Twenty-Sixth Actuarial Valuation

of the Assets and Liabilities
Under the Railroad Retirement Acts
as of December 31, 2013
with
Technical Supplement

U.S. Railroad Retirement Board
Bureau of the Actuary
Chicago, Illinois

Twenty-Sixth Actuarial Valuation of the Assets and Liabilities Under the Railroad Retirement Acts as of December 31, 2013 with Technical Supplement

by
Frank J. Buzzi, Chief Actuary

with Statements of the Railroad Retirement Board and the Actuarial Advisory Committee

U.S. Railroad Retirement Board
Bureau of the Actuary
September 2015

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UNITED STATES OF AMERICA
RAILROAD RETIREMENT BOARD
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CHICAGO, ILLINOIS 60611-2092

BOARD MEMBERS:

MICHAEL S. SCHWARTZ, CHAIRMAN
WALTER A. BARROWS, LABOR MEMBER
STEVEN J. ANTHONY, MANAGEMENT MEMBER

STATEMENT OF THE RAILROAD RETIREMENT BOARD

Section 15(g) of the Railroad Retirement Act of 1974 requires that the Railroad Retirement Board, at intervals not longer than three years, estimate the liabilities created by the Act and include the estimate in its annual report. Section 22 of the Railroad Retirement Act of 1974 requires that the Board submit to the President and the Congress, by July 1 of each year, a report containing a five-year projection of the revenues to and payments from the Railroad Retirement Account. Section 502 of the Railroad Retirement Solvency Act of 1983, Public Law 98-76, requires that the Board submit to the Congress, by July 1 of each year, a report on the actuarial status of the railroad retirement system. The 26th valuation was prepared by the Board's Chief Actuary and meets these requirements. The Actuarial Advisory Committee reviewed the valuation as to assumptions and methods as required by Section 15(f) of the Railroad Retirement Act.
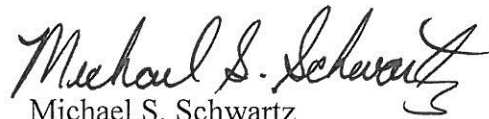
The Chief Actuary's report describes the results of three valuations, each valuation differing from the others as to the employment assumption on which it is based. Cash flow problems occur only under the most pessimistic employment assumption. Even under that assumption, the cash flow problems do not occur until the year 2047.

Section 502 of the Solvency Act requires recommendations with respect to tax rates and whether any part of the taxes on employers should be diverted to the Railroad Unemployment Insurance Account to aid in the repayment of any debt to the Railroad Retirement Account. The Chief Actuary's report does not recommend a change in the tax rate, nor does it recommend a diversion of taxes from the Railroad Retirement Account to the Railroad Unemployment Insurance Account.

The Board Members believe that the 26th valuation presents a fair picture of the financial condition of the railroad retirement system, and we support the conclusions reached in the report.

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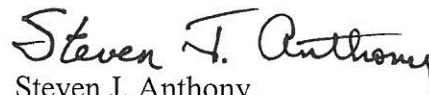
The Railroad Retirement Board wishes to thank the members of the Actuarial Advisory Committee for their assistance in this important project.

Michael S. Schwartz

Walter A. Barrows

Steven J. Anthony

STATEMENT OF THE ACTUARIAL ADVISORY COMMITTEE
May 28, 2015

This statement sets forth the Committee's review of the twenty-sixth actuarial valuation of the railroad retirement system. This valuation, performed as of December 31, 2013, was completed in the spring of 2015 by Mr. Frank J. Buzzi, Chief Actuary of the Railroad Retirement Board, and his staff. In both the planning and carrying out of the valuation, the Committee has counseled with Mr. Buzzi as to the structure, actuarial methods, actuarial assumptions, and procedures of the valuation and as to the scope and content of his report. In all, the Committee has met with the Chief Actuary on June 5, 2014, December 17, 2014, and May 28, 2015, for the purpose of reviewing and discussing the significant elements of the twenty-sixth valuation.
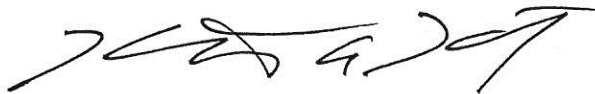
The Committee believes that the actuarial assumptions are reasonable and that the valuation results present a fair picture of the financial condition of the railroad retirement system.

Section 502 of the Railroad Retirement Solvency Act requires the Board to report to Congress on the actuarial status of the railroad retirement system each year. The report must include recommendations for any desirable financing changes. The Chief Actuary recommends no change in payroll tax rates under the railroad retirement system.

The Chief Actuary's report indicates that the average cost of the program over the projection period as measured by the excess of present value of tier 2 payroll taxes over the actuarial surplus ranges from 15.62% to 20.66% of payroll, depending on assumed future employment levels. This compares to a range of 16.79% to 22.40% of payroll in the twenty-fifth valuation.

The Committee acknowledges the valuable help of the Board, the Chief Actuary and his staff in the Committee's review of this valuation.
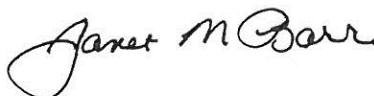
Respectfully submitted,

Kenneth A. Kent, M.A.A.A., Chair

Keith T. Sartain, M.A.A.A.

Janet M. Barr, M.A.A.A.

REPORT OF THE ACTUARY

I. INTRODUCTION

Section 15 of the Railroad Retirement Act of 1974 requires that the Railroad Retirement Board, at intervals of not more than three years, prepare actuarial valuations of the railroad retirement system.

Section 22 of the Railroad Retirement Act of 1974 requires the Railroad Retirement Board to prepare an annual report containing a five-year projection of revenues to and payments from the Railroad Retirement Account and to submit the report to the President and the Congress by July 1. This report must also contain a five-year projection of the account benefits ratio and average account benefits ratio. If the five-year projection indicates that funds in the Railroad Retirement Account will be insufficient to pay full benefits, (1) representatives of railroad employees, railroad carriers and the President must submit proposals to the Congress to preserve the financial solvency of the Railroad Retirement Account, and (2) the Railroad Retirement Board must issue regulations to reduce annuity levels during any fiscal year in which there would be insufficient funds to make full payments.

Section 502 of the Railroad Retirement Solvency Act of 1983 requires the Railroad Retirement Board to prepare an annual report on the actuarial status of the railroad retirement system and to submit the report to the Congress by July 1. The report must contain recommendations for any financing changes which might be advisable, including (1) changes in the tax rates, and (2) whether any part of the taxes on employers should be diverted to the Railroad Unemployment Insurance Account to aid in the repayment of any debt to the Railroad Retirement Account.

This report, the 26th actuarial valuation, is intended to meet these three requirements for 2015.

II. SUMMARY OF RECENT DEVELOPMENTS AND RESULTS

Recent actuarial reports have discussed in detail the importance of the level of railroad employment to the railroad retirement system's financial stability. The payroll tax on railroad employment has been the major source of income to the system since its establishment in the 1930s. It is clear that with a fixed tax rate the fewer railroad workers there are, the less money the retirement account collects in payroll taxes, and the more likely the system is to require additional funds. Declines in railroad employment over a long period, coupled with inflation and subsequent benefit increases, required legislation to strengthen the system's financial condition in 1974, 1981, 1983, and 1987. With the introduction of the average account benefits ratio (page 34 item 36) to automatically adjust the payroll tax rates in 2004 and later, there is less need for corrective legislation.

The 25th valuation (2012 actuarial report) projected a surplus of 0.42 percent of tier 2 payroll and an average tier 2 tax rate of 19.70 percent under the intermediate employment assumption. Favorable employment and investment experience have combined to produce higher initial trust fund balances which in turn have produced generally lower tier 2 taxes due to the tier 2 tax rate schedule. The average tier 2 tax rate has decreased to 18.20 percent, and the surplus has decreased to 0.37 percent of tier 2 payroll. The combined effect of a 1.50 percent of payroll decrease in projected future tier 2

tax rates net of a 0.05 percent of payroll decrease in projected surplus results in an overall improvement equal to 1.45 percent of tier 2 payroll.

The 26th valuation has been prepared under three assumptions as to the future behavior of railroad employment. These employment assumptions are similar to the employment assumptions used in the 25th valuation. Employment assumptions I and II assume stable passenger employment and different rates of decline in freight employment. Employment assumption III follows the structure of assumptions I and II, except that it has declines in passenger employment and steeper declines in freight employment than employment assumptions I and II. Employment assumptions I, II and III are intended to provide an optimistic, moderate and pessimistic outlook, respectively. The specific results of the projections made in this report of the railroad retirement system's financial condition are as follows:

1. Under employment assumption I, the average tier 2 tax rate is 16.09 percent, and an actuarial surplus of 0.47 percent of tier 2 payroll exists as of December 31, 2013. There are no cash flow problems during the 75-year projection period, and the tier 2 payroll tax rate ranges from 12.0% to 18.0%.

2. Under employment assumption II, the average tier 2 tax rate is 18.20 percent, and an actuarial surplus of 0.37 percent of tier 2 payroll exists as of December 31, 2013. There are no cash flow problems during the 75-year projection period, and the tier 2 payroll tax rate ranges from 16.0% to 23.0%.

3. Under employment assumption III, the average tier 2 tax rate is 20.47 percent, and an actuarial deficiency of 0.19 percent of tier 2 payroll exists as of December 31, 2013. Cash flow problems arise in 2047 and remain to the end of the 75-year projection period. The tier 2 payroll tax rate ranges from 18.0% to 27.0%.

The average tier 2 tax rate is calculated by dividing the present value of tier 2 payroll taxes by the present value of tier 2 payroll as of January 1, 2014. The surplus or deficiency figures given above and illustrated in Table 6 represent the change in the average tier 2 tax rate which would produce a balance of zero in the combined National Railroad Retirement Investment Trust, Railroad Retirement Account and Social Security Equivalent Benefit Account at the end of the 75-year projection period.

The conclusion is that, barring a sudden, unanticipated, large drop in railroad employment or substantial investment losses, the railroad retirement system will experience no cash flow problems during the next 32 years. The long-term stability of the system, however, is not assured. Under the current financing structure, actual levels of railroad employment and investment return over the coming years will determine whether additional corrective action is necessary.

As mentioned earlier, this report is intended to meet the requirements of Section 502 of the 1983 Solvency Act. Section 502 requires recommendations with regard to (1) the tax rates and (2) whether any part of the taxes on employers should be diverted to the Railroad Unemployment Insurance Account to aid in the repayment of its debt to the Railroad Retirement Account.

1. This report recommends no change in the rate of tax imposed on employers and employees.

    The tier 2 tax rate schedule maintains a close balance between the present value of future income and expenditures. Although future financing problems are projected to occur under employment assumption III, as discussed above, the absence of projected cash flow problems for at least 32 years under each employment assumption indicates that an immediate change in the tax rate schedule is not required.

2. No diversion of taxes from the Railroad Retirement Account to the Railroad Unemployment Insurance Account is recommended. As of May 28, 2015, there are no loans outstanding from the Railroad Retirement Account to the Railroad Unemployment Insurance Account.

Section V of this report presents details of the valuations under the three employment assumptions.

III. REGULAR AND SUPPLEMENTAL BENEFITS AND THEIR FINANCING

The Appendix contains a detailed description of the provisions of the current law. Sections III and IV provide a more general summary of the law.

Amounts available for payment of railroad retirement benefits are held in four Accounts: the National Railroad Retirement Investment Trust (NRRIT), the Railroad Retirement (RR) Account, the Social Security Equivalent Benefit (SSEB) Account, and the Dual Benefits Payments Account. Because of their intertwined nature, the NRRIT, RR Account and SSEB Account are discussed together in this section. Dual benefits and the Dual Benefits Payments Account are discussed in a separate section, Section IV.

Amounts held in the NRRIT, RR Account and SSEB Account are mainly used to pay monthly benefits to retired or disabled employees, their spouses, and survivors. The various types of benefits and their eligibility requirements are described in the Appendix. The Accounts also pay out relatively small amounts in lump sums to employees and their survivors in certain cases. The monthly benefits consist of three components, known as tier 1, tier 2 and supplemental annuity.

For all categories of recipients, the gross tier 1 benefit is generally equivalent to the benefit that the social security system would pay if all the employee's earnings (railroad and non-railroad) had been covered under the Social Security Act. Any benefit actually received from social security is subtracted to determine the net tier 1 benefit payable. Section IV explains the logic behind this determination. The cost-of-living increase paid to social security beneficiaries automatically carries over to the tier 1 component of railroad retirement annuities.

There are some differences between social security benefits and tier 1 benefits. The most significant are as follows:

1. An employee may not retire before age 62 under the social security system. Under the railroad retirement system, an employee may retire at age 60 with 30 years of service. A

spouse of a 30-year employee may also retire at age 60. If the employee retired after 2001, there is no age reduction in either case.

2.   Railroad retirement pays an occupational disability benefit under tier 1 and tier 2. Social security requires total and permanent disability. A five-month waiting period applies under both systems.

3.   Widow(er)s who retire at age 60 or 61 under railroad retirement are deemed age 62 in the computation of the tier 1 benefit, resulting in a smaller age reduction than under social security.

4.   From the start of the railroad retirement system through 1984, earnings up to a monthly maximum amount were taxed and credited for benefit computation purposes. Social security has always used an annual earnings limit. The 1983 Solvency Act changed railroad retirement to an annual earnings limit for 1985 and later years, but benefit computations for new beneficiaries continue to reflect the pre-1985 use of a monthly limit. All benefits awarded before 1985 reflect a monthly limit exclusively.

The formula used to compute the tier 2 component of railroad retirement is comparable to a private pension formula. Under the formula adopted in 1981, the employee tier 2 benefit is equal to 0.7 percent of the employee's average monthly railroad earnings for the 60 months of highest earnings, multiplied by the number of years of railroad service, less 25 percent of any vested dual benefit. Unlike many private pensions, tier 2 benefits (1) provide automatic cost-of-living increases, and (2) are paid to spouses and survivors without any reduction in employee benefit for the payment of these auxiliary benefits.

Before applicable reductions, the tier 2 benefit for spouses and survivors is a specified percentage of the employee's tier 2 benefit. The Appendix lists the percentages and also describes the initial minimum widow(er)'s amount which became payable beginning in calendar year 2002.

The tier 2 cost-of-living increases for employees, spouses and survivors are equal to 32.5 percent of the percentage increase which is used in computing social security increases (and tier 1 increases). The increase is paid at the same time as the tier 1 cost-of-living increase.

The portion of tier 1 benefits which is considered equivalent to social security benefits is subject to Federal income tax under the rules that apply to social security benefits. Tier 2 benefits, the portion of tier 1 benefits in excess of social security benefits, supplemental annuity benefits, and vested dual benefits are subject to Federal income tax under the rules that apply to private pensions.

A railroad retiree may receive a supplemental annuity in addition to his regular annuity if (1) the retiree has a "current connection" with the railroad industry at the time of retirement, and (2) the retiree has attained age 65 with 25 years of railroad service, or attained age 60 with 30 years of railroad service. A current connection is generally defined as at least 12 months of railroad service in the 30 months preceding retirement.

The 1981 amendments added the requirement that an employee must have worked in the railroad industry before October 1, 1981, to receive a supplemental annuity. This provision results in phasing out the supplemental annuity over a long period. The last supplemental annuity check will probably not be paid until after 2060.

The monthly supplemental annuity benefit is $23, plus $4 for each year of service in excess of 25, with a maximum benefit of $43. No cost-of-living increases are applied. Spouses and survivors do not receive a supplemental annuity.

If the recipient of a supplemental annuity receives a private pension from his railroad employer, the supplemental annuity is reduced by the portion of the private pension that is attributable to the employer's contributions. This reduction is not made if the private pension is reduced for receipt of the supplemental annuity.

Benefits paid from the NRRIT, RR Account and SSEB Account are financed by the following sources of income:

1. Payroll tax. Employees and employers pay a tax at the social security rate on earnings in a year up to the social security, or tier 1, earnings limit. There is no limit to earnings subject to the hospital insurance portion of the tier 1 tax rate. Beginning in 2013, employees pay an additional 0.9 percent on earnings above $200,000 (for those who file an individual return) or $250,000 (for those who file a joint return).

    In addition, employers and employees pay a tier 2 tax equal to a percentage of the employee's earnings up to the tier 2 earnings limit. The tier 2 earnings limit is what the social security limit would be if the 1977 social security amendments had not been enacted. The 2015 earnings limits are $118,500 and $88,200 for tier 1 and tier 2, respectively.

    Tier 2 taxes on both employers and employees are based on a 10-year average of the ratio of certain asset balances to the sum of benefits and administrative expenses (the average account benefits ratio). Depending on the average account benefits ratio, the tier 2 tax rate for employers will range between 8.2 percent and 22.1 percent, while the tier 2 tax rate for employees will be between 0 percent and 4.9 percent. This calculation is described in the Appendix.

2. Income tax. The tax on tier 1 benefits up to the social security level is credited to the SSEB Account and then to social security through the financial interchange. Revenue derived from taxing certain RR Account benefits (tier 2 and the excess of tier 1 over the social security level) is transferred to the RR Account.

3. Investment income.

4. The financial interchange with the social security system. This extremely important arrangement, which will be discussed in detail in Section IV, has resulted in the large annual lump sum transfers of money from social security to railroad retirement shown in Table 11.

5. <u>Advances from general revenues related to certain features of the financial interchange</u>. Financial interchange transfers are made in a lump sum for a whole fiscal year in the June following the end of that fiscal year. For example, the transfer reflecting transactions which occurred from October 2012 through September 2013 (fiscal year 2013) took place in June 2014. At any time, therefore, there are between 9 and 21 months' worth of financial interchange transfers that are, in a sense, owed to the railroad retirement system. Railroad retirement receives interest on this money, so this practice does no long-term harm to the financial condition of the railroad retirement system. The lag in the transfers, however, could cause short-term cash flow problems.

In order to avoid the cash flow problems caused by this lag, the 1983 Solvency Act provided for monthly loans to railroad retirement from U.S. Treasury general funds. Each loan is equal to the transfer the Railroad Retirement Board estimates railroad retirement would have received in the preceding month, with interest, if the financial interchange with social security were on an up-to-date basis. Railroad retirement must repay these loans when it receives the transfer from social security against which the money was advanced.

The 1983 Solvency Act created the SSEB Account, effective October 1, 1984. Before that date, all tier 1 benefits, tier 2 benefits, lump sums and administrative expenses had been paid from the RR Account, and all the income described above had been credited to the RR Account. Since then, the SSEB Account has paid the social security level of benefits and the administrative expenses allocable to that level of benefits. The tier 1 portion of the payroll tax, the income taxes on the social security level of benefits, the income from the financial interchange, and the advances from general revenues are credited to the SSEB Account. Repayment of the advances is made from the SSEB Account.

In order to maximize investment returns to the Railroad Retirement system, the Railroad Retirement and Survivors' Improvement Act of 2001 created the National Railroad Retirement Investment Trust (NRRIT) to manage and invest amounts collected in the RR Account and SSEB Account. Since the initial transfer of assets to the NRRIT during calendar years 2002-2004, the NRRIT has been transferring funds back to the RR Account as needed for the payment of benefits. The balance of the SSEB Account not needed to pay current benefits and administrative expenses has been transferred annually to the RR Account, reducing the amount needed from the NRRIT.

IV. THE FINANCIAL INTERCHANGE AND DUAL BENEFITS

In the early 1950s, an arrangement known as the financial interchange was established between the railroad retirement and social security systems. The purpose of the financial interchange is to place the social security trust funds in the same financial position they would have been if railroad employment had always been covered under social security. If railroad employment had been covered under social security, social security would have collected taxes on railroad employment, and it would have paid benefits based on railroad employment. Under the financial interchange, the railroad retirement system gives the social security system the taxes social security would have collected, and the social security system gives the railroad retirement system the additional benefits

social security would have paid to railroad workers and their families over what it actually pays them.

The word "additional" in the preceding sentence is important, because it is possible for a railroad employee to be covered under both railroad retirement and social security. The social security coverage may be based on earnings from moonlighting while in a railroad job or from coverage under the two systems at different times. Fulfilling the purpose of the financial interchange requires deducting from social security's fund only the difference between what social security would have paid had it covered railroad employment and what it actually pays the person based on his non-railroad employment. Under the financial interchange, therefore, social security subtracts an employee's social security benefit from the amount it would otherwise give to the railroad retirement system.

This arrangement gave rise to problems that became acute in the early 1970s. The problems arose from the weighting in the social security formula in favor of low-earning, short-service workers. A railroad employee's non-railroad earnings usually added little to the benefit social security would have paid on combined railroad and non-railroad earnings (called gross tier 1 today). However, the employee might qualify for the minimum social security benefit, receiving much more from social security than his non-railroad earnings added to his gross tier 1 benefit.

In order to improve the system's financial condition, the Railroad Retirement Act of 1974 provided that the tier 1 component of the railroad retirement annuity be reduced by any social security benefit. This essentially integrated the two systems and eliminated the advantage of qualifying for benefits under both systems.

It was generally considered unfair to eliminate this advantage entirely for those already retired or close to retirement when the 1974 Act became effective. The 1974 Act, therefore, provided for a restoration of social security benefits that were considered vested at the end of 1974. The restored amount is known as the "vested dual benefit." This benefit was available to qualifying spouses and survivors as well as to qualifying employees.

For employees retiring in 1975 or later, the vested dual benefit is equal to

  (1)   a social security benefit based on social security earnings, plus

  (2)   a social security benefit based on railroad earnings, minus

  (3)   a social security benefit based on combined railroad and social security earnings.

Social security or railroad earnings after 1974 are not included in this calculation. The "social security benefit" referred to in (1), (2) and (3) is the one which would have been calculated at the end of 1974. The resulting amount is increased by all the automatic social security cost-of-living adjustments between 1974 and the earlier of the year the employee retired and 1981.

Spouses and survivors are not awarded vested dual benefits after August 13, 1981, though they continue to receive these benefits if they were awarded before that date.

Since October 1981, vested dual benefits have been paid from a segregated Dual Benefits Payments Account, and appropriations have been made to that account. This means that, starting in fiscal year 1982, each annual appropriation is to be sufficient to pay the benefits for that year. If the appropriation for a fiscal year is less than required for full funding, the Railroad Retirement Board must reduce benefits to a level that the amount appropriated will cover.

The appropriation for vested dual benefits in fiscal year 1982 was less than required for full funding, resulting in a cutback in benefits during that year. Full funding was restored for the last two months of fiscal year 1982. The appropriation was less than required in fiscal year 1986, resulting in a cutback during April-September of that year. The appropriation was again less than required in fiscal year 1988, which resulted in a cutback during April-September. Benefits were cut back in January 1996 due to a lapse in government funding and then restored later that same month. For years other than those mentioned, full benefits have been paid.

V. ASSUMPTIONS, METHODOLOGY, AND VALUATION RESULTS

A. Assumptions and Methodology

Average railroad employment is assumed to be 242,000 in 2014 under each of the three employment assumptions. This is the estimated average for the year (subject to later adjustment) and exceeded the range projected for 2014 under the employment assumptions contained in the 2014 Section 502 report.

Employment assumptions I and II, based on a model developed by the Association of American Railroads, assume that (1) passenger employment will remain at the level of 46,000, and (2) the employment base, excluding passenger employment, will decline at a constant annual rate (0.5 percent for assumption I and 2.0 percent for assumption II) for 25 years, at a reducing rate over the next 25 years, and remain level thereafter.

Employment assumption III differs from employment assumptions I and II by assuming that (1) passenger employment will decline by 500 per year until a level of 35,000 is reached and then remain level, and (2) the employment base, excluding passenger employment, will decline at a constant annual rate of 3.5 percent for 25 years, at a reducing rate over the next 25 years, and remain level thereafter.

Because inflation has been fairly stable at relatively low levels in recent years, only one set of earnings and price inflation assumptions was used in this valuation. The ultimate earnings increase and cost-of-living increase assumptions have been lowered from 3.8% and 2.8% in the 25th valuation to 3.7% and 2.7%, respectively, in the 26th valuation. Table 1. Employment and economic assumptions shows the assumptions used in the 26th valuation. A comparison of historical and projected employment is illustrated in Figure 1.

Only one combination of non-economic assumptions (for example, rates of mortality, disability, retirement, and withdrawal) was used in this valuation. These assumptions, some of which were

changed from the 25th valuation to reflect recent experience, are discussed in the Technical Supplement to this report.

Projections were made for the various components of income and outgo under each employment assumption for the 75 calendar years 2014-2088. The projections of these components were combined and the investment income calculated to produce the projected balances in the combined NRRIT and RR Account and in the SSEB Account separately for each year. The results are summarized in Table 2. Present values of the various components of NRRIT and RR Account income and outgo were calculated by discounting amounts in each projection year to December 31, 2013, using a constant 7.0% interest rate. The present values were combined to calculate the NRRIT and RR Account actuarial surplus or deficiency. The derivation of the surplus or deficiency appears in Table 6.

B. Valuation Results

This section sets forth the results of the valuation in the form of a discussion of the tables in which the results appear. Because it is desirable for the discussion of a table to be reasonably self-contained, there is some repetition between tables and between this section and preceding sections of this report.

Table 2. Progress of the Combined National Railroad Retirement Investment Trust (NRRIT) and Railroad Retirement (RR) Account, and the Social Security Equivalent Benefit (SSEB) Account. Projections were made for the various components of income and outgo under each employment assumption for the 75 calendar years 2014-2088. The projections of these components were combined and the investment income calculated to produce the projected balances in the combined NRRIT and RR Account, and the SSEB Account at the end of each projection year. The results are summarized in Table 2.

Table 2 consists of three tables, one for each of employment assumptions I, II, and III. The tables show, for the SSEB Account and the combined NRRIT and RR Account for each projection year, (1) the various elements of income and outgo, (2) the account balance on December 31, and (3) the account benefits ratio, average account benefits ratio and combined employer and employee tier 2 tax rate.

The balances of the RR Account and NRRIT are combined because amounts not needed to pay current benefit and administrative costs are invested by the NRRIT. The SSEB Account is assumed to maintain a target balance of approximately 1.5 months of benefit payments in order to meet benefit obligations and contingencies, and to transfer any excess to the RR Account or NRRIT.

Table 2 indicates that no cash-flow problems arise under employment assumptions I and II (Tables 2-I and 2-II).

Under employment assumption I, the combined account balance generally increases throughout the projection period. The combined employer and employee tier 2 tax rate remains at 18% through 2035, decreases to 12.0% in 2046 and remains between 12.0% and 14.0% thereafter.

Under employment assumption II, the combined account balance is generally increasing with some declines primarily in 2047 through 2055. The combined employer and employee tier 2 tax rate remains at 18% through 2050, increases to 23% in 2063-2064, and then generally decreases until reaching 16.0% in 2088.

Under employment assumption III, the combined account balance declines after 2016 until the balance becomes negative in 2047. Negative after-transfer balances indicate the amount that would be owed, including interest, if unreduced benefits were paid by borrowing from some unknown source. The combined account deficit grows through 2083 (not shown) and then decreases through the end of the projection period, when the balance reaches -$95,110 million. The combined employer and employee tier 2 tax rate increases to 27% in 2040 and remains at that level through the end of the projection period. Under this assumption, the tax rate mechanism does not avoid cash flow problems.

Table 3. Present value of benefits in millions of dollars. This table shows, for each employment assumption, the present value of tier 2 benefits, supplemental annuity benefits and the portion of tier 1 benefits which exceeds the social security level of benefits. The portion of tier 1 benefits in excess of the social security level is referred to as "tier 1 liability." The most important components of this liability were described in Section III. Supplemental annuity benefits are included with tier 2 benefits in this table. The present values are shown separately by type of beneficiary (employee, spouse, survivor) and by employee status on the valuation date (retired, retired and deceased, active, inactive, future entrants).

