



# Actuarial Audit of NDPERS Plan Design Study Summary of Findings

DOUG ANDERSON | AUGUST 5, 2014

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*This report is intended for use by the North Dakota Legislative Management Committee. The purpose of the report is to summarize results of an independent review by Gallagher Benefit Services, Inc. of information originally prepared by The Segal Company for the NDPERS relative to the cost of potential NDPERS changes.*

*Participant data for this review was provided by both NDPERS and The Segal Company and the results included herein are dependent on the accuracy of that data. Results were based on an attempted match of the July 1, 2013 actuarial valuation report, the plan provisions in effect at that time, and except as noted, the assumptions used for that valuation.*

*Gallagher Benefit Services, Inc. expresses no opinion on the proposed plan design changes other than providing a range of reasonable cost forecasts as noted in this report. The actuary preparing this report is a member of the American Academy of Actuaries and meets the Qualification Standards to provide the actuarial opinions contained in this report.*

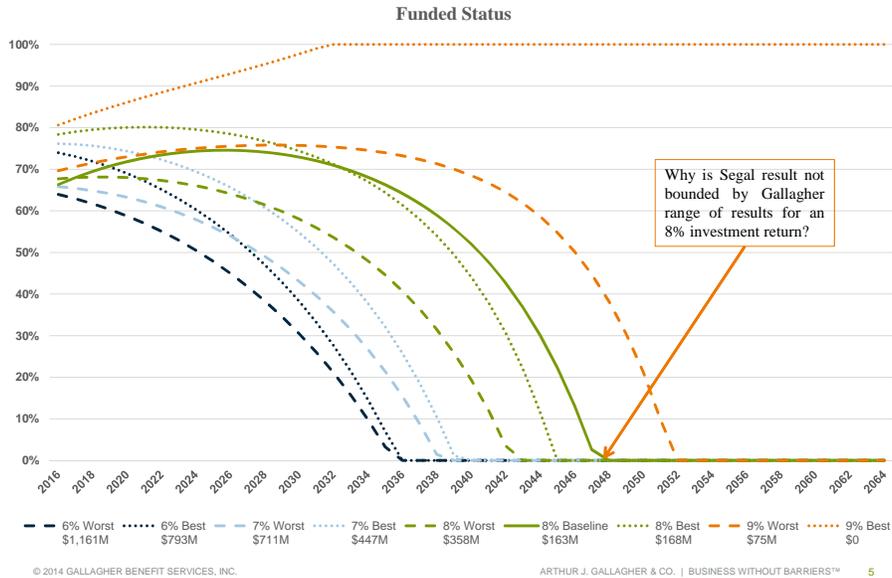
## Recap of July 1<sup>st</sup> Presentation

## Recap of July 1<sup>st</sup> Presentation

Task	July 1 <sup>st</sup> Status	Comments
Review Participant Data	Done	<ul style="list-style-type: none"><li>No issues found for over 99% of participant records</li><li>Outstanding issues would not significantly impact results</li></ul>
Assumption Review	Done	<ul style="list-style-type: none"><li>No significant issues with current assumptions</li><li>National 10-year trend to lower investment return assumption</li></ul>
July 1, 2013 Valuation Audit	Done	<ul style="list-style-type: none"><li>Present Value of Benefits matched within 1%</li></ul>
Assumption Recommendations	Done	<ul style="list-style-type: none"><li>Suggested consideration of both favorable and unfavorable set of assumptions to demonstrate reasonable range of results</li></ul>
Plan Closure Study Audit	In Progress	<ul style="list-style-type: none"><li>Significant differences between Gallagher and Segal in both projected insolvency dates and amounts needed to fully fund certain scenarios remain to be reconciled</li></ul>

