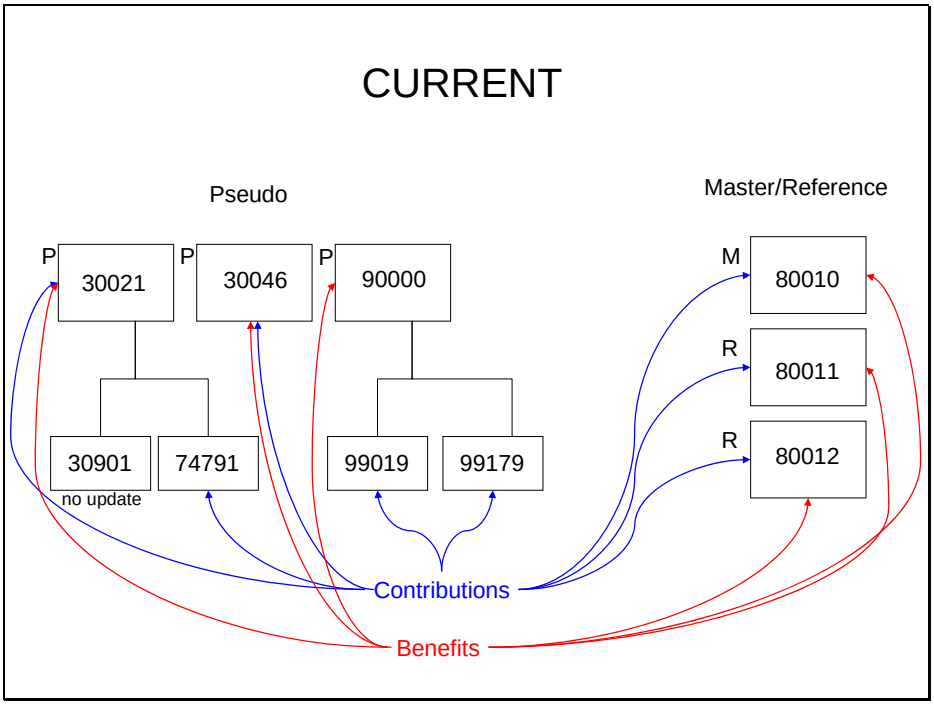
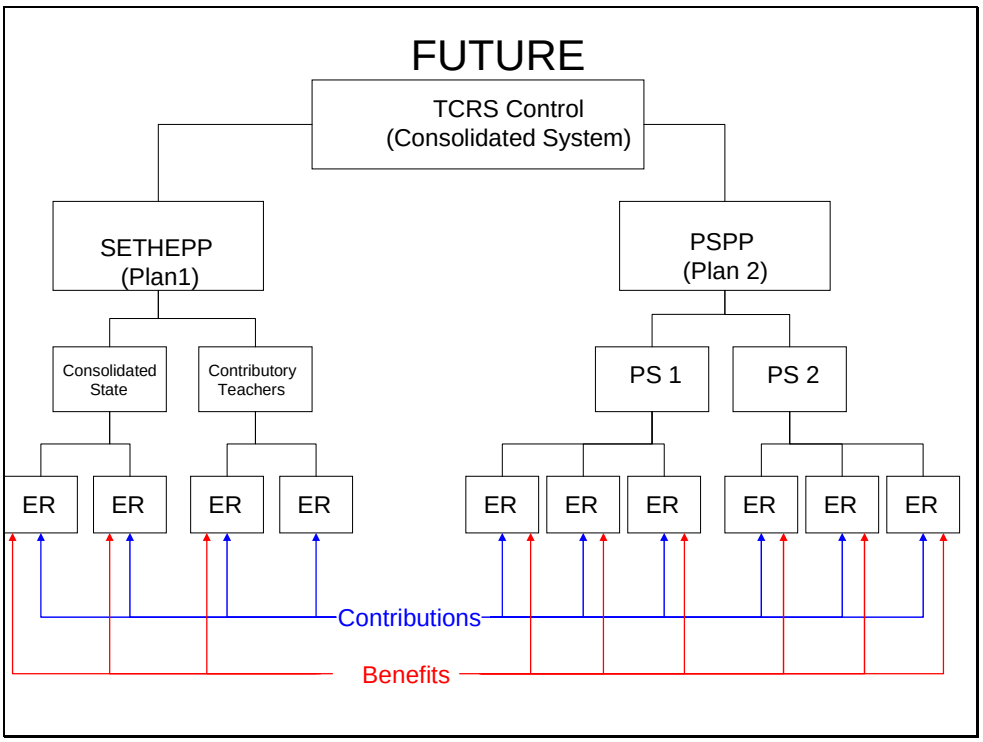


Diagram of Future Solution



4. Customer Relationship Management and Contact Management

TCRS requires a comprehensive contact management logging and reporting capability, fully integrated with the proposed line-of-business solution. The objective is to provide TCRS staff with easy (single query) access to all pertinent information on a "customer" (member, retiree, or beneficiary) or employer when a contact occurs, as well as the ability to update the contact information to reflect the most recent transaction or information provided to the customer or employer via the system (e.g., change in beneficiary, retirement estimate) or as a result of a communication between TCRS and the customer or employer – typically by phone, email, or fax (and, far less frequently, in person). The contact management log capability must provide for automatic update to the contact database and member records for life events, including but not limited to beneficiary designation, request for retirement benefit estimate, retirement application, disability application, termination of employment, refund requests, service credit purchases, and death of member, retiree, or beneficiary. (TCRS points out that throughout this discussion the term contact database is used to refer to customer contact information that may well be a portion of the TCRS member record – there is no intent to specify (or not) a special and separate contact database.)

The log capability must also accommodate user-entered, free form notes on contacts with TCRS' customers (automatically filled in user-id, user name, date and time stamped). Notes records must be sortable based on various criteria such as date/time, TCRS contact, and type of contact, and viewable by any other TCRS staff user. Notes record length must be configurable by the systems administrator.

In addition, any correspondence sent to the customer – including member life cycle events such as benefit estimates, Member Annual Statements, COLA adjustments, and the like – must be automatically linked to the contact management log system and be viewable by the staff user by clicking the mouse button. For example, if a member requests a retirement benefit estimate, when the new system generates the letter containing the estimate (under staff user control), the contact management log system must be automatically updated to reflect the request, that the benefit estimate letter was sent, and with the click of the mouse button, the letter itself must be displayed on the staff user's screen.

The contact management capability must support the following modes and actions:

- Letters – both in-bound and out-bound.
- Emails – both in-bound and out-bound.
- Fax – both in-bound and out-bound.
- eForms – in-bound.
- Phone calls – both in-bound and out-bound.

Additional features required in the contact management log capability include:

- The staff user interface must "look and feel" to the user like the GUI used in the line-of-business solution.

- Document management capability must permit the staff user to connect documents, images, spreadsheets, and similar or related items/objects to any contact. It must include interface to all proposed office automation applications. It must automatically integrate with the workflow component to initiate work as a result of a member's verbal or email request (including addressing outbound letters, faxes and emails), check the status of member-specific work processes (if any), and both store and retrieve member-specific correspondence.

- It must find and easily make available information on any contact by SSN, TCRS identifier, name, date of birth, phone number, or other lookup fields.

- It must maintain day, week, and month calendars to permit staff users to schedule future activities, such as a callback to a member who requested information that is typically provided by phone (rather than by a letter or form). Calendar activities must be automatically linked to contacts. Instant access to contacts from the calendar must be supported. Automated ticklers (typically available from within the workflow subsystem) must be available to remind call center personnel of upcoming events.

- It must be integrated with the fax capability, permitting users to produce quick faxes to contacts and keep track (and copies) of all faxes sent.

- It must be integrated with email messaging; permitting staff users to attach email messages directly to contacts and retain copies of both sent and received emails in the member record.

- It must provide significantly enhanced (over today's narrative capability) note-taking capability such that each member contact can be readily summed up in a user-created narrative or note that becomes part of the member record. Similar functionality must exist for employer contacts. The interface by which the note is created must make extensive use of such capabilities as drop-down lists and other user-interface capabilities so that summary note creation is not viewed by users as an onerous chore.

- It must include standard reports (modifiable by the user) and a user-friendly report writer for creating custom reports with graphics, headers, footers, totals, subtotals, sorting, and statistics. It must permit adding new reports to the report menu for easy access. It must be capable of printing a contact list, all notes and/or all history for a contact, and any other view exactly as it appears on the user's screen.

- It must allow for a "chat" function so that TCRS users can communicate directly and quickly with third party entities (members, retirees, employers, etc) while they are also using the LOB solution. The chat function must support the ability

of call center staff to manage multiple chat functions (e.g., pre-determined responses to common questions). Chat communication records must be documented and attached to member or employer records automatically.

- It must provide a "spellchecking" capability for all free-form text fields.

The contact management log capability must be integrated with the LOB workflow system and not require duplicate input of data or separate action and/or access modes. Such integration must support not only initiation of work but also reporting on the status of member-related work in order to answer questions such as "What is the status of my earlier request for …?" It must also include special customer service screens designed to facilitate the accurate and timely response to "standard" service requests received by telephone from various TCRS constituencies, including, but not limited to:

- Active members.
- Inactive members.
- Refunded members.
- Service retirees.
- Disability retirees.
- Beneficiaries/survivors.
- Defined contribution plan employee participants.
- Defined contribution plan employer participants .
- Affiliated employers.
- Courts.
- Legislators.
- Financial Institutions.
- Board members.
- Internal Revenue Service.
- Other agencies within the State.
- Other State retirement systems.
- Proposer or TPA's.

Typical types of "standard" service requests received by TCRS to be supported include, but are not limited to:

- What's my balance?
- What will be my refund?
- Can I have a balance letter?
- What's the status of my benefit estimate request/retirement application?
- What's the status of my refund check?
- When will I get my pension check?
- Where is my pension check/direct deposit?
- Can I change my address?
- Can I change my beneficiary?
- Explain my deductions.

- I didn't get a Member Annual Statement.
- Verify pensioner's amount.
- Requesting forms.
- Benefit Estimate request.
- Please change my …

The Contractor is required to provide a series of Customer Service Screens (not to exceed 5 in number) whereby a TCRS user can enter the member's name, Social Security number, TCRS identifier number, phone number, or a combination of other identifying information and bring up a customer profile screen filled with all of the key information regarding a plan participant. The specific information to be displayed may depend on participant status (including but not limited to member, retiree, disability recipient, or beneficiary).

One of the five screens to be provided is a customer contact journal, directly accessible upon entry name of SSN, TCRS identifier, or phone number, which will provide a historic trail of key participant events and transactions, displayed from most recent to oldest. The journal entries must include, but not be limited to, the original membership date, estimate request dates, change of beneficiaries, service interruptions, refund dates, service purchase dates, and telephone contacts. The journal entries must provide links to supporting objects – for example, a refund date in the journal must provide a link to a refund record or letter, so the TCRS user can view the amount of the refund.

Similar customer service screens and contact journal functionality are required for employer information.

All of these screens must be quick response (i.e., less than 2 second response times). They will be densely packed, in order to provide as much information as possible. The information must be logically grouped to facilitate the user's locating the desired data. These screens are not to be the same as those used by other TCRS employees in processing work and updating records; instead, they are to be query and customer service oriented.

However, from these screens, the user should be able to initiate "standard" workflows (without lots of 'points and clicks'), via hot keys, radio buttons, or pull down lists. Also from these screens, the users must be able to generate the most common types of correspondence (not to exceed 30 letters/forms). Data must be merged into these documents in the same method as in the other line-of-business areas, including bar-code information as applicable.

In summary, these five (5) screens should be "call center" or customer relationship management (CRM) oriented, quick response, densely packed with data, and able to trigger standard customer service workflows quickly as needed.

5 Web-based Employer Reporting

It is TCRS' objective that eventually all employer wage and contribution reporting will be web-based, replacing the current system. Therefore, the Contractor is responsible for developing a comprehensive secure browser-based, web-based employer reporting capability having near 24x7 availability. This capability must include all data edits and validations necessary to ensure that only correct data are posted to the production database.

All employer-reporting data edits and validations must be capable of being performed online in real-time without any required intervention by TCRS personnel. Furthermore, posting of employer wage and contribution data must occur in real-time and without intervention by TCRS personnel.

The system shall be configurable so that, for each employer, records in an employer wage and contribution report must pass edit checks OR records within a wage and contribution report that fail edit checks are rejected and records within that report that pass edit checks are accepted. This configuration setting must be changeable by TCRS. The employer reporting capability must maintain a log of all wage and contribution records that failed to pass edit criteria and continue to present these erroneous records to the employer each time the employer accesses the employer reporting interface.

The Contractor's solution must ensure that:

- Reported contributions are accurately recorded as to both the fund and the employer portion vs. member portion (based on the percentage of salary contribution factors pertaining to the particular plan).
- Individual member accounts are accurately updated with wage and contribution data.
- Any employee for whom data are submitted is first enrolled in the system – either through data contained in the wage and contribution report being processed or through an enrollment process previously completed.
- Data submitted through the wage and contribution report may, under control of applicable business rules, be used to automatically update member demographic information previously submitted (e.g., address, phone number).
- The wage and contribution reporting process integrates with other member-related business processes such that, for example:
    - A new member is automatically sent a blank beneficiary designation form to complete and return.
    - Other member demographic data-related business processes are updated or executed as appropriate.
- Changes to the member and employer balances in the pension solution database match the change in the general ledger reserves.
- Payments can be made directly by employers via ACH.
- Employers can run predefined queries that TCRS has already set-up in order for employers to generate listings/reports of information that they need.

The employer reporting web page must at a minimum include the following features:

- A test reporting area.
- A training reporting area.
- A production reporting area.
- Employer reporting instructions.
- FAQs.
- Streaming videos that educate the employers in the use of the web page.
- A detailed user guide.
- Tools.
    - Basic edits and validations, including applicable codes (such as occupation class codes and country codes).
    - File layouts.

- Reporting alternatives for small employers.
- List of publications and forms available for printing.

- Employer message area.
- A facility for updating employer "demographic" information – e.g., contact name, phone numbers, email addresses, and valid occupation class codes.

The Contractor shall be responsible for developing the file format to be utilized by employers in submitting wage and contribution data via the employer web page.

Note that even with greatly enhanced web-based wage and contribution reporting, TCRS (and the selected LOB solution) must still support wage and contribution data submitted via means other than the web (i.e., paper and manual data entry, tape, diskette, and CD). The Contractor must provide a workflow that supports the scanning, data entry, and quality assurance of paper-based employer wage and contribution reports. TCRS emphasizes that even in the case of wage and contribution data submitted by means other than the web, the onus should be placed on the employer – and tools provided to the employer – to minimize the amount of hands-on effort required of TCRS personnel.

6. Financial Management Package

The State is nearing completion of a financial management implementation to the Oracle Financials product, with a project name of "Edison". This system is the State-wide accounting system and will function as the general ledger for the State. Treasury has plans to implement a new general ledger system for its own use that will integrate with the Edison system (see 3.2 Related Current and Planned IS Projects). The Contractor is required to integrate the LOB solution they provide to Treasury's general ledger system. The remainder of this section provides a description of the integrated financial management capabilities that TCRS requires in an integrated pension administration solution.

The LOB solution will be responsible for maintaining a variety of contribution, benefit and other transactions associated with entities maintained under the LOB solution including, for example, members, retirees, alternate payees and employers. Transaction activity recorded for these entities will include the determination of the contributions due on the wages reported for the member, receipt and application of the actual payment against those "receivable" balances (a cash flow) whether from an employer or from the members themselves, the determination of a benefit to be paid to a member (or other payee), the actual distribution of the payment (via check or EFT), and potentially other transactions that have an impact on either the income statement or balance sheet accounts maintained within the Edison or Treasury's general ledger system for the TCRS retirement fund.

The LOB solution shall provide functionality allowing TCRS to aggregate and export accounting activity such as that described above to the Treasury General Ledger system. Such export processes will produce a data file in a format compatible with General Ledger system and shall not require any manual alteration of the file (e.g., opening the file in Excel and changing values therein). The export process shall be such that it may be executed on any frequency (i.e., daily, weekly, monthly, etc). The process will prevent the operator from unintentionally exporting the same transactions more than once but will not preclude the operator from exporting the data again to replace a corrupted export file, for example. It is anticipated that some setup information (e.g., transaction date range, desired transaction category) may need to be entered (in a dialog box, for example) prior to running the extract and export process. However, such manual data entry must be kept to a minimum.

LOB solution data exported from Treasury's general ledger solution and imported into Edison shall be capable of being tracked back to its source transaction(s) through an extract date, a batch number or other relevant identifier.

Such use of the Treasury general ledger and/or Edison accounting package shall not be construed by the Contractor as a replacement of functionality within the LOB solution for producing employer statements, invoices, debit and credit memos and reports appropriate to the employer and member accounts receivable activity within the LOB. The LOB solution shall provide all such reports.

7. Enterprise Content Management

TCRS believes that ECM (i.e. imaging print archive, workflow management and correspondence generation) is an important set of enabling technologies that will significantly enhance the new pension solution. The remainder of this section provides a description of the ECM capabilities that TCRS requires in an integrated pension administration solution. The Contractor shall be responsible for integrating the FileNet imaging capabilities into the LOB solution.

TCRS generates significant amounts of correspondence with its members. TCRS requires the new LOB solution to be able to generate and archive such correspondence automatically, printing only the copy that will be mailed to the member. TCRS further requires the system to automatically create a tickler within the workflow system in those situations in which the generated correspondence requires follow-up action (e.g., a request to the member for more information to be supplied within ten days).

The Contractor is responsible for ensuring that the ECM-related business requirements are met in full by the new LOB solution. The Contractor is responsible for meeting all ECM-related specifications, including the commodity software specifications that were provided in the technical proposal.

The remainder of this section details additional business-related features that are required of the ECM capabilities to be integrated into the new system.

7.1 Imaging

It is critical that member-related documents are available as part of the member record in the LOB solution and employer-related documents are available through the employer-based functionality within the LOB solution. In addition, the Contractor must ensure that appropriate security is provided such that access to disability documents (a subset of the member record) are accessible to only a designated set of staff members.

7.1.1 Desired Image Retrieval (Business View)

TCRS staff typically will search for and retrieve member documents in one of two ways. The first involves searching for and retrieving a specific document based on a unique combination of keys such as member ID and form number and scan date. The second method treats the retrieval like an electronic analogy of the paper-based member folder. That is, in response to a query by member ID (initiated through a control on a window or browser page), the interface should respond with a screen which presents information in one of two ways:

- If the member ID does not uniquely determine a member (this should happen only if there has been an error in indexing), a list of the members matching the ID entered (including names, dates of birth, and Social Security numbers) should be presented so that the user can select the specific member being queried.

- If the member ID uniquely identifies a member, the results would be presented as a list of the sub-folders within the folder. Sub-folders which refer to unique documents would indicate the form number and scan date, while those which are collections would permit the user to expand them appropriately. When a user chooses to expand a collection, its contents would be listed showing form number, form name, and scan date. Alternatively, the user might choose to view all of the documents in a collection, either full size or as thumbnails. Regardless of the method the user chooses, she or he would then be able to select one or more individual documents for full size viewing, annotation, etc.

The user must be able to sort on any of the columns/attributes in a presented list of document attributes including, but not limited to member name, document type, and scan date/time.

TCRS realizes that the methods discussed above are not the only ones possible for document presentation. The Contractor is responsible for suggesting and reaching consensus with TCRS on any alternative strategy it favors for an imaging storage structure.

After discussions with TCRS, the Contractor shall then implement the agreed upon business-view storage strategy.

7.1.2 Integration of Imaging Solution/Line-of-Business Solution

TCRS views imaging as just a tool that will make the line of business application a highly effective solution. To that end, we feel that tight integration of imaging into the LOB application is a critical success factor for enthusiastic acceptance by TCRS staff. In the sections below we discuss the particular ways in which imaging will be integrated into the LOB application.

7.1.2.1 User Interface Integration

TCRS requires integration of the imaging system into the LOB application user interface such that retrieval of a member's documents (when a member's record is open on the screen) may be initiated with minimal keyboarding or navigation. For example, a solution that requires the user to key in or cut and paste the member identifier from one application to another is unacceptable. Instead, the letter, spreadsheets, and other documents must be displayed on the Concord screen at the click of a mouse button.

7.1.2.2 Utility Integration

TCRS requires that the LOB query capability and retrieval from the imaging system be integrated so that the output of a query can be used to retrieve images. For example, a TCRS counselor may need to retrieve and review all the beneficiary designation forms for a particular individual (the named beneficiary, not the member). In such a situation, the result set must be capable of retrieving the beneficiary designation forms.

7.1.2.3 Database Integration

TCRS requires the following level of integration between the LOB database and the imaging solution:

- Ability, upon indexing within the imaging solution, to perform index validation through an automatic look-up in the LOB database. This would include validation (in various combinations) of at least the unique member ID, the member name, the member DOB and the member SSN. The validation would be used to determine whether the member already exists in the database and to avoid data errors, redundant data entry, and duplicate folder images.

- Ability, while indexing within the imaging solution, to assist the indexer when the only data available from an imaged document may not uniquely determine the member to whom the document belongs. Assistance might include (but not be limited to) popping up a list of all members with the indicated last name and allowing the indexer to select one by DOB, by address, or by SSN.

- Ability, after indexing within the imaging solution, to change the index information without reprocessing the image.

- Ability to ensure data synchronization between the LOB database and the imaging solution. For example:

  - Changing an index value, such as Social Security number, in the LOB system would automatically update the corresponding index for that person in the imaging solution.
  - Changing the name in the LOB system would automatically update the corresponding index for that person in the imaging solution.
  - If separate databases are utilized, the synchronization must occur automatically, in real time – with an audit trail produced.

The following additional imaging related requirements are provided to enable the Contractor to understand just how the retrieval mechanism and the image viewer should appear to the end-user.

7.1.2.4 Workflow Initiation

The imaging system must be integrated with the new workflow system such that the release of an image or batch of images to the image archive initiates the appropriate workflow process for each of the documents in the batch (including paper-based wage and contribution reporting).

7.1.2.5 Archiving of Documents Created by the LOB Solution

Unless so indicated by TCRS for specific document types, all correspondence created through the correspondence-generation utility will:

- Be archived at the same time that it is printed or otherwise transmitted to the member. The purpose of this requirement is to ensure that the solution is not dependent upon separate user actions to archive and to print. The solution shall not capture more documents than are actually transmitted to a member.

- Store the captured document in immutable format (300 dpi, TIFF 6.0) so that it cannot later be altered in any way.

- Automatically capture the appropriate information from the correspondence generation utility such that the document indexing is done automatically rather than requiring the staff member to re-input index information.

7.1.2.6 Bar-coding

As part of the goal of enhanced member communication, TCRS will investigate dispensing with pre-printed forms and correspondence. Instead, forms will be requested via a web-interface, pre-populated with member information and printed on demand. Should a member request forms via an IVR, call center, or email-based request, the system shall still enable the pre-population of form data. The forms will include a bar-code representing any information known to the system at the time the form is printed (e.g., form number, unique member ID, member name, member DOB, and/or member SSN). Generating such a form will initiate a workflow. TCRS believes that such a bar-code on all outgoing correspondence will facilitate indexing of the forms when they are completed by a member and returned to TCRS. TCRS requires use of a 2D bar-code font such as PDF-417. TCRS further requires that any scanning hardware/software specified and/or supplied as part of the solution be able to read and correctly interpret the bar-code font.

Notwithstanding the above requirement, TCRS intends that members with web access will be able to conduct most business with TCRS online.

7.1.3 Standalone Imaging System

TCRS also requires access to the imaging system on a stand-alone basis (e.g., for member-related documents, as well as for board meeting minutes and other document unrelated to a specific member).

7.2 Print Archive

TCRS requires the implementation of a print stream archive capability. All reports and other such print stream presented data are to be captured into the print archive in such a way that they can be searched using a robust search capability (across reports, across dates, using multiple indices and Boolean operations on the indices). The solution should also provide a free-text search capability so that even un-indexed text can be searched.

In addition, TCRS believes that any member-specific records stored in the print archive should be accessible through the same query function used for the retrieval of images. By this we mean that a single query retrieval will provide the viewing user with a list of all “documents” associated with that user whether they are images or print-archived records. Furthermore, the viewing capability should be capable of viewing interspersed image and print-archived records without changing viewers.

7.3 Workflow Management

TCRS believes that electronic workflow is a powerful enabling tool to assist in the automation and management of our work processes. However, TCRS also feels that workflow is the kind of tool that works most effectively when subordinate to the actual processing of work. That is, TCRS expects the tool to deliver work to a staff member for processing, possibly provide guidance in what that processing should be, and route the completed work correctly – all without intruding in the actual processing. The Contractor’s workflow management tool must accommodate the following requirements:

- The ability to create work-items both manually (e.g., as the result of a phone call with the member) and automatically (e.g., through receipt of a specific scanned document type – in the bar code). This includes, for example, automatic initiation of a work process to send appropriate correspondence to those members who will shortly be eligible for retirement.

- The ability to define work process maps which automatically "route" work from the mailroom to an individual (or role) and from one individual to another. Such routing may be conditional; for example, the level of approval for signing a refund authorization may vary depending on the size of the refund. Such work process maps should be maintainable by a user administrator level staff member – not requiring advanced IT training and skills.

- The ability to fully automate rote tasks such as the acknowledgement of receipt of information or other member communication. In this model, the first work step after scanning and indexing of many documents received from the member might be a robot step which would use automated correspondence generation (see above) to generate, print or email, and archive an acknowledgement letter.

- Assignment of work using a role-based model, thus easily addressing personnel substitutions and absences.

- Ability for a user to sort and select new work by multiple criteria such as first-in, first out, or priority of work item.

- The ability to suspend a work item in process while awaiting the receipt of additional information, to automatically match turnaround documents with suspended work items and to automatically resume processing of the suspended work item.

- The ability to create multiple (re-usable) levels within a workflow or route. The purpose of this requirement is to ensure consistency of similar processing even when that processing is done as part of different workflow routes.

- A time-based alarm/reminder capability for follow-up tracking of functions within a workflow (e.g., non-receipt of the bank information within a definable number of business days).

- Ability to automatically generate reminders or ticklers, both in correspondence to members who have not responded to requests for additional information and to staff who may need to provide personal follow-up on incomplete tasks.

- As an expansion of the work process suspension capability and the automatic generation of reminders/ticklers, the workflow system will also work in concert with the LOB to provide date-effective processing. Thus a staff member can enter the data associated with a change and specify that the change is to occur at a specified future effective date – and be assured that the change will take place on the specified date.

- The ability for a trained administrative user (not an IT specialist, but perhaps a "super-user") to easily add users to the system; create, change, or "tune" workflow processes; and change, modify, or alter maps to rectify bottlenecks and inefficiencies.

- The capability to control via a user security password system attempts to add or modify workflow parameters.

- The LOB system must be interactive with the user and create actions by use of pull down menus, icons, and similar or related features. For example, when a member passes away, certain turnaround documents are sent to the beneficiary for completion and return. That transmission must initiate an instance of workflow that contains the appropriate steps to process and complete the entire operation. In addition, TCRS management must be able to monitor the entire process via the workflow management solution.

- A search capability such that the status (e.g., active, suspended awaiting additional information) of any work item can be determined through a simple query based on multiple criteria such as member name, date initiated, member ID, member DOB, or member SSN.

- Work process measurement and reporting capabilities, including but not limited to individual work item status and location, average/maximum/minimum queue time, queue lengths, performance metrics, and process bottleneck identification, quality, reworks.

- Provide workflow tracking, statistics and process/user throughput reports.

- Provide a user-friendly application environment that promotes pre-existing concepts already familiar to users, including the concept of file folders, attachments, assignments and the use of colors to show the status of an item at a glance.

- The provision of multiple reports for users and management – both at an individual work item level and at the aggregate for current status, month-to-date status, year-to-date status, and particular date ranges, such as:

    - All suspended work items (identified by role or member number or name), which member of staff suspended them, when they were suspended (and, if available, for what reason).
    - All work items in process (identified by role or member number or name), throughout the system.
    - User-oriented work throughput information such as work items processed by each user and the average/maximum/minimum time required for processing.
    - Queue-oriented work throughput information such as queue lengths, average/maximum/minimum queue time, and other performance metrics
    - All work processed through the system during a user-specified period of time, identifying the work items by type, member ID, and staff member
    - Reworked items

The Contractor shall be responsible for providing documentation for all standard programs (and any programs that are customized for TCRS use). The Contractor ultimately shall be responsible for providing training in workflow management at both the technical and user level.

Although TCRS requires various processes to be workflow-enabled, the ability to access these processes/functionalities outside of the workflow system must also exist. TCRS users should have access to this information and these processes not only when they are "within" the workflow sub-system, but also on a non-workflow (i.e., ad hoc) basis. The system must be sufficiently flexible to ensure that users can perform their work regardless of the technical state of the workflow sub-system (i.e., such work must be able to be initiated either via

workflow processes or via a non-workflow process – on an ad hoc basis). In addition, all audit trail and roll-back capabilities must track such manually initiated work as well as that accomplished "within" the workflow system.

7.4 Correspondence Management

The Contractor will provide a correspondence management solution for managing the correspondence with members, especially responding to written customer requests received and sent via mail, fax, or email. This correspondence management solution must be integrated with the contact log capability. The correspondence management feature will involve well-defined procedures and processes (both automated and manual) for managing the receipt of, imaging of, indexing of, routing of, filing of, retrieval of, and response to incoming written requests for information as well as all outbound correspondence of any sort.

TCRS currently utilizes a number of standard documents (forms, reports, letters, and spreadsheets), which are generated on the legacy systems.

The Contractor must convert these documents to be compatible with the correspondence management solution provided in the new system and to integrate them into the new system's line of business and workflow components. It shall be the Contractor's responsibility after contract award to define in detail all requirements pertaining to the existing documents and their conversion to the new environment. There are a number of approaches that are acceptable to TCRS:

- Using conversion tools, convert the files and manually clean up.
- Manually enter all documents.
- Scan documents and then manually clean up.
- Any other technique that will satisfy the requirement.

In the implementation of the new system, standard letters are to be generated automatically. Examples include but are not limited to benefit estimate letters, requests for certifications, and service buyback information. These letters are to be maintained as word processing template documents. When a user task that invokes one of these standard letters is exercised, the new system must automatically merge the letter template with the necessary database information (including but not limited to member/beneficiary name and address, service credits, and monthly benefit amount). The Contractor shall be responsible for integrating all data insertion (e.g., name, address, service credits) in forms and letters using appropriate tools. The user must be able to view the letter on his/her workstation screen, modify it if he/she chooses, and trigger printing of the letter with a click of the mouse button. The act of printing should automatically send an appropriately indexed copy of the letter to the member record for storage as a TIFF image, a PDF or other immutable form.

The Contractor, in consultation with TCRS, shall determine the following items:

- How (procedures) to sort significant correspondence out of the bulk of incoming mail.
- Establishing (rules and procedures) relationships among individual pieces of correspondence/requests for information. Illustrative examples include:
    - Certain correspondence such as the "Notice of Retirement Letter" which gives a final chance for a retiree to modify their retirement options is to be permanently archived.
    - Letter from a participant requesting information on retirement options and expected benefits.

- Correspondence to/from the participant from/to TCRS requesting additional/clarification of information pertaining to the participant's credited service and/or contributions.
- Return of the requested information/clarification from the participant to TCRS.
- Correspondence from TCRS to the participant setting forth retirement options and expected benefits under each option.
- Letter from the participant to TCRS with accompanying application, which selects a particular option.

- Secure archiving of correspondence that must remain available for an extended period of time.
- Tracking of follow-up activity and turnaround time associated with correspondence/requests for information.
- Reporting of new, open, and closed correspondence items/requests for information, by department, by user-specified date range.
- Integration of the correspondence management function with the other features and functions of the future system, particularly the automated letter generation capability that is part of the mandatory line of business (LOB) system.

The correspondence management feature must have applicable levels of internal controls and appropriate segregation of duties, including the ability to approve letters to be sent or printed. If an investigation result requires some type of monetary adjustment, it must have management approval before being released to the payroll or accounting system for check generation.

It shall be the Contractor's responsibility to conduct interviews and analyses as necessary to identify and accommodate all possible types of problem resolution investigation types.

The system must support the ability to search through all notes, emails and correspondence sent to and from members for specific words or phrases. Such a search must be accomplished with a single management-level query. TCRS management intends to use such a query in order to find, for example, the number of users who have complained about the quality of telephone support.

A designated user/system administration (as opposed to information systems) function must be able to create new and maintain existing standard letters through the use of the word processing software.

7.5 Paper Forms and Electronic Forms (eForms)

The State has designated Datacap Taskmaster as its processing tool to automatically capture data from forms. Information is available at http://www.datacap.com/solutions/applications/forms-processing. The Contractor is encouraged but not required to use the State-designated data capture tool. This tool is not yet in use at Treasury.

The Contractor shall teach TCRS staff how to use all form creation tools to maintain and update existing forms and to create new ones.

Finally, the Contractor shall be responsible for implementing in the new system the functionality of all existing reports, forms, and letters (unless otherwise agreed to by the Contractor and TCRS during the requirements definition and design phases), as well as for implementing all new desired reports.

Please see Contract Attachment 8 for a list of TCRS' forms. Note that the forms, reports, and letters contained in Contract Attachment 8 include, as a sample, the form, report or letter for one plan only. If the form, report or letter is included in Contract Attachment 8 for one plan then the Contractor is responsible for the development of the same form, report or letter for all plans to which it may apply.

To minimize member/retiree confusion as they migrate from the use of paper forms to electronic (eForms) forms, the Contractor shall design the interface screens used for member-initiated electronic input (e.g., web-based change of address) to appear like the paper form used for the same purpose. (This may be done by changing the layout of the paper form during the form redesign to match electronic form screens that already exist – subject to TCRS approval.) In addition, since TCRS desires to retain copies of all correspondence with our members/retirees in the document archive, every eForm completed and submitted by a member shall be instantiated in the member archive – in such a form that when viewed or printed from the archive, the form image appears as if it had been completed on a paper form.

7.6 Knowledge Management Repository

In the conduct of its day-to-day business affairs, TCRS staff must remain cognizant of several business "drivers" which dictate the services and information which TCRS provides to its membership. Those drivers include, but are not limited to:

- State statutes.
- Federal law and regulations.
- TCRS administrative rules.
- TCRS Member or Employer Handbooks.
- TCRS procedures.
- Existing manuals.
- Various forms and instructions.

TCRS is seeking an online repository of information supported by an integrated search engine that is capable of returning possible matches to key word or other searches from referenced items such as those listed above. The repository must be available from the user's desktop, and it must be categorized for the users' convenience. It must permit ready access to:

- Appropriate web pages for viewing, for example, recent legislation affecting TCRS' business practices. The Member Handbook and related standard information is to be made available for access on the TCRS web site.
- Context sensitive help capability.
- Key word index/lookup capability.
- FAQ's.
- All standard TCRS forms and instruction sheets.
- Others, to be determined during requirements definition.

The repository must be designed in such a way that a single person can readily maintain it. Maintenance tasks would include, but not be limited to, updating/loading forms, instruction sheets, and FAQ's. While the updating of the web pages accessible from the repository would be outside the scope of the repository maintenance function, it must be a straightforward task to add one or more new web sites to the repository contents, or to remove access to an existing site.

8. Addition and Modification of Plans

As part of the new system to be developed, it is critical that users have the ability, without the need for intervention on the part of the Information Services (IS) function, to add a new plan to the system and to modify an existing plan, as well as perform eligibility changes for benefit enhancements, new groups of employers added, etc.

When adding a new plan, users will be prompted to enter all of the properties, rules, and parameters relating to the plan. In short, once a new plan is added by inputting the profile, it must link to every module and database that requires information for record keeping, general accounting, and correspondence tracking.

The capability to transfer members from one plan to another must be available whether or not a plan is being added to the system. Users require the ability to transfer members between plans both on an individual basis (i.e., one member at a time) and *en masse* (i.e., the user may specify that all existing members of a given plan, or all employees working for a particular employer, will be transferred to another existing plan). If members are leaving the system entirely, the new system must be able to prepare reports/tapes and support the necessary accounting structure to refund in detail or lump sum to a new plan. As required by the rest of the system, there must be sufficient management controls in place to ensure that a user cannot delete a plan, even if empty of members. (This is because even empty plans have historical data associated with them; their deletion makes impossible the reconstruction of historical data from when the now-empty plan contained active members.)