Table 4. Present value of benefits as a percentage of the present value of tier 2 payroll. The format for this table is the same as for Table 3. Each number in Table 4 was obtained by dividing the corresponding number in Table 3 by the appropriate present value of one percent of tier 2 payroll. The payroll figures are shown in Table 6.

Table 5. Balance of the Combined National Railroad Retirement Investment Trust and Railroad Retirement Account, and the Social Security Equivalent Benefit Account as of December 31, 2013. This table derives the balance in the accounts as of December 31, 2013. No accrual adjustments are made either for financial interchange amounts due and unpaid on that date or for benefits due on January 2, 2014, because these amounts are included in the projected future cash flows. For the purpose of the present value calculations, an adjustment is made as discussed in Table 6 below.

Table 6. Actuarial surplus or (deficiency) for National Railroad Retirement Investment Trust and Railroad Retirement Account. The top half of Table 6 expresses the asset and liability components of the actuarial balance as present values in dollars. The bottom half expresses these components as a percentage of tier 2 payroll. The actuarial surplus or deficiency was calculated for the NRRIT and RR Account, but not for the SSEB Account, for the following reason.

The SSEB Account pays the social security level of benefits and administrative expenses allocable to those benefits, and it receives as income the social security level of taxes. If there were no other source of income or outgo during the course of a year, a surplus or deficiency would build up, depending on whether taxes exceeded or were less than benefits. However, the SSEB Account also receives or pays any financial interchange transfers. The financial interchange transfer, subject to

qualifications described in the next paragraph, should be enough to offset any surplus or deficit for the year. Furthermore, this would be the case even if the social security level of benefits or taxes are raised or lowered. The SSEB Account can thus be regarded as automatically funded, the financial interchange being the mechanism for correcting any surplus or deficiency. Therefore, the concept of actuarial balance is not meaningful when applied to the SSEB Account.

The qualification mentioned above arises because, in a relatively small number of cases, the railroad retirement system does not pay benefits when social security would pay benefits. In these cases, mainly dependent children of retired railroad employees, the SSEB Account collects an amount through the financial interchange but does not pay a corresponding benefit. This imbalance between outgo and income is transferred from time to time to the RR Account or NRRIT. The value of these transfers, or amounts available for transfer, is included as an asset in Table 6 as "Available from SSEB Account."

Revenue derived from taxing NRRIT and RR Account benefits (tier 2 and the excess of tier 1 over the social security level) is transferred to the RR Account. The present value of these transfers is shown as an asset in Table 6 as "Income taxes on benefits."

Although the actual return of the trust funds during calendar year 2014 was approximately 5.5%, this rate is not used in the present value calculations. Instead, the present value calculations use 7.0% as the rate for 2014, as well as for the remaining 74 years of the projection. The adjusted balance as of December 31, 2013, is calculated so that, assuming a 7.0% rate of return for 2014, the combined RRA, NRRIT, and SSEBA balance projected on December 31, 2014, is equal to the actual balance on that date.

The cost of the system to the railroad industry may be considered as the excess of "Retirement taxes" over "Actuarial surplus or (deficiency)." Table 6 shows that the cost of the system is much more stable when expressed in dollars than when expressed as a percentage of payroll. For example, the cost of the system under employment assumption III is $63,686 million, or 20.66 percent of payroll, whereas the cost under employment assumption I is $72,633 million, or 15.62 percent of payroll. Using employment assumption III as the base, the percentage cost variation in dollars between the two valuations is 14.05 percent. As a percentage of payroll, the percentage cost variation is 24.39 percent.

Table 7. Unfunded accrued liability. The railroad retirement program is a social insurance program rather than a private pension plan. A private pension plan should build up funds in an orderly way over the working lifetimes of the participants. With a fully funded program, the value of the accumulated assets will be sufficient to discharge all liabilities for the accrued benefits. Pay-as-you-go funding, where the pension costs are charged to the retirement years as the benefits are paid, is not acceptable for a private pension plan because of a lack of participant security. Because private pension plans can terminate, they should, ideally, be fully funded to protect the rights of active and retired participants.

For a social insurance plan, however, the situation is different, and full funding is not necessary. The program is expected to operate indefinitely. Because the program is compulsory, new entrants

will constantly be entering the program, and they and their employers will be paying taxes to support the program.

Unlike some other social insurance programs, the railroad retirement program relies on payroll taxes from the employers and employees of a single industry. Although the railroad retirement program is not subject to the funding standards of a private pension plan, it is still of interest to calculate the normal cost and the accrued liability for the plan.

Table 7 illustrates what the funding requirements would be for the railroad retirement system as of December 31, 2013, using the entry age normal actuarial funding method. The present value of future benefits and the present value of future administrative expenses for former and present employees are shown on lines 1 and 2, respectively. The portion of the actuarial present value of benefits assigned to a particular year is called the normal cost. For the entry age normal actuarial funding method, the normal cost rate is the average cost expressed as a level percentage of payroll (line 4) that would fund the average employee's benefits, including dependent benefits, and expenses over the employee's working lifetime. The normal cost rate is 7.41% of tier 2 payroll. The accrued liability for the program, shown on line 6, is equal to the difference between the present value of benefits and administrative expenses for former and present employees and the present value of future normal costs. The unfunded accrued liability (line 8) is the difference between the accrued liability and the funds on hand as of December 31, 2013 (line 6 minus line 7). This is the amount needed, in excess of funds on hand and future normal costs, to fund combined NRRIT and RR Account benefits and expenses for former and present employees.

Table 8. Vested dual benefit amounts and average number of beneficiaries. This table shows a projection of vested dual benefit payments for every fiscal year from 2016 through 2030. After 2030, the amounts become insignificant. The amounts shown assume that the benefits are fully funded. Fiscal years are shown because vested dual benefit appropriations are made on a fiscal year basis. The table also indicates the average number of vested dual beneficiaries in each fiscal year. The table applies to all the employment assumptions discussed in this report.

The revenue derived from taxing pre-October 1988 vested dual benefits was transferred to the RR Account. The revenue derived from taxing vested dual benefits in fiscal years 1989 and later is transferred to the Dual Benefits Payments Account, and it reduces the amount of the appropriation by the same amount. Therefore, the amount available for the payment of vested dual benefits is unaffected by income tax revenues derived from these benefits.

The 1981 amendments removed much of the uncertainty from projections of future vested dual benefit payments. The volatility caused by inflation is gone, since future awards take into account cost-of-living increases from 1975 through 1981, rather than through the date of retirement. Also, awards of these benefits to spouses and widow(er)s ceased after August 13, 1981. The primary uncertainty which remains in projecting future vested dual benefit payments is estimating the relatively high rates of future mortality for the very old.

The projections of vested dual benefit payments by the Railroad Retirement Board are the basis for the agency's requests for appropriated amounts. Generally, a margin of about 2 percent is added to projected amounts to determine the appropriated amounts requested. This margin is needed because

of the uncertainties in making projections and to ensure that adequate funds are available for the full payment of vested dual benefits. Appropriated amounts remaining in a fiscal year after all benefit payments have been made are returned to the Treasury.

Table 9. Supplemental annuity benefit amounts and average number of beneficiaries. This table shows a projection of supplemental annuity benefits for every calendar year from 2015 through 2050. Since service before October 1, 1981, is required for a supplemental annuity, benefit amounts after 2050 will continue to decline.

Table 10. Average number of railroad retirement annuitants and number of annuitants per full time employee. The left half of Table 10 shows the average number of annuitants under each employment assumption, and the right half shows the average number per full time employee. Under employment assumption I, the average number of annuitants per full time employee generally declines in the first half of the projection period and then remains relatively level. Under employment assumption II, the average number of annuitants per full time employee generally increases until reaching a maximum of 2.41 in 2049-2053 and then declines. Under employment assumption III, the average number of annuitants per full time employee increases steadily to 3.44 in 2048-2049 and declines thereafter.

VI. STATEMENT OF ACTUARIAL OPINION

It is my opinion that (1) the techniques and methodology used herein to evaluate the financial and actuarial status of the Railroad Retirement System are generally accepted within the actuarial profession; and (2) the assumptions used and the resulting actuarial estimates are, in the aggregate, reasonable for the purpose of evaluating the financial and actuarial status of the trust funds, taking into consideration the experience and expectations of the program.

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Fellow of the Society of Actuaries
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Enrolled Actuary #14-4940

Table 1. Employment and economic assumptions

Calendar	Average employment (thousands)			Percentage increase over prior year		Investment
year	I	II	III	Earnings	Cost of living[a]	return
2014	242	242	242	3.7%	1.5% b	5.5% b
2015	241	238	234	3.7	1.7 b	7.0
2016	240	234	227	3.7	0.5	7.0
2017	239	230	220	3.7	1.6	7.0
2018	238	227	214	3.7	2.7	7.0
2019	237	223	207	3.7	2.7	7.0
2020	236	219	201	3.7	2.7	7.0
2021	235	216	195	3.7	2.7	7.0
2022	234	213	189	3.7	2.7	7.0
2023	233	209	184	3.7	2.7	7.0
2024	232	206	178	3.7	2.7	7.0
2025	231	203	173	3.7	2.7	7.0
2026	230	200	168	3.7	2.7	7.0
2027	229	197	163	3.7	2.7	7.0
2028	229	194	158	3.7	2.7	7.0
2029	228	191	153	3.7	2.7	7.0
2030	227	188	149	3.7	2.7	7.0
2031	226	185	144	3.7	2.7	7.0
2032	225	182	140	3.7	2.7	7.0
2033	224	179	136	3.7	2.7	7.0
2034	223	177	132	3.7	2.7	7.0
2035	222	174	128	3.7	2.7	7.0
2036	221	172	124	3.7	2.7	7.0
2037	221	169	121	3.7	2.7	7.0
2038	220	167	118	3.7	2.7	7.0
2039	219	164	115	3.7	2.7	7.0
2040	218	162	113	3.7	2.7	7.0
2041	217	160	110	3.7	2.7	7.0
2042	216	158	108	3.7	2.7	7.0
2043	216	156	106	3.7	2.7	7.0
2044	215	154	104	3.7	2.7	7.0
2045	214	152	102	3.7	2.7	7.0
2046	214	151	100	3.7	2.7	7.0
2047	213	150	99	3.7	2.7	7.0
2048	213	148	97	3.7	2.7	7.0
2049	212	147	96	3.7	2.7	7.0
2050	212	146	95	3.7	2.7	7.0
2051	211	145	94	3.7	2.7	7.0
2052	211	144	93	3.7	2.7	7.0
2053	210	143	92	3.7	2.7	7.0
2054	210	142	91	3.7	2.7	7.0
2055	210	142	90	3.7	2.7	7.0
2056	210	141	90	3.7	2.7	7.0
2057	209	140	89	3.7	2.7	7.0
2058	209	140	89	3.7	2.7	7.0
2059	209	140	88	3.7	2.7	7.0
2060	209	139	88	3.7	2.7	7.0
2061	209	139	88	3.7	2.7	7.0
2062	209	139	88	3.7	2.7	7.0
2063	209	139	88	3.7	2.7	7.0
2064-2088	209	139	88	3.7	2.7	7.0

[a] Page 31 item 16.

[b] Actual.

Figure 1. Average Railroad Employment 1937-2088, Historical and Projected

Employment Assumption I

Employment Assumption II

Employment Assumption III

Calendar Year

Table 2-I. Progress of the Combined National Railroad Retirement Investment Trust (NRRIT) and Railroad Retirement (RR) Account, and
the Social Security Equivalent Benefit (SSEB) Account under Employment Assumption I
(Dollar amounts in millions)

Calendar year	Account benefits ratio[a]	Average account benefits ratio[b]	Tier 2 tax rate	Combined NRRIT and RR Account				SSEB Account				Combined balance, end year
				Benefits and administration	Tax income[c]	Other income[d]	Balance, end year	Benefits and administration	Tax income[c]	Other income and expense[e]	Balance, end year	
2015	5.08	6.00	18.0%	$5,389	$3,630	$2,108	$26,973	$7,111	$3,283	$3,753	$885	$27,858
2016	4.99	5.80	18.0%	5,500	3,750	1,939	27,162	7,206	3,401	3,817	897	28,059
2017	4.91	5.50	18.0%	5,608	3,877	1,837	27,268	7,377	3,529	3,643	691	27,959
2018	4.84	5.20	18.0%	5,718	4,009	1,845	27,404	7,626	3,666	4,079	809	28,213
2019	4.79	5.10	18.0%	5,811	4,144	1,856	27,593	7,877	3,809	4,197	939	28,532
2020	4.78	5.00	18.0%	5,891	4,283	1,941	27,927	8,116	3,957	4,230	1,010	28,937
2021	4.78	5.00	18.0%	5,956	4,427	1,898	28,296	8,341	4,112	4,196	976	29,272
2022	4.83	5.00	18.0%	6,009	4,574	1,987	28,848	8,552	4,271	4,369	1,064	29,912
2023	4.91	5.00	18.0%	6,063	4,725	2,101	29,611	8,748	4,433	4,340	1,088	30,699
2024	5.00	5.00	18.0%	6,125	4,878	2,163	30,527	8,937	4,597	4,363	1,112	31,639
2025	5.10	4.90	18.0%	6,193	5,033	2,120	31,488	9,126	4,763	4,386	1,135	32,623
2026	5.23	4.90	18.0%	6,263	5,192	2,307	32,725	9,317	4,919	4,422	1,159	33,884
2027	5.39	5.00	18.0%	6,341	5,355	2,400	34,140	9,512	5,078	4,457	1,183	35,323
2028	5.56	5.00	18.0%	6,435	5,522	2,505	35,732	9,712	5,240	4,497	1,208	36,940
2029	5.73	5.10	18.0%	6,548	5,692	2,621	37,497	9,921	5,403	4,545	1,234	38,731
2030	5.91	5.20	18.0%	6,674	5,867	2,749	39,439	10,140	5,570	4,597	1,261	40,700
2031	6.10	5.30	18.0%	6,809	6,048	2,851	41,529	10,370	5,743	4,655	1,289	42,818
2032	6.31	5.40	18.0%	6,939	6,235	3,041	43,864	10,615	5,924	4,722	1,320	45,184
2033	6.56	5.60	18.0%	7,060	6,429	3,209	46,443	10,880	6,113	4,799	1,353	47,796
2034	6.82	5.70	18.0%	7,205	6,630	3,395	49,263	11,155	6,308	4,881	1,387	50,650
2035	7.07	5.90	18.0%	7,389	6,834	3,598	52,306	11,436	6,504	4,966	1,421	53,727
2036	7.28	6.10	17.0%	7,583	6,686	3,796	55,206	11,730	6,709	5,057	1,458	56,664
2037	7.49	6.30	17.0%	7,784	6,896	4,009	58,327	12,039	6,922	5,155	1,496	59,823
2038	7.66	6.50	16.0%	8,005	6,728	4,217	61,266	12,359	7,142	5,256	1,536	62,802
2039	7.83	6.70	16.0%	8,232	6,941	4,426	64,401	12,699	7,372	5,369	1,578	65,979
2040	7.98	7.00	15.0%	8,444	6,755	4,634	67,346	13,057	7,617	5,485	1,623	68,969
2041	8.12	7.20	15.0%	8,692	6,973	4,844	70,471	13,425	7,868	5,603	1,668	72,139
2042	8.23	7.40	15.0%	8,976	7,197	5,065	73,756	13,818	8,124	5,742	1,717	75,473
2043	8.32	7.60	14.0%	9,252	6,983	5,281	76,768	14,235	8,399	5,888	1,769	78,537
2044	8.39	7.70	14.0%	9,553	7,214	5,494	79,924	14,682	8,683	6,054	1,824	81,748
2045	8.45	7.90	14.0%	9,878	7,453	5,714	83,213	15,171	8,977	6,255	1,885	85,098
2046	8.44	8.00	12.0%	10,192	6,710	5,910	85,640	15,695	9,293	6,467	1,950	87,590
2047	8.36	8.10	12.0%	10,606	6,940	6,082	88,056	16,223	9,612	6,677	2,016	90,072
2048	8.20	8.20	12.0%	11,129	7,179	6,250	90,356	16,753	9,931	6,887	2,081	92,437
2049	8.08	8.30	12.0%	11,544	7,425	6,401	92,639	17,393	10,281	7,191	2,161	94,800
2050	8.04	8.30	12.0%	11,878	7,680	6,560	95,000	18,118	10,657	7,551	2,251	97,251
2051	8.01	8.30	12.0%	12,229	7,951	6,739	97,461	18,817	11,056	7,848	2,338	99,799
2052	7.94	8.30	12.0%	12,679	8,235	6,918	99,936	19,507	11,462	8,130	2,424	102,360
2053	7.81	8.30	12.0%	13,225	8,530	7,095	102,336	20,191	11,872	8,405	2,509	104,845
2054	7.71	8.20	12.0%	13,677	8,833	7,259	104,750	20,973	12,311	8,758	2,606	107,356
2055	7.66	8.20	12.0%	14,078	9,145	7,431	107,248	21,823	12,774	9,154	2,711	109,959
2056	7.61	8.10	12.0%	14,516	9,472	7,620	109,824	22,648	13,254	9,497	2,814	112,638
2057	7.56	8.00	12.0%	14,984	9,813	7,809	112,462	23,490	13,751	9,843	2,918	115,380
2058	7.57	7.90	14.0%	15,479	11,674	8,057	116,715	24,353	14,265	10,195	3,026	119,741
2059	7.61	7.90	14.0%	15,979	12,095	8,364	121,195	25,248	14,800	10,559	3,137	124,332
2060	7.67	7.80	14.0%	16,487	12,532	8,688	125,927	26,173	15,356	10,932	3,252	129,179
2061	7.72	7.80	14.0%	17,019	12,986	9,031	130,925	27,117	15,932	11,302	3,369	134,294
2062	7.78	7.70	14.0%	17,571	13,457	9,391	136,202	28,094	16,531	11,685	3,491	139,693
2063	7.84	7.70	14.0%	18,145	13,947	9,771	141,775	29,105	17,153	12,078	3,616	145,391
2064	7.91	7.70	14.0%	18,738	14,456	10,173	147,666	30,144	17,798	12,475	3,745	151,411
2065	7.98	7.70	14.0%	19,354	14,984	10,597	153,893	31,217	18,467	12,883	3,878	157,771
2070	8.27	8.00	12.0%	22,880	15,606	13,005	188,196	37,182	22,196	15,145	4,619	192,815
2075	8.13	8.20	12.0%	27,178	18,690	15,198	219,789	44,361	26,669	17,885	5,511	225,300
2080	7.94	8.20	12.0%	32,489	22,401	17,736	256,215	53,089	32,039	21,284	6,595	262,810
2085	7.66	8.00	12.0%	39,014	26,868	20,587	296,873	63,787	38,501	25,573	7,924	304,797
2088	7.76	7.90	14.0%	43,614	34,445	23,227	337,254	71,329	42,994	28,662	8,861	346,115

[a] The fair market value of the assets in the RR Account and NRRIT as of the close of the fiscal year (September 30) divided by the total benefits and administrative expenses paid from the RR Account and NRRIT during the fiscal year.

[b] The average of the account benefits ratios for the 10 most recent fiscal years ending before the calendar year.

[c] Includes payroll taxes and income taxes on benefits.

[d] Includes investment income and transfers from SSEB Account.

[e] Other income includes financial interchange income, advances from general revenues, and interest income.   Other expense includes repayment of advances from general revenues and transfers to the NRRIT or RRA.

Table 2-II. Progress of the Combined National Railroad Retirement Investment Trust (NRRIT) and Railroad Retirement (RR) Account, and
the Social Security Equivalent Benefit (SSEB) Account under Employment Assumption II
(Dollar amounts in millions)

Calendar year	Average Account benefits ratio[a]	Average account benefits ratio[b]	Tier 2 tax rate	Combined NRRIT and RR Account Benefits and administration	Tax income[c]	Other income[d]	Balance, end year	SSEB Account Benefits and administration	Tax income[c]	Other income and expense[e]	Balance, end year	Combined balance, end year
2015	5.07	6.00	18.0%	$5,389	$3,609	$2,107	$26,951	$7,111	$3,265	$3,772	$885	$27,836
2016	4.98	5.80	18.0%	5,500	3,689	1,935	27,075	7,206	3,348	3,870	897	27,972
2017	4.88	5.50	18.0%	5,608	3,776	1,827	27,071	7,377	3,440	3,731	691	27,762
2018	4.79	5.20	18.0%	5,717	3,867	1,826	27,047	7,626	3,540	4,205	809	27,856
2019	4.70	5.10	18.0%	5,810	3,956	1,824	27,018	7,877	3,642	4,364	938	27,956
2020	4.65	5.00	18.0%	5,889	4,048	1,892	27,069	8,116	3,748	4,440	1,010	28,079
2021	4.59	5.00	18.0%	5,953	4,141	1,828	27,084	8,341	3,856	4,451	976	28,060
2022	4.57	4.90	18.0%	6,006	4,235	1,889	27,202	8,551	3,965	4,674	1,064	28,266
2023	4.57	4.90	18.0%	6,058	4,328	1,971	27,444	8,746	4,075	4,695	1,088	28,532
2024	4.57	4.80	18.0%	6,118	4,423	1,994	27,743	8,933	4,185	4,771	1,111	28,854
2025	4.56	4.80	18.0%	6,184	4,515	1,906	27,980	9,120	4,293	4,850	1,134	29,114
2026	4.58	4.70	18.0%	6,251	4,608	2,040	28,377	9,308	4,388	4,943	1,158	29,535
2027	4.59	4.70	18.0%	6,325	4,703	2,072	28,827	9,497	4,484	5,037	1,181	30,008
2028	4.61	4.70	18.0%	6,415	4,797	2,106	29,316	9,691	4,578	5,137	1,205	30,521
2029	4.61	4.60	18.0%	6,524	4,892	2,143	29,827	9,892	4,671	5,246	1,230	31,057
2030	4.61	4.60	18.0%	6,643	4,989	2,181	30,353	10,101	4,765	5,362	1,256	31,609
2031	4.60	4.60	18.0%	6,771	5,088	2,180	30,851	10,318	4,861	5,484	1,283	32,134
2032	4.60	4.60	18.0%	6,893	5,190	2,256	31,403	10,548	4,961	5,616	1,311	32,714
2033	4.61	4.60	18.0%	7,004	5,295	2,296	31,990	10,795	5,067	5,759	1,342	33,332
2034	4.61	4.60	18.0%	7,137	5,402	2,340	32,595	11,050	5,172	5,909	1,374	33,969
2035	4.59	4.60	18.0%	7,307	5,510	2,384	33,183	11,305	5,276	6,061	1,405	34,588
2036	4.56	4.70	18.0%	7,484	5,622	2,421	33,742	11,569	5,385	6,217	1,438	35,180
2037	4.52	4.60	18.0%	7,665	5,738	2,467	34,282	11,844	5,497	6,380	1,472	35,754
2038	4.48	4.60	18.0%	7,864	5,856	2,506	34,780	12,123	5,612	6,545	1,506	36,286
2039	4.42	4.60	18.0%	8,064	5,980	2,541	35,237	12,416	5,732	6,721	1,543	36,780
2040	4.38	4.60	18.0%	8,247	6,113	2,576	35,678	12,721	5,864	6,895	1,581	37,259
2041	4.32	4.60	18.0%	8,461	6,250	2,608	36,075	13,026	5,997	7,067	1,618	37,693
2042	4.24	4.60	18.0%	8,708	6,391	2,636	36,394	13,350	6,132	7,258	1,658	38,052
2043	4.16	4.50	18.0%	8,942	6,545	2,659	36,657	13,690	6,282	7,450	1,701	38,358
2044	4.07	4.50	18.0%	9,196	6,705	2,678	36,843	14,051	6,438	7,658	1,745	38,588
2045	3.97	4.40	18.0%	9,470	6,870	2,690	36,933	14,442	6,598	7,892	1,794	38,727
2046	3.87	4.40	18.0%	9,723	7,051	2,698	36,959	14,853	6,778	8,127	1,845	38,804
2047	3.73	4.30	18.0%	10,069	7,240	2,703	36,833	15,256	6,956	8,349	1,895	38,728
2048	3.56	4.20	18.0%	10,495	7,433	2,693	36,464	15,648	7,133	8,564	1,943	38,407
2049	3.41	4.10	18.0%	10,781	7,639	2,660	35,983	16,142	7,339	8,864	2,005	37,988
2050	3.30	4.00	18.0%	10,981	7,856	2,629	35,486	16,693	7,566	9,196	2,073	37,559
2051	3.22	3.90	19.0%	11,200	8,498	2,627	35,411	17,189	7,809	9,441	2,134	37,545
2052	3.13	3.80	19.0%	11,511	8,757	2,631	35,288	17,661	8,054	9,666	2,193	37,481
2053	3.02	3.70	19.0%	11,892	9,023	2,629	35,048	18,116	8,299	9,873	2,249	37,297
2054	2.93	3.60	19.0%	12,144	9,304	2,611	34,818	18,654	8,571	10,150	2,316	37,134
2055	2.87	3.50	19.0%	12,341	9,595	2,604	34,677	19,232	8,860	10,444	2,388	37,065
2056	2.84	3.40	20.0%	12,576	10,377	2,631	35,109	19,755	9,160	10,659	2,452	37,561
2057	2.83	3.20	20.0%	12,831	10,715	2,674	35,667	20,276	9,472	10,868	2,517	38,184
2058	2.82	3.20	20.0%	13,100	11,067	2,726	36,359	20,799	9,795	11,069	2,582	38,941
2059	2.83	3.10	20.0%	13,358	11,434	2,786	37,221	21,335	10,133	11,269	2,648	39,869
2060	2.85	3.00	20.0%	13,614	11,818	2,860	38,286	21,881	10,487	11,462	2,716	41,002
2061	2.89	3.00	20.0%	13,883	12,220	2,950	39,572	22,426	10,855	11,638	2,784	42,356
2062	2.94	3.00	20.0%	14,165	12,641	3,053	41,101	22,986	11,240	11,815	2,853	43,954
2063	3.10	2.90	23.0%	14,457	14,886	3,242	44,773	23,559	11,642	11,988	2,924	47,697
2064	3.32	2.90	23.0%	14,764	15,413	3,517	48,938	24,142	12,062	12,152	2,997	51,935
2065	3.45	3.00	20.0%	15,085	14,023	3,753	51,628	24,740	12,499	12,316	3,071	54,699
2070	4.20	3.40	20.0%	16,953	16,711	5,046	71,131	28,054	14,935	13,207	3,482	74,613
2075	5.01	4.20	18.0%	19,358	18,099	6,796	96,658	32,103	17,867	14,346	3,985	100,643
2080	5.88	5.00	18.0%	22,516	21,641	9,177	132,354	37,204	21,397	15,946	4,618	136,972
2085	6.94	5.90	18.0%	26,578	25,919	12,653	184,474	43,721	25,665	18,233	5,427	189,901
2088	7.46	6.50	16.0%	29,483	25,922	15,094	219,657	48,446	28,644	20,007	6,014	225,671

[a] The fair market value of the assets in the RR Account and NRRIT as of the close of the fiscal year (September 30) divided by the total benefits and administrative
  expenses paid from the RR Account and NRRIT during the fiscal year.

[b] The average of the account benefits ratios for the 10 most recent fiscal years ending before the calendar year.

[c] Includes payroll taxes and income taxes on benefits.

[d] Includes investment income and transfers from SSEB Account.