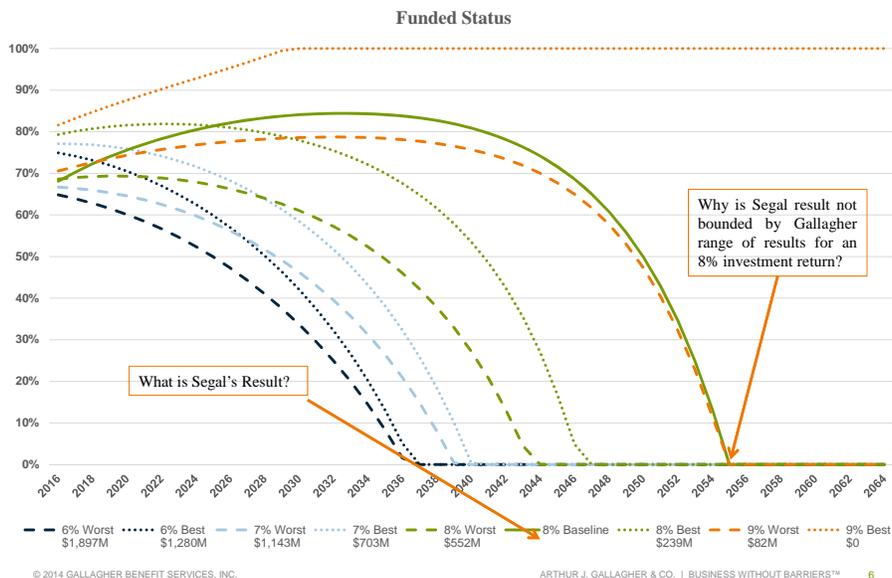
## Plan Options Evaluation Summary (Preliminary)

### Main Systems – State Plan Closed (separated from Poli Sub)



## Plan Options Evaluation Summary (Preliminary)

### Main Systems – Existing Plan with No New Entrants as of 1/1/2016



# Plan Closure Study Actuarial Audit Findings

## Plan Closure Study Actuarial Audit Findings

	Gallagher Finding	Gallagher Comments
Issue #1 Disclosure	<ul style="list-style-type: none"> <li>Segal made adjustments to the valuation outputs to reduce projected benefit payments from years 2014 through 2028 without disclosing in their report the reason for the change or the cost impact.</li> </ul>	<ul style="list-style-type: none"> <li>Actuarial Standards of Practice (ASOP) No. 41 states that an actuarial report should "identify the methods, procedures, assumptions, and data used by the actuary with sufficient clarity that another actuary qualified in the same practice area could make an objective appraisal of the reasonableness of the actuary's work as presented in the actuarial report."</li> <li>Segal's March 6, 2014 study states that "cost estimates are based on the July 1, 2013 actuarial valuation results."</li> </ul>
Issue #2 Methodology	<ul style="list-style-type: none"> <li>Segal explained the reduction in projected benefit payments was due to "The current valuation assumptions (as approved by the Board of Trustees) appear to have higher rates of assumed retirement than are currently being observed."</li> <li>Segal said no other adjustments were made. This implies:                             <ul style="list-style-type: none"> <li>No larger benefit payments for deferred retirements.</li> <li>No adjustments for higher contributions due to fewer retirements.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Gallagher results, as demonstrated on July 1<sup>st</sup>, have shown that adjustments to retirement assumptions do not significantly impact present values (i.e. either the Plan pays a retiree less for longer, or more for a shorter period).</li> <li>Segal's actuarial valuation shows no change to the contribution requirement in the prior year due to retirement experience.</li> </ul>
Issue #3 Omission	<ul style="list-style-type: none"> <li>Segal excluded from the Study the impact of Participants entering after 7/1/2013 and before the assumed closure date of 1/1/16.</li> </ul>	<ul style="list-style-type: none"> <li>The inclusion of Participants during this period adds significant benefit payments to the Plan. However, additional assumed Member and Employer contributions are nearly offsetting.</li> </ul>

