## The Burbank Group

## 'Rate in Effect' Reprise

We continue to provide articles and announcements covering the application and use of the 10-year Treasury rates/yields in determining discount rates in Medical Malpractice and General Liability actions under Article 50 of the New York statutes. It seems appropriate to again update the data and graphic displays of rates and yields through the current regular auction of May 15, 2013. This is the $40^{\text {th }}$ auction since the enactment of Amended Article 50A, or 10 years of auctions

|  | Auction Rate | Auction Yield | Range | Basis <br> Points Range | Daily Yield Maximum Fluctuation | Times |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Feb 2007 Auction | 4.63\% | 4.74\% |  |  |  |  |
| May 2007 Auction | 4.50\% | 4.61\% |  |  |  |  |
| First Half 2007 |  |  | 4.5 to $5.12 \%$ | 62 | >9 basis Pts. | 2 |
| Aug 2007 Auction | 4.75\% | 4.88\% |  |  |  |  |
| Nov 2007 Auction | 4.25\% | 4.35\% |  |  |  |  |
| Second Half 2007 |  |  | 5.11 to 3.89\% | -122 | >9 basis Pts. | 5 |
| Feb 2008 Auction | 3.50\% | 3.62\% |  |  |  |  |
| May 2008 Auction | 3.88\% | 3.94\% |  |  |  |  |
| First Half 2008 |  |  | 3.34 to 4.22\% | 88 | >9 basis Pts. | 15 |
| Aug 2008 Auction | 4.00\% | 4.08\% |  |  |  |  |
| Nov 2008 Auction | 3.75\% | 3.78\% |  |  |  |  |
| Second Half 2008 |  |  | 4.16 to 2.08\% | -208 | >9 basis Pts. | 29 |
| Feb 2009 Auction | 2.75\% | 2.82\% |  |  |  |  |
| May 2009 Auction | 3.13\% | 3.19\% |  |  |  |  |
| First Half 2009 |  |  | 2.23 to 3.98\% | 175 | >9 basis Pts. | 34 |
| Aug 2009 Auction | 3.63\% | 3.73\% |  |  |  |  |
| Nov 2009 Auction | 3.38\% | 3.47\% |  |  |  |  |
| Second Half 2009 |  |  | 3.89 to 3.21\% | -68 | >9 basis Pts. | 23 |
| Feb 2010 Auction | 3.63\% | 3.69\% |  |  |  |  |
| May 2010 Auction | 3.50\% | 3.55\% |  |  |  |  |
| First Half 2010 |  |  | 4.01 to 2.97\% | -104 | >9 basis Pts. | 12 |
| Aug 2010 Auction | 2.63\% | 2.73\% |  |  |  |  |
| Nov 2010 Auction | 2.63\% | 2.64\% |  |  |  |  |
| Second Half 2010 |  |  | 2.41 to 3.53\% | 112 | >9 basis Pts. | 23 |
| Feb 2011 Auction | 3.63\% | 3.69\% |  |  |  |  |
| May 2011 Auction | 3.13\% | 3.21\% |  |  |  |  |
| First Half 2011 |  |  | 2.77 to 3.75\% | 98 | >9 basis Pts. | 20 |
| Aug 2011 Auction | 2.13\% | 2.14\% |  |  |  |  |
| Nov 2011 Auction | 2.00\% | 2.03\% |  |  |  |  |
| Second Half 2011 |  |  | 3.22 to 1.72\% | -150 | >9 basis Pts. | 34 |
| Feb 2012 Auction | 2.00\% | 2.02\% |  |  |  |  |
| May 2012 Auction | 1.75\% | 1.86\% |  |  |  |  |
| First Half 2012 |  |  | 2.39 to 1.47\% | -92 | >9 basis Pts. | 8 |
| Aug 2012 Auction | 1.63\% | 1.68\% |  |  |  |  |
| Nov 2012 Auction | 1.63\% | 1.68\% |  |  |  |  |
| Second Half 2012 |  |  | 1.88 to 1.43\% | -45 | >9 basis Pts. | 6 |
| Feb 2013 Auction | 2.00\% | 2.05\% |  |  |  |  |
| May 2013 Auction | 1.75\% | 1.81\% |  |  |  |  |
| First Half 2013 |  |  | 1.58 to 2.07\% | 45 | >9 basis Pts. | 3 |

The Federal Reserve and Treasury seem to be addicted to low interest rates. The powers promise that they will end the low rates at sometime in the future. But, the rest of the world is joining in by offering low rates and devaluing their currencies.

This situation may remind some of the conditions in Argentina in the early eighties, the currency was in dirty float, and local low level employees received compensation of more than $\$ 100,000$ per year when pesos were converted to dollars. Then came the major devaluations. Prices went sky high for those who lived in the local economy, but provided enormous dollar bargains for those who were visiting the country.

