**Gary J. Gray, Ph.D.**
Visiting Professor of Finance
The Pennsylvania State University-University Park

Gary J. Gray has been a Visiting Professor of Finance at The Pennsylvania State University since 1988. He has taught courses on the capital markets, derivative securities, investment banking, valuation and financial innovation for undergraduate, MBA and Ph.D. students. He has published articles in numerous periodicals including *Harvard Business Review* and *Municipal Finance Journal*. He is the author of Running with the Bulls published by Lyons Press 2001; co-author of Municipal Derivative Securities: Uses and Valuation, Irwin (1995), Streetsmart Guide to Valuing a Stock, McGraw-Hill (1999, 2004), and Applied Principles of Finance, Kendall/Hunt (2005). Dr. Gray received a B.S. in Electrical Engineering, an MBA and a Ph.D. in Finance from the Pennsylvania State University.

From 1973 until 1996, Dr. Gray was an investment banker/financial engineer specializing in new product development in municipal finance. He was a Managing Director of Lehman Brothers and a Senior Vice President of E.F. Hutton. Dr. Gray was the principal architect of a number of new financial products including: tax-exempt zero-coupon bonds, capital appreciation bonds, agricultural revenue bonds, tender option crossover refunding bonds, RIBS/SAVRS, Bond Payment Obligations (BPOs), municipal call options (MuniCHOPs), and various secondary market versions of RIBS/SAVRS, Tender Option Bond programs and other tax-exempt bond and preferred stock programs using custody and trust arrangements. Since 1996, he has consulted for many state and local governments, banks and corporations.

**Patrick J. Cusatis, Ph.D., CFA**

Assistant Professor of Finance
The Pennsylvania State University-Harrisburg

Patrick J. Cusatis is an Assistant Professor of Finance at the Pennsylvania State University where he has taught graduate courses in Finance continuously since 1992. Until 2002, Dr. Cusatis was a Senior Vice President in charge of municipal derivatives and municipal remarketing at Tucker Anthony Sutro, where he originated and managed a $250 million Tender Option Bond (TOB) Program. Before jóining Tucker-Anthony, he managed a TOB program in excess of $3 billion for First Union National Bank. From 1992 to 1997, he specialized in municipal new product development at Lehman Brothers where he assisted in the development and marketing of many of the primary and secondary market municipal derivatives currently in the market.

Dr. Cusatis has published numerous articles in books and journals including *Journal of Financial Economics, Journal of Applied Corporate Finance*, and *Municipal Finance Journal*. His research has been highlighted extensively in the financial press, including *The New York Times, The Wall Street Journal, Barron's, Investor's Business Daily, Fortune, Forbes* and *Business Week*. His research has been featured on CNN's *Money Line* and on CNBC's *Squawk Box*. He is co-author of Hedging Instruments and Risk Management, McGraw-Hill (2005), The Streetsmart Guide to Valuing a Stock, McGraw-Hill (1999, 2004), and Municipal Derivative Securities: Uses and Valuation, Irwin (1995). Dr. Cusatis received a B.S. in Finance and a Ph.D. in Finance and Statistics from the Pennsylvania State University.

# An Analysis of
# The Proposed Lease and Reinvestment Program
# For The Pennsylvania Turnpike

**June 2008**

**This Study was commissioned by the**
**Democratic Caucus**
**Of the**
**Pennsylvania House of Representatives**

PENNSYLVANIA
House Democratic Caucus

## Executive Summary

The General Assembly approved casino gambling in 2004. It is now being asked to place an even larger wager on the chance that the Commonwealth can earn outsized returns from reinvesting the proceeds obtained from a 75-year lease of the Pennsylvania Turnpike. This bet is risky because the Commonwealth would revoke Act 44, the landmark transportation legislation enacted last summer. Under Act 44, the Pennsylvania Department of Transportation (PennDOT) is scheduled to receive $83.3 billion from the Pennsylvania Turnpike Commission (PTC). The present value of the Act 44 payment stream over its 50-year period is $26.5 billion. The net upfront payment for the proposed Turnpike Lease is $10.188 billion with a *present value of $7.98 billion over 75 years.*

Morgan Stanley, the financial advisor on the transaction, is asking the General Assembly to bet on a set of 75 risky, volatile and unrealistically high investment returns **(12.67% or greater)**, that are required to achieve the large distributions being promised to PennDOT by the Reinvestment Program. If the Commonwealth places this bet, it would discard the steady, predictable, annual cash flows that the Pennsylvania Turnpike Commission has already started delivering under Act 44—$750 million dollars to date.

