

<p>Form 5500</p> <p>Department of the Treasury Internal Revenue Service</p> <hr/> <p>Department of Labor Employee Benefits Security Administration</p> <hr/> <p>Pension Benefit Guaranty Corporation</p>	<p>Annual Return/Report of Employee Benefit Plan</p> <p>This form is required to be filed for employee benefit plans under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and sections 6057(b) and 6058(a) of the Internal Revenue Code (the Code).</p> <p>▶ Complete all entries in accordance with the instructions to the Form 5500.</p>	<p>OMB Nos. 1210-0110 1210-0089</p> <hr/> <p style="font-size: 24pt; font-weight: bold;">2019</p> <hr/> <p>This Form is Open to Public Inspection</p>
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Part I Annual Report Identification Information	
For calendar plan year 2019 or fiscal plan year beginning <u>10/01/2019</u> and ending <u>12/31/2019</u>	
A This return/report is for:	<input type="checkbox"/> a multiemployer plan <input type="checkbox"/> a multiple-employer plan (Filers checking this box must attach a list of participating employer information in accordance with the form instructions.) <input checked="" type="checkbox"/> a single-employer plan <input type="checkbox"/> a DFE (specify) _____
B This return/report is:	<input type="checkbox"/> the first return/report <input type="checkbox"/> the final return/report <input type="checkbox"/> an amended return/report <input checked="" type="checkbox"/> a short plan year return/report (less than 12 months)
C If the plan is a collectively-bargained plan, check here.	<input type="checkbox"/>
D Check box if filing under:	<input checked="" type="checkbox"/> Form 5558 <input type="checkbox"/> automatic extension <input type="checkbox"/> the DFVC program <input type="checkbox"/> special extension (enter description)

Part II Basic Plan Information —enter all requested information					
1a Name of plan BURLINGTON NORTHERN SANTA FE RETIREMENT PLAN	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:80%;">1b Three-digit plan number (PN) ▶</td> <td style="width:20%; text-align: center;">001</td> </tr> <tr> <td colspan="2">1c Effective date of plan 10/01/1996</td> </tr> </table>	1b Three-digit plan number (PN) ▶	001	1c Effective date of plan 10/01/1996	
1b Three-digit plan number (PN) ▶	001				
1c Effective date of plan 10/01/1996					
2a Plan sponsor's name (employer, if for a single-employer plan) Mailing address (include room, apt., suite no. and street, or P.O. Box) City or town, state or province, country, and ZIP or foreign postal code (if foreign, see instructions) BURLINGTON NORTHERN SANTA FE, LLC General Office Building 2500 Lou Menk Drive Fort Worth TX 76131-2828	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:80%;">2b Employer Identification Number (EIN) 27-1754839</td> </tr> <tr> <td>2c Plan Sponsor's telephone number 817-352-1667</td> </tr> <tr> <td>2d Business code (see instructions) 551112</td> </tr> </table>	2b Employer Identification Number (EIN) 27-1754839	2c Plan Sponsor's telephone number 817-352-1667	2d Business code (see instructions) 551112	
2b Employer Identification Number (EIN) 27-1754839					
2c Plan Sponsor's telephone number 817-352-1667					
2d Business code (see instructions) 551112					

Caution: A penalty for the late or incomplete filing of this return/report will be assessed unless reasonable cause is established.

Under penalties of perjury and other penalties set forth in the instructions, I declare that I have examined this return/report, including accompanying schedules, statements and attachments, as well as the electronic version of this return/report, and to the best of my knowledge and belief, it is true, correct, and complete.

SIGN HERE	DocuSigned by: <small>6CAE5811C78D41F...</small> Signature of plan administrator	10/13/2020	Judy K. Carter
		Date	Enter name of individual signing as plan administrator
SIGN HERE	DocuSigned by: <small>6CAE5811C78D41F...</small> Signature of employer/plan sponsor	10/13/2020	Judy K. Carter
		Date	Enter name of individual signing as employer or plan sponsor
SIGN HERE	Signature of DFE	Date	Enter name of individual signing as DFE

For Paperwork Reduction Act Notice, see the Instructions for Form 5500.