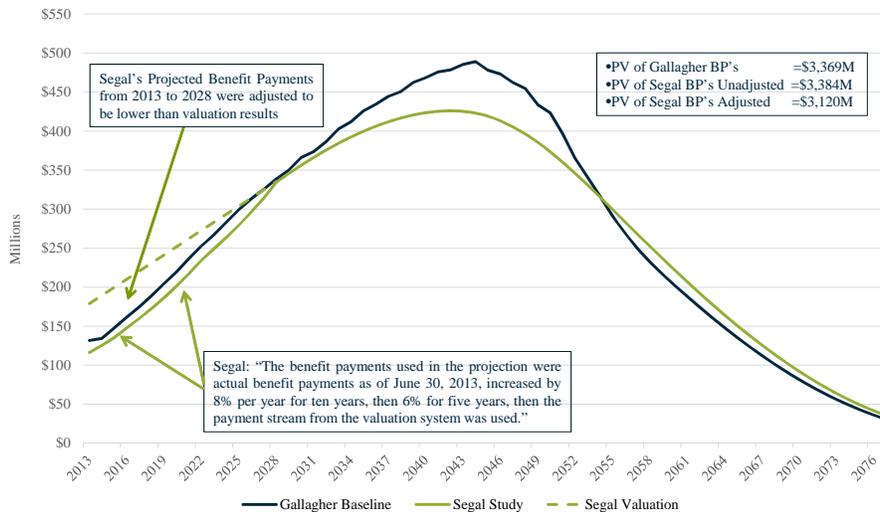
## Comparison of Values

Estimated Present Value as of July 1, 2013 for:	Segal	Gallagher	Difference
July 1, 2013 Actuarial Valuation Result	\$3,384M	\$3,369M	(\$15M)
Segal Adjustments for Study	<u>(264M)</u>	<u>0M</u>	<u>264M</u>
All Participants as of 7/1/13	\$3,120M	\$3,369M	\$249M
New Participants entering between 7/1/13 and 1/1/16	<u>0M</u>	<u>112M</u>	<u>112M</u>
All Participants entering before 1/1/16	\$3,120M	\$3,481M	\$361M
<b>Estimated Future Contributions for:</b>			
New Participants entering between 7/1/13 and 1/1/16	\$0M	\$155M	\$155M
<b>Projected Values for Closed State Employee Only</b>			
Years to insolvency	35 Years	30 Years	5 Years
One-time contribution to fully fund	\$163M	\$301M	\$138M
<b>Projected Values if Both Groups are Closed</b>			
Years to insolvency	42 Years	32 Years	10 Years
One-time contribution to fully fund	\$99M	\$445M	\$346M

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## Comparison of Project Benefit Payments



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## Updated Plan Closure Study Results

### Summary of Significant Assumptions

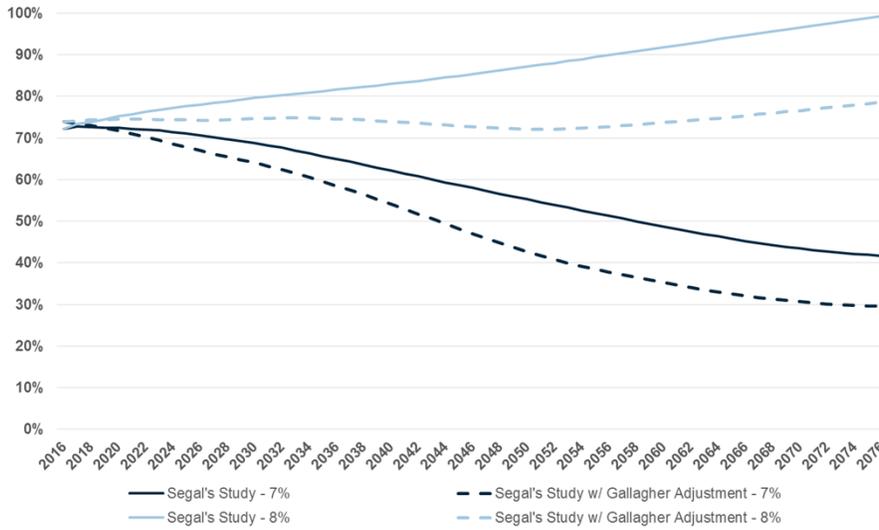
Actuarial projection results will vary based on assumptions for future expectations. The sensitivity of results to different assumptions can help provide a better understanding of a reasonable range of outputs. The projections on the following pages include results under Segal's assumptions as well as under two sets of assumptions developed by Gallagher representing a cost favorable set of assumptions and cost unfavorable set of assumptions.

	NDPERS July 1, 2013 Valuation	Gallagher Recommended Assumption Sets for Sensitivity Analysis	
		Cost Favorable	Cost Unfavorable
Investment Return	8.0%	8.0%	7.5%
Salary Increases	Rates based on Experience Study	10% lower	10% higher
Mortality Rates	Rates based on Experience Study	Study rates without Male margin	RP 2000 Table with projections
Withdrawal Rates	Rates based on Experience Study	10% lower	10% higher
Retirement Rates	Rates based on Experience Study	Shifter later	Shifted earlier

## Plan Options Evaluation Summary

Main Systems – Existing Plan No Change (entire group)