The Fed has inflation under control, the stock market is thriving, and there seems to be no strong reason to raise interest rates. Of course, it isn't that way if you live in the local economy. Fed intervention through the discount window, and its purchase of low interest10-year notes, provides banks with income, and provides the equity markets with record performances.

Most indications are that low rates will continue for the foreseeable future. The latest quarterly range of daily yields has been maintained at less than 50 basis points. The number of occasions of daily basis point moves at or above 9 has declined to 3 . The recent confusing statements from the Fed have been seen as a sign that quantitative easing will gradually end over the next year. To repeat the points that easing will be here for a while,

- Statements by the Fed indicating that they would look to hold rates through 2014.
- The efforts of the Fed to control interest rates by purchasing treasuries.
- The use of 10-Year Treasuries to finance deficits at a very low cost.
- Continued bank access to very low cost money, and bank investment in low yield Treasuries.
- The event driven flight to safety that makes Treasuries the investment of choice.
- Obscured inflationary forces that would otherwise make low yield Treasuries unattractive.


## Average Rates and Yields Through May 15, 2013

Discount rates have long and almost universally been used to value and moderate the cash impact of Awards. In New York, the statutes provided for discounting, but, prior to the enactment of Amended 50A, did not specify how the discount rate was determined. Amended 50A specifies that the discount rate will be based on the 10-Year Treasury 'rate in effect' on the date of the verdict. As the first legislative guidance on the subject, it has now been applied to all Article 50 Awards.

The statute refers to the10-Year Treasury bond rate in effect at the time of the verdict. [As there are no 10Year Treasury Bonds, substitute 'Note' for 'Bond'.] As this is the first and only guidance on the selection and calculation of discount rates, the indexing of discount rates to 10-Year Treasuries has now been extended to NY50A cases filed prior to the effective date of the Amendment and to NY50B General Liability cases.

There are three classes of rates/yields associated with 10-Year Treasury notes. They are

- The Auction rate or the rate of interest that the government will pay on the face amount of a note of $\$ 10,000$. [The unit of denomination is 100's.]
- The Auction yield or the rate of interest that will be paid based on the amount that a purchaser will pay for a $\$ 10,000$ note bearing a given auction rate. If the $\$ 10,000$ note carried a rate of $4.00 \%$, and sold at auction for \$9,500, the yield at auction would approximate 4.21\% [.04/(9500/10000)].
- The transaction yield. As notes are traded they move up or down in price and, therefore down or up in yield. The average of these transaction yields produce daily, weekly, monthly and annual yields. Neither the daily nor, for that matter, the weekly, monthly or annual yields are ever in effect.

As mentioned earlier, the only rates 'in effect' are the auction rates for the outstanding issues. The closest yield to those rates in effect is, of course, the auction yields. Beginning in February 2007, we generated a series of average rates and yields for all auctions since the passage of Amended 50A, and for the most recent eight and four auctions. In addition, we generated a graphic display of the simple averages together with plots of actual auction rates and yields, and the daily yields for the auction date. (Attachment A.)

We generated weighted averages for all auctions since passage of Amended 50A, for the most recent eight and four auctions. The system applies increment weighting to the rate/yield for each auction after the first in the series. The steps are to add .5 to the previous auction weighting. In addition, we generated a graphic display of the weighted averages together with plots of actual auction rates and yields, and the daily yields for the auction date. (Attachment B.)

As Amended 50A provides no guidance on the 'rate in effect', the daily yield on the date of the verdict has become the rate in effect on the date of the verdict. As long as stability was maintained, it mattered little which rate or yield was used, though there was something of a crap shoot associated with any daily yield as evidenced by the number of occasions in which the yield fluctuated 9 or more basis points in one day.

## Impact of Changing Index Rates on Future Awards

For much of the period since the passage of Amended 50A, daily yields moved one or two basis points per day with no single pattern to the movement. The auction rates were between $4.00 \%$ and $5.125 \%$, and auction yield premiums were typically 8 to 12 basis points ( $00.08 \%$ to $00.12 \%$ ). The yield premium in Reopened issues were slightly wider than the original auction.

Beginning in the latter half of 2007, rates and yields began an extended downward movement. That trend became more pronounced in 2008 before a mixed pattern took over in 2009. During the same period, the day to day movement became more erratic. In 2010, the range of daily yields broadened, auction rates and yields declined, and the day to day movement became less erratic. In 2011, rates and yields continued to drop, day to day movement became more erratic, and all finally settled below $2.25 \%$. In 2012, rates and yields again dropped to a range of 2.00 to $1.68 \%$ with a low daily yields of $1.43 \%$. So far in 2013 , the rates and yields have risen to over $2 \%$ with a range from 1.58 to $2.08 \%$

Future Awards with durations of 20 Years or less are discounted by the rate in effect. The breakeven discount rates for future elements to which $4 \%$ statutory inflation is applied is $3.625 \%$. The amount prior to inflation and discounting equals the amount after discounting. Future Awards of greater than 20 years are discounted by the Average of the rate in effect for the first twenty years and $2 \%$ points above the rate for periods beyond 20 years. For 30 Years, The rate in effect of $2.96 \%$ will produce a discount rate of $3.625 \%$. Thus, the breakeven index rate is $2.96 \%$.