3a Plan administrator's name and address <input type="checkbox"/> Same as Plan Sponsor VP & CHIEF HUMAN RESOURCE OFFICER GENERAL OFFICE BUILDING 2301 LOU MENK DRIVE FORT WORTH TX 76131-2828	3b Administrator's EIN 06-1795272 3c Administrator's telephone number 817-352-1667
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4 If the name and/or EIN of the plan sponsor or the plan name has changed since the last return/report filed for this plan, enter the plan sponsor's name, EIN, the plan name and the plan number from the last return/report: a Sponsor's name c Plan Name	4b EIN 4d PN
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5 Total number of participants at the beginning of the plan year	5	17,906
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6 Number of participants as of the end of the plan year unless otherwise stated (welfare plans complete only lines 6a(1) , 6a(2) , 6b , 6c , and 6d).	
a(1) Total number of active participants at the beginning of the plan year	6a(1) 6,649
a(2) Total number of active participants at the end of the plan year	6a(2) 6,642
b Retired or separated participants receiving benefits.....	6b 7,157
c Other retired or separated participants entitled to future benefits	6c 1,757
d Subtotal. Add lines 6a(2) , 6b , and 6c	6d 15,556
e Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.	6e 2,212
f Total. Add lines 6d and 6e	6f 17,768
g Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item).....	6g
h Number of participants who terminated employment during the plan year with accrued benefits that were less than 100% vested	6h 29

7 Enter the total number of employers obligated to contribute to the plan (only multiemployer plans complete this item).....	7
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8a If the plan provides pension benefits, enter the applicable pension feature codes from the List of Plan Characteristics Codes in the instructions:
 1A

b If the plan provides welfare benefits, enter the applicable welfare feature codes from the List of Plan Characteristics Codes in the instructions:

9a Plan funding arrangement (check all that apply) (1) <input type="checkbox"/> Insurance (2) <input type="checkbox"/> Code section 412(e)(3) insurance contracts (3) <input checked="" type="checkbox"/> Trust (4) <input type="checkbox"/> General assets of the sponsor	9b Plan benefit arrangement (check all that apply) (1) <input type="checkbox"/> Insurance (2) <input type="checkbox"/> Code section 412(e)(3) insurance contracts (3) <input checked="" type="checkbox"/> Trust (4) <input type="checkbox"/> General assets of the sponsor
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10 Check all applicable boxes in 10a and 10b to indicate which schedules are attached, and, where indicated, enter the number attached. (See instructions)

a Pension Schedules (1) <input checked="" type="checkbox"/> R (Retirement Plan Information) (2) <input type="checkbox"/> MB (Multiemployer Defined Benefit Plan and Certain Money Purchase Plan Actuarial Information) - signed by the plan actuary (3) <input checked="" type="checkbox"/> SB (Single-Employer Defined Benefit Plan Actuarial Information) - signed by the plan actuary	b General Schedules (1) <input checked="" type="checkbox"/> H (Financial Information) (2) <input type="checkbox"/> I (Financial Information – Small Plan) (3) <input type="checkbox"/> A (Insurance Information) (4) <input checked="" type="checkbox"/> C (Service Provider Information) (5) <input checked="" type="checkbox"/> D (DFE/Participating Plan Information) (6) <input checked="" type="checkbox"/> G (Financial Transaction Schedules)
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Part III Form M-1 Compliance Information (to be completed by welfare benefit plans)

11a If the plan provides welfare benefits, was the plan subject to the Form M-1 filing requirements during the plan year? (See instructions and 29 CFR 2520.101-2.) Yes No

If "Yes" is checked, complete lines 11b and 11c.

11b Is the plan currently in compliance with the Form M-1 filing requirements? (See instructions and 29 CFR 2520.101-2.) Yes No

11c Enter the Receipt Confirmation Code for the 2019 Form M-1 annual report. If the plan was not required to file the 2019 Form M-1 annual report, enter the Receipt Confirmation Code for the most recent Form M-1 that was required to be filed under the Form M-1 filing requirements. (Failure to enter a valid Receipt Confirmation Code will subject the Form 5500 filing to rejection as incomplete.)

Receipt Confirmation Code _____

SCHEDULE SB (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Single-Employer Defined Benefit Plan Actuarial Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6059 of the Internal Revenue Code (the Code). ▶ File as an attachment to Form 5500 or 5500-SF.	OMB No. 1210-0110 2019 This Form is Open to Public Inspection
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For calendar plan year 2019 or fiscal plan year beginning 10/01/2019 and ending 12/31/2019

▶ **Round off amounts to nearest dollar.**

▶ **Caution:** A penalty of \$1,000 will be assessed for late filing of this report unless reasonable cause is established.

A Name of plan BURLINGTON NORTHERN SANTA FE RETIREMENT PLAN	B Three-digit plan number (PN) ▶	001
C Plan sponsor's name as shown on line 2a of Form 5500 or 5500-SF BURLINGTON NORTHERN SANTA FE, LLC	D Employer Identification Number (EIN) 27-1754839	
E Type of plan: <input checked="" type="checkbox"/> Single <input type="checkbox"/> Multiple-A <input type="checkbox"/> Multiple-B		
F Prior year plan size: <input type="checkbox"/> 100 or fewer <input type="checkbox"/> 101-500 <input checked="" type="checkbox"/> More than 500		

