Combined Retirement Benefits Calculation System **FY2003 Request: $436,000**
Reference No: 35819

AP/AL: Appropriation **Project Type:** Information Systems
Category: General Government
Location: Statewide **Contact:** Dan Spencer
House District: Statewide (HD 1-40) **Contact Phone:** (907)465-5655
Estimated Project Dates: 07/01/2002 - 06/30/2004

Brief Summary and Statement of Need:
Funds will be used for consulting services for analyses, design and programming of business software that will be the Benefits Calculator. In addition, it would cover the cost of any necessary hardware. Specific project tasks will include Software Requirements Specification, Detail design and programming; data conversion; testing; and implementation.

Funding:	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	Total
Jud Retire	$1,200						$1,200
P/E Retire	$298,400						$298,400
Teach Ret	$136,400						$136,400
Total:	$436,000	$0	$0	$0	$0	$0	$436,000

☐ State Match Required ☑ One-Time Project ☐ Phased - new ☐ Phased - underway ☐ On-Going
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	Amount	Staff
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
Totals:	0	0

Additional Information / Prior Funding History:
This project has received no prior year funding.

Project Description/Justification:
Combined Benefits Calculator $436,000 PERS/TRS/JRS

Problem:
The Division of Retirement and Benefits' defined benefits plan calculator incorporates all the retirement and benefit regulations, and is probably our single most complex automated process. The division currently has two operational defined benefit calculators that were written at different times for different reasons using different subsets of the Visual Basic programming language.

- The version written for our web site was intended to be used as a simple estimator with no provision for anything but the most straightforward, normal retirement situation.
- The Visual Basic ("VB Calculator") version is the calculator used for posting benefits in the division's primary system, called the Combined Retirement System (CRS). It was originally conceived as a tool that could be used on any Windows client PC, equally able to download member data from the core retirement system to a portable computer and used in the field. No effort was made in designing it to share functionality with the two existing calculators.
- A third calculator, written in COBOL and using DB2, is bundled with the original CRS, a system purchased and heavily modified in the last five years. The division made a decision not to implement this version because the

original AS/400 didn't have the power necessary for a decent response time using imbedded processes, the division needed the appropriated money for more coding changes to the rest of CRS, and the calculator subsystem needed a large effort to make it operational.

Although Microsoft's Visual Basic promised to be a relatively easy language in which to produce Windows GUI applications, its implementation here has been plagued with compatibility issues, third-party component and DLL problems and a cumbersome client PC installation 'footprint'. Essentially, it burdens the client PC with all the business logic and communications complexities.

The division also has two defined contribution and two deferred compensation calculators, again written at different times using different subsets of the Visual Basic programming language.

- The versions written for our web site are simplified calculators giving members an easy way to approximate the value of a purchased annuity. They use their own set of rate tables and currently do not offer any other payout options such as periodic payments.

- The versions written for the division's internal Windows user interface are somewhat more comprehensive in their ability to perform calculations for a wider variety of annuity situations but they still do not offer any other payout options. These versions rate tables reside on an Oracle database.

The obvious problems we now face with these sets of calculators are that each uses its own rate tables that need separate periodic updating and maintenance, and each needs to be modified separately when calculation rules change, enhancements requested or problems discovered.

We have come to a point where it is critical to redesign and implement a new calculator that can be carried from one generation of technology to the next. The number of retirements is growing, as is the interest in retirement planning. The burden of having to maintain numerous versions of the same core business processes with a shortage of skilled analyst/programmers is not a good long-range plan. In addition, it is critical to give the systems' 41,000 members and our employees the best tool possible to calculate retirement benefits.

Solution:
In order to solve these problems, we have chosen these objectives:

- a central repository for all calculator objects
- use a single set of development tools on all platforms
- a single source for calculations requested from any client
- cross-platform execution
- calculation objects need to be extensible, easy to add functionality without compromising dependencies
- use a language that is robust, that is not proprietary and is not dependent on specific hardware
- use a technology that offers staff development and broadens the scope for future recruitment

These objectives describe an object-oriented approach using open source technology. We have chosen Java objects running in an n-tier environment to accomplish this. Using Java, services of the new calculator will be able to be accessed from any platform in the enterprise; web services, GUI desktop applications and batch processes. The Calculator will also be portable; insulated by the appropriate layer of abstraction, and its encapsulated business processes will fit into any replacement enterprise system.

Benefit:
The Calculator will be maintained as just one project using a single modern mainstream technology. When new hardware or operating systems are used, only the Java Virtual Machine, an open source and generally free run time environment, will need to be acquired. One set of rates can be maintained wherever it makes the best sense for them to reside.

Not only the division's Retirement Section staff who appoint members to benefits using the Calculator, but the general membership will receive identical and consistent results based on single-point software and data. It will also offer optional entry methods so that a calculation may be as automated and simple or as "hands on" as the user requires.

Additionally and partly due to the simpler nature of the calculation rules, this would be a good time to include the State Annuity Plan and Deferred Compensation Plan calculators in this project. These two calculators, though not to the same extent, suffer similar problems and will profit for the same reasons.

What We Are Buying:
The new Calculator will integrate all of the division's calculation rules across multiple platforms running in different operating environments pulling data from multiple databases into a single flexible, extensible product.