For much of the period prior to the enactment of Amended 50A, 10-Year Treasuries traded between $4 \%$ and $5 \%$. That was also true for much of the period after enactment. As a result, it seems fair to use $4.5 \%$ as a normal. The current range of 10 -Year daily yields is between $1.58 \%$ and $2.07 \%$, with a bias toward the higher end.

By statute, original 50A and 50B future Awards incorporate 4\% statutory COLA or inflationary provisions that apply after the first year. A partial list of the impact versus a more 'normal' index rate of $4.5 \%$ is

| Index | Year 15 <br> Rate | Year 20 <br> Impact | Year 25 <br> Impact | Year30 <br> Impact | Year35 <br> Impact |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Impact |  |  |  |  |  |
| $04.50 \%$ | $-5.2 \%$ | $-6.3 \%$ | $-11.6 \%$ | $-16.5 \%$ | $-21.0 \%$ |
| $04.25 \%$ | $-3.5 \%$ | $-4.1 \%$ | $-9.0 \%$ | $-13.6 \%$ | $-17.9 \%$ |
| $04.00 \%$ | $-1.8 \%$ | $-1.8 \%$ | $-6.3 \%$ | $-10.6 \%$ | $-14.6 \%$ |
| $02.25 \%$ | $11.8 \%$ | $16.9 \%$ | $16.1 \%$ | $15.3 \%$ | $14.6 \%$ |
| $02.00 \%$ | $13.9 \%$ | $19.9 \%$ | $19.9 \%$ | $19.8 \%$ | $19.8 \%$ |
| $01.75 \%$ | $16.1 \%$ | $23.1 \%$ | $23.9 \%$ | $24.6 \%$ | $25.4 \%$ |
| $01.50 \%$ | $18.4 \%$ | $26.4 \%$ | $28.0 \%$ | $29.6 \%$ | $31.3 \%$ |

The full list and a graphic display of changes of value are contained in Attachment C. Below a 3.625\% discount rate, the net effect is an increase in the Award after discounting. The percentage change from normal is the addition of the negative and any positive (e.g. year 35 impact from $4.5 \%$ to $1.5 \%$ is the combination of $-21.0 \%$ and $31.3 \%$ or a total $52.3 \%$ ).

Under Amended 50A, only future Pain and Suffering incorporates a 4\% annual COLA or inflationary provision that applies after the first year. A partial list of the impact versus a more 'normal' index rate of $4.5 \%$ is

| Index <br> Rate | Year 15 <br> Impact | Year 20 <br> Impact | Year 25 <br> Impact | Year 30 <br> Impact | Year 35 <br> Impact | 8 Year <br> Impact |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $04.50 \%$ | $-26.7 \%$ | $-33.4 \%$ | $-41.6 \%$ | $-48.3 \%$ | $-54.0 \%$ | $-3.6 \%$ |
| $04.25 \%$ | $-25.5 \%$ | $-32.0 \%$ | $-40.1 \%$ | $-46.9 \%$ | $-52.6 \%$ | $-2.7 \%$ |
| $04.00 \%$ | $-24.3 \%$ | $-30.6 \%$ | $-38.7 \%$ | $-45.4 \%$ | $-51.1 \%$ | $-1.8 \%$ |
| $02.25 \%$ | $-14.9 \%$ | $-19.2 \%$ | $-26.5 \%$ | $-32.9 \%$ | $-38.6 \%$ | $05.1 \%$ |
| $02.00 \%$ | $-13.4 \%$ | $-17.4 \%$ | $-24.5 \%$ | $-30.8 \%$ | $-36.4 \%$ | $06.2 \%$ |
| $01.75 \%$ | $-11.9 \%$ | $-15.4 \%$ | $-22.4 \%$ | $-28.6 \%$ | $-34.0 \%$ | $07.2 \%$ |
| $01.50 \%$ | $-10.3 \%$ | $-13.5 \%$ | $-20.2 \%$ | $-26.2 \%$ | $-31.6 \%$ | $08.3 \%$ |

The full list and a graphic display of changes of value are contained in Attachment $\mathbf{D}$. As the rates decline, future Award valuations under Amended 50A approach the Award prior to discounting. The increase in value can be as much as $22.4 \%$ (e.g. year 35 impact is the difference of $-54.0 \%$ and $-31.6 \%$ or $22.4 \%$ ). The 8 year impact reflects the impact of $4 \%$ on future Pain and Suffering which is limited to 8 years.