The new system must accommodate the closing of plans. To close a plan is to prohibit any additional members from being added to the plan as of the effective date of the plan's closing. Any attempt to add a member to a closed plan, or to transfer a member from another plan to a closed plan, must result in a user-level error message. In some cases, existing members will remain with the closed plan (which will continue to be serviced just as all open plans are), but no new members may be added. In other cases, they will be 'moved' to another plan.

The system must permit closed plans to be re-opened. As of the effective date of re-opening a closed plan, new members may be added once again. It must be possible for a given plan to be closed and re-opened an unlimited number of times.

In addition the system must allow for new benefit enhancements to be added and eligibility changes for existing benefit enhancements to be modified, as well as the ability for new groups of employers to adopt new benefit enhancements.

9. Performance Metrics

TCRS requires performance metrics to be collected and provided as part of the line of business solution. This includes the following functionality at a minimum:

- The automatic collection of those data as required.
- The storage of the data (for appropriate periods of time (e.g., year to date, period to date, comparison to previous periods, comparison to previous year to date) and the ability for a user administrator to purge data based on date criteria in addition, the ability to restore such purged data must be provided.
- The presentation of the data in tabular report form allowing management to see trends/issues and respond by taking proactive steps to manage agency workload.
- The presentation of data in graphical form (showing trends) allowing management to see trends/issues and respond by taking proactive steps to manage agency workload.
- The ability to store the data in a small data warehouse for subsequent manipulation and reporting by a knowledgeable user by means of an ad hoc query or report generator.

Functionality to be provided includes, at a minimum:

- **Production metrics** – completed activities.
- **Production metrics** – backlog.
- **Efficiency metrics** – work queues.
- **Workflow metrics** – actual cycle times vs. target cycle times.
- **User metrics** – actual cycle times vs. target cycle times.
- **Accuracy Metrics** – quantity of work done correctly the first time vs. that which has to be re-worked for some reason.

In addition, all performance reports must be designed to report and display information for the entire organization, at the division level, and at the individual user level.

10. Warranty and Support

The sections that follow provide discussion of the various aspects of warranty and support that are required of the Contractor.

10.1 LOB Application Warranty

With regard to the customized line of business (LOB) application the Contractor warranties that it shall operate, in its entirety, in accordance with the contract's requirements and the specifications approved by TCRS, for twelve (12) months after final turnover and acceptance of the last phase of the project. This implies a longer warranty period for portions delivered earlier in the project. If a component of the LOB solution (e.g., imaging software, web server software) has a version upgrade, the Contractor shall be responsible for upgrading such component without any additional cost to TCRS.

10.2 Transfer to Treasury Applications

Transfer all application source code, data base source code (e.g. stored procedures, functions, triggers, etc.), UML and database schema models, system and user documentation, or any other programming elements or technical documentation necessary for the proper operation and maintenance of the new system to the appropriate Treasury applications (e.g., Subversion, PowerDesigner) by no later than the end of the LOB Application Warranty period. The Contractor shall transfer all open issues, bugs, and enhancements recorded in the Contractor's issues tracking system to Treasury's issues tracking system (i.e., Countersoft's Gemini). These transfers must be complete and accepted by Treasury's Directory of Information Systems no later than the end of the LOB Warranty period.

10.3 Statutory and Regulatory Changes

TCRS will not be charged for statutory and regulatory changes that have been necessitated by any federal government agency, board of review, federal statute, or federal directive (including but not limited to IRS, Department of Labor, Department of the Treasury, and ERISA) from the point of contract award through the end of the warranty period, including changes in the federal tax withholding tables. Rather, this functionality shall be provided to TCRS at no additional cost. Following the warranty period, such changes shall be provided to TCRS for as long as TCRS maintains a support arrangement with the Contractor.

10.4 Post Warranty IS Support

The Contractor shall provide ongoing post-warranty support (i.e., programmer support) as requested by TCRS for twelve (12) months after the conclusion of the LOB Application Warranty period. The minimum services that must be provided by the Contractor include:

a. All system upgrades due to revisions to the base applications and underlying technologies.

b. Emergency support services to diagnose any performance or operational problems on a twenty-four (24) hour, seven (7) days a week basis.

c. Emergency maintenance services to correct code problems related to the design or coding of the system software, its functioning, or its interfaces.

11. System Security Plan

The Contractor shall be required to produce a detailed System Security Plan during the project. The purpose of this plan is to provide TCRS with an overview of how the Contractor will satisfy all of the security requirements associated with the pension application throughout its life cycle. The plan must describe the processes and controls that are necessary to protect the application from loss, misuse, or unauthorized access to or modification of information.

Therefore, the Contractor's Security Plan must encompass at least the following:

A. Security roles and responsibilities.

B. Protection against loss – continuity of system data:

i. System backup procedures – covering topics such as:

a. Candidate information to be backed up (critical application components, configuration files, member data, event logs).

b. Backup processes.

c. Suggested backup schedule for the different types of candidate data mentioned above.

d. Use of the second physical environment as a backup for the backup processes.

e. Suggested handling of backed-up data and media (off-site storage, cycles, eventual destruction, etc.).

ii. Disaster and recovery planning – covering such topics as:

a. Recovery procedures using backed up system information (in the case of a non-disaster).

1) Software configuration management.

2) Security incident handling, including, for example, system intrusion detection, denial of service attacks, etc.

C. Protection against misuse – inappropriate access to system:

i. System administration procedures:

a. Definition of user security profiles, addition of new users, etc.

ii. Self-Service Access.

a. Member/Retiree Self-Service Access.

b. Employer Self-Service Access.

iii. Event logging.

iv. System interface security.

v. Security training.

D. Protection against unauthorized access to or modification of data:

i. Separation of duties and system privileges.

ii. PINs or passwords and other security controls on member web-based access.

iii. Appropriate methods for providing secure access for staff when out of the office.

iv. Protection against system penetration by outside entities, the security aspects of such penetration and what assessments are to be done to ensure against such penetration, including:

a. Incorporation of secure coding guidelines such as the Open Web Application Security Project guidelines.

b. Review of custom application code to identify coding vulnerabilities.

c. Prevention of common coding vulnerabilities in software development processes, at a minimum, to include the following:

1) Unvalidated input.

2) Broken access control (for example, malicious use of user IDs).

3) Broken authentication and session management (use of account credential and session cookies).

4) Cross-site scripting (XSS) attacks.

5) Buffer overflows.

6) Injection flaws (for example, structured query language (SQL) injection).

7) Improper error handling.

8) Insecure storage.

9) Denial of service.

10) Insecure configuration management.

- Audit trails.

- Data encryption:

d. Employer-submitted data.

e. Web-based access to data by members, retirees and staff.

1) Vulnerability scanning.

2) Data security during project execution.

f. Description of Contractor staff security education for this project.

g. Agreement to provide (if requested) evidence of completed background checks on project staff.

h. Description of system access control (applied to both Contractor and TCRS staff) used during implementation.

i. Description of process for environments that will be monitored to determine if breach occurs (including tools used for monitoring and monthly reporting).

j. Steps to take should a breach occur during project execution.

k. Discussion of monitoring of jump drives, memory sticks, and other portable memory devices during project.

l. Discussion of procedures for securing data if taken off-site.

m. Discussion of steps taken to ensure use of dummy data in training, testing, documentation, etc.

n. Methods used to secure data used in testing and repair – and scrubbing data subsequent to repair completion.

o. Methods used to secure printed copies of data used during system implementation and destruction of same once project is complete.

p. Methods used to test, validate and secure system patches during project.

q. Methods used to secure technical system information (including passwords) prior to and during knowledge transfer to TCRS.

E. Recommendations for monitoring the application's ongoing security requirements.

F. Test procedures that can be incorporated into the test plans and activities.

Where topics in the security plan are covered in depth in other deliverables for which the Contractor is responsible, the System Security Plan can simply reference those other deliverables. However, security of data, access, etc., remains a concern from the start of the project. Therefore, it is important that the Security Plan address the issues mentioned above, not just post roll-out, but also during the system implementation. Should the cross-referenced material mentioned above not be complete, the Contractor must provide sufficient pertinent information within the operating System Security Plan to provide guidance until the referenced material is complete.

12. IS Security Certification and Accreditation

TCRS may elect to conduct a security audit according to the Federal Government program and guidelines (NIST Special Publication 800-37, *Guide for the Security Certification and Accreditation of Federal Information Systems*.) under which the security of IS systems in support of the government can be evaluated in a repeatable, comparable, and consistent fashion. TCRS wishes to apply those guidelines to the certification of the security of the new LOB application, the program under which it is implemented and the resulting business environment in which it will continue to operate.

That effort (if undertaken) will be the responsibility of TCRS. However, should that effort result in errors or findings, it is the Contractor's responsibility to research and fix such items. This effort, if conducted, will be done at various appropriate timeframes throughout the

project and then again at final implementation of the solution. Therefore, the Contractor is responsible for developing their work and implementation plans to account for this activity should the study result in errors or findings.

13. Certifications by Independent Public Accountant/Auditor

Upon the cutover of the final phase of the implementation and prior to acceptance by TCRS, the Contractor shall be required to have the newly developed system certified by an Independent Public Accountant /Auditor (IPA/A). The IPA/A shall be independent from the Contractor. The Contractor must provide funding for all contemplated activities of the IPA/A as described below. The IPA/A shall report directly to the Concord Project Manager, who will certify invoices from the IPA/A for payment by the Contractor. The IPA/A shall examine the new system and obtain a reasonable assurance pertaining to the functions, auditability, and related controls of the new system. This examination shall include procedures to obtain reasonable assurance about whether:

- The functions and related internal control procedures incorporated in the design of the new system present fairly, in all material respects, the aspects of the new system policies and procedures that may be relevant to TCRS' internal control structure.

- The control structure policies and procedures included in the new system are suitably designed and implemented to achieve the control objectives specified by the Contractor in its Functional Requirements Document, TCRS policies and procedures were complied with satisfactorily, and the Contractor applied those internal control structure policies and procedures appropriately.

- Such new system policies and procedures had been incorporated in the new system constructed by the Contractor as of the date of acceptance of the new system.

The control objectives specified for the new system are highlighted in bold in the following description of those objectives:

- The new system's internal control structure policies and procedures must provide reasonable assurance that assets are safeguarded against loss from unauthorized use or disposition. In the new system, transactions are executed in accordance with management's authorization, and recorded properly in accordance with generally accepted accounting principles (GAAP), and that Member Benefits are determined in accordance with applicable laws and regulations.

- The new system's control structure must include adequate information and audit trails to assist in establishing individual accountability for transactions and to permit the implementation of an audit testing strategy. Audit testing strategies may include a combination of an extended assessment of internal controls, as well as appropriate segregation of duties, and a substantive approach to validating financial statement amounts. The audit trails incorporated in the new system's design and the information provided by the new system must provide a reasonable basis for an audit testing strategy and must enhance the auditability of the new system.

The IPA/A shall be required to review the design, development, and testing of the new system and render three (3) certifications relating to the following control objectives:

- System compliance with Generally Accepted Accounting Principles (GAAP).

- Inclusion of the appropriate and necessary internal controls and appropriate segregation of duties in the system.

- Auditability of the system.

In addition, the IPA/A shall be required to render a separate certification regarding the accuracy of the conversion programs and processes to transfer data from the current system(s) to the new system. Specifically, this control objective for the new system is highlighted in bold print in the following description of this objective:

- For the universe of data to be transferred into the new system, the IPA/A must develop a test program and sampling plan to test the Contractor's assertion that its data conversion programs and processes result in an accurate conversion of data from the current system(s) to the new system without material error or change in the financial and actuarial basis.

The four (4) certifications must be received by TCRS prior to final turnover in order for the new system to be deemed acceptable by TCRS.

Contract Attachment 4

PROJECT MANAGEMENT/IMPLEMENTATION SERVICES REQUIREMENTS

In addition to the business and technology requirements specified, TCRS has identified several project management-related areas that are of importance in delivering the Concord Project. These requirements have been accumulated under a single heading — Project Management/Implementation Services Requirements. The intent of this section is to inform the Contractor of its responsibilities and the expectations for its conduct over the duration of its relationship with TCRS in the following areas:

- Project scheduling.
- Assisting TCRS staff and users.
- Standard project management deliverables.
- Process and organizational change recommendations and transition management.
- Timing of Major Deliverables.
- Data.
- Project staffing.
- Documentation.
- Training and knowledge transfer.
- Testing.
- Support During Cutover and Production.

1 Project Management (Intro)

TCRS expects the Contractor to be competent in project management skills as well as have individuals assigned to the project with Project Management Professional (PMP) certification. The Contractor's approach to project management must ensure that:

- Project planning is part of normal daily activities.
- Resource planning occurs in conjunction with TCRS management.

- There is an established path for escalation of project issues.
- Risk management is included as part of the normal process.
- Change management is included as part of the normal process.
- Project management is able to provide reports to TCRS business units and management on the progress against project objectives, to ensure continued project support.
- The project plan is organized in a phased approach that provides achievable and demonstrable milestones and deliverables.
- The engagement should be managed to meet specific milestones with an established method of reporting project status.

1.1 Relationship

This engagement will be a long-term relationship; therefore, the nature of the relationship will be key to the success of the project. To address this relationship, the Contractor's solution and approach must ensure that:

- The Contractor has a demonstrated ability to understand and deliver realistic mission-critical systems.
- The Contractor and TCRS maintain a high degree of cooperation.
- The Contractor can provide technical leadership and is willing to suggest innovative solutions and take advantage of opportunities as they present themselves.
- The Contractor understands the aggressive nature of the schedule and will take ownership of tasks in a proactive manner.
- The Contractor understands the vision for TCRS and is able to align the Contractor's capabilities with the needs of TCRS.
- The Contractor understands that the relationship is not an opportunity to sell untried Contractor offerings that may place TCRS at risk in meeting its business objectives.

1.2 Three Party Relationship

The Concord project is a three-party relationship between TCRS, the Contractor, and the Quality Assurance / Independent Verification and Validation (QA / IV&V) consultant selected by TCRS. The State expects all three parties to meet frequently throughout the project to agree on work standards and align expectations.

The QA / IV&V consultant will assist TCRS with: (1) assessing project methodologies, planning, and execution, (2) assessing implementation quality, and (3) evaluating quality and compliance of deliverables. The selected QA / IV&V consultant will also assist TCRS in developing and implementing the following project monitoring procedures:

- Project schedule monitoring.
- Project scope monitoring.
- Project budget monitoring.
- Project quality assurance monitoring.

All written project materials (e.g., statements of work, project plans and schedules, design documents, test materials, training materials, form and letter templates) are to be provided directly to the QA / IV&V consultant by the Contractor, as well as to appropriate TCRS staff, for review and approval. The QA / IV&V consultant will review

all such materials and provide suggestions and comments generally in advance of review by TCRS staff.

It is the Contractor's responsibility, and not TCRS', to deliver such project materials directly to the QA / IV&V consultant. Nor is it the QA / IV&V consultant's responsibility to access the material from an internal email system. It is, however, acceptable for the Contractor to place such documents on a project repository that has internet access capabilities. Products such as SharePoint which allow for easy access to documents, information, and collaboration are acceptable, also. SharePoint is not installed nor in use at TCRS.

Contractor staff may be required to perform some document and file manipulation in order to accommodate the delivery to the QA / IV&V consultant. Due to email transmission constraints, no files bigger than 5 MB may be sent. This limitation may require additional planning and coordination on the part of the Contractor to ensure that materials are delivered for review in a timely fashion. The Contractor should plan to compress or "zip" all significant files. After contract execution at the project's inception, the Contractor will be provided with email addresses and distribution lists for submission of the various project materials.

The Contractor will provide all such written project materials to the independent, outside QA / IV&V consultant as described above (as well as to TCRS staff).

TCRS' QA / IV&V consultant is bound to reasonable commercial terms of confidentiality protecting the confidential or proprietary information of the Contractor and its subcontractors. As such, no material shall be limited in its distribution and/or restricted from review and discussion with such a consultant.

TCRS has selected The North Highland Company as its QA / IV&V consultant.

1.3 Contractor Responsibility for Detailed Requirements Definition

TCRS' environment is governed by a myriad of rules, regulations, "standard" operating procedures, and long-standing practices (formal and informal, documented and undocumented). Many, but possibly not all of these rules, etc., are posted in an internal wiki that will be made available to the Contractor. Developing a full set of all of the rules, regulations, procedures, and practices that need to be accommodated in the new solution is a critical, integral part of the project – and the key to its eventual success. Security requirements must be understood, documented, and implemented, as well.

The Contractor is responsible to completely:

- Explore and define all such rules, regulations, policies, procedures, practices, and calculations – both written and unwritten (i.e., policy of long standing) – that currently exist and those to be added in the new environment.
- Develop pertinent specifications.
- Implement those capabilities.

The Contractor shall decompose this information to a level of detail sufficient to obtain sign-off from TCRS staff during the initial phases of the implementation.

In developing the requirements definition of the new system, TCRS expects the Contractor to involve TCRS staff members in many requirements and design "workshop" sessions. This involvement of staff members is understood by TCRS as being essential to preparing correct, comprehensive requirements definitions and systems designs. The time required of TCRS staff for this level of participation will be substantial and may inhibit the day-to-day business of TCRS. Therefore, TCRS requires that staff participation in the requirements definition process be as efficient as

possible. This includes determining what staff will be needed and when so the TCRS management team can plan workload issues in advance.

To meet this objective, any written materials supplied by the Contractor for use in requirements and design meetings with TCRS staff must be targeted specifically to TCRS. TCRS recognizes that the Contractor may utilize materials prepared for other retirement system customers as a template to initiate the requirements definition effort. However, such materials must be purged of any specifics (to include at a minimum name references, forms numbers, and calculation routines) that relate to another of the Contractor's customers. Ideally, these materials should be tailored to TCRS' specific business practices from the time they are first exposed to TCRS staff members. At a minimum, they must be neutral, that is, they must not contain any overly specific references to specific practices of other retirement systems so as to avoid any confusion or wasted effort during the requirements definition and design sessions with TCRS staff.

1.4 Multiple Products, Services and Methodologies

It is essential that the Contractor understand that TCRS requires more than just a "software development" company. Mature software product development skills and experience are a necessary, but far from sufficient, qualification. In order to deliver the broad, integrated solution that TCRS seeks, the Contractor must have experience with, and methodologies to address, numerous other disciplines such as Business Process Reengineering, procedure document development, training, and workflow analysis, in addition to retirement industry knowledge. The Contractor must provide a mature, proven methodology in each of these other critical areas of the project.

During the course of the project, the Contractor shall be expected to deliver and support all products and services described in the contract – not just those steps described in its standard system development and deployment process.

Subject to TCRS agreement, the Contractor shall follow the methodology that was described in the Contractor's proposal for each of the following areas:

- **Project management, monitoring, and control**
  - **Project management plan -** Contractor's project management structure, procedures, roles and responsibilities client reporting, and meeting management.
  - **Project scheduling** – Scheduling tools and procedures, schedule updating, reporting against the project schedule, and responding to change orders.
  - **Scope management and project change control** – Scope definition, scope validation, scope realization, scope change management process, defining new/changed requirements, developing an estimate, evaluating schedule effects, TCRS approval, integrating requested changes into the project, and testing.
  - **Requirements management** – Requirements discovery and documentation process, fit-gap analysis, requirements traceability tool and procedures, and requirements maintenance process.
  - **Risk management** – Identification and mitigation strategies related to all facets of risks associated with the project, including a discussion of the methodology for designing and implementing information and infrastructure security.

- **Issues management –** Identification, resolution and documentation strategies related to issues anticipated at project initiation and discovered during the project, including roles, responsibilities, and escalation.

- **Resource management –** Defining Contractor's process for managing its people and other resources to assure successful execution of project tasks in a timely and efficient manner, and provisions for replacement of personnel. Resource management also includes the process for working with the State's people and other resources to assure that those resources are used effectively, efficiently, and appropriately.

- **Project communication** – Experienced-based identification of all the project stakeholders and their specific communication needs, including any innovative approaches to communications that the Contractor has encountered or employed on previous projects.

- **System Development Lifecycle** – Methodology and associated terminology and processes used to build (design, implementation, release) information systems.

  - **Solution Development and Delivery Management -** System implementation including data conversion and bridging, configuration management, system operation, infrastructure and infrastructure security testing and problem incident reporting.

- **Business Change**

  - **Process change (Business Process Reengineering)** – Analysis, alternatives, proposed improvements, change implementation, and integration with the new technical solution.

  - **Organizational change (Organizational Restructuring)** – TCRS understands that it wields the most influence with its staff in terms of ensuring the success of any organizational changes required by or resulting from implementation of a new LOB solution. However, TCRS will look to the Contractor for analysis, generic role descriptions, realignment alternatives, proposed improvements, training considerations, and the identification of new roles to be provided through this procurement.

  - **Training** – Determining training needs, developing training materials, scheduling training appropriately within the overall project, assigning trainers, providing training facilities as necessary, and gauging the effectiveness of training; training methodology must address training not only in navigation, screens, data entry, and the like, but also in the use of the new solution to perform various job functions, processes, and sub-processes.

2. Project Management, Monitoring and Control Methodology

The Contractor must manage and control the project. At a minimum, the Contractor shall:

- Follow the methodology it outlined in its proposal to manage, monitor, and control the project, including its change control methodology.
- Collaboratively extend the methodology outlined in its proposal to include QA/ IV&V and TCRS staff roles and processes.

- Use an automated project management tool to monitor and control the project.
- Provide easy access for the TCRS project team and the QA /IV& V contractor to the automated project management tool, such as Microsoft Project or Microsoft Project Server, including training sufficient to allow visibility into project schedule performance details.
- The Contractor is expected to use the project management tool to automatically reflect the effect on the overall project of changes in various parameters, to include at a minimum:
    - project scope/requirements.
    - project schedule.
    - resource availability.

The Contractor must be prepared to automatically generate various reports to reflect the project's status at any point in time, e.g.:

- Gantt charts depicting start date, end date, and duration of individual tasks.
- PERT charts depicting task interdependencies.
- Graphical display of the project's critical path.
- Percent complete status of individual tasks.
- Calendar driven manpower loading charts, by individual task, for both Contractor and TCRS staff including variable man-hours per work day.
- Calendar driven manpower loading charts, by month/week, for both Contractor and TCRS staff including variable man-hours per work day.

The project management tools must be an integrated part of the Contractor's system development life cycle approach and project management methodology.

Change management and change control methodology are critical to the success of this effort. The Contractor must use the change management methodology and mechanisms it described in its proposal.

3. Standard Project Management Deliverables

TCRS understands that the Contractor will bring to the project its own project methodologies and standard deliverables. However, TCRS has identified a set of project deliverables that the Contractor must provide. They are described and defined in detail in the following subsections.

The State expects the Contractor to collaborate with TCRS and QA / IV&V staff to develop plans that are mutually agreeable to all parties.

4. Project Management Plan

The Contractor shall deliver a Project Management Plan (PMP) for the entire Concord project. This PMP shall describe the Contractor's approach to managing the Concord project. The document should concentrate on how the Contractor will manage schedule, resources, issues, scope, quality, communication, risk, and other project management process concerns, including the roles of the Concord Project Manager, TCRS staff, and QA / IV&V consultant. The document must include details of project governance, and organizational structure for the State, the QA / IV&V consultant, and the Contractor.

5. Project Scope Management and Change Control Plan

The Contractor shall deliver a Project Scope Management and Change Control Plan for the entire Concord project. This plan shall describe the Contractor's approach to recognizing and controlling change in the Concord project, as well as how the Contractor will track and manage changes in requirements.

The State recognizes that scope management and change control is one key to a successful project. Change will occur throughout the Concord project. Much of this change will be beneficial to the State, producing a product and processes that are more appropriate to the State than the one envisioned by the State and the Contractor at the beginning of the project. However, the State recognizes, too, that uncontrolled change is unlikely to have a beneficial effect on the product, the processes, or the project team members.

The State expects the Contractor to collaborate with TCRS and QA / IV&V staff to develop a project scope management and change control plan that will be mutually agreeable to all parties.

6. Fit-Gap Analysis Report

The Contractor shall deliver a Fit-Gap Analysis Report after Requirements Confirmation. This report will explain in detail the business and security requirements that the Contractor's solution can meet as-is, with configuration, and with modification. This report will include magnitude effort estimates for configuration and modification efforts. If there are business requirements, whether contained in the contract or discovered during Requirements Confirmation, that the Contractor's solution cannot meet, the Fit-Gap Analysis Report will contain alternative approaches and/or processes to achieve the business goals of those requirements. If any business goals cannot be achieved, directly or indirectly, the Fit-Gap Analysis Report will identify those goals clearly and prominently.

7. Project Scheduling

The Contractor assumes full responsibility for planning, scheduling, and completing all project tasks. The State expects the Contractor to produce a series of work plans to fulfill that responsibility. Table 4.1 below provides a summary of the specific work plans the Contractor is to provide at particular times in the project. The components of the specific plans are described below the table:

Table 4.1 – Required Project Work Plans

PLAN NAME	DELIVERY	CONTENTS
Initial High-Level Work Plan	As part of proposal	High-level plan
SOW Detailed Work Plan, Number 1	At contract execution	Initial high level plan expanded to include the detail plan of first phase or SOW of the project.
SOW Detailed Work Plan, Number 2	As part of Project Initiation/Start Up deliverables	Updated version of entire plan, expanded to include detail plan of next SOW in the project.
SOW Detailed Work Plan, Number *i*	As required over course of project	Updated version of entire plan, expanded to include detailed work plan of next phase or SOW in the project.

8. Initial High-Level Work Plan

The Contractor shall maintain the high-level work plan delivered with its proposal to reflect SOWs that were completed, are in progress, and are planned. The high-level work plan and schedule shall be updated on a mutually agreed schedule, at a minimum, whenever major new phases are undertaken, whenever major change orders are initiated, and no less frequently than every month. The high-level work plan must be current prior to each Executive Steering Committee meeting.

9. Statements of Work

All work to be done under the contract to be awarded shall be covered by written Statements of Work (SOW) authorized by TCRS, which define reasonable components of work. Thus, manageable "chunks" of work will be defined, executed, and managed. When viewed in the aggregate, these "chunks" comprise the entire project.

The Contractor shall submit detailed written SOWs to the Concord Project Manager for review, possible revision, and acceptance. TCRS may require up to five (5) business days to review and authorize a SOW. Therefore, the Contractor must factor in this review period when scheduling its activities under the contract. Under no circumstances, shall any work be done absent a SOW duly authorized by the Concord Project Manager.

Conversely, the Contractor shall not issue SOWs for work to be done in the distant future – i.e., "banking" of SOWs shall not be permitted. While TCRS understands the Contractor's desire to be able to schedule its personnel as far in advance as possible, TCRS' objective is to ensure that SOWs are developed in a "just-in-time" fashion in order that they reflect the project's most recent developments – and 'downstream' SOWs benefit from the experiences of the upstream SOWs. TCRS wishes to avoid having work conducted under "stale" SOWs. If work on a particular SOW does not begin within a reasonable period of TCRS' authorization of the SOW, then TCRS reserves the right to require that the SOW be re-issued and re-authorized prior to commencing work there under.

TCRS, QA / IV&V, and the Contractor will mutually agree on the format of the SOW within thirty (30) days of the start of the project. In concept, SOWs will contain:

Statements of Work
- Number.
- Title.
- Overview - A narrative description of how this SOW "fits" within the project phase and the entire project.
- Objectives.
- Scope.
  - Within SOW.
  - Outside of SOW .
- Definition of the SOW work to include descriptions of the activities within the SOW.
- TCRS manpower.
- Start criteria.
- Acceptance criteria.
- Quality Assurance.
- Roles.
  - Contractor.
  - Subcontractors.
  - TCRS Users.
  - TCRS IT.
  - QA / IV&V.
  - Other.
- Assumptions.
- Reference to RFP and Proposal.
- A Work Breakdown Structure (WBS):

Deliverable 1 –
Activity 1.
Task/*Milestone 1.*
Task/Milestone 2.
…
*Task/M*ilestone n.
Activity 2.
…
Activity n.
Deliverable 2.
…
Deliverable n.

Definition of tasks that comprise each project activity within the SOW, including:
Task title.
Task description/narrative.
Task start and end dates.
Effort required in work hours.
Personnel assigned.

Identification of major project milestones within this SOW, e.g.:
Requirements analysis.
Hardware installation.
Software modification.
Software installation.
Data conversion.
Testing.
Training.
Acceptance.
Cutover.
Description of deliverables.

Extracts From Requirements Traceability Matrix schedule.
Extract from Overall Project Payment schedule.
Change Orders (if applicable).
Critical Success Factors.
Signatures.

10. SOW Detailed Work Plan, Number 1

At the time of contract execution, the Contractor must deliver a completed detailed work plan for the first phase of the project and a high-level work plan for the entire project. The State prefers that the first phase of the project consist of an Initiation Phase, with most work focused on collaboration among the Contractor, the State, and the QA / IV&V vendor to establish the project management and control processes to be used throughout the Concord project. It is acceptable for the Initiation Phase to include discussions with the State's infrastructure team to adjust the Contractor's proposed infrastructure to be compatible with the State's established environment.

The detailed work plan shall be based on the high level work plan included in the proposal, including any modifications made during the contract signing process or thereafter. TCRS will review the plan and provide the Contractor with written comments within five (5) business days of the receipt of the plan. The Contractor shall revise the plan based on feedback provided during the review and republish the plan within five (5) business days.

11. SOW Detailed Work Plan, Number 2

During Project Initiation/Start-Up Activities, but no later than the end of that Phase, the Contractor shall provide a detailed work plan for the second SOW of the project covering all tasks to be accomplished during that SOW.

Detailed work plans for the remaining SOWs of the project will be developed by the Contractor as the project progresses. The State's SOW acceptance shall serve as an entry point to the next SOW and/or phase.

12. SOW Detailed Work Plan, Number *i*

The Contractor shall provide to TCRS a complete detailed work plan for each SOW and receive State approval prior to beginning work on that portion of the project. Like the plan for the first SOW, the complete detailed work plan shall be based on the high level work plan included in the proposal, including any modifications made during the contract signing process or thereafter. TCRS will review the plan and provide the Contractor with written comments within five (5) business days. The Contractor shall revise the plan to reflect the review and republish the plan.

The detailed work plan and schedule shall then be updated on a mutually agreed schedule, at a minimum, whenever major new phases are undertaken, whenever change orders are initiated, and no less frequently than every month.

13. Non-State Standard Hardware and/or Software Approval

The Contractor shall cooperate with any reviews of non-State standard hardware and/or software requested by OIR prior to installation of that hardware and/or software in a State environment.

14. Hardware/Software Installation Plan

The Contractor shall prepare and deliver a Hardware/Software Installation Plan, equivalent to a SOW for the installation of hardware and software. It must be reviewed by QA / IV&V and approved by the Concord Project Manager, as well as by other groups (e.g., OIR) involved in or impacted by the installation.

15. Hardware and Software Installation and Testing Report

The Contractor shall prepare a Hardware and Software Installation and Testing Report after the successful installation and testing of hardware and software. This report will indicate what hardware and software has been installed, when it was installed, and in which environment(s) it was installed. It will indicate what testing was done, as well as the test results.

Successful installation of hardware and software is required for TCRS to accept this report. The Contractor, TCRS and the QA/IV&V consultant will develop mutually agreed to performance/acceptance criteria; however TCRS shall be the sole judge of successful installation.

16. Retirement Design Topics

There are numerous "philosophical" issues concerning the design of the new solution that require exploration and discussion between the Contractor's staff and TCRS staff. Examples of such philosophical design topics include:

- Should the system maintain one account or multiple accounts if the member is a participant in multiple plans?
- Should a member have only one account or should a member have two accounts, i.e., a member account and (after retirement) a benefit account?
- Should beneficiaries be tied to the member or to the member's account?
- Should a process be a workflow process or a non-workflow process?
- Which user roles should have access to which data and which processes?

- Should the deletion of a plan be permitted and, if so, under what circumstances?
- Should system tables be maintainable via a user screen or only via a system tool?
- Should correct wage and contribution records in an employer report be posted individually, or should the report be posted *in toto* only after all individual records are correct?
- Should users be permitted to reverse a transaction by pressing a single button and, if so, under what circumstances?
- Should users have the ability to change a member's status, or should status updates only be performed automatically by the system based on other processing?
- How many decimal places should be accommodated in calculations and data storage?

These and numerous other topics that will significantly influence the design and operation of the new system need to be addressed at the project's inception. The Contractor shall schedule and chair a meeting with appropriate TCRS staff shortly after the project's start. This meeting should be held in advance of any design meetings. The Contractor's staff shall:

- Prepare the agenda for the meeting and guide the discussion.
- Educate TCRS staff in the pro's and con's (potential risks and rewards) of each design decision based on the Contractor's experience in similar projects.
- Point out interactions among the design topics which could influence the approach to be chosen.
- Provide information on the possible effect of later changing a design decision.
- Publish and distribute a written record of the meeting and the decisions stemming from it.

In addition, follow-up meetings will be held every three months during the project. The Contractor shall have the same responsibilities at the follow-up meetings that it fulfilled in the initial meeting. At these follow-up meetings, participants will have the opportunity to raise new design philosophy topics and to re-visit topics previously discussed. Again, decisions made at each follow-up meeting shall be published in written form by the Contractor and distributed to all participants.

Due to the Contractor's familiarity and experience with new pension solution implementations, TCRS is relying on the Contractor to identify all such design topics in a timely fashion for discussion with TCRS staff. It is acknowledged that, should TCRS change a decision it had made earlier relating to a design topic raised by the Contractor, Contractor may have reason to submit a change order for additional work mandated by the change. However, should the Contractor fail to raise a given design topic for TCRS decision (and, instead, make an incorrect assumption relating to that design topic), then no related change order shall be submitted, and any remedial work necessitated by the Contractor's failure to validate its understandings or assumptions shall be performed at no additional cost to TCRS.

The Contractor shall prepare and present a Detailed System Design Specification document. This document must specify how the requirements will be met by existing and available system functionality, with special attention to how design and operation decisions specific to TCRS are addressed by existing functionality. Additionally, this document must specify and contain design details for the features to be customized or created for TCRS. These Design Specification document must be approved by TCRS prior to the customization or creation of these features. The Contractor will be expected to update this document throughout the project. The Contractor shall update the Fit-Gap analysis report to reflect the most recent detailed system design specifications.

17. Requirements Traceability Matrix

It is the responsibility of the Contractor to provide an automated Requirements Traceability Matrix (RTM) tool to track requirements so that use cases, design/specification documents, etc. can be mapped for traceability and so that test cases can be mapped to requirements to ensure adequate test coverage. The Contractor, with TCRS agreement, shall install and use the automated tool proposed in its proposal. The Contractor shall provide training to appropriate TCRS staff as necessary to facilitate their use and understanding of the RTM tool.

To assist TCRS in tracking all project requirements and deliverables, TCRS will prepare an initial Requirements Traceability Matrix and deliver it to the Contractor. The Contractor will use this RTM as input to its automated RTM tool, which will be populated and regularly maintained by the Contractor. This section discusses the purpose of and detailed requirements for the Requirements Traceability Matrix.

This section describes a process and product (document) that will be prepared by TCRS and the Contractor as part of the effort to:

- Provide clarification to the contract requirements.
- Provide a trail or "traceability" of requirements to be met – starting from the contract and culminating with the preparation of the requirements document.
- Provide a common understanding for the "go-forward" activities of subsequent rollouts, including "what" will be delivered and "when" in the project's evolution it will be delivered.
- Provide a mechanism to track agreements on requirement clarification, refinement, elaboration, addition, or removal during the course of the project.

The product that will be prepared by TCRS to achieve TCRS' objectives shall consist of a Requirements Traceability Matrix in the format of a Microsoft Excel workbook. The Excel workbook shall consist of several spreadsheets corresponding to requirements areas, such as lines of business (LOB), Technical, Miscellaneous, Software, etc. The matrix shall include columns, the contents of which are described below (and which may be modified if TCRS so desires):

1. **No.** – Sequential unique number, identifying the requirement. They are aggregated by major category (e.g., LOB requirements may be numbered L-1, L-2, etc., technical requirements may be numbered T-1, T-2, etc.). The unique identifier will follow each line item through the project, regardless of how the line items may be reorganized or "shuffled" among the various spreadsheets in the workbook.
2. **Requirement (Description) per Contract Exhibits**– A summarized description of the requirement.
3. **Source** – Identification of the source of the requirement. The source may be the contract, the proposal, Q&A, , contract exhibits, etc.; in some cases, reference is made back to the only one document; in others, multiple references are made.
4. **Page/Section** – The location of the requirement in the source.
5. **Status** - Identification of requirement status (e.g., original, refined/elaborated, added, removed, split into multiple requirements).
6. **Phase/Rollout** – The phase or rollout of the project in which the requirement will be delivered per the project plan.