Part I Basic Information

1 Enter the valuation date: Month 10 Day 01 Year 2019

2 Assets:		
a Market value.....	2a	2,470,077,167
b Actuarial value	2b	2,552,545,397

3 Funding target/participant count breakdown	(1) Number of participants	(2) Vested Funding Target	(3) Total Funding Target
a For retired participants and beneficiaries receiving payment	9,578	1,327,389,155	1,327,389,155
b For terminated vested participants	1,874	67,372,073	67,372,073
c For active participants	6,649	280,915,717	286,040,587
d Total	18,101	1,675,676,945	1,680,801,815

4 If the plan is in at-risk status, check the box and complete lines (a) and (b).....

a Funding target disregarding prescribed at-risk assumptions.....	4a	
b Funding target reflecting at-risk assumptions, but disregarding transition rule for plans that have been in at-risk status for fewer than five consecutive years and disregarding loading factor	4b	

5 Effective interest rate..... **5** 5.50%

6 Target normal cost

	6	3,971,004
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Statement by Enrolled Actuary

To the best of my knowledge, the information supplied in this schedule and accompanying schedules, statements and attachments, if any, is complete and accurate. Each prescribed assumption was applied in accordance with applicable law and regulations. In my opinion, each other assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, offer my best estimate of anticipated experience under the plan.

SIGN HERE	Adam Coburn	
	Signature of actuary	10/13/2020
	ADAM COBURN	Date
	Type or print name of actuary	2007924
	MERCER	Most recent enrollment number
	Firm name	214-220-6292
	1717 MAIN STREET, SUITE 4400	Telephone number (including area code)
	DALLAS TX 75201-7357	
	Address of the firm	

If the actuary has not fully reflected any regulation or ruling promulgated under the statute in completing this schedule, check the box and see instructions

Part II		Beginning of Year Carryover and Prefunding Balances	
		(a) Carryover balance	(b) Prefunding balance
7	Balance at beginning of prior year after applicable adjustments (line 13 from prior year).....	0	560,464,526
8	Portion elected for use to offset prior year's funding requirement (line 35 from prior year)	0	0
9	Amount remaining (line 7 minus line 8).....	0	560,464,526
10	Interest on line 9 using prior year's actual return of <u>-3.12%</u>	0	-17,486,493
11	Prior year's excess contributions to be added to prefunding balance:		
	a Present value of excess contributions (line 38a from prior year).....		0
	b(1) Interest on the excess, if any, of line 38a over line 38b from prior year Schedule SB, using prior year's effective interest rate of <u>5.67%</u>		0
	b(2) Interest on line 38b from prior year Schedule SB, using prior year's actual return.....		
	c Total available at beginning of current plan year to add to prefunding balance.....		0
	d Portion of (c) to be added to prefunding balance.....		
12	Other reductions in balances due to elections or deemed elections.....	0	0
13	Balance at beginning of current year (line 9 + line 10 + line 11d - line 12).....	0	542,978,033

Part III		Funding Percentages	
14	Funding target attainment percentage	14	119.56%
15	Adjusted funding target attainment percentage.....	15	151.86%
16	Prior year's funding percentage for purposes of determining whether carryover/prefunding balances may be used to reduce current year's funding requirement	16	114.86%
17	If the current value of the assets of the plan is less than 70 percent of the funding target, enter such percentage.	17	%

Part IV		Contributions and Liquidity Shortfalls			
18 Contributions made to the plan for the plan year by employer(s) and employees:					
(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees	(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees
Totals ▶			18(b)	0	18(c)
					0

19	Discounted employer contributions – see instructions for small plan with a valuation date after the beginning of the year:		
	a Contributions allocated toward unpaid minimum required contributions from prior years.....	19a	0
	b Contributions made to avoid restrictions adjusted to valuation date	19b	0
	c Contributions allocated toward minimum required contribution for current year adjusted to valuation date.....	19c	0
20	Quarterly contributions and liquidity shortfalls:		
	a Did the plan have a "funding shortfall" for the prior year?.....	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	b If line 20a is "Yes," were required quarterly installments for the current year made in a timely manner?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	c If line 20a is "Yes," see instructions and complete the following table as applicable:		
Liquidity shortfall as of end of quarter of this plan year			
(1) 1st	(2) 2nd	(3) 3rd	(4) 4th

Part V	Assumptions Used to Determine Funding Target and Target Normal Cost			
21	Discount rate:			
a	Segment rates:	1st segment: 3.74 %	2nd segment: 5.35 %	3rd segment: 6.11 %
		<input type="checkbox"/> N/A, full yield curve used		
b	Applicable month (enter code).....		21b	4
22	Weighted average retirement age		22	62
23	Mortality table(s) (see instructions)	<input type="checkbox"/> Prescribed - combined	<input checked="" type="checkbox"/> Prescribed - separate	<input type="checkbox"/> Substitute