The impact of lower index rates on Awards is enormous. The cash value of the Award is increased in line with the above percentages;

- The Future Award valuations approximate and are often higher than Awards prior to discounting.
- Under Amended 50A, cash lump sums, the discounted value of $35 \%$ of the element's future damages, approach the amount prior to discounting.
- There are fewer qualified annuity providers and the prices can approximate or exceed the higher net Awards.
- Any tax benefits associated with qualified annuity payments are substantially reduced.
- The net impact of interest has risen as insurer portfolio returns have declined with the fall in Treasury rates.
- In wrongful death or bifurcated cases where pre-verdict interest is applied to discounted Awards, the decline in discount rate yields higher total Award amounts to which a fixed $9 \%$ interest is applied.

While resolution of a case is never simple, the decline in index rates has made valuation, discounting and application of interest enormously more complex and far more important.

Faced with a $25 \%$ increase in the dollar value of the Award, an increase in net interest cost and a serious decline in portfolio returns, the liability carrier may see no easy way out. Preservation of cash through delay, though temporary, may be the insurer's best response.

The only problems for the carrier are verdict and/or appeal costs and risks. Those include

- Awards of amounts that exceed what the plaintiff would have accepted in settlement.
- An adverse 10-year Treasury yield on the verdict date.
- A lower tax rate applicable to lost or impaired earnings.
- A reduced or eliminated Collateral Source offset.
- Extended pre-judgment and pre-payment interest periods at a time of low portfolio returns
- Application of a low discount. rates before calculation of pre-verdict interest.
- $\quad$ Significant future payments due between verdict and judgment, and verdict and payment.

Compromise is probably the better longer term solution. The short route to full, fair and early settlement is through Award and/or Valuation offers or exchange of offers. The parties can project Award and Valuation that conform to the requirements of the statutes. The offers can be in writing or as data files, signed or unsigned, and signed offers can be effective for selected periods.

As part of the process, the impact of changes in rates in effect, tax rates and addition or removal of Collateral Source offsets can be quickly tested through the valuation summary, and compared to the original on a net basis. Upon selecting a version that becomes the new 'original', the array of reports can be generated for use in documenting and proving out the calculations.

The various documents and comparisons can also be used to gain and document informed consent.
In the event that the matter goes to trial, the Award and/or Valuation can be employed in any pre-verdict conference. Detailed verdict sheets containing only the items for jury deliberation can be generated in the Award process.

The Award can be altered to incorporate the verdict and then immediately valued. Taxes and Collateral Source offsets can be added in Award development, or as part of the Valuation. Again, after the verdict and upon setting the matter for judgment, the valuation can be extended to incorporate interest.

Bifurcated cases arise when liability is determined at a date earlier than the verdict assessing damages. The total Award is discounted back to the earlier date and then pre-verdict interest is applied to the discounted Award from an earlier date.

Wrongful Death is a special bifurcation with death being the liability event. There are different rules related to the components of the Award.

- Future Damages are discounted to the date of death.
- Pain and Suffering, when included, as it precedes death should not be discounted.
- Each item of past damages can be discounted back to the date on which the event of loss occurred, or to some weighted average date of the events.

Interest is applied from the date of death on the total discounted Award. The discount rate employed should be the weighted average of the rates applicable to the future damage elements. [For Med/Mal wrongful death, future damages are treated as lump sums.]

The statutes are silent on whether simple or compound interest is to be applied. In either case, the 9\% interest is applied discretely (time segment by time segment).

- $\quad$ Pre-verdict interest is added to the total Award before discounting. Interest from verdict to judgment is then calculated.
- Pre-judgment interest is incorporated in the Judgment, and added to the total Award before discounting plus pre-verdict interest. Interest from judgment to payment is then calculated.

The statutes are also silent on the treatment of payments due in the periods from the verdict to the entry of judgment and from the judgment to payment. There are decisions that direct these interim payments to be made in cash. Using the same rationale as that applied to past damages and the weighted average discount rate,

- Payments from verdict to judgment are discounted to a weighted average payment date with interest applied to that discounted amount. Payments should also be discounted back to the verdict and deducted from initial future damages before interest is applied to remaining future damages.
- Payments from Judgment to payment are discounted back to a weighted average payment date with interest to payment applied to the discounted amount. The payments should also be discounted back to the judgment and deducted from the remaining future damages before interest is applied to that amount.
- For greater accuracy, the interim interest calculations should first be from verdict to payment. That would include average payment date, total payments and discounting. The interim interest from verdict to judgment would then be deducted to arrive at interim interest from judgment to payment.

Interim payment worksheets will show the payments due between verdict and judgment, and/or between verdict and payment, the adjustments to Net future damages, and interest detail. The judgment worksheet provides the information in a format consistent with the judgment. The Valuation Summary incorporates a discounting and interest application summary.