[e] Other income includes financial interchange income, advances from general revenues, and interest income.   Other expense includes repayment of advances
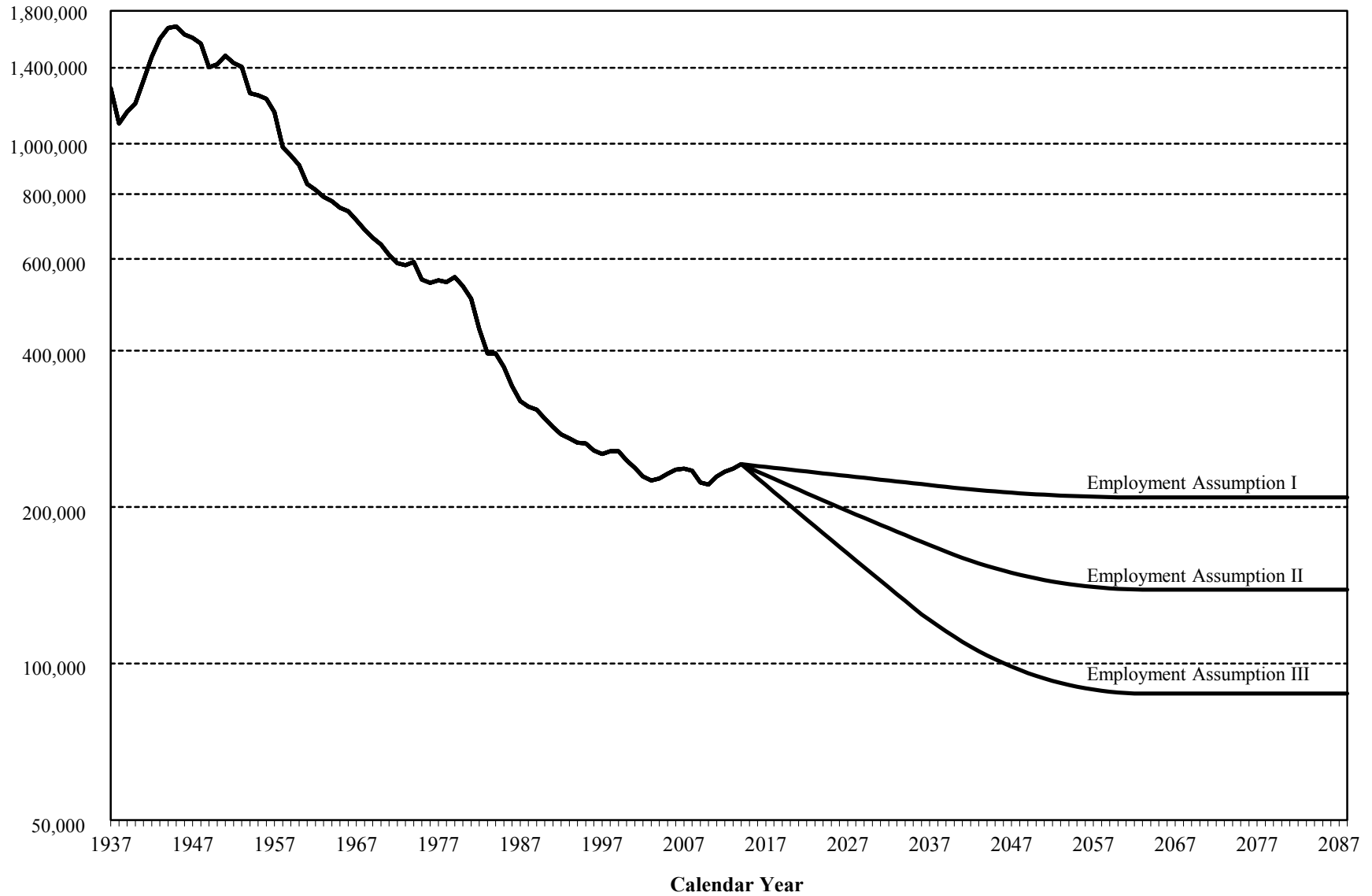 from general revenues and transfers to the NRRIT or RRA.

Table 2-III. Progress of the Combined National Railroad Retirement Investment Trust (NRRIT) and Railroad Retirement (RR) Account, and
the Social Security Equivalent Benefit (SSEB) Account under Employment Assumption III
(Dollar amounts in millions)

Calendar year	Average Account benefits ratio[a]	Average account benefits ratio[b]	Tier 2 tax rate	Combined NRRIT and RR Account				SSEB Account				Combined balance, end year
				Benefits and administration	Tax income[c]	Other income[d]	Balance, end year	Benefits and administration	Tax income[c]	Other income and expense[e]	Balance, end year	
2015	5.07	6.00	18.0%	$5,389	$3,585	$2,106	$26,925	$7,111	$3,243	$3,793	$885	$27,810
2016	4.96	5.80	18.0%	5,500	3,620	1,931	26,976	7,206	3,286	3,931	897	27,873
2017	4.85	5.50	18.0%	5,607	3,662	1,816	26,846	7,377	3,339	3,832	691	27,537
2018	4.72	5.20	18.0%	5,717	3,706	1,804	26,640	7,626	3,398	4,347	809	27,449
2019	4.60	5.10	18.0%	5,808	3,747	1,788	26,366	7,877	3,456	4,550	938	27,304
2020	4.49	5.00	18.0%	5,887	3,788	1,836	26,103	8,116	3,515	4,673	1,010	27,113
2021	4.38	4.90	18.0%	5,950	3,828	1,748	25,728	8,340	3,574	4,731	975	26,703
2022	4.28	4.90	18.0%	6,001	3,866	1,780	25,373	8,550	3,633	5,005	1,064	26,437
2023	4.20	4.80	18.0%	6,052	3,902	1,827	25,050	8,744	3,690	5,077	1,088	26,138
2024	4.10	4.70	18.0%	6,110	3,937	1,808	24,684	8,929	3,745	5,207	1,111	25,795
2025	3.98	4.60	18.0%	6,174	3,968	1,672	24,150	9,113	3,796	5,340	1,134	25,284
2026	3.86	4.50	18.0%	6,238	3,997	1,749	23,659	9,297	3,832	5,487	1,156	24,815
2027	3.73	4.40	18.0%	6,309	4,027	1,717	23,094	9,480	3,867	5,637	1,179	24,273
2028	3.58	4.30	18.0%	6,394	4,054	1,678	22,432	9,668	3,898	5,793	1,202	23,634
2029	3.41	4.20	18.0%	6,497	4,080	1,631	21,646	9,860	3,926	5,958	1,226	22,872
2030	3.22	4.10	18.0%	6,610	4,106	1,576	20,717	10,058	3,953	6,129	1,251	21,968
2031	3.02	3.90	19.0%	6,730	4,334	1,479	19,800	10,261	3,980	6,306	1,276	21,076
2032	2.83	3.80	19.0%	6,844	4,361	1,453	18,769	10,475	4,008	6,493	1,302	20,071
2033	2.62	3.60	19.0%	6,945	4,389	1,380	17,593	10,703	4,039	6,692	1,330	18,923
2034	2.39	3.50	19.0%	7,067	4,417	1,298	16,240	10,936	4,068	6,896	1,359	17,599
2035	2.15	3.30	20.0%	7,223	4,648	1,210	14,876	11,165	4,093	7,100	1,388	16,264
2036	1.90	3.10	20.0%	7,383	4,681	1,108	13,282	11,396	4,122	7,303	1,416	14,698
2037	1.69	2.90	23.0%	7,545	5,347	1,024	12,109	11,634	4,159	7,505	1,446	13,555
2038	1.48	2.70	23.0%	7,722	5,395	942	10,724	11,872	4,196	7,705	1,475	12,199
2039	1.25	2.50	23.0%	7,898	5,449	843	9,118	12,117	4,239	7,908	1,505	10,623
2040	1.10	2.30	27.0%	8,051	6,371	764	8,202	12,366	4,292	8,104	1,536	9,738
2041	0.95	2.10	27.0%	8,234	6,451	700	7,119	12,607	4,346	8,291	1,566	8,685
2042	0.78	1.90	27.0%	8,445	6,532	623	5,829	12,860	4,400	8,491	1,597	7,426
2043	0.59	1.70	27.0%	8,639	6,630	533	4,353	13,123	4,467	8,689	1,630	5,983
2044	0.39	1.50	27.0%	8,850	6,735	429	2,667	13,397	4,537	8,894	1,664	4,331
2045	0.18	1.30	27.0%	9,074	6,844	309	747	13,691	4,610	9,117	1,700	2,447
2046	0.10	1.10	27.0%	9,267	6,977	1,543	-	13,990	4,700	7,960	370	370
2047	-0.11	0.90	27.0%	9,547	7,113	436	(1,998)	14,267	4,787	9,110	-	(1,998)
2048	-0.38	0.70	27.0%	9,882	7,251	(105)	(4,734)	14,525	4,872	9,653	-	(4,734)
2049	-0.65	0.50	27.0%	10,036	7,413	(293)	(7,651)	14,876	4,988	9,889	-	(7,651)
2050	-0.94	0.30	27.0%	10,109	7,589	(490)	(10,661)	15,257	5,119	10,138	-	(10,661)
2051	-1.24	0.10	27.0%	10,207	7,791	(694)	(13,771)	15,552	5,262	10,289	-	(13,771)
2052	-1.53	-0.20	27.0%	10,388	7,996	(908)	(17,070)	15,813	5,401	10,412	-	(17,070)
2053	-1.83	-0.40	27.0%	10,609	8,204	(1,138)	(20,614)	16,048	5,539	10,509	-	(20,614)
2054	-2.15	-0.70	27.0%	10,670	8,431	(1,376)	(24,228)	16,358	5,703	10,655	-	(24,228)
2055	-2.48	-0.90	27.0%	10,675	8,670	(1,618)	(27,850)	16,679	5,878	10,801	-	(27,850)
2056	-2.81	-1.20	27.0%	10,723	8,926	(1,861)	(31,508)	16,917	6,058	10,858	-	(31,508)
2057	-3.14	-1.50	27.0%	10,782	9,193	(2,107)	(35,205)	17,142	6,245	10,897	-	(35,205)
2058	-3.46	-1.80	27.0%	10,846	9,470	(2,356)	(38,937)	17,358	6,437	10,920	-	(38,937)
2059	-3.79	-2.10	27.0%	10,888	9,762	(2,606)	(42,668)	17,573	6,640	10,933	-	(42,668)
2060	-4.12	-2.40	27.0%	10,924	10,068	(2,855)	(46,379)	17,785	6,853	10,932	-	(46,379)
2061	-4.44	-2.70	27.0%	10,970	10,391	(3,102)	(50,060)	17,983	7,074	10,908	-	(50,060)
2062	-4.75	-3.00	27.0%	11,022	10,730	(3,347)	(53,700)	18,186	7,307	10,879	-	(53,700)
2063	-5.05	-3.30	27.0%	11,080	11,088	(3,589)	(57,280)	18,391	7,551	10,840	-	(57,280)
2064	-5.33	-3.70	27.0%	11,143	11,464	(3,825)	(60,784)	18,595	7,806	10,789	-	(60,784)
2065	-5.61	-4.00	27.0%	11,213	11,856	(4,056)	(64,198)	18,805	8,072	10,733	-	(64,198)
2070	-6.65	-5.50	27.0%	11,801	14,059	(5,103)	(79,630)	20,057	9,556	10,500	-	(79,630)
2075	-7.05	-6.50	27.0%	12,867	16,732	(5,916)	(91,560)	21,865	11,349	10,516	-	(91,560)
2080	-6.74	-7.00	27.0%	14,574	19,976	(6,414)	(98,816)	24,527	13,528	10,999	-	(98,816)
2085	-5.87	-6.80	27.0%	16,888	23,925	(6,470)	(99,437)	28,288	16,201	12,088	-	(99,437)
2088	-5.12	-6.30	27.0%	18,547	26,682	(6,195)	(95,110)	31,134	18,082	13,052	-	(95,110)

[a]   The fair market value of the assets in the RR Account and NRRIT as of the close of the fiscal year (September 30) divided by the total benefits and administrative expenses paid from the RR Account and NRRIT during the fiscal year.

[b]   The average of the account benefits ratios for the 10 most recent fiscal years ending before the calendar year.

[c]   Includes payroll taxes and income taxes on benefits.

[d]   Includes investment income and transfers from SSEB Account.

[e]   Other income includes financial interchange income, advances from general revenues, and interest income.   Other expense includes repayment of advances from general revenues and transfers to the NRRIT or RRA.

Table 3. Present value[a] of benefits in millions of dollars

| | Employment assumption I | | | Employment assumption II | | | Employment assumption III | | |
| | Tier 1 | | | Tier 1 | | | Tier 1 | | |
	Tier 2[b]	liability[c]	Total	Tier 2[b]	liability[c]	Total	Tier 2[b]	liability[c]	Total
Employee annuities									
Retired	$ 22,414	$ 7,933	$ 30,347	$22,414	$ 7,933	$ 30,347	$22,414	$ 7,933	$ 30,347
Active	21,692	8,970	30,662	21,692	8,970	30,662	21,692	8,970	30,662
Inactive	1,051	214	1,265	1,051	214	1,265	1,051	214	1,265
Future entrants	9,007	3,082	12,089	6,454	2,214	8,668	4,148	1,425	5,573
Total	54,164	20,199	74,363	51,610	19,332	70,942	49,305	18,542	67,847
Spouse annuities									
Retired	6,353	2,517	8,870	6,353	2,517	8,870	6,353	2,517	8,870
Active	5,492	2,899	8,392	5,492	2,899	8,392	5,492	2,899	8,392
Inactive	233	49	281	233	49	281	233	49	281
Future entrants	2,003	773	2,776	1,438	558	1,996	924	359	1,283
Total	14,081	6,238	20,319	13,516	6,023	19,539	13,002	5,824	18,826
Survivor annuities									
Retired & deceased	6,177	872	7,049	6,177	872	7,049	6,177	872	7,049
Active	2,296	275	2,571	2,296	275	2,571	2,296	275	2,571
Inactive	32	13	45	32	13	45	32	13	45
Future entrants	787	147	935	571	106	677	369	68	438
Total	9,293	1,307	10,600	9,076	1,266	10,342	8,875	1,228	10,103
All annuities combined									
Retired & deceased	34,944	11,322	46,266	34,944	11,322	46,266	34,944	11,322	46,266
Active	29,481	12,144	41,625	29,481	12,144	41,625	29,481	12,144	41,625
Inactive	1,316	276	1,592	1,316	276	1,592	1,316	276	1,592
Future entrants	11,798	4,002	15,799	8,463	2,878	11,341	5,441	1,853	7,294
Total annuities	$ 77,538	$27,744	$105,281	$74,203	$26,620	$100,823	$71,182	$25,595	$ 96,776
Lump sum payments			55			55			55
Total benefits			$105,336			$100,878			$ 96,831

Note: Detail may not add to totals due to rounding.

[a] Present values are determined using a 7% interest rate for all years.

[b] Includes supplemental annuity benefits.

[c] Tier 1 benefits in excess of social security level.

Table 4. Present value[a] of benefits as a percentage of the present value[a] of tier 2 payroll

| | Employment assumption I | | | Employment assumption II | | | Employment assumption III | | |
	Tier 2[b]	Tier 1 liability[c]	Total	Tier 2[b]	Tier 1 liability[c]	Total	Tier 2[b]	Tier 1 liability[c]	Total
Employee annuities									
Retired	4.82%	1.71%	6.53%	5.89%	2.08%	7.97%	7.27%	2.57%	9.84%
Active	4.66	1.93	6.59	5.70	2.36	8.05	7.04	2.91	9.95
Inactive	0.23	0.05	0.27	0.28	0.06	0.33	0.34	0.07	0.41
Future entrants	1.94	0.66	2.60	1.69	0.58	2.28	1.35	0.46	1.81
Total	11.65	4.34	15.99	13.55	5.08	18.63	15.99	6.01	22.01
Spouse annuities									
Retired	1.37	0.54	1.91	1.67	0.66	2.33	2.06	0.82	2.88
Active	1.18	0.62	1.80	1.44	0.76	2.20	1.78	0.94	2.72
Inactive	0.05	0.01	0.06	0.06	0.01	0.07	0.08	0.02	0.09
Future entrants	0.43	0.17	0.60	0.38	0.15	0.52	0.30	0.12	0.42
Total	3.03	1.34	4.37	3.55	1.58	5.13	4.22	1.89	6.11
Survivor annuities									
Retired & deceased	1.33	0.19	1.52	1.62	0.23	1.85	2.00	0.28	2.29
Active	0.49	0.06	0.55	0.60	0.07	0.68	0.74	0.09	0.83
Inactive	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01
Future entrants	0.17	0.03	0.20	0.15	0.03	0.18	0.12	0.02	0.14
Total	2.00	0.28	2.28	2.38	0.33	2.72	2.88	0.40	3.28
All annuities combined									
Retired & deceased	7.51	2.43	9.95	9.18	2.97	12.15	11.33	3.67	15.01
Active	6.34	2.61	8.95	7.74	3.19	10.93	9.56	3.94	13.50
Inactive	0.28	0.06	0.34	0.35	0.07	0.42	0.43	0.09	0.52
Future entrants	2.54	0.86	3.40	2.22	0.76	2.98	1.77	0.60	2.37
Total annuities	16.67%	5.97%	22.64%	19.48%	6.99%	26.47%	23.09%	8.30%	31.39%
Lump sum payments			0.01			0.01			0.02
Total benefits			22.65%			26.49%			31.41%

Note: Detail may not add to totals due to rounding.

[a] Present values are determined using a 7% interest rate for all years.

[b] Includes supplemental annuity benefits.

[c] Tier 1 benefits in excess of social security level.

Table 5. Balance of the Combined National Railroad Retirement Investment Trust
and Railroad Retirement Account, and the Social Security
Equivalent Benefit Account as of December 31, 2013
(Dollar amounts in millions)

	Combined NRRIT and RR Account	SSEB Account
Securities:		
Market value of NRRIT investments	$ 26,239	$ -
Par value specials[a] (including accrued interest)	456	923
Cash accounts	9	8
Balance	26,704	931
Adjustment for present value calculation[b]	(181)	-
Adjusted balance for use in present value calculation	$ 26,524	$ 931

[a] Par value specials are securities issued by the Treasury directly to the RR and SSEB Accounts, maturing on the first business day of the month following the month of issue. Their yield rate each month is the average yield rate, computed as of the last day of the previous month, of marketable Treasury notes with maturity dates not less than three years away.

[b] This adjustment accounts for the difference between the actual assets on December 31, 2014, used in Tables 2-I, 2-II and 2-III, and the assets that would have been projected starting with the December 31, 2013 assets using a 7.0% rate. With this adjustment the present value of the ultimate combined account values in Tables 2 discounted at a 7.0% rate will equal the surplus or deficiency shown in Table 6.

Table 6. Actuarial surplus or (deficiency) for National Railroad Retirement
Investment Trust and Railroad Retirement Account

	Employment assumption		
	I	II	III

	Present values in millions of dollars		
Adjusted funds on hand, 12/31/2013	$ 26,524	$ 26,524	$ 26,524
Retirement taxes	74,798	69,308	63,091
Income taxes on benefits	7,871	7,534	7,229
Available from SSEB Account	2,188	2,106	2,032
Total, present and prospective assets	111,381	105,472	98,876
Benefit payments	105,336	100,878	96,831
Administrative expenses	3,880	3,183	2,640
Total liabilities	109,216	104,061	99,471
Actuarial surplus or (deficiency)	2,165	1,411	(595)
One percent of tier 2 payroll	$ 4,650	$ 3,808	$ 3,083

	Present values as a percentage of tier 2 payroll		
Adjusted funds on hand, 12/31/2013	5.70%	6.96%	8.60%
Retirement taxes	16.09	18.20	20.47
Income taxes on benefits	1.69	1.98	2.34
Available from SSEB Account	0.47	0.55	0.66
Total, present and prospective assets	23.95	27.70	32.07
Benefit payments	22.65	26.49	31.41
Administrative expenses	0.83	0.84	0.86
Total liabilities	23.49	27.32	32.27
Actuarial surplus or (deficiency)	0.47	0.37	(0.19)

Table 7. Unfunded accrued liability
(Dollar amounts in millions)

	Amount or rate
1. Present value of benefits for former and present employees	$ 89,537
2. Present value of administrative expenses for former and present employees	2,825
3. Present value of tier 2 payroll for present employees	178,811
4. Normal cost as a level percentage of tier 2 payroll	7.41%
5. Present value of future service costs for present employees = (3) x (4)	13,250
6. Accrued liability = (1) + (2) - (5)	79,112
7. Funds on hand, 12/31/2013[a]	27,455
8. Unfunded accrued liability = (6) - (7)	51,657

[a] The amount shown is the sum of the NRRIT, RR Account and SSEB Account balances shown in Table 5.

Table 8. Vested dual benefit amounts and average number of beneficiaries

Fiscal year	Vested dual benefit amounts[a] (Millions)	Average number of beneficiaries
2016	$29	15,000
2017	25	13,000
2018	22	11,000
2019	18	9,000
2020	16	8,000
2021	13	7,000
2022	11	6,000
2023	9	5,000
2024	8	4,000
2025	6	3,000
2026	5	3,000
2027	4	2,000
2028	3	2,000
2029	3	1,000
2030	2	1,000

[a] When projected amounts are used to determine the appropriation
    needed for benefit payments, a margin must be added to ensure
    payment of full benefits.

Table 9. Supplemental annuity benefit amounts and average number of beneficiaries

Calendar year	Supplemental benefit amounts (Millions)	Average number of beneficiaries[a]
2015	$61	122,000
2016	61	122,000
2017	61	121,000
2018	60	119,000
2019	59	117,000
2020	57	114,000
2021	56	110,000
2022	54	106,000
2023	51	102,000
2024	49	97,000
2025	47	93,000
2026	44	88,000
2027	42	84,000
2028	40	79,000
2029	37	74,000
2030	35	70,000
2031	33	65,000
2032	31	61,000
2033	28	56,000
2034	26	52,000
2035	24	48,000
2036	22	44,000
2037	20	40,000
2038	18	36,000
2039	16	33,000
2040	15	29,000
2041	13	26,000
2042	11	23,000
2043	10	20,000
2044	9	17,000
2045	7	15,000
2046	6	12,000
2047	5	10,000
2048	4	9,000
2049	4	7,000
2050	3	6,000

[a] Average number in a year. Excludes cases where the supplemental annuity is totally eliminated because of a private pension. On January 1, 2014, there were about 34,000 of these cases.

Table 10. Average number of railroad retirement annuitants[a] and number of annuitants per full time employee

Calendar year	Average number of annuitants under each employment assumption			Average number of annuitants per full time employee		
	I	II	III	I	II	III
2015	532,100	532,100	532,100	2.21	2.24	2.27
2016	529,200	529,200	529,200	2.21	2.26	2.33
2017	525,800	525,800	525,800	2.20	2.28	2.38
2018	521,900	521,900	521,900	2.19	2.30	2.44
2019	517,500	517,500	517,500	2.18	2.32	2.50
2020	512,400	512,400	512,400	2.17	2.33	2.55
2021	506,400	506,400	506,400	2.15	2.34	2.60
2022	499,500	499,500	499,400	2.13	2.35	2.64
2023	492,100	492,000	491,900	2.11	2.35	2.68
2024	484,500	484,300	484,100	2.09	2.35	2.72
2025	476,900	476,600	476,300	2.06	2.35	2.76
2026	469,200	468,800	468,300	2.04	2.35	2.79
2027	461,600	461,000	460,300	2.01	2.34	2.83
2028	454,300	453,500	452,500	1.99	2.34	2.87
2029	447,400	446,400	445,200	1.97	2.34	2.90
2030	440,900	439,500	438,000	1.94	2.34	2.94
2031	434,600	432,900	430,900	1.92	2.34	2.98
2032	428,500	426,300	423,900	1.90	2.34	3.03
2033	422,500	419,800	417,000	1.89	2.34	3.07
2034	417,000	413,800	410,400	1.87	2.34	3.11
2035	412,100	408,300	404,200	1.85	2.34	3.15
2036	407,400	402,900	398,000	1.84	2.35	3.20
2037	403,000	397,700	392,000	1.83	2.35	3.23
2038	398,900	392,600	386,000	1.82	2.36	3.26
2039	395,000	387,800	380,200	1.81	2.36	3.30
2040	391,200	382,900	374,200	1.79	2.36	3.32
2041	387,800	378,300	368,400	1.79	2.37	3.34
2042	385,100	374,300	363,000	1.78	2.37	3.37
2043	382,400	370,200	357,600	1.77	2.37	3.38
2044	380,300	366,700	352,600	1.77	2.38	3.40
2045	378,900	363,700	348,000	1.77	2.38	3.42
2046	377,600	360,600	343,200	1.77	2.39	3.42
2047	377,000	358,100	338,800	1.77	2.39	3.43
2048	377,300	356,300	334,800	1.77	2.40	3.44
2049	377,600	354,100	330,200	1.78	2.41	3.44
2050	377,900	351,800	325,300	1.79	2.41	3.43
2051	377,900	349,000	319,800	1.79	2.41	3.41
2052	378,200	346,400	314,600	1.79	2.41	3.40
2053	378,900	344,200	309,400	1.80	2.41	3.37
2054	379,500	341,500	303,800	1.81	2.40	3.34
2055	379,900	338,700	297,900	1.81	2.39	3.30
2060	379,900	321,700	265,800	1.82	2.31	3.02
2065	377,600	303,000	234,000	1.81	2.18	2.67
2070	374,400	285,400	206,700	1.79	2.06	2.36
2075	371,600	270,900	186,000	1.78	1.95	2.12
2080	370,300	260,700	172,500	1.77	1.88	1.97
2085	370,800	254,800	165,100	1.78	1.84	1.89
2088	371,900	252,900	162,700	1.78	1.82	1.86

[a] Excludes partition payments to spouses and divorced spouses where the employee is deceased or not otherwise entitled to an annuity. On December 31, 2013, there were 1,119 of these cases.

Table 11. Transfers to railroad retirement system under financial interchange with social security system, 1937-2015[a]
(Millions of dollars)

Determination number	Fiscal years covered	Benefit credits to railroad retirement[b]	Tax credits to social security	Cash transfers to[c] railroad retirement	
				Amount	Year of transfer
1-25	1937-76 d	20,912.4 e	9,743.9	11,826.7 d	1953-77 d
26	1977 f	2,556.6 e	1,060.8	1,618.5	1978
27	1978	2,230.3	902.6	1,477.4	1979
28	1979	2,389.5	1,089.9	1,429.9	1980
29	1980	2,683.4	1,204.8	1,614.4	1981
30	1981	2,973.7	1,322.5	1,819.6	1982
31	1982	3,321.9	1,296.0	2,278.6	1983
32	1983	3,471.8	1,287.9	2,425.6	1984
33	1984	3,524.1	1,472.8	2,352.9	1985
34	1985	3,658.5	1,443.1	2,652.8	1986
35	1986	3,744.8	1,398.7	2,614.2	1987
36	1987	3,864.4	1,305.0	2,851.3	1988
37	1988	4,028.8	1,427.3	2,933.5	1989
38	1989	4,149.5	1,418.9	3,049.1	1990
39	1990	4,415.3	1,451.1	3,456.7	1991
40	1991	4,434.7	1,476.5	3,206.4	1992
41	1992	4,720.1	1,523.1	3,435.4	1993
42	1993	4,796.5	1,583.3	3,525.5	1994
43	1994	5,199.6	1,515.5	4,120.1	1995
44	1995	4,836.2 e	1,545.1	3,556.3	1996
45	1996	5,008.0	1,566.8	3,747.2	1997
46	1997	5,114.1	1,615.4	3,819.1	1998
47	1998	5,173.5	1,641.9	3,816.0	1999
48	1999	5,195.6	1,767.5	3,697.6	2000
49	2000	4,767.8 e	1,750.9	3,282.8	2001
50	2001	5,180.5	1,756.9	3,646.8	2002
51	2002	5,217.5	1,748.2	3,747.3	2003
52	2003	5,350.6	1,731.1	3,843.5	2004
53	2004	5,480.8	1,820.0	3,917.3	2005
54	2005	5,527.6	1,906.1	3,846.3	2006
55	2006	5,746.8	1,976.5	4,019.8	2007
56	2007	5,853.6	2,076.6	4,049.9	2008
57	2008	6,005.5	2,095.6	4,137.3	2009
58	2009	6,212.0	2,035.4	4,391.6	2010
59	2010	6,431.5	2,074.1	4,574.3	2011
60	2011	6,524.1	2,143.3	4,651.0	2012
61	2012	6,714.8 e	2,442.5	4,499.0	2013
62	2013	6,939.1	2,433.4	4,700.8	2014
63	2014	7,053.1	2,575.3	4,676.6	2015
Total	1937-2014	201,408.6	72,626.3	139,308.9	

[a] Financial interchange transactions with the Hospital Insurance Trust Fund are not included. These involve mainly a transfer of collected taxes to the Centers for Medicare & Medicaid Services, with some adjustments for difference in earnings bases under the two systems.