Part VI	Miscellaneous Items			
24	Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
25	Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
26	Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
27	If the plan is subject to alternative funding rules, enter applicable code and see instructions regarding attachment		27	

Part VII	Reconciliation of Unpaid Minimum Required Contributions For Prior Years			
28	Unpaid minimum required contributions for all prior years		28	0
29	Discounted employer contributions allocated toward unpaid minimum required contributions from prior years (line 19a).....		29	0
30	Remaining amount of unpaid minimum required contributions (line 28 minus line 29)		30	0

Part VIII	Minimum Required Contribution For Current Year			
31	Target normal cost and excess assets (see instructions):			
a	Target normal cost (line 6)		31a	3,971,004
b	Excess assets, if applicable, but not greater than line 31a		31b	3,971,004
32	Amortization installments:	Outstanding Balance	Installment	
a	Net shortfall amortization installment.....	0	0	
b	Waiver amortization installment	0	0	
33	If a waiver has been approved for this plan year, enter the date of the ruling letter granting the approval (Month _____ Day _____ Year _____) and the waived amount		33	
34	Total funding requirement before reflecting carryover/prefunding balances (lines 31a - 31b + 32a + 32b - 33).....		34	0
		Carryover balance	Prefunding balance	Total balance
35	Balances elected for use to offset funding requirement.....			0
36	Additional cash requirement (line 34 minus line 35).....		36	0
37	Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c).....		37	0
38	Present value of excess contributions for current year (see instructions)			
a	Total (excess, if any, of line 37 over line 36)		38a	0
b	Portion included in line 38a attributable to use of prefunding and funding standard carryover balances		38b	
39	Unpaid minimum required contribution for current year (excess, if any, of line 36 over line 37).....		39	0
40	Unpaid minimum required contributions for all years		40	0

Part IX	Pension Funding Relief Under Pension Relief Act of 2010 (See Instructions)			
41	If an election was made to use PRA 2010 funding relief for this plan:			
a	Schedule elected	<input type="checkbox"/> 2 plus 7 years	<input type="checkbox"/> 15 years	
b	Eligible plan year(s) for which the election in line 41a was made	<input type="checkbox"/> 2008	<input type="checkbox"/> 2009	<input type="checkbox"/> 2010 <input type="checkbox"/> 2011

Schedule SB, line 24 — Change in Actuarial Assumptions

The following funding specific assumption changes have occurred since the October 1, 2018 Valuation:
The expense component of normal cost was updated from \$2,853,773 to \$573,243 to reflect our expectations for the current short plan year.

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods**Actuarial assumptions for October 1, 2019 funding valuation**

Discount rate sponsor elections		
• Segment rates or full yield curve	Segment	
• Look-back months	4	
	<u>Nonstabilized rates</u>	<u>Stabilized rates</u>
• First 5 years	2.74%	3.74%
• Next 15 years	3.96%	5.35%
• Over 20 years	4.44%	6.11%
Mortality sponsor elections		
• Healthy participants	Section 430(h)(3) prescribed separate static annuitant and nonannuitant mortality tables.	
• Pre-1995 disabilities	Revenue Ruling 96-7 table for participants who became disabled before 1995.	
• Post-1994 disabilities	Revenue Ruling 96-7 table for participants who became disabled after 1994.	
Other economic assumptions		
• Salary increases	Weighted average assumption of 3.10% (See table of sample rates)	
• Flat-dollar benefit increases	2.20% per year	
• Expected investment return	5.97% for 2019 and 5.57% per year for 2018	
• Expenses	Administrative expenses (excluding investment management expenses) are reflected in the target normal cost. The amount is \$573,243 for the plan year beginning October 1, 2019 and ending December 31, 2019.	

Rationale for Economic Assumptions

- Discount rate – The discount rate assumptions are prescribed by law.
- Salary increases – The salary increase assumption was selected based on an experience study completed in 2016 of data from October 2010 to October 2015, and reflects management's expectation that wages will continue to increase at a similar rate in future years.
- Expected investment return – The expected rate of return on plan assets is based on the median simulated investment return using capital market assumptions published in Mercer Investment Consulting's Capital Markets Outlook for the plan's target asset mix, net of expenses assumed to be paid from plan assets for passive investment management.
- Expenses – This assumption is based on prior year experience, adjusted for expected changes in the upcoming year.

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods**Demographic assumptions**

- **Withdrawal** See table of sample rates.

- **Disability incidence** Graduated Rates. See table of sample rates. 80% of participants becoming disabled are assumed to be eligible for Social Security disability benefits.