Finally, annuities can be evaluated based on the payments made and the annuity costs. The excess of payments divided by costs yields the premium that would otherwise be taxed. Application of a tax rate yields the imputed benefit. As points of general reference,

- Low discount rates yield higher Awards
- Annuity costs have reflected 10-Year Treasuries yields, particularly for future durations of 20 years or less
- $\quad$ The percentage of future payments over annuity costs have been marginal for future periods of 20 years or less, and the adjustment for interim payments make the result even more marginal.
- The effective tax advantage for periods of 20 years or less is currently at or less than $10 \%$.

As a result, all or a substantial portion of future Awards should be taken as cash. If the Court mandates protection of principal for an impaired or minor recipient, consideration should be given to taxable trusts. With limited or no significant tax advantage, higher yield should control. That combined with the ability to redeploy assets as the yield environment improves, and the ability to accelerate or increase payments to meet unanticipated needs provide a significant advantage to taxable trusts.

Attachment A. Unweighted Average Auction Rates and Yields

|  | All Per Avg rate | All Per Avg Yield | 2 Year Avg rate | 2 Year <br> Avg Yield | 1 Year Avg rate | 1 Year Avg Yield | Daily <br> Yield | Auction <br> Rate | Auction <br> Yield |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2/15/07 | 4.43\% | 4.25\% | 4.58\% | 4.64\% | 4.81\% | 4.86\% | 4.70\% | 4.63\% | 4.74\% |
| 5/15/07 | 4.43\% | 4.26\% | 4.63\% | 4.69\% | 4.66\% | 4.73\% | 4.71\% | 4.50\% | 4.61\% |
| 8/15/07 | 4.45\% | 4.26\% | 4.69\% | 4.75\% | 4.63\% | 4.71\% | 4.69\% | 4.75\% | 4.86\% |
| 11/15/07 | 4.44\% | 4.25\% | 4.66\% | 4.72\% | 4.60\% | 4.68\% | 4.17\% | 4.25\% | 4.35\% |
| 2/15/08 | 4.39\% | 4.25\% | 4.53\% | 4.61\% | 4.25\% | 4.36\% | 3.76\% | 3.50\% | 3.62\% |
| 5/15/08 | 4.36\% | 4.25\% | 4.38\% | 4.46\% | 4.09\% | 4.19\% | 3.83\% | 3.88\% | 3.94\% |
| 8/15/08 | 4.35\% | 4.28\% | 4.27\% | 4.35\% | 3.91\% | 4.00\% | 3.84\% | 4.00\% | 4.08\% |
| 11/15/08 | 4.32\% | 4.27\% | 4.16\% | 4.25\% | 3.78\% | 3.85\% | 3.72\% | 3.75\% | 3.78\% |
| 2/17/09 | 4.25\% | 4.27\% | 3.92\% | 4.01\% | 3.59\% | 3.65\% | 2.64\% | 2.75\% | 2.82\% |
| 5/15/09 | 4.21\% | 4.28\% | 3.78\% | 3.85\% | 3.46\% | 3.52\% | 3.14\% | 3.13\% | 3.19\% |
| 8/17/09 | 4.18\% | 4.25\% | 3.61\% | 3.69\% | 3.31\% | 3.38\% | 3.48\% | 3.13\% | 3.99\% |
| 11/16/09 | 4.15\% | 4.22\% | 3.50\% | 3.58\% | 3.22\% | 3.30\% | 3.33\% | 3.38\% | 3.47\% |
| 2/16/10 | 4.13\% | 4.20\% | 3.52\% | 3.59\% | 3.44\% | 3.52\% | 3.66\% | 3.63\% | 3.69\% |
| 5/17/10 | 4.11\% | 4.18\% | 3.47\% | 3.54\% | 3.53\% | 3.61\% | 3.47\% | 3.50\% | 3.55\% |
| 8/15/10 | 4.06\% | 4.13\% | 3.30\% | 3.37\% | 3.28\% | 3.36\% | 2.58\% | 2.63\% | 2.73\% |
| 11/15/10 | 4.01\% | 4.08\% | 3.16\% | 3.23\% | 3.09\% | 3.15\% | 2.92\% | 2.63\% | 2.64\% |
| 2/15/11 | 4.00\% | 4.07\% | 3.27\% | 3.33\% | 3.09\% | 3.14\% | 3.61\% | 3.63\% | 3.67\% |
| 5/16/11 | 3.97\% | 4.04\% | 3.27\% | 3.34\% | 3.00\% | 3.06\% | 3.15\% | 3.13\% | 3.21\% |
| 8/15/11 | 3.91\% | 3.98\% | 3.08\% | 3.14\% | 2.88\% | 2.91\% | 2.29\% | 2.13\% | 2.14\% |
| 11/15/11 | 3.74\% | 3.80\% | 2.91\% | 2.96\% | 2.72\% | 2.76\% | 2.06\% | 2.00\% | 2.03\% |
| 2/15/12 | 3.80\% | 3.87\% | 2.70\% | 2.75\% | 2.31\% | 2.35\% | 1.93\% | 2.00\% | 2.02\% |
| 5/15/12 | 3.75\% | 3.81\% | 2.48\% | 2.54\% | 1.97\% | 2.01\% | 1.75\% | 1.86\% | 2.02\% |
| 8/15/12 | 3.69\% | 3.76\% | 2.36\% | 2.40\% | 1.84\% | 1.90\% | 1.80\% | 1.63\% | 1.68\% |
| 11/15/12 | 3.63\% | 3.70\% | 2.23\% | 2.29\% | 1.75\% | 1.81\% | 1.58\% | 1.63\% | 1.68\% |
| 2/15/13 | 3.59\% | 3.66\% | 2.03\% | 2.08\% | 1.75\% | 1.82\% | 2.01\% | 2.00\% | 2.05\% |
| 5/15/13 | 3.55\% | 3.98\% | 1.86\% | 1.91\% | 1.75\% | 1.80\% | 1.70\% | 1.81\% | 1.94\% |