In the face of problems in the mortgage, credit and stock markets, the Commonwealth requested bids to lease and operate the Turnpike for 75 years. It received three first round bids, which ultimately were narrowed down to two final bids: a $12.801 billion upfront bid from an Abertis (Spain) led consortium, and a $12.1 billion bid from a Goldman Sachs led group.

In this report we examine the winning bid for the Turnpike Lease and the Reinvestment Program for the proceeds of the Turnpike Lease. We discuss key aspects of the transaction in order to provide the General Assembly with objective information to answer two interrelated questions:

- ***Financially, is the upfront Lease Payment Fair and Adequate; and is the Tolling Schedule Appropriate for a 75-year Lease of the Turnpike?***
- ***From a Risk/Reward Perspective, how realistic is the proposed Reinvestment Program?***

The winning gross bid amount of $12.801 billion must be reduced due to costs associated with the ultimate lease of the Pennsylvania Turnpike to private investors under the 75-year Lease Agreement. Upfront costs include $2.816 billion required to discharge certain outstanding debt of the PTC and $95.457 million in payments to terminate interest rate swaps and other derivative transactions. These requirements are partially offset by approximately $300 million in cash reserves of the Turnpike that will be available when the claims on the existing bonds are extinguished. These adjustments result in net investable proceeds from the bid of $10.188 billion. Additional costs relating to the present value of Pennsylvania State Police services and reduced capital expenditure payments bring the *net present value of the Turnpike Lease bid to $7.98 billion.*

- The *proposed Lease Agreement contains a costly option* granted to Abertis. The gross upfront payment of $12.801 billion will be decreased by 1/10$^{th}$ of 1% for every basis point increase from the Bid Date (4.838% on May 9, 2008) in the 30-year mid-market LIBOR swap rate. The 30-Year Swap Rate has gone up 41 basis points (to 5.248% on June 13) in four weeks, meaning that the gross bid of $12.8 billion *has decreased by 4.1% or $524.8 million.*

Based on the analysis described herein, we believe that: ***Financially, the upfront Lease payment is inadequate for a 75-year Lease of the Turnpike; and the Lease tolling schedule is significantly higher than under Act 44. The bid should be rejected.***

We also have significant concerns about the proposed Reinvestment Program:

- The simple average return performance of the SERS portfolio over the time period from 1988 to 2007 is 12%, while the geometric average is 11.5%. Based on these return numbers, *the 75-year Reinvestment Program does not work.*
- Schedule 3 (Page 29) replicates the SERS historic investment returns that averaged 12% from 1988 to 2007 (beginning in 1988). It shows the investment returns and makes the required payments. *After 28 years, the Turnpike Lease Fund runs out of money.*
- Schedule 4 (Page 31) addresses the *timing* of the underlying returns, which critically affects the performance of the Reinvestment Program. Using the same SERS historic investment returns that averaged 12% from 1988 to 2007, we begin at a different starting point (2000), and *the Turnpike Lease Fund dissipates after only 13 years.*
- Under the proposed Reinvestment Program, *the investment income from the Turnpike Lease Fund would be risky, volatile and unpredictable.*
- *The P3 Investment Board has no operating history or investment experience.*
- *The present values of the three alternatives are: Turnpike Lease—$7.98 billion; Act 44 payments with tolling I-80—$26.4 billion; and Act 44 payments without tolling I-80—$9.94 billion* (See pages 33-35).

*Based on a more reasonable reinvestment assumption of 8.89% per year which we calculate by using a widely-accepted asset pricing model described herein, the Turnpike Lease Fund will collapse after only 16 years.*

While we can not foresee the eventual outcome of the 75-Year Transportation Funding Solution, we believe that it is highly unlikely that the Turnpike Lease and Reinvestment Program will produce funding in the amounts that are already contractually committed under Act 44. In fact, even if the P3 Board/SERS attains the 12% average annual investment rate of return projected by Morgan Stanley, our analysis shows a majority of scenarios in which the Turnpike Lease Fund evaporates in 13 to 28 years. ***From a Risk/Reward Perspective: (1) the 12% rate assumed in the Reinvestment Program is too high and unrealistic; (2) the proposed Reinvestment Program is seriously flawed and speculative; and (3) The Turnpike Lease and Reinvestment Program is not a prudent and responsible 75-Year Transportation Funding Solution.***

A 2006 study by The Pennsylvania Transportation Funding and Reform Commission (PTFRC) recommended that the Commonwealth invest an additional $1.725 billion per year for highway and transit funding.