Retirement age	Percentage			
	Attained age	Less than 30 Years of Service	Over 30 Years of Service Santa Fe	Over 30 Years of Service All Other
Under 55		0.0%	0.0%	0.0%
55		2.0%	4.0%	4.0%
56		1.0%	2.0%	2.0%
57		2.0%	2.0%	2.0%
58		2.0%	4.0%	4.0%
59		5.0%	5.0%	5.0%
60		19.0%	45.0%	45.0%
61		13.0%	35.0%	35.0%
62		17.0%	30.0%	30.0%
63		17.0%	25.0%	25.0%
64		17.0%	20.0%	20.0%
65		30.0%	70.0%	40.0%
66		30.0%	60.0%	30.0%
67		20.0%	60.0%	30.0%
68		20.0%	60.0%	30.0%
69		20.0%	60.0%	30.0%
70		20.0%	60.0%	30.0%
71 and above		100.0%	100.0%	100.0%

- **Benefit commencement age for**

- **Future vested deferred** 62 for those with 10 years of vesting service before age 65 and 65 otherwise
- **Current vested deferred** 62 for those with 10 years of vesting service before age 65 and 65 otherwise

Spouse assumptions	<u>Male participants</u>	<u>Female participants</u>
— Percentage married	85%	85%
— Spouse age difference	3 years younger	3 years older

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods**Demographic assumptions**

Target Bonus Percent	100%
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Form of payment	50% J&S	Single life	100% J&S
• Active retirements	0%	30%	70%
• Future vested deferred	0%	30%	70%
• Future disabilities	0%	30%	70%
• Future deaths	100%	0%	0%
• Current vested deferred	0%	45%	55%

Table of sample rates

Withdrawal	
Attained Service	Percentage
0	21.00%
2	19.00
4	8.00
6	4.00
8	3.00
10	2.50
12	1.75
14	1.50
15-30	1.00
30+	2.00

Salary increase			
Attained age	2018	2019	2020+
25 and under	7.67%	8.17%	8.67%
30	6.29	6.79	7.29
35	5.21	5.71	6.21
40	4.26	4.76	5.26
45	3.40	3.90	4.40
50	2.68	3.18	3.68
55+	2.00	2.50	3.00

Disability Incidence	
Attained Service	Percentage
25	0.01%
30	0.01
35	0.08
40	0.15
45	0.40
50	0.73
55	1.40
60	2.48

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods**Rationale for Demographic Assumptions**

- Mortality - The mortality assumptions are prescribed by law.
- Withdrawal – The withdrawal rates were selected based on an experience study completed in 2016 of data from October 2010 to October 2015. The plan sponsor believes that this period will be representative of anticipated future experience. The assumption is reviewed annually for reasonability.
- Retirement age – The retirement rates were selected based on an experience study completed in 2016 of data from October 2010 to October 2015. The plan sponsor believes that this period will be representative of anticipated future experience. The assumption is reviewed annually for reasonability.
- Benefit commencement age – The benefit commencement age for vested termination was selected based on an experience study completed in 2016 of data from October 2010 to October 2015. The plan sponsor believes that this period will be representative of anticipated future experience. The assumption is reviewed annually for reasonability.
- Form of payment – The form of payment assumptions were selected based on an experience study completed in 2016 of data from October 2010 to September 2015. The plan sponsor believes that this period will be representative of anticipated future experience. The assumption is reviewed annually for reasonability.
- Salary increase and target bonus - The salary increase and target bonus assumptions were selected based on an experience study completed in 2016 of data from October 2010 to October 2015. The plan sponsor believes that this period will be representative of anticipated future experience. The assumption is reviewed annually for reasonability.

Actuarial methods

An actuarial valuation is only a snapshot of a plan's estimated financial condition at a particular point in time; it does not predict the plan's future financial condition or its ability to pay benefits in the future and does not provide any guarantee of future financial soundness of the plan. Over time, a plan's total cost will depend on a number of factors, including the amount of benefits the plan pays, the number of people paid benefits, the period of time over which benefits are paid, plan expenses and the amount earned on any assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the valuation date.

Because modeling all aspects of a situation is not possible or practical, we may use summary information, estimates, or simplifications of estimates to facilitate the modeling of future events in an efficient and cost-effective manner. We may also exclude factors or data that, if used, in our judgment, would not have significantly affected our results. Use of such simplifying techniques does not, in our judgment, affect the reasonableness of valuation results for the plan.

Valuations do not affect the ultimate cost of the plan, only the timing of when benefit costs are recognized. Cost recognition occurs over time. If the costs recognized over a period of years are lower or higher than necessary, for whatever reason, normal and expected practice is to adjust future cost levels to recognize the entire cost of the plan over time.

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods**Actuarial methods for funding****Asset methods**

The asset valuation method is an average of the adjusted market value for each year during the last 2 years preceding the valuation date. The adjusted market value is the market value at each determination date adjusted to the valuation date based on actual cash flows and expected interest at the lesser of the expected rate of return and the third segment rate. This amount is adjusted to be no greater than 110 percent and no less than 90 percent of the fair market value, as defined in IRC Section 430.