Attachment B. - Weighted Averages 50\% per Year

|  | All Per | All Per | 2 Year | 2 Year | 1 Year | 1 Year | Daily | Auction | Auction |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Avg rate | Avg Yield | Avg rate | Avg Yield | Avg rate | Avg Yield | Yield | Rate | Yield |
| $02 / 15 / 07$ | $4.52 \%$ | $4.58 \%$ | $4.66 \%$ | $4.72 \%$ | $4.75 \%$ | $4.81 \%$ | $4.70 \%$ | $4.63 \%$ | $4.74 \%$ |
| $05 / 15 / 07$ | $4.51 \%$ | $4.58 \%$ | $4.65 \%$ | $4.72 \%$ | $4.62 \%$ | $4.70 \%$ | $4.71 \%$ | $4.50 \%$ | $4.61 \%$ |
| $08 / 15 / 07$ | $4.54 \%$ | $4.61 \%$ | $4.69 \%$ | $4.76 \%$ | $4.63 \%$ | $4.73 \%$ | $4.69 \%$ | $4.75 \%$ | $4.86 \%$ |
| $11 / 15 / 07$ | $4.51 \%$ | $4.58 \%$ | $4.60 \%$ | $4.68 \%$ | $4.50 \%$ | $4.61 \%$ | $4.17 \%$ | $4.25 \%$ | $4.35 \%$ |
| $02 / 15 / 08$ | $4.39 \%$ | $4.25 \%$ | $4.53 \%$ | $4.61 \%$ | $4.25 \%$ | $4.36 \%$ | $3.76 \%$ | $3.50 \%$ | $3.62 \%$ |
| $05 / 15 / 08$ | $4.36 \%$ | $4.44 \%$ | $4.22 \%$ | $4.31 \%$ | $3.97 \%$ | $4.07 \%$ | $3.83 \%$ | $3.88 \%$ | $3.94 \%$ |
| $08 / 15 / 08$ | $4.33 \%$ | $4.41 \%$ | $4.13 \%$ | $4.22 \%$ | $3.89 \%$ | $3.98 \%$ | $3.84 \%$ | $4.00 \%$ | $4.08 \%$ |
| $11 / 15 / 08$ | $4.28 \%$ | $4.36 \%$ | $4.02 \%$ | $4.10 \%$ | $3.81 \%$ | $3.88 \%$ | $3.72 \%$ | $3.75 \%$ | $3.78 \%$ |
| $02 / 17 / 09$ | $4.16 \%$ | $4.23 \%$ | $3.72 \%$ | $3.80 \%$ | $3.46 \%$ | $3.52 \%$ | $2.64 \%$ | $2.75 \%$ | $2.82 \%$ |
| $05 / 15 / 09$ | $4.10 \%$ | $4.17 \%$ | $3.59 \%$ | $3.66 \%$ | $3.35 \%$ | $3.41 \%$ | $3.14 \%$ | $3.13 \%$ | $3.19 \%$ |
| $08 / 17 / 09$ | $4.05 \%$ | $4.12 \%$ | $3.50 \%$ | $3.57 \%$ | $3.31 \%$ | $3.39 \%$ | $3.76 \%$ | $3.13 \%$ | $3.99 \%$ |
| $11 / 16 / 09$ | $4.00 \%$ | $4.07 \%$ | $3.43 \%$ | $3.51 \%$ | $3.30 \%$ | $3.39 \%$ | $3.33 \%$ | $3.38 \%$ | $3.47 \%$ |
| $2 / 16 / 10$ | $3.97 \%$ | $4.05 \%$ | $3.46 \%$ | $3.54 \%$ | $3.48 \%$ | $3.57 \%$ | $3.66 \%$ | $3.63 \%$ | $3.69 \%$ |
| $5 / 17 / 10$ | $3.94 \%$ | $4.01 \%$ | $3.45 \%$ | $3.52 \%$ | $3.53 \%$ | $3.62 \%$ | $3.47 \%$ | $3.50 \%$ | $3.55 \%$ |
| $8 / 15 / 10$ | $3.86 \%$ | $3.93 \%$ | $3.26 \%$ | $3.34 \%$ | $3.20 \%$ | $3.28 \%$ | $2.58 \%$ | $2.63 \%$ | $2.73 \%$ |
| $11 / 15 / 10$ | $3.78 \%$ | $3.85 \%$ | $3.12 \%$ | $3.18 \%$ | $2.96 \%$ | $3.01 \%$ | $2.92 \%$ | $2.63 \%$ | $2.64 \%$ |
| $2 / 15 / 11$ | $3.77 \%$ | $3.84 \%$ | $3.38 \%$ | $3.44 \%$ | $3.11 \%$ | $3.15 \%$ | $3.61 \%$ | $3.63 \%$ | $3.67 \%$ |
| $5 / 16 / 11$ | $3.73 \%$ | $3.80 \%$ | $2.73 \%$ | $2.77 \%$ | $2.51 \%$ | $2.55 \%$ | $3.15 \%$ | $3.13 \%$ | $3.21 \%$ |
| $8 / 15 / 11$ | $3.64 \%$ | $3.71 \%$ | $2.91 \%$ | $2.96 \%$ | $2.79 \%$ | $2.84 \%$ | $2.29 \%$ | $2.13 \%$ | $2.14 \%$ |
| $11 / 15 / 11$ | $3.55 \%$ | $3.61 \%$ | $2.73 \%$ | $2.77 \%$ | $2.51 \%$ | $2.55 \%$ | $2.06 \%$ | $2.00 \%$ | $2.03 \%$ |
| $2 / 15 / 12$ | $3.46 \%$ | $3.53 \%$ | $2.53 \%$ | $2.56 \%$ | $2.19 \%$ | $2.35 \%$ | $1.93 \%$ | $2.00 \%$ | $2.02 \%$ |
| $5 / 15 / 12$ | $3.37 \%$ | $3.52 \%$ | $2.31 \%$ | $2.36 \%$ | $1.93 \%$ | $1.98 \%$ | $1.75 \%$ | $1.86 \%$ | $2.02 \%$ |
| $8 / 15 / 12$ | $3.28 \%$ | $3.35 \%$ | $2.13 \%$ | $2.18 \%$ | $1.79 \%$ | $1.85 \%$ | $1.80 \%$ | $1.63 \%$ | $1.68 \%$ |
| $11 / 15 / 12$ | $3.20 \%$ | $3.26 \%$ | $1.98 \%$ | $2.03 \%$ | $1.71 \%$ | $1.77 \%$ | $1.58 \%$ | $1.63 \%$ | $1.68 \%$ |
| $2 / 15 / 13$ | $3.14 \%$ | $3.20 \%$ | $1.90 \%$ | $1.95 \%$ | $1.78 \%$ | $1.84 \%$ | $2.01 \%$ | $2.00 \%$ | $2.05 \%$ |
| $5 / 15 / 13$ | $3.07 \%$ | $3.13 \%$ | $1.82 \%$ | $1.82 \%$ | $1.78 \%$ | $1.78 \%$ | $1.70 \%$ | $1.81 \%$ | $1.94 \%$ |