[b] Amounts include allowances for administrative expenses and adjustments to previous determinations.

[c] Transfers include interest which is not shown in table.

[d] First determination covered period January 1937-June 1952. Initial balance of $488.2 million was never transferred to social security; only interest was paid until debt was liquidated by subsequent offsets in favor of railroad retirement.

[e] Includes adjustment for pre-1957 military service.

[f] 1977 figure covered 15 months (July 1976 - September 1977) because of change in definition of fiscal year.

A P P E N D I X

Outline of the benefit and financing provisions
of the railroad retirement system as amended through December 31, 2014

EMPLOYEE BENEFITS

1. Normal age annuity

Requirement of 10 years of service or 5 years of service after 1995 for retirement at social security retirement age (see definition at end of outline). Employees with less than 10 years of service must meet Social Security Act eligibility requirements to receive a tier 1 benefit.

2. Prenormal age annuity

   A. Eligible for unreduced benefit upon later of (1) attainment of age 60 and (2) completion of 30 years of service (60/30 eligibility).

   B. Eligible for reduced benefit with less than 30 years of service upon later of (1) attainment of age 62 and (2) completion of 10 years of service or 5 years of service after 1995. The benefit is reduced by 1/180 for each of the first 36 months and by 1/240 for each additional month the employee is under social security retirement age. (Reduction for age in excess of 36 months applies only to tier 1 benefit if employee had any service before 8-12-1983.)

3. Total and permanent disability annuity

10-year service requirement or 5 years of service after 1995. Benefit may not begin earlier than the later of (1) the first day of the sixth month following date disability begins and (2) the first day of the twelfth month before the month in which the application is filed. Employees with less than 10 years of service and at least 5 years of service after 1995 who meet Social Security eligibility requirements may qualify for a tier 1 benefit only (an age reduced tier 2 benefit would be payable at age 62).

4. Occupational disability annuity

Requirement of 20 years of service or attainment of age 60 with 10 years of service; current connection (see definition at end of outline) required. Benefit may not begin earlier than the later of (1) the first day of the sixth month following date disability begins and (2) the first day of the twelfth month before the month in which the application is filed.

5. Supplemental annuity

Requirement of attainment of age 60 with 30 years of service if retired on or after 7-1-1974, or age 65 with 25 years of service. Must have service before 10-1-1981. Current connection required.

6. Vested dual benefit

   A. Requirement of fully insured (see definition at end of outline) status under Social Security Act effective 12-31-1974 and either (1) 25 years of railroad service before 1975 or (2) 10 years of railroad service before 1975, with some railroad work in 1974 or a current connection on 12-31-1974 or at the time the annuity begins, or

   B. Requirement of fully insured status under Social Security Act as of last year of railroad work before 1975 and 10 years of railroad service before 1975.

7. Work restrictions

Suspension of annuity for any month annuitant is employed by a railroad. For disabilities in 2015, loss of one month's annuity for each $850 in excess of $10,200 earned in a year with the last $425 of such excess treated as $850 (no annuity is lost for any month with earnings below $850). In addition, the tier 1 portion of a regular annuity based on railroad earnings (see definition at end of outline) after 1974 and all social security earnings (see definition at end of outline) is subject to social security work restrictions, unless a social security benefit is also being paid. If annuitant is employed by last non-railroad employer preceding retirement, the tier 2 portion and the supplemental annuity are reduced by one dollar for each two dollars of earnings, subject to a maximum reduction of 50 percent. All vested dual benefits are subject to social security work restrictions.

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8. Creditable service (continuity not required)

All service after December 31, 1936. Service before 1937 may be used if annuitant had employment relation on August 29, 1935 or 6 months of service after August 29, 1935 and before 1946. No limit on service except 30-year maximum if pre-1937 service used. Additional service months may be deemed, for years after 1984, where employee does not work in every month of year, but railroad earnings exceed monthly prorations of annual tier 2 maximum earnings creditable.

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9. Creditable and taxable railroad earnings

From 1966 through 1978, the maximum monthly earnings were one-twelfth of the annual social security maximum. The 1977 social security amendments introduced a difference between the maximum monthly earnings creditable for tier 1 and tier 2 benefits starting in 1979.

				Tier 1	Tier 2
before July 1, 1954	$ 300				
July 1, 1954 - May 31, 1959	350	1979		$1,908.33	$1,575
June 1, 1959 – Oct. 31, 1963	400	1980		2,158.33	1,700
Nov. 1, 1963 – Dec. 31, 1965	450	1981		2,475	1,850
1966-67	550	1982		2,700	2,025
1968-71	650	1983		2,975	2,225
1972	750	1984		3,150	2,350
1973	900				
1974	1,100				
1975	1,175				
1976	1,275				
1977	1,375				
1978	1,475				

Starting in 1985, earnings are credited on an annual rather than a monthly basis. The annual maximums are:

	Tier 1	Tier 2		Tier 1	Tier 2
1985	$39,600	$29,700	2001	$80,400	$59,700
1986	42,000	31,500	2002	84,900	63,000
1987	43,800	32,700	2003	87,000	64,500
1988	45,000	33,600	2004	87,900	65,100
1989	48,000	35,700	2005	90,000	66,900
1990	51,300	38,100	2006	94,200	69,900
1991	53,400	39,600	2007	97,500	72,600
1992	55,500	41,400	2008	102,000	75,900
1993	57,600	42,900	2009	106,800	79,200
1994	60,600	45,000	2010	106,800	79,200
1995	61,200	45,300	2011	106,800	79,200
1996	62,700	46,500	2012	110,100	81,900
1997	65,400	48,600	2013	113,700	84,300
1998	68,400	50,700	2014	117,000	87,000
1999	72,600	53,700	2015	118,500	88,200
2000	76,200	56,700			

10. Creditable military service and earnings

Military service is creditable in war and national emergency periods, and in some cases between June 15, 1948 and December 15, 1950, if preceded by railroad service in the year of entry into military service or the preceding year.

Earnings: $160 before 1968
$260 after 1967 but before 1975
For each calendar year after 1974, earnings are the same as that credited under social security.

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11. Basic monthly annuity computation

Tier 1: Social security benefit based on combined railroad and social security earnings, less social security benefit actually payable (based on social security earnings only). See item 2 for computation of tier 1 benefit for employees with 60/30 eligibility.

Tier 2: 0.7% of the average monthly compensation (AMC) multiplied by the number of years of service. This amount is then reduced by 25% of the employee's gross vested dual benefit. The AMC is the average of an individual's highest 60 months of railroad earnings up to the tier 2 maximum. For each month of service in a year for which the Railroad Retirement Board's records do not show earnings on a monthly basis, the total earnings for the year divided by the months of service in that year will be considered the monthly earnings for each month of service in the year.

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12. Vested dual benefit computation

A. For employees satisfying requirements in item 6.A., benefit is social security benefit based on railroad earnings through 1974, plus social security benefit based on social security earnings through 1974, less social security benefit based on combined railroad and social security earnings through 1974.

B. For employees satisfying requirements of item 6.B., benefit is the same as in A., except for the exclusion of all earnings after last pre-1975 year employee had railroad employment.

In both cases, benefit might be proportionally reduced so that the total amount paid out in vested dual benefits in any fiscal year does not exceed the total amount appropriated for that year (see item 39).

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13. Supplemental annuity computation

For employees who were entitled to supplemental annuities or who would have been entitled, but for last person service, prior to 1975, the monthly benefit is a minimum of $45 increased by $5 for each year of service over 25, with a maximum benefit of $70. These employees have a reduction in their regular railroad retirement annuity because of the supplemental annuity. For employees first entitled or potentially entitled after 1974, the monthly benefit is a minimum of $23 increased by $4 for each year of service over 25, with a maximum benefit of $43. These employees have no reduction in their regular railroad retirement annuity. Supplemental annuity will be reduced if employee receives a private pension from railroad employer based on employer contributions.

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14. Tax rebate lump sum

Employee who has at least 10 years of railroad service and is not eligible for the vested dual benefit will receive a lump sum at retirement computed by summing for each year from 1951 through 1974 the product of the social security tax rate for the year times the excess of the employee's combined railroad and social security earnings for the year over (approximately) the maximum creditable for the year under the 1937 Act. Survivors of employee may receive refund if employee dies before receiving it.

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15. Separation/severance lump sum

Lump sum, equal to tier 2 payroll taxes deducted from separation or severance payments, will be paid at retirement to employees with at least 10 years of service or 5 years of service after 1995 to the extent that separation or severance payments did not yield additional tier 2 service credits.

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16. Cost-of-living increases (annually, effective with January 1 payments)

Tier 1: Same as social security increases.

Tier 2: 32.5% of social security increases.

Vested dual benefits: Frozen at the 1974 level, except that social security cost-of-living increases effective between 12-31-1974 and the earlier of January 1, 1982 and the annuity beginning date are included in the benefit computation.

Supplemental annuity: None.

SPOUSE BENEFITS

17. Eligibility

    A. Unreduced annuity:

        1. Spouse retiring at age 60 (or any age with a child in care), if (a) employee attained 60/30 eligibility before 7-1-1984 and retired at age 60 or later, (b) employee attained 60/30 eligibility after 6-30-1984 and retired at age 62 or later, (c) employee has 30 or more years of service and retired after 12-31-2001 at age 60 or later, or (d) spouse retired after 12-31-2001, and employee retired from disability, has 30 or more years of service and is age 60 or over.

        2. Spouse retiring at social security normal retirement age (or any age with a child in care), if (a) employee retired before 1-1-1975 and is age 65 or over, (b) employee retired after 12-31-1974 and is age 62 or over, or (c) employee retired after 6-30-1974, has 30 or more years of service and is age 60 or over.

    B. Reduced annuity:

        1. Spouse retiring at age 60 if employee attained 60/30 eligibility after 6-30-1984 and retired with an age annuity before 1-1-2002 before attaining age 62.

        2. Spouse retiring at age 62, if employee has less than 30 years of service, is retired, and has attained age 62. Age reduction is 1/144 for each of the first 36 months spouse is under social security retirement age and 1/240 for each month in excess of 36 that spouse is under retirement age. (Reduction for age in excess of 36 months applies to tier 1, but not tier 2, if employee had any service before 8-12-1983.)

18. Work restrictions

Same as employee; in addition, spouse is not paid for any month employee annuity is not payable by virtue of work restrictions, and spouse is reduced $1 for each $2 of employee's earnings for last non-railroad employer preceding employee's retirement (see item 7).

19. Annuity computation

Tier 1: One-half of social security benefit based on employee's combined railroad and social security earnings. See item 17 for computation of spouse tier 1 in cases where employee is receiving a reduced 60/30 benefit. If spouse is entitled to a social security benefit, tier 1 is reduced by the amount of the benefit, but not below 0. If spouse is entitled to employee annuity or a public service pension, certain additional restrictions apply.

Tier 2: 45% of employee's tier 2 benefit. Spouse receives additional benefit if spouse is also an employee annuitant and either the employee or spouse has railroad service prior to 1975.

20. Vested dual benefit

A spouse receiving a vested dual benefit on August 13, 1981 will continue to receive a benefit (adjusted as described in item 12). No vested dual benefits will be awarded after that date.

21. Divorced spouse, partitioned spouse and partitioned divorced spouse

A divorced spouse is entitled to a tier 1 benefit if the employee is retired, the employee and divorced spouse have been married for at least 10 consecutive years and have both attained age 62, and the divorced spouse is unmarried. If the employee is not retired, but has sufficient railroad service to otherwise be eligible for an annuity, the divorced spouse can receive a tier 1 benefit if the above conditions are met and the parties have been divorced for a period of not less than 2 years, and the employee is fully insured under the Social Security Act using combined railroad and social security earnings.

If the employee is retired, a court ordered partition of tier 2, supplemental annuity, vested dual benefit or minimum guarantee amounts (see item 42) is payable with the employee's monthly annuity reduced by the amount of the partition payment. If the employee is not retired, a court ordered partition of tier 2 or vested dual benefit payments is payable if (1) the employee has 10 years of service or 5 years of service after 1995, and (2) both the employee and spouse or former spouse have attained age 62.

22. Cost-of-living increases for spouses

Each tier is subject to same percentage increase as corresponding tier of employee benefit.

SURVIVOR AND DEATH BENEFITS

23. Employee requirement for survivor benefits

All benefits except residual lump sum require deceased employee to have 10 years of railroad service or 5 years of service after 1995 and a current connection. If employee does not meet above conditions, his or her earnings record is transferred to social security, which pays any survivor benefits.

24. Aged widow's and widower's eligibility

A widow or widower must be age 60 and unremarried. Those age 60-61 are deemed age 62 in computing the benefit. The age reduction for each month of age under social security retirement age is 28.5% divided by the number of months from age 60 to social security retirement age.

25. Disabled widow's and widower's eligibility

A widow or widower must be at least age 50 and under age 60, unremarried, and totally and permanently disabled if disability occurs within 7 years of employee's death or within 7 years after widowed mother's or father's status terminated. Age reduction is 28.5%. Benefit may not begin earlier than the later of (1) the first day of the sixth month following the date disability begins and (2) the first day of the twelfth month before the month in which the application is filed.

26. Widowed mother's and father's eligibility

Unremarried surviving spouse of a deceased employee who is under social security retirement age and who at the time of filing an application has in his or her care a minor or disabled child of the deceased employee.

27. Divorced widow(er)'s, remarried widow(er)'s eligibility, partitioned surviving spouse and partitioned surviving divorced spouse

The following are eligible for a tier 1 benefit.

   A. Divorced widow(er) - must (1) have been married to employee at least 10 years, be unmarried or remarried after age 60 (after age 50 and disability onset if disabled), and have attained age 60 or age 50 if disabled, or (2) be unmarried at any age with a child of the employee in care.

   B. Remarried widow(er) - must have remarried after age 60 (after age 50 and disability onset if disabled), or the remarriage must have ended. Widow(er) must have attained age 60, be between 50 and 59 and disabled or be any age with a child in care.

Benefits for divorced aged widow(er)s and remarried aged widow(er)s are reduced for the full number of months under social security retirement age.

Where court ordered partition of tier 2, supplemental annuity and vested dual benefit payments are in effect at the time of the employee's death, such payments will continue after the employee's death unless the court order requires termination upon the employee's death. Where the employee dies before partition payments are initiated, and the employee acquired 120 months of railroad service, or 60 months of service after 1995, such payments may be made when both the surviving spouse/divorced spouse, and the employee if he or she had survived, would be 62.

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28. Child's eligibility

A child of a deceased employee must be under 18 or under 19 and a full-time elementary or secondary school student. Unmarried children continuously disabled since before age 22 are also eligible, regardless of age.

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29. Parent's eligibility

A parent of a deceased employee who has attained age 60 and received at least one-half of his or her support from the employee will be eligible for an annuity. If the employee died leaving a widow, widower or child who is or might become eligible in the future, the parent will be eligible for a tier 1 benefit only. In certain instances, a remarried parent of a deceased employee will be eligible for a tier 1 benefit.

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30. Work restrictions

Annuity not payable for any month in which survivor engages in railroad employment. Entire benefit subject to social security work restrictions.

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31. Annuity computation

Tier 1: Amount payable to survivor under Social Security Act, based on the deceased employee's combined railroad and social security earnings after 12-31-1936, less the amount of any social security benefit received. Additional restrictions exist for a widow or widower who also receives an annuity as a railroad employee or who receives a public service pension.

Tier 2: Widow or widower   - 50% of employee tier 2 benefit
        Parent   - 35% of employee tier 2 benefit
        Children   - 15% of employee tier 2 benefit for each child
        The total family tier 2 benefit has a minimum of 35% and a maximum of 80% of the employee's tier 2 benefit (a maximum of 130% is used for the purpose of calculating the widow(er) intitial minimum amount).

For a widow or widower an "initial minimum amount" based on the two-tier annuity amount that would have been payable to the railroad employee at the time the widow(er)'s annuity is awarded is computed with a widow(er)'s tier 2 amount equal to 100 percent of the employee's tier 2 amount. Widow(er)s' annuities computed on the basis of the initial minimum amount are not adjusted for annual cost-of-living increases until the total annuity amount is exceeded by the annuity amount the widow(er) would have been paid under prior law (tier 2 amount equal to 50 percent of the employee's tier 2 amount), with all interim cost-of-living increases otherwise payable.

For an aged widow or widower, the total benefit exclusive of any vested dual benefit may not be less than amount received as spouse in month before employee's death.

All percentages are before deductions for work or entitlement to social security benefit or railroad retirement employee annuity.

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32. Vested dual benefit for widow or widower

A widow or widower receiving a vested dual benefit on August 13, 1981 will continue to receive a benefit (adjusted as described in item 12). No vested dual benefits will be awarded after that date.

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33. Insurance lump sum

Payable if employee leaves no survivor eligible for monthly benefits in the month of his or her death.

    A. If employee had 10 years of service before 1-1-1975, the benefit is 10 times the basic amount. The basic amount is 52.4% of the first $75 of average monthly remuneration (AMR), plus 12.8% of the remainder, increased by 1% for each year before 1975 with earnings of $200 or more. The AMR is based on combined railroad and social security earnings before 1975 and after 1936.

    B. If employee had less than 10 years of service as of 12-31-1974, the amount will be the amount social security would have paid (currently $255). This amount will only be paid to a widow or widower living with the employee at the time of the employee's death.

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34. Residual lump sum death benefit

Payable when it appears no further benefits will derive from deceased employee except possibly to a widow, widower or parent at a future date. In this case, survivor must waive the right to all future benefits based on the deceased employee's railroad service. The amount payable is the sum of 4% of taxable railroad earnings from 1-1-1937 to 12-31-1946, 7% from 1-1-1947 to 12-31-1958, 7-1/2% from 1-1-1959 to 12-31-1961, 8% from 1-1-1962 to 12-31-1965, 8.1% from 1-1-1966 to 12-31-1966, 8.65% from 1-1-1967 to 12-31-1967, 8.8% from 1-1-1968 to 12-31-1968, 9.45% from 1-1-1969 to 12-31-1970, 9.85% from 1-1-1971 to 12-31-1972, 10.1% from 1-1-1973 to 9-30-1973, 5.35% from 10-1-1973 to 12-31-1973, and 5.45% from 1-1-1974 to 12-31-1974. Railroad earnings after 1974 are not taken into account. The amount actually paid is reduced by the amount of benefits paid deriving from the deceased employee.

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35. Cost-of-living increases for survivors

Each tier is subject to same percentage increase as corresponding tier of employee benefit.

FINANCING, INVESTMENTS AND TAXATION OF BENEFITS

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36. Employee and employer payroll taxes

Employees and employers contribute at the prevailing social security rate up to the tier 1 earnings limit. There is no limit to earnings subject to the hospital insurance portion of the tier 1 tax rate. Beginning in 2013, employees pay an additional 0.9 percent on earnings above $200,000 (for those who file an individual return) or $250,000 (for those who file a joint return).

In addition, employees and employers pay a tier 2 tax up to the tier 2 earnings limit. Tier 2 taxes on both employers and employees are based on the ratio of certain asset balances to the sum of benefits and administrative expenses (the average account benefits ratio). At the end of each fiscal year (September 30), an Account Benefits Ratio (ABR) is calculated by dividing the fair market value of the assets in the RR Account and the NRRIT (and for years before 2002, the SSEB Account) as of the close of such fiscal year by the total benefits and administrative expenses paid from the RR Account and the NRRIT during such fiscal year. The Average Account Benefits Ratio (AABR), with respect to any calendar year, is then calculated as the average of the account benefits ratios for the 10 most recent fiscal years ending before such calendar year. If the AABR is not a multiple of 0.1, it is increased to the next highest multiple of 0.1. The tier 2 tax rate is determined from a tax rate table based on the AABR.

AABR		Tier 2 tax rate	
At least	But less than	Employer	Employee
	2.5	22.1	4.9
2.5	3.0	18.1	4.9
3.0	3.5	15.1	4.9
3.5	4.0	14.1	4.9
4.0	6.1	13.1	4.9
6.1	6.5	12.6	4.4
6.5	7.0	12.1	3.9
7.0	7.5	11.6	3.4
7.5	8.0	11.1	2.9
8.0	8.5	10.1	1.9
8.5	9.0	9.1	0.9
9.0		8.2	0.0

Contributions to 401(k) deferred compensation plans and the value of employer-paid premiums for group term life insurance coverage in excess of $50,000 are included in railroad earnings for payroll tax purposes.

37. Financial interchange

Railroad retirement system pays to social security system the taxes social security would have collected and receives the additional amount of benefits and administrative expenses social security would have paid if railroad employment had been covered under social security. The net difference (including interest) is transferred in the June after the fiscal year for which the transfer is made.

The Railroad Retirement Board estimates the amount and direction of the financial interchange transfer that would be made for each month if transfers were on a current monthly basis. If this estimate favors the railroad retirement system, Treasury advances the amount with interest to the Railroad Retirement Account, as a loan from the general fund, by the middle of the succeeding month. Within 10 days after receipt of the annual financial interchange for a fiscal year, the RRB must repay the amount, with interest, advanced during the fiscal year.

38. Investments

Amounts in the Railroad Retirement Account and in the Social Security Equivalent Benefit Account not needed to pay current benefits and administrative expenses are invested by the National Railroad Retirement Investment Trust, whose Board of seven trustees is empowered to invest Trust assets in non-governmental assets, such as equities and debt, as well as in governmental securities. The Trust transfers funds back to the Railroad Retirement Account as needed for the payment of benefits.

39. Financing of vested dual benefits

General revenue appropriations finance all vested dual benefit payments since September 1981. Beginning October 1, 1981, each annual appropriation is placed in the Dual Benefits Payments Account. Total benefits paid in any fiscal year (starting with 1982) may not exceed the total available in the account. The account may borrow at the end of a fiscal year the amount that the Railroad Retirement Board estimates will be necessary to pay vested dual benefits for the first month of the next fiscal year.

40. Taxability of benefits

The portion of tier 1 benefits equivalent to social security benefits is taxed under the same rules as are social security benefits. Tier 1 benefits in excess of social security equivalent benefits, tier 2 benefits, vested dual benefits, and supplemental annuities are taxed under the rules by which private pensions are taxed.

Revenues from taxes on social security equivalent benefits are transferred to the social security system through the financial interchange. Revenues from taxes on tier 1 benefits in excess of social security equivalent benefits and tier 2 benefits are transferred to the Railroad Retirement Account. Revenues from taxes on vested dual benefits are transferred to the Dual Benefits Payments Account.

MISCELLANEOUS PROVISIONS

41. Benefit preservation

Each year the Railroad Retirement Board must report to the President and Congress the results of a five-year projection of anticipated revenues to and payments from the Railroad Retirement Account. If the results show that the funds in the account will be insufficient to pay full benefits at any time during the five-year period, the report must indicate (1) the first fiscal year in which benefits would have to be reduced because of insufficient funds in the absence of any changes, and (2) the amount of adjustments necessary to preserve financial solvency. Within 180 days after publication of this report, representatives of railroad labor and management are obligated to submit proposals designed to preserve the fund's solvency. The Railroad Retirement Board will publish regulations necessary to provide a constant level of benefits at the maximum level possible and to insure that no individual receives less than what he or she would have had all his earnings been covered under social security. The Railroad Retirement Board's regulations will take effect beginning with the first year in which benefit reductions will be necessary and continue until legislative action supersedes them.

42. Minimum annuity

The overall minimum guaranty for employees and dependents is 100% of the amount, or the additional amount, the family would receive under the Social Security Act if the employee's railroad earnings after 1936 were credited as social security earnings.

43. Automatic benefit eligibility adjustments

A liberalization of entitlement provisions enacted for title II of the Social Security Act will be applied to provide entitlement to a tier 1 benefit under the Railroad Retirement Act.

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44. Transfer of credits

Transfer of railroad retirement credits is made to social security if an employee had less than 10 years of railroad service and less than 5 years of service after 1995 or, in the case of a survivor, if the employee lacked a current connection.

DEFINITIONS

The meanings of terms used in the outline are defined below:

Railroad earnings - earnings derived from covered railroad employment, up to the maximums specified in item 9.

Social security earnings - earnings derived from employment covered under the Social Security Act (excludes railroad earnings), up to the maximums allowed.

Current connection - generally defined as having at least 12 months of railroad service in the 30 months preceding death or retirement. An employee whose last 12 months of railroad service occurred prior to the 30 months before retirement or death may maintain a current connection if the employee did not perform any regular employment between the end of the 30 month period containing the last 12 months of railroad service and the month of retirement or death. For purposes of the supplemental annuity or survivors' benefits, an employee who was terminated involuntarily and without fault on or after October 1, 1975, after 25 years of service and did not thereafter decline an offer of employment in the same class or craft in the railroad industry is deemed to have a current connection.

Fully insured - insured for retirement at age 62 under social security; does not necessarily imply an insured status for disability benefits or for survivor benefits for death before age 62.

Social security benefit - when used in describing the computation of the vested dual benefit, the term "social security benefit" means a primary insurance amount computed by using the social security formula in effect in 1974 and the specified earnings; it does not imply an actual benefit.

Social security retirement age - the age at which an individual may receive an unreduced benefit at retirement under the Social Security Act, as follows:

Year of attainment of early retirement age (62 for employees and spouses, 60 for widows and widowers)	Retirement age (age for unreduced benefit)
1999 or earlier	65 years, 0 months
2000	65 years, 2 months
2001	65 years, 4 months
2002	65 years, 6 months
2003	65 years, 8 months
2004	65 years, 10 months
2005-2016	66 years, 0 months
2017	66 years, 2 months
2018	66 years, 4 months
2019	66 years, 6 months
2020	66 years, 8 months
2021	66 years, 10 months
2022 or later	67 years, 0 months

TECHNICAL SUPPLEMENT
GENERAL METHODOLOGY AND ASSUMPTIONS

1. <u>Approach</u>. The 26th valuation presents results under three different employment assumptions. The same set of earnings inflation, price inflation, and investment return assumptions was used with each of the three employment assumptions. This set of assumptions is discussed in Section V and listed in Table 1 of the valuation report.

    A projection of the progress of the railroad retirement fund through 2088 is shown under each of the three employment assumptions. All the projections are based on an open group (that is, they include future entrants). The calculations were arranged so that closed-group valuations, limited to former and present employees, could be obtained as a by-product. A balance sheet deriving actuarial surplus or deficiency is also shown.

2. <u>Basic data</u>. All data concerning current beneficiaries were derived from "universe" files (files including all beneficiaries as of December 31, 2013). These files included information needed to project benefits for current beneficiaries. Information needed to derive exposures and terminations for mortality and remarriage studies was obtained from similar universe files created at an earlier date.

    Active and inactive census data and data needed to study the withdrawal, mortality, and age and disability retirement experience of active employees were also compiled from universe files.

3. <u>Service tables</u>. For the projections of employees in active service and new entrants, a service month table was prepared.

    Five sets of withdrawal rates were used with the differentiation made by attained age. Four sets of rates for disability retirement and two sets of rates for age retirement were used, with the differentiation made by completed years of service. Rates of death in active service are aggregate.