A characteristic of this asset method is that, over time, it is slightly more likely to produce an actuarial value of assets that is less than the market value of assets than an actuarial value that is greater than the market value.

Participant Methods

Participants or former participants are included or excluded from the valuation as described below:

- **Participants included:** The plan sponsor provides us with data on all employees as of the valuation date, but only those employees who have completed the plan's eligibility requirements are included in the valuation of liabilities.
- **Participants excluded:** No actuarial liability is included for nonvested participants who terminated prior to the valuation date. For this purpose, participants with a break in service on the valuation date are treated as terminated participants.
- **Disabled participants:** The liabilities for participants on long-term disability have been included with the liabilities for active participants.
- **Insurance contracts:** The plan does not have any insurance contracts.

Minimum Funding Methods

The funding target for minimum funding calculations is computed using the traditional unit credit method of funding. The objective under this method is to fund each participant's benefits under the plan as they accrue. Thus, the total pension to which each participant is expected to become entitled at retirement is broken down into units, each associated with a year of past or future credited service.

A detailed description of the calculation follows:

- The plan's valuation date is the beginning of the plan year.
- An individual's **funding target** is the present value of future benefits based on credited service and average pay as of the beginning of the plan year, and an individual's **target normal cost** is the present value of the benefit expected to accrue in the plan year. If multiple decrements are used, the funding target and the target normal cost for an individual are the sum of the component funding targets and target normal costs associated with the various anticipated separation dates.
- This plan provides disability and death benefits that are only partially based on a participant's accrued benefit or years of service. This benefit is allocated to funding target based on the accrued benefit on the valuation date plus a portion of the excess of the benefit over the accrued benefit multiplied by the ratio of the participant's service at the beginning of the plan year to their service at

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods

each decrement age. This benefit is allocated to target normal cost based on the proportionate benefit attributable to the increase in the participant's service and compensation during the plan year.

- The plan's **target normal cost** is the sum of the individual target normal costs, and the plan's **funding target** is the sum of the individual funding targets for all participants under the plan.

Schedule SB, Part V — Summary of Plan Provisions**Summary of major plan provisions**

Effective date and plan year	The effective date of the restated plan is October 1, 1996. The plan was amended December 20, 2016, to incorporate the Thirty-Second amendment. Plan year: Prior to January 1, 2020: October 1 st to September 30 th After December 31, 2019: January 1 st to December 31 st
Status of the plan	The plan has ongoing benefit accruals. New employees hired on or after April 1, 2019 are not eligible to participate in the plan.
Type of Plan	This plan is a trustee pension plan.
Significant events that occurred during the year	The plan was closed to new participants hired on or after April 1, 2019. Current active participants were given the choice to stay in the pension for a period of time or move to an enhanced 401k. Participants who elected to stay in the plan will be eligible for continued accruals through April 30, 2022, if their age plus service is less than 60 as of March 31, 2019; or April 30, 2028 if their age plus service is 60 points or greater.
Definitions	
• Employees included and eligibility	Each salaried employee hired before April 1, 2019 becomes a participant on the first calendar month following the date on which he has both attained the age of 21 years and worked 1,000 hours during any 12-month period.
• Employer contributions	Contributions to the trust will be made in such amounts and at such times as are required to maintain the plan and trust in compliance with ERISA and Section 430 of the Internal Revenue Code of 1954, as amended.
• Participant contributions	None required or permitted.
• Vesting service	The period of employment (including union employment) used in determining eligibility for benefits. A year of vesting service is earned for each calendar year in which an employee is credited with 1,000 or more hours of service. 190 hours are credited for each month compensated or on leave of absence status as a salaried employee.
• Credited service	The period of salaried employment used in determining the amount of pension benefits. Credited service as of the effective date of the restated plan is based on service earned under the prior plan(s). Future credited service is earned for each month in which the employee is compensated or on leave of absence status as a salaried employee. Credited service will cease on September 30, 2019, March 31, 2022, or March 31, 2028 depending on participant elections to remain in the plan. Special rules are defined in the plan for calculating loss of service due to breaks in service.
• Compensation considered	Plan compensation is defined as the base compensation rate in effect at the beginning of the month, plus bonuses paid for a calendar year, not greater than applicable annual statutory limits. Plan compensation includes salary reductions under Code Sections 125 or 401(k).

Schedule SB, Part V — Summary of Plan Provisions

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- Average monthly compensation Average monthly compensation is the total plan compensation during a considered period divided by the number of months in the considered period. The considered period is the 60 highest consecutive completed months within the last 120 calendar months which produce the highest average. Only months during salaried employment are included in the considered period.

