

## Consulting Report

### 1618 System Actuary (Foster & Foster) Review

January 29, 2018

Cindy Rougeou, LASERS Executive Director  
The LASERS Audit Committee

#### BACKGROUND

This was a planned engagement on the fiscal year end (FYE) 2016 Audit Plan. The fieldwork for this engagement was completed on January 11, 2018.

LASERS is required to supply member and retiree data to Foster & Foster for the production of the annual actuarial valuation. The Audit Services, Member Services, and Fiscal Divisions perform nearly 200 tests designed to verify the validity and completeness of the provided underlying data.

After receiving the underlying data, Foster & Foster processes this data with an actuarial software program which generates a converted file that is then used to produce the actuarial valuation. The software program contains various rules and logic based on certain data assumptions that, when applied, convert the underlying data, in certain cases, to data containing new values.

#### SCOPE, OBJECTIVE, AND METHODOLOGY

The scope of this engagement included reviewing the activities of the LASERS System Actuary, Foster & Foster, as it relates to the engagement objective. The objective of this engagement was to evaluate the logic, assumptions, and processes used by Foster & Foster to convert the underlying main actuarial file data provided by LASERS.

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Procedures used to complete this engagement included:

- Meeting with Foster & Foster and LASERS staff.
- Analyzing the FYE 2015 and 2017 converted data files using Audit Command Language (ACL).
- Conducting other inquiries and testing considered necessary to achieve the engagement objective.

This engagement was conducted in accordance with the Institute of Internal Auditors' International Standards for the Professional Practice of Internal Auditing and the policies and procedures of the Audit Services Division.

## ENGAGEMENT SUMMARY RESULTS

The analysis and testing for this engagement occurred in two key components.

The first component consisted of obtaining explanatory notes and information from Foster & Foster on how each data field is used and the logic, rules, and assumptions applied to the data when producing the converted file. The main actuarial file layout specifications for each card type classification (i.e., active, retired, refunded) was used to ensure information was obtained for all fields. All information received was reviewed and analyzed by Audit Services.

The second component consisted of utilizing the information obtained from the first component to perform independent testing of the converted file created by Foster & Foster. The testing approach was designed to validate that the logic, rules, and assumptions provided by Foster & Foster were appropriate, reasonable, and accurately applied. The FYE 2015 and 2017 main actuarial converted files were independently tested as part of this engagement.

The results from each of these components are outlined in this chart. The items that are currently open will be addressed as part of the FYE 2018 actuarial valuation process.

	Details	Status
1	The underlying data for the years of creditable service for active members (not DROP) was being modified unnecessarily. Foster & Foster was modifying this field by adding years of military service to it to derive an updated value for the years of creditable service. There were 41 records on the FYE 2015 converted file that were affected. The necessary changes have been made by Foster & Foster to address this item.	Closed
2	The records classified as transferred under a reciprocal agreement in the underlying data was being incorrectly grouped with vested terminated records. After clarification was provided to Foster & Foster that these are individuals who transferred out of LASERS to another retirement system, it was determined they should be treated similarly to refunded records since there is no further liability to LASERS. There were 81 records on the FYE 2015 main actuarial file that were classified as transferred. The necessary changes have been made by Foster & Foster to address this item.	Closed
3	The underlying data for the accrued benefit for vested terminated members was being incorrectly modified in certain situations. There were 35 records identified on the FYE 2017 converted file where the value on the file provided by LASERS was zero and Foster & Foster inserted an amount of 1300 instead of using the formula: Years of	Open

	Creditable Service times Final Average Compensation times Retirement Plan Accrual Rate.	
4	The underlying data for the beneficiary date of birth for regular retirement records was being unnecessarily modified in certain situations. There were 39 records identified on the FYE 2017 converted file where the value on the file provided by LASERS was being changed to December 31, 1899.	Open
5	When calculating the supplemental benefit for active after DROP records, a set final average compensation (FAC) year period of three was used instead of being based on the period associated with the individual's retirement plan. According to Foster & Foster, when calculating this benefit they use the FAC calculated at DROP entry for individuals with less than three years of service credit after DROP and then after that, they estimate the FAC using the historical/projected salary. Since LASERS has retirement plans where the FAC year period is five, the approach should utilize this updated information when calculating the benefit. There were 19 active after DROP records on the FYE 2017 main actuarial file that were associated with a retirement plan with a five year FAC period.	Open
6	When calculating the annual salary for active after DROP records whose annual service credit is less than one year per the supplemental file, the salary provided by LASERS is not being adjusted. The formula to adjust the annual salary provided by LASERS should be annual salary reported by LASERS divided by years of creditable service from the actuarial supplemental file. There were 276 records identified on the FYE 2017 converted file where the salary was not adjusted.	Open
7	The calculation of the spouse's age for active after DROP records was not correctly derived in certain situations. There were 129 records identified on the FYE 2017 converted file where the beneficiary date of birth on the file provided by LASERS was zero and the spouse age was not calculated according to this rule: if the member is male, then the spouse's age is three years younger and if the member is female, then the spouse's age is three years older.	Open

## **FOLLOW-UP**

A follow-up to this engagement will not be scheduled at this time. Audit Services will maintain this information on a tracking report. These items will be tracked until they are closed.



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