4. <u>Actuarial assumptions</u>.

    <u>Mortality after age retirement</u>. Mortality studies for nondisability retirements covering the period 2009-2012 showed that the pattern of improved mortality at the younger ages found in the 2006-2009 experience continued. The overall ratio of actual to expected deaths after age retirement based on the 25th valuation standard was 100.7%. Based on the thinning of margin and the degree of fit by attained age, a new table, the 2010 Base Year RRB Annuitants Mortality Table, was constructed.   The experience period for the mortality studies is very close to the valuation date, ending only one year prior to the date. In the past, the final rates were obtained by adding a 6% margin, which provided for near-term mortality improvement. Longer-term mortality improvement for those who had not yet retired was provided for by using an additional 1-year rateback in age. For this valuation, a transition was made to a separate mortality improvement scale, the 2013 RRB Mortality Improvement Scale, to be used in conjunction with

the base rates. This is consistent with current actuarial practice and provides for more explicit mortality improvement.

Mortality after disability retirement. The overall ratio of actual to expected deaths after disability retirement based on the 25th valuation standard was 99.8% and 101.9% for annuitants with and without disability freeze, respectively. Based on the improvement in mortality and the degree of fit by five-year age group, two new tables, the 2010 Base Year RRB Disabled Mortality Table for Annuitants with Disability Freeze and the 2010 Base Year RRB Disabled Mortality Table for Annuitants without Disability Freeze, were constructed. The tables were based on experience between the anniversaries of retirement in 2009 and 2012. In the past, the final rates were obtained by adding a 6% margin, which provided for near-term mortality improvement. Long-term mortality improvement for those who have not yet retired was provided for by using a 1-year rateback in age. For this valuation, a transition was made to the 2013 RRB Mortality Improvement Scale to be used in conjunction with the base rates to provide for more explicit mortality improvement.

Mortality of employees in active service. Mortality studies for active employees showed an overall ratio of actual to expected deaths of 90.3%. Based on the recent improvement in the mortality experience, a new table, the 2009 Active Service Mortality Table, was constructed. Because of the relatively low rates of active service mortality, the relatively small impact on the valuation results, and the lack of persistent improvement in active service mortality, we continue to provide no margin for active service mortality improvement.

Total termination for spouses. Total termination rates are used in projecting future tier 1 and tier 2 benefits for spouses receiving these benefits on the valuation date. Spouse benefits terminate at either the spouse's or the employee's death. A spouse receiving benefits at the time of the employee's death would begin to receive survivor benefits if the employee maintained a current connection.

The overall ratio of actual terminations to those expected on the basis of the 25th valuation standard was 101.1%. Based on the improvement in spouse termination since the 2006-2009 period, a new table, the 2010 Base Year RRB Spouse Total Termination Table, was constructed. In the past, the final rates were obtained by adding a 6% margin for future improvement in spouse termination.   For the 26th valuation, the 2013 RRB Mortality Improvement Scale was used in conjunction with the base rates.

Probability of a retired employee having an eligible spouse. Projected tier 1 and tier 2 benefits for spouses of active employees and future entrants were determined by applying factors to the projected employee tier 1 and tier 2 benefits, respectively. These factors, shown in Table S-6, reflect the age-by-age probability that an employee annuitant has a spouse receiving benefits. Although the overall ratio of the actual number of spouses on December 31, 2012, to the expected number based on the 25th valuation standard was 100.7% and 100.6%, for employees with fewer than 30 years of service and employees with 30 or more years of service, respectively, it has been past practice to update this table for each new valuation.

Mortality of widow annuitants. The ratio of actual to expected deaths for widow annuitants was 103.9% based on the 25th valuation standard, the 1995 RRB Mortality Table for Widows. The mortality of widows, after having worsened from the 1991-1994 period to the 2000-2003 period, has improved since then, but has not shown the same consistent improvement as the experience of employee annuitants has. Based on the thinning of margin and the degree of fit by attained age, a new table, the 2013 RRB Mortality Table for Widows, was constructed. The final rates were obtained by adding a 6% margin, which provides for near-term mortality improvement. A one-year rateback in age is used to provide for longer-term mortality improvement for widows coming from future employee deaths.

Remarriage of widows. The overall ratio of actual to expected remarriages on the basis of the 25th valuation standard, the 1997 RRB Remarriage Table, was 86.8%. Based on the degree of fit, newness of the current standard, relatively small number of remarriages, and relatively small impact of a change in remarriage rates on the valuation results, the 25th valuation standard was retained.

Total termination for disabled children. The overall ratio of actual terminations to those expected on the basis of the 25th valuation standard, the 2004 RRB Total Termination Table for Disabled Children, was 108.1%. Based on the relatively small number of terminations, the accompanying higher volatility of termination rates, and the adequate margin in the current standard, the 25th valuation standard was retained.

Withdrawal from the railroad industry. The overall ratio of actual final withdrawals (withdrawals net of re-entrants) to those expected on the basis of the 25th valuation standard was 84.3%. Based on the wide variation in withdrawal experience by year for the study period 2008-2011 and the fact that the study period included an economic recession and a global financial crisis, the experience during the study period may not be representative of what is expected during the projection period. The 25th valuation standard for withdrawal rates was retained.

Age retirement. A normal age annuity is payable at social security normal retirement age (SSNRA) with 10 years of total service or 5 years of service after 1995. For employees with 30 or more years of service, an unreduced benefit is payable to those who retire after the attainment of age 60. Benefits are reduced for employees who retire from age 62 to SSNRA with 5-29 years of service. A supplemental annuity is payable to employees with service before October, 1981, who have attained age 60 with 30 or more years of service, or attained age 65 with 25 or more years of service.

A comparison between the rates of age retirements assumed in the 25th and 26th valuations and the crude rates during calendar years 2010-2012 is shown in Table S-30. For employees with 5-29 years of service, the assumed 26th valuation rates are close to the 2010-2012 crude rates at ages under 68 and constant for ages over 67. For employees with 30 or more years of service, the assumed 26th valuation rates are close to the crude rates up to age 67 and constant for ages over 71.

Disability retirement. An employee is eligible for disability retirement based on total and permanent disability at any age with at least 10 years of service or 5 years of service after 1995. Eligibility for occupational disability requires (i) permanent disability for an employee's regular railroad occupation, (ii) attainment of age 60 with 10 years of service or any age with 20 years of service, and (iii) a current connection.

For employees with 10-19 years of service, the ratio of actual disability retirements during 2010-2012 to those expected based on the 25th valuation standard was 75.3%. The ratio of actual to expected disability retirements for employees with 20-24 years of service was 66.7%, and for employees with 25-29 years of service it was 95.7%.   For employees with 30 or more years of service the ratio of actual to expected disability retirements was 91.5%. The overall ratio of actual to expected disability retirements for all employees was 84.3%. Because of the recent volatility of experience, current experience was combined with that of the period 2007-2009, and a new table of rates of disability retirement was constructed based on the combined 2007-2012 experience.

Disability retirements are not projected for participants with 5-9 years of service because the benefits are limited to what social security would pay and are reimbursed through the financial interchange. These employees become eligible for tier 2 benefits at age 62 and are treated as vested withdrawals in our projections.

The ratio of actual to expected disability retirements qualifying for a disability freeze based on the 25th valuation standard was 100.2% and 100.6% for employees with 10-19 years of service and 20 or more years of service, respectively. A new table of percentages eligible for a disability freeze was constructed for the 26th valuation. In the current experience, as shown in table S-35, the disability freeze rates for the 20-24 years of service group, the 25-29 years of service group, and the 30 or more years of service group are close, and therefore a single set of rates is assumed for employees with 20 or more years of service. These rates are shown in Table S-12.

Mortality Improvement. The mortality experience of aged and disabled annuitants and the spouse termination experience were studied to see how mortality had improved in the past. As well as reviewing the RRB historical experience, as shown in Table S-29, other sources, such as the mortality experience of the U. S. population and the mortality assumptions in the 2014 OASDI Trustees' Report, were taken into account in developing the 2013 RRB Mortality Improvement Scale shown in Table S-10.

Other assumptions. Assumptions involving (1) service months and salary scales, (2) family composition, and (3) the age distribution of new entrants are shown in Tables S-14, S-15, and S-44, respectively.

Investment and administrative expenses. For investment and administrative expenses, best estimates are used in the initial projection years. Thereafter, investment expenses are assumed to equal 0.3% (30 basis points) of the prior year end combined NRRIT and RR Account fund balance. Administrative expenses are assumed to increase at the same rate as the wage increase assumption shown in Table 1 of the valuation report, subject to the following limits.

Administrative expenses for the RR Account are limited to 2% of benefits paid from the RR Account and NRRIT. Administrative expenses for the SSEB Account are limited to 0.7% of benefits paid from the SSEB Account.

A complete list of the assumptions and the tables that present them follows.

List of assumptions and tables used in the 26th valuation

Item	Assumption or table
A. Mortality and total termination rates	
1. After age retirement	Table S-1 with Table S-10
2. After disability retirement	
(a) with Disability Freeze	Table S-2 with Table S-10
(b) without Disability Freeze	Table S-3 with Table S-10
3. Employees in active service	Table S-4
4. Spouses	Table S-5 with Table S-10
5. Nondisabled widows	
(a) Widows of deceased employees	Table S-7
(b) Widows coming from future employee deaths	Table S-7 with a 1-year rateback in age
6. Disabled widows	Table S-2 with Table S-10
7. Children under age 18	Disregarded
8. Disabled children age 18 and over	Table S-9
9. Mortality improvement	Table S-10
B. Remarriage rates for widows	Table S-8
C. Retirement rates	
1. Age retirement	Table S-11
2. Disability (with "disability freeze" percentages)	Table S-12
D. Withdrawal rates	Table S-13
E. Other assumptions	
1. Probability of a retired employee having an eligible spouse	Table S-6
2. Economic assumptions	Table 1 of valuation report
3. Service months and salary scales	Table S-14
4. Family composition	Table S-15
5. Age distribution of future entrants	Table S-44

Table S-1. 2010 Base Year[a] RRB Annuitants Mortality Table

Age[b]	$1,000q_x$		Age[b]	$1,000q_x$
60	5.99		95	269.61
61	6.72		96	291.33
62	7.54		97	310.37
63	8.45		98	327.08
64	9.48		99	341.74
65	10.63		100	354.60
66	11.92		101	365.89
67	13.37		102	375.81
68	14.98		103	384.57
69	16.80		104	392.32
70	18.83		105	399.24
71	21.10		106	405.48
72	23.64		107	411.40
73	26.49		108	417.25
74	29.67		109	423.05
75	33.23		110	1,000.00
76	37.21			
77	41.66			
78	46.62			
79	52.16			
80	58.33			
81	65.22			
82	72.88			
83	81.40			
84	90.86			
85	101.37			
86	112.87			
87	125.43			
88	139.11			
89	153.95			
90	170.00			
91	187.31			
92	205.91			
93	225.82			
94	247.06			

[a] For use with 2013 RRB Mortality Improvement Scale.

[b] Age nearest birthday.

Table S-2. 2010 Base Year[a] RRB Disabled Mortality Table for Annuitants with Disability Freeze[b]

Age[c]	1,000q_x	Age[c]	1,000q_x	Age[c]	1,000q_x
30	15.94	65	29.12	100	359.09
31	16.14	66	30.93	101	370.01
32	16.34	67	33.05	102	380.10
33	16.53	68	35.54	103	389.32
34	16.73	69	38.45	104	397.63
35	16.92	70	41.86	105	405.01
36	17.11	71	45.56	106	411.40
37	17.30	72	49.58	107	417.25
38	17.49	73	53.95	108	423.05
39	17.68	74	58.68	109	428.79
40	17.87	75	63.82	110	1,000.00
41	18.05	76	69.40		
42	18.24	77	75.44		
43	18.42	78	81.98		
44	18.60	79	89.06		
45	18.78	80	96.72		
46	18.95	81	105.00		
47	19.12	82	113.95		
48	19.30	83	123.60		
49	19.46	84	134.01		
50	19.63	85	145.21		
51	19.79	86	157.27		
52	19.99	87	170.22		
53	20.21	88	184.12		
54	20.48	89	199.02		
55	20.79	90	214.95		
56	21.15	91	231.30		
57	21.58	92	247.41		
58	22.09	93	263.21		
59	22.68	94	278.62		
60	23.37	95	293.56		
61	24.19	96	307.96		
62	25.14	97	321.77		
63	26.27	98	334.92		
64	27.58	99	347.38		

[a] For use with 2013 RRB Mortality Improvement Scale.

[b] Qualified under social security definition of disability.

[c] Age nearest birthday.

Table S-3. 2010 RRB Base Year[a] Disabled Mortality Table for Annuitants without Disability Freeze[b]

Age[c]	$1{,}000q_x$	Age[c]	$1{,}000q_x$	Age[c]	$1{,}000q_x$
40	4.39	70	30.18	100	355.07
41	4.57	71	33.30	101	366.31
42	4.76	72	36.73	102	376.66
43	4.97	73	40.51	103	386.08
44	5.19	74	44.67	104	394.54
45	5.43	75	49.24	105	402.00
46	5.70	76	54.28	106	408.44
47	5.97	77	59.80	107	414.33
48	6.28	78	65.88	108	420.16
49	6.63	79	72.54	109	425.93
50	7.01	80	79.85	110	1,000.00
51	7.43	81	87.86		
52	7.90	82	96.63		
53	8.43	83	106.23		
54	9.02	84	116.71		
55	9.67	85	128.15		
56	10.17	86	140.62		
57	10.73	87	154.20		
58	11.37	88	168.95		
59	12.09	89	184.95		
60	12.91	90	202.28		
61	13.84	91	220.07		
62	14.89	92	237.48		
63	16.08	93	254.43		
64	17.43	94	270.84		
65	18.95	95	286.66		
66	20.68	96	301.83		
67	22.63	97	316.30		
68	24.85	98	330.03		
69	27.35	99	342.96		

[a] For use with 2013 RRB Mortality Improvement Scale.

[b] Not qualified under social security definition of disability.

[c] Age nearest birthday.

Table S-4. 2009 RRB Active Service Mortality Table[a]

Age[b]	$1,000q_{x-1/2}$	Age[b]	$1,000q_{x-1/2}$
		45	1.51
		46	1.59
17	.87	47	1.69
18	.87	48	1.78
19	.87	49	1.89
20	.87	50	2.01
21	.87	51	2.14
22	.87	52	2.29
23	.87	53	2.45
24	.87	54	2.62
25	.87	55	2.81
26	.87	56	3.02
27	.87	57	3.25
28	.87	58	3.50
29	.87	59	3.77
30	.87	60	4.07
31	.89	61	4.41
32	.91	62	4.77
33	.94	63	5.17
34	.97	64	5.60
35	1.00	65	6.08
36	1.03	66	6.61
37	1.07	67	7.18
38	1.11	68	7.82
39	1.15	69	8.51
40	1.20	70	9.27
41	1.25	71	10.10
42	1.31	72	11.02
43	1.37	73	12.02
44	1.44	74	13.12
		75	14.33

[a] Deaths in active service are those of employees who last worked in the railroad industry in the year in which death occurred or in the preceding calendar year. The exposures correspond to this definition.

[b] Age attained in calendar year of exposure.

Table S-5. 2010 Base Year[a] RRB Spouse Total Termination[b] Table

Age[c]	$1{,}000 q_x^t$		Age[c]	$1{,}000 q_x^t$
60	18.62		95	347.01
61	20.42		96	362.93
62	22.38		97	378.46
63	24.53		98	393.61
64	26.89		99	408.39
65	29.47		100	422.81
66	32.29		101	436.88
67	35.38		102	450.60
68	38.76		103	463.99
69	42.45		104	477.06
70	46.48		105	489.81
71	50.89		106	502.24
72	55.71		107	514.38
73	60.96		108	526.21
74	66.70		109	537.76
75	72.95		110	1,000.00
76	79.76			
77	87.18			
78	95.25			
79	104.02			
80	113.55			
81	123.89			
82	135.10			
83	147.24			
84	160.36			
85	174.53			
86	189.80			
87	206.24			
88	223.89			
89	242.80			
90	261.26			
91	279.27			
92	296.84			
93	313.98			
94	330.70			

[a] For use with 2013 RRB Mortality Improvement Scale.

[b] Mainly death of employee or death of spouse.

[c] Age nearest birthday.

Table S-6. Probability of a retired employee having a spouse eligible for railroad retirement benefits

Age[a] of employee	Employees with 30 or more years of service	Employees with less than 30 years of service
59 and under	0.000	0.000
60	0.223	0.000
61	0.362	0.000
62	0.456	0.083
63	0.540	0.202
64	0.609	0.275
65	0.661	0.339
66	0.693	0.395
67	0.719	0.444
68	0.740	0.485
69	0.756	0.520
70	0.770	0.549
71	0.779	0.572
72	0.785	0.590
73	0.787	0.604
74	0.787	0.613
75	0.783	0.617
76	0.776	0.618
77	0.767	0.615
78	0.755	0.608
79	0.740	0.598
80	0.723	0.586
81	0.704	0.570
82	0.684	0.552
83	0.661	0.531
84	0.636	0.509
85	0.611	0.485
86	0.583	0.459
87	0.555	0.432
88	0.526	0.404
89	0.495	0.375
90	0.464	0.346
91	0.433	0.316
92	0.400	0.287
93	0.368	0.257
94	0.336	0.228
95	0.303	0.200
96	0.271	0.173
97	0.240	0.147
98	0.208	0.122
99 & over	0.178	0.099

[a] Age nearest birthday.

Table S-7. 2013 RRB Mortality Table for Widows

Age[a]	$1{,}000q_x$	Age[a]	$1{,}000q_x$	Age[a]	$1{,}000q_x$
20	0.39	55	4.79	90	128.04
21	0.41	56	5.25	91	141.79
22	0.42	57	5.76	92	157.64
23	0.43	58	6.32	93	175.10
24	0.45	59	6.92	94	193.69
25	0.47	60	7.59	95	212.98
26	0.48	61	8.32	96	232.53
27	0.50	62	9.12	97	251.99
28	0.52	63	9.99	98	271.00
29	0.54	64	10.95	99	289.28
30	0.56	65	12.00	100	306.54
31	0.58	66	13.16	101	322.55
32	0.61	67	14.42	102	337.10
33	0.65	68	15.80	103	349.99
34	0.70	69	17.31	104	361.04
35	0.76	70	18.96	105	370.06
36	0.83	71	20.77	106	376.89
37	0.91	72	22.76	107	382.53
38	1.00	73	24.92	108	388.11
39	1.10	74	27.30	109	393.63
40	1.20	75	29.89	110	1,000.00
41	1.32	76	32.78		
42	1.45	77	35.98		
43	1.59	78	39.55		
44	1.74	79	43.51		
45	1.91	80	47.90		
46	2.09	81	52.78		
47	2.30	82	58.19		
48	2.52	83	64.18		
49	2.76	84	70.82		
50	3.03	85	78.17		
51	3.32	86	86.29		
52	3.64	87	95.26		
53	3.99	88	105.15		
54	4.37	89	116.05		

[a] Age nearest birthday.

Table S-8. 1997 RRB Remarriage Table
(Probabilities of remarriage)

Age[a] at widowhood [x]	$1,000q^m_{[x]+n}$ for n equal to					Age[a] x	$1,000q^m_x$
	0	1	2	3	4		
20	24.76	56.57	66.98	72.11	61.24	25	45.66
21	23.57	53.82	63.69	68.54	58.18	26	43.35
22	22.42	51.18	60.54	65.12	55.24	27	41.14
23	21.32	48.64	57.51	61.83	52.42	28	39.02
24	20.27	46.21	54.61	58.67	49.71	29	36.98
25	19.25	43.88	51.82	55.64	47.12	30	35.02
26	18.28	41.64	49.14	52.73	44.62	31	33.14
27	17.35	39.49	46.58	49.94	42.23	32	31.34
28	16.45	37.42	44.11	47.27	39.93	33	29.61
29	15.59	35.44	41.74	44.69	37.73	34	27.95
30	14.77	33.54	39.47	42.23	35.61	35	26.36
31	13.97	31.72	37.29	39.86	33.58	36	24.83
32	13.21	29.97	35.20	37.59	31.63	37	23.36
33	12.48	28.29	33.20	35.40	29.76	38	21.95
34	11.78	26.67	31.27	33.31	27.97	39	20.60
35	11.11	25.13	29.42	31.30	26.24	40	19.30
36	10.47	23.64	27.64	29.37	24.59	41	18.05
37	9.85	22.21	25.94	27.52	23.00	42	16.86
38	9.25	20.84	24.31	25.74	21.48	43	15.71
39	8.68	19.53	22.74	24.04	20.02	44	14.61
40	8.14	18.27	21.23	22.40	18.61	45	13.55
41	7.61	17.06	19.79	20.83	17.26	46	12.53
42	7.11	15.90	18.40	19.32	15.97	47	11.56
43	6.62	14.78	17.07	17.88	14.73	48	10.63
44	6.16	13.71	15.79	16.49	13.54	49	9.73
45	5.71	12.69	14.56	15.15	12.40	50	8.87
46	5.29	11.70	13.38	13.87	11.30	51	8.04
47	4.87	10.75	12.25	12.65	10.25	52	7.25
48	4.48	9.85	11.17	11.47	9.24	53	6.49
49	4.10	8.98	10.13	10.34	8.27	54	5.76
50	3.74	8.14	9.13	9.25	7.33	55	5.06
51	3.39	7.34	8.17	8.21	6.44	56	4.38
52	3.06	6.57	7.25	7.21	5.58	57	3.74
53	2.74	5.83	6.37	6.25	4.76	58	3.12
54	2.43	5.12	5.52	5.33	3.97	59	2.52
55	2.13	4.44	4.71	4.44	3.21	60	8.29
56	1.85	3.78	3.93	3.60	14.84	61	4.17
57	1.58	3.15	3.18	15.76	8.28	62	5.24
58	1.31	2.55	14.26	8.24	9.93	63	4.67
59	1.06	13.76	8.54	10.16	8.98	64	4.16
60	7.27	8.49	9.95	9.11	8.13	65	3.71
61	3.77	9.78	9.10	8.16	7.35	66	3.31
62	4.67	8.98	8.32	7.32	6.65	67	2.95
63	4.18	8.24	7.60	6.56	6.01	68	2.63
64	3.74	7.56	6.95	5.88	5.44	69	2.34
65	3.35	6.94	6.35	5.27	4.92	70	2.08
66	3.00	6.38	5.81	4.72	4.45	71	1.85
67	2.68	5.86	5.31	4.23	4.03	72	1.64
68	2.40	5.38	4.85	3.79	3.60	73	1.45
69	2.15	4.94	4.43	3.36	3.17	74	1.27
70	1.92	4.54	4.02	2.95	2.77	75	1.10
71	1.72	4.13	3.60	2.56	2.38	76	0.94
72	1.54	3.73	3.21	2.20	2.03	77	0.81
73	1.39	3.34	2.83	1.86	1.70	78	0.69
74	1.26	2.96	2.47	1.57	1.42	79	0.58
75	1.14	2.61	2.14	1.30	1.16	80	0.49
76	1.04	2.28	1.84	1.08	0.95	81	0.40
77	0.95	1.97	1.57	0.88	0.76	82	0.33
78	0.87	1.70	1.33	0.71	0.60	83	0.27
79	0.79	1.45	1.11	0.57	0.47	84	0.22
80	0.73	1.22	0.92	0.45	0.37	85	0.18
81	0.68	1.03	0.76	0.35	0.28	86	0.15
82	0.63	0.85	0.62	0.27	0.22	87	0.12
83	0.59	0.71	0.50	0.21	0.16	88	0.09
84	0.48	0.38	0.32	0.16	0.12	89	0.06

[a] Age nearest birthday.

Table S-9. 2004 RRB Total Termination Table for Disabled Children

Age[a]	$1,000q_x^t$	Age[a]	$1,000q_x^t$	Age[a]	$1,000q_x^t$
		50	16.97	85	142.28
		51	17.85	86	152.12
		52	18.79	87	162.66
18	21.92	53	19.79	88	173.96
19	21.83	54	20.87	89	186.07
20	21.54	55	22.03	90	199.04
21	21.06	56	23.27	91	212.94
22	20.39	57	24.59	92	227.83
23	19.53	58	26.01	93	243.79
24	18.50	59	27.54	94	260.90
25	17.30	60	29.17	95	279.22
26	15.95	61	30.92	96	298.86
27	14.45	62	32.79	97	319.90
28	13.19	63	34.80	98	342.44
29	12.14	64	36.96	99	366.60
30	11.30	65	39.26	100	379.29
31	10.65	66	41.73	101	384.08
32	10.17	67	44.38	102	386.52
33	9.85	68	47.22	103	387.90
34	9.68	69	50.26	104	389.28
35	9.63	70	53.52	105	390.66
36	9.70	71	57.01	106	392.03
37	9.88	72	60.75	107	393.39
38	10.14	73	64.76	108	394.76
39	10.47	74	69.05	109	396.12
40	10.86	75	73.65	110	1,000.00
41	11.30	76	78.58		
42	11.77	77	83.87		
43	12.27	78	89.53		
44	12.81	79	95.60		
45	13.39	80	102.10		
46	14.01	81	109.06		
47	14.68	82	116.53		
48	15.39	83	124.53		
49	16.15	84	133.10		

[a] Age nearest birthday.

Table S-10. 2013 RRB Mortality Improvement Scale

Age[a]	Annual rate of mortality improvement
85 & under	1.00%
86	0.95%
87	0.90%
88	0.86%
89	0.81%
90	0.77%
91	0.74%
92	0.70%
93	0.66%
94	0.63%
95	0.60%
96	0.57%
97	0.54%
98	0.51%
99	0.49%
100	0.46%
101	0.44%
102	0.42%
103	0.40%
104	0.38%
105	0.36%
106	0.34%
107	0.32%
108	0.31%
109	0.29%
110	0.00%

[a] Age nearest birthday.

Table S-11. Calendar year rates[a] of immediate[b] age retirement
(Retirements per 1,000 exposed)

Age[c]	Years of service	
	5-29	30 & over
60		600
61		460
62	100	350
63	90	350
64	80	310
65	150	370
66	320	330
67	260	320
68	200	300
69	200	300
70	200	300
71	200	250
72	200	200
73	200	200
74	200	200
75 & over	200	200

[a] Technically probabilities.

[b] Immediate retirements are defined as those for which the calendar year of retirement is the same as, or the year following, the calendar year of last employment in the railroad industry.