Average monthly compensation is calculated as of the earlier of 1) transfer to scheduled service, 2) participant plan freeze date, and 3) termination date.
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Normal retirement

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- Eligibility A participant who retires on or after age 65.
 - Benefit Benefits are determined at the earlier of 1) transfer to scheduled service, 2) participant plan freeze date, and 3) termination date
An annuity, payable for life, equal to the larger of (i) or (ii):
 - (i) 0.3% of average monthly compensation, plus
0.5% of average monthly compensation above the Social Security integration level, plus
0.6% of average monthly compensation above the Railroad Retirement integration level.
 - (ii) \$37.00 per month per year of credited service.
This amount is multiplied by credited service, limited to 40 years
The Social Security integration level is covered compensation under RR 71-446 for a 65-year-old in the calendar year of determination, rounded to the nearest \$600. The Railroad Integration level is the five-year average of the Tier II wage bases for the five full calendar years preceding the participants' termination, rounded to the nearest \$60.
Participants in the prior plan(s) are fully grandfathered if they are at least age 45 as of October 1, 1996.
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Early retirement

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- Eligibility After age 55, provided the participant has completed ten years of vesting service.
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Schedule SB, Part V — Summary of Plan Provisions

- **Benefit** The annuity, payable immediately for life, is determined as for normal retirement, considering service and compensation to actual early retirement date. At the employee's request, a reduced pension is payable as early as his early retirement date using the table below. For purposes of early retirement eligibility and early retirement reductions, benefit service is allowed to grow past the participants' freeze date until the earlier of 1) transfer to scheduled service and 2) termination date.
A supplement is payable until Railroad Retirement or Social Security benefit eligibility. The amount of the supplement is \$15 per month per year of credited service, to a maximum of 20 years and frozen as of July 1, 2010. This amount is not reduced for early commencement.

Age	Benefit attributable to service before 07/01/10. Apply table using projected service at age 62		Benefit attributable to service after 06/30/10. Apply table using actual service at termination	
	More than 30 years of service	Less than 30 years of service	More than 30 years of service	Less than 30 years of service
55	70%	50%	50%	40%
56	73	53	58	46
57	77	57	66	52
58	80	60	74	58
59	83	63	82	64
60	87	67	90	70
61	93	73	95	76
62	100	80	100	82
63	100	87	100	88
64	100	93	100	94
65	100	100	100	100

Late retirement

- **Eligibility** An employee who meets the requirements for a normal pension and retires after his normal retirement date.
- **Benefit** The participant will receive a monthly amount which is computed by the normal retirement formula considering service and compensation through actual retirement. In no event will the benefit be less than the actuarial equivalent of the accrued benefit payable as of the normal retirement date.

Deferred vested

- **Eligibility** A participant is eligible for a deferred vested benefit at any age, provided he has completed at least five years of vesting service.
- **Benefit** The annuity is computed as for normal retirement considering service and compensation to date of termination. Payment will commence at age 65, although if requested, a reduced pension may be paid as early as age 55, provided that the employee had completed at least ten years of vesting service. Reduction is the same as for early retirement.

Schedule SB, Part V — Summary of Plan Provisions**Disability**

• Eligibility	A participant is eligible for disability benefits at any age, provided he retires because of total and permanent disability.
• Benefit	The annuity, commencing on normal or early retirement date, is payable for life. The monthly amount is computed as for normal retirement considering average monthly compensation and plan integration levels at the date of disability, and service projected during the period of disability. Effective October 1, 2012, any participant who starts LTD after September 30, 2014, will be granted only one additional year of service, unless they are already past their pension freeze date in which case no additional service will be granted.

Pre-retirement death

• Eligibility	The eligible spouse of an employee who dies after becoming vested is entitled to a benefit payable for life.
• Benefit	The benefit, commencing on the first of the month following the later of the date of death or the date the employee would have been eligible for early retirement, is 50% of the accrued benefit determined as for early retirement considering compensation and service to date of death, then reduced for the earlier payment and the survivor protection.

Form of benefits

• Automatic form for unmarried participants	Single Life Annuity
• Automatic form for married participants	50% Joint and Survivor Annuity
• Optional forms	Optional forms of payment provided by the plan are determined on an actuarial equivalent basis. Lump sums are available from the plan if the value is \$25,000 or less. Certain prior plan participants can receive lump sums in excess of \$25,000.

Miscellaneous

• Expenses	Expenses will be paid by the trust if not paid by the employer.
• Grandfathered provisions	If a participant was at least age 45 on October 1, 1996, they will generally receive the larger of the benefit under this plan, or the benefit under the terms of their prior plan, as if the prior plan had continued in existence.
• Maximum compensation	Compensation for any 12-month period used to determine accrued benefits may not exceed the limits in IRC Section 401(a)(17) for the calendar year in which the 12-month period begins. This limit is indexed annually. For 2019, the limit is \$280,000.
• Maximum benefits	Annual benefits may not exceed the limits in IRC Section 415. This limit is indexed annually. For 2019, the limit is \$225,000.