Funded Status



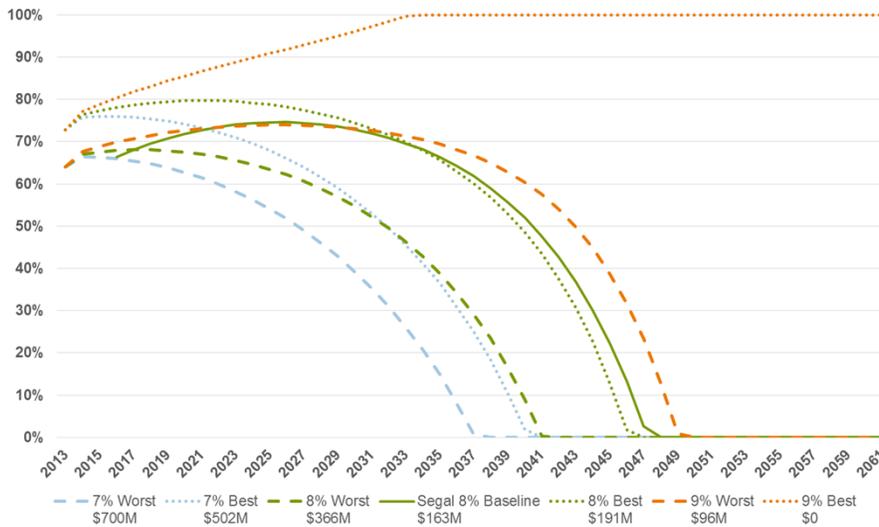
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## Plan Options Evaluation Summary

Main Systems – State Plan Closed (separated from Poli Sub)

Funded Status



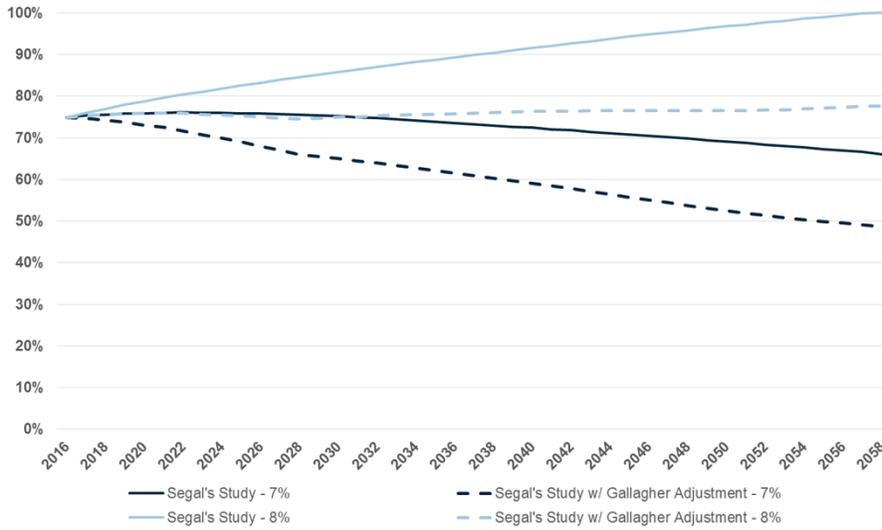
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## Plan Options Evaluation Summary

### Main Systems – Political Sub Plan (without state members)

Funded Status



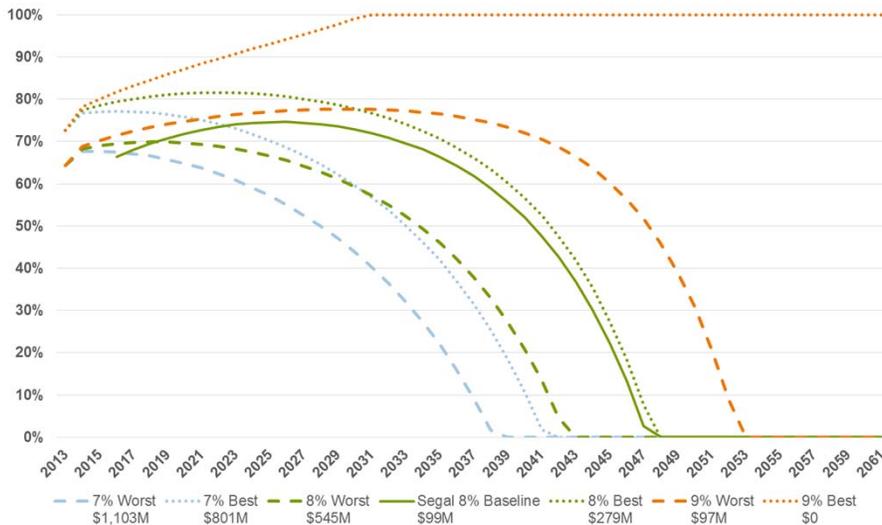
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## Plan Options Evaluation Summary

