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# *Northfield Fire Relief Association*

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## Actuarial Valuation Report Under GASB Statements 67 & 68

Valuation Date: January 1, 2021

Plan Fiscal Year Beginning: January 1, 2020

Plan Fiscal Year Ending: December 31, 2020

Employer Fiscal Year Beginning: January 1, 2021

Employer Fiscal Year Ending: December 31, 2021



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## Actuarial Certification

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We have prepared an actuarial valuation of the Northfield Fire Relief Association Pension Plan as of January 1, 2021 to enable the plan sponsor to satisfy the accounting requirements under Statements of Governmental Accounting Standards Nos. 67 and 68. The results of the valuation set forth in this report reflect the provisions of the plan communicated to us through January 1, 2021. This report should not be used for other purposes or relied upon by any other person without prior written consent from Hildi Incorporated.

This valuation is based on participant and financial data provided by Northfield Fire Relief Association and is summarized in this report. An audit of the financial and participant data provided was not performed, but we have checked the data for reasonableness as appropriate based on the purpose of the valuation. We have relied on all the information provided, including plan provisions and asset information, as complete and accurate.

All costs, liabilities and other factors under the plan were determined in accordance with generally accepted actuarial principles and procedures using assumptions that we believe reasonably estimate the anticipated experience of the plan. The calculations reported herein are consistent with our understanding of the provisions of GASB Statements 67 and 68.

Actuarial computations under Statements of Governmental Accounting Standards are for the purposes of fulfilling employer accounting requirements and trust accounting requirements. Computations for other purposes may differ significantly from the results shown in this report.

We are available to answer any questions on this material, or to provide explanations or further details, as maybe appropriate. The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report.



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## Executive Summary

This report has been prepared for the Northfield Fire Relief Association Pension Plan, for the plan year beginning January 1, 2020 and ending December 31, 2020, to assist in complying with the reporting and disclosure requirements under GASB Statements 67 and 68. Northfield Fire Relief Association has implemented GASB 67 for the fiscal year beginning January 1, 2016.

## Summary of Results

The results below reflect initial implementation in the fiscal year ending December 31, 2016. GASB liabilities have been valued using a split interest rate based on the estimated investment return on the pension fund for the funded portion of liabilities and the estimated yield of 20-Year AA-rated municipal bonds for the unfunded portion of liabilities. The overall discount rate is 5.50%.

GASB Accounting Summary		December 31, 2020
1. Liabilities		
a. Total Pension Liability		3,168,396
b. Gross Service Cost		142,125
c. Valuation Salary		N/A
2. GASB Funded Status		
a. Total Pension Liability (TPL)		3,168,396
b. Fiduciary Net Position (FNP)		<u>(7,021,359)</u>
c. Net Pension Liability (NPL), a. + b.		(3,852,963)
d. Funded Ratio		222%
e. NPL as % of Payroll, c. / 1.d.		N/A
3. Pension Expense Under GASB 68		
a. For Fiscal Year ending December 31, 2020		(282,801)
b. For Fiscal Year ending December 31, 2021		(508,098)
4. Discount Rate		5.50%

## Valuation Model

The actuarial liabilities shown in this report are determined using software purchased from an outside vendor which was developed for this purpose. Certain information is entered into this model in order to generate the liabilities specific to your benefit plan. These inputs include economic and non-economic assumptions, plan provisions and census information. We rely on the coding within the software to value the liabilities using the actuarial methods and assumptions selected. Both the input to and the output from the model is checked for accuracy and reviewed for reasonableness.

A range of results, different from those presented in this report, could be considered reasonable. The numbers are not rounded, but this is for convenience and should not imply precision. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of such future measurements.

## Plan Accounting

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### Key Dates

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The results presented in this report are based on a January 1, 2021 valuation date. GASB 67 allows the use of a valuation date that is up to 24 months prior to the beginning of the applicable fiscal year disclosure.

Valuation Date	January 1, 2021
GASB 67 Measurement & Reporting Date	December 31, 2020
GASB 68 Measurement Date	December 31, 2020
GASB 68 Reporting Date	December 31, 2021

### Comparison to Previous Results

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In the GASB 67 implementation year, valuation results are calculated at beginning of year and end of year from the same valuation data. Below is a summary showing the estimated impact of changes in the GASB accrued liability. A more detailed explanation of changes from last year is offered in the Plan Funding section.