# Attachment C. - The Burbank Group Impact Calculator - Orig. 50A and 50B 

Stat. Infl. 4\% for All

| Index <br> Rate | Year 5 Impact | Year 10 Impact | Year 15 Impact | Year 20 Impact | Year 25 Impact | Year 30 Impact | Year 35 Impact |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6.00\% | -6.20\% | -10.50\% | -14.50\% | -18.30\% | -25.10\% | -31.10\% | -36.50\% |
| 5.75\% | -5.70\% | -9.50\% | -13.00\% | -16.40\% | -23.00\% | -29.00\% | -34.30\% |
| 5.50\% | -5.20\% | -8.40\% | -11.60\% | -14.50\% | -20.90\% | -26.70\% | -31.90\% |
| 5.25\% | -4.60\% | -7.40\% | -10.00\% | -12.60\% | -18.70\% | -24.30\% | -29.40\% |
| 5.00\% | -4.10\% | -6.30\% | -8.50\% | -10.60\% | -16.50\% | -21.90\% | -26.80\% |
| 4.75\% | -3.50\% | -5.20\% | -6.90\% | -8.50\% | -14.10\% | -19.30\% | -24.00\% |
| 4.50\% | -2.90\% | -4.10\% | -5.20\% | -6.30\% | -11.60\% | -16.50\% | -21.00\% |
| 4.25\% | -2.40\% | -2.90\% | -3.50\% | -4.10\% | -9.00\% | -13.60\% | -17.90\% |
| 4.00\% | -1.80\% | -1.80\% | -1.80\% | -1.80\% | -6.30\% | -10.60\% | -14.60\% |
| 3.75\% | -1.20\% | -0.60\% | 0.00\% | 0.60\% | -3.50\% | -7.50\% | -11.20\% |
| 3.50\% | -0.60\% | 0.60\% | 1.80\% | 3.10\% | -0.60\% | -4.10\% | -7.50\% |
| 3.25\% | 0.00\% | 1.80\% | 3.70\% | 5.70\% | 2.50\% | -0.60\% | -3.60\% |
| 3.00\% | 0.60\% | 3.10\% | 5.70\% | 8.30\% | 5.70\% | 3.00\% | 0.60\% |
| 2.75\% | 1.20\% | 4.40\% | 7.60\% | 11.10\% | 9.00\% | 6.90\% | 5.00\% |
| 2.50\% | 1.80\% | 5.70\% | 9.70\% | 13.90\% | 12.50\% | 11.00\% | 9.60\% |
| 2.25\% | 2.40\% | 7.00\% | 11.80\% | 16.90\% | 16.10\% | 15.30\% | 14.60\% |
| 2.00\% | 3.10\% | 8.30\% | 13.90\% | 19.90\% | 19.90\% | 19.80\% | 19.80\% |
| 1.75\% | 3.70\% | 9.70\% | 16.10\% | 23.10\% | 23.90\% | 24.60\% | 25.40\% |
| 1.50\% | 4.30\% | 11.10\% | 18.40\% | 26.40\% | 28.00\% | 29.60\% | 31.30\% |