7. **SOW** – The Contractor's Statement of Work which includes the requirement, if applicable.

8. **Design Specification** – the design specification that provides for and/or applies to the requirement.

9. **Received Date/Who** – The date that the requirement was delivered to TCRS, and to whom it was delivered.

10. **Accepted Date/Who** – The date that the requirement delivery was accepted by TCRS and by whom it was accepted.

11. **Comments** – Any comments relating to the requirement. Comments will include, among other things, an explanation of what caused a requirement to be removed or added. This must be specific, citing specific conversations which have previously occurred between TCRS and the Contractor, the date and attendees, and the prior document which transmitted this information (to include at a minimum meeting minutes, status report, and specific correspondence) to TCRS. As stated elsewhere in this contract, any agreement between TCRS and the Contractor to eliminate project requirements must be executed by both parties in writing.

12. **Test Case** – If applicable, identification of the test case that confirms that the requirement has been satisfied.

Activities on the part of both TCRS and the Contractor related to the traceability of requirements will include:

- First, TCRS will prepare the matrix that codifies and organizes the requirements of contract. An example of the matrix as it will be delivered to the Contractor by TCRS is shown below. TCRS will complete columns 1 (No.), 2 (Requirement Description), 3 (Source) and 4 (Page/Section) and deliver it to the Contractor for review.

- Next, the Contractor will review the matrix and verify its accuracy. Any discrepancies or differences in interpretation will be mutually resolved before the next step.

- In cases where a function described in the contract is not "carried" forward, the Contractor will note this by providing a written explanation comparable to the status column (5) for that function. Further, if there are any new functions that have evolved during the requirements analysis, the Contractor will add them as appropriate entries within the tool. An example of the information as it is to be completed by the Contractor is also provided.

- Then, the Contractor will populate it's RTM tool with the above information and add information comparable to columns 6 (Phase/Rollout of the project in which the Contractor will implement the requirement) and 7 (SOW, the Statement of Work to be prepared by the Contractor which will include the requirement).

- The Contractor will then provide access to the RTM tool to TCRS for review.

- TCRS staff will review the matrix – annotating any differences of opinion that they have with respect to the Contractor's completion of the matrix. The annotated matrix will be returned to the Contractor.

- Next, a meeting or series of meetings will be held at which discussions will occur to resolve any differences.

- Then TCRS and the Contractor will update the RTM tool so that it reflects the agreed upon changes, and it will become part of the deliverables from the Requirements Definition. If appropriate, any changes to schedule and cost will be identified at this time.

- The Contractor will provide the QA / IV&V consultant with access to the RTM tool as frequently as possible so that the consultant can verify and evaluate whether deliverables are covering the requirements.

Information comparable to Columns 9 and 10 will be filled in as portions of the project are completed by the Contractor and delivered to TCRS for review and acceptance.
Information comparable to Column 12 will be filled in by the Contractor as test plans, test scenarios, test cases, etc. are developed during the course of the project. The following tables show three stages in the development of a small portion of a sample RTM, if the RTM were maintained in Excel.

Furthermore, the Contractor shall be responsible for tracking and matching project requirements, not only from the contract to the design definition, but also through the requirement definition, design, and implementation activities. At any time, should TCRS question how a particular requirement expressed in the contract/procurement cycle will be addressed in the new system, the Contractor must be able to demonstrate how that requirement was carried forward from the contract into the requirements definition, the system design, and eventually the final implementation.

Table 4.2 Requirements Traceability Matrix Example 1

1 No.	2 Requirement per Contract Exhibits	3 Source	4 Page/Section	5 Status	6 Phase/ Rollout	7 SOW	8 Design Specification	9 Received Date/Who	10 Accepted Date/Who	11 Comments	12 Test Case(s)
L-1	Ability to capture user-defined parameters for calculating employer penalties and interest charges relating to late reports/remittances	Contract	6.11.5	Original							
L-2	Ability to capture historical rates and factors with effective dates so that retroactive calculations use the appropriate figures	Contract	6.11.5	Original							
L-3	Ability to capture a new employer's plan history (i.e., in previous retirement system) and make it available online	Contract	6.11.5	Original							

Table 4.3 Requirements Traceability Matrix Example 2 with Contractor Entries

1 No.	2 Requirement per Contract Exhibits	3 Source	4 Page/Section	5 Status	6 Phase/ Rollout	7 SOW	8 Design Specification	9 Received Date/Who	10 Accepted Date/Who	11 Comments	12 Test Case(s)
L-1	Ability to capture user-defined parameters for calculating employer penalties and interest charges relating to late reports/remittances	Contract	6.11.5	Original	4	6					
L-2	Ability to capture historical rates and factors with effective dates so that retroactive calculations use the appropriate figures	Contract	6.11.5	Original	4	6					
L-3	Ability to capture a new employer's plan history (i.e., in previous retirement system) and make it available online	Contract	6.11.5	Original	4	6					

Table 4.4 Requirements Traceability Matrix Example 3

1 No.	2 Requirement per Contract Exhibits	3 Source	4 Page/Section	5 Status	6 Phase/ Rollout	7 SOW	8 Design Specification	9 Received Date/Who	10 Accepted Date/Who	11 Comments	12 Test Case(s)
L-1	Ability to capture user-defined parameters for calculating employer penalties and interest charges relating to late reports/remittances	Contract	6.11.5	Original	4	6		20070502 PPC	20070516 RK	None	CALC-1, -2, -3, & -8
L-2	Ability to capture historical rates and factors with effective dates so that retroactive calculations use the appropriate figures	Contract	6.11.5	Original	4	6		20070502 PPC	20070516 RK	None	CALC-4 & -5
L-3	Ability to capture a new employer's plan history (i.e., in previous retirement system) and make it available online	Contract	6.11.5	Original	4	6		20070502 PPC	20070516 CLF	Requires collaboration on format of transferred data.	CALC-6, -7, & -8

18. Requirements Analysis

It is anticipated that the Contractor's early efforts in developing the LOB solution will consist of collaborative efforts between Contractor staff, TCRS users, and TCRS IS staff to identify the differences between the Contractor's template solution and TCRS' specific requirements. This portion of the project may be termed GAP analysis, requirements definition, etc. depending upon the Contractor's development methodology. For the purposes of this discussion, it will be called GAP analysis.

The Contractor is to take note that TCRS considers it essential that client IS staff who support the legacy system are actively engaged in the GAP analysis – since they are often, in many areas, equally knowledgeable (but with a different perspective) about both the "as is" current environment and the desired "to be" environment as the users. This participation must be carefully scheduled.

During the first GAP analysis session on a given topic, the Contractor must excerpt from the Requirements Traceability Matrix/contract and review with the users and TCRS IS staff what the Requirements Traceability Matrix/contract expressed for requirements on that topic.

The contract requirements shall ALWAYS persist unless, during GAP Analysis, TCRS agrees to eliminate a contract requirement AND a written agreement to that effect is prepared by the State, signed by the Contractor and by the Concord Project Manager, and executed as a Contract Amendment. The Contractor shall, as part of it's proposal to eliminate the requirement, estimate the dollar value of the effort that is avoided by virtue of eliminating the requirement. If TCRS agrees to such a "reduction" in requirements during GAP Analysis, the Contractor will be expected to reduce its fixed price. If at a later date TCRS wishes to restore a requirement that it had agreed in writing to eliminate, then that requirement is subject to a Change Order, and the cost of that Change Order will be limited to the dollar value estimated in the original written agreement to eliminate that requirement. TCRS is aware that additional effort may be needed to add or to restore a requirement later in a project. Accordingly, TCRS may waive this "restore at same cost" requirement at its discretion but is not obligated to do so.

Under no circumstances shall TCRS' approval of system design and/or specifications abrogate the contract requirements. TCRS staff invested a great deal of time in developing the contract requirements. The Contractor, not TCRS staff, is responsible for ensuring that all contract requirements are correctly reflected in Contractor design and/or specification documents.

The Contractor shall provide a sample GAP document template for review and modification by TCRS prior to starting the first GAP session. The GAP document shall clearly identify what required functionality exists in the base-LOB application and what functionality has to be added or modified to conform to or satisfy TCRS' requirements. If the GAP documents are silent on a requirement and no written agreement pertaining to eliminating it is authorized, then ALL contract provisions pertaining to that requirement shall stand.

Subject to TCRS agreement, the Contractor shall follow the methodology it outlined in its proposal to accomplish the GAP analysis discussed above. Subject to TCRS agreement, the Contractor shall follow its plans to communicate to TCRS staff the details of "How" a requirement will be met (in addition to the "Yes, it's in there," response that leaves the "What it looks like" question unanswered). TCRS wishes to avoid the apparent agreement and sign-off on the existence of a function, only to find later that there was great misunderstanding on the part of TCRS staff. TCRS staff will be instructed not to sign off on requirements and specifications that they do not understand.

19. Contractor Analysis Tasks

Over the course of the effort, the successful Contractor shall be required, from time to time, to conduct various analysis tasks. These tasks would be directed at potential, new/revised project requirements. For the purposes of discussion, examples include: assessing the feasibility of speeding up processing times, examining alternative check printing solutions, accommodating a

new data interface with another State agency or financial institution, and adding a new form letter to be generated by the system.

When TCRS requests that such an analysis task be undertaken, the Contractor shall be required to:

- Consult with TCRS staff to develop an unambiguous definition of the new/revised requirement.
- Analyze the alternatives for satisfying the new/revised requirement, addressing the advantages and disadvantages of each alternative.
- Identify any problems that will or may arise as a result of satisfying the new requirement.
- Propose the "best" (generally, least costly/disruptive or most expedient) alternative for satisfying the new requirement.
- Prepare a schedule and cost proposal for satisfying the new requirement, including an indication of where in the project work plan the new requirement will be addressed.
- Present the written analysis to TCRS for authorization.

If TCRS chooses not to authorize the implementation of the new requirement, the Contractor's effort shall end at that point. However, if a particular requirement is not immediately authorized, TCRS may wish to reconsider its position at some future point in the project. In this event, the Contractor would be given the opportunity to revise its analysis, since it is understood that interjecting a new requirement later in the project generally will involve greater expense and/or effort than would have been the case had it been authorized when originally proposed.

If/when TCRS authorizes implementation of the new requirement; the Contractor shall be responsible for integrating the effort into the overall project, including the CRR and RTM tools, and for satisfying the new, authorized requirement for the price proposed in the analysis (as possibly revised per the above discussion).

Although TCRS would expect to pay for the implementation of the new requirement at the cost estimated by the Contractor, the analysis effort itself shall not be billed for separately.

TCRS wishes to convey that the scope of such analysis tasks would be "reasonable" in magnitude, as indicated by the examples provided in the introductory paragraph above. TCRS does not expect the Contractor to provide analysis services relating to major new requirements at no additional cost. Major new requirements will follow the Change Order process. The Contractor and TCRS will agree on whether a particular analysis task is considered a major new requirement before the task is begun.

20. Weekly Status Reports and Project Status Meetings

The Contractor shall be required to submit written weekly status reports and to facilitate weekly project status meetings. The status reports must include separate sections that cover all parallel parts, phases, or aspects that were in progress or had been completed during the reporting period or that will be begun during the next reporting period.

The status reports must be available to the Concord Project Manager by 5:00 p.m. of the first business day following the reporting period. The weekly reporting period ends at close of business each Friday. Ad hoc status reports will also be required if Concord Project Manager feels they are needed. Four (4) types of reporting are to be included:

1. Project phase or rollout and task status/progress reports in which:
   - Overall project status is shown in a chart form with sub-phases identified.
   - Analysis of current status relative to work plan is graphically shown by chart overlays or a similar technique in the weekly status reports; the Contractor shall use an automated tool such as Microsoft Project.

- Hours expended and hours-to-go are shown for each work task.
- Schedules and work plans are updated, showing both the old and new versions.

2. Narrative status/progress reports outlining:
   - Work completed to date.
   - Problems encountered and proposed solutions.
   - Problems anticipated in coming reporting periods and proposed solutions (alternatives).
   - Work estimated to be accomplished during the subsequent period.
   - Any other points of significance relating to schedule or other aspects of the project.
   - Overall project status is shown in a chart form with sub-phases identified.
   - Analysis of current status relative to work plan is graphically shown by chart overlays or a similar technique in the weekly status reports; the Contractor shall use an automated tool such as Microsoft Project.
   - Hours expended and hours-to-go are shown for each work task.
   - Schedules and work plans are updated if necessary, showing both the old and new versions.

3. Ad hoc status/progress information.

4. Project metrics – during various project phases:
   - Deliverable status, with percentage of completion and time ahead or behind schedule for particular tasks.
   - An analysis of risk anticipated, proposed mitigation strategies and resolved risks.
   - Proposed changes to the project schedule, if any.
   - Specification development – in process, in review, rejected, accepted, in rework.
   - Test – available for test, in test, accepted, rejected, in rework, in retest.
   - Problem incident report – summary and trends.
   - Other.

TCRS understands that, given the project's magnitude, comprehensive weekly status reports may be lengthy and highly detailed. Any status report that exceeds ten (10) pages in length must be accompanied by a one to two-page management summary.

The final format of the status report shall be mutually agreed upon between TCRS and the Contractor within thirty (30) days of the project start date.

The Concord Project Manager shall certify satisfactory performance of weekly status reports and meetings to the Contractor as needed. Notice of unsatisfactory performance, if it occurs, will be provided to the Contractor prior to withholding certification payment, and the Contractor shall have adequate notice to rectify unsatisfactory performance.

21. Executive Level Reporting and Steering Committee Meeting

In addition to detailed project status reports, the Contractor shall be required to produce a monthly executive level report presenting project summary information targeted at an executive audience (e.g., project sponsors, steering committee, the Board of Trustees). This report should provide a

succinct monthly summary of the project's status against key indicators and furnish decision makers with an analysis tool and communication vehicle for proactive planning and risk mitigation. The objective is to keep executives and sponsors aware of the project's status in order to enable prompt decision making aimed at restoring the project's health when problems develop (e.g., decisions to enlist additional resources, appropriate additional funds, and/or adjust the project's scope).

The report should provide information for each of the key project indicators, including:

- Milestones (schedule).
- Budget.
- Scope.
- Risk.
- Quality (test results).

Successful projects require constant communication among all parties and well defined structures for maintaining control, reviewing progress, settling disagreements or amending the project based on exigent circumstances. The Concord Steering Committee meeting represents an opportunity to bring together the major stakeholders on a regular basis to accomplish, among other things, the following:

- To monitor the progress of the project as it relates to the overall project work plan.
- To facilitate the resolution of disputes or provide additional clarification of issues at the highest level.
- To encourage collaboration among all of the participants by reminding them that the project enjoys support at the highest levels within the organization.

Meetings of the Concord Steering Committee will be scheduled on a monthly basis. The Contractor's Project Manager, and other Contractor senior staff as appropriate, shall be required to attend each of these meetings.

As requested by the Concord Project Manager, the Contractor's Project Manager may occasionally be required to deliver a presentation on pertinent topics at the Steering Committee meeting.

Prior to each Concord Steering Committee meeting, the Contractor's Project Manager shall meet with the Concord Project Manager and others as deemed appropriate by the Concord Project Manager in order to develop the meeting agenda.

No later than two business days after each Steering Committee meeting, minutes of the meeting shall be prepared and distributed to all meeting participants and all other project participants who are affected by the meeting's outcome.

22. Project Risk Management and Reporting Plan

The Contractor shall be required to deliver a Risk Management and Reporting Plan that describe how the Contractor and TCRS will identify, analyze, quantify, manage, mitigate, and communicate on risks during the Concord project.

Risk management includes identification, analysis, planning, tracking, control, and communication of risk areas associated with all project phases. Risk assessment and management are on-going tasks in any project. The Contractor shall provide a risk management (analysis and mitigation) strategy and methodology that can be used throughout the project to monitor potential risks and to develop mitigation strategies in anticipation of any problems that may arise. Then, based on feedback, assessments can be updated on a continuing basis for the duration of the project. While some risks can be identified from the outset of a project, others will emerge in the course of the project's life cycle.

The risk management strategy and methodology must accomplish the following:

- Define measures of success and set targets.
- Identify key assumptions.
- Identify, analyze, and document risks that threaten the ability to achieve the success targets.
- Develop and document mitigation strategies for each identified risk.
- Specify tasks to implement the mitigation strategy.
- Build consensus on appropriate mitigation strategies.
- Establish criteria for escalating risks.
- Enlist support for mitigation steps that are outside of the project's direct control.
- Monitor and report on risks.

Further, as the Contractor is required to monitor and take appropriate action on the prominent risks they currently foresee with this project, their assessment of the probability of their occurrence, and the steps they will take to avoid or mitigate those risks.

At key points in the project cycle and no less frequently than quarterly, the Contractor shall be required to conduct formal risk assessments, to review the status of project risks to ensure that appropriate mitigation strategies are in place, and to report on the project's risk status.

23. Project Issues and Action Item Management Plan

The Contractor shall be required to deliver an Issues and Action Item Management Plan that describes how the Contractor and TCRS will track action items and identify, manage, escalate, and resolve issues during the Concord project.

Project issues are generally large, intractable, and often unforeseen problems or concerns that require attention from the project manager(s) or upper management. All projects have issues, and successful projects address issues early and often at the lowest level consistent with resolution. The Contractor, in collaboration with TCRS and QA/ IV&V consultant, shall define and follow an issue escalation process.

Action items are short-terms tasks assigned to or assumed by individuals to resolve small questions and uncertainties. These tasks are usually of limited duration and so may not be entered into a project tracking tool. Nonetheless, the Contractor must define and follow an action item management process to assure that the tasks are completed.

24. Project Resource Management Plan/Project Staffing

The Contractor shall be required to deliver a Project Resource Management Plan that describes how the Contractor will manage its own resources to assure timely delivery of an integrated solution that meets the State's needs. This plan must describe in detail how the Contractor will manage its own resources to minimize the demand placed on the State's staff, including its IT staff.

The Contractor must include, establish and follow a project staffing plan. This plan must include the reporting structure of the Contractor's team that will be assigned to the effort. In addition to requiring the project staffing plan described below, TCRS has a number of other project staff-related requirements as indicated below.

The staffing plan must include estimates of the manpower loading of project phases, broken out by staff category (including but not limited to managers, supervisors, analysts, programmers, users, trainers, and subject matter experts), differentiated by Contractor (prime contractor) staff, subcontractor staff, and TCRS staff. In a second presentation, manpower loading must be estimated by staff category by month for the duration of the project. The staffing plan is to include

appropriate totals so that TCRS can identify total hours to be expended, per phase and for the entire project, by Contractor staff and (separately) by TCRS staff (i.e., subtotaled by Contractor and by TCRS and totaled across the project).

The State has assigned one (1) FTE as Concord Project Manager and four (4) FTEs as TCRS subject matter experts. Additional assistance from Information Systems, Accounting and TCRS program areas will be available on a limited basis. These areas will assist in the successful development and implementation of the Concord project, as well as prepare themselves for the State's eventual support of the new application. The Contractor must use these resources efficiently and within their limited availability.

The Contractor shall address personnel problems as they arise.

25. All Personnel

All staff members and subcontractor staff members assigned to the project who may interface with TCRS staff must have read both the RFP and the Contractor's technical proposal, as well as any clarifications to the technical proposal, to gain an overall understanding of the project and its objectives, prior to interacting with any member of TCRS staff. Signed and dated certifications that Contractor staff members have read the above documents must be kept on file and may be requested by TCRS for review. Under no circumstances will such an initial familiarization with the RFP, project objectives, current operating environment, desired functionality or other project objectives or requirements be provided by TCRS staff members.

And, because personnel should be familiar with the contents of the RFP, it shall be the Contractor's responsibility, prior to requesting any material, to review the RFP and its appendices first. If after reviewing that material, samples of any forms, letters, reports, procedures, etc. are found not to be in the appendices, then the Contractor shall request them from TCRS staff.

26. Project Manager

The Contractor's Project Manager must be assigned to the project full time, and his/her duties must be focused exclusively on the management and coordination of the project. He/she shall be the primary on-site customer liaison, responsible for coordination, scheduling, and resolution of issues. He/she must have no responsibilities relating to design, development, testing, or training. Nor may he/she work on projects for other customers of the Contractor. The Project Manager shall be required to be on-site at least 80% of the time (i.e., at least four (4) days per week on average). He/she shall be responsible for working closely with the State's Concord Project Manager, generally on a daily basis, either in person or via telephone and/or email.

The Contractor must agree that its designated Project Manager shall remain continuously assigned to the project until the final functional rollout phase of the project is under warranty and all PIRs identified prior to that point in time are corrected. He/she cannot be removed from the project by the Contractor, except in the case of death or termination of employment or with TCRS approval. In any of those cases, TCRS reserves the right to approve the replacement Project Manager.

The Contractor's Project Manager is to be authorized and empowered by the Contractor to make binding commitments to TCRS relating to the project and the Contractor's scope of activities (but not necessarily relating to the terms and conditions of the contract between TCRS and the Contractor's firm).

27. Key Personnel

The State desires to have continuity of Key Personnel throughout the project. The State is aware that some vendors rotate their personnel through a project; the State wishes to discourage that practice on this project. The Contractor must commit that Key Personnel, as identified in its staffing plan, shall not be reassigned over the duration of the effort without TCRS prior written agreement. At a minimum, key personnel to be identified include the Project Manager (see discussion below), the lead analyst or Deputy Project Manager, and at least five (5) additional senior full-time staff members.

TCRS requires the Contractor to inform the Concord Project Manager as soon as it knows of a likely change in key personnel. The Contractor shall propose a qualified replacement within ten (10) business days of notification. TCRS reserves the right to approve candidates proposed by the Contractor as a replacement. Further, the State requires a minimum of a five (5) business day overlap/transition period to assist in knowledge transfer, unless such a period is not possible due to extenuating circumstances.

28. Replacement of Personnel

The skills of the replacement individual for any staff member who is removed from or leaves the project for any reason must match or exceed the replaced staff member in terms of skill level and experience. TCRS reserves the right to approve/reject the replacement prior to assignment as well as at any time.

Further, any replacement not occasioned by illness or sudden death must be assigned at least two weeks prior to reassignment of the staff member being replaced in order that a smooth, effective transition/transfer can occur. In such an event, a transition/transfer plan must be provided to TCRS in writing two weeks prior to the start of the transition.

29. Staffing at State Facilities

Please refer to Item 24, Project Resource Management Plan/Project Staffing, for additional information on what resources the State is able to provide.

30. Project Communications Plan

The Contractor shall be required to deliver a comprehensive project communications plan that will address the communications needs of all of the stakeholders in the project, i.e.:

- Who will need what information?
- When the information will be needed (point in time/frequency).
- The best form and format for providing it.

Target audiences for project communications include TCRS staff, employers, members, retirees, and beneficiaries; the TCRS Board; and other consultants engaged by TCRS. For each target audience, the plan must set forth the types of communication to be provided, the description and purpose of each type, the expected frequency, and the appropriate methods/media for dissemination of information.

Subject to TCRS agreement, the Contractor shall follow the approach to Project Communication as described in the Contractor's proposal.

31. Solution Development and Delivery Management

The Contractor is responsible for solution development and delivery management, including:

- **Data conversion and bridging** – Conversion and bridging planning, data mapping from the existing to the new environment, identification of data errors and basic error correction for inconsistencies, errors, and missing data; alignment of data conversion/bridging with project phases, identification of data to be bridged vs. dual entry, techniques for bridging new system data to existing system and vice-versa, identification of data fields that need to be balanced and/or within acceptable tolerances as agreed to with TCRS, and reporting on reconciliation and balancing of converted/bridged data.

- **Configuration management** – Version control.

- **System operation** – Configuration control, job scheduling, impact on process change with respect to system recoverability, written documentation and procedures, and problem resolution.

- **Infrastructure and information security** – Defining security requirements for enterprise information and applications and developing a security plan to address the requirements.

- **Testing** – Preparing test plans, test schedules, test variants, test scenarios, test cases, test data, expected results; executing tests; reporting test results; referring problems identified in testing for resolution; integration with problem incident report methodology, and re-testing after the problem has been resolved.

- **Problem incident reporting** – How to report a problem, how the problem is assigned for resolution, integrating the "fix" into the project, regression testing, TCRS acceptance, and analysis/trend tracking.

32. System Development Life Cycle (SDLC)

Out of consideration for the demands that will be placed on TCRS staff members during the course of the project, in addition to the demands of their day-to-day duties, the Contractor shall utilize a single system development life cycle methodology and terminology for all portions of the project. For example, if the Contractor proposes to procure, customize, and integrate a third party "payroll generation package" into the overall solution, then all activities relating to the payroll package must observe the same system life cycle methodology that will be utilized in developing the rest of the line-of-business solution. TCRS staff members are to be educated in and expected to utilize only one (not several) life cycle methodology and terminology set for the duration of the project.

TCRS prefers methodologies that allow TCRS staff multiple opportunities to validate requirements and design. For this reason, an iterative development methodology is favored for use in the development of the pension application. Ideally, this includes an opportunity to view rapid prototypes of requirements and design concepts, screens, content, and application flow. (Such prototypes do not necessarily need to be made operational nor be reused during development.) Simulation of workflow and performance measurement within the design effort is also desirable.

The Contractor shall prepare and present an Implementation Plan based upon the SDLC. This plan should summarize the overall implementation strategy and manageable phases. It should include contingency or roll-back strategies and should reference supporting plans (e.g., Data Conversion, Data Bridging, Training, Support/Help Desk, Testing, Security). An updated Implementation Plan should include any and all appropriate detail, including contingency or roll-back plans, for the scope phase to go live next.

The Contractor shall prepare and present a Back-Up and Disaster Recovery Plan which describes how the Contractor intends to safeguard its code, documentation, and TCRS data against disaster during the Concord project. This plan must be coordinated with TCRS IS and OIR disaster recovery plans, and it must be accepted by TCRS prior to its implementation. Since this plan will be used throughout the Concord project, including the warranty periods, this plan must be updated as processes and procedures are changed and implemented during the Concord project.

33. Data

The following sections set forth the Contractor's responsibilities relating to the migration of data from the legacy environment to the new solution as well as the precautions the Contractor is expected to take to ensure the security of TCRS' member and retiree data.

33.1 Data Security

The security of TCRS member and retiree data must be paramount throughout the execution of this project. TCRS recognizes that access to the real data will be necessary for both data conversion and for debugging of any problematic calculations; however the risk of loss or

inappropriate use of personal data, possibly leading to identity theft or other such abuses is high. Therefore, the Contractor must manage the security of TCRS data throughout the project implementation.

In addition, while the properly constrained and controlled use of member data outside of TCRS site (as long as it stays within the fifty United States or Canada) is permitted, no member data are to appear in unencrypted emails under any circumstances.

The Contractor must create a Data Security Plan that details the secure management of TCRS data by the contractor throughout all stages of the project. This deliverable must include specific actions and controls to be implemented by either TCRS or the contractor to mitigate risks of data theft or loss throughout testing, conversion and system implementation.

33.2 Logical Data Model

A clear representation of the system database and data relationships will assist TCRS business users and project staff in reviewing system design specifications, test plans, and other system materials. For this purpose, the Contractor must deliver a Logical Data Model during the Requirements Confirmation Phase of the project. The Logical Data model must include all primary database tables and the data elements included in those tables. It also must diagram the relationships between database elements.

33.3 Physical Data Model

The Contractor must provide a Physical Data Model for the system database(s) during the Design Phase(s) of the project. This document must diagram all database tables and fields, document all keys and indices, and detail data types for each element. This document must be maintained and updated to reflect any changes during the course of the project so that it is accurate for the production system during implementation.

33.4 Data Dictionary

The Contractor must provide a Data Dictionary as a companion to the *Physical Data Model* during the Design Phase(s) of the project. This document must include names and descriptions for all tables and fields in the system database(s). It also must include detailed information for each data element, including data type, length, constraints, and default value(s). The data dictionary also must document database triggers, stored procedures, and any database level encryption.

33.5 Data Conversion Plan and Data Bridging Plan

TCRS understands that a critical component of the project is the accurate and complete conversion of legacy system data to the new environment.

The Contractor is required to apply automated data conversion and data modification tools to convert data from all legacy systems, as identified by TCRS staff. The Contractor will assist in modifying specific data at conversion based upon research conducted by TCRS staff (e.g., change status of “active” members to deceased; there is no “deceased” status for active members in TRACS). The Contractor will assist in identifying and correcting invalid data in the legacy system (e.g., employees less than 16 years old, employees over 100 years old) and resolving data discrepancies across current systems (e.g., CRIS service does not match TRACS service for some members. TCRS staff will provide guidance for resolving differences.) The Contractor will assist with the merger of approximately 10,000 records identified in TRACS as duplicate records.

The Contractor is required to establish and maintain a process to bridge data from the old legacy and the new application environments. Data bridging is described in section 33.6 below.

33.6 Data Conversion Strategy and Methodology

The Contractor must have in place a strategy and methodology for data conversion and bridging that is comparable to and compatible with their methodology for the design and development of the LOB solution. Although TCRS recognizes that data architects and other technical specialists will execute the conversion and bridging activities, appropriate management and planning disciplines must also be applied to the effort to ensure that:

- There is adequate coordination between the data conversion and bridging effort and the other project components (design, development, testing, training, etc.).

- There is adequate communication about the data conversion and bridging effort with TCRS managers, business area owners, and users, as well as with the Contractor's other project team members.

Subject to TCRS agreement, the Contractor shall follow the strategy and methodology for data conversion and bridging as described in its proposal. The methodology must embrace the same degree of rigor and formality as the Contractor's system development methodology. The conversion and bridging methodology is required to address, at a minimum, the following areas of concern:

- The planning of the data conversion and bridging effort and how those plans will be communicated to (and approved by) TCRS managers, business area owners, and users, as well as Contractor development teams; TCRS requires that a detailed, written conversion and bridging plan be prepared for each functional rollout phase.

- When conversion and bridging activities will be scheduled relative to the development effort.

- The roles and responsibilities of Contractor and TCRS staff (users and IT) in the conversion and bridging effort; such roles and responsibilities must identify the processes and procedures to be used by both the Contractor's staff and TCRS staff in performing the verification that all data were converted correctly. Where possible TCRS envisions that the Contractor should be doing the actual development of all required conversion and bridging programs necessary subject to TCRS approval.

- **The development of written procedures, methods, and checklists for balancing and reconciling conversion and bridging of data between the legacy environment and the new environment. This includes, in addition to developing the procedures, validating them with TCRS staff during testing and training, training TCRS staff in their use during testing, and validating that they are being used properly on an on-going basis. The procedures must provide sufficient controls that the Contractor and TCRS can readily discern the validity of any step in the conversion process as well as the validity of the converted data. The procedures must be reviewed and approved by the TCRS auditor and/or Assistant to the Treasurer, Support Systems, or his designees prior to their use.**

- Techniques to be used in cleaning and converting legacy system data (e.g., data mapping, automated conversion routines, balancing and reconciliation of the converted data at various points throughout the conversion process).

- Development of data bridging routines that will update the new environment with data entered into the old environment and vice versa during the period when both systems will be in use; the methodology should also identify the procedures to be implemented to assure that forward and backward bridged data are correct.

- The possible need for dual data entry (to be avoided wherever possible).

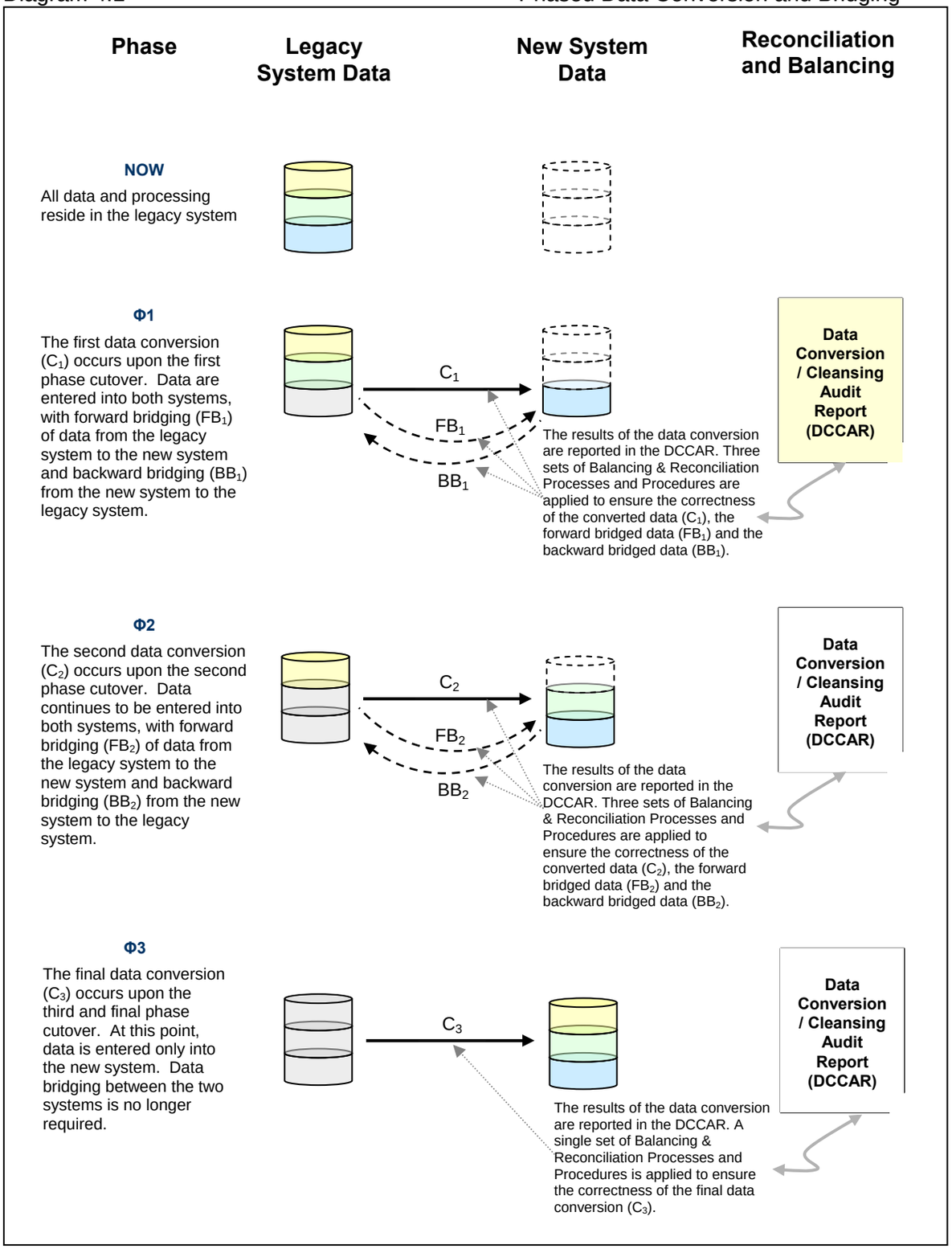
- Training of users at the time of a functional rollout phase cutover as to what data are to be entered in which system and how.

- Synchronization of the data conversion and bridging effort with the various other aspects of the project (e.g., LOB development, imaging capability, business process reengineering, organizational restructuring).

- A method to communicate to users what default values were used during conversion and why.

The diagram below is provided to illustrate the data conversion and bridging process as envisioned by TCRS.

Diagram 4.1 Phased Data Conversion and Bridging



33.7 Data Conversion Plan

The Contractor must create a data conversion plan that establishes the conversion environment and outlines strategies for both the automated and manual conversion of data for the new solution. The data conversion plan at a minimum must:

- Identify how the conversion requirements will be confirmed and refined.
- Map out how the data elements in the legacy system will be analyzed.
- Prepare a data conversion specification.
- Identify the approach for manual data conversion, including the design of data collection forms and creation procedures for unreliable legacy system data.
- Discuss options for satisfying data required of the LOB solution data model that are not present in the data to be converted (e.g., termination dates that only the employer has).
- Develop data conversion test scripts.
- Create the schedule for conversion activities.
- Keep the data conversion consistent with the implementation schedule.