### Main Systems – Existing Plan with No New Entrants as of 1/1/2016

Funded Status

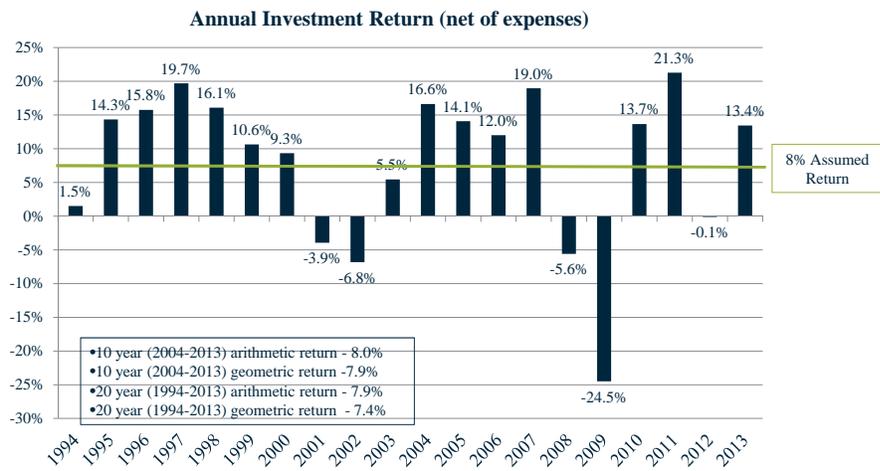


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# Investment Return Sensitivity Analysis

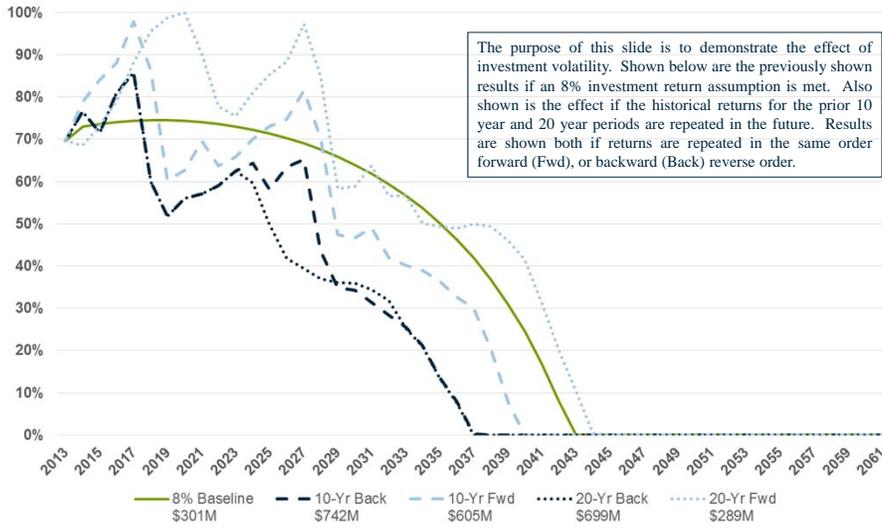
## NDPERS Actual Investment Returns



## Plan Options Evaluation Summary

### Main Systems – State Plan Closed (separated from Poli Sub)

#### Funded Status



## Actuarial Audit Conclusions

## Actuarial Audit Conclusions

### Conclusions

- Segal's Plan closure study was not based on the same outputs as the July 1, 2013 actuarial valuation.
- Segal adjusted to reflect fewer retirements, although this was not an item noted as having any impact on the contribution rate within the July 1, 2013 actuarial valuation.
- Segal's adjustments reduced the present value of projected benefit payments by about \$264M.
- No other adjustments were made to reflect increased benefits or increased contributions due to deferred retirements.
- Segal did not include post 7/1/13 hires in their study.
- Gallagher estimates if no adjustments were made and post 7/1/13 hires were included:
  - If only the State employees group was closed and separated from the Non-State
    - The insolvency date would be in 30 years, not 35 years
    - The one-time contribution would be \$301M instead of \$163M
  - If the entire plan is closed
    - The insolvency date would be in 32 years, not 42 years
    - The one-time contribution would be \$445M instead of \$99M
- Under various other reasonable assumptions, the insolvency dates may vary slightly, but total ultimate costs can vary by wide margins.

## Summary of Results

		Segal Result	Gallagher Result
State Plan Closed (separated from Political Subdivisions)	Baseline Result	\$163M	\$301M
	With Range Due to Alternative Demographic Assumptions		\$191M to \$366M
	With Impact due to Investment Volatility (20 year repetition)		\$289M to \$699M
		Segal Result	Gallagher Result
Plan Closed for State and Political Subdivisions	Baseline Result	\$99M	\$445M
	With Range Due to Alternative Demographic Assumptions		\$279M to \$545M
	With Impact due to Investment Volatility (20 year repetition)		\$442M to \$1,098M

Thank You

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