Schedule SB, Part V — Summary of Plan Provisions**Benefits Included or Excluded**

Unless noted below, all benefits provided by the plan, as restated and amended through Amendment 32, are included in this valuation:

- **Most recent plan amendments included:** Amendment 36 signed September 26, 2019, is included because it was adopted by the valuation date and is effective by the end of the plan year.
- **Late retirement increases:**
 - *Active participants:* The plan applies late retirement actuarial increases for all participants who defer retirement beyond their normal retirement date and this valuation includes those increases.
 - *Deferred vested participants:* Current deferred vested participants over normal retirement age are valued including the late retirement actuarial increase.
- **Internal Revenue Code limitations:** The limitations of Internal Revenue Code Section 415(b) and 401(a)(17) have been incorporated into our calculations.
- **IRC Section 416 rules for top-heavy plans:** We did not test whether this plan is top-heavy (when the present value of benefits for key employees equals or exceeds 60% of the present value for all participants). However, we expect that the plan is not top-heavy due to the large number of rank-and-file participants; therefore, the funding target and target normal cost do not reflect any liability for top-heavy benefit accruals.

Plan Provisions Specific to Funding**Additional Benefits Included or Excluded**

- **IRC Section 436 benefit restrictions:**
 - *Unpredictable contingent event benefits:* None.
 - *Plan amendments:* See above.
 - *Prohibited payments:* None.
- **Unpredictable contingent event benefits:** The plan does not have any unpredictable contingent event benefits.
- The valuation does not include an assumption for lump sums under \$25,000.

Plan Provision Changes Since Prior Valuation

- Maximum compensation amounts, maximum benefit amounts under IRS rules and integration levels were updated from 2018 to 2019.
- The plan is now closed to new participants hired on or after April 1, 2019.
- Current actives are now valued until their freeze dates. Active participants were given the choice to stay in the pension for a period of time or move to an enhanced 401k. Participants who elected to stay in the plan will be eligible for continued accruals through March 31, 2022, if their age plus service was less than 60 points, or March 31, 2028 if their age plus service was 60 points or greater.

Schedule SB, line 26 — Schedule of Active Participant Data

Attained age	Years of credited service										Total
	Under 1	1–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40 & up	
Under 25	11	5									16
25–29	3	13	13								29
30–34	1	18	46	14							79
			109,412								
35–39	1	19	85	76	11						192
			111,250	146,335							
40–44	4	29	97	74	99	19					322
		97,966	118,968	132,720	149,189						
45–49		24	110	147	147	92	29				549
		106,382	116,877	127,652	138,846	164,480	183,990				
50–54		23	71	135	109	79	68	21			506
		117,688	120,393	122,741	130,688	146,502	168,754	192,086			
55–59	1	21	67	130	80	88	66	25	16	7	501
		106,807	112,247	119,249	126,542	132,535	169,782	179,168			
60–64		5	29	39	37	39	25	12	10	9	205
			106,593	115,832	130,067	117,470	155,265				
65–69		1	2	8	6	3	9	2		4	35
70 & up		2	1								3
Total	21	160	521	623	489	320	197	60	26	20	2,437
											131,776

In each cell, the top number is the count of active participants for each age/service combination and the bottom number is average pay for 2019 limited to \$280,000. Average pay is not shown for plans with less than 1,000 active participants or cells with fewer than 20 participants.

Schedule SB, line 22 — Description of Weighted Average Retirement Age

Each employee is assumed to retire in accordance with the table of retirement rates. The proportion of employees expected to retire at each potential retirement age is shown below. The average retirement age is 62.

(A) Retirement age	(B) Retirement Percent	(C) Lx	(D) Number of employees expected to retire (B) x (C)	(E) (A) x (D)
55	2.13%	1,000.00	21.29	1,170.95
56	1.11%	978.71	10.90	610.40
57	2.00%	967.81	19.36	1,103.52
58	2.43%	948.46	23.09	1,339.22
59	5.00%	925.37	46.27	2,729.93
60	26.52%	879.10	233.14	13,988.40
61	17.13%	645.96	110.62	6,747.82
62	20.85%	535.34	111.59	6,918.58
63	18.69%	423.75	79.20	4,989.60
64	18.04%	344.54	62.15	3,977.60
65	36.79%	282.39	103.88	6,752.20
66	31.67%	178.51	56.53	3,730.98
67	23.33%	121.98	28.46	1,906.82
68	30.00%	93.52	28.06	1,908.08
69	20.00%	65.46	13.09	903.21
70	20.00%	52.37	10.47	732.90
71	100.00%	41.90	41.90	2,974.90
Total			1,000.00	62,485.11
Average Age				62.49