[c] The age interval is from x-.5 to x+.5, except as indicated below:

		Interval for	
Age	Years of service	Exposure	Retirements
60	30 or more	59.5-60.5	60-60.5
62	5-29	61.5-62.5	62-62.5

Table S-12. Rates[a] of immediate[b] disability retirement and of eligibility for disability freeze[c]

| Age[d] | Calendar year rates per 1,000 exposed | | | | Percent of retirements eligible for disability freeze | |
	10-19 years of service	20-24 years of service	25-29 years of service	30 or more years of service	10-19 years of service	20 or more years of service
Under 35	1.4	4.1	3.5	3.5	97.8%	44.8%
35	1.5	4.4	3.8	3.8	97.8	44.8
36	1.5	4.7	4.1	4.1	97.8	44.8
37	1.6	5.0	4.3	4.3	97.8	44.8
38	1.6	5.3	4.6	4.6	97.8	44.8
39	1.7	5.6	4.9	4.9	97.8	44.8
40	1.8	6.0	5.2	5.2	97.8	44.8
41	2.0	6.3	5.3	5.3	97.8	44.8
42	2.1	6.6	5.6	5.6	97.8	44.8
43	2.3	7.0	6.1	6.1	97.8	44.8
44	2.5	7.7	6.9	6.9	97.8	44.8
45	2.8	8.8	7.9	7.9	97.8	44.8
46	3.1	10.2	9.1	9.1	97.8	44.9
47	3.5	12.0	10.5	10.5	97.8	45.0
48	3.9	14.2	12.0	12.0	97.8	45.3
49	4.5	16.4	13.6	13.6	97.8	45.8
50	5.1	18.7	15.2	15.2	97.8	46.8
51	5.9	21.1	16.8	16.8	97.8	49.0
52	6.8	23.5	18.3	18.3	97.8	53.6
53	7.9	25.9	19.8	19.8	97.8	62.9
54	9.2	28.5	21.3	21.3	97.8	81.9
55	10.8	31.1	22.9	22.9	97.8	93.9
56	12.7	33.7	24.6	24.6	97.8	93.9
57	15.0	36.5	26.3	26.3	97.8	93.9
58	17.8	39.3	28.0	28.0	97.8	93.9
59	21.1	42.2	29.8	29.8	97.8	93.9
60	30.2	45.1	31.7	16.3	93.6	93.9
61	36.6	48.1	33.6	12.1	93.6	93.9
62	39.1	56.1	45.2	8.6	93.6	93.9
63	39.1	55.6	44.8	6.0	93.6	93.9
64	33.8	53.0	42.2	4.2	93.6	93.9
65	22.8	39.6	28.8	3.1	93.6	93.9
66	4.4	2.9	2.9	2.9	93.6	93.9

[a] Technically probabilities.

[b] Immediate retirements are defined as those for which the calendar year of retirement is the same as, or the year following, the calendar year of last employment in the railroad industry.

[c] Qualified under the social security definition of disability.

[d] Age attained in calendar year of exposure.

Table S-13. Calendar year rates[a] of final withdrawal

Years of service[b]	Attained age[c]				
	Under 25	25-34	35-44	45-54	55 & over
0	0.186	0.144	0.177	0.210	0.245
1	0.143	0.105	0.112	0.116	0.135
2	0.088	0.069	0.068	0.068	0.077
3	0.063	0.052	0.046	0.045	0.057
4	0.050	0.045	0.037	0.037	0.050
5	0.043	0.040	0.033	0.034	0.045
6	0.039	0.036	0.031	0.031	0.040
7	0.036	0.032	0.028	0.028	0.036
8	0.033	0.028	0.026	0.025	0.032
9	0.030	0.025	0.024	0.023	0.029
10	0.028	0.022	0.022	0.021	0.025
11	0.025	0.020	0.020	0.019	0.023
12	0.023	0.019	0.019	0.017	0.020
13	0.020	0.017	0.017	0.015	0.018
14	0.018	0.016	0.016	0.014	0.016
15	0.016	0.015	0.015	0.013	0.014
16	0.014	0.013	0.013	0.011	0.012
17	0.013	0.012	0.012	0.010	0.011
18	0.011	0.011	0.011	0.009	0.009
19	0.011	0.011	0.011	0.008	0.008
20	0.010	0.010	0.010	0.007	0.007
21	0.009	0.009	0.009	0.007	0.006
22	0.008	0.008	0.008	0.006	0.005
23	0.007	0.007	0.007	0.005	0.004
24	0.006	0.006	0.006	0.005	0.004
25	0.006	0.006	0.006	0.004	0.003
26	0.005	0.005	0.005	0.004	0.003
27	0.004	0.004	0.004	0.003	0.002
28	0.004	0.004	0.004	0.003	0.002
29	0.003	0.003	0.003	0.002	0.001
30 & over	0.005	0.005	0.005	0.005	0.009

[a] Technically probabilities.

[b] Rounded up to nearest whole year.

[c] Age attained in calendar year of exposure.

Table S-14. Service months and salary scales

Years of service[a]	Service months	Increase in average monthly salary from prior service level	
		Tier 1	Tier 2
0	6.4		
1	11.3	21.9%	21.2%
2	11.4	8.2%	6.9%
3	11.5	5.6%	4.6%
4	11.6	4.4%	3.6%
5	11.6	3.5%	2.8%
6	11.7	2.7%	2.2%
7	11.7	2.1%	1.6%
8	11.7	1.6%	1.2%
9	11.7	1.2%	0.8%
10	11.8	0.9%	0.6%
11	11.8	0.7%	0.4%
12	11.8	0.5%	0.3%
13	11.8	0.5%	0.2%
14	11.8	0.4%	0.2%
15	11.8	0.4%	0.2%
16	11.8	0.4%	0.2%
17	11.8	0.4%	0.2%
18	11.8	0.4%	0.2%
19	11.8	0.4%	0.2%
20	11.8	0.4%	0.2%
21	11.8	0.4%	0.2%
22	11.8	0.4%	0.2%
23	11.8	0.4%	0.2%
24	11.8	0.4%	0.2%
25	11.8	0.4%	0.2%
26	11.8	0.4%	0.2%
27	11.8	0.4%	0.2%
28	11.9	0.4%	0.2%
29	11.9	0.4%	0.2%
30	11.9	0.4%	0.2%
31	11.9	0.4%	0.2%
32	11.9	0.4%	0.2%
33	11.9	0.4%	0.2%
34	11.9	0.4%	0.2%
35	11.9	0.4%	0.2%
36	11.9	0.4%	0.2%
37	11.9	0.4%	0.2%
38	11.9	0.4%	0.2%
39	11.9	0.4%	0.2%
40	11.9	0.4%	0.2%
41	11.9	0.4%	0.2%
42	11.9	0.4%	0.2%
43	11.9	0.4%	0.2%
44	11.9	0.4%	0.2%
45 & over	11.9	0.4%	0.2%

[a] Rounded up to nearest whole year.

Table S-15. Family characteristics of railroad employees assumed for the valuation of survivor benefits

	Percent married							Percent with eligible child	
					Widow under 60 with eligible child				
Age of employee[a]	Total	Widow age 62 & over	Widow age 60-61	Widow under age 60	Youngest child under 16	Youngest child age 16-17	Youngest child disabled	Minor child	Disabled child
Under 35	69.0	-	-	69.0	59.3	-	-	81.8	-
35 - 39	69.0	-	-	69.0	61.5	2.0	-	88.4	1.8
40 - 44	69.0	-	-	69.0	58.6	5.6	-	83.8	1.8
45 - 49	69.0	-	-	69.0	32.7	8.8	0.6	55.0	1.8
50 - 54	69.0	1.6	1.0	66.4	14.3	5.3	1.4	26.3	1.8
55 - 59	69.0	3.9	3.3	61.8	5.1	2.1	1.1	10.8	1.8
60 - 64	69.0	19.0	14.9	35.1	1.8	0.7	0.7	4.2	1.8
65 - 69	69.0	51.2	7.3	10.5	0.6	0.4	0.2	2.0	1.6
70 - 74	69.0	63.0	2.2	3.8	0.3	0.1	0.1	0.7	1.4
75 - 79	67.8	65.4	0.8	1.6	0.1	-	-	0.3	1.0
80 - 84	61.4	60.2	0.4	0.8	-	-	-	0.1	0.8
85 - 89	51.6	51.1	0.1	0.4	-	-	-	-	0.7
90 & over	35.3	35.0	0.1	0.2	-	-	-	-	0.6

	Average ages of widows						Average ages of children			Average
				Widow under 60 with eligible child						
Age of employee[a]	Widow age 62 & over	Widow age 60-61	Widow under age 60	Youngest child under 16	Youngest child age 16-17	Youngest child disabled	Youngest child under 16[b]	All minor children	All disabled children	number of minor children[c]
Under 35	-	-	31	31	-	-	5	6	-	2.1
35 - 39	-	-	36	36	38	-	7	8	20	2.1
40 - 44	-	-	41	41	42	-	9	10	20	1.9
45 - 49	-	-	46	44	47	48	11	12	22	1.6
50 - 54	64	61	50	47	49	52	11	12	24	1.5
55 - 59	65	61	54	49	51	55	11	12	27	1.4
60 - 64	66	61	56	50	52	56	11	12	31	1.3
65 - 69	67	61	56	50	53	56	11	12	35	1.3
70 - 74	70	61	55	47	53	57	11	12	39	1.3
75 - 79	74	61	55	47	-	-	11	12	43	1.3
80 - 84	79	61	55	-	-	-	-	12	47	1.3
85 - 89	83	61	55	-	-	-	-	-	51	-
90 & over	87	61	55	-	-	-	-	-	55	-

[a] Age nearest birthday at time of death.

[b] Includes families with widows under 60 and children under 16 only.

[c] Includes families with minor children only.

MORTALITY, REMARRIAGE, AND RELATED EXPERIENCE

1. <u>Mortality of age annuitants</u>. The mortality studies conducted for age annuitants are summarized in Tables S-16 through S-18. The tables show actual-to-expected ratios by age, sex, year and duration on the basis of the 25^h and 26th valuation standards.

2. <u>Mortality after disability retirement</u>. The mortality studies conducted for disability annuitants are summarized in Tables S-19 through S-21. The tables show select, ultimate and aggregate crude death rates, actual-to-expected ratios, and disability freeze percentages.

3. <u>Mortality in active service</u>. The mortality experience of active railroad employees is shown in Table S-22. The table provides crude rates and actual-to-expected ratios.

4. <u>Total termination, mortality and probability of spouse</u>. Tables S-23 and S-24 show, respectively, the total termination and mortality experience of spouse annuitants between anniversaries of retirement in 2009 and 2012. Spouse mortality is not used directly in any part of the valuation. Table S-25 shows, as of December 31, 2012, the number of retired employees and the number of eligible spouses of employees, by age of employee. The probabilities shown in Table S-6 are based on the results shown in Table S-25.

5. <u>Mortality and remarriage of widows</u>. Table S-26 shows ratios of actual deaths of widow annuitants to those expected on the basis of the 25th and 26th valuation standards. Table S-27 shows ratios of actual remarriages to those expected on the basis of the 1997 RRB Remarriage Table.

6. <u>Termination of disabled children</u>. Table S-28 shows ratios of actual terminations of disabled children annuitants to those expected on the basis of the 2004 RRB Total Termination Table for Disabled Children.

7. <u>Mortality improvement.</u>   Table S-29 shows average annual improvement in annuitant mortality and spouse total termination from 1957 through 2011.

Table S-16. Mortality experience of railroad age annuitants[a] between anniversaries of retirement in 2009 and 2012, by sex and type of retirement

					Age[b]				
	All ages	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95 & over
A. Both sexes combined									
Exposed	586,909	101,103	110,955	84,738	85,329	97,361	71,719	28,674	7,030
Actual deaths	31,781	790	1,526	2,056	3,608	7,025	8,926	5,750	2,100
Age specific death rates (per thousand)	54.1	7.8	13.8	24.3	42.3	72.2	124.5	200.5	298.7
Ratio of actual to expected deaths									
1994 GAM males[c]	99.5%	73.4%	76.5%	84.6%	91.9%	95.1%	109.0%	113.8%	112.1%
2010 RRB[d]	100.7%	99.3%	100.0%	98.2%	97.4%	97.0%	103.4%	104.8%	100.4%
2010 Base Year RRB[e]	100.0%	99.3%	102.2%	101.4%	99.9%	97.5%	101.2%	101.0%	98.0%
B. Male									
Exposed	525,000	92,503	100,365	76,477	77,224	87,449	60,844	24,508	5,630
Actual deaths	28,718	750	1,429	1,909	3,395	6,504	7,947	5,067	1,717
Age specific death rates (per thousand)	54.7	8.1	14.2	25.0	44.0	74.4	130.6	206.7	305.0
Ratio of actual to expected deaths									
1994 GAM males[c]	102.9%	76.3%	79.2%	87.1%	95.5%	98.2%	114.4%	117.4%	115.1%
2010 RRB[d]	104.4%	103.3%	103.6%	101.1%	101.2%	100.2%	108.5%	108.2%	103.0%
2010 Base Year RRB[e]	103.7%	103.2%	105.9%	104.3%	103.9%	100.8%	106.2%	104.2%	100.5%
C. Female									
Exposed	61,909	8,600	10,590	8,261	8,105	9,912	10,875	4,166	1,400
Actual deaths	3,063	40	97	147	213	521	979	683	383
Age specific death rates (per thousand)	49.5	4.7	9.2	17.8	26.3	52.6	90.0	163.9	273.6
Ratio of actual to expected deaths									
1995 RRB Widows[f], 1-year rateback	97.1%	47.6%	62.2%	76.6%	72.1%	89.5%	102.4%	120.2%	120.0%
2010 RRB[d]	75.5%	58.0%	66.4%	71.9%	60.9%	69.0%	74.9%	85.5%	90.2%
2010 Base Year RRB[e]	74.7%	58.0%	67.9%	74.3%	62.5%	69.3%	73.3%	82.3%	88.3%
D. Immediate[g]									
Exposed	378,760	76,992	70,667	51,988	49,281	57,999	46,624	20,269	4,940
Actual deaths	20,626	561	958	1,226	2,111	4,257	5,912	4,124	1,477
Age specific death rates (per thousand)	54.5	7.3	13.6	23.6	42.8	73.4	126.8	203.5	299.0
Ratio of actual to expected deaths									
2010 RRB[d]	101.6%	94.3%	98.8%	95.6%	98.9%	98.3%	104.9%	106.3%	100.9%
2010 Base Year RRB[e]	100.8%	94.2%	101.0%	98.7%	101.5%	98.8%	102.6%	102.4%	98.5%
E. Deferred[g]									
Exposed	208,149	24,111	40,288	32,750	36,048	39,362	25,095	8,405	2,090
Actual deaths	11,155	229	568	830	1,497	2,768	3,014	1,626	623
Age specific death rates (per thousand)	53.6	9.5	14.1	25.3	41.5	70.3	120.1	193.5	298.1
Ratio of actual to expected deaths									
2010 RRB[d]	98.9%	114.1%	102.1%	102.3%	95.3%	95.0%	100.6%	101.4%	99.3%
2010 Base Year RRB[e]	98.5%	114.4%	104.4%	105.6%	97.8%	95.6%	98.5%	97.7%	97.0%

[a] Nondisability retirement.

[b] Age nearest birthday at the beginning of the year of exposure.

[c] 1994 Group Annuity Mortality Static Table.

[d] 2010 RRB Annuitants Mortality Table.

[e] 2010 Base Year RRB Annuitants Mortality Table.

[f] 1995 RRB Mortality Table for Widows.

[g] Immediate retirements are those which occur in the same calendar year as, or the calendar year following, the year of last employment
in the railroad industry; all others are deferred retirements.

Table S-17. Mortality experience of railroad age annuitants[a] between anniversaries of retirement in 2009 and 2012, by year

				Age[b]					
	All ages	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95 & over
1. 2009-2012 experience									
Exposed	586,909	101,103	110,955	84,738	85,329	97,361	71,719	28,674	7,030
Actual deaths	31,781	790	1,526	2,056	3,608	7,025	8,926	5,750	2,100
Crude rate per 1,000	54.1	7.8	13.8	24.3	42.3	72.2	124.5	200.5	298.7
Ratio Act./Exp.[c]	100.7%	99.3%	100.0%	98.2%	97.4%	97.0%	103.4%	104.8%	100.4%
Ratio Act./Exp.[d]	100.0%	99.3%	102.2%	101.4%	99.9%	97.5%	101.2%	101.0%	98.0%
2. Crude rate per 1,000 for individual years[e]									
2009 - 2010	55.1	8.4	13.8	23.6	43.3	73.8	124.5	198.3	297.1
2010 - 2011	54.2	7.5	14.5	25.3	42.4	69.5	126.3	197.9	308.2
2011 - 2012	53.2	7.5	13.0	23.9	41.0	73.1	122.6	205.2	291.1
3. Ratio Act./Exp.[c] for individual years[e]									
2009 - 2010	101.4%	108.5%	101.3%	95.4%	99.3%	99.6%	103.8%	103.7%	99.8%
2010 - 2011	100.7%	95.8%	105.4%	102.2%	97.7%	93.4%	104.8%	103.5%	103.5%
2011 - 2012	99.9%	94.6%	93.8%	97.2%	94.8%	97.9%	101.5%	107.3%	98.0%
4. Ratio Act./Exp.[d] for individual years[e]									
2009 - 2010	100.8%	108.4%	103.5%	98.5%	101.9%	100.2%	101.6%	99.9%	97.5%
2010 - 2011	100.0%	95.7%	107.7%	105.5%	100.3%	93.9%	102.6%	99.7%	101.0%
2011 - 2012	99.2%	94.5%	95.9%	100.3%	97.3%	98.4%	99.4%	103.3%	95.7%

[a] Nondisability retirement.

[b] Age nearest birthday at the beginning of the year of exposure.

[c] Expected based on 2010 RRB Annuitants Mortality Table.

[d] Expected based on 2010 Base Year RRB Annuitants Mortality Table.

[e] Exposure is between anniversaries of retirement in indicated years.

Table S-18. Mortality ratios for railroad age annuitants on a select and ultimate
basis between anniversaries of retirement in 2009 and 2012

Duration	Exposure	Actual deaths	Crude rate per 1,000	Ratio Act./Exp.[a]	Ratio Act./Exp.[b]
0	31,413	236	7.5	96.2%	96.0%
1	30,506	271	8.9	101.6	102.0
2	29,295	256	8.7	89.7	90.4
3	26,931	283	10.5	96.2	97.5
4	24,850	312	12.6	102.3	104.0
5	22,788	316	13.9	100.4	102.5
6	22,081	348	15.8	101.8	104.3
7	25,400	435	17.1	100.3	102.9
8	23,014	431	18.7	95.2	97.9
9	21,360	485	22.7	99.3	102.3
10 & over	329,271	28,408	86.3	100.9	99.9
All durations	586,909	31,781	54.1	100.7%	100.0%

[a] Expected based on 2010 RRB Annuitants Mortality Table.

[b] Expected based on 2010 Base Year RRB Annuitants Mortality Table.

Table S-19. Age specific death rates of railroad disability annuitants between anniversaries
of retirement in 2009 and 2012, by age and duration

Select section

				Age at retirement[a]			
	All ages	Under 40	40-44	45-49	50-54	55-59	60 & over
Exposed							
Duration 0	9,237	158	263	480	1,967	4,365	2,005
1	9,551	183	244	531	2,255	4,380	1,959
2	9,567	191	227	567	2,503	4,263	1,817
3	9,844	174	217	689	2,818	4,282	1,665
4	10,349	152	228	923	3,182	4,327	1,538
Actual deaths							
Duration 0	295	b	b	18	40	157	70
1	247	b	b	15	40	106	79
2	199	b	b	b	40	95	50
3	180	b	b	12	36	84	41
4	208	b	b	16	49	91	44
Crude rate per 1,000							
Duration 0	31.9	b	b	37.5	20.3	36.0	34.9
1	25.9	b	b	28.3	17.7	24.2	40.3
2	20.8	b	b	b	16.0	22.3	27.5
3	18.3	b	b	17.4	12.8	19.6	24.6
4	20.1	b	b	17.3	15.4	21.0	28.6

Ultimate section, durations 5 and over

Age[c]	Exposed	Actual deaths	Crude rate per 1,000
Under 50	1,825	15	8.2
50-54	9,221	125	13.6
55-59	31,384	516	16.4
60-64	51,270	1,078	21.0
65-69	43,881	1,333	30.4
70-74	28,222	1,280	45.4
75-79	20,604	1,372	66.6
80-84	16,411	1,760	107.2
85 & over	10,478	1,908	182.1
All ages	213,295	9,387	44.0

[a] Age nearest birthday. Those retiring prior to attainment of normal retirement age are included
in 60 & over group.

[b] Fewer than 10 actual deaths.

[c] Age nearest birthday at the beginning of the year of exposure.

Table S-20. Mortality experience of railroad disability annuitants between anniversaries of retirement in 2009 and 2012, by disability freeze status

Attained age[a]	All disability annuitants			Annuitants with disability freeze					Annuitants without disability freeze				
	Exposed	Actual deaths	Crude rate per 1,000	Exposed	Actual deaths	Crude rate per 1,000	Ratio Act./Exp[b]	Ratio Act./Exp[c]	Exposed	Actual deaths	Crude rate per 1,000	Ratio Act./Exp[d]	Ratio Act./Exp[e]
Under 40	721	13	18.0	698	12	17.2	107.3%	99.8%	23	f	f	f	f
40-44	1,367	19	13.9	1,268	18	14.2	83.6	77.7	99	f	f	f	f
45-49	3,153	60	19.0	2,578	58	22.5	125.0	117.2	575	f	f	f	f
50-54	17,530	268	15.3	11,091	218	19.7	102.2	97.6	6,440	50	7.8	108.1	93.7
55-59	50,309	941	18.7	34,866	764	21.9	102.8	100.5	15,443	177	11.5	115.5	105.1
60-64	67,093	1,502	22.4	48,424	1,236	25.5	100.5	101.0	18,669	266	14.2	96.9	95.1
65-69	45,950	1,393	30.3	32,649	1,085	33.2	98.4	100.7	13,301	308	23.2	101.3	102.5
70-74	28,226	1,280	45.3	19,368	963	49.7	99.5	101.4	8,858	317	35.8	96.9	97.6
75-79	20,604	1,372	66.6	12,576	885	70.4	93.0	93.8	8,028	487	60.7	101.6	100.9
80-84	16,413	1,760	107.2	8,771	1,007	114.8	101.6	101.6	7,642	753	98.5	103.7	101.9
85-89	7,662	1,219	159.1	4,152	698	168.1	101.9	101.1	3,510	521	148.4	103.0	100.0
90-94	2,351	545	231.8	1,477	357	241.7	102.2	101.2	874	188	215.1	98.5	95.5
95 & over	465	144	309.7	308	95	308.4	93.8	94.7	157	49	312.1	95.1	95.4
All ages	261,842	10,516	40.2	178,226	7,396	41.5	99.8%	100.0%	83,616	3,120	37.3	101.9%	99.9%

[a] Age nearest birthday at the beginning of the year of exposure.

[b] Expected based on 2010 RRB Disabled Mortality Table for Annuitants with Disability Freeze.

[c] Expected based on 2010 Base Year RRB Disabled Mortality Table for Annuitants with Disability Freeze.

[d] Expected based on 2010 RRB Disabled Mortality Table for Annuitants without Disability Freeze.

[e] Expected based on 2010 Base Year RRB Disabled Mortality Table for Annuitants without Disability Freeze.

[f] Fewer than 10 actual deaths.

Table S-21. Percentages of railroad disability annuitants included in the 26th valuation mortality studies who would have qualified for a benefit under the social security disability standards

Duration and type of freeze decision	2009-2010 Exposures	2009-2010 Actual deaths	2010-2011 Exposures	2010-2011 Actual deaths	2011-2012 Exposures	2011-2012 Actual deaths
Duration 0						
Freeze allowed	84.8%	91.8%	85.5%	95.4%	85.3%	94.4%
Freeze disallowed	15.2	8.2	14.4	4.6	14.2	5.6
No freeze decision	0.0	0.0	0.0	0.0	0.4	0.0
Duration 1						
Freeze allowed	84.0	82.7	84.6	87.4	85.2	96.2
Freeze disallowed	15.9	17.3	15.3	12.6	14.8	3.8
No freeze decision	0.0	0.0	0.0	0.0	0.0	0.0
Duration 2						
Freeze allowed	82.6	87.5	84.2	90.4	84.7	90.3
Freeze disallowed	17.4	12.5	15.8	9.6	15.3	9.7
No freeze decision	0.0	0.0	0.0	0.0	0.0	0.0
Duration 3						
Freeze allowed	79.8	94.7	82.6	89.1	84.1	88.2
Freeze disallowed	20.2	5.3	17.4	10.9	15.9	11.8
No freeze decision	0.0	0.0	0.0	0.0	0.0	0.0
Duration 4						
Freeze allowed	78.2	85.4	79.6	93.4	82.5	90.8
Freeze disallowed	21.8	14.6	20.4	6.6	17.5	9.2
No freeze decision	0.0	0.0	0.0	0.0	0.0	0.0
Duration 5 and over						
Freeze allowed	64.1	67.3	64.7	67.5	65.2	68.9
Freeze disallowed	35.9	32.7	35.3	32.5	34.8	31.1
No freeze decision	0.0	0.0	0.0	0.0	0.0	0.0

Table S-22. Mortality experience of active[a] railroad employees during calendar years 2007-2011

Age[b]	Exposed	Actual deaths	Crude rate per 1,000	Ratio Act./Exp.[c]	Ratio Act./Exp.[d]
Under 35	254,371	230	0.9	84.8%	101.2%
35-39	147,731	156	1.1	88.3	98.3
40-44	144,217	198	1.4	98.4	104.7
45-49	144,943	245	1.7	95.7	99.6
50-54	197,418	447	2.3	93.0	97.5
55-59	223,946	714	3.2	89.3	97.8
60-64	75,703	360	4.8	90.5	105.6
65 & over	12,524	94	7.5	75.6	100.5
All ages	1,200,852	2,444	2.0	90.3%	100.0%

[a] An employee is said to have died in active service if he died before retirement and had last worked in the railroad industry in the calendar year of his death or the calendar year immediately preceding.

[b] Age attained in calendar year of exposure.

[c] Expected deaths based on 2006 RRB Active Service Mortality Table.

[d] Expected deaths based on 2009 RRB Active Service Mortality Table.

Table S-23. Total termination experience of spouse annuitants between anniversaries of retirement in 2009 and 2012[a]

				Age[b]				
	All ages	60-64	65-69	70-74	75-79	80-84	85-89	90 & over
1. 2009-2012 experience								
Exposed[c]	429,415	93,821	102,547	80,537	69,112	52,013	24,949	6,436
Actual terminations	30,180	2,210	3,714	4,464	5,976	6,828	5,104	1,884
Crude rate per 1,000	70.3	23.6	36.2	55.4	86.5	131.3	204.6	292.7
Ratio Act./Exp. I[d]	101.1%	92.4%	98.2%	100.1%	102.3%	102.3%	105.9%	99.8%
Ratio Act./Exp. II[e]	100.0%	101.7%	102.0%	99.4%	98.9%	98.1%	102.2%	100.5%
2. Crude rate per 1,000 for individual years								
2009 - 2010	72.5	26.3	34.9	58.6	89.3	130.6	206.8	281.9
2010 - 2011	71.2	22.5	38.1	55.8	85.2	134.2	209.0	299.4
2011 - 2012	67.2	22.0	35.7	51.9	84.7	129.0	197.7	295.9
3. Ratio Act./Exp. for individual years I[d]								
2009 - 2010	103.0%	103.9%	94.7%	105.5%	105.5%	101.8%	107.2%	96.2%
2010 - 2011	102.2%	88.3%	103.0%	100.8%	100.6%	104.7%	108.2%	102.1%
2011 - 2012	98.0%	86.0%	96.8%	94.0%	100.3%	100.4%	102.1%	100.9%
4. Ratio Act./Exp. for individual years II[e]								
2009 - 2010	101.7%	114.5%	98.4%	104.8%	102.0%	97.6%	103.5%	96.8%
2010 - 2011	101.1%	97.2%	107.0%	100.1%	97.3%	100.4%	104.4%	102.7%
2011 - 2012	97.1%	94.6%	100.5%	93.4%	97.0%	96.3%	98.6%	101.5%

[a] Excludes spouses under age 60 with child in care.

[b] Age nearest birthday at the beginning of the year of exposure.

[c] Exposure is between anniversaries of retirement in indicated years.

[d] Expected based on 2010 RRB Spouse Total Termination Table.

[e] Expected based on 2010 Base Year RRB Spouse Total Termination Table.