The Contractor shall map legacy data to the new solution and design the data conversion flat file extracts from the legacy system, based on file formats defined collaboratively by the Contractor and TCRS. TCRS staff will design, develop, and implement any modifications on the legacy side required to produce the flat file extracts for data bridging or data conversion.

TCRS staff have devoted substantial resources to correcting data within the legacy systems and believe that the data are relatively accurate. The Contractor will assist TCRS during data conversion in identifying problematic legacy system data and correct those data as appropriate using automated tools. The Contractor will have no responsibilities for manual corrections to legacy system data or any corrections of data within the legacy systems.

As part of the conversion plan, the Contractor must include plans for testing the conversion process, including full reconciliation and balancing procedures for ensuring that all legacy system data were correctly converted and loaded. The conversion plan must elaborate how the integrity and confidentiality of the data will be protected throughout the conversion process.

In addition, TCRS requires that the implementation be accomplished in distinct implementation phases for the line-of-business (LOB) functionality. Thus, data conversion AND data bridging (the regular, periodic "synchronizing" of data between the old and new environments during the period when both environments will be in use) are crucial activities in assuring a successful implementation. The Contractor must create a data bridging plan that describes the strategy, methodology, and process for data bridging. The Contractor will be responsible for these data bridging activities

34. Data Conversion/Cleansing Audit Report

In addition to planning and executing the data conversion efforts, the Contractor also must create a Data Conversion/Cleansing Audit Report. This report must be in a format and at a level of detail that is appropriate for TCRS Executive Management, IT staff, users, and an internal or external auditor to review and approve. This report should contain an overall summary of the effort that was undertaken along with a brief, but complete, listing of all the types of data fixes that were made – both manual and automated.

For each type of data fix effected in each functional rollout of the new solution, the Contractor must set forth in the Conversion Audit Report, at a minimum, the following information:

- The problem the data were causing.

- The number of occurrences.
- The type of fix that was applied (e.g., manual or automated).
- The number of records fixed.
- The number of records unable to be fixed.
- A list of all records fixed and copies of all “before” and “after” data.
- The benefit of having fixed this data problem.

For each functional rollout of the new solution, the Conversion Audit Report should first be delivered in “draft” form for TCRS review and then, based on feedback provided, it should be updated by the Contractor into a formal project deliverable.

35. Converting and Validating Accounts

In converting and validating member accounts as they are transitioned from the legacy system to the new solution, great care must be taken with regard to accounts that included a refund in the legacy system. These situations can create a potential problem when, after the account has been converted and the new solution is in use, the member wishes to “buy back” the refund that was processed under the legacy system. It shall be the Contractor’s responsibility to accommodate these situations and to ensure that such problems do not materialize.

In the case of member accounts that included one or more refunds under the legacy system, it is not sufficient simply to convert account balance information from the legacy system. Rather, it is imperative that all detailed data associated with the refund(s) under the legacy system be converted and validated. It is possible that such refund details have not been retained in the legacy system and must be “re-created” for porting to the new solution.

Because the buyback of a refund typically involves repaying contributions for specific time periods, as well as paying accrued interest on the refunded amount attributable to the period between the issuance of the refund and the buyback, the following detailed data must be preserved for each refund when converting and validating these accounts:

- The date of issuance of the refund.
- The amount of member contributions that were refunded, by pay period.
- The amount of earned service credit associated with the refunded amount, by pay period.
- The amount of employer contributions remitted during the period to which the refund pertained, by pay period.
- The pay periods to which the refund pertained (members may typically request partial, as well as full, refunds).
- Details of interest postings for any interest that was refunded (i.e. interest amounts and posting dates for each interest posting during the period of the refund).
- The amount of interest that was refunded (if applicable).
- The actuarial interest rate(s) applicable to the period between the issuance of the refund and the cutover to the new solution (varying interest rates are possible) – it is assumed that actuarial interest rates applicable to periods after the cutover are maintained in the new solution database.

The above information (and possibly additional data) must be available in the new solution database in order to process refund buybacks. Bear in mind that members who initially request only a partial refund may be permitted to request multiple refunds. Therefore, the full set of detailed data must be identified for all historical refunds issued to the member.

The Contractor must fully resolve the refund issue prior to porting member data to the new solution. (Partial refunds are also problematic in the legacy system as they are coded as refunds but are in reality corrections that resulted in a partial refund.)

The Contractor must satisfy TCRS concerns in this regard. At a minimum, the Contractor must establish:

- How member accounts that include a refund under the legacy system will be identified.
- Exactly which detailed data must be identified or re-created, and then converted, in order to enable smooth processing of buybacks in the new solution of all historical refunds in the legacy system.
- How the necessary detailed data will be "mined", created, or re-created for porting to the new solution.
- The correct conversions of such accounts and, in the event an unexpected problem arises, resolve the problem at no additional cost to TCRS.

36. Interim Wage and Contribution Reporting

To support the timing and phasing of employers migrating from the current wage and contribution function to the new web-enabled wage and contribution function, the Contractor must provide two (2) translation capabilities.

As background, there are three possibilities that create a timing issue:

1. An employer has capability in place to provide wage and contribution reporting in the required format at the required time. *No conversion or translation software is needed, in this case.*
2. An employer does not have the capability in place at the required time; thus TCRS must have translation software available that converts from the "old" format, to the "new" wage and contribution format.
3. An employer has the new format in place, but TCRS has not yet implemented the "new" format; thus TCRS must have translation software available that converts from the "new" format to the "old" wage and contribution format.

The Contractor must provide translation capabilities to support the examples cited above. This includes software to be executed by TCRS operations staff; software source code, operational documentation, and applications documentation must also be provided.

37. Deliverables Management

TCRS has a high level of concern with regard to the system development life cycle and configuration control. The project will, of necessity, be divided into multiple functional rollout phases, each including numerous activities/tasks which will be implemented sequentially or on an overlapping basis. Each rollout phase will involve numerous deliverables (documents and software), which will be submitted to various TCRS staff members for review and revision over multiple iterations. Active participants will include not only TCRS staff, but also the Contractor's staff, possibly working from multiple locations, as well as other contractors to TCRS whose activities must be coordinated with the new system development effort. This may include quality assurance consultants, project management consultants, process change consultants, and others.

TCRS' objective is to be assured that an appropriate control scheme is put in place and rigorously applied to all project activities such that all project participants understand what they are working on, what is expected of them, and how it fits into the overall project. Specifically, TCRS wants to ensure that, without exception, all project participants – the Contractor's staff, TCRS staff, and all concerned third parties – when approaching a task (whether it is developing software, drafting/updating written documents, or reviewing a deliverable), clearly understand:

- The phase of the project to which the task relates.

- Which revision/release they are working on (and that it is the current revision/release).
- The date of the revision/release.
- How many previous versions were developed and reviewed.
- What has been changed, added, or deleted relative to the previous release.
- What functions or features the delivery should contain and what it should not contain.
- If it is a written deliverable, how many pages it should contain.
- When a response is required.
- When the next release can be expected.

TCRS has compiled minimum requirements for maintaining control throughout the project to its successful conclusion. The Contractor is required, subject to TCRS approval, to follow the control procedures and methodologies it described in its proposal.

38. Written Deliverables

The QA / IV&V consultant and the State will require an overall high quality of work before any deliverable related to that work will be approved.

The Contractor must (unless otherwise specifically agreed to by TCRS, on a per-document basis) include for all documents (both hard and soft copy) delivered during the project the following "history" of generation:

- Submittal of an outline for review and approval.
- Submittal of the final, complete draft for review and approval.
- Submittal of the final, complete document for final review and acceptance.

Furthermore, all documents must be delivered in a current or immediately previous version of MS Office Suite (Excel, PowerPoint, Word, Visio) or MS Project or another project management tool acceptable the Concord project manager and to the QA / IV&V consultant. These files must be in an "unlocked" form such that TCRS can use revisions and comments in reviewing them.

For any well-defined class of documents (e.g., business process models) TCRS may require the Contractor to supply a single outline, a single sample section, and a single draft sample pertaining to all documents in that class. Also, it is understood that, in most cases, multiple drafts will be submitted for review before the final document can be submitted for acceptance. Versions are to be stored/updated on the project document repository.

Subject to TCRS agreement, the Contractor shall follow its proposed control methodology pertaining to written deliverables, taking care that the following minimum requirements are explicitly included:

A. Each deliverable must include a cover page identifying:

   i. The title of the deliverable and appropriate numbering/naming convention.
   ii. The associated Work Breakdown Structure (WBS) number from the project plan.
   iii. The phase to which it pertains (if applicable).
   iv. The issue date (distribution date).
   v. The effective date (last update).
   vi. The revision number.

B. Each page must contain a footer (or header) identifying:

i. The deliverable title (possibly abbreviated).

ii. The effective date.

iii. The revision number.

C. Every deliverable must be page numbered (continuously from first page to last) and, except in trivial cases, must include a table of contents.

D. Every deliverable must be fully integrated in the sense that all diagrams, screen images, report layouts, spreadsheets, and similar or related items must be inserted in the appropriate place. (References to external files are to be avoided.)

E. Every deliverable, without any exceptions, must be accompanied by a professionally prepared letter of transmittal (email message is acceptable), which indicates:

i. The issue (distribution) date.

ii. The title and identifier of the deliverable.

iii. The revision number.

iv. The effective date (last update).

v. A description of how the deliverable fits into the overall solution, with explicit section and page number references to the Development Methodology Overview – End User (DMO) document.

vi. A summary of how this version has changed relative to the last revision (e.g., referring to a review meeting where the previous version was discussed). Other than this high level written summary, detailed changes may be shown in WORD "revisions" for ease of understanding.

vii. Any sections that are missing (remain to be developed) and an estimate of when they will be available.

viii. The date by which comments must be returned and to whom they must be forwarded.

ix. Information (or) other actions needed (such as requesting TCRS to set up a review meeting, etc).

x. If applicable, notice that this is the last revision cycle and the next release will be the final document – or, alternatively, an indication of when the next release can be expected to be delivered.

xi. The name of the person making the delivery.

The QA / IV&V consultant and the State require affirmation of successful execution of test cases, resolution of problems, and general overall high quality of work before any deliverable related to that work will be approved.

Note: The QA / IV&V consultant must be allocated a minimum of five (5) business days to turn around a deliverable under review. After the QA / IV&V consultant approves a deliverable, TCRS staff must always be allocated a minimum of five (5) additional business days to turn around a deliverable under review. The State and the QA / IV&V consultant will make reasonable efforts to reduce delay in deliverable reviews.

All deliverables must be reasonable in volume in order to permit each review to be completed within five (5) business days. A deliverable which would require the average person more than eight (8) applied hours to review would not be considered reasonable in volume given the five-day turnaround cycle. Deliverables requiring more than eight (8) hours of review must be allocated a proportionately longer review cycle. Also, the Contractor shall not be permitted to deliver an unusually large quantity of deliverables in a short time period (i.e., NO "PILING ON") that would preclude the QA / IV&V consultant or TCRS from meeting

their review timeframes. Also, the Contractor should be aware of key TCRS reviewers' availability when soliciting reviews and refrain from submitting deliverables when a reviewer is not available.

38.1. Software Deliverables

Subject to TCRS agreement, the Contractor shall follow its proposed control methodology pertaining to software deliverables, taking care that the following minimum requirements are explicitly included:

- Installation of the application software on the appropriate hardware platform(s); the release (build) number of the software, and the issue date of that release, must be easily accessible from all screens in the application**,** so there will never be any question as to what is being tested and whether it is the current version. Accompanying written deliverables should reference the corresponding release number contained in the application.

- Similarly all reports must display in their heading or cover page the report print date and data range included, as well as the name of the program that generates the report. During development and prior to final production, all reports must display a version number or other identifying information to assist users with their quality reviews; the version numbers should be omitted on reports in final production. All reports shall have unique names, as well as the date of the report run, printed in the heading.

- Delivery of media, or identification of directories, containing both source code and object code; media must be clearly labeled with the title of the delivery, the date of issue, and the release number.

- Delivery of all appropriate accompanying documents (for example, release notes, user documentation and test plans/scenarios); these documents must be prepared in a timely fashion and delivered in accordance with the procedures for written deliverables outlined above.

- Attached to the letter of transmittal must be a listing of all media included in the delivery, indicating all folders, subfolders, and files.

38.2. Tracking of Deliverables

It is TCRS' intention that both the Contractor and TCRS will make a concerted effort to track all deliverables, both written deliverables and software deliverables. Absent a detailed procedure for tracking deliverables, there is great concern that serious problems including, but not limited to, the following will arise: some people who should review a deliverable will not receive a copy, some people will find themselves reviewing an outdated (non-current) version, or feedback from some people on a particular deliverable will be overlooked. It is the Contractor's responsibility to track the delivery, feedback, and approval of its deliverables.

The Contractor is required to follow, subject to TCRS approval, its proposed control methodology pertaining to tracking written and software deliverables, taking care that the following minimum requirements are explicitly included:

A. The Contractor shall maintain a computerized deliverables control file (readily available to the Concord Project Manager to review online or in printed form) which will always provide the current status of any particular deliverable (written or software); this tracking control file must contain a separate tracking form/record for each revision/release of each deliverable, indicating:

   i. Title and identifier of deliverable.

   ii. Revision/release number.

iii. Date of issue.

iv. Effective date.

v. Location of the deliverable if delivered “online”.

vi. Project phase to which the deliverable pertains.

vii. Narrative description of the deliverable, indicating what is included and what is not included.

viii. Narrative description of how the deliverable fits into the overall solution, with explicit page/section number references to the Concept of Operations document.

ix. Date that the response is due from the Concord Project Manager.

B. Attached to the tracking form must be a copy of the Contractor’s letter of transmittal/email message that accompanied the delivery. These forms/records must be sorted by revision/release within deliverable identifier.

C. In general, responses to deliverables will be channeled through the Concord Project Manager, who will record the receipt of the responses in TCRS’ deliverables control file, prepare a single consolidated response for situations where there are conflicting TCRS viewpoints, and forward it to the Contractor.

D. At the project management status meetings, the Contractor must formally report all of the deliverables issued during the status reporting period in a cumulative table format showing the delivery and anticipated turnaround dates. The Concord Project Manager will confirm that all deliverables reported by the Contractor were received based on TCRS’ deliverables control file. To avoid deliverables “slipping through the cracks”, the Contractor shall submit a weekly report of deliverables’ status (e.g., those awaiting review, in revision, in test, in rework, completed, invoiced).

38.3. Deliverable Repository

During the course of the implementation of the new system, numerous written deliverables will be provided to TCRS by the Contractor. These deliverables can be expected to range from requirements meeting notes, to Contractor’s status reports, to operations manuals, etc. Many of these items will be delivered in multiple versions.

The Contractor may choose to deliver project documents in PDF format. However, TCRS requires that all documents also be delivered in the appropriate Microsoft Office suite (current or immediately previous revision) document format with no locks, inhibitors, etc. that restrict the use of track changes or comments. The Contractor is to use MS Project, MS Visio, MS Excel, MS Word, or MS PowerPoint as the file format for all written deliverables.

It is imperative that all versions of all documents delivered at any point in the project and at the end of the project can be identified, located, and accessed by Contractor, QA / IV&V, and TCRS staff as needed. Therefore, the Contractor must maintain for the life of the project (and leave it behind upon the completion of the contract) a repository of all written project deliverables in electronic form residing on one of the system servers. TCRS envisions the use of a tool such as SharePoint. The deliverables must be accessible to all project participants through the Internet.

The deliverables repository must be designed and organized, with appropriate training provided, such that TCRS staff can efficiently locate and retrieve any document of interest. Write permission to the repository must be suitably restricted. While anyone involved in the project should be able to access all repository items, the ability to add to, delete from, or modify the repository’s contents is to be strictly controlled and restricted to authorized Contractor personnel. It shall be the Contractor’s responsibility, throughout the project until final turnover, to administer the repository and to guarantee the continuous correctness and completeness of the repository’s contents.

Subject to TCRS agreement, the Contractor shall follow their proposal regarding:

- Their commitment to satisfying the requirements for the deliverables repository.
- Where the repository will be located, how it will be backed up, and how it will be recovered in the event of an equipment failure.
- How they propose to organize the repository for ease of use and access.
- How they will control the repository to guarantee, on a continuous basis, the correctness and completeness of the repository at any point in time.
- Their commitment to produce a document (which itself must be included in the repository) describing the deliverables repository, how it is organized, how items from it can be accessed, and how to recover the repository if necessary.
- Their commitment to train TCRS staff in the use of the repository (including an administrator, managers, and end-users).
- Whether third party tools are utilized.

39. Timing of Major Deliverables/Milestones

Subject to TCRS agreement, the Contractor shall provide the deliverables and/or project milestones that will be produced for the project with estimated completion dates as contained in the Contractor's proposal.

This section consists of a list of the minimum set of high-level deliverables required by TCRS for the project.

These deliverables and milestones must be included in the Detailed Work plan used throughout the course of the project.

Table 4.5
Listing of (Minimum Set) of Deliverables by SDLC phase

Nbr	Project Initiation
1	SOW Detailed Work Plan, Number 1
2	Project Management Plan
3	Project Scope Management and Change Control Plan
4	Project Risk Management and Reporting Plan
5	Project Issues and Action Management Plan
6	Problem Incident Reporting Methodology
7	Project Resources Management/Staffing Plan
8	Project Communications Plan
9	Hardware/Software Installation Plan
10	Certification of Weekly Status Reports and Meetings
11	Certification of Monthly Steering Committee Meetings
12	SOW Detailed Work Plan for next phase
13	Updated Project Schedule for the next phase
	Requirements Confirmation
14	Detailed Requirements Definition Workshops
15	Detailed Requirements in Requirements Management Tool
16	Fit-Gap Analysis Report
17	Process Change Plan
18	Organizational Change Plan

19	Transition Management Plan
20	Change Control Methodology
21	Logical Data Model
22	Data Dictionary (Draft)
23	Data Security Plan
24	Data Conversion Strategy and Methodology
25	Data Conversion Plan (Draft)
26	Updated Requirements Traceability Matrix
27	SOW Detailed Work Plan for next phase
28	Updated Project Schedule
29	Certification of Weekly Status Reports and Meetings
30	Certification of Monthly Steering Committee Meetings
31	Certification of Quarterly Risk Assessment
	Infrastructure Installation
32	Installation and Configuration of Proposed Hardware
33	Installation and Configuration of Proposed Commodity Software
34	Installation and Configuration of Line of Business Software
35	Hardware and Software Installation and Testing Report
36	Updated Requirements Traceability Matrix
37	Updated Process Change Plan
38	Updated Organizational Change Plan
39	Updated Transition Management Plan
40	Certification of Weekly Status Reports and Meetings
41	Certification of Monthly Steering Committee Meetings
42	SOW Detailed Work Plan for next phase
43	Updated Project Schedule
	Design
44	Concept of Operations Document
45	Concept of Operations Presentation(s)
46	Development Methodology Overview – End User Document
47	Development Methodology Overview – Presentation(s)
48	Updated Fit-Gap Analysis Report
49	Detailed System Design Specification
50	Data Conversion and Migration Plan(s)
51	Data Bridging Plan(s)
52	Problem Incident Reporting Methodology
53	System Security Plan
54	Test Strategy and Test Management Plan
55	Training Strategy
56	Updated Logical Data Model
57	Physical Data Model
58	Data Dictionary
59	Updated Data Security Plan
60	Updated Data Conversion Strategy and Methodology
61	Data Conversion Plan
62	Updated Requirements Traceability Matrix
63	Updated Process Change Plan
64	Updated Organizational Change Plan
65	Updated Transition Management Plan

66	Certification of Weekly Status Reports and Meetings
67	Certification of Monthly Steering Committee Meetings
68	SOW Detailed Work Plan for next phase
69	Updated Project Schedule
	Construction and Unit Testing
70	Completion of Modifications to Line-of-Business (LOB) Application
71	Construction and Unit Test Report
72	Integrated Testing Plan
73	Training Plan and Training Materials
74	Implementation Plan
75	Updated Problem Incident Reporting Methodology
76	Systems Demonstration Script and Results Report
77	Back-Up and Disaster Recovery Plan
78	Support/Help Desk Plan
79	Updated Data Conversion Plan
80	Updated Requirements Traceability Matrix
81	Updated Process Change Plan
82	Updated Organizational Change Plan
83	Updated Transition Management Plan
84	Certification of Weekly Status Reports and Meetings
85	Certification of Monthly Steering Committee Meetings
86	SOW Detailed Work Plan for next phase
87	Updated Project Schedule
	Integrated Testing
88	Integration with Existing Financial Capabilities and Other Interfaces
89	System Testing by the Contractor per Phase
90	Integrated Testing Results Report
91	Integration Workflow Management Capabilities
92	Mock Data Conversion Results Report
93	User and System Administration Documentation
94	Testing Results Report
95	Acceptance Test Plan
96	Data Conversion/ Cleansing Report
97	Updated Data Conversion Plan
98	Updated Requirements Traceability Matrix
99	Updated Process Change Plan
100	Updated Organizational Change Plan
101	Updated Transition Management Plan
102	Certification of Weekly Status Reports and Meetings
103	Certification of Monthly Steering Committee Meetings
104	SOW Detailed Work Plan for next phase
105	Updated Project Schedule
	Acceptance Testing
106	Updated Data Conversion/ Cleansing Report
107	Data Conversion/Cleansing Audit Report
108	Training and Knowledge Transfer
109	User Acceptance Test (UAT) per Phase
110	Acceptance Test Results Report
111	Updated Support/Help Desk Plan

112	Updated Data Conversion Plan
113	Updated Requirements Traceability Matrix
114	Updated Process Change Plan
115	Updated Organizational Change Plan
116	Updated Transition Management Plan
117	Certification of Weekly Status Reports and Meetings
118	Certification of Monthly Steering Committee Meetings
119	SOW Detailed Work Plan for next phase
120	Updated Project Schedule
	Implementation
121	Training Completion Report
122	Final Data Conversion/ Cleansing Results Report
123	Data Bridging Results Report(s)
124	Acceptance of the System by Users per Phase
125	Delivery of Source Code
126	LOB Application Software License
127	Updated Requirements Traceability Matrix
128	Updated Process Change Plan
129	Updated Organizational Change Plan
130	Updated Transition Management Plan
131	Updated Back-Up and Disaster Recovery Plan
132	Certification of Weekly Status Reports and Meetings
133	Certification of Monthly Steering Committee Meetings
134	SOW Detailed Work Plan for next phase
135	Updated Project Schedule
	Post Implementation
136	Application Warranty
137	Transfer source code, documentation, and related items to Treasury applications
138	Post-Warranty IS Support

40. Problem Incident Reports

The Contractor must have in place and utilize an automated and demonstrable problem incident reporting (PIR) system for managing and facilitating test-related activities as well as production problems.

The PIR system must offer, at a minimum, the following attributes:

- It must define how PIRs will be initiated, uniquely identified, and logged, and by whom.
- It must relate each PIR to the particular functional area (e.g., employer reporting, benefit estimates) or appropriate area (e.g., training, documentation, etc).
- It must relate each PIR to the appropriate test variant/scenario/case/data set.
- It must record both the expected and actual test result as alphanumeric, numeric or date as appropriate to the PIR.
- It must track the status of, complexity of, and priority accorded to each PIR.
- It must provide for relating PIRs to change orders when appropriate (in those cases where what was originally thought to be a problem incident is actually determined to be a request for a design change).
- It must track the scheduled fix delivery date.

- It must track the fix release number through which the PIR was addressed.
- It must provide for tracking efforts to correct the problem and the eventual resolution of the problem incident.
- It must include a summary/reporting mechanism as described below.
- Though a manual approach of WORD, email, or Excel documents is not acceptable, the system must be capable of exporting information to those systems.

The desired summary/reporting mechanism should be in a row-and-column format. It should summarize current and "phase-to-date" PIRs and include graphics capabilities showing trends in problem incident reporting and resolution, as well as the existing backlog of PIRs at any point in time and amount of time (maximum, minimum, average) to close out and correct PIRs. Examples of the summary/trend information of interest to TCRS include (at both individual functional or business area levels, delivery phases, as well as the project in total):

- Number of test cases for the phase, cases to execute and cases executed – for the phase and for each LOB area.
- Number of test case data sets for each executed test case.
- Number of executed test cases with one or more PIRs (opened or closed).
- Number of test cases undergoing rework.
- Number of test cases awaiting or undergoing retesting.
- Number of open PIRs at any point in time.
- Number of closed PIRs since the beginning of the project and the beginning of the current phase.
- Number of PIRs opened/closed in the last week/last month.

A detailed listing of the information of interest (not just a summary total), as outlined above, must be made available in printed format. For example, referring to the first item in the list, the PIR system must provide a list of the test cases for the phase, a list of the case to execute and a list of the cases executed.

After contract award, the PIR system shall be presented to TCRS in detail for review.

The PIR system can be a custom developed solution or a package, although a commercial-off-the-shelf (COTS) approach is more desirable by TCRS. A manual approach using a word-processor, email, or electronic spreadsheet document is not acceptable. TCRS envisions their staff having to become familiar with one and only one PIR system for their use both during the project and long-term. TCRS' IS staff uses CounterSoft as its PIR tool. That tool meets all of the above requirements, although test case information must be entered manually because CounterSoft does not yet integrate with testing software. Therefore if the Contractor, with TCRS agreement, installs and uses a PIR solution that is different than what TCRS' IS staff uses, the Contractor shall be responsible for integrating/interfacing the two PIR systems to avoid double-entry or duplication of effort.

The Contractor shall provide training to appropriate TCRS staff as necessary to facilitate their use and understanding of the PIR system. No user testing shall proceed until the PIR approach has been presented to, reviewed by, and accepted by TCRS.

In addition, the Contractor shall be required to implement a methodology for classifying PIRs. Such methodology should include conducting joint meetings with TCRS (at mutually agreed to intervals) to determine the classification of PIRs. Classifications may be either warranty related, where the Contractor bears the cost of the modification, or non-warranty (i.e., system enhancement, design change, out of scope) related, where the Contractor will provide a cost estimate to TCRS. At the conclusion of the project, TCRS will assume ownership of the PIR system and the complete database of reported problem

incidents for the project. In addition, as part of this turnover, the Contractor shall provide documentation and training for TCRS administration and IT personnel as appropriate.

41. Business Change

41.1 Process and Organizational Change Recommendations and Transition Management

The nature of this engagement makes the processes surrounding change and transition management and integration critical to success. TCRS needs a Contractor that understands the impact of change on the environment and that takes part in the management of change introduced to the environment.

The implementation of the new solution will bring about a cultural change for TCRS, as well as changes to business processes and workflows. The success of the project will be dependent on the acceptance and utilization of the new system by the end users in support of their work. In support of the wholesale change that must be absorbed by TCRS, the Contractor shall assist in promoting and fostering the awareness, acceptance, and implementation of the new solution, the corresponding changes in business processes and workflows, and the definition and implementation of new work roles within the organization.

The objective herein is to address management, communications, and cultural, procedural, and processing challenges during the implementation of the new solution in a "least-threatening" manner for all TCRS stakeholders.

41.1.1 Issue Minimization

To address how change management and integration management issues can be minimized within the new solution, the Contractor must ensure that:

A. To the extent that new or enhanced environments will require changes to end-user operational procedures, TCRS expects the Contractor to participate in definition of the best operational procedures that will fit within TCRS' organization and then to assist with implementation of the new procedures, including IT-related as well as business procedures.

B. Integration of the new infrastructure will be executed in a manner that minimizes impact to the customers.

C. Upgrades to software should be organized and planned with a defined distribution strategy. The customers should be insulated from infrastructure changes as much as possible.

D. All new applications, system enhancements, upgrades, etc. are thoroughly tested prior to their being submitted to TCRS for testing.

E. A methodology is in place for tracking changes and defect corrections to the system.

41.1.2 Contractor Role in Change Management

TCRS expects the Contractor to provide significant input, recommendations, leadership, and execution of tasks in a number of areas as identified below:

A. **Process Change** (Business Process Reengineering) – Analysis, alternatives, proposed improvements, change implementation, integration with the new technical solution, including:

i. Communicating the strategy to stakeholders throughout the project, which includes formal presentations of the project mission and vision.

ii. Identifying the impact that additional/new functional priorities will have on current business processes.

iii. Detailing the operation of the new solution's business processes, job functions, and roles.

iv. Identifying the impact of those business processes on customers, employees, and other stakeholders.

v. Documenting any legislative regulations, administrative rules, and agency policies/procedures that may require modification in order to implement specific process changes.

B. **Organizational Change** (Organizational Restructuring) – Analysis, updates to job descriptions, realignment alternatives, proposed improvements, training considerations, and identification of new hires, including:

i. Creating an organizational assessment tool and conducting organizational assessments.

ii. Ensuring a cultural fit with new processes and systems.

iii. Communicating organizational change strategy and tactics to project stakeholders.

iv. Ensuring that TCRS users and IT staff have the ability to function in their jobs after implementation.

C. **Transition Management** – Facilitating the transition of processes and staff from their old, legacy-oriented, transaction-oriented roles to their new roles, responsibilities, and processing in the new environment.

i. Developing and documenting strategies for implementing the transition to the new environment.

ii. Developing and applying relevant metrics to document the results of the transition.

iii. Facilitating business transformation and identifying new roles, responsibilities, and skills required to implement the new processes.

iv. Coordinating business transformation efforts with the training activities required.

v. Effecting a transition to the new processes that result in increased job satisfaction, work productivity, and organizational effectiveness.

41.1.2.1 Change Management Support Plan

The Contractor must provide a plan to support each of the areas described above; the plan is to be updated no less frequently than every ninety (90) calendar days. In each case the Contractor must identify a Contractor's staff member – trained, experienced, and specializing in these three areas – who will be assigned to lead these efforts. Contractor staff who are involved in system development efforts are not to be assigned to these efforts.

41.1.2.2 Position/Recommendation Papers

In addition to the specified plans, short position/recommendation papers (20 – 30 pages) addressing the above topics are to be

prepared and forwarded to TCRS at a minimum at the following points during the project:

- Sixty (60) days after the delivery of the Concept of Operations Document.
- Sixty (60) days prior to the rollout of the each phase of the project that is going into production.

The types of topics to be addressed include, at a minimum:

Executive Summary.
Introduction.
Objectives.
History.
Approach.
Recommendations.
Processes.
Organizational, for both user and IT staff.
Operational, both user and IT related.
Transition from legacy to the new system.
Physical plant.

41.1.2.3 TCRS Staff Training

TCRS expects these activities to address the challenges created by introduction of a new solution. They should assist TCRS staff in understanding how the new solution will change (for the better) the processing of work at TCRS. Contractor training of TCRS staff in the new paradigm must be included – beyond just how screens and windows work. Rather, the training effort should appropriately address:

- How work is processed in the new environment.
- How staff positions, responsibilities, and roles will change in the new environment.
- A mapping by person identifying the processes each staff member performed in the legacy system vs. the processes he/she will perform in the new environment.
- How the new environment impacts TCRS IS staff and their roles and responsibilities.

41.1.2.4 Contractor Responsibility For Support Plans, Papers and Training

Contractor responsibility in these three areas includes, at a minimum:

A. Developing and maintaining the three respective plans.

B. Training TCRS task leaders and staff (including IT staff as appropriate) in organizational and process change.

C. Training TCRS task leaders and staff in how work functions (e.g., retire a member, process a refund, correct a wage and contribution report) are completed – not just the “points and clicks” of individual processes or transactions.

D. Building support for cultural changes.

E. Leading and facilitating working sessions at appropriate points in the project.

F. Ensuring the smooth implementation of new processes and the new system.

G. Realignment and redefinition/update of job descriptions and job responsibilities (both users and IT staff).

H. Evaluation of possible shifts in department, division, and unit responsibilities and processes.

I. Development and update of appropriate procedures manuals and policy manuals (for both users and IT staff).

J. Ensuring staff acceptance and buy-in.

K. Ensuring readiness for and acceptance of change.

41.1.2.5 Transition Management Issues

To address how transition management issues can be minimized within the new solution, the Contractor shall:

A. Assist with parallel environments as long as, and to the extent, necessary to ensure the smooth continuity of agency activities and customer support.

B. Commit to being on site during transition periods and being available to assist in a timely manner with any issues that arise.

C. Understand that several migration paths may be necessary, and agree to participate at all levels of the planning and execution of the transition.

42. Assisting TCRS Staff and Users

The following sections discuss the Contractor's responsibilities for assisting TCRS staff and users throughout the project.

42.1 Concept of Operations

To improve the end-users' understanding of the look and feel and capabilities to be expected in the new system – i.e., what will be delivered – the Contractor shall be required to produce a Concept of Operations (COO) document defined below.

The following are critical requirements for the COO:

- It may not exceed twenty-five (25) pages in length. There are two reasons for this limitation. First, the document must be "digestible" by the end-user reader. Second, it forces the narrative to be at the appropriate level, i.e., a 'bird's eye' view of the new solution. For example, the COO may discuss the generation of retirement benefit estimates for members, but it will not discuss the specific retirement options from which the member can select, or the specific rules for calculating service credit.
- It may not include appendices or attachments.
- It must be targeted to, and understandable by, the TCRS end-user community (not IT staff).

- It must be delivered at the earliest possible point in the project, i.e., with the first detailed work plan and schedule – prior to any requirements or gap analysis sessions.
- The delivery of the COO must be accompanied by Contractor briefings describing the document and walking end-users through it.

TCRS requires an organized presentation of items that most directly effect TCRS users.

Subject to TCRS agreement, the Contractor shall follow the approach to the Concept of Operations as described in its proposal.

The Contractor is required to establish "traceability" of contract requirements to the COO document. That is, while not all contract requirements will be mentioned in the COO, the capabilities that are described in the COO must be traceable to the contract requirements.

The COO must explain what the end-users should expect in terms of the new system's functionality and graphical user interface – e.g., processes, calculations, workflow, screens. End-users coming from the old legacy system may have no idea how the new environment will look and behave. The COO must address this topic.

The COO is to describe in end-user-oriented English (without technical terms) how the new solution will operate from the end-user's perspective. It must discuss how particular staff positions will interact with automated features of the new solution. Conversely, it must identify all processes that will continue to be manual in nature after the new solution is fully implemented. Process flow diagrams, as well as appropriate samples of screens, may be helpful and would be encouraged by TCRS, but the page-length limitation cannot be violated.

The COO should describe the high level features (e.g., retrieving images of documents, faxing documents, printing documents and screen images), as well as the major business functions (e.g., enrolling members, issuing refunds, posting service credit purchases, generating retirement benefit estimates) that will be available to the end-users. It should include a discussion of how data will be entered into and accessed from the new system, and how data will be automatically passed from screen to screen for the end-user's convenience.

A. A detailed explanation of the appearance of the user's computer "desktop" is to be provided, including:

1. Login.
2. Menu bars.
3. Status bars.
4. Menu navigation.
5. Icons.
6. Data screen organization:
   a. Windows.
   b. Containers.
   c. Tabs.
7. Different screen views based on the particular transaction.
8. Various data entry and selection devices, such as:
   a. Drop down lists.
   b. Buttons for various purposes (e.g., searching for people on the database using various search criteria, launching new functions from the current screen).
   c. Radio buttons.

d. Check boxes.

e. Data entry fields.

B. A table of contents for the COO might include:

1. Overview of Solution.
   a. GUI.
   b. Desktop.
   c. Business Functional Areas.
2. Components of the New Solution.
   a. Processes.
   b. Calculations.
   c. Workflow.
   d. Imaging.
   e. Screens.
3. Operating the New Solution.
   a. Navigation.
   b. Invoking Business Functions.
   c. Entering and Accessing Data.
   d. Automatic Passing of Data.
   e. Retrieving Images.
   f. Printing and Faxing Documents.
   g. Printing Screen Images.
4. Staff Positions and Their Roles.
5. Processes that Will Remain Manual after Implementation.

No meetings with end users related to requirements definition are to be held until the COO document has been delivered to users and they are briefed pertaining to it.

43. Development Methodology Overview for End-Users

To improve the user community's understanding of the development process and the effectiveness of the deliverables review and revision cycle when the project is in progress, i.e., the development steps, the Contractor shall be required to produce a Development Methodology Overview (DMO) document defined below.