Comparison to Previous Results	January 1, 2021
1. Changes in Total Pension Liability	
a. Expected Liability	3,254,789
b. Liability (Gain) / Loss	(122,270)
c. Assumption Changes	35,877
d. Plan Changes	<u>-</u>
e. Total Accrued Liability	3,168,396
2. Changes in Financial Net Position	
a. Expected Assets	6,292,782
b. Asset Gain / (Loss)	<u>728,577</u>
c. Financial Net Position	7,021,359
d. Total (Gain) / Loss for Year, 1.b. – 2.b.	(850,847)
3. Service Cost	142,125
4. Discount Rate	5.50%

### Events & Decisions

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**Plan Changes:** None

**Assumption Changes:** The discount rate changed from 6.00% to 5.50%.

**Method Changes:** None

## Reconciliation of Changes in Net Pension Liability

	Total Pension Liability (a)	Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
1. Balances at January 1, 2020	4,361,246	7,201,099	(2,839,853)
2. Changes from the prior year:			
a. Service Cost	142,125		142,125
b. Interest Cost	225,966		225,966
c. Assumption Changes	35,877		35,877
d. Plan Changes	0		0
e. Municipal Contributions		0	0
f. Nonemployer Contributions		178,095	(178,095)
g. Projected Investment Return		393,026	(393,026)
h. Gain or Loss	(122,270)	728,577	(850,847)
i. Benefit Payments	(1,474,548)	(1,474,548)	0
j. Administrative Expenses		(4,890)	4,890
k. Other Changes	0	0	0
3. Total Net Changes	(1,192,850)	(179,740)	(1,013,110)
4. Balances at December 31, 2020	3,168,396	7,021,359	(3,852,963)

## Sensitivity to Changes in Discount Rate

	1% Decrease	Selected Discount Rate	1% Increase
1. Net Pension Liability	(3,780,192)	(3,852,963)	(3,924,316)
2. Discount Rate	4.50%	5.50%	6.50%

Note: These exhibits should be used as the basis for financial reporting under GASB 67 for the fiscal year ending December 31, 2020 and under GASB 68 for the fiscal year ending December 31, 2021. As described in the GASB 68 standard, a one-year lookback may be used when preparing financial disclosures under GASB 68.

## GASB 68 Pension Expense

Fiscal Year Ending	December 31, 2021	December 31, 2020
1. Components Of Pension Expense		
a. Service Cost	142,125	138,659
b. Interest Cost	225,966	264,796
c. Plan Changes	-	-
d. Liability Gain or Loss	18,452	30,679
e. Assumption Changes	3,588	-
f. Nonemployer Contributions*	(178,095)	(167,694)
g. Projected Investment Return	(393,026)	(372,177)
h. Investment Gain or Loss	(331,998)	(186,283)
i. Administrative Expenses	4,890	9,219
j. Other Changes	<u>0</u>	<u>0</u>
k. Total	(508,098)	(282,801)
2. Deferred Outflows of Resources		
a. Liability Losses	153,394	184,073
b. Assumption Changes	32,289	-
c. Investment Losses	-	-
d. Employer Contributions**	<u>TBD</u>	<u>-</u>
e. Total	185,683	184,073
3. Deferred Inflows of Resources		
a. Liability Gains	110,043	-
b. Assumption Changes	-	-
c. Investment Gains	<u>985,278</u>	<u>588,699</u>
d. Total	1,095,321	588,699
4. Future Recognition of Deferred Flows in Pension Expense (Fiscal Years Ending)		
a. December 31, 2021	N/A	(155,603)
b. December 31, 2022	(290,656)	(136,301)
c. December 31, 2023	(186,403)	(32,048)
d. December 31, 2024	(296,386)	(142,031)
e. December 31, 2025	(123,673)	30,679
f. December 31, 2026	22,039	N/A
g. Thereafter	(34,559)	30,678

\* If contributions are recorded as employer income, they should not also be recorded as plan income.