Table S-24. Mortality experience of spouse annuitants between anniversaries of retirement in 2009 and 2012[a]

| | Age[b] | | | | | | | |
	All ages	60-64	65-69	70-74	75-79	80-84	85-89	90 & over
1. 2009-2012 experience								
Exposed[c]	419,360	93,004	101,238	78,993	67,083	49,780	23,351	5,912
Actual deaths	10,069	576	1,096	1,376	1,917	2,361	1,907	836
Crude rate per 1,000	24.0	6.2	10.8	17.4	28.6	47.4	81.7	141.4
Ratio Act./Exp.[d]	77.4%	65.1%	73.8%	75.0%	76.7%	78.7%	82.9%	83.4%
2. Crude rate per 1,000 for individual years								
2009 - 2010	25.4	6.7	11.5	19.6	28.1	48.4	86.0	146.9
2010 - 2011	24.0	6.6	10.5	16.8	29.5	47.4	80.3	138.4
2011 - 2012	22.7	5.3	10.6	15.8	28.2	46.4	78.6	139.4
3. Ratio Act./Exp. for individual years[d]								
2009 - 2010	80.8%	71.0%	78.4%	84.1%	75.1%	80.3%	87.6%	87.5%
2010 - 2011	77.0%	69.3%	71.2%	72.4%	79.1%	78.6%	81.3%	81.2%
2011 - 2012	74.3%	55.7%	72.0%	68.4%	75.9%	77.0%	79.8%	81.9%

[a] Excludes spouses under age 60 with child in care.

[b] Age nearest birthday at the beginning of the year of exposure.

[c] Exposure is between anniversaries of retirement in indicated years.

[d] Expected based on 2013 RRB Mortality Table for Widows.

Table S-25. Number of retired employees and number with a spouse eligible for railroad
retirement benefits, by age of employee on December 31, 2012

Age[a] of employee	30 or more years of service			Less than 30 years of service		
	Number of employees	Number of eligible spouses	Ratio of spouses to employees	Number of employees	Number of eligible spouses	Ratio of spouses to employees
60	2,914	650	0.223			
61	5,974	2,159	0.361			
62	7,067	3,231	0.457	3,674	305	0.083
63	7,140	3,823	0.535	4,842	990	0.204
64	7,603	4,664	0.613	5,416	1,474	0.272
65	7,679	5,090	0.663	5,744	1,919	0.334
66	8,269	5,658	0.684	6,731	2,699	0.401
67	5,829	4,188	0.718	4,977	2,243	0.451
68	5,951	4,427	0.744	4,972	2,424	0.488
69	5,511	4,155	0.754	4,828	2,490	0.516
70	5,795	4,545	0.784	4,840	2,629	0.543
71	4,792	3,739	0.780	4,205	2,403	0.571
72	4,359	3,431	0.787	3,920	2,318	0.591
73	3,732	2,948	0.790	3,408	2,072	0.608
74	3,730	2,910	0.780	3,360	2,016	0.600
75	3,697	2,870	0.776	3,368	2,097	0.623
76	3,580	2,734	0.764	3,002	1,815	0.605
77	3,297	2,545	0.772	3,012	1,880	0.624
78	3,471	2,593	0.747	3,060	1,859	0.608
79	3,262	2,427	0.744	2,711	1,588	0.586
80	3,360	2,368	0.705	2,791	1,649	0.591
81	3,255	2,314	0.711	2,581	1,472	0.570
82	3,519	2,388	0.679	2,687	1,513	0.563
83	3,526	2,369	0.672	2,566	1,421	0.554
84	3,782	2,474	0.654	2,511	1,300	0.518
85	3,837	2,368	0.617	2,549	1,270	0.498
86	3,598	2,112	0.587	2,452	1,111	0.453
87	3,190	1,718	0.539	2,110	867	0.411
88	2,767	1,424	0.515	1,825	702	0.385
89	2,404	1,211	0.504	1,593	565	0.355
90	2,109	1,011	0.479	1,344	471	0.350
91	1,583	675	0.426	1,058	325	0.307
92	1,326	513	0.387	851	248	0.291
93	1,038	355	0.342	610	170	0.279
94	774	261	0.337	458	101	0.221
95	562	179	0.319	328	81	0.247
96	403	115	0.285	247	40	0.162
97	253	64	0.253	172	34	0.198
98	174	40	0.230	112	11	0.098
99 & over	271	45	0.166	226	20	0.088

[a] Age nearest birthday.

Table S-26. Mortality experience of widow annuitants between anniversaries of retirement in 2009 and 2012

	All ages	under 50	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95 & over
							Age[a]					
1. 2009-2012 experience												
Exposed	404,375	1,346	631	488	16,669	27,245	39,511	62,047	89,469	89,704	55,039	22,229
Actual deaths	33,726	e	e	e	137	450	1,034	2,391	5,563	9,182	8,963	6,006
Crude rate per 1,000	83.4	e	e	e	8.2	16.5	26.2	38.5	62.2	102.4	162.8	270.2
Ratio Act./Exp.[b]	103.9%	e	e	e	77.8%	100.6%	101.3%	94.7%	98.3%	104.2%	108.1%	108.7%
Ratio Act./Exp.[c]	106.0%	e	e	e	87.1%	111.9%	112.3%	104.1%	105.1%	107.1%	105.9%	105.3%
2. Crude rate per 1,000 for individual years[c]												
2009 - 2010	82.0	e	e	e	7.9	17.5	25.4	38.3	62.3	101.2	161.1	272.1
2010 - 2011	84.2	e	e	e	8.3	16.0	25.0	38.3	62.6	103.9	163.1	275.8
2011 - 2012	84.2	e	e	e	8.4	16.0	28.3	39.0	61.5	102.0	164.2	262.6
3. Ratio Act./Exp.[b] for individual years[d]												
2009 - 2010	103.2%	e	e	e	75.1%	106.7%	98.1%	93.9%	98.7%	103.1%	106.9%	109.4%
2010 - 2011	104.7%	e	e	e	78.9%	97.6%	96.9%	94.3%	99.1%	105.8%	108.4%	111.0%
2011 - 2012	103.8%	e	e	e	79.3%	97.5%	109.6%	96.1%	97.2%	103.9%	109.0%	105.7%
4. Ratio Act./Exp.[c] for individual years[d]												
2009 - 2010	105.4%	e	e	e	84.0%	118.7%	108.7%	103.2%	105.4%	105.9%	104.7%	105.9%
2010 - 2011	106.8%	e	e	e	88.3%	108.6%	107.3%	103.7%	105.9%	108.6%	106.1%	107.6%
2011 - 2012	105.8%	e	e	e	88.7%	108.5%	121.4%	105.6%	103.8%	106.8%	106.7%	102.4%

[a] Age nearest birthday at the beginning of the year of exposure.

[b] Expected based on 1995 RRB Mortality Table for Widows.

[c] Expected based on 2013 RRB Mortality Table for Widows.

[d] Exposure is between anniversaries of retirement in indicated years.

[e] Fewer than 10 actual deaths.

Table S-27. Remarriage experience of widows between 2000 and 2012 anniversaries of widowhood

					Age[a]					
	All ages	Under 35	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 & over
1. Exposed										
Duration[b] 0	77,929	106	168	304	441	739	958	6,303	8,678	60,234
1	78,176	115	163	300	447	826	1,908	6,421	8,951	59,046
2	77,660	112	174	301	467	842	2,620	6,451	9,286	57,407
3	76,839	109	171	298	449	836	3,288	6,499	9,760	55,429
4	75,645	108	170	278	442	833	3,824	6,542	10,158	53,290
5 or more	1,432,470	58	322	998	1,572	3,062	6,001	40,479	76,914	1,303,064
2. Actual remarriages										
Duration[b] 0	80	c	c	c	c	c	c	14	16	41
1	167	c	c	c	c	c	c	30	41	78
2	195	c	c	c	c	c	15	35	40	79
3	179	c	c	c	c	c	24	40	34	59
4	151	c	c	c	c	c	27	35	31	47
5 or more	1,044	c	c	10	13	18	21	178	223	572
3. Crude remarriage rate per 1,000										
Duration[b] 0	1.03	c	c	c	c	c	c	2.22	1.84	0.68
1	2.14	c	c	c	c	c	c	4.67	4.58	1.32
2	2.51	c	c	c	c	c	5.73	5.43	4.31	1.38
3	2.33	c	c	c	c	c	7.30	6.15	3.48	1.06
4	2.00	c	c	c	c	c	7.06	5.35	3.05	0.88
5 or more	0.73	c	c	10.02	8.27	5.88	3.50	4.40	2.90	0.44
4. Ratio Act./Exp.[d]										
Duration[b] 0	68.5%	c	c	c	c	c	c	47.7%	68.8%	77.1%
1	66.9%	c	c	c	c	c	c	54.5%	78.5%	75.6%
2	81.7%	c	c	c	c	c	61.1%	65.4%	81.7%	91.8%
3	88.8%	c	c	c	c	c	71.1%	84.2%	83.0%	110.5%
4	79.2%	c	c	c	c	c	70.9%	80.6%	77.1%	97.6%
5 or more	95.3%	c	c	60.5%	72.0%	83.0%	97.6%	86.1%	99.7%	99.0%

[a] For durations 0-4, age nearest birthday on date of employee's death. For durations 5 and over, age nearest birthday at
 beginning of year of exposure which is on an anniversary of employee's death.

[b] Completed years since employee's death.

[c] Fewer than 10 actual remarriages.

[d] Expected based on 1997 RRB Remarriage Table.

Table S-28. Total termination experience of disabled children annuitants
between anniversaries of retirement in 2009 and 2012

Age[a]	Exposed	Actual terminations	Ratio Act./Exp.[b]
Under 25	448	c	c
25-29	539	c	c
30-34	745	10	130.2%
35-39	1,032	12	116.4
40-44	1,520	21	116.1
45-49	2,751	45	110.3
50-54	3,471	58	88.2
55-59	3,715	114	124.5
60-64	3,405	143	127.8
65-69	2,975	146	110.7
70-74	2,056	140	112.4
75-79	1,433	112	93.7
80-84	998	119	103.2
85-89	457	75	102.7
90 & over	170	40	101.3
All ages	25,715	1,045	108.1%

[a] Age nearest birthday at beginning of the year of exposure.

[b] Expected based on 2004 RRB Total Termination Table for Disabled Children.

[c] Fewer than 10 actual terminations.

Table S-29. Improvement in annuitant mortality and spouse total termination

Age of employee	Average annual improvement in annuitant mortality[a]		
	1957 - 1984	1984 - 2011	1957 - 2011
60 - 64	2.7%	1.9%	2.3%
65 - 69	1.4%	1.9%	1.6%
70 - 74	0.9%	1.8%	1.3%
75 - 79	0.8%	1.5%	1.2%
80 - 84	0.8%	1.1%	0.9%
85 - 89	0.9%	0.5%	0.7%
90 & over	0.5%	0.1%	0.3%

Age of spouse	Average annual improvement in spouse total termination[b]		
	1957 - 1984	1984 - 2011	1957 - 2011
60 - 64	NA	1.8%	NA
65 - 69	1.2%	1.6%	1.4%
70 - 74	0.7%	1.4%	1.1%
75 - 79	0.7%	1.1%	0.9%
80 - 84	0.8%	0.8%	0.8%
85 & over	0.4%	0.2%	0.3%

[a] Includes both disabled and nondisabled annuitants.

[b] Mainly death of employee or death of spouse.

RETIREMENT STUDIES

1. <u>Age retirement</u>. Age retirement studies covering experience during calendar years 2010-2012 are summarized in Tables S-30 through S-32. Table S-30 shows a comparison among crude retirement rates for 2010-2012, the 25th valuation retirement rates, and the 26th valuation retirement rates. Tables S-31 and S-32 show ratios of actual retirements to those expected for employees with 5-29 years of service and for employees with 30 or more years of service, respectively.

2. <u>Disability retirement</u>. Table S-33 shows a comparison of crude disability retirement rates for 2010-2012 with the 25th and 26th valuation standards. Table S-34 shows ratios of actual retirements in 2010-2012 to those expected by age and service.

   Table S-35 shows percentages of disability retirements in 2010-2012 that were eligible for a disability freeze. Disability freeze standards are needed because of the financial interchange with social security. Assumptions must be made regarding the percentage of railroad retirement disability annuitants who would qualify under the social security definition of disability. Only these disabilities qualify for reimbursement under the financial interchange.

Table S-30. Rates[a] of immediate age retirement

Age[b]	5-29 years of service			30 or more years of service		
	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates
60				0.61	0.60	0.590
61				0.48	0.46	0.468
62	0.11	0.10	0.098	0.40	0.35	0.355
63	0.09	0.09	0.086	0.38	0.35	0.351
64	0.07	0.08	0.080	0.35	0.31	0.314
65	0.18	0.15	0.149	0.40	0.37	0.368
66	0.33	0.32	0.320	0.35	0.33	0.333
67	0.25	0.26	0.268	0.30	0.32	0.321
68	0.25	0.20	0.207	0.30	0.30	0.274
69	0.20	0.20	0.194	0.30	0.30	0.315
70	0.20	0.20	0.225	0.30	0.30	0.337
71	0.20	0.20	0.276	0.20	0.25	0.278
72	0.20	0.20	0.186	0.20	0.20	0.237
73	0.20	0.20	0.186	0.20	0.20	0.191
74	0.20	0.20	c	0.20	0.20	0.246
75 & over	0.20	0.20	0.239	0.20	0.20	0.205

[a] Technically probabilities, because exposures were not adjusted for other separations.

[b] Age attained in calendar year of exposure.

[c] Insufficient data.

Table S-31. Immediate age[a] retirement experience of railroad employees with
5-29 years of service during calendar years 2010-2012

Age[b]	Exposed[c]	Actual retirements	Crude rate[d] per 1,000	Ratio Act./Exp. I[e]	Ratio Act./Exp. II[e]
62	4,427	432	97.6	88.7%	97.6%
63	3,412	293	85.9	95.4	95.4
64	2,577	205	79.5	113.6	99.4
65	1,798	268	149.1	82.8	99.4
66	1,228	393	320.0	97.0	100.0
67	723	194	268.3	107.3	103.2
68	513	106	206.6	82.7	103.3
69	356	69	193.8	96.9	96.9
70-74	606	134	221.1	110.6	110.6
75 & over	113	27	238.9	119.5	119.5
All ages	15,753	2,121	134.6	95.2	99.9

[a] Nondisability retirement.

[b] Age attained in calendar year of exposure.

[c] Exposure includes part of the year in which employees were not eligible for age
retirement because they were under 62.

[d] Technically probabilities, because exposures were not adjusted for other separations.

[e] I and II denote expected according to rates used in the 25th and 26th valuations,
respectively.

Table S-32. Immediate age[a] retirement experience of railroad employees with
30 or more years of service during calendar years 2010-2012

Age[b]	Exposed[c]	Actual retirements	Crude rate[d] per 1,000	Ratio Act./Exp. I[e]	Ratio Act./Exp. II[e]
60	18,620	10,978	589.6	96.7%	98.3%
61	7,655	3,582	467.9	97.5	101.7
62	4,262	1,513	355.0	88.7	101.4
63	3,025	1,063	351.4	92.5	100.4
64	2,122	666	313.9	89.7	101.2
65	1,437	529	368.1	92.0	99.5
66	874	291	333.0	95.1	100.9
67	589	189	320.9	107.0	100.3
68	416	114	274.0	91.3	91.3
69	305	96	314.8	104.9	104.9
70-74	567	158	278.7	117.7	112.2
75 & over	176	36	204.5	102.3	102.3
All ages	40,048	19,215	479.8	95.7	99.5

[a] Nondisability retirement.

[b] Age attained in calendar year of exposure.

[c] Exposure includes part of the year in which employees were not eligible for age
retirement because they were under 60.

[d] Technically probabilities, because exposures were not adjusted for other separations.

[e] I and II denote expected according to rates used in the 25th and 26th valuations,
respectively.

Table S-33. Rates[a] of immediate[b] disability retirement

Age[c]	10-19 years of service			20-24 years of service			25-29 years of service			30 or more years of service		
	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates
Under 35	0.0012	0.0014	d	0.0034	0.0041	d	0.0022	0.0035	d	0.0022	0.0035	d
35	0.0013	0.0015	d	0.0035	0.0044	d	0.0023	0.0038	d	0.0023	0.0038	d
36	0.0015	0.0015	d	0.0038	0.0047	d	0.0025	0.0041	d	0.0025	0.0041	d
37	0.0016	0.0016	d	0.0043	0.0050	d	0.0028	0.0043	d	0.0028	0.0043	d
38	0.0018	0.0016	0.0025	0.0050	0.0053	d	0.0032	0.0046	d	0.0032	0.0046	d
39	0.0020	0.0017	0.0014	0.0059	0.0056	d	0.0038	0.0049	d	0.0038	0.0049	d
40	0.0022	0.0018	0.0023	0.0070	0.0060	d	0.0045	0.0052	d	0.0045	0.0052	d
41	0.0024	0.0020	0.0024	0.0083	0.0063	d	0.0054	0.0053	d	0.0054	0.0053	d
42	0.0027	0.0021	0.0022	0.0098	0.0066	0.0077	0.0064	0.0056	d	0.0064	0.0056	d
43	0.0031	0.0023	0.0027	0.0114	0.0070	0.0073	0.0074	0.0061	d	0.0074	0.0061	d
44	0.0034	0.0025	0.0018	0.0131	0.0077	0.0092	0.0085	0.0069	d	0.0085	0.0069	d
45	0.0039	0.0028	0.0032	0.0148	0.0088	0.0063	0.0098	0.0079	d	0.0098	0.0079	d
46	0.0044	0.0031	0.0036	0.0167	0.0102	0.0075	0.0112	0.0091	d	0.0112	0.0091	d
47	0.0049	0.0035	0.0028	0.0187	0.0120	0.0090	0.0126	0.0105	d	0.0126	0.0105	d
48	0.0056	0.0039	0.0056	0.0208	0.0142	0.0101	0.0140	0.0120	0.0110	0.0140	0.0120	d
49	0.0063	0.0045	0.0030	0.0231	0.0164	0.0142	0.0154	0.0136	0.0094	0.0154	0.0136	d
50	0.0072	0.0051	0.0033	0.0254	0.0187	0.0180	0.0169	0.0152	0.0243	0.0169	0.0152	0.0235
51	0.0082	0.0059	0.0068	0.0280	0.0211	0.0206	0.0184	0.0168	0.0273	0.0184	0.0168	0.0217
52	0.0093	0.0068	0.0072	0.0307	0.0235	0.0214	0.0200	0.0183	0.0237	0.0200	0.0183	0.0171
53	0.0106	0.0079	0.0052	0.0335	0.0259	0.0195	0.0216	0.0198	0.0185	0.0216	0.0198	0.0183
54	0.0121	0.0092	0.0073	0.0365	0.0285	0.0203	0.0232	0.0213	0.0188	0.0232	0.0213	0.0202
55	0.0138	0.0108	0.0104	0.0398	0.0311	0.0311	0.0248	0.0229	0.0221	0.0248	0.0229	0.0193
56	0.0158	0.0127	0.0132	0.0432	0.0337	0.0295	0.0265	0.0246	0.0226	0.0265	0.0246	0.0212
57	0.0180	0.0150	0.0155	0.0468	0.0365	0.0311	0.0282	0.0263	0.0261	0.0282	0.0263	0.0244
58	0.0206	0.0178	0.0170	0.0507	0.0393	0.0325	0.0299	0.0280	0.0318	0.0299	0.0280	0.0314
59	0.0236	0.0211	0.0208	0.0548	0.0422	0.0372	0.0317	0.0298	0.0285	0.0317	0.0298	0.0309
60	0.0403	0.0302	0.0249	0.0591	0.0451	0.0361	0.0335	0.0317	0.0305	0.0163	0.0163	0.0157
61	0.0470	0.0366	0.0316	0.0637	0.0481	0.0587	0.0354	0.0336	0.0305	0.0128	0.0121	0.0116
62	0.0462	0.0391	0.0334	0.0683	0.0561	0.0664	0.0484	0.0452	0.0432	0.0097	0.0086	0.0063
63	0.0454	0.0391	0.0423	0.0677	0.0556	0.0455	0.0478	0.0448	0.0326	0.0070	0.0060	0.0073
64	0.0373	0.0338	0.0295	0.0639	0.0530	0.0422	0.0440	0.0422	0.0463	0.0046	0.0042	0.0052
65	0.0163	0.0228	0.0243	0.0429	0.0396	0.0251	0.0230	0.0288	0.0441	0.0026	0.0031	d
66	0.0000	0.0044	d	0.0000	0.0029	d	0.0000	0.0029	d	0.0000	0.0029	d

[a] Technically probabilities, because exposures were not adjusted for other terminations.

[b] Immediate retirements are defined as those for which the calendar year of retirement is the same as, or the year following, the calendar year of last employment in the railroad industry.

[c] Age attained in calendar year of exposure.

[d] Insufficient data.

Table S-34. Immediate disability retirement experience of railroad employees during calendar years 2010-2012

| | | | | | Attained age[a] | | | | |
	All ages	Under 40	40-44	45-49	50-54	55-59	60-64	65	66[b]
1. 10-19 years of service									
Exposed	175,523	47,021	42,789	33,430	25,581	17,013	8,416	742	531
Actual retirements	961	52	98	121	151	253	265	18	f
Crude rate per 1,000[c]	5.5	1.1	2.3	3.6	5.9	14.9	31.5	24.3	f
Ratio Act./Exp.[d]	75.3%	71.4%	83.9%	72.8%	63.3%	83.3%	72.3%	148.8%	f
Ratio Act./Exp.[e]	93.5%	71.8%	107.8%	102.7%	86.1%	99.5%	89.1%	106.4%	f
2. 20-24 years of service									
Exposed	43,694	307	6,940	12,190	10,987	8,328	4,271	398	273
Actual retirements	882	f	55	116	219	267	213	10	f
Crude rate per 1,000[c]	20.2	f	7.9	9.5	19.9	32.1	49.9	25.1	f
Ratio Act./Exp.[d]	66.7%	f	74.0%	50.3%	65.0%	69.0%	77.9%	58.6%	f
Ratio Act./Exp.[e]	88.9%	f	114.3%	76.6%	85.1%	88.7%	98.3%	63.4%	f
3. 25-29 years of service									
Exposed	37,924	0	157	5,016	14,031	12,221	5,821	408	270
Actual retirements	899	f	f	46	313	315	205	18	f
Crude rate per 1,000[c]	23.7	f	f	9.2	22.3	25.8	35.2	44.1	f
Ratio Act./Exp.[d]	95.7%	f	f	66.8%	110.5%	92.5%	87.0%	191.8%	f
Ratio Act./Exp.[e]	103.2%	f	f	77.8%	121.0%	99.2%	92.2%	153.2%	f
4. 30 or more years of service									
Exposed	147,217	0	0	528	27,185	81,521	35,673	1,436	874
Actual retirements	3,099	f	f	f	528	2,120	442	f	f
Crude rate per 1,000[c]	21.1	f	f	f	19.4	26.0	12.4	f	f
Ratio Act./Exp.[d]	91.5%	f	f	f	91.2%	91.2%	93.3%	f	f
Ratio Act./Exp.[e]	97.7%	f	f	f	99.5%	97.8%	96.2%	f	f

[a] Age attained in calendar year of exposure.

[b] Refers to employees retiring before normal retirement age. Exposure includes part of the year in which employees were not eligible for disability retirement because they passed normal retirement age.

[c] Technically probabilities of retirement, because exposures were not adjusted for other terminations.

[d] Expected based on 25th valuation disability rates.

[e] Expected based on 26th valuation disability rates.

[f] Insufficient data.

Table S-35. Percentages of immediate[a] disability retirements meeting the disability freeze standards of the Social Security Act

Age[b]	10-19 years of service			20-24 years of service			25-29 years of service			30 or more years of service		
	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates	Assumed rates 25th valuation	Assumed rates 26th valuation	2010-2012 Crude rates
Under 35	98.2%	97.8%	c	39.3%	44.8%	c	39.3%	44.8%	c	39.3%	44.8%	c
35	98.2	97.8	c	39.5	44.8	c	39.5	44.8	c	39.5	44.8	c
36	98.2	97.8	c	39.7	44.8	c	39.7	44.8	c	39.7	44.8	c
37	98.2	97.8	c	39.9	44.8	c	39.9	44.8	c	39.9	44.8	c
38	98.2	97.8	100.0%	40.1	44.8	c	40.1	44.8	c	40.1	44.8	c
39	98.2	97.8	100.0	40.3	44.8	c	40.3	44.8	c	40.3	44.8	c
40	98.2	97.8	100.0	40.5	44.8	c	40.5	44.8	c	40.5	44.8	c
41	98.2	97.8	100.0	40.7	44.8	c	40.7	44.8	c	40.7	44.8	c
42	98.2	97.8	100.0	40.9	44.8	c	40.9	44.8	c	40.9	44.8	c
43	98.2	97.8	95.5	41.1	44.8	c	41.1	44.8	c	41.1	44.8	c
44	98.2	97.8	100.0	41.3	44.8	c	41.3	44.8	c	41.3	44.8	c
45	98.2	97.8	100.0	41.5	44.8	c	41.5	44.8	c	41.5	44.8	c
46	98.2	97.8	100.0	41.7	44.9	c	41.7	44.9	c	41.7	44.9	c
47	98.2	97.8	94.7	41.9	45.0	43.5%	41.9	45.0	c	41.9	45.0	c
48	98.2	97.8	100.0	42.1	45.3	48.0	42.1	45.3	c	42.1	45.3	c
49	98.2	97.8	100.0	42.6	45.8	51.4	42.6	45.8	c	42.6	45.8	c
50	98.2	97.8	89.5	43.6	46.8	41.5	43.6	46.8	31.0%	43.6	46.8	39.4%
51	98.2	97.8	97.3	45.7	49.0	44.7	45.7	49.0	34.2	45.7	49.0	39.1
52	98.2	97.8	97.3	50.3	53.6	66.0	50.3	53.6	52.9	50.3	53.6	47.1
53	98.2	97.8	96.0	60.0	62.9	64.3	60.0	62.9	50.9	60.0	62.9	66.2
54	98.2	97.8	100.0	80.5	81.9	82.9	80.5	81.9	76.4	80.5	81.9	77.5
55	98.2	97.8	97.7	93.4	93.9	91.5	93.4	93.9	95.3	93.4	93.9	93.6
56	98.2	97.8	100.0	93.4	93.9	98.1	93.4	93.9	93.2	93.4	93.9	92.9
57	98.2	97.8	98.1	93.4	93.9	86.3	93.4	93.9	96.9	93.4	93.9	94.2
58	98.2	97.8	96.2	93.4	93.9	90.0	93.4	93.9	97.1	93.4	93.9	95.4
59	98.2	97.8	100.0	93.4	93.9	92.5	93.4	93.9	90.9	93.4	93.9	94.2
60	93.4	93.6	94.8	93.4	93.9	97.6	93.4	93.9	96.0	93.4	93.9	94.9
61	93.4	93.6	95.2	93.4	93.9	88.3	93.4	93.9	92.9	93.4	93.9	97.8
62	93.4	93.6	94.7	93.4	93.9	94.5	93.4	93.9	98.1	93.4	93.9	96.3
63	93.4	93.6	87.5	93.4	93.9	96.8	93.4	93.9	90.0	93.4	93.9	95.5
64	93.4	93.6	96.7	93.4	93.9	91.3	93.4	93.9	96.6	93.4	93.9	90.9
65	93.4	93.6	94.4	93.4	93.9	c	93.4	93.9	100.0	93.4	93.9	c
66	93.4	93.6	c	93.4	93.9	c	93.4	93.9	c	93.4	93.9	c

[a] Immediate retirements are defined as those for which the calendar year of retirement is the same as, or the year following, the calendar year of last employment in the railroad industry.

[b] Age attained in calendar year of exposure.

[c] Insufficient data.