Following are critical requirements for the DMO:

- It may not exceed twenty-five (25) pages in length. There are two reasons for this limitation. First, the document must be "digestible" by the reader, an end-user. Second, it forces the narrative to be at the appropriate level, i.e., a 'bird's eye' view of the methodology.
- It may not include appendices or attachments.
- The DMO must be written to, and understandable by, the end-user community (not IT staff).
- It must delivered at the earliest possible point in the project, i.e., with the detailed work plan and schedule – and prior to any requirements or gap analysis sessions.

- The delivery of the DMO must be accompanied by Contractor briefings describing the document and walking end-users through it.

Subject to TCRS agreement, the Contractor shall create the Development Methodology Overview document using its recommended approach as described in its proposal. The DMO must describe, at a high level, how the system will be defined, designed, tested, and deployed, i.e., a summary of the Contractor's development life cycle for the project – aimed at end-users.

The Contractor must describe its proposed system development life cycle methodology. This explanation must be aimed at the end-user community. The intricacies of code design, development, and unit testing need not be addressed, since these activities will typically not involve the user. Instead, attention should be focused on the meetings and activities that will involve the end-users and the deliverables that the users will be required to review and approve – and how these areas of user involvement fit into the overall methodology. This part of the DMO will describe what TCRS end-user staff must do, what the Contractor must do, and what they must do together. The Contractor is encouraged to use diagrams, pictures, and graphics to facilitate end-user understanding.

It is clear that TCRS staff, especially the users, will be expected to participate in many meetings (be they RAD, JAD, JRP, GAP, test, training, etc.) to help define the current environment and the future environment, leading to a definition of the development/customization effort that will be required. The Contractor and TCRS shall reach joint decisions regarding:

- What meetings will be held.
- Who will participate.
- The objectives of the meetings.
- How they will be conducted.
- Who will lead them.
- The input being sought from the users.
- How the findings of those meetings will be formalized in writing.
- How the written records of the meetings will be reviewed, modified, approved, accepted, and used as the basis for change control throughout the project.

A particular source of concern to TCRS is the need for the Contractor, once the external system design has been established, to decompose the project into manageable units of work understandable by TCRS staff. As a result of this necessary decomposition, TCRS end-user staff will be presented with numerous (likely hundreds of pages of) documents (including, but not limited to, requirements definitions, design documents, user interface, screen/report layouts, and process flows) for their review, revision, and eventual approval.

The "granularity" of these work unit-sized documents makes it very difficult, if not impossible, for most public retirement system end-users (who understandably have no practical experience with such large-scale system development methodologies) to visualize:

- How the particular meeting they are participating in, or document they are reviewing, fits into the entire system.
- How the particular meeting they are participating in, or document they are reviewing, fits into the system development methodology.
- How the entire new system "plays together".

For these reasons, the Contractor shall be required, in the DMO, to provide TCRS with a 'road map' of the project. All subsequent meetings and deliverables shall include an introduction that relates

that deliverable to the DMO document, so that the user understands how the element under review fits into the overall process.

Other aspects of the system development life cycle that need to be addressed in the DMO for the users' benefit include:

- Project planning (e.g., work plans, conversion plans, disaster recovery plans).
- Project phasing (including an explanation of why the project will be rolled out in phases and the advantage this approach represents for the users).
- Prototyping/conference room pilot.
- Test planning (e.g., test scenarios, test cases, test data, expected test results).
- Test execution at its various levels.
- Reporting and resolution of problems.
- Change control methodology.

A table of contents for the Development Methodology Overview document might include:

- Introduction.
- Project Work plan and Deliverables.
  - Gantt Chart.
  - Narratives.
  - Phases.
- Roles and Responsibilities.
  - Contractor.
  - TCRS.
  - QA / IV&V.
- Requirements.
- Testing.
- Training.
- Deliverables.
- Risks.
- Risk Mitigation.
- Terminology/Glossary.

No meetings with end users related to requirements definition are to be held until this document has been delivered to users and they are briefed pertaining to it.

44. Contractor Activities Before and After Meetings with TCRS Staff

TCRS' ability to support the project is directly related to the amount of time available for TCRS staff to dedicate to it in addition to their normal duties. TCRS understands that the project cannot be completed without extensive input from our staff. Yet, other demands on their time and energy dictate that their project participation be highly efficient and productive. Therefore, certain procedures and guidelines must be observed when scheduling TCRS staff to attend meetings and other project work sessions.

Prior to scheduling formal meetings with TCRS staff, the Contractor must fulfill the following requirements:

- Ensure that all Contractor staff, no matter when they are introduced into the project, have read this RFP and reviewed all of its appendices as well as the proposal. Meetings with TCRS staff should be used to clarify the information contained in the contract, NOT for a general review of

its contents. No meeting time should be "wasted" in collecting and reviewing forms and letters, for example, since current forms, letters, and reports have been included in the contract.

- Prepare a specific, detailed meeting agenda and distribute it to all participants at least three business days prior to the meeting. By providing advance notice of what is to be covered, participants can be better prepared to bring appropriate resource materials and to provide necessary input in an efficient manner. In addition, the need for follow-up meetings will be minimized.

- Attach to the agenda a description of the products and/or objectives that are expected to result from the meeting (e.g., design of a particular new system output, clarification of an interface requirement, etc). By thus defining the meeting's objectives in advance, discussions should be better focused with less temptation to wander into time-consuming digressions.

The Contractor is required to provide minutes of all meetings held with TCRS staff. They are to be published within two business days of each meeting.

Further, when legitimate digressions do occur – e.g., discovery of an ambiguity in a contract requirement that requires resolution – they should be added to the agenda of a subsequent meeting, rather than addressed in an *ad hoc* fashion at the original meeting. In other words, decisions that should be confined to one or two persons should not occupy a roomful of staff simply because they happen to be convened at the time the issue arose. The Contractor shall be responsible, via its planning and preparation activities, for ensuring that TCRS staff time devoted to the project is utilized in the most efficient and productive manner possible.

45. High Level Demonstration of Base Functionality – Conference Room Pilot

The Contractor is required to provide a demonstration (or "conference room pilot' {CRP}) of LOB functionality during the development of the new pension solution. The demonstration is intended to provide the users with an opportunity to see the full member life cycle from enrollment, through withdrawal and refunds, re-enrollment, refund buy back, retirement, return to work, change of address, beneficiary, plan, etc. The objective is to develop user familiarity and comfort with the new solution – its look and feel, menu and screen navigation, and data entry features (pull-down lists, radio buttons, wizards, etc.) – as early as possible in the project. By doing so, TCRS anticipates that users will be better able to provide reliable decisions and input relating to system design alternatives.

The initial demonstration need not reflect TCRS-specific functionality. A hands-on presentation of the Contractor's base solution will suffice. Note that this means more than showing a series of screens pre-populated with data – the intent is to have a live demonstration from which users can draw inferences about operations, performance, etc. The presentation must include end-to-end transactions showing entry of new data, use of workflow tools, performance of relative calculations, and printed output if applicable. For that reason, the demonstration shall be on the production equipment and the database and all transaction files shall be of the same size as those with which TCRS works in their current operations. The Contractor shall work with the Concord Project Manager to refine the proposed CRP scenario before the completion of Infrastructure (Hardware/Software) Installation. The agreed upon scenario must be executed successfully. In the event the system fails to complete the scenario; the issues must be resolved and the scenario re-demonstrated successfully within five business days.

The initial demonstration should be scheduled immediately after the Infrastructure (Hardware/Software) Installation. The Contractor shall facilitate each session, ensuring that all system users attend the conference room pilot in groups of manageable size.

The demonstration should be repeated, at minimum, during the design/development effort for each functional rollout of the new solution. For each demonstration, the focus must be on the end-to-end business functionality that is to be delivered as part of that project rollout.

The conference room pilot (i.e. the Contractor's current base solution without the TCRS modifications) should be available throughout the project's duration and available for TCRS use in

order for TCRS to better understand the application while their solution is being configured/customized.

46. Documentation (Intro)

As a goal, the system provided by the Contractor should be so easy to use, so self-explanatory, and so intuitive that little or no documentation is necessary. However, laudable as that goal may be, TCRS requires that the Contractor provide two types of documentation for the new pension administration system:

- User documentation, including electronic help.
- System administration documentation including material for both business analysts who need to reconfigure a function and IT staff who need to reconfigure/maintain/support the system.

The required documentation is discussed in the sections that follow.

46.1 User Documentation

The most important piece of user documentation associated with the new solution is described below as the Work Process Manual. But that is not all of the user documentation that must be delivered as part of the system. Below TCRS documents a minimal set of requirements for user-oriented documentation for the new solution.

46.1.1 Work Process Manual

To augment the user work process training effort, the Contractor shall be required to produce a hard copy Work Process Manual and a corresponding online help facility (see below) to assist the users in processing work with the new solution. The manual must be organized to correspond with the work processes for which each user is responsible, unless TCRS agrees to a different way to organize the manual. Planning for the manual and help facility should start at the beginning of the requirements definition effort. The manual must reflect the 'as built' nature of the system, and not the as defined or as designed. It must include an index as well as a table of contents.

The Work Process Manual shall address all manual, as well as automated, work processes in the new environment.

Other manual or quasi-manual processes/procedures that must be developed by the Contractor and addressed in detail in the Work Process Manual include, but are not limited to:

- Procedures for the processing of "manual" contribution payments, ensuring that different employees are responsible for preparing the deposit, posting to the pension solution, and posting to the cash receipts ledger. The Contractor must establish and document procedures for depositing and tracking contribution payments that are not accompanied with the necessary paperwork to identify the member accounts to which they pertain, including procedures for accurately posting the contribution to member accounts in the pension system when the paperwork later becomes available.

- Procedures for reconciling all TCRS checking accounts, including confirmation of the accuracy of the outstanding checks report. The reconciliation process must include "manually" generated checks.

- Procedures, for all plans/funds, for reconciling member and employer reserves as indicated in the pension solution database against the general ledger reserve balances for same.

- Procedures for making changes, adjustments, etc. to individual's accounts.

- Procedures for system maintenance tasks such as table/parameter updates, drop down value changes, new rates, factors, etc.

In addition to documenting all steps to accomplish the processing of work, the Work Process Manual should make appropriate references to both automated and "manual" provisions designed to ensure the proper segregation of duties for internal security and control purposes. Examples include: ensuring that a user cannot update his or her own account, ensuring that account reconciliation is performed by someone other than the person responsible for general ledger postings, ensuring supervisor review of account reconciliations, etc. While it is a TCRS responsibility to implement the recommended segregation of duties, the Contractor must develop the procedures and describe such segregation processes in terms of roles and work processes.

In addition to a detailed Table of Contents, the Work Process Manual must include a detailed, indented index to assist the user in locating the information of interest.

46.1.2 Work Process Online Help Facility

The online help facility must reflect the 'as-built' nature of the system, and not the as-defined or as-designed. The online help facility envisioned by TCRS should operate much like Microsoft Word's Word Help with its "Search for:" help assistance. A field should be provided near the top of each system screen into which the user can enter a question (e.g., "How do I reprint a member's annual statement?") or a series of key words (e.g., "annual statement reprint"). The help facility should respond with a list of likely work processes/sub-processes from which the user can select. When the user selects an item from the list, the appropriate excerpt from the Work Process Manual should be displayed.

At the same time, the user should have access to online help from the TCRS website, from which they would download and/or play instructional videos, view interactive "How To" sessions, etc. The help available, while all drawn from the same library of help text (so that a user's question will get an answer from the same source as a member's question), should also be configurable so that a member of TCRS staff has access to and obtains more information than does a member.

46.1.3 ECM User Documentation

In support of the imaging and workflow training program, the Contractor must prepare and deliver, at minimum, the following ECM-specific documentation:

- User documentation for the stand-alone electronic file cabinet capability.

- User documentation covering the use of tools such as annotation, etc., within the imaging viewer.

- Imaging and indexing software end-user procedures manual(s).

46.1.4 ECM Operations Manual

A key criterion for success of this effort is the on-going "Day-Forward" aspect with respect to new, incoming documents that are received by TCRS – both prior to and after the implementation of the new LOB application.

With the implementation of the new solution, TCRS procedures and processes relating to incoming correspondence and documents will significantly change.

Historically, hard copy documents received in the mail have been identified and sorted, imaged into MODOC (current microfilm system) and then distributed to appropriate staff for action. Whenever it later became necessary to refer to the same documents, users requested a copy of microfilm via “picking tickets” and these items were distributed manually.

In the new environment, incoming correspondence and documents will be identified, sorted, then scanned and indexed into FileNet. The hard copy will be filed and, except for unusual circumstances, will not have to be retrieved later. Instead, the initial scanning and indexing process will place the images in the member’s/retiree’s/beneficiary’s electronic folder and then trigger appropriate workflow streams – i.e., front-end scanning. The images will be ‘linked’ to automatically generate ‘work packets’ that will appear in the work queues of staff members. When staff members retrieve the work packets from their queues to process the work, the images will be available for viewing at the staff members’ desktop workstations. Document images will be accessible to multiple users at the same time. Thus, a single piece of correspondence can trigger multiple workflow instances, and multiple users can work with the document simultaneously. If TCRS generates any correspondence in the process, that correspondence will be automatically imaged and indexed and added to the member’s/retiree’s/beneficiary’s electronic file folder.

Therefore, there is a need to develop a new “model” for how incoming and outgoing correspondence and documents will be handled and processed in the future environment – a model that integrates the imaging and workflow capabilities of the new solution, as well as its automatic correspondence generation features, with still the necessary “manual” chores of opening and sorting the mail and filing the hard copy. The new model must also accommodate the rare occasion when hard copy must be retrieved from the files during the retention period and later re-filed.

The Contractor shall be responsible for defining and carefully documenting this new document handling/processing model.

Subject to TCRS approval, the Contractor shall follow the detailed approach/strategy to handling incoming documents both before and after the implementation of the new solution as described in its proposal. The solution must be simple, straightforward, and easy to control. Topics such as the following must be included:

- Sorting significant correspondence out of the bulk of incoming mail.
- Preparing the correspondence for scanning.
- Scanning and indexing the significant correspondence, ensuring that the images are placed in the correct electronic file folder.
- Handling new documents received for a new person.
- Handling documents that are incomplete.
- Handling documents that are not TCRS related.
- Handling documents that require a new folder/sub-folder to be created.
- Handling new documents received for a person whose record is already involved in another process (e.g., an address change for someone whose retirement application is in process).
- Check handling, birth certificates and legal documents.

46.2 Administrative and System Documentation

The sections below define the documentation required for system administrators, those who will reconfigure components of the solution and those who will support it.

46.2.1 General System Administration Documentation

System documentation that must be provided includes but is by no means limited to:

- Backup and recovery procedures (complete with recommended schedule).
- Error code descriptions accompanied by a discussion of how to work around or recover from the particular error condition.
- System tuning discussion, providing TCRS personnel with the information they need to adjust performance.

46.2.2 General System Configuration Documentation

System configuration documentation that must be provided includes but is by no means limited to:

- Documentation on all aspects of pension administration system configuration such as changing of tax codes, addition of new plans, etc.
- Documentation on aspects of the system that are configurable but other than pension administration system-specific (e.g., frequency of backups).

46.2.3 System Maintenance and Operations Documentation

The Contractor is required to provide both hard and electronic copies of all documentation required by TCRS staff or their designee (such as the Contractor or another third party) to maintain and operate the system following the turn over of the responsibility of those operations from the Contractor staff to the TCRS.

46.2.4 ECM-Specific Technical Documentation

In support of the imaging and workflow training program, the Contractor must prepare and deliver the following products:

- Operational system documentation.
- System administrator operations manual.
- Imaging software technical procedures manual(s).
- Workflow processes and procedures.
- Operations documentation relating to normal processing, exception processing, and abort conditions; if a procedure or program aborts, the operational documentation should list the steps necessary to recover and restart/rerun.
- All source code for any Contractor-developed applications, middleware, communications capability, or interfaces.
- Hardware maintenance and support documentation.
- Imaging and indexing software end-user procedures manual(s).

46.3 Support/ Help Desk Documentation

The Contractor shall provide documentation to assist TCRS and TCRS IS staff in supporting the system and its users during and after the Concord project. This documentation is expected to reflect and reference the material supplied to the users, as required above.

The Contractor shall prepare a Support/ Help Desk Plan that includes anticipated end-user support needs (e.g., volume and timing), the approach and responsibilities to address them, and the project tasks to install and test the support mechanism.

47. Training and Knowledge Transfer (Intro)

The Contractor shall create a Training Plan deliverable that will specify the major phases of training (e.g., training the UAT team), the objectives for each, the approach and key activities, the key deliverables and assignments, the planned timing, the tools and resources (e.g., rooms) to be used, and the measures to be tracked.

The Contractor shall provide three comprehensive training programs, addressing the respective training needs of:

- TCRS users (TCRS staff and managers), both those individuals involved in User Acceptance Testing (UAT) and the general user population.
- TCRS technical staff (operations staff, developers, data team, and business analysts).
- TCRS Field Services – so that they can appropriately train the Employers.

The Contractor's overall approach shall be presented in a Training Strategy document.

The training programs shall encompass all platforms, applications, and environments included in the proposed solution. Training shall occur in a phased manner, i.e., not all at the beginning or at the end of the project, but corresponding to the phasing of the overall project.

The format of the training to be provided to both TCRS groups (users and technical staff) must include, in addition to classroom instruction, training workshops/laboratories that offer participants hands-on experience with all of the facets of the new solution pertaining to their job duties.

Training to be provided to TCRS field services may consist of both classroom training and/or web-based training so that they are equipped to train the employers.

The Contractor shall provide on-site training in all aspects of the new system. All trainers are to be certified as trainers by the developer of any of the third party products on which TCRS staff is being trained. This includes but is not limited to: office automation, relational database management system, and third party development tools. This training can be accomplished by Contractor staff or subcontractor staff.

Although TCRS recognizes that subcontractors may provide some training services, the Contractor (prime contractor) shall be solely responsible for the quality and timely completion of all training activities.

A critical training requirement is to educate TCRS staff members in the process that will be used to define the new system's requirements, design the solution, and implement it. TCRS users in particular have limited familiarity with system development life cycle methodologies including, but not limited to, design "workshops", Joint Requirements Planning (JRP) sessions, and Joint Application Development (JAD) sessions. Yet their input is essential, and the design issues they approve early in the project will be the foundation on which subsequent activities will be based later in the project.

Therefore, the Contractor must provide a series of orientation training sessions for all TCRS staff members who will participate in the project:

- The first orientation session must occur within the first two months of the project.
- The second must occur prior to the start of any requirements definition/gap analysis.
- The third must occur prior to the start of the design effort.
- The next must occur at the start of for the first functional rollout phase of the project.

Regardless of the format and schedule for training (of all types) provided by the Contractor, TCRS expects that the Contractor (or its subcontractor[s]) shall conduct all training sessions. A "train-the-trainer" approach is not acceptable either related to the system development life cycle or for end-user training.

Under no circumstances shall any training session be conducted on any of the topics pertinent to the Contractor provided solution or any of its components without hardcopy reference material, a workbook, or a user guide supplied in sufficient number and in sufficient detail for those to be trained. Such reference or training material must thoroughly cover the subject matter and be written at the appropriate level for the intended audience. In addition, such material shall be provided to TCRS in draft form for review and feedback to be incorporated by the Contractor prior to the conduct of any related training sessions.

The Contractor must provide all electronic source documents, graphics, and the like used in the development and presentation of all aspects of training. All training materials may be copied by TCRS without restriction.

The Contractor must meet, at minimum, the expected performance and the expected outcomes of each type of training as included in its proposal. In conjunction with this, the Contractor must develop evaluation tools to determine whether the training efforts produced the expected results. The evaluation must consist of various tests administered to trainees at each training session. This evaluation tool shall be used to identify weaknesses of the training program and specific revisions that need to be made. Information regarding the actual training results must be provided in an evaluation analysis report. The trainers for all training efforts must utilize the evaluation survey tool.

TCRS will provide a training contact person who will work with the Contractor to coordinate training activities. The Contractor shall provide TCRS with a list of training classes, their duration, their intended "audience," and student capacity. TCRS and the Contractor jointly shall determine the training dates and schedule TCRS staff and facilities.

The following subsections define the specific training requirements for users versus technical staff versus that needed by TCRS field services who will be training the employers.

47.1 User Training

User training has two major audiences or constituencies:

- Those users involved in User Acceptance Testing (UAT) who require familiarity with both the application and testing activities, such as methodologies, PIR reporting, and regression testing.

- The general population of users and managers who do not require familiarity with testing activities.

Since the two constituencies require separate (different material and different timing) training, separate training sessions are to be delivered to each. Training is to be delivered to each constituency for each of the functional roll-out phases. Finally, training is to be delivered just in time (JIT) so that the material is still fresh when the users must put what they learned to use.

TCRS staff is experienced with Browser based applications and, thus, will require no training in basic Browser operation/navigation.

47.1.1 General User Training

Topics to be addressed in the user training program include, at a minimum, those items listed below:

- Contractor's system development methodology – aimed at users.
- Identification of the legacy processes that each user previously performed and how such processes map to the new processes. The purpose is for users to understand what they used to do vs. what they will do in the future.

- With respect to the new system's functional capabilities:
  - This training must be focused on educating the users in how to accomplish their job duties, i.e., which processes/sub-processes apply to the user's particular job responsibilities and how to invoke and execute those processes and sub-processes.
  - This level of training is distinct and separate from training in user procedures (menus, windows, screens, radio buttons, etc.) defined below.
  - It includes training in the use of the Work Process Manual and Help facility and encompasses all manual as well as automated processes.
  - Where appropriate, this training also indicates where processing that previously was done manually (or with an access database or excel spreadsheet) is now done as a part of the actual pension administration system. This will help wean users from the use of their former "outside the system" tools.
- User procedures (including but not limited to navigating menus and screens, entering data, queries, and "short-cuts"/"hot keys").
- User system administration (including but not limited to system functional access and system-wide parameters).
- User maintenance of date sensitive parameters, variables, and coefficients used in the system.
- All applicable balancing and reconciliation processes involved in bridging and/or converting data.
- Use of the various documentation deliverables, including online help and error messages.
- Query language(s).
- Report writer products.
- Collaboration tools and/or deliverables repository.
- Problem incident reporting tool.

Subject to TCRS agreement, the Contractor shall follow the top level User Training Plan included in its proposal.

The Work Process Manual (and Help Facility) is of particular importance in this regard. No training relating to the use of the new pension application is to be conducted until the Work Process Manual is provided first for review, revision and approval by CONCORD project management and subsequently to all trainees. The pension application training sessions must be based on the Work Process Manual and include instruction in its use. TCRS recognizes that the new solution will be delivered in phases. Therefore, it is understood that there will likely be multiple versions of the Work Process Manual (each more complete than the preceding version) corresponding to the project's functional rollout phases. Before any user training is conducted in support of a functional rollout, it is imperative that the Work Process Manual supplied to the trainees be complete in terms of the processes and sub-processes used in that rollout.

The preceding paragraph is not relevant to user orientation sessions, training in the project's system development life cycle, or similar training relating to project methods and processes – as opposed to the use of the new solution itself.

47.1.2 Training in the Development Methodology

With particular regard to development methodology training, the user training program must be coordinated with the preparation of, and addressing the contents of, the Development Methodology Overview – End User (DMO) document to be delivered by the Contractor. These development methodology training sessions must each involve no more than 10 to 15 TCRS participants.

The topics to be covered in each development methodology training session include:

- An overview of the process – how the project will progress from the requirements included in the contract to gap analysis and requirements definition, through design, and implementation via various steps, including but not limited to, joint applications development sessions, joint requirements planning sessions, prototyping sessions, conference room pilots, and office modeling, test, and training.
- Where in the overall process this and the next step fits in.
- The role to be played by TCRS users.
- The meetings TCRS users will attend and their purpose.
- The deliverables TCRS users will have to review and approve.
- How the scope of the project is determined by the information TCRS users provide (i.e., the level/detail of review necessary).
- How changes in scope can occur if requirements are not fully defined at the beginning of the project.
- Emphasis on the importance of TCRS users' participation and review activities, including the fact that their participation in the project will directly affect their work duties after the new system is implemented.
- Emphasis on how failure to correct a deficiency during a review activity early in the project can have a serious impact on the project's cost and completion date later in the process.

This DMO training process must be repeated for each phase.

47.1.3 ECM Training

TCRS expects that the workflow component (and the subsequent training) of ECM will be so well integrated into the pension administration system that no workflow-specific training is necessary for users. However, user training in the new imaging solution must be included in the top level training plan presented in the proposal. TCRS requires that the Contractor provide a comprehensive imaging training program that addresses both training on the stand-alone Electronic File Cabinet (EFC) and on the imaging system as integrated with the line of business solution. User training should encompass all modules that are a part of the imaging solution and address the training needs of:

- File room/mail room end-users.
- Staff members.
- Supervisors and managers.

Topics to be addressed in the imaging training program include, at a minimum:

- Imaging system's functional capabilities.
- Document preparation and scanning capabilities (for the file room/mail room personnel).
- Basic user procedures (navigating menus and screens, scanning, indexing, retrieving images, entering data, queries, "short-cuts"/"hot keys").

The format of the training to be provided must include not only classroom instruction, but also and more importantly, training workshops/laboratories that offer participants hands-on experience with all of the facets of the new imaging solution that pertain to their job duties. This also means that general application user training should include training on searching for, retrieving, annotating, etc., electronic member records.

Imaging system training should be based on the delivered imaging system User Manual but be supplemented with presentation materials, workbooks, labs, etc., as necessary.

47.2 Technical Staff Training

TCRS has chosen to include in this section the training on all aspects of the Contractor's solution that are not included in the user training specified in the previous section. Therefore, we include under Technical Staff the training of business analysts as well as TCRS' IT staff. Obviously, business analysts will not need training on the operating system(s), but the overall principles under which they initially observe and later learn how to configure the pension administration solution are the same as those for that govern how the IT staff will be trained.

47.2.1 General Technical Training

Topics to be addressed in the technical staff training program include, at a minimum, those items listed below:

- All applications software, whether packaged or customized.
- Hardware operations.
- Operating system level software.
- Systems administration.
- Troubleshooting and fault isolation.
- Query language(s).
- Report writer products.
- Development languages.
- Tools and techniques that will be employed in customizing and maintaining the applications software.
- Data base management system.
- Data modeling tools.
- Test script generators.
- Collaboration software/deliverable repository.

Training in both the use and the administration of software tools is required. It is desired that this training be provided on-site at TCRS. However, if such training is only available through a certified trainer outside of the Nashville, Tennessee area, then the Contractor shall bear the associated cost for such offsite training; not including travel related costs.

Subject to TCRS agreement, the Contractor shall follow the top level technical staff training plan included in its proposal.

Like TCRS users, technical staff members, also, are to be trained in the Contractor's development methodology.

Finally, in addition to any formal training that the Contractor provides, it is TCRS' expectation that their technical staff will be involved (if only as observers) whenever a task (e.g., system software installation and configuration, solution configuration, system backup, database tuning) is performed that may eventually fall to the TCRS technical staff to perform. This approach will also make the eventual formal training in tools, processes and procedures much more useful. In fact, Contractor is encouraged to incorporate into its technical training references to activities previously performed by Contractor staff but witnessed by TCRS technical staff.

47.2.2 Pension System Administration System Training

The Contractor shall provide training in the administration of the new pension administration solution per the training requirements established above.

TCRS requires that the Contractor provide a comprehensive administration training program for approximately ten (10) staff members who will be a mix of business analysts and IT staff members.

Topics to be addressed in the administration training include, but are by no means limited to:

- Reconfiguration of all aspects of the system such as adding a new plan, a new user, changing the tax tables, etc.
- Support of the employer-reporting sub-system portion of the solution so that new employers can be added to the system, trained and supported by TCRS staff.
- Support of the web-based member self-service sub-system of the solution so that TCRS staff will be able to later expose (using appropriate security) functions currently accessible only to internal users.

47.2.3 ECM Administrative and Technical Training

The Contractor shall provide training in the administrative and technical aspects of the new imaging and workflow management solution.

TCRS requires that the Contractor provide comprehensive imaging and workflow training that addresses both the stand-alone Electronic File Cabinet (EFC) and the imaging and workflow solutions as they are integrated with the line of business solution. Training should encompass all modules that are a part of the imaging and workflow management solution and address the training needs of:

- Scanner operators.
- Indexers (if different from the scanner operators).
- Quality assurance workers.
- Business analyst end-users.
- Supervisors and managers.
- Staff members assigned to maintaining imaging/workflow.
- IT operations and programming staff.

Topics to be addressed in the imaging and workflow training program include, as appropriate and at a minimum:

- Imaging system's functional capabilities.

- Document preparation and scanning capabilities (for scanner operators only).
- Basic user procedures (navigating menus and screens, scanning, indexing, retrieving images, entering data, queries, "short-cuts"/"hot keys").
- Workflow processes and procedures.
- Basic system administration features (e.g., system functional access and system-wide parameters).
- Troubleshooting and fault isolation.
- Application/operation support.
- Hardware operation and maintenance.

The format of the training to be provided must include not only classroom instruction, but also and more importantly, training workshops/laboratories that offer participants hands-on experience with all of the facets of the new imaging solution that pertain to their job duties.

47.3 TCRS Field Services Training (so TCRS can train their Employers)

TCRS recognizes that to receive the full benefit of a new pension system, employers will have to change the format and mode by which they report wage, contribution, service, and employment information to TCRS. Education and training of the employers is a project in itself. It must be properly planned, developed, executed, and integrated with the rest of the implementation.

TCRS will be responsible for the actual education and training of the various employers.

However, the Contractor shall still be responsible for the following:

- Develop technical manuals to be supplied to TCRS for use by the employers identifying the required new file layouts.
- Develop user manuals to be supplied to TCRS for use by the employers that detail all necessary data preparation procedures and the web-based reporting methods that will be utilized.
- Deliver training to TCRS (i.e., train the trainer) so that TCRS can subsequently train the employers.
- Provide the capability to accept employer data in **both** the old format and the new web-based format, and provide the capability to convert/translate each to the "other" environment in support of a gradual transition of employers to the new web-based reporting.

The Contractor shall be responsible for the training of appropriate TCRS staff in the new employer reporting system as follows:

- Demonstrating, and training TCRS staff in the use of the new system to accept employer wage and contribution data in all legacy system reporting modes, as well as via the new employer reporting web site.
- Demonstrating, and training TCRS staff in the use of, the new system's capability to "translate" wage and contribution data from each of the legacy system reporting modes/formats to the new web-based reporting format.

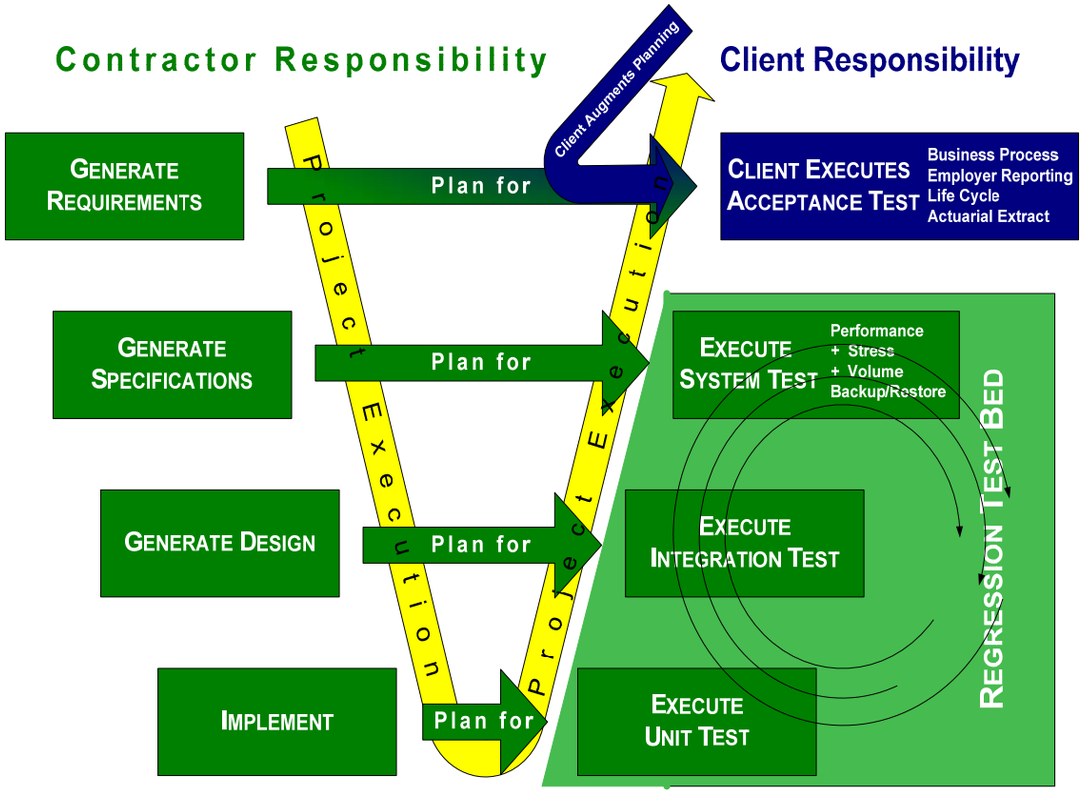
- Demonstrating, and training TCRS staff in the use of, the new system's capability to "translate" wage and contribution data from the new web-based reporting format to each of the legacy system reporting modes/formats.

- Demonstrating, and training TCRS staff in, the successful posting of employer wage and contribution data regardless of the mode/format (i.e., legacy system mode or web-based mode) in which it is received.

48. Testing (Intro)

TCRS expects a comprehensive testing process to be in place and utilized to determine whether the solution delivered (both base functionality and customizations) satisfactorily addresses the requirements defined in the contract as confirmed or revised during requirements definition.

Below is a diagram showing how the various development aspects and phases of a project relate to the various testing terms and definitions that TCRS employs. While the diagram as shown applies to the entire solution development life cycle, it is presented here to demonstrate the scope of testing as well as laying out the Contractor responsibilities for the development and execution of test plans.



The diagram provides a wealth of information. It shows how the specifications for various test phases (on the right side of the project execution "V") are derived directly from solution development phases (on the left of the "V"). It also shows that Contractor must accept responsibility for all of the development phases, all of the test planning and preparation, and all of the test execution except for the Client's Acceptance Test shown in the upper right hand corner of the diagram.

A list of test-related terms, along with their meaning in the context of this contract, is provided below:

Scope of Testing	The range of tasks conducted on the solution to determine whether the solution satisfies the functional and technical requirements defined in the contract as revised through the requirements definition process – as well as the internal design specifications and the high-level and detailed design of the system.
Contractor Testing ***(or)*** ***Contractor Acceptance Testing***	The hierarchical series of tests conducted by the Contractor to verify proper functioning prior to delivering one or more components of the solution to TCRS. In order from simplest to most complex, Contractor Acceptance Testing includes: ➢ **Unit Testing** – Tests performed by the programmer or developer to ensure the reliable performance of functions, procedures, and routines before making the product available to other developers within the larger component or system. ➢ **Integration Testing** – Testing of the solution with all its integrated components to ensure that they work together as designed, that the various sub-systems communicate with one another properly, errors are properly propagated from one component to another, etc. ➢ **System Testing** – Testing of the entire system (as a system) to ensure that the solution meets the design specifications. Specific components of the system test include: ➢ **Performance Testing** – Tests designed and executed to determine whether or not the solution delivered satisfies the performance benchmarks identified in the contract and refined and agreed to by TCRS and the Contractor. Performance testing includes: ✓ Stress testing – designed to break the solution by overwhelming it or by depriving it of resources. The objective is to make sure that the system is recoverable – that it fails and recovers gracefully. ✓ Volume testing – testing the solution by introducing constantly increasing load in an attempt to expose weaknesses that do not surface in routine testing, such as memory management bugs, memory leaks, buffer overflows, or processor saturation. ➢ **Backup and Recovery Testing** – Testing to verify that a backup of the applications software and data, following procedures defined by the Contractor, can consistently and accurately be made and restored in an acceptable time period. The Contractor should note that system testing also includes complete execution of the Contractor-generated User Acceptance Test scripts to ensure that the system (when it is handed off to TCRS) will execute the acceptance tests to a reasonable level of completion. ➢ **Regression Testing** – Possibly the most important aspect of the Contractor's testing responsibility, regression testing is the principle of re-testing previous problem repairs subsequent to the correction of new problems to ensure that previously repaired problems do not recur and no other errors are introduced. Regression testing is an integral part of any good software development methodology.
User	Execution of a series of defined steps using predefined data, the objective of

Acceptance Testing (UAT)	which is to determine whether the actual outcome consistently, repeatedly, and accurately equals the expected result. User acceptance testing is a deliberate process and requires test scenarios, test cases, test data, and expected outcomes to be prepared (by the Contractor) and known in advance of test execution. UAT occurs subsequent to the completion of Contractor's testing responsibilities – though Contractor-accomplished regression testing continues in response to changes and repairs of problems determined during UAT. User Acceptance Testing (UAT) also addresses: ➢ **Business Process Testing** – Scenarios covering all the business processes TCRS conducts using data sets designed to exercise all possible variations, permutations and logic branches in base and customized function. ➢ **Employer Reporting Testing and Support** – Contractor-assisted testing of employer reporting functionality to confirm that employer wage and contribution reports can be received and posted via both legacy system reporting modes and the new solution's web-based employer reporting capability. ➢ **Member Life Cycle Testing** – Testing a well-defined sequence of member or retiree events that effectively represent all, or a logical and related subset of, activities one would expect to occur over the life of a member or retiree. ➢ **Actuarial Extract File Testing** – Testing of the production of an annual actuarial extract file and reports (including an Experience Study Report and an Asset and Liabilities Report) to provide the system's actuary with the information necessary to prepare an annual actuarial valuation.