\*\* Under GASB 68, employer contributions made after the Measurement Date and on or before the Reporting Date must be disclosed as Deferred Outflows of Resources. If the contribution amount is not available at the time of this report, "TBD" is shown temporarily.

## Discount Rate Selection

The Projected Benefit Payments are based on the assumptions, plan provisions, and participant data as of January 1, 2021. The Projected Benefit Payments are prepared on a closed group basis (i.e. no new entrants).

Payment Year	Funded Portion of Payments	Unfunded Portion of Payments	Present Value (Separate Discount Rates)	Present Value (Single Discount Rate)
2021 - 2026	2,380,419	-	2,247,425	2,247,425
2026 - 2031	1,109,462	-	745,203	745,203
2031 - 2036	1,159,856	-	598,277	598,277
2036 - 2041	1,221,762	-	498,969	498,969
2041 - 2046	947,664	-	294,709	294,709
2046 - 2051	330,907	-	78,246	78,246
2051 - 2056	224,788	-	42,980	42,980
2056 - 2061	-	-	-	-
2061 - 2066	-	-	-	-
2066 - 2071	-	-	-	-
2071 - 2076	-	-	-	-
2076 - 2081	-	-	-	-
2081 - 2086	-	-	-	-
2086 - 2091	-	-	-	-
2091 - 2096	-	-	-	-
2096 - 2101	-	-	-	-
2101 - 2106	-	-	-	-
2106 - 2111	-	-	-	-
2111 - 2116	-	-	-	-
2116 - 2121	-	-	-	-
2121 - 2126	-	-	-	-

The Funded portion of benefit payments are determined by

- Projecting forward the Financial Net Position as of the valuation date
- Increasing by the investment return assumption
- Increasing by contractual or established employee and employer contribution rates
- Reducing by benefit payments in each period until assets are exhausted

Note: Benefit payments and contributions are determined on a closed group basis. No portion of contributions are considered to be associated with the service costs of future employees.



### GASB 67 Liability Summary

Liabilities are determined as of the valuation date, then adjusted as necessary to the fiscal year-end date using standard actuarial processes.

Liabilities at Valuation Date	
1. Plan Year Beginning	January 1, 2020
2. Valuation Date	January 1, 2021
3. Discount Rate	5.50%
4. Present value of benefits	4,505,808
5. Accrued liability at Valuation Date	
a. Actives	3,048,874
b. Vested Terminations and Transfers	119,522
c. Retirees and Beneficiaries	-
d. Total Pension Liability at Valuation Date	3,168,396
6. Total Pension Liability at Year-End	3,168,396
7. Gross Normal Cost at Valuation Date	140,192

### GASB 68 Amortization Bases

Outstanding amortization bases for Deferred Inflows and Outflows of Resources as of the employer fiscal year-end:

Date Established	LongType	Original Amount	Original Years	Remaining Amount	Remaining Years
1/1/2017	AssetGLInflow	(96,509)	5	-	0
1/1/2018	AssetGLInflow	(521,274)	5	(104,254)	1
1/1/2019	LiabGLOutflow	245,431	8	153,394	5
1/1/2019	AssetGLOutflow	549,929	5	219,971	2
1/1/2020	AssetGLInflow	(863,558)	5	(518,134)	3
1/1/2021	LiabGLInflow	(122,270)	10	(110,043)	9
1/1/2021	AssumpOutflow	35,877	10	32,289	9
1/1/2021	AssetGLInflow	(728,577)	5	(582,861)	4

## Plan Assets

### Plan Asset Reconciliation

Assets for Plan Year Ending	December 31, 2020	December 31, 2019
1. Value at Beginning of Year	7,201,099	6,440,522
a. Municipal Contributions	-	-
b. State Contributions	178,095	167,694
c. Employee Contributions	-	-
d. Other Nonemployer Contributions	-	-
e. Benefits paid	(1,474,548)	(633,633)
f. Non-investment expense paid	(4,890)	(9,219)
g. Return on plan assets	<u>1,121,603</u>	<u>1,235,735</u>
h. Value at End of Year	7,021,359	7,201,099
2. Rate of Return for Year	17.1%	19.9%