## Attachment D. - The Burbank Group Impact Calculator - Amended 50A

Stat. Infl. 4\% for P\&S only

| Index Rate | Year 5 Impact | Year 10 Impact | Year 15 Impact | Year 20 Impact | Year 25 Impact | Year 30 Impact | Year 35 Impact | 8 Year Impact |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6.00\% | -13.00\% | -24.00\% | -33.20\% | -40.80\% | -49.10\% | -55.70\% | -61.10\% | -8.80\% |
| 5.75\% | -12.60\% | -23.20\% | -32.20\% | -39.70\% | -47.90\% | -54.60\% | -60.00\% | -8.00\% |
| 5.50\% | -12.10\% | -22.40\% | -31.10\% | -38.50\% | -46.70\% | -53.50\% | -58.90\% | -7.10\% |
| 5.25\% | -11.60\% | -21.60\% | -30.00\% | -37.30\% | -45.50\% | -52.30\% | -57.80\% | -6.30\% |
| 5.00\% | -11.10\% | -20.70\% | -28.90\% | -36.00\% | -44.20\% | -51.00\% | -56.60\% | -5.40\% |
| 4.75\% | -10.60\% | -19.80\% | -27.80\% | -34.70\% | -42.90\% | -49.70\% | -55.30\% | -4.50\% |
| 4.50\% | -10.10\% | -19.00\% | -26.70\% | -33.40\% | -41.60\% | -48.30\% | -54.00\% | -3.60\% |
| 4.25\% | -9.60\% | -18.10\% | -25.50\% | -32.00\% | -40.10\% | -46.90\% | -52.60\% | -2.70\% |
| 4.00\% | -9.00\% | -17.10\% | -24.30\% | -30.60\% | -38.70\% | -45.40\% | -51.10\% | -1.80\% |
| 3.75\% | -8.50\% | -16.20\% | -23.00\% | -29.10\% | -37.10\% | -43.90\% | -49.60\% | -0.80\% |
| 3.50\% | -8.00\% | -15.30\% | -21.80\% | -27.60\% | -35.50\% | -42.30\% | -48.00\% | 0.10\% |
| 3.25\% | -7.50\% | -14.30\% | -20.50\% | -26.00\% | -33.90\% | -40.60\% | -46.30\% | 1.10\% |
| 3.00\% | -6.90\% | -13.30\% | -19.10\% | -24.40\% | -32.10\% | -38.80\% | -44.50\% | 2.10\% |
| 2.75\% | -6.40\% | -12.30\% | -17.80\% | -22.70\% | -30.30\% | -36.90\% | -42.60\% | 3.10\% |
| 2.50\% | -5.80\% | -11.30\% | -16.30\% | -21.00\% | -28.50\% | -35.00\% | -40.70\% | 4.10\% |
| 2.25\% | -5.30\% | -10.30\% | -14.90\% | -19.20\% | -26.50\% | -32.90\% | -38.60\% | 5.10\% |
| 2.00\% | -4.70\% | -9.20\% | -13.40\% | -17.40\% | -24.50\% | -30.80\% | -36.40\% | 6.20\% |
| 1.75\% | -4.10\% | -8.10\% | -11.90\% | -15.40\% | -22.40\% | -28.60\% | -34.00\% | 7.20\% |
| 1.50\% | -3.60\% | -7.00\% | -10.30\% | -13.50\% | -20.20\% | -26.20\% | -31.60\% |  |