As mentioned above and indicated in the diagram, the Contractor shall bear all responsibilities for test planning and preparation throughout the project.

These responsibilities include the identification and preparation of all test plans, test variants, test scenarios, test cases, test scripts, test data, and expected results for the entire system and *for all testing levels*. Furthermore, as indicated, TCRS requires that the Contractor plan for and execute complete, end-to-end testing of the solution, not just the customizations done for TCRS. In addition, the Contractor shall provide a mechanism for reporting actual test results vs. expected results and for tracking all errors and problems identified during test execution, as well as their resolution. This reporting mechanism shall include trend analysis for tests completed, errors identified, rework efforts, and retesting efforts, in both numeric and graphical presentations.

The Contractor shall document its response to its testing responsibilities in a Test Strategy and Test Management Plan.

When it comes time for TCRS execution of User Acceptance Testing (UAT) of each roll-out phase, the Contractor is to deliver to the Concord Project Manager all of the Contractor-prepared aforementioned materials at least two weeks prior to commencement of UAT – in both notebooks and end-user-logically-organized electronic copy. The Contractor also shall provide training as necessary to TCRS staff responsible for test activities – prior to the start of execution of UAT.

It is appropriate to assume that the majority of TCRS users are unfamiliar with structured, disciplined acceptance test procedures, including their conduct and resource (time and staff) requirements. The preparation of necessary testing materials as identified in the preceding paragraph is the Contractor's responsibility, though (again as indicated) TCRS reserves the right to

review and approve the materials developed by the Contractor and to augment those materials and test plans and scripts as TCRS sees fit. Note that no user testing is to start until TCRS staff is trained by the Contractor in testing methodologies and problem incident reporting (PIR) mechanisms.

In preparation for and execution of testing activities, the Contractor must:

- Create the test environment, meeting the specifications of the test plans.
- Install the system in that test environment.
- Ensure that sufficient and approved test data are populated in the test database(s).
- Support the operation of the test system and deliver system output to TCRS as requested.
- Plan for documenting, and resolving any errors encountered during testing – and fully regression testing the subsequent repairs.
- Provide adequate technical and other staff dedicated to testing support and problem resolution while testing activities are in progress.
- Update the requirements traceability matrix demonstrating that the tests performed validate that specified system requirements, either listed in the contract or through the requirements GAP analysis conducted as part of this implementation, have been met.

After contract award, the Contractor shall be required to include details of its test plan methodology in the detailed project work plan. A separate test plan and set of test materials shall be prepared for each functional cutover.

The Contractor shall be responsible for using the established repository to contain the test data results.

TCRS is concerned about the amount of time that will be allocated to testing relative to design and development. It is crucial that TCRS training and testing activities not be abbreviated in order to meet project implementation schedules; further, it cannot be assumed that when testing commences TCRS can allocate 100% of its resources to this effort. Therefore, TCRS requires that a fixed ratio apply to the time devoted to TCRS training and testing relative to the actual time devoted to Contractor requirements definition, design, and development. We propose a 4:1 ratio – i.e., if the time required for the Contractor to design, build, and test a particular functional rollout phase is eight months, then two months must be allocated to TCRS staff for training and test execution.

No deviations from the fixed ratio shall be permitted during the course of the project except by express written approval of TCRS.

The following sections provide specific requirements and detail the Contractor's responsibilities relating to both Contractor Acceptance Testing and User Acceptance Testing of the new solution.

48.1 Unit Testing

Unit testing shall be performed by the Contractor for each functional rollout phase of the project. Certification that the Contractor's test team has successfully completed all unit tests must be delivered to TCRS prior to TCRS UAT. Note that it is not necessary to indicate the name of each module that has been unit-tested, merely, that unit testing has been completed.

48.2 Integration Testing

The Contractor shall prepare and present an Integration Test Plan that describes, at a minimum, the details of integration tests and the expected result of each test. Further, the Integration Test Plan should detail the specific work, assignments, and timing for these specific testing phases just prior to their start.

Integration testing shall be performed by the Contractor for each functional rollout phase of the project. Even if there are no third-party package components in the rollout phase being tested, there may be issues with integration with TCRS web site, the RDBMS underlying the solution, or other such components. Certification that the Contractor's test team has successfully completed all integration tests must be delivered to TCRS prior to the commencement of TCRS UAT.

48.3 System Testing

System testing shall be performed by the Contractor for each functional rollout phase of the project. System testing shall be performed on one of the environments installed at the TCRS location and must be witnessed by the Concord Project Manager or his or her designee. System testing should include end-to-end testing of the system to ensure that when TCRS executes the UAT scripts and processes there will be no unexpected errors or other deficiencies. In addition, system testing includes the performance- and backup and recovery-testing outlined in subsequent sections. TCRS further notes that at the conclusion of System Testing, Contractor must execute the full Contractor-developed suite of UAT tests to ensure that TCRS staff commences their testing on a system that works.

Certification that the Contractor's test team has successfully completed all system (including the pass through the UAT testing) tests must be delivered to TCRS prior to the commencement of TCRS UAT.

48.4 Performance Testing

The Contractor must demonstrate via a performance benchmark test to be conducted as mutually agreed to between the Contractor and TCRS, that the proposed solution will meet all performance criteria as specified in Operational Requirements (Contract Attachment 2, Section 7) when all of the following are running:

- Standard LOB applications.
- Ad hoc query is in use.
- 100 concurrent sessions of TCRS staff users (whether internal or external [i.e., working from home or another remote location]).
- 100 active Wage and Contribution transmissions occurring (i.e., 100 employer wage and contribution reports simultaneously submitted).
- 500 concurrent external users accessing the system through the web.
- Multiple instances of unattended processes such as interest calculation, annual member statements, 1099 generation, etc.

Web applications that will be available to reporting units, active members, or retirees must be sized to accommodate the concurrent sessions initially expected and rising in number to support an increase in concurrent sessions throughout expected lifetime of the solution.

The required performance benchmark test must include:

- Stress testing – Tests designed to break the solution by overwhelming it or by depriving it of resources. The objective is to make sure that the system is recoverable (i.e., that it fails and recovers gracefully).

- Volume testing – testing the solution by introducing constantly increasing load in an attempt to expose weaknesses that do not surface in routine testing, such as memory management bugs, memory leaks, buffer overflows, or processor saturation.

The performance test must:

- Be described in detail in the proposal.

- Be conducted as part of the acceptance of the first functional rollout phase that is moved into production.
- Be conducted as a condition of acceptance of the full system.

The Contractor must be aware of and understand that the performance requirements outlive the term of the contract. TCRS expects to add storage and to replace servers after this contract is completed; these additions and replacements are not the Contractor's responsibility. However, in the event that the combination of hardware and software specified by the Contractor and added, replaced, or upgraded by TCRS fails to satisfy performance requirements stipulated, the Contractor is required to provide additional hardware, software, and services, as necessary, to rectify such performance shortfalls – at no additional cost to TCRS.

48.5 Backup and Recovery Testing

The Contractor shall assist and provide guidance to both TCRS and OIR with regard to the planning, testing, and actual execution of normal system back-up and recovery execution.

48.6 Regression Testing

The Contractor shall be responsible for developing test plans and all test materials, as well as for executing all tests and certifying their completion prior to user testing for all functionality being delivered. As a result of the user testing activities, problems will be identified that require correction. Those corrections will, in turn, require re-testing. In addition, when a second functional phase is developed on top of a first, features inserted into the second (and subsequent) phase(s) may cause functionality in the first phase to cease functioning. Those problems are identified through re-testing of the features of all phases prior to the current phase, as well as by unit, integration and system testing of the most recent phase.

During the problem correction process as well as during the validation of previous phases, TCRS is concerned that appropriate regression testing be conducted. By regression testing, we mean re-testing to detect faults introduced during the modification and correction effort, both to verify that the modifications and corrections have not caused unintended adverse effects, and to verify that the modified and related (possibly affected) system components still meet their specified requirements.

As part of the overall system test plan, a regression test plan shall be developed by the Contractor describing (1) the core test bed that ensures appropriate coverage of complete system functionality, and (2) how each specific programming change made to the solution will be classified and also how a test for its integrity will be incorporated into the regression test bed. Then when a programming change is made (and tested and integrated) in response to a problem identified during Contractor or user test, the Contractor shall augment the regression test bed (according to the plan) to incorporate testing for the new repair as well as ensure that prior repairs are not undone. Thus the regression test plan has two objectives: first, to validate that the change/update has been properly incorporated into the program; and second, to validate that there has been no change to the unchanged portions of the program.

The Contractor shall be expected to:

- Create a set of test conditions, test cases, and test data that will validate that the unchanged portions of the program still operate correctly.
- Create a set of test conditions, test cases, and test data that will validate that the change has been incorporated correctly.
- Manage the entire cyclic process.

Again, the Contractor's independent test team shall be expected to execute the regression test and certify its completion in writing to TCRS prior to passing the modified application to the users for retesting. In designing and conducting such regression testing, the Contractor shall

assess the risks inherent to the modification being implemented and weigh those risks against the time and effort required for conducting the regression tests. In other words, the Contractor shall design and conduct reasonable regression tests that are likely to identify any unintended consequences of the modification while taking into account schedule and economic considerations.

Finally, TCRS believes that the set of regression tests developed during the implementation of the Contractor's solution provide a complete test bed for testing of further revisions of the product as well as possible changes in configuration etc. For that reason, the Contractor is required to supply TCRS with the complete set of regression test instructions, scripts, expected outcomes, etc., upon final cut-over. TCRS will use the regression test bed to validate subsequent patches and releases of the operating system, releases of the pension administration system, and changes in configurations, etc. that TCRS business analysts or programmers make to the pension administration system.

48.7 Criteria for Cutover to User Acceptance Testing

Cutover from the Contractor's testing responsibilities to TCRS' UAT effort is more than a date on a project plan. Prior to the commencement of UAT, the Contractor must have successfully completed all required testing required by the phase definition. The Contractor shall prepare a testing report that summarizes the testing that occurred, how it was performed and by whom, how it was documented, the results that were obtained, and how it was verified by the QA / IV&V consultant. The report should include information on any acceptably open outstanding issues and the resolutions for key issues found. The State may request and the Contractor shall provide similar testing reports on other testing activity. At the conclusion of the Contractor's testing responsibilities for each phase, the Contractor shall provide written certification, signed by both the Contractor's project manager and the Contractor's Test Team Director (an individual separate and apart from the development staff charged only with test and quality assurance responsibility) that all tests have been completed satisfactorily (at a minimum 95% level, that is, all testing completed with no more than 5% of the test cases not completing satisfactorily) and that the system is ready for User Acceptance Testing.

The final output of the Contractor's testing responsibilities shall be both hardcopy and electronic test materials including, but not limited to: test plans, test scripts, expected test results, actual test results, and tangible proof (i.e., screen prints [before and after images] or report output) that actual test results were compared to expected test results. UAT shall not begin until two weeks after the Contractor's testing responsibilities material has been provided to TCRS. Member Life Cycle Testing and Employer Reporting Testing shall not begin until Business Process testing has been completed.

48.8 User Acceptance Testing

The Contractor shall prepare and present an Acceptance Test Plan that describes, at minimum, the test cases, objective and expected result of each test case, the tools to be used, and the measures to be tracked. Further, the Acceptance Test Plan should detail the specific work, assignments, and timing for these specific testing phases just prior to their start. The Contractor may be required to assist users with initial user acceptance testing.

User acceptance testing (UAT) shall be conducted for each functional cutover. UAT shall not begin until the Contractor has met its Testing Responsibilities.

In addition to assisting TCRS users in utilizing the test materials and executing the tests, the Contractor also shall support users in reporting test results and in re-testing, as required, to confirm that all Problem Incident Reports were addressed correctly and thoroughly.

Tests conducted during UAT shall be executed against converted data drawn from TCRS current production legacy system as well as against new data added during execution of the test cases. As a result, the Contractor shall accommodate in its project plan and timeline the completion of some sufficient level of data conversion to provide a satisfactory sample data set.

The following subsections discuss specific user acceptance testing requirements relating to business process testing scenarios, employer reporting testing, and (member) life cycle testing.

48.8.1 Business Process Testing Scenarios

TCRS is concerned about the "auditability" of the new pension application and procedures. Therefore, the following business process testing scenarios must be addressed by the Contractor in developing testing plans and materials, in forming Contractor unit testing, in conducting Contractor integration and system testing, and in supporting user acceptance testing. The applicability of the following testing scenarios depends on the particular functional rollout phase of the implementation being tested. Therefore, in order to demonstrate the "auditability" of the new solution, the Contractor is responsible for addressing each of the following testing scenarios twice – in the project's first functional rollout phase to which it pertains and again prior to the final functional cutover to the new solution:

A. With regard to both Federal and State income tax, design and conduct tests which demonstrate successful reconciliation of the aggregate amount withheld from all benefit payments (including "manual" and "one-time" checks) issued during the payroll period against the amount calculated to be submitted to tax authorities. This reconciliation of tax withholding must be demonstrated. Complete a test of the 1099R production process to ensure accurate aggregation of distributions, accurate calculation and reporting of basis recovery and all required tax information.

B. Design and conduct multiple tests as necessary to demonstrate that at all times TCRS manual and computerized records, subsidiary ledgers, control ledger, and reconciled bank balance are in agreement.

C. To ensure that when members request a refund, processing occurs automatically so they receive benefit of **all** of the appropriate funds in their account, design and conduct tests to confirm that:

   i. The account remains in a workflow queue or an "open" status until final salary and contribution information is posted; when final posting occurs, the full amount remaining in the member's account is automatically paid to the terminated member.

   ii. The refund amount reflects all interest earned by the account through the date of termination.

D. Design and conduct tests to demonstrate that the correct actuarial tables and mortality assumptions are used to calculate employer reserve charges and that the correct age and marital status (retiree only, joint /spouse, and survivor) factors from the actuarial tables are applied in calculating future cost of benefits.

E. Design and conduct tests to demonstrate that when an account is put on "hold" – that no benefit is distributed from it or change made to it other than by authorized users.

F. Design and conduct tests to demonstrate the successful reconciliation of all TCRS draft accounts using the reconciliation procedures developed and delivered by the Contractor, including confirming the accuracy of the outstanding checks report.

G. Design and conduct a test to ensure that Internal Revenue Code IRC 415 limits are properly enforced and that the excess is accounted for.

H. Design and conduct tests to confirm that when a user changes the status of a check to "void", the transaction is directed to a different user having appropriate system permissions (e.g., 'supervisory', 'audit', 'review') for review and approval

before it is committed to the database. Further, confirm that for each check successfully changed to "void" status, a corresponding correct automatic entry is made to the general ledger.

I. Design and conduct tests to demonstrate that all subtotals, totals, and grand totals reported or displayed by the pension solution can be 'decomposed' (via audit trail) such that the user can identify the source data used to compute the totals. Further, confirm that all appropriate subtotals, totals, and grand totals are provided in all reports.

J. Design and conduct tests to demonstrate that every automated general ledger entry attributable to the pension solution can be identified as to its source and is posted correctly.

K. Design and conduct tests to demonstrate that the pension solution can provide an accurate display and report of all contributions that have been received but not yet posted.

L. If separate sets of records, files, and/or general ledgers are maintained for calendar year and fiscal year reporting, design and conduct tests to demonstrate that the two ledgers can be reconciled using the reconciliation procedures developed and delivered by the Contractor.

M. Perform a test check run. Design and conduct tests to demonstrate that:

  i. Only users with appropriate permissions are able to access and update the check print file.

  ii. The number of checks printed corresponds to the number to be printed per the print file.

  iii. The aggregate amount of all checks printed corresponds to the aggregate amount of checks included in the print file.

  iv. The numbering of all checks printed is correct – i.e., that the first check printed is numbered with the next available check number and that all remaining checks are numbered sequentially.

  v. A check register file is produced which is accurately identified as a 'trial' or 'final' run and that all amounts and check numbers are reconcilable with the actual checks produced.

  vi. Various deductions from and allocations of the benefit are handled correctly; basis recovery, QDRO, assignment, collections and offset accounts being examples.

N. Design and conduct tests to demonstrate that contributions are accurately recorded as to the employer portion vs. member portion (based on the percentage of salary contribution factors pertaining to the particular plan).

O. Design and conduct a test to demonstrate the ability to reconcile a given month's payroll (both aggregate dollar amount and number of checks) to the previous pay period. To do so, create a 'test month' in which test transactions are entered consisting of:

  i. Setting up several new retirees.

  ii. Terminating/suspending benefits of several retirees.

  iii. Reinstating several retirees whose benefits were previously terminated.

  iv. Entering benefit adjustments for several retirees.

  v. Run a trial payroll and confirm that:

a) The aggregate dollar amount of checks in the new payroll trial run is equal to the aggregate dollar amount of the previous period's payroll, plus the amount of benefits paid to the new retirees, minus the benefits of the retirees whose benefits were terminated/suspended, plus the benefit of the retirees who were reinstated, plus/minus the net amount of the benefit adjustments.

b) The number of checks printed in the new payroll trial run is equal to the number printed in the previous month's payroll run, plus the number of new retirements, plus the number of reinstated retirees, minus the number of retirees suspended/terminated.

c) Confirm the accuracy of a Monthly Payroll Summary Report reflecting the above.

P. Design and conduct tests to demonstrate that the system will automatically prevent the user from refunding to a member an amount that exceeds his/her account balance.

Q. Design and execute test cases to demonstrate that, for **all** groups, for **all** types of retirement (e.g., service, disability, death benefits, death in service refunds) and for **all** retirement options (e.g., regular, joint, pop up, level option payment plan):

i. Initial (preliminary) benefit amounts are correctly calculated.

ii. The account remains in a work queue or "open" status until final salary and contributions have been posted.

iii. When final salary and contribution information has been posted, the final benefit/payout amount is accurately calculated, including all applicable interest postings and COLA adjustments.

iv. All future benefit checks reflect the recalculated (final) benefit amount.

v. (If the final benefit is greater than the preliminary benefit) a "catch-up" (retroactive) check is correctly calculated and automatically issued – based on the difference between the preliminary and final benefit amounts times the number of months the preliminary benefit amount was paid.

vi. If the final benefit is less than the preliminary benefit, the "overpayment" is correctly calculated and collected from the retiree – via a one-time payment or deduction from the next benefit check.

vii. If the deduction exceeds the amount available, demonstrate how the amount is collected from multiple future benefit checks.

viii. The member's account balance is zero.

ix. **All** cases of member and spouse death cause **correct** reallocation and recalculation of benefits.

R. Design and conduct tests to confirm that death benefits paid to multiple beneficiaries are apportioned correctly among the recipients, and that the total paid to all beneficiaries is equivalent to the total calculated death benefit.

S. Design and conduct tests to confirm that purchase of service credits are properly applied to members and reflected in their future benefits.

T. Design and conduct tests to verify that all possible general ledger entries are properly posted.

U. Design and conduct tests to confirm that updates to employer accounts are made when applicable.

V. Design and conduct tests to support any year-end close functions, including the updating of investment income to employers.

48.8.2 Employer Reporting Testing

In addition to the Contractor's testing responsibilities of the new Employer Reporting System prior to the start of UAT, the Contractor shall be required to participate in the testing of "trial" employer file submissions and uploads. Contractor responsibilities in this area include:

A. Demonstrating, and training TCRS Field Service staff in the use of the new web-based employer reporting test data bed.

B. Providing comprehensive, on-site support to TCRS Field Service staff in comprehensive testing of the following listed agencies "trial reporting" of wage and contribution data. At a minimum the agencies to be supported must include:

i. State of Tennessee.

ii. Tennessee Board of Regents.

iii. University of Tennessee.

iv. TCRS two mid-size agencies.

v. TCRS two small-size agencies.

vi. At least two other agencies using the legacy system reporting modes (e.g., diskette, paper).

The specific agencies subject to testing will be selected by TCRS.

48.8.3 Member Life Cycle Testing

Member Life Cycle Testing (LCT) shall be conducted prior to the final cutover to the new solution. Test and validation of the accuracy of the data conversion and bridging process shall be conducted prior to Member Life Cycle Testing. LCT shall immediately follow the successful completion of Business Process testing during the rollout of each phase. The Contractor shall develop a plan for LCT and develop all test materials. The Contractor shall itself conduct the LCT and certify its successful completion prior to turning LCT test materials over to TCRS users for their LCT activities.

A. LCT shall consist of the execution of a series of well constructed test cases designed to simulate a member's full life cycle from initial enrollment through his/her retirement, eventual death, and distribution of death benefits to beneficiaries. It shall address, at a minimum, the following test scenarios/cases:

i. Receipt of employer wage and contribution report for new member having no enrollment information in the system.

ii. Automatic "triggering" of the appropriate response to that event related to the new member's enrollment (i.e., upon receipt of the wage and contribution report, generation of a workflow stream for TCRS staff to send an enrollment form to the new member, or automatically enroll the new member, etc.).

iii. Receipt of the completed enrollment form and entry of all enrollment information into the system.

iv. Identification of incomplete information on the enrollment form and automatic "triggering" of a request for additional information from the member.

v. Receipt of the additional information and entry of the related data into the system, completing the enrollment process.

vi. Periodic receipt and posting of additional employer wage and contribution data for the member.

vii. Periodic posting of interest to the member's account.

viii. Receipt and entry of updated beneficiary information.

ix. Receipt of notification of member's termination of employment.

x. Receipt of member's refund application, including rollover information.

xi. Calculation of amount to be refunded to terminating member.

xii. Audit/review of refund calculation.

xiii. Generation of (partial) refund check to member.

xiv. Processing of rollover of portion or all of a refund to member's financial institution.

xv. Receipt of final wage and contribution information for member.

xvi. Calculation of remaining balance to be refunded to member.

xvii. Generation of check for amount of remaining balance.

xviii. Confirmation that account has been "zeroed" – both contributions and service credit.

xix. Receipt of employer (different from original employer) wage and contribution for the terminated member.

xx. Processing of return to work in a covered position by the member.

xxi. Re-enrollment of the member.

xxii. Receipt of application to buy back refund from previous period of membership.

xxiii. Calculation of eligible service credit and cost of buyback, including interest.

xxiv. Audit/review of buyback calculation.

xxv. Generation of letter to member with buyback information.

xxvi. Receipt of buyback check from member (and/or roll-in of funds from financial institution qualified retirement account).

xxvii. Posting of service credit and contributions to member account reflecting buyback of previous service by member.

xxviii. Receipt of application from member to purchase eligible service.

xxix. Entry of purchase of service information into system.

xxx. Calculation of cost of purchased service.

xxxi. Audit/review of purchase of service calculation.

xxxii. Generation of letter to member with purchase of service information.

xxxiii. Receipt of check from member to purchase service.

xxxiv. Posting of service credit and contributions to member account reflecting purchase of service.

xxxv. Receipt of notice of death of one of member's designated beneficiaries.

xxxvi. Adjustment of allocation of member's death benefit to remaining beneficiaries.

xxxvii. Receipt of application for retirement from member.

xxxviii. Identification of incomplete information and/or required documents (e.g., date of retirement, birth certificate) to process retirement application.

xxxix. Generation of letter to member requesting missing information/documents.

xl. Receipt and entry into system of missing information/documentation.

xli. Calculation of member's final average salary.

xlii. Calculation of initial retirement benefit amount including calculations that must access the employer options for Local Governments.

xliii. Audit/review of final average salary and initial retirement benefit amount.

xliv. Generation of retirement benefit estimate letter to member.

xlv. Transfer of member from active membership to retired status.

xlvi. Generation of first retirement benefit check and direct deposit.

xlvii. Receipt of final wage and contribution information for member.

xlviii. Calculation of final retirement benefit amount.

xlix. Audit/review of final retirement benefit amount.

l. Calculation of overpayment (if final benefit is less than initial benefit) or underpayment (if final benefit is greater than initial benefit).

li. Issuance of "catch-up" payment in event of underpayment.

lii. Issuance of request to member for return of overpayment amount (or setup of deduction from next benefit check[s] to recoup overpayment).

liii. Calculation of benefit split between retiree and former spouse.

liv. Audit/review of benefit split.

lv. Receipt of notice of death of retiree.

lvi. Calculation of death benefit (lump sum or monthly annuity) for each beneficiary.

lvii. Audit-review of death benefit calculation.

lviii. Generation of check for lump sum death benefit to each qualified beneficiary.

lix. Addition of qualified beneficiary to retirement payroll in case of monthly annuity.

lx. Close out of retiree's account.

lxi. Receipt of notification of death of last beneficiary.

lxii. Close out of beneficiary account.

lxiii. Correct handling and accounting for basis recovery.

lxiv. Correct accounting for required minimum distribution.

lxv. Production of 1099R, reprint of same, and production of data file for submission to IRS.

lxvi. Ability to accept multiple wage reports for a member – a member who works in two or more positions at the same employer or in two or more positions at separate employers.

lxvii. Ability for an elected official to terminate one TCRS covered job and still remain in his or her elected position and receive a retirement allowance.

lxviii. Correct calculation and application of dividends, COLAs and other benefit adjustment and offsets.

lxix. Supplemental payments.

lxx. Ability of holds and flags placed on a member's account to genuinely restrict access to or activity in the account.

lxxi. Production of Annual Member Statement.

lxxii. Confirmation that the appropriate accounting/general ledger entries have been made for all transactions associated with the life-cycle of a member.

lxxiii. Confirmation that the employer accounts associated with life-cycle transactions have been properly updated.

B. LCT must also include a test stream addressing disability versus regular retirement of the member. Additional test scenarios/cases that must be addressed in this version of LCT are to include:

i. Receipt of application for disability retirement from member.

ii. Entry of disability retirement application information into system.

iii. Identification of incomplete information on the disability application and automatic “triggering” of a request for additional information from the member.

iv. Receipt of the additional information and entry of the related data into the system.

v. Calculation of potential disability benefit amount.

vi. Audit/review of potential disability benefit amount.

vii. Scheduling of physician’s exam.

viii. Receipt of physician’s report on member’s disability.

ix. Preparation of disability case materials for presentation to disability oversight authority.

x. Processing of denial of application for disability benefits and generation of denial letter to applicant, including information on rights to appeal decision.

xi. Receipt of member’s appeal of disability decision.

xii. Processing of reversal of denial (approval) of disability benefits.

xiii. Generation of letter to member authorizing disability retirement, informing member of disability benefit amount and member’s responsibilities for periodic re-certification of disabled status and reporting of earnings.

xiv. Generation of disability retirement benefit checks and direct deposits.

xv. Receipt of disability retiree’s annual earnings information.

xvi. Automatic comparison of reported earnings against allowable earnings.

xvii. Calculation of automatic reduction of disability benefit based on retiree’s having exceeded allowable earnings amount.

xviii. Audit/review of disability benefit reduction.

xix. Generation of disability retirement benefit checks and direct deposits in new (reduced) amount.

xx. Receipt of physician’s report indicating disability status no longer applicable.

xxi. Generation of letter to disability retiree indicating potential termination of disability benefits, with information on appeal process.

xxii. Automatic removal of retiree from disability payroll based on failure to submit appeal.

xxiii. Receipt of appeal information indicating continuing disability after suspension of disability benefits.

xxiv. Resumption of disability benefits based on successful appeal.

xxv. Calculation of “catch-up” amount to compensate disability retiree for period when benefits were suspended.

xxvi. Audit/review of “catch-up” amount calculation.

xxvii. Generation of check and direct deposit for “catch-up” amount.

xxviii. Automatic “triggering” of disability retiree’s eligibility for regular retirement (based on age).

xxix. Generation of letter to retiree informing him/her of eligibility to transition to regular retirement.

xxx. Transfer of retiree from disability payroll to retirement payroll.

48.8.4 Actuarial Extract File Testing

The Contractor shall develop an annual actuarial extract file and report capability to provide the system’s actuary with the information necessary to prepare an annual actuarial valuation to appropriately adjust (if applicable) employer and employee contribution rates, COLA rates, and interest rates. Furthermore, the system must be capable of extracting data sufficient to allow TCRS and the actuary to develop as separate reports the Experience Study and the Asset and Liabilities Report. All the above referenced reports or extracts shall be run on an “as of” basis. This shall apply both for actually running the processes in a production environment as well as for running tests of the actuarial file. For example, if User Acceptance Testing were to occur in March, TCRS will need to use the most recently completed fiscal year for the reports or extracts. It shall be the Contractor’s responsibility to develop the detailed requirements in this area based on interviews with system staff, the actuary and potentially the investment consultant.

Depending on the timing of cutover, the Contractor shall be required to produce the actuarial extract and report in test-mode for either the most recent year-end, or the prior year-end, or both. The extract file(s) and report(s) must be provided to the actuary no later than sixty (60) calendar days before the scheduled final cutover to the new system. The system’s actuary will compare the extract(s)/report(s) to the legacy system extract(s)/report(s) for the same year(s) and provide feedback to the Contractor no more than 30 calendar days after receipt. The Contractor shall be responsible for making any necessary corrections, re-generating the extract/report, re-submitting the extract/report to the actuary, and receiving sign-off prior to cutover. The objective is to get the actuary's sign-off as one essential criterion for making the cutover “go-no go” decision.

48.9 Criteria for Final Cutover

The Contractor must certify in writing, signed by both the Contractor’s Project Manager and the Contractor’s Test Director, that the following criteria have been met prior to the cutover to the “live” processing for each functional rollout of the new system:

A. Successful TCRS execution of all User Acceptance Testing:

i. Successful execution of all Business Process Testing.

ii. Successful execution of full Member Life Cycle Testing.

iii. Successful execution of Employer Reporting Testing.

B. Successful Contractor execution of all Contractor Acceptance Testing:

i. Successful execution of a full regression test.

ii. Successful execution of complete system testing.

iii. Successful execution of a full performance test cycle.

iv. Successful execution of full integration test.

v. Successful test and execution of all failover, backup and recovery operations.

vi. Successful test of application, data, and infrastructure security.

C. Successful reconciliation of all client checking accounts (including confirmation of the accuracy of the outstanding checks report), using the reconciliation procedures delivered by the Contractor, at least once every two weeks during UAT; the reconciliation process must include "manually" generated checks.

D. Successful reconciliation of member and employer reserves in the pension solution database against general ledger reserve balances, using the reconciliation procedures delivered by the Contractor, at least once every two weeks during UAT.

E. Successful reconciliation of the calendar year general ledger and the fiscal year general ledger, using the reconciliation procedures delivered by the Contractor, at least once every two weeks during UAT.

F. Successful reconciliation of benefit payroll to that of the preceding pay period.

The Contractor shall prepare a testing report that summarizes the testing that occurred, how it was performed and by whom, how it was documented, the results that were obtained, and how it was verified by the QA / IV&V consultant. The report should include information on any acceptably open outstanding issues and the resolutions for key issues found.

The Contractor is reminded that, prior to the final functional cutover, in addition to meeting the criteria listed above, the system actuary must sign-off on the actuarial extract file/report capability of the new system.

In addition, there must be no critical PIRs outstanding and no more than 25 non-critical PIRs outstanding. TCRS will determine whether a PIR is deemed critical.

49. Contractor Support During Cutover and Initial Month of Production

The transition from the current business processes to those in each phase and each major sub-system must be planned and managed by the Contractor. Having implemented their solution in other locations and with other clients, the Contractor understands that having received TCRS approval of the UAT phase of testing is just one milestone in TCRS transition into competent usage of the new solution – or of any of its critical subsystems.

To assist in the transition, the Contractor is required to plan for and provide a transition support team for each implementation phase of the project.

The transition support teams for each implementation phase are to be staffed by Contractor personnel with the following characteristics:

- A broad understanding of the solution.
- Specific knowledge of certain business areas as well.
- Excellent people skills.
- Excellent communication skills (possibly trainers).

Contract Attachment 5

STANDARD PRODUCT LIST

The *State Standard Product List* is hereby incorporated by reference. A CD copy of the *State Standard Product List* shall be made available to the Contractor at the initiation of the contract.

Contract Attachment 6

CURRENT BUSINESS PROCESSES AND WORKFLOWS

The *Current Business Processes and Workflows* are hereby incorporated by reference. A CD copy of the *Current Business Processes and Workflows* shall be made available to the Contractor at the initiation of the contract.

CURRENT TECHNICAL ENVIRONMENT

The sections that follow detail Treasury's, TCRS', and IS' current organization, IS strategic objectives and plans, IS policies and standards, and the pension administration technology environment.

1. OVERVIEW OF IS ORGANIZATIONS AND FUNCTIONS

TCRS is a division of the State of Tennessee Department of Treasury (see Figures 7.1 and 7.2 below). Technology support for TCRS is provided by the Treasury Department's Information Systems (IS) Division and the State Finance and Administration Department's Office of System Technology Services (OSTS) and Office of Information Resources (OIR). The Office of System Technology Services provides programming support for many of the mainframe systems used by TCRS. The Office of Information Resources (OIR) operates the State Data Center and provides Treasury with all of its data and telecommunications networks. OIR also provides all State agencies with certain shared technology services, including email, website hosting, teleconferencing, electronic content management, and relational database management. In addition, OIR is responsible for overseeing the annual IS planning process performed by all State agencies and ensuring that all proposed agency initiatives adhere to the State's information systems architecture.