### Development of Expected Long-Term Rate of Portfolio Return

Asset Class	Portfolio Weight	Expected Class Return
Cash	24.00%	2.00%
Fixed Income	10.00%	3.50%
Equities	66.00%	7.00%
Other		N/A
	-	-
<b>Total Portfolio</b>	<b>100.0%</b>	<b>5.50%</b>

## Other Information

### Plan Participants

Plan Participants	January 1, 2021	January 1, 2019
1. Participant Counts		
a. Actives	32	35
b. Vested Terminated and Transfers	3	7
c. Retirees and Beneficiaries	<u>-</u>	<u>-</u>
d. Total participants	35	42
2. Active participant statistics		
a. Average age	43.12	44.23
b. Average hire service	12.43	14.60
c. Total expected pay for year	N/A	N/A
3. Average Age for Inactive Participants		
a. Vested Terminated and Transfers	44.40	47.95
b. Retirees and Beneficiaries	N/A	N/A
4. Benefit Total for Inactive Participants		
a. Vested Terminated and Transfers	141,288	523,137
b. Retirees and Beneficiaries	0	0

### Active Participants Age/Service Grid

Attained Age	Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	0	1	0	0	0	0	0	0	0	0	1
25 to 29	0	1	0	0	0	0	0	0	0	0	1
30 to 34	0	4	0	0	0	0	0	0	0	0	4
35 to 39	0	3	1	2	0	0	0	0	0	0	6
40 to 44	0	5	1	1	1	1	0	0	0	0	9
45 to 49	0	0	1	0	1	1	0	0	0	0	3
50 to 54	0	0	0	1	2	0	1	0	0	0	4
55 to 59	0	0	0	0	0	0	0	2	0	0	2
60 to 64	0	0	0	0	0	0	0	1	0	0	1
65 to 69	0	0	0	0	0	0	0	0	1	0	1
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	0	14	3	4	4	2	1	3	1	0	32

## Methods and Assumptions

Summary of Methods	
Census Data Date	January 1, 2021
Measurement Date	December 31, 2020
Actuarial Cost Method	GASB Accounting: Entry Age Normal
Actuarial Assets	Trustee value as of the measurement date
Amortization of Deferred Resource Flows	Level dollar amount on a closed basis

Economic Assumptions	
Discount Rate	GASB Accounting: 5.50% (net of investment expenses)
Expected Long-Term Investment Return	5.50%
20-Year Municipal Bond Yield	N/A (no unfunded liabilities)
Salary Increases	2.50%
Interest on Deferred Amounts	0.00% future annual increase to eligible deferred pension amounts
Future benefit level increases	0.00%

Other Assumptions	
Mortality	None
Disability	None
Withdrawal	None
Retirement	50% at age 50, 20% at ages 51-56, 100% thereafter
Expenses	Actual expenses for the year
Percent Married	N/A
Age Difference	N/A
Form of Payment	Lump Sum

## Analysis of Prescribed Assumptions

Prescribed Assumptions	Assumption Source	Does Actuary Deem the Assumption Reasonable?
1. Economic assumptions a. None prescribed	NA	NA
2. Demographic assumptions a. None prescribed	NA	NA
3. Other assumptions a. None prescribed	NA	NA

### Analysis of Non-prescribed Assumptions

Unless otherwise specified below, all non-prescribed assumptions have been determined with input from the actuary, even though the plan sponsor may be ultimately responsible for selecting the assumption.

Economic Assumption	Rationale
All Economic Assumptions	Economic assumptions are based on input from a variety of published sources of historical and projected future financial data. Each assumption was reviewed for reasonableness with the source information as well as for consistency with the other economic assumptions.
Discount rate	Assets were projected using expected benefit payments and expected asset returns. Expected benefit payments by year were discounted using the expected asset return assumption for years in which the assets were sufficient to pay all benefit payments. Any remaining benefit payments after the trust fund is exhausted are discounted at the municipal bond rate. The equivalent single rate is the discount rate.
Expected asset return	The long-term return on assets has been set based on the plan's target investment allocation along with long-term return expectations by asset class. When there is sufficient historical evidence of market outperformance, historical average returns may be considered.
20-Year Municipal Bond Yield	The municipal bond rate assumption was set by considering published rate information as of the Measurement Date. If the plan is fully funded, this rate has no impact on measurement.
Deferred Benefit Increases	The eligibility of participants for increases on the deferred pension were based on the information reported for each participant in the data provided by the Relief Association.
Benefit Level Increases	There is no substantive pattern to benefit level increases, so only imminent expected benefit increases are recognized.
Salary Increases	Used only for cost attribution. Assumed that governmental entity funding, and therefore salaries, rise at the rate of inflation.
Inflation	The long-term inflation assumption has been chosen based on a review of historical changes in CPI with more weight applied to recent years. Published projections of future inflation rates were also considered.