WITHDRAWAL STUDIES

Table S-36 shows the select withdrawal experience for the years 2008-2011. The actual withdrawals are shown net of re-entrants into the industry for each attained age and service group. Since a re-entrant maintains his prior earnings and service credit, he cannot be considered a final withdrawal. The table presents crude net withdrawal rates by attained age and years of service along with ratios of actual net withdrawals to those expected on the basis of the 26th valuation standard, which was retained from the 25th valuation standard.

Table S-36. Withdrawal experience of railroad employees during calendar years 2008-2011, by attained age and years of service

Years of service[a]	Attained age[b] under 25				Attained age[b] 25-34				Attained age[b] 35-44			
	Exposed	Actual net[c] withdrawals	Crude rate per 100	Ratio Act./Exp.[d]	Exposed	Actual net[c] withdrawals	Crude rate per 100	Ratio Act./Exp.[d]	Exposed	Actual net[c] withdrawals	Crude rate per 100	Ratio Act./Exp.[d]
0	13,584	2,249	16.6	89.0%	24,153	2,918	12.1	83.9%	15,185	2,155	14.2	80.2%
1	8,529	1,186	13.9	97.2	19,958	1,912	9.6	91.2	12,874	1,191	9.3	82.6
2	5,923	520	8.8	99.8	21,056	1,361	6.5	93.7	13,768	757	5.5	80.9
3	4,312	277	6.4	102.0	24,252	1,237	5.1	98.1	16,389	670	4.1	88.9
4	2,317	110	4.7	95.0	23,519	835	3.6	78.9	17,341	589	3.4	91.8
5	842	32	3.8	88.4	19,994	593	3.0	74.1	16,238	432	2.7	80.6
6	115	e	e	e	15,519	386	2.5	69.1	14,415	339	2.4	75.9
7	2	e	e	e	10,739	224	2.1	65.2	12,161	214	1.8	62.8
8	1	e	e	e	7,653	170	2.2	79.3	10,286	173	1.7	64.7
9	1	e	e	e	6,385	133	2.1	83.3	10,904	182	1.7	69.5
10	2	e	e	e	6,240	112	1.8	81.6	13,138	227	1.7	78.5
11	1	e	e	e	5,091	64	1.3	62.9	14,271	190	1.3	66.6
12	1	e	e	e	3,494	40	1.1	60.3	14,037	169	1.2	63.4
13	-	e	e	e	2,248	20	0.9	52.3	13,146	134	1.0	60.0
14	-	e	e	e	1,088	12	1.1	68.9	11,034	148	1.3	83.8
15	-	e	e	e	429	e	e	e	9,448	94	1.0	66.3
16	-	e	e	e	70	e	e	e	8,088	89	1.1	84.6
17	-	e	e	e	5	e	e	e	6,490	37	0.6	47.5
18	-	e	e	e	2	e	e	e	5,123	38	0.7	67.4
19	-	e	e	e	-	e	e	e	4,259	30	0.7	64.0
20	-	e	e	e	-	e	e	e	3,392	21	0.6	61.9
21	-	e	e	e	-	e	e	e	2,365	26	1.1	122.2
22	-	e	e	e	-	e	e	e	1,428	e	e	e
23	-	e	e	e	-	e	e	e	815	e	e	e
24	-	e	e	e	-	e	e	e	425	e	e	e
25	-	e	e	e	-	e	e	e	143	e	e	e
26	-	e	e	e	-	e	e	e	24	e	e	e
27	-	e	e	e	-	e	e	e	1	e	e	e
28	-	e	e	e	-	e	e	e	-	e	e	e
29	-	e	e	e	-	e	e	e	-	e	e	e
30 & over	-	e	e	e	-	e	e	e	-	e	e	e
All years	35,630	4,377	12.3	93.2	191,895	10,018	5.2	85.0	247,188	7,916	3.2	78.7

[a] Service as of beginning of calendar year of exposure rounded up to next highest whole year.

[b] Age attained in calendar year of exposure.

[c] Withdrawals less re-entrants.

[d] Expected based on 26th valuation withdrawal rates.

[e] Fewer than 10 actual net withdrawals.

Table S-36. Withdrawal experience of railroad employees during calendar years 2008-2011, by attained age and years of service (continued)

Years of service[a]	Attained age[b] 45-54				Attained age[b] 55 and over				All ages			
	Exposed	Actual net[c] withdrawals	Crude rate per 100	Ratio Act./Exp.[d]	Exposed	Actual net[c] withdrawals	Crude rate per 100	Ratio Act./Exp.[d]	Exposed	Actual net[c] withdrawals	Crude rate per 100	Ratio Act./Exp.[d]
0	7,457	1,255	16.8	80.1%	1,607	318	19.8	80.8%	61,986	8,895	14.4	83.5%
1	6,781	664	9.8	84.4	1,572	163	10.4	76.8	49,714	5,116	10.3	88.9
2	7,098	458	6.5	94.9	1,708	122	7.1	92.8	49,553	3,218	6.5	91.3
3	8,585	364	4.2	94.2	2,043	125	6.1	107.3	55,581	2,673	4.8	95.8
4	9,400	337	3.6	96.9	2,276	90	4.0	79.1	54,853	1,961	3.6	86.1
5	9,182	219	2.4	70.2	2,082	79	3.8	84.3	48,338	1,355	2.8	76.2
6	8,612	204	2.4	76.4	2,122	62	2.9	73.0	40,783	993	2.4	72.9
7	7,397	152	2.1	73.4	1,990	46	2.3	64.2	32,289	636	2.0	66.0
8	6,446	130	2.0	80.7	1,900	62	3.3	102.0	26,286	535	2.0	76.0
9	6,808	126	1.9	80.5	2,069	44	2.1	73.3	26,167	485	1.9	76.0
10	8,107	134	1.7	78.7	2,492	41	1.6	65.8	29,979	515	1.7	78.2
11	8,875	105	1.2	62.3	2,833	40	1.4	61.4	31,071	399	1.3	64.2
12	8,655	110	1.3	74.8	2,866	48	1.7	83.7	29,053	367	1.3	68.3
13	8,427	95	1.1	75.2	2,772	32	1.2	64.1	26,593	281	1.1	64.2
14	7,600	63	0.8	59.2	2,517	31	1.2	77.0	22,239	254	1.1	74.6
15	6,976	78	1.1	86.0	2,405	10	0.4	29.7	19,258	183	1.0	67.2
16	6,782	78	1.2	104.6	2,466	20	0.8	67.6	17,406	187	1.1	88.9
17	6,322	69	1.1	109.1	2,408	24	1.0	90.6	15,225	130	0.9	77.5
18	5,942	75	1.3	140.2	2,348	11	0.5	52.1	13,415	124	0.9	94.7
19	6,226	47	0.8	94.4	2,475	14	0.6	70.7	12,960	91	0.7	78.1
20	6,582	56	0.9	121.5	2,625	25	1.0	136.1	12,599	102	0.8	103.7
21	6,521	37	0.6	81.1	2,682	33	1.2	205.1	11,568	96	0.8	115.6
22	6,067	25	0.4	68.7	2,582	32	1.2	247.9	10,077	60	0.6	98.8
23	5,699	42	0.7	147.4	2,590	13	0.5	125.5	9,104	56	0.6	125.7
24	5,801	17	0.3	58.6	2,826	19	0.7	168.1	9,052	41	0.5	95.7
25	6,103	26	0.4	106.5	3,223	31	1.0	320.6	9,469	58	0.6	166.0
26	6,631	22	0.3	82.9	3,758	19	0.5	168.5	10,413	42	0.4	110.8
27	7,372	33	0.4	149.2	4,662	25	0.5	268.1	12,035	58	0.5	184.5
28	8,575	28	0.3	108.8	5,832	e	e	e	14,407	36	0.2	96.3
29	10,320	10	0.1	48.4	7,646	15	0.2	196.2	17,966	25	0.1	88.4
30 & over	51,367	206	0.4	80.2	115,875	951	0.8	91.2	167,242	1,157	0.7	89.0
All years	272,716	5,265	1.9	83.8	199,252	2,553	1.3	87.9	946,681	30,129	3.2	84.3

[a] Service as of beginning of calendar year of exposure rounded up to next highest whole year.

[b] Age attained in calendar year of exposure.

[c] Withdrawals less re-entrants.

[d] Expected based on 26th valuation withdrawal rates.

[e] Fewer than 10 actual net withdrawals.

EMPLOYEE AND BENEFICIARY CENSUSES, FAMILY COMPOSITION, AND
MISCELLANEOUS STATISTICS

Age and service distributions of active and inactive employees are shown in Tables S-37 and S-38. A comparison between 2010 and 2013 active censuses is shown in Table S-39.

Tables S-40 and S-41 provide a census of beneficiaries on December 31, 2013. Also included are their tier 1, tier 2 and vested dual benefit amounts.

Table S-42 shows the average number of service months in a year for calendar years 2009-2011 by attained age group and years of service. The number of service months credited to an employee for a given year is equal to the employee's total creditable tier 2 earnings in the year, divided by one-twelfth of the tier 2 earnings base for the year, with a maximum of 12 and a minimum of the number of months in which the individual had service.

The average creditable earnings per service month during 2013 are shown in Table S-43. Because of the difference in the maximum creditable earnings for tier 1 and tier 2 benefits, separate salary scales were constructed.

The age distribution of new entrants during calendar years 2009-2012 is shown in Table S-44, as is the distribution for 2006-2009.

Table S-45 presents family characteristics of railroad employees who died in the period 2009-2012 with a current connection.

Table S-46 provides selected employment and benefit statistics for 2010 and 2013.

Table S-37. Distribution of 2013 active employees[a] by age and completed years of service

Age in 2013	Total	Completed years of service										
		0	1	2-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Total	252,234	18,715	16,198	37,550	58,807	31,903	30,358	15,343	10,344	13,863	15,495	3,658
Under 20	443	369	71	3	0	0	0	0	0	0	0	0
20-24	9,744	3,958	2,523	3,060	203	0	0	0	0	0	0	0
25-29	24,016	4,613	4,138	8,618	6,522	125	0	0	0	0	0	0
30-34	31,640	3,342	3,375	8,003	13,164	3,549	207	0	0	0	0	0
35-39	33,723	2,345	2,214	5,954	11,699	6,960	4,451	100	0	0	0	0
40-44	35,762	1,788	1,621	4,775	9,876	6,907	8,146	2,557	92	0	0	0
45-49	30,835	1,159	1,118	3,218	7,398	5,466	6,624	4,293	1,515	44	0	0
50-54	30,042	705	685	2,298	5,440	4,285	5,192	3,752	3,307	3,754	624	0
55-59	38,772	334	330	1,122	2,990	2,905	3,547	2,784	3,304	8,403	11,847	1,206
60-64	14,161	82	89	396	1,214	1,337	1,802	1,489	1,796	1,430	2,724	1,802
65-69	2,622	16	30	85	251	314	343	320	284	189	264	526
70 & over	474	4	4	18	50	55	46	48	46	43	36	124

[a] Employees alive and not retired at the end of 2013 with some railroad service in 2013.

Table S-38. Census of vested[a] inactive employees[b] in 2013 by age and
completed years of service

Age in 2013	Completed years of service						
	Total	5-9	10-14	15-19	20-24	25-29	30 & over
Total	43,449	11,208	19,531	7,311	3,235	1,195	969
Under 35	1,307	1,240	66	1	0	0	0
35-39	2,627	2,161	445	21	0	0	0
40-44	3,958	2,592	1,158	193	15	0	0
45-49	4,165	1,998	1,588	465	101	13	0
50-54	5,746	1,651	2,658	929	330	120	58
55-59	12,480	999	6,411	2,612	1,272	439	747
60-64	11,396	509	6,221	2,681	1,290	550	145
65 & over	1,770	58	984	409	227	73	19

[a] Employees with at least 10 years of total service, or 5 years of service after 1995.

[b] Employees alive and not retired at the end of 2013 with no railroad work in 2013.

Table S-39. Comparison between 2013 and 2010 of selected characteristics of active[a]
railroad employees

	2013	2010	Change from 2010 to 2013 Number	Percent
Number alive and not retired	252,234	238,462	13,772	5.8%
Percent with 5 or more years of service	71.3%	75.0%	b	b
Number age 60 or over	17,257	14,583	2,674	18.3%
Number age 65 or over	3,096	2,168	928	42.8%
Number age 60-64 with 30 or more years of service	5,956	5,626	330	5.9%
Average age on December 31	43.9	45.1	-1.2	b
Median age on December 31	43.7	45.8	-2.1	b
Average years of service				
All employees	13.2	15.1	-1.9	b
Employees under age 45	6.8	7.1	-0.3	b
Employees age 45-49	12.7	12.6	0.1	b
Employees age 60 or over	25.8	26.3	-0.5	b
Employees age 65 or over	25.6	25.6	0.0	b

[a] Active employees were those with some railroad service during the year.

[b] Not applicable.

Table S-40. Census of employee and spouse annuitants on December 31, 2013[a]

Age[c]	Monthly benefits[b]				
	Number	Tier 1	Tier 2	Vested dual	Supplemental
1. Employee age annuitants					
60-64	31,942	$ 66,325,709	$ 39,963,413	$ -	$ 827,920
65-69	44,149	84,975,855	42,185,166	3,963	943,384
70-74	31,648	56,910,187	26,470,359	80,381	681,706
75-79	25,071	37,018,931	17,808,760	347,271	497,422
80-84	23,576	31,176,106	14,183,434	617,971	453,869
85-89	21,517	26,754,805	11,105,008	944,644	428,864
90-94	9,412	11,086,184	3,516,344	521,704	195,342
95 & over	2,210	2,654,540	583,057	130,051	49,095
Total	189,525	$ 316,902,317	$ 155,815,541	$ 2,645,985	$ 4,077,602
2. Employee disability annuitants					
Under 40	175	$ 308,622	$ 19,191	$ -	$ -
40-44	493	873,569	125,924	-	-
45-49	838	1,505,423	316,963	-	-
50-54	2,759	5,281,910	1,667,271	-	-
55-59	11,896	23,108,932	8,628,736	-	-
60-64	21,162	40,213,456	15,329,349	-	222,830
65-69	18,764	34,043,224	12,436,711	2,947	287,584
70-74	11,166	18,777,637	6,753,531	36,648	182,295
75-79	6,613	10,238,808	3,659,501	107,762	124,985
80-84	4,543	6,543,655	2,133,368	133,692	96,560
85-89	2,709	3,555,381	980,760	132,259	60,478
90-94	731	861,192	154,326	37,423	13,802
95 & over	147	148,336	19,843	7,367	2,137
Total	81,996	$ 145,460,145	$ 52,225,474	$ 458,098	$ 990,671
3. Spouse annuitants					
Under 60	1,384	$ 1,360,942	$ 706,138	$ -	$ -
60-64	31,225	25,583,196	17,028,812	-	-
65-69	39,329	22,590,633	16,686,462	-	-
70-74	27,853	12,678,507	10,142,877	-	-
75-79	19,352	7,715,910	6,059,456	-	-
80-84	13,921	5,549,955	3,818,816	-	-
85-89	7,005	2,793,168	1,686,197	-	-
90-94	1,740	643,809	371,762	1,840	-
95 & over	186	56,986	32,431	5,990	-
Total	141,995	$ 78,973,106	$ 56,532,951	$ 7,830	$ -

[a] Includes annuities which were in withheld status as of December 31, 2013.
     Therefore, these figures may disagree with other published data.

[b] Amounts shown reflect benefits paid in January 2014.

[c] Age attained in 2013.

Table S-41. Census of survivor annuitants on December 31, 2013[a]

		Monthly benefits[b]		
Age[c]	Number	Tier 1	Tier 2	Vested dual
1. Aged widows and widowers[d]				
60-64	4,992	$ 7,238,455	$ 2,387,302	$ -
65-69	9,258	12,677,524	3,804,370	-
70-74	12,046	14,654,466	4,599,109	-
75-79	16,519	18,233,047	5,842,570	-
80-84	23,389	25,669,306	7,312,152	-
85-89	25,279	27,601,094	6,473,819	-
90-94	16,337	17,621,469	3,103,859	1,508
95 & over	6,462	5,812,473	936,838	30,197
Total	114,282	$ 129,507,834	$ 34,460,019	$ 31,705
2. Other survivors[e]				
0-4	46	$ 50,348	$ 3,148	$ -
5-9	278	330,792	23,513	-
10-14	685	848,569	66,613	-
15-19	914	1,186,939	119,510	-
20-24	118	156,076	18,260	-
25-29	159	195,870	19,573	-
30-34	259	305,686	40,482	-
35-39	353	396,050	50,688	-
40-44	573	621,242	103,853	-
45-49	829	842,313	159,030	-
50-54	1,425	1,418,960	300,420	-
55-59	2,048	1,905,740	453,918	-
60-64	2,148	2,019,135	419,656	-
65-69	1,851	1,671,341	260,800	-
70-74	1,375	1,141,741	169,379	-
75-79	960	752,016	103,670	-
80-84	653	480,006	67,421	663
85-89	385	262,400	42,147	1,958
90-94	170	112,039	18,272	2,184
95 & over	31	21,592	3,608	199
Total	15,260	$ 14,718,855	$ 2,443,961	$ 5,004

[a] Includes annuities which were in withheld status as of December 31, 2013. Therefore, these figures may disagree with other published data.

[b] Amounts shown reflect benefits paid in January 2014.

[c] Age attained in 2013.

[d] Includes divorced and remarried aged widows and widowers, and parents.

[e] Includes disabled widows and widowers, remarried and divorced disabled widows and widowers, widowed mothers and fathers, remarried and divorced widowed mothers and fathers, minor children, student children and disabled children.

Table S-42. Comparison of service months of railroad employees during calendar years 2009-2011 with assumptions used in the 26th valuation
(For employees not separated in the year)

Years of service[a]	Service months by attained age						Service months by calendar year				26th valuation assumption
	Under 25	25-34	35-44	45-54	55 & over	Total	2009	2010	2011	Total	
0	5.9	6.2	6.2	6.3	6.6	6.1	6.8	5.0	6.6	6.1	6.4
1	10.4	10.7	10.8	11.1	11.5	10.8	10.1	10.6	11.7	10.8	11.3
2	10.6	10.9	11.0	11.2	11.3	10.9	10.3	11.2	11.6	10.9	11.4
3	10.8	11.0	11.0	11.1	11.3	11.0	10.4	11.1	11.7	11.0	11.5
4	11.4	11.4	11.4	11.5	11.5	11.4	11.2	11.4	11.7	11.4	11.6
5	11.5	11.6	11.6	11.6	11.6	11.6	11.5	11.6	11.8	11.6	11.6
6	11.8	11.7	11.7	11.7	11.6	11.7	11.7	11.7	11.8	11.7	11.7
7		11.8	11.8	11.7	11.7	11.8	11.7	11.7	11.8	11.8	11.7
8		11.8	11.8	11.7	11.7	11.7	11.7	11.7	11.8	11.7	11.7
9		11.8	11.8	11.7	11.7	11.7	11.7	11.7	11.8	11.7	11.7
10		11.8	11.7	11.7	11.7	11.7	11.7	11.7	11.8	11.7	11.8
11		11.9	11.8	11.7	11.6	11.8	11.8	11.7	11.8	11.8	11.8
12		11.8	11.8	11.8	11.7	11.8	11.8	11.8	11.8	11.8	11.8
13		11.8	11.8	11.8	11.7	11.8	11.7	11.8	11.9	11.8	11.8
14		11.9	11.8	11.8	11.7	11.8	11.8	11.8	11.8	11.8	11.8
15		11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
16		11.8	11.9	11.8	11.7	11.8	11.8	11.8	11.8	11.8	11.8
17			11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
18			11.9	11.8	11.7	11.8	11.8	11.8	11.8	11.8	11.8
19			11.9	11.8	11.7	11.8	11.8	11.8	11.8	11.8	11.8
20			11.9	11.8	11.7	11.8	11.8	11.8	11.8	11.8	11.8
21			11.9	11.8	11.7	11.8	11.9	11.8	11.8	11.8	11.8
22			11.9	11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8
23			11.9	11.9	11.8	11.8	11.8	11.9	11.9	11.8	11.8
24			12.0	11.9	11.7	11.8	11.8	11.8	11.9	11.8	11.8
25			12.0	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
26			11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
27				11.9	11.8	11.8	11.8	11.9	11.8	11.8	11.8
28				11.9	11.8	11.9	11.9	11.9	11.9	11.9	11.9
29				11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
30 & over				11.9	11.8	11.9	11.9	11.9	11.8	11.9	11.9

[a] Rounded up to nearest whole year.

Table S-43. Average creditable[a] compensation per service month during 2013

Years of service[b]	Tier 1	Tier 2
0	$3,913	$3,878
1	4,690	4,602
2	5,215	5,079
3	5,422	5,234
4	5,660	5,428
5	5,786	5,526
6	5,944	5,661
7	6,053	5,752
8	6,115	5,805
9	6,322	5,967
10	6,434	6,008
11	6,527	6,019
12	6,466	5,954
13	6,466	5,976
14	6,555	6,035
15	6,703	6,145
16	6,815	6,167
17	6,786	6,141
18	6,922	6,213
19	6,925	6,194
20	6,728	6,057
21	6,576	5,975
22	6,653	6,006
23	6,730	6,071
24	6,834	6,101
25	6,787	6,085
26	6,669	5,976
27	6,660	5,960
28	6,594	5,934
29	6,671	5,990
30	6,641	5,985

[a] Maximum creditable annual compensation during 2013 was $113,700 and $84,300 for tier 1 and tier 2, respectively.

[b] Completed service at beginning of year rounded up to nearest whole year.

Table S-44. Age distribution of new entrants during calendar years 2009-2012
and comparison with assumptions of the 25th valuation

Age at entry[a]	Year of entry					25th Val.
	2009	2010	2011	2012	2009-12[b]	2006-09
All ages						
Number	6,118	13,022	25,002	18,766	62,908	64,689
Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Under 20	2.6%	2.7%	1.8%	2.1%	2.2%	2.7%
20-24	18.7	19.2	19.5	20.7	19.7	20.3
25-29	19.7	20.9	23.3	23.9	22.6	21.2
30-34	14.0	17.0	18.6	19.0	17.9	16.4
35-39	13.3	13.3	13.6	12.1	13.1	14.3
40-44	11.1	10.5	10.6	9.6	10.3	11.0
45-49	10.0	8.2	6.8	6.5	7.3	7.6
50-54	6.1	4.9	3.8	3.8	4.3	4.1
55 & over	4.5	3.2	2.0	2.4	2.6	2.4
Average age at entry	34.5	33.4	32.6	32.3	32.9	32.9
Median age at entry	32.4	31.5	30.8	30.3	30.9	31.1

[a] Age attained in the year of entry (year of entry minus year of birth).

[b] Used in 26th valuation.

Table S-45. Family characteristics of railroad employees who died in 2009-2012 with a current connection

Age of employee[a]	Number of deaths[b]	Percent married				Widow under 60 with eligible child			Percent with eligible child	
		Total	Widow age 62 & over	Widow age 60-61	Widow under age 60	Youngest child under 16	Youngest child age 16-17	Youngest child disabled	Minor child	Disabled child
Under 35	41	70.7	-	-	70.7	61.0	-	-	82.9	-
35 - 39	84	69.0	-	-	69.0	65.5	-	-	89.3	-
40 - 44	123	78.9	-	-	78.9	62.6	4.9	-	86.2	0.8
45 - 49	160	74.4	0.8	-	73.6	36.7	8.1	0.6	56.9	1.9
50 - 54	411	67.4	1.6	1.6	64.2	13.5	5.3	1.7	26.0	2.9
55 - 59	1,343	66.0	4.1	3.6	58.3	5.0	2.1	0.8	11.2	1.9
60 - 64	2,504	66.5	19.8	14.3	32.4	1.4	0.7	0.7	3.7	1.7
65 - 69	3,000	69.0	50.8	7.1	11.1	0.7	0.5	0.1	2.2	1.6
70 - 74	3,427	69.1	62.3	2.3	4.5	0.3	0.1	0.1	0.6	1.4
75 - 79	4,875	68.5	66.2	0.9	1.4	0.1	-	-	0.2	0.8
80 - 84	8,377	62.2	61.0	0.4	0.8	-	-	-	0.1	0.9
85 - 89	10,480	51.7	51.2	0.1	0.4	-	-	-	-	0.7
90 & over	9,673	35.8	35.6	-	0.2	-	-	-	-	0.5

Age of employee[a]	Average ages of widows			Widow under 60 with eligible child			Average ages of children			Average number of minor children[d]
	Widow age 62 & over	Widow age 60-61	Widow under age 60	Youngest child under 16	Youngest child age 16-17	Youngest child disabled	Youngest child under 16[c]	All minor children	All disabled children	
Under 35	e	e	31.1	31.3	e	e	5.5	5.3	e	1.8
35 - 39	e	e	36.7	36.4	e	e	6.1	8.2	e	2.4
40 - 44	e	e	41.6	41.3	e	e	9.4	10.3	e	1.8
45 - 49	e	e	46.2	45.2	46.8	e	10.7	11.7	e	1.6
50 - 54	e	e	50.7	47.5	48.7	e	12.2	12.5	20.8	1.4
55 - 59	65.5	60.7	54.2	49.1	51.2	55.1	12.0	12.5	27.2	1.4
60 - 64	64.5	60.9	55.9	49.2	51.4	56.1	12.2	11.9	29.9	1.3
65 - 69	66.2	61.1	55.3	47.3	53.9	e	11.5	11.9	35.7	1.3
70 - 74	69.6	61.0	55.0	49.9	e	e	10.9	12.8	38.5	1.2
75 - 79	74.0	61.1	55.0	e	e	e	e	12.9	44.4	1.1
80 - 84	78.6	61.1	54.6	e	e	e	e	11.5	49.0	1.3
85 - 89	82.8	61.0	56.1	e	e	e	e	e	51.5	e
90 & over	86.9	e	55.1	e	e	e	e	e	56.1	e

[a] Age nearest birthday at time of death.

[b] Includes employees with 120 or more service months and employees with 60 or more service months after 1995.

[c] Includes families with widows under 60 and children under 16 only.

[d] Includes families with minor children only.

[e] Insufficient data.

Table S-46. Selected employment and benefit[a] statistics for 2010 and 2013

	2010	2013	Percentage change
1. Membership (thousands of employees)			
Average employment for the year	221	237	7.2%
Active census, Dec. 31	238	252	5.9
Retired, Dec. 31	275	272	-1.1
Nonretired employees with vested rights[b], total	229	223	-2.6
Active census, Dec. 31	179	180	+0.6
Inactive census, Dec. 31	50	43	-14.0
Employees in active census with			
30 or more years of service	46	33	-28.3
2. Number of beneficiaries (thousands), Dec. 31, total[c]	551	536	-2.7
Retired employees	275	272	-1.1
Spouses	138	142	+2.9
Survivors	144	130	-9.7
3. Average monthly benefits paid in December			
Retired employees	$2,217.89	$2,480.50	+11.8
Spouses	842.38	954.36	+13.3
Survivors	1,259.11	1,398.52	+11.1
4. Amount of monthly benefit payments for the year (millions), total	$10,742	$11,629	+8.3
Retired employees and their spouses	8,560	9,454	+10.4
Survivors	2,182	2,175	-0.3
5. Miscellaneous information			
Tier 1 taxable payroll as a percentage of total payroll	94.5%	95.2%	
Benefit payments in year as a percentage of tier 1 taxable payroll	69.8%	65.3%	
Number of beneficiaries per 100 full-time employees	249	226	
Percentage distribution of amount of monthly benefit payments in year			
Retired employees	67.1	68.0	
Spouses	12.5	13.3	
Survivors	20.3	18.7	

[a] Includes tier 1, tier 2 and vested dual benefit payments. Excludes supplemental annuities.

[b] Employees with at least 10 years of total service, or 5 years of service after 1995.

[c] Individuals receiving more than one type of benefit (for example, an employee and a spouse benefit) are
    counted separately in each category but only once in total.