Figure 7.1 – Treasury Organization Chart

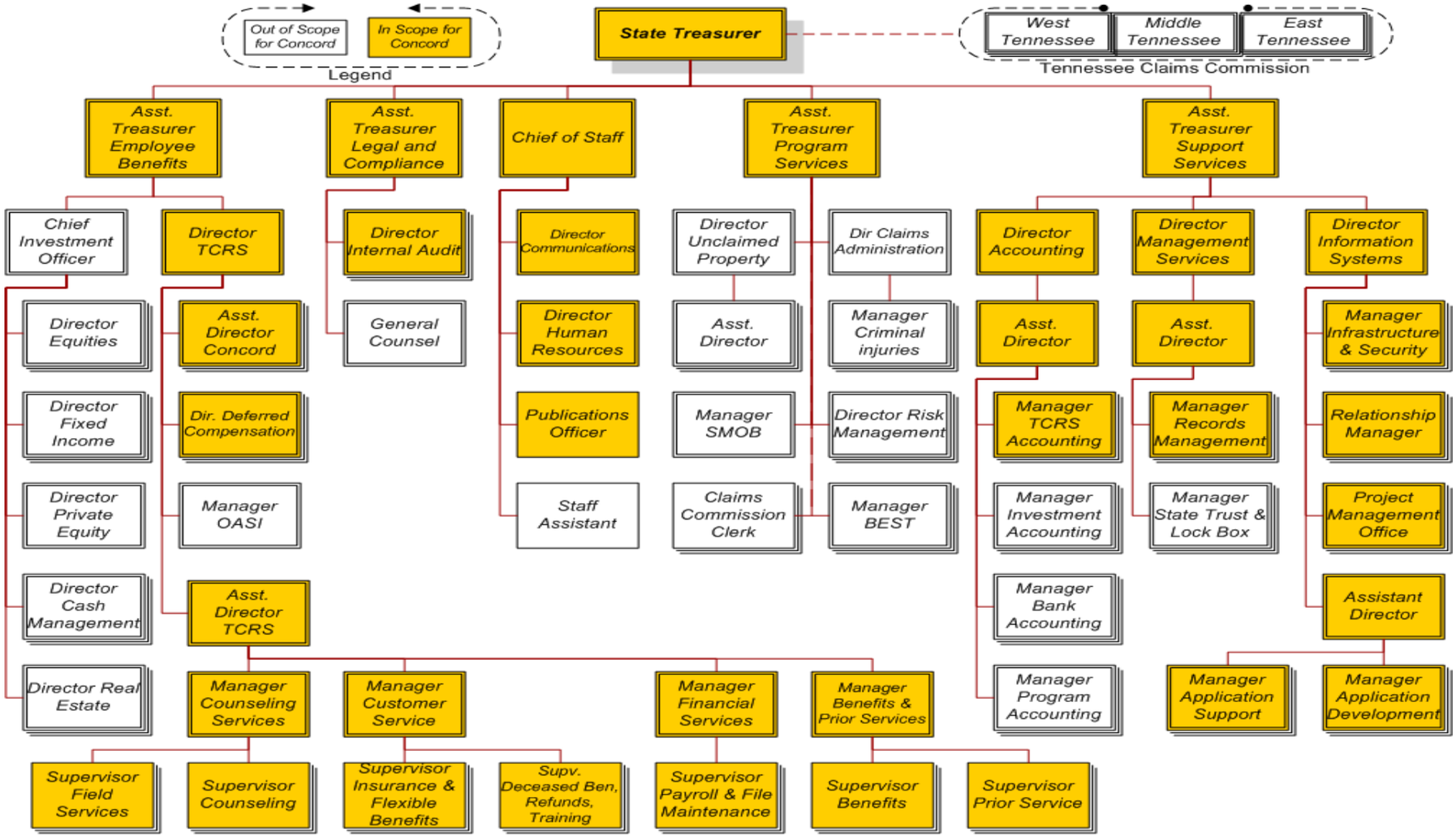
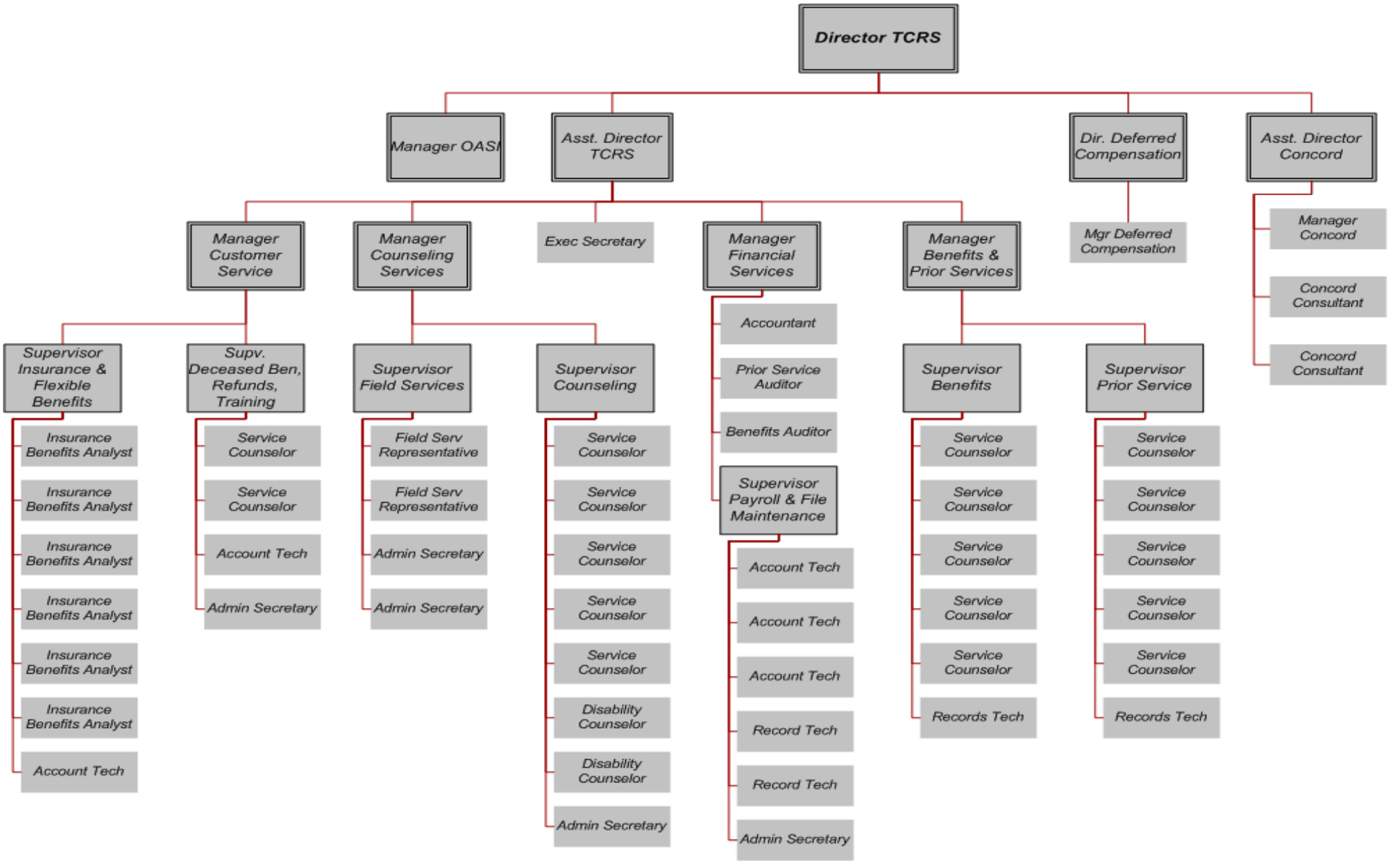


Figure 7.2 – TCRS Organization

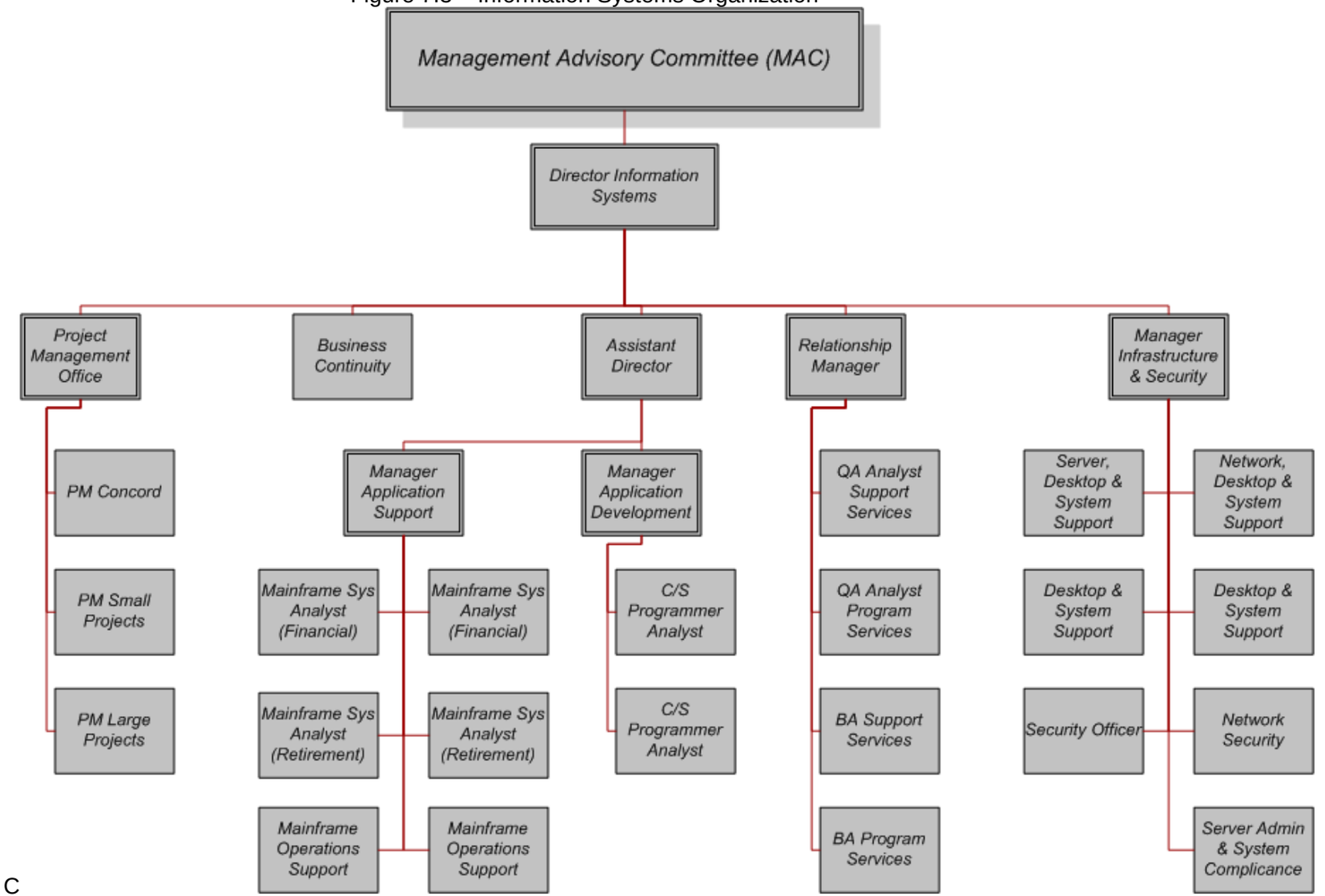


2. MANAGEMENT ADVISORY COMMITTEE (MAC)

The purpose of Treasury's Management Advisory Committee (MAC) is to provide guidance and governance of the Information Systems Division's activities and processes. The MAC, which meets quarterly, is comprised of all Directors and Managers of Treasury's support (e.g. accounting, management services) and program (e.g. TCRS, BEST, Unclaimed Property) areas, as well as the Treasurer's Senior Staff. The MAC also maintains an Executive Subcommittee, which is composed of the Treasurer's Senior Staff, the Director and Assistant Director of Information Systems, and the Director of Fiscal Services. It meets monthly to review major IS Division initiatives and assess performance against goals. Other duties and responsibilities assigned to the MAC include:

1. Overseeing the development of Treasury's annual Information Systems Plan.
2. Ensuring that IS Division resources are allocated to departmental need in the proper priority.
3. Ensuring the department's business resumption, business continuity, and disaster recovery plans are developed and adequately tested.
4. Monitoring the department's information security strategy.
5. Monitoring the IS Division's Key Performance Metrics.
6. Communicating to customers regarding the status of projects contained in the Information Systems Plan.
7. Addressing any emergency changes to IS systems created by legislative fiat, departmental need, or OIR changes.
8. Reviewing and recommending to the State Treasurer, on an annual basis, any revisions that need to be made to the MAC charter.
9. Any other duties that may be assigned.

Figure 7.3 – Information Systems Organization



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3. IS STRATICIC OBJECTIVES AND PROJECTS

3.1 IS Strategic Objectives

The strategic objectives of the Information Systems Division of the Treasury Department, which guide which projects are included in its annual Information Systems Plan, include:

- Developing or modifying Treasury systems to accommodate statutory or regulatory changes affecting the Department's business operations.
- Replacing Treasury applications which have reached the end of their useful lives with newer systems before these applications are unable to function or are no longer supported by the vendor.
- Implementing systems and technologies that improve the reliability and efficiency of Treasury business processes.
- Creating systems that allow users and customers to access relevant information without IS staff assistance (e.g. print reports, view account statements).
- Ensuring that all critical Treasury production systems are consistently available, reliable, and secure.

3.2 Related Current and Planned IS Projects

3.2.1 Server Consolidation

This is a comprehensive project to restructure Treasury's current network and computer infrastructure to better position Treasury for future information systems initiatives, including Concord. Key aspects of this project include:

- Consolidating all of Treasury's current development, test, and utility (e.g. patch management, system monitoring) servers in a separate caged environment within the OIR data center.
- Setting up a Storage Area Network (SAN) within this environment to handle all of Treasury's current and anticipated future file storage.
- Providing redundancy for all of Treasury's critical distributed systems and associated files at a suitable remote data center.
- Providing Treasury users with remote access, via Citrix, to key business applications after normal business hours and during an emergency.
- Converting all of Treasury's currently assigned static IP's to the 10.x.x.x. private IP range.
- Migrating all Treasury systems from the Novell directory and file system to Microsoft's Active Directory file system.

All of these initiatives are expected to be complete prior to the start of Concord development.

3.2.2 Treasury Internet Website

This project is focused on creating a new "look and feel" for Treasury's Internet website, as well as creating a foundation for providing certain users with dynamically generated information. For example, users will be able to search for claims commission rulings within a specific time period.

User registration will be a necessary precursor to providing users with some Treasury data. Once registered, they will need to authenticate themselves through the use of a common login interface. If at all possible, it would be highly desirable for Concord systems to use these existing registration and authentication processes and the common user accounts database. That way, users who might need information from more than one Treasury program (e.g. TCRS and BEST) can use a single sign-in process to provide them the necessary information access.

3.2.3 Abacus

This project will create a middleware component that facilitates the transfer of payment information to and from Treasury systems and the State's Enterprise Resource Planning system, called Edison. Since the Concord system will be responsible for making and managing payments made to TCRS plan participants, it will be very important for Concord to be able to interface with Abacus in order to share payment information to Edison. This project will be complete before the Concord project requires this functionality.

3.2.4 Security Risk Assessment

The IS Division is conducting a risk assessment of current information systems using the ISO 27001/27002 standards. This assessment process entails identifying and quantifying the various risks Treasury faces, determining what compensating controls are being used to manage these risks, then determining the effectiveness of these controls in accomplishing risk mitigation. The assessment of these risks and controls will be repeated annually and will, in due course, include Concord and its related systems.

3.2.5 Call Center Software

Treasury plans to replace its current ACD and UCD call distribution functionality with more modern call center software. The system that will be selected is expected to provide most but not all of the call center functionality and reporting that is required from the Concord system. It is anticipated that the purchase and installation of this system will be in progress during the analysis phase of the Concord project.

3.2.6 Virtual Desktop Systems

Treasury plans to replace some desktop computers with "dumb" terminals that will have access to the applications software they need on a server. This is expected to help reduce hardware costs, enhance system security, and greatly simplify software deployment and updates. Likely areas for initial deployment of these systems will include various Treasury call centers, especially the one in TCRS. It will, of course, be very important for these systems to accommodate Concord before replacements can begin.

3.2.7 Multifactor Authentication System

Treasury plans to further enhance system and network security through the use of a multifactor authentication system. Although a specific system has not been selected, likely candidates for consideration include biometric (i.e. fingerprint) scanners, hardware token authenticators (e.g. RSA's SecurID key fob), and "smart" card readers. This project is scheduled tentatively for the 2012-2013 time frame. Once a multifactor authentication system is selected, it will be important that it is able to work with the Concord system and vice versa.

3.2.8 General Ledger System

Treasury plans to issue an RFP for a general ledger system to be used by all Treasury departments. For TCRS it will replace the general ledger functionality now included in the TRACS system. This functionality is expected to be in place before it is needed for the Concord project.

4. IS POLICIES AND STANDARDS

4.1 State of Tennessee IS Policies and Standards

Treasury has elected to comply with virtually all State of Tennessee IS Policies and Standards. However, should any of these policies or standards conflict with the best interests of the Treasury Department, the Department reserves the right to ignore the offending policy or standard after properly notifying OIR of its decision and rationale.

4.2 State of Tennessee IS Product Standards

The State Office of Information Resources has developed a list of standard IS products as part of the State of Tennessee Enterprise Architecture. As a general rule, the Treasury Department purchases only IS products that are on this approved list. However, if a specific technology need arises that is not met by one of these approved products or is better met by another unapproved product, Treasury may elect to buy non-standard items.

4.3 Computer Hardware and Software Replacement

Normally all Treasury computer hardware is replaced when its associated warranty expires. Standard warranty periods/replacement cycles for the respective equipment classes are:

- Desktop and laptop computers and SPARC (Sun) servers – Three years.
- Intel-based servers – Three years.
- Printers – Three years.

Due to the State's current budget difficulties, these normal replacement cycles are being delayed. As a result, computer hardware is replaced now only if it breaks after its warranty period has expired. If critical hardware items cannot be replaced at the end of the standard three year warranty, annual warranty and maintenance extensions are purchased.

Further information about current State contract computer hardware vendors is available on the State Department of Finance and Administration's website at: http://tss.state.tn.us/.

Treasury normally makes major upgrades in desktop and server operating systems and office productivity suites at approximately the same time as other State agencies, after receiving appropriate guidance from the State's Office of Information Resources. Treasury also participates in Microsoft's Select Advantage program in order to keep much of this software updated, as well as to be able to experiment with new Microsoft products.

5. CURRENT IS INFRASTRUCTURE

The material detailed in this section describe the major facets of Treasury's current IS environment. (Note that it is TCRS' intent that the new pension administration solution will be a single, integrated solution.) The sections that follow include descriptions of the major platforms and services that make up this environment:

- Data Networks.
- Voice Networks.
- Email, Fax, SFTP, and Instant Messaging Services.
- Computer Hardware.
- Mainframe Applications.
- Distributed Applications.
- Internet and Intranet Hosting.
- Enterprise Content Management (ECM).
- IS Security Systems.
- Business Continuity and Disaster Recovery Planning.

TCRS assumes responsibility for all operational and programming support of its legacy systems. The Contractor will have no responsibilities in this regard. Also, TCRS assumes responsibility for all activities relating to the shutdown / decommissioning of legacy systems after cutover to the new solution.

5.1 Data Networks

The State of Tennessee maintains a router-based Wide Area Network (WAN), using TCP/IP v4 protocol, for the purpose of interconnecting State agencies as well as connecting the State with the rest of the world. The Statewide WAN connects every county, via NetTN infrastructure. NetTN is a consortium (State, Higher Education, K-12, local government) which contracts for a managed mesh backbone network operated by AT&T and subcontractors with multiple points of presence across the State. Treasury connects to the State Metropolitan Area Network (MAN) via a dedicated fiber link that is terminated in the Rachel Jackson State Office Building.

Treasury uses a 100MBPS Local Area Network (LAN) for the purpose of interconnecting servers and workstations within the Department. This network currently connects servers and workstations located at the following facilities:

- Treasury's productions servers, except for its file and email servers, are located at the OIR Data Center next to the Bicentennial Mall in Nashville, TN.
- Treasury's development, test, file, and email servers are also located at the OIR Data Center in a locked cabinet controlled exclusively by Treasury IS staff.
- For business continuity purposes, Treasury replicates key production servers and its file and email servers at a remote data center, currently located in the Metro Center office complex located off Rosa Parks Boulevard in Nashville, TN. It is, however, currently looking in the greater Nashville metro area.for another 3rd party data center facility for these systems.
- Certain utility servers (e.g. those supporting patch management and system monitoring) are located in a locked room within the IS Division on the 11th floor of the Andrew Jackson Building.
- Treasury workstations are located throughout the 9th-11th floors of the Andrew Jackson Building, the Treasurer's office in the State Capitol, and at Claims Commission offices located in East (Newport) and West (Dresden) Tennessee.

When possible, Treasury servers are placed into virtual LANs to enhance the throughput and the security of their network connections.

Treasury does not offer wireless access points (801.11B/G/N communications) within the department. While plans exist to establish some wireless access points in the future, these connections will bypass the State network entirely and provide access only to the Internet for webinars or external vendor use.

5.2 Voice Networks

TCRS currently receives 700 calls per day. The State's telecommunications vendor is AT&T. Treasury's telephone services reside at the AT&T Nashville Central Office in a Centrex environment. This enables the users to have programmable features on the Meridian P phones or Business Programmable phones and also to have special pricing for the telephone services that are used. It also enables the State users to have 5-digit dialing between internal telephone lines. One way to describe the service is a giant PBX at AT&T with each telephone being a station off the PBX.

The TCRS phone tree is made up of seven groups or pseudo call centers. Each group has either a Universal Call Distribution (UCD) or an Automated Call Distribution (ACD) system. Each of these will allow for routing of calls to the next available attendant. The rules for the TCRS system are integrated into AT&T's voice messaging system, and as such have limited capability for the

measuring of call volumes and other useful call information. Each group is set up using a series of available phone features such a voice messaging, call forwarding, speed dial, call transfer, etc.

Some of the information that can be obtained from the ACD includes:

- Number of attendants logged on.
- Whether an attendant is busy or free.
- Number of calls in queue.
- Longest queue wait time.

TCRS currently does not provide Interactive Voice Response services to TCRS members or retirees.

5.3 Email, Fax, SFTP, and Instant Messaging Services

5.3.1 Email

Treasury's current email server is GroupWise 8.1 running on a Novell Netware 6.5 server. The current email client is Novell GroupWise 8.0.1. It is anticipated that Treasury will replace its GroupWise email server with MS Exchange when the Executive branch decides to convert email systems, which is anticipated to take place no later than FY 2011-12. It has not yet been determined, however, whether or not this system will be managed by OIR or outsourced to a third party.

The Anti-Spam/Anti-Virus Gateways is MacAfee's Email Gateway (IronMail) version 6.7.2. and runs two anti-virus engines (McAfee and Authentium). Secure email services are also provided by McAfee which uses Secure Web Delivery version 6.5.4.

5.3.2 Fax

TCRS maintains a fax server (GroupWise Fax) capable of handling in- and out-bound faxes. The fax server uses two DID trunk lines providing forty active fax numbers provided by AT&T. Currently forty-two end users access the fax server using LanFax Manager Version 10.5 installed on their local personal computers.

5.3.3 SFTP

The State maintains shared SFTP server resources at the OIR Data Center and leases this functionality to agencies for the purpose of secure file exchange with other state agencies, outside vendors, or customers. The Treasury Department may request individual SFTP accounts at monthly rates documented in the OIR Catalog of Services. Treasury uses one of these accounts to receive retirement distribution files from the University of Tennessee and several additional accounts in other program areas.

5.3.4 Instant Messaging

Instant messaging services are provided by Novell's GroupWise Messenger program. GroupWise Messenger is secured in that only valid State eDirectory accounts are allowed to login and utilize the software. Third-party applications that attempt to tie-in to GroupWise Messenger and allow messaging with people outside the State of TN are blocked by firewall port blocks or by the WebSense web security application.

5.4 Computer Hardware

5.4.1 Servers

Treasury employs a mix of servers in its development, test, and production environments. These consist of both Sun SPARC and HP Intel servers, in accordance with current State IS equipment standards. Most HP Intel platforms are running VMware Hypervisors to partition the physical server into two or more virtual servers, depending on the size of the server and the demands of the applications running within these virtual environments.

As was mentioned above in section 5.1, OIR provides most of Treasury's production servers, except for its email and file servers. This is due mainly to the fact that they have the staffing and systems to support 24 hour-a-day, 7 day-a-well, 365 day-a-year operations, which Treasury is not staffed to support presently. It is anticipated that OIR will host all of Concord's production servers.

As was also mentioned, Treasury maintains its own stock of servers to support its development and test activities, to support certain monitoring and security functions, such as network logging and patch management, and to provide support for IS business continuity and disaster recovery needs. This equipment is located in facilities overseen and managed by Treasury IS staff on an "extended" business hours basis (7 a.m. to 5 p.m., Monday to Friday).

5.4.2 File Storage and Backup

File storage for most Treasury files is provided by redundant 10 terabyte HP LeftHand Storage Area Network (SAN) appliances. OIR provides storage of check image files and other documents scanned into the State's FileNet Electronic Content Management (ECM) system.

OIR handles backup of any files stored by OIR systems. Treasury's IS staff handles backup of Treasury's servers and files. OIR performs a full backup every week and incremental backups every day. Treasury performs full backups of its data daily and full server backups once per week.

5.4.3 Desktop Systems

Treasury staff members use a variety of desktop systems manufactured by HP, Compaq, or Gateway. The minimum configuration for these systems is outlined in the Table 7.1 below, and the standard software installed on a TCRS system is listed in Table 7.2 below.

Table 7.1 Minimum Desktop System Configuration

MANUFACTURER	Dell
CPU	Intel Core2Duo dual-core processor E6750 2.66 GHz
OPERATING SYSTEM	Windows XP Professional
DISK (GB)	250GB 7200RPM Serial ATA fixed disk
RAM (MB)	2 GB DDR2 667 MHz RAM (expandable to 4GB)
PERIPHERALS	16X DVD +/- RW SATA drive, Intel # 3100 Graphics Media Accelerator, 2 PCI slots, 1PCI Express X16 slot, Integrated Broadcom Gigabit Ethernet adapter, 1 Parallel port, 1 Serial Port, 9 USB ports, internal speakers

Table 7.2 TCRS Standard Workstation Software

DEVELOPER	SOFTWARE NAME	VERSION	PURPOSE
Adobe	Adobe Flash Player	9	Multimedia video
Adobe	Adobe Reader	9.3	Document interchange
Attachmate	Extra (3270 emulation)	7.1	Communications software
CA	ARCserve Agent	11.5	Backup
Microsoft	Internet Explorer	7	Web browser
Microsoft	NetMeeting	3	Internet meetings
Microsoft	Office Standard 2003	11	Office suite
Microsoft	Windows Media Player	11	Multimedia player
Microsoft	Windows Messenger	4.7	Chat [Blocked on WAN]
Novell	GroupWise	7	Groupware, email
Novell	Novell Client	4.91 SP2	Network management
Novell	Telephone Services	2.2	Groupware, telephony
Novell	ZenWorks	7	Network management
Oracle	Oracle 9 Client	9i	Database management
Symantec	Symantec Antivirus Corporate Edition	10.1.8	Antivirus utility

5.4.3 Laptop Systems

Treasury staff members who travel frequently or are designated “key personnel” for Treasury’s business continuity planning are issued laptop computers in lieu of desktop systems. Systems in current use in Treasury were manufactured by Lenovo, HP, or Gateway. Minimum laptop system requirements are outlined below in Table 7.3:

Table 7.3 Minimum Laptop System Configuration

MANUFACTURER	Lenovo
CPU	2.53 GHz Core-2-Duo "T9400" processor providing 6 MB L2 cache, GM45 chipset, 1066 MHz FSB
OPERATING SYSTEM	Windows XP Professional
DISK (GB)	160 GB 5400 RPM SATA (shock mounted) Fixed Disk Drive
RAM (MB)	4 GB RAM
PERIPHERALS	Docking Station/Port Replicator

5.4.4 Handhelds

Treasury staff members in key management or support roles are issued Blackberry handhelds. These provide them with both voice and email communications capabilities, as well as with the ability to provide tethered 3G communications to the Internet for those who also have been issued laptops. Network services for these devices are currently provided by AT&T.

5.4.5 Printers and Printing Services

Print services are provided over the Treasury LAN using IP based printing. Treasury printers can support both black and white and color printing. Each user has at least one IP printer configured for use on their personal computer. Bulk printing of documents (> 1000 copies) is routed to high-speed printers at OIR.

5.4.6 Document Scanning

2 Fujitsu fi-5900C document scanners are located in Treasury's Record Management area. Each scanner is capable of scanning 120 pages per minute.

5.5 Mainframe Applications

Several TCRS applications (e.g., CRIS) are hosted by OIR on an IBM Z9 EC 2094-507 mainframe running the z/OS operating system (version 1.6). Maintenance of these applications is performed by both Treasury Application Support staff and the Office of System Technology Support programmers, depending on the nature of the modification required.

Table 7.4 below further describes the services available, and used by TCRS, on the IBM mainframe platform.

Table 7.4 Mainframe Services

SERVICES	COMMENTS
CICS	Online system to allow real time access for Agencies to inquire, update, insert, and delete their production data.
Connect: Direct	Provides file transfer capability to/from offsite/Non-State entities.
DB2	Relational database manager used by IMS, CICS, and batch processing.
DRS	Dynamic Report System is an interface which allows printing from online applications (IMS, CICS, Roscoe, etc.) using VPS
FTP	File Transfer Program provides file transfer capability to/from offsite/Non-State entities or transfer data to/from the mainframe and a distributed or PC platform.
HOD	Access to mainframe services using RACF user ids (Host on Demand) via Internet browser.
IMS	Online system to allow real time access for agencies to inquire, update, insert, and delete their production data.
IMS Database	Database manager used by IMS, CICS, and batch processing.
InfoPac Support	Provide ability for online viewing of reports for user agencies.
NCP Support	Network Control Program supports SNA network for statewide telecommunications.
RACF	Assign user ids and security administration for small Agencies and provide assistance to security administrators for large Agencies.
Roscoe	Online tool used for development of programs and monitoring of batch jobs.
Teleview	Online multi-session tool to allow real time access for Agencies to any online system.
TSO	Online multi-session tool to allow real time access for Agencies to any online system.
VPS	VTAM Printer Support that provides the ability to print mainframe reports to Agency printers.
WebSphere	Online system to allow real time access for Agencies to inquire, update, insert, and delete their

SERVICES	COMMENTS
	production data on the mainframe via an internet browser over a TCP/IP connection.
XCOM	Provides file transfer capability to offsite/Non-State entities or transfer data to/from the mainframe and a distributed or PC platform.

5.6 Distributed Applications

5.6.1 Relevant Client/Server Applications

5.6.1.1 ACH Module

This application creates origination ACH files for several Treasury systems. The functionality of this application is scheduled be replaced with web services as part of the Abacus project (currently in process).

5.6.1.2 ACME

ACME is a cash movement control system; it provides operational services to four Treasury divisions. The primary purpose of ACME is to establish a central control for the Treasury Cash Manager to direct Cash inflows and outflows from the State's primary bank account. The system captures and tracks the status of cash transactions for daily use and stores them for historical reporting.

5.6.1.3 CARLOS

The CARLOS application updates contribution information from participating employers into TCRS. CARLOS is an acronym for the Contribution, Accounting, Reporting and Loading System. CARLOS will be replaced as part of the Concord project.

5.6.1.4 RIP

The Returned Item Processing system receives all return items that have been deposited to the Treasurer's bank accounts. The items are sorted by depositing agency, accounting/transmittal documents are prepared, and entries are recorded on the State Accounting System. Finally, items are sent to the depositing agency for collection.

5.6.1.5 TRIP

The Treasury Retirement Installment Plan system supports TCRS members who elect to make payments for eligible retirement credit on an installment basis. It drafts individual member bank accounts and maintains balance and accounting information for purchased retirement credit. TRIP will be replaced as part of the Concord project.

5.6.1.6 Wagers

The ACS/Wagers application supports the receipt and management of unclaimed property for the Treasury Division of Unclaimed Property. Unclaimed member funds from TCRS are reported periodically to the unclaimed property division.

5.6.2 Relevant Web Applications

5.6.2.1 EIFU

The EIFU web service re-formats and transmits payment files from several Treasury applications (including TRACS) to the State Edison ERP system. The functionality of this application is scheduled be rolled into the Abacus project (in process).

5.7 Internet and Intranet Hosting

5.7.1 Internet Site Hosting

Treasury hosts its Internet site on a Linux server located in the OIR Data Center. The TCRS public web site (**http://treasury.tn.gov/tcrs/**), which is part of the Treasury site, is also hosted on this server, but includes links to the NIC State portal (**http://www.tennesseeanytime.com/**) for certain dynamic functionality, such as the TCRS retirement calculator. This is because currently the State's web server does not accommodate Java, .Net, or other common application servers.

5.7.2 Intranet Site Hosting

Treasury's Intranet site is hosted on a virtual server in the OIR Data Center, running Microsoft's Internet Information Server. It is built on Microsoft's .Net platform using the DotNetNuke framework. This framework was selected specifically to allow for the site to be modified quickly and securely, to accommodate future web-based applications developed by or for Treasury, and to allow for integration with Windows Active Directory to permit single sign-on functionality.

5.8 Enterprise Content Management (ECM)

5.8.1 Microfilm

The Treasury Records Management Division (RMD) processes incoming correspondence for TCRS. RMD maintains the mailroom and sorts, opens, codes, archives (via microfilm), and keys the archive index number (Document Locator Number or DLN) into the MODOC system. The RMD processes about 220 mail pieces per day. The RMD also processes internally generated updates to TCRS files which can average approximately 800 pages per day. These updates are coded, archived, and keyed daily. All images are filmed on-site to Kodak film in 100 foot rolls. Processing of the film is done off-site by the State Library and Archives.

Treasury uses the following microfilm hardware:

- Main Camera: Kodak Imagelink Micro Imager 70.
- Backup Camera: Kodak Reliant Intelligent Microfilmer 2000.
- Viewer Scanners: Kodak Science Intelligent 2000 Scanner.
  Kodak Science Intelligent 600 Series Scanner.
- Viewer Printers: 2 Kodak Imagelink Digital workstations 2000 with Printer 5 attached.
  2 Kodak IMT 350.
  Minolta MS 7000 MKII Microfilm Scanner (microfiche reader/scanner).

Treasury plans to shift from microfilming documents to digital imaging of these documents. It is considering how to convert many microfilmed documents, especially those used by TCRS, to a digital format.

5.8.2 Imaging

Treasury utilizes the State of Tennessee's chosen ECM platform, which is IBM's FileNet, for digital storage of select documents. OIR provides the storage for all images scanned into the FileNet system.

Scanning of these documents is performed in Treasury's Records Management Division using Fujitsu fi-5900C scanners. After scanning, FileNet's Capture Professional software is used to assign the appropriate indexes and metadata to these images.

The State has added Datacap's Taskmaster Document and Data Capture software to its list of approved software. This product combines optical character recognition, intelligent

character (i.e. handwriting) recognition, optical mark recognition, and barcode recognition with a standard library of script-based rules to classify documents, recognize, find, and validate data. Use of this application could accelerate significantly the process of classifying and indexing scanned documents.

5.9 IS Security Measures

5.9.1 Internet Filtering

OIR employs the WebSense Internet content filtering system to block users on the State network from accessing inappropriate or hostile Internet sites. This improves security of the State's infrastructure and reduces the risk of liability for unauthorized usage of the State's network. Blocked sites are those that have been identified and verified by a leading third party vendor as producing illegal content, producing materials that could pose a security risk to the State's network, or those deemed unacceptable according to industry best practices. These include sites with content such as pornography, racism, and hate, as well as certain commercial sites such as eBay and Craigslist.

5.9.2 Patch Management

Treasury uses both Microsoft Windows Server Update Services (WSUS) and Shavlik NetChk Protect to keep the software on Treasury servers, laptops, and desktop computers appropriately patched to protect against the latest identified security threats.

5.9.3 Anti-virus Protection

The State and Treasury use Symantec Anti-Virus (SAV) suite to scan computers and incoming email for computer malware. When detected, the infected computer or email is isolated and the appropriate parties are notified. SAV updates the signature files used to identify malware on a daily basis. Systems that are not updated appropriately are reported promptly to Treasury's IS Infrastructure group.

5.9.4 System Logging

Treasury monitors its systems logs to identify system changes, login and logout, hardware changes, and device configuration changes. Desktops and servers are monitored using the Event viewer in the Operating System. Symantec System Center monitors antivirus scans and incidents. Syslog captures traffic from the firewall.

5.10 Disaster Recovery

The Treasury Department, the Secretary of State, and the Comptroller of the Treasury maintain a common server hot site, which serves also as an alternate emergency operations location for the three agencies. This site does not provide a real-time duplication of the applications supported by the OIR data center. Each day selected data are replicated from the Andrew Jackson site servers to the hot site servers. There are workstations at the location to support email, Attachmate (which allows access to data center applications), and other critical software. The server hot site contains printers and a fax machine, also.

The Treasury Department has a disaster recovery (DR) plan that addresses support for critical functions of the department. One of those critical functions is to assure that retired payroll is processed and checks are sent to the retirees; another is to assure that the supplemental payroll is processed. The plan is being expanded to cover workforce succession plans due to, for example, pandemics.

The Treasury DR plan assumes that the State's Data Center is up and available. OIR has only one Data Center at this time, which is where the CRIS, TRACS and MODOC mainframe applications are hosted. While this is a single point of failure, OIR does have

a contract in place for a warm site in the event the Data Center is down. In case of a disaster, data are restored to the end of the day preceding the day of the disaster.

There is a semi-annual test of systems at the warm site. The CRIS payroll functions have been tested at this alternate server site. Access to CRIS has been established to complete these functions. The payroll job is set up by TCRS employees and requests are sent to operations to submit the payroll jobs. TCRS balances the payroll run, reviews the reports, then requests that the checks be created, and submits a job to run a check print/ACH job.