Non-Economic Assumption	Rationale
Mortality	The value of the death benefit is similar to the value of the retirement pension. Due to a small sample size and low retirement ages, we have assumed no pre-retirement mortality. Post-retirement mortality does not apply as the benefit structure and form of payment do not reflect lifetime benefits. This assumption is evaluated annually for reasonableness.
Retirement & Withdrawal	We note several members have reached retirement age, yet remain active. As a result, we have assumed that members retire in an orderly fashion upon reaching retirement age and have correspondingly assumed a maximum retirement age near the age of the oldest plan members. This assumption is evaluated annually for reasonableness.
Disability	Plan disability benefits are of similar value to other plan benefits. Therefore, disability incidence is presumed to be included in retirement and withdrawal incidence.
Form of Payment	Since the plan offers lump sums and there are no lifetime forms of payment available, we've assumed 100% of future participants will elect the lump sum.

### Changes since prior report

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- The discount rate changed from 6.00% to 5.50%.

## Summary of Plan Provisions

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Following is a summary of the major plan provisions used to determine the plan's financial position. It should not be used in determining plan benefits.

Key Plan Provisions	
Effective Date	Plan By-Laws as in effect on January 1, 2021
Plan Year	Calendar year
Year of Service	12 full months of active service in the Fire Department
Vesting Percentage	40% after 5 Years of Service. Increased by 4% for each additional year of service up to 20.
Eligibility for Retirement Service Pension	Age 50 with 20 Years of Service
Service Pension Benefit	\$10,000 times Years of Service
Eligibility for Early Vested Pension	Age 50 with 10 Years of Service
Early Vested Pension Benefit	Service Pension Benefit times the Vesting Percentage
Eligibility for Deferred Service Pension	20 Years of Service; Payable at age 50
Deferred Service Pension Benefit	Service Pension Benefit
Ancillary Disability Benefit	Service Pension Benefit times the Vesting Percentage, payable immediately
Ancillary Death Benefit	Service Pension Benefit times the Vesting Percentage, payable immediately
Form of Payment	Lump Sum

## Changes since prior report

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- None

## Glossary

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**Total Pension Liability / Funding Target Liability:** The portion of the present value of prospective benefits allocated to service before the valuation date in accordance with the actuarial cost method.

**Fiduciary Net Position / Actuarial Value of Assets –** Plan assets based on market value as of the valuation date including receivable contributions and offset by plan payables. Market values are sometimes smoothed to soften the impact of investment gains and losses.

**Net Pension Liability:** The difference between Total Pension Liability and Net Financial Position.

**Actuarial Cost Method:** Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded liability.

**Normal Cost:** A component of the Annual Pension Expense. The actuarial present value of benefits attributed by the benefit formula to services rendered by employees during that period based on assumptions as to future compensation levels. The interest rate used in determining the present value is the discount rate.

**Annual Pension Expense:** An accrual-basis measure of the periodic cost of an employer’s participation in a defined benefit pension plan.

**Discount Rate –** The single interest rate that will calculate the same Total Pension Liability as the rates used to calculate the funded and unfunded portion of Total Pension Liability.

**Investment Return Assumption:** The rate used to adjust a series of future payments to reflect the time value of money.

**Plan Members:** The individuals covered by the terms of the plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

**Required Supplementary Information (RSI):** Schedules, statistical data, and other information that are an essential part of financial reporting. RSI should be presented with, but is not part of, the basic financial statements of a governmental entity.