OIR is in the process of constructing a second Data Center on the outskirts of Nashville. The completion of this Data Center will eliminate the single point of failure for the Treasury applications stored there.

OIR does not have a warm/hot site available to support distributed systems/servers, except to support TennCare and Edison.

6. CURRENT IS DEVELOPMENT ENVIRONMENT

Treasury uses the .NET platform for new application development. These are "thin-client" (i.e. web) applications or web services, hosted on Microsoft's Internet Information Server (IIS), usually interacting with an Oracle 10g database. Treasury's applications development group uses the following development tools in this work:

- Collaboration software – Adobe's Connect and Microsoft's SharedView.
- Test script/test case generator – TestTrack's TCM.
- Version control software – Subversion.
- Business requirement gathering, problem incident reporting, tracking, and management tools – Countersoft's Gemini.
- Middleware – nHibernate.
- UML and data modeling software – Sybase's Power Designer.
- "HELP" generation software – ROBOHelp.
- Application development software tools – Microsoft's Visual Studio.
- Ad Hoc Query tool – Quest Software's Tool for Oracle Application Developers (TOAD), SQL Server Management Studio, and Oracle's Enterprise Manager.
- Application installation software – InstallShield.
- Software distribution agents – Shavlik.

7. CURRENT AS IS BUSINESS FUNCTIONALITY

7.1 Current Business Processes

TCRS "as is" business process diagrams are presented in Contract Attachment 6.

7.2 Current Business Applications

Major applications supporting the current retirement administration operations of TCRS are presented in Table 7.5 below.

Table 7.5 TCRS Major Applications

ACRONYM	APPLICATION NAME	SUPPORTING ORGANIZATION	DATA CENTER	CUSTOM/ COTS
ACH	ACH Receipts and Returns Archive	Treasury	OIR	Custom
ACME	Cash Movement Control System	Treasury	Treasury	Custom
ARP	Accounts Reconciliation Package	Treasury + OIR	OIR	COTS
CARLOS	Contributions Accounting, Reporting, & Loading Online System	Treasury	Treasury	Custom
CRIS	Consolidated Retirement Information System	OIR	OIR	Custom
GPWS	GroupWise Calendaring and Email	Treasury + OIR	Treasury	COTS
IIRC	Treasury Retirement Calculator	OIR	OIR	Custom
MODOC	Microfilm Document Control	OIR	OIR	Custom
PEP+	PEP+ ACH Processing System	Treasury + OIR	OIR	COTS
RIP	Returned Item Processing	Treasury	Treasury	Custom
TRACS	Treasury Retirement Accounting and Control	OIR	OIR	Custom
TRIP	Treasury Retirement Installment Plan	Treasury	Treasury	Custom

Table 7.6 below depicts which TCRS business areas are supported by each major application.

Table 7.6 TCRS Current Business Area and Application Coverage

#	TCRS CURRENT BUSINESS AREAS	ACH	ACME	ARP	CARLOS	CRIS	e-Directory	GPWS	IIRC	MODOC	PEP+	RACF	RIP	SecMaint	TOSS	TRACS	TRIP
		CURRENT APPLICATIONS															
1	Benefit Calculations & Retirement					■						■			■	■	
2	Cash Receipts & Disbursements	■	■	■			■				■	■	■	■		■	
3	Contribution Reporting				■		■					■		■		■	
4	Estimates					■			■			■			■	■	
5	Field Services (Enrollment & Beneficiary)									■		■			■	■	
6	Field Services (Employer Maintenance)									■		■			■	■	
7	Purchase of Service Credits	■					■			■	■	■			■	■	■
8	Records Management (Microfilm)							■		■		■			■		
9	Refunds						■			■		■			■	■	
10	Application Security					■	■					■		■	■		
11	Counseling & Disability Support					■	■	■		■		■			■	■	
12	Death Processing					■				■		■			■	■	
13	Optional Retirement Plan (ORP)											■				■	
14	Payroll (Retirees)			■		■					■	■			■		
15	Payroll Deductions					■					■	■			■		
16	Return to Work					■				■		■			■	■	
17	Tax Reporting					■						■			■	■	
18	Actuarial Extract Activities					■		■				■			■	■	
19	Annual Statements to Member											■				■	
20	Call Center							■									
21	Insurance					■						■			■		
22	Reporting (Standard & Ad-Hoc)					■	■			■		■			■	■	■
23	Third Party Interfaces					■					■	■			■	■	
24	Year-End Close Activities											■				■	
25	General Changes					■						■			■	■	
26	Exception Updates											■				■	

7.2.1 Pension Administration

A variety of systems and subsystems are used to maintain and/or account for the records of TCRS members and employees. TRACS is a comprehensive 3270/DB2 system supporting employee, employer, cash receipts, refunds, prior service, and general ledger processing. Other 3270/IMS systems that support the TCRS are CRIS (the Retirement Benefits & Payroll system), and MODOC (described in 7.2.2). In addition, CARLOS and TRIP are separate ORACLE/Client Server Systems.

An employee master file **(TRACS-EMF)** is used to maintain the records of all the members of TCRS. This system tracks the enrollment and contact information of a member in the plan, employee census data, employee contribution and salary history, employee purchase of service credits, change of beneficiary, termination by taking a lump sum refund, and transfer to retirement. This system tracks the monetary flow of money in an employee account: employee contributions, purchase of service, interest accrual, lump sum refunds, partial refunds, transfers at retirement, and special transfers relative to certain noncontributory members. This system contains records of 230,000 active members, 25,000 inactive vested members, and 215,000 records of inactive non-vested members, refunded members and retired members.

An employer master file **(TRACS-RMF)** is used to maintain the records of all the employers in TCRS. This system tracks the enrollment of employers, the withdrawal of employers, the different types of benefits provided by employers, and the accumulated assets for each participating employer in TCRS. An employer's assets increase and decease for the following reasons: allocation of administrative cost, employer contributions, investment income to employer accounts, transfers of an employee's account at retirement, interest credited to an employee's account, payment of annuity, disability, or death benefits, and a special transfer relative to certain noncontributory members. There are 3,000 employer records.

Members of TCRS are entitled, under certain circumstances, to purchase service credit in the retirement system. There are two systems to accomplish this function. One is the **TRIP** system that is used for the installment payment plan (interfaces with TRACS). The other is the PSES module of TRACS which calculates service, salary, cost, etc. and then produces an invoice.

The retired payroll system is called **CRIS** which is both a benefit calculation system and a payroll system. The benefit formulas and eligibility criteria for the more than 100 membership classifications are supported within this system. This system calculates benefits for each of the survivorship options. CRIS issues monthly payments to more than 97,000 retirees and beneficiaries. Significant growth in the number of retirees is expected over the next ten years. The payroll system not only serves to pay retirees each month-end but to make deductions for taxes, insurance, association dues, etc. CRIS calculates the cost of living adjustment each July. The system processes the notifications of death of retirees and their beneficiaries. If eligible, payments to the beneficiary of a deceased retiree are initiated. A complicated and comprehensive insurance program is handled by CRIS. There are four different insurance programs with each having multiple types of coverage. The amount of the benefit subject to taxation is calculated and reported to the IRS and to the retiree each year.

CARLOS is a pre-processing system used to edit and balance the monthly or semi-monthly contribution reports remitted by participating employers in TCRS. Data updated from the reports include salary, service credit, contribution, retirement classification, name, SSN, and period covered. This system confirms that the correct employee and employer contribution are made. This system interfaces with TRACS to provide contribution data.

7.2.2 Imaging

MODOC is used to maintain an inventory of all microfilmed forms, documents, and correspondence related to TCRS. Documents include, but are not limited to, membership forms, change of beneficiary forms, refund applications, retirement applications, purchase of service credit forms, incoming correspondence and outgoing correspondence. Limited workflow and document accountability are accomplished by batch interfaces between the CRIS System and MODOC as well as between the TRACS system and MODOC. MODOC maintains seven index attributes for microfilmed images. Every document has been indexed using the indexing structure shown in Table 7.7 below. Other divisions in Treasury use MODOC, also.

Table 7.7 MODOC Record Index Structure

LIST OF MEMBER INDICES	MAXIMUM SIZE	NOTE
Account Number	11	SSN with two leading zeros
File Name	30	Normally last name (15) and first name (15)
Julian Date	07	CCYYJJJ format
Reel	01	Reel number of the current batch
Batch	02	Collection of documents filmed together
Frame	03	Specific item within a batch
TR	04	Unique number assigned to each type of

LIST OF MEMBER INDICES	MAXIMUM SIZE	NOTE
		document

Note: Access is permitted only by account number

The table below provides a summary of the quantities of documents involved in the current microfilm process:

Table 7.8 Current Microfilm Quantities

Item	Quantity
Incoming Mail (pieces per year)	214,000
Pages of Mail (per day)	2,800
Member Records in MODOC	300,000
Average Number of Pages per Member Folder (per year)	2.5
Pages of internally generated correspondence (per day)	1,600

For a complete description of the processes to film and retrieve images, TCRS has a separate document entitled, “MODOC – Microfilm Document Control System”.

7.2.3 Web

The TCRS Retirement Calculator is the only web function provided to members currently. The calculator permits members to input data to obtain an unofficial estimate of their TCRS benefits. The calculator uses only information provided by the member and does not utilize any information contained in the records of the retirement system. The calculations generated are only estimates based upon current laws, rate, and factors, all of which are subject to change. The calculations are provided only for Group I members. There are currently no web functions provided for employers.

7.2.4 Email

TCRS currently handles approximately 35 inbound emails daily. Using the TCRS website, members may contact TCRS staff as "generic users". There are generic contact addresses for the Benefits and Counseling division, the Member Services division, the Financial Services division (listed as "information concerning your retirement check") and to report problems with web pages. Emails sent to these generic users are received in a separate mailbox that is accessed by the manager in the respective divisions. The managers distribute the emails to the staff accordingly. TCRS staff members reply to members using their own email addresses rather than the generic address since they are replying from their individual mailboxes.

The total of 35 inbound emails listed above includes only the emails received through the generic addresses, not any emails sent to staff directly.

7.2.5 Fax

TCRS currently handles approximately 50 inbound and 25 outbound faxes daily. Any type of correspondence, including notarized documents, can be sent and/or received via a fax machine. Typical documents received by fax include applications, requested information from employers or members related to incomplete applications, medical records for disability, and insurance change information. Documents sent via fax include copies of information previously received, such as prior service billing or notification letters.

7.2.6 Enterprise Report Management

The Treasury uses OIR enterprise report management capabilities including:

- VPS.
- VMCFA and VCMFC for remote output.
- ViewDirect (InfoPac and Document Direct) for end user remote access.

7.2.7 Correspondence Generation

Members, retirees, and employers are contacted via letters that are mailed by the US Postal Service. Some correspondence is provided as a confirmation that a transaction has been completed or denied. Other correspondence is a general communication to a selected population.

Correspondence can be generated by TCRS staff creating Microsoft Word documents. TCRS mainframe applications (e.g., CRIS, TRACS) can produce individual letters based upon the transaction that is performed. A selected mass mailing can be performed by using the mail merge functions of Microsoft Word, which can add client information to a form letter and produce mailing labels. Mass mailings can be accomplished using a letter file from a TCRS mainframe application, which is merged with a selected form in the OIR Data Center. The resultant letter can include a US Postal barcode. The correspondence is provided to US Post Office for delivery.

7.2.8 Telephony

TCRS receives approximately 700 calls each day. From the TCRS main number the caller will reach the Front End Auto Attendant or main menu. The caller can select the section they wish to reach from this menu by selecting the number given by the voice recording. The following are the sections associated with TCRS:

- Retired Payroll (refunds and account balances).
- Retired Insurance.
- Disability.
- Field Services (counseling and beneficiary changes).
- Member Services (prior service and benefits).
- Deceased Benefits.
- Director's Office (not a part of the main menu recording).

Each section has a published number for the section that can be called directly or used to transfer someone. The section attendants must be logged into the system for the system to receive calls. There is a three caller queue for each section; the first person in the queue will be routed to the next available attendant when one becomes available. Once the queue is full, any additional calls to the system will receive a busy signal. The phone system is staffed Monday through Friday from 8:00 a.m. to 4:30 p.m. During off hours the phone system will be switched to a night service message asking callers to call back during normal business hours.

TCRS does not provide IVR access to account information for TCRS members or retirees.

The TCRS phone system does not provide any functionality to TCRS call center agents other than call routing and voice mail.

7.3 Current Business Workload and Volumes

General statistics about the current pension administration system are included in Table 7.9 below:

Table 7.9 TCRS Statistics, as of 12/31/2009

ITEM	QUANTITY
Number of active members	230,000
Number of inactive members	215,000
Number of retirees and beneficiaries receiving monthly payments	98,000
Percentage of payments made by EFT	95%
Number of plans	2*
Number of contributing employers	3,000+
Net assets (as of June 30, 2009)	$26,369,226,000
Benefits paid during FY 2009	$1,457,603,000
Withdrawals taken during FY 2009	$32,082,000
Administrative costs during FY 2009	$7,203,000
Contribution (employer and employee) revenue received during FY 2009	$1,090,470,000
Number of full-time employees dedicated to TCRS	60
Number of full-time employees that support TCRS on a part-time basis	85
Number of full-time Treasury Department employees	200

* SETHEEPP: State Employees, Teachers, Higher Education Employees Pension Plan and PSPP: Political Subdivisions Pension Plan. Under the PSPP, there are 482 independent plans for these jurisdictions.

The volumes of documents printed as part of the legacy pension administration system are indicated in Table 7.10 below:

Table 7.10 Current TCRS Printing Volume Estimates

PRINTING JOB	APPROXIMATE VOLUME
Member Annual Statements (yearly)	230,000
Individual Annual Statements (yearly)	1,500
1099R IRS Forms (yearly)	98,000
Checks (monthly)	5,000
General correspondence (yearly)	175,000

8. CURRENT APPLICATION DATA

A description of the data repository used for the CRIS system is presented in Table 7.11 below:

Table 7.11 Current CRIS Data Summary

File Segment Description	Record Length	Record Count
CRIS ROOT SEGMENT	186	151,135
BENEFIT SEGMENT	211	171,750

File Segment Description	Record Length	Record Count
CRIS BENEFIT PAYMENT SEGMENT	25	1,643,911
CRIS ONE TIME ADJUSTMENT SEGMENT	16	232
PENDING ADJUSTMENT SEGMENT	12	11
POINTER SEGMENT	29	15,726
CRIS BENEFICIARY	56	151,135
CRIS INSURANCE SEGMENT	47	123,905
CRIS WITHHOLDING SEGMENT	17	141,259
CRIS A/R DEDUCTIONS SEGMENT	31	4,335
CRIS OTHER DEDUCTIONS SEGMENT	31	11,261
CRIS OTHER DEDUCTION ADDRESS	117	603
CRIS MAILING ADDRESS SEGMENT	47	151,135
CRIS MAILING ADDRESS LINE SEGMENT	21	54,408
CRIS DIRECT DEPOSIT SEGMENT	24	103,849
CRIS HISTORICAL PAYMENTS SEGMENT	39	13,219,649
CRIS YTD PAYMENTS W2-P SEGMENT	39	1,796,455
CRIS AUDIT CHANGES SEGMENT	26	11,379
CRIS EDIT TABLE ROOT	62	37,526
ACH BANK ADDRESS	51	30,192
ACTUARIAL EQUIVALENT FACTORS	70	4
B EARLY FACTORS	163	4
ESCALATION CODES	60	22
INSURANCE PREMIUM	41	2,889
POLITICAL SUBDIVISION OPTIONS	45	8,518
WCTABLE OPTION AGE RETRIEVAL	28	6
SOCIAL SECURITY LEVELING FACTORS	336	4
WITHHOLD TAC TABLE	805	2
EARLY 25 YEAR REDUCTION	586	4
RETIREMENT TYPE CAUSE PAYEE	22	374
RETIREMENT TYPES FOR DEPARTMENT	61	3,220
ROOT SEGMENT OF CRIS CHECK DB	51	485,603
MULTIPLE CHECK BENEFIT SEGMENT	30	542,740
CHECK DEDUCTIONS	14	504,554
OTHER DEDUCTION NAME ADDRESS	117	399
CRIS TRANS DB ROOT SEGMENT	56	560
CRIS ROOT SEGMENT	382	372
BENEFIT SEGMENT	428	399
CRIS BENEFIT PAYMENT SEGMENT	62	0
CRIS ONE TIME ADJUSTMENT SEGMENT	33	219
PENDING ADJUSTMENT SEGMENT	25	0
CRIS BENEFICIARY	121	11
CRIS INSURANCE SEGMENT	99	31
CRIS WITHHOLDING SEGMENT	35	38
CRIS A/R DEDUCTIONS SEGMENT	63	12
CRIS OTHER DEDUCTIONS SEGMENT	66	1

File Segment Description	Record Length	Record Count
CRIS OTHER DEDUCTION ADDRESS	235	0
CRIS MAILING ADDRESS SEGMENT	95	29
CRIS MAILING ADDRESS LINE SEGMENT	43	8
CRIS DIRECT DEPOSIT SEGMENT	49	38
CRIS TRANS SECURITY ERROR	84	0
NEXT CHECK NUMBER SEGMENT	225	1
FILE CONTROL SEGMENT	317	36
FILE CONTROL LOCAL SYSTEM	78	4
INSURANCE DEDUCTION CONTROL	52	289
FILE CONTROL OTHER DEDUCTIONS	54	103
CRIS SECURITY DB ROOT	52	2,575
ERROR MESSAGE ROOT	43	547
OPTION FACTOR ROOT	9	372,296

Table 7.12 is an example of a current TCRS Employer Benefit Option table. The table lists benefit options authorized by the employer with dates and limits. Each political subdivision in TCRS has one of these tables. The options listed vary according to what that employer has authorized.

Table 7.12. Sample Employer Benefit Options

Number	File Segment Description
001	EXCLUDE COL
002	LIMIT CONTRIBUTIONS
003	MEMBER AFTER AGE 70
004	OPTION 1 DEATH BENEFIT
005	MILITARY CREDIT – MONTHS
006	PROBATIONARY PERIOD – MONTHS
007	SICK LEAVE DAYS
008	BUY PROBATIONARY SERVICE – MONTHS
009	NONCONTRIBUTORY
010	25 YEAR RETIREMENT
011	EXCLUDE COL FUTURE EMPLOYEES
012	WITHDRAWAL
013	BONUS COL
014	SPECIAL GROUP 2 RETIREMENT
015	20 YEAR SPECIAL GROUP 2
016	AGE 65 ACT EQUIVALENT
017	PART TIME
018	1984 MILITARY LAW
019	MINIMUM BENEFIT
020	REFUND SPECIAL GROUP 2
021	1985 AD HOC INCREASE
022	PROVIDE COL
023	PERIODIC MEMBERS
024	20 YEAR GROUP 2 % REDUCTION
025	EXTENDED PROBATIONARY PERIOD
026	414(H) PLAN
027	1987 PEACETIME MILITARY LAW
028	1987 AD HOC INCREASE
029	COUNTY OFFICIAL PRIOR SERVICE
030	TEMPORARY DISABILITY
031	MEDIGAP INSURANCE SUPPLEMENTAL
032	3 YEAR LAW PROVISION
033	3.6% INDEXING
034	SPECIAL GROUP 2 RET AGE 55 W/25 YEARS
035	FIVE YEAR VESTING
036	INACTIVE DEATH AND DISABILITY
037	PERSIAN GULF MILITARY
038	CITY JUDGE/ATTORNEY MEMBERS
039	SHERIFF GROUP 1 & 2 TRANSFER
040	POLISUB PRIOR SERVICE W/1 YEAR (P C 801)

041	5% BENEFIT IMPROVEMENT
042	1996 PEACETIME MILITARY LAW
043	1997 VIETNAM ERA
044	LINE OF DUTY BENEFIT
045	APPLACIAN COOP
046	REINSTATE DISABILITY
047	COMPOUNDED COLA
048	GROUP II 30 YEAR RETIREMENT
049	MANDATORY RETIREMENT
050	SUPPLEMENTAL BRIDGE BENEFIT
051	2001 LINE OF DUTY DEATH
052	MEMBER NOT ON PAYROLL AT COP
053	2007 AD HOC INCREASE
054	MANDATORY RET 55/25 BRIDGE
055	DISCONTINUE NON-CONTRIBUTORY

A description of the data repository used for the TRACS system is presented in Table 7.13 below:

Table 7.13 Current TRACS Data Summary

Table Name	Record Count	Record Length	Table Size (Bytes)
PS EMPLOYEE CONTRIBUTION FACTOR	345	26	8,970
DEPARTMENT/RETIREMENT	19,248	17	327,216
EMPLOYER	2,985	464	1,385,040
EMPLOYER OPTIONS	22,019	28	616,532
KIND OF SERVICE CODE (PS)	39	70	2,730
OPTION TABLE (EMPLOYER OPTIONS)	53	63	3,339
RETIREMENT TYPE	100	51	5,100
MEMBER ADDRESS	646,086	142	91,744,212
MEMBER	627,336	164	102,883,104
STAFF MEMBER	43	55	2,365
PRIOR SERVICE REQUEST	9,494	82	778,508
PS REQUEST COMMENT	1,551	274	424,974
STAFF MEMBER ASSIGNED	21,419	45	963,855
PS INTEREST CHARGES	43,776	32	1,400,832
PS PAYMENT	1,962	59	115,758
SERVICE	19,958	101	2,015,758
PS BATCH TRIGGER	0	34	0
PS BACKPAYMENT	18,025	66	1,189,650
CONTRIBUTION	28,671,131	75	2,150,334,825
REFUNDS	14,366	165	2,370,390
PS EMPLOYER CONTRIBUTION FACTOR	63	23	1,449
PS SALARY LIMIT	62	22	1,364
PS CODE CATEGORY	1	48	48
PS CODE VALUE	20	58	1,160
PS REQUEST HISTORY	43,660	39	1,702,740
PS STATUS REPORT	64,572	56	3,616,032
TRANSACTION ROOT	1,169	561	655,809

Table Name	Record Count	Record Length	Table Size (Bytes)
TRANSACTION DETAIL	654	219	143,226
TRANSACTION OPTION	0	135	0
CASH RECEIPTS CONTROL	1	38	38
CASH SUSPENSE CONTROL	1	38	38
REFUND CONTROL	1	37	37
MEMBER CONTROL	1	77	77
EMPLOYER CONTROL	1	25	25
BENEFIT CONTROL	1	36	36
GENERAL LEDGER CONTROL	1	16	16
GENERAL LEDGER ACCOUNT	569	106	60,314
GENERAL LEDGER DETAILS	80,921	79	6,392,759
CASH RECEIPTS	11,102	105	1,165,710
CASH SUSPENSE	217	106	23,002
REFUND SPLIT ADDRESS	16,813	195	3,278,535
EMPLOYEE FISCAL	6,661,275	61	406,337,775
BENEFICIARY	637,493	71	45,262,003
BENEFIT	3,420	212	725,040
EMPLOYER NON-CONTRIBUTORY	3,296	89	293,344
EMPLOYER ASSETS	106,038	57	6,044,166
EMPLOYER FISCAL	59,892	119	7,127,148
EMPLOYER FISCAL CONTROL	26	115	2,990
REFUND BENEFICIARY	765	246	188,190
PARTIAL REFUND STATS	0	113	0
PARTIAL REFUND DETAILS	0	65	0
REFUND REISSUE	0	334	0
PS KIND OF SERVICE TYPE	39	35	1,365
EMPLOYER CONTROL	0	131	0
EMPLOYER OPTIONS -EMPLOYEE HISTORY	388	59	22,892
ORP	424	85	36,040

A description of the data repository used for the MODOC system is presented in Table 7.14 below:

Table 7.14. Current MODOC Data Summary

Table Name	Record Count	Record Length
MASTER TRANSACTION	626	177
REJECT RE-ENTRY	1,057	62
FILE STATUS	647,943	76
DOCUMENT HISTORY	5,050,750	45
REMARKS	76,644	76
FORMS	1,539	44

9. CURRENT SYSTEM INTERFACES

9.1 Internal System Interfaces

9.1.1 ARP to/from CRIS

This is an event driven process that creates a file for check reconciliation every time checks are issued (approximately 8,000 checks per month) or cancelled (50 checks per month) to Account Reconciliation Package (ARP). ARP returns a file with payment status information to update daily back to CRIS.

9.1.2 CARLOS to/from TRACS

Employer contributions are posted for the employer and employees as they are received and processed as described in the employer reporting business process. Daily extract file of all employer information is updated from TRACS to CARLOS.

9.1.3 CRIS to/from TRACS

A daily file created by TRACS creates a shell record for new retirees and monthly transfers of service credits and contributions. A monthly process creates a file to update the employer portion of TRACS to reflect benefits paid to their employees.

9.1.4 CRIS to MODOC

This is a daily process in which CRIS releases the documents (about 200 per day) related to a retirement case from an open status (assigned to a staff member) to a closed status (available to all authorized staff members) upon completion of the case.

9.1.5 CRIS to PEP+

This is the same general process as CRIS to ARP, but these items (95,000) are direct deposit ACH payments instead of checks.

9.1.6 TRACS to TRACS GL

Cash receipts entered into TRACS are posted real-time to the TRACS GL module. Other GL transactions produced in TRACS batches are also posted.

9.1.7 TRACS to MODOC

This is a daily process in which TRACS “checks out” and releases the documents (300 per day) related to a member case from an open status (assigned to a staff member) to a closed status (available to all authorized staff members) upon completion of the case.

9.1.8 TRACS to EIFU to Edison

This is a daily file of every refund recipient to produce a refund check (500 checks per month).

9.1.9 TRACS to/from TRIP

TRACS creates a daily shell record in TRIP for every service purchase setup for installment payments. Payoff information is updated back to TRACS with a monthly process.

9.1.10 TRIP to PEP+

This monthly process produces a file to execute automatic ACH withdrawals (200 per month) for service purchase installment payments.

10 EXTERNAL SYSTEM INTERFACES

10.1 Actuary to CRIS

A file is provided every four to twelve years by the actuary to update the administrative factor tables in CRIS. Service and disability can have different factors but use same format.

10.2 CRIS/TRACS to Berwyn

A file of selected information for all beneficiaries and inactive vested members is produced monthly and sent to Berwyn, which returns a file of matches to deceased individuals. TCRS reviews the reports and manually updates CRIS or TRACS appropriately.

10.3 CRIS to Employment Security

A file of all disability beneficiaries (6,000) is produced and provided to Employment Security annually. Employment Security provides a report of earnings for matches.

10.4 CRIS/TRACS to Finance Administration

1099 information for refunds and benefit payments (105,000) is provided annually to Finance in a file for State consolidated reporting to IRS.

10.5 CRIS to/from Memphis City/Shelby County/Rutherford County

These jurisdictions provide a monthly file of insurance premium changes to be deducted for their beneficiaries (50 per month). A file is provided for every beneficiary payroll of actual deductions made for their beneficiaries.

10.6 CRIS to/from Edison

Medical and dental insurance premiums, and long-term care deductions, deducted from the payroll system (60,000 entries) are sent to monthly from Edison to TCRS in multiple files. TCRS provides match reports back to Benefits Administration (Finance and Administration) and performs reconciliation of member deductions. Member demographic data changes (5 per day) are sent in a daily file.

10.7 Department of Health to CRIS/TRACS

A monthly file of death certificates issued of State of Tennessee is sent to CRIS/TRACS. A process is run to compare the file to CRIS.

10.8 Edison System/University of Tennessee/Tennessee Board of Regents to CARLOS/TRACS

An address file of all State and Higher Education active members is provided periodically and updated to TRACS. Each month contribution files including salary and service information for all State and Higher Education active employees is sent to CARLOS for processing into TRACS.

A description of the data repository used for the TRACS system is presented in Table 7.15 below:

Table 7.15 Current TRACS Data Summary

Table Name	Record Count	Record Length	Table Size (Bytes)
PS EMPLOYEE CONTRIBUTION FACTOR	345	26	8,970
DEPARTMENT/RETIREMENT	19,248	17	327,216
EMPLOYER	2,985	464	1,385,040
EMPLOYER OPTIONS	22,019	28	616,532
KIND OF SERVICE CODE (PS)	39	70	2,730
OPTION TABLE (EMPLOYER OPTIONS)	53	63	3,339
RETIREMENT TYPE	100	51	5,100
MEMBER ADDRESS	646,086	142	91,744,212
MEMBER	627,336	164	102,883,104
STAFF MEMBER	43	55	2,365
PRIOR SERVICE REQUEST	9,494	82	778,508
PS REQUEST COMMENT	1,551	274	424,974
STAFF MEMBER ASSIGNED	21,419	45	963,855
PS INTEREST CHARGES	43,776	32	1,400,832
PS PAYMENT	1,962	59	115,758
SERVICE	19,958	101	2,015,758
PS BATCH TRIGGER	0	34	0
PS BACKPAYMENT	18,025	66	1,189,650
CONTRIBUTION	28,671,131	75	2,150,334,825
REFUNDS	14,366	165	2,370,390
PS EMPLOYER CONTRIBUTION FACTOR	63	23	1,449
PS SALARY LIMIT	62	22	1,364
PS CODE CATEGORY	1	48	48
PS CODE VALUE	20	58	1,160
PS REQUEST HISTORY	43,660	39	1,702,740
PS STATUS REPORT	64,572	56	3,616,032
TRANSACTION ROOT	1,169	561	655,809
TRANSACTION DETAIL	654	219	143,226
TRANSACTION OPTION	0	135	0
CASH RECEIPTS CONTROL	1	38	38
CASH SUSPENSE CONTROL	1	38	38
REFUND CONTROL	1	37	37
MEMBER CONTROL	1	77	77
EMPLOYER CONTROL	1	25	25
BENEFIT CONTROL	1	36	36
GENERAL LEDGER CONTROL	1	16	16
GENERAL LEDGER ACCOUNT	569	106	60,314
GENERAL LEDGER DETAILS	80,921	79	6,392,759
CASH RECEIPTS	11,102	105	1,165,710
CASH SUSPENSE	217	106	23,002
REFUND SPLIT ADDRESS	16,813	195	3,278,535

Table Name	Record Count	Record Length	Table Size (Bytes)
EMPLOYEE FISCAL	6,661,275	61	406,337,775
BENEFICIARY	637,493	71	45,262,003
BENEFIT	3,420	212	725,040
EMPLOYER NON-CONTRIBUTORY	3,296	89	293,344
EMPLOYER ASSETS	106,038	57	6,044,166
EMPLOYER FISCAL	59,892	119	7,127,148
EMPLOYER FISCAL CONTROL	26	115	2,990
REFUND BENEFICIARY	765	246	188,190
PARTIAL REFUND STATS	0	113	0
PARTIAL REFUND DETAILS	0	65	0
REFUND REISSUE	0	334	0
PS KIND OF SERVICE TYPE	39	35	1,365
EMPLOYER CONTROL	0	131	0
EMPLOYER OPTIONS -EMPLOYEE HISTORY	388	59	22,892
ORP	424	85	36,040

A description of the data repository used for the MODOC system is presented in Table 7.16 below:

Table 7.16. Current MODOC Data Summary

Table Name	Record Count	Record Length
MASTER TRANSACTION	626	177
REJECT RE-ENTRY	1,057	62
FILE STATUS	647,943	76
DOCUMENT HISTORY	5,050,750	45
REMARKS	76,644	76
FORMS	1,539	44

Contract Attachment 8

FORMS, LETTERS, AND REPORTS

The *Forms, Letters and Reports* shall be incorporated by reference. A CD copy of the *Forms, Letters and Reports* shall be made available to the Contractor at the initiation of the contract.

Contract Attachment 9

IMPLEMENTATION PAYMENT SCHEDULE

#	Title	Pay Point Description	% of Total Implementation Cost Paid Per Rollout Based on Number of Rollouts		
Number of Rollouts			Three (3)	Four (4)	Five (5)
1	Project Setup and Initiation	100% of payment due upon TCRS acceptance of all phase deliverables.	4%	4%	4%
2	Requirements Confirmation	100% of payment due upon TCRS acceptance of all phase deliverables.	8%	8%	8%
3	Infrastructure (Hardware/Software) Installation	100% of payment due upon TCRS acceptance of all phase deliverables.	6%	6%	6%
4	Rollout 1 into Production – Enterprise Content Management (ECM)	15% of rollout payment due upon TCRS acceptance of all Design phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 25% of rollout payment due upon TCRS acceptance of all Construction and Unit Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Integrated Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Acceptance Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Implementation phase deliverables specified in Table 4.5 (SDLC Phase Deliverables).	12%	12%	12%
5	Rollout 1 60 Day Acceptance - ECM	100% of payment due upon TCRS report of 60 day satisfactory usage of Rollout 1.	2%	2%	2%
6	Rollout 2 into Production	15% of rollout payment due upon TCRS acceptance of all Design phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 25% of rollout payment due upon TCRS acceptance of all Construction and Unit Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Integrated Testing phase deliverables specified in Table 4.5 (SDLC	24%	14%	10%

		Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Acceptance Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Implementation phase deliverables specified in Table 4.5 (SDLC Phase Deliverables).			
7	Rollout 2 60 Day Acceptance	100% of payment due upon TCRS report of 60 day satisfactory usage of Rollout 2	2%	2%	2%
8	Rollout 3 into Production	15% of rollout payment due upon TCRS acceptance of all Design phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 25% of rollout payment due upon TCRS acceptance of all Construction and Unit Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Integrated Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Acceptance Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Implementation phase deliverables specified in Table 4.5 (SDLC Phase Deliverables).	30%	17%	12%
9	Rollout 3 60 Day Acceptance	100% of payment due upon TCRS report of 60 day satisfactory usage of Rollout 3	2%	2%	2%
10	Rollout 4 into Production	15% of rollout payment due upon TCRS acceptance of all Design phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 25% of rollout payment due upon TCRS acceptance of all Construction and Unit Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Integrated Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Acceptance Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Implementation phase deliverables specified in Table 4.5 (SDLC	n/a	21%	13%

		Phase Deliverables).			
11	Rollout 4 60 Day Acceptance	100% of payment due upon TCRS report of 60 day satisfactory usage of Rollout 4	n/a	2%	2%
12	Rollout 5 into Production	15% of rollout payment due upon TCRS acceptance of all Design phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 25% of rollout payment due upon TCRS acceptance of all Construction and Unit Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Integrated Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Acceptance Testing phase deliverables specified in Table 4.5 (SDLC Phase Deliverables). 20% of rollout payment due upon TCRS acceptance of all Implementation phase deliverables specified in Table 4.5 (SDLC Phase Deliverables).	n/a	n/a	15%
13	Rollout 5 60 Day Acceptance	100% of payment due upon TCRS report of 60 day satisfactory usage of Rollout 5	n/a	n/a	2%
14	Release of Initial Holdback	Release of Initial Holdback for one-half of the total holdback upon achieving sixty-day acceptance of the final functionality rollout.	5%	5%	5%
15	Release of Second Holdback	Release of Second Holdback for one-quarter of the total holdback amount withheld by the State upon the conclusion of the Application Warranty period described in Section 10.1, 10.2 and 10.3 of Contract Attachment 3.	2.5%	2.5%	2.5%
16	Release of Final Holdback	Release of the Remaining portion of the Holdback amount withheld by the State upon the conclusion of the Post Warranty IS Support period described in Section 10.4 of Contract Attachment 3.	2.5%	2.5%	2.5%

ATTESTATION RE PERSONNEL USED IN CONTRACT PERFORMANCE

SUBJECT CONTRACT NUMBER:	
CONTRACTOR LEGAL ENTITY NAME:	DELOITTE CONSULTING LLP
FEDERAL EMPLOYER IDENTIFICATION NUMBER: (or Social Security Number)	06-1454513

The Contractor, identified above, does hereby attest, certify, warrant, and assure that the Contractor shall not knowingly utilize the services of an illegal immigrant in the performance of this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant in the performance of this Contract.

Patrick J Baver

CONTRACTOR SIGNATURE

NOTICE: This attestation MUST be signed by an individual empowered to contractually bind the Contractor. If said individual is not the chief executive or president, this document shall attach evidence showing the individual's authority to contractually bind the Contractor.

PATRICK J BAVER PRINCIPAL

PRINTED NAME AND TITLE OF SIGNATORY

11/22/2010

DATE OF ATTESTATION