In a May 24, 2007 study, Morgan Stanley advised the Commonwealth that the net upfront proceeds raised through a lease of the Pennsylvania Turnpike, along with the investment of those proceeds, could almost fully fund that $1.725 billion per year. Morgan Stanley estimated that a net upfront lease payment of $12.0 billion to $18.0 billion, along with reinvestment rates of 7%, 8% or 9% assumed in its study, would generate annual investment income to fund transportation infrastructure of $1.62 billion to $840 million per year in perpetuity (See Exhibit 6). *The winning net bid was significantly lower than the levels projected in that study.*

**Morgan Stanley has offset the disappointing amount of the bid for the Turnpike Lease by a change in its 7%, 8% or 9% investment assumptions to 12%—an aggressive 3% to 5% increase.** Morgan Stanley justifies using 12% because it was the simple average return earned by the Pennsylvania State Employees' Retirement System (SERS) during the exact 20-year period from 1988 to 2007.

Under a Financial Advisory Contract dated March 26, 2007, Morgan Stanley "... would be paid a Concession Fee of 0.125% of the value of the consideration paid at closing for any lease or concession of Turnpike assets or businesses..." If the proposed transaction is successful, the fee would be $15.2 million (See Exhibit 8). If there is no deal, Morgan Stanley is reimbursed for its expenses.

Under the Reinvestment Program, the $10.188 billion net proceeds from the Turnpike Lease will be managed by a yet-to-be-created P3 Investment Board, "...which shall consult with SERS from time to time (See Exhibit 9)." Based on the assumed 12% rate of return, Morgan Stanley projects that the original deposit of $10.188 billion will generate an additional $203 billion in income—$96.7 billion over the first 50 years (See Exhibit 1) and $213.364 billion to be generated for the Commonwealth over a 75-year time period (See Exhibit 2) which will fund PennDOT's highway and transit needs. The above is a summary of Morgan Stanley's *75-Year Transportation Funding Solution.*

Our main findings relating to the bid and the Turnpike Lease are:

- The gross bid of $12.801 billion and the net present value of the bid of $7.98 billion are far below the fair value of a lease. *The net present value of the bid is 33% to 55% below the $12 billion to $18 billion bid amount estimated by Morgan Stanley in its May 2007 study.*
- The proposed toll formula under the Turnpike Lease is much more aggressive than the toll schedule under Act 44. Based on 75-years of historical Consumer Price Index (CPI) data, the proposed *Turnpike Lease Toll Formula results in maximum toll rates that are 159% higher than the toll rates under Act 44, assuming the Turnpike is under PTC ownership.*

# An Analysis of The Proposed Lease and Reinvestment Program For The Pennsylvania Turnpike

June 2008

PENNSYLVANIA
House Democratic Caucus

# Ultimate Goal of Any Transaction!

**How to Best Fill the <u>$1.725 Billion Annual Funding Gap</u> Identified by Pennsylvania Transportation Funding Reform Commission Study For Highway and Transit!**

# Study Addresses 2 Interrelated Questions

- Financially, is upfront Lease Payment Fair and Adequate; and is the Tolling Schedule Appropriate for a 75-year Lease of the Turnpike?

- From a Risk/Reward Perspective, how realistic is the proposed Reinvestment Program?

# General Assembly Passed Act 44 to address PTFRC Funding Gap

- Created Partnership between PTC and PennDOT
- Provides $750, $850, $900 million in 08, 09, and 2010
- If I-80 tolled then $900 million + 2.5% annually after 2010
- If I-80 not tolled, then flat $450 million per year after 2010

# Morgan Stanley Proposed Turnpike Lease: ala Skyway and Indiana

2008-09 Executive Budget

pennsylvania OFFICE OF THE GOVERNOR

Edward G. Rendell, Governor • Michael J. Masch, Secretary of the Budget

www.budget.state.pa.us

## Turnpike Concession Solicitation

- **The administration is reconsidering the policy alternative of leasing the Pennsylvania Turnpike.**
  - Morgan Stanley advised the commonwealth that a long-term lease could fund the entire estimated $1.725 billion in annual highway and transit needs, significantly more funding than provided by Act 44.
  - A lease could be structured to provide a large upfront payment, to reduce the credit risk implicit in Act 44 and fund more projects.

- **The administration is pursuing a toll road concession agreement.**
  - Thirty-four firms constituting 14 teams responded to request for qualifications; teams are being finalized and considered for qualification to bid, while conducting due diligence to arrive at appropriate valuations.
  - Commonwealth financial advisors expect to review numerous bids; the Governor will approach General Assembly with a binding bid.
  - Public-Private Partnership legislation and a concession agreement would place the roadway under Penn DOT's control and pay off any existing debt secured by tolls, requiring changes to Act 44, which relies on main toll line revenues for annual commonwealth payments.

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# Morgan Stanley Study (5/24/07) Estimates NPV of Lease of $12 to $18 Billion Invested @ 7%-9%

**Potential Annual Interest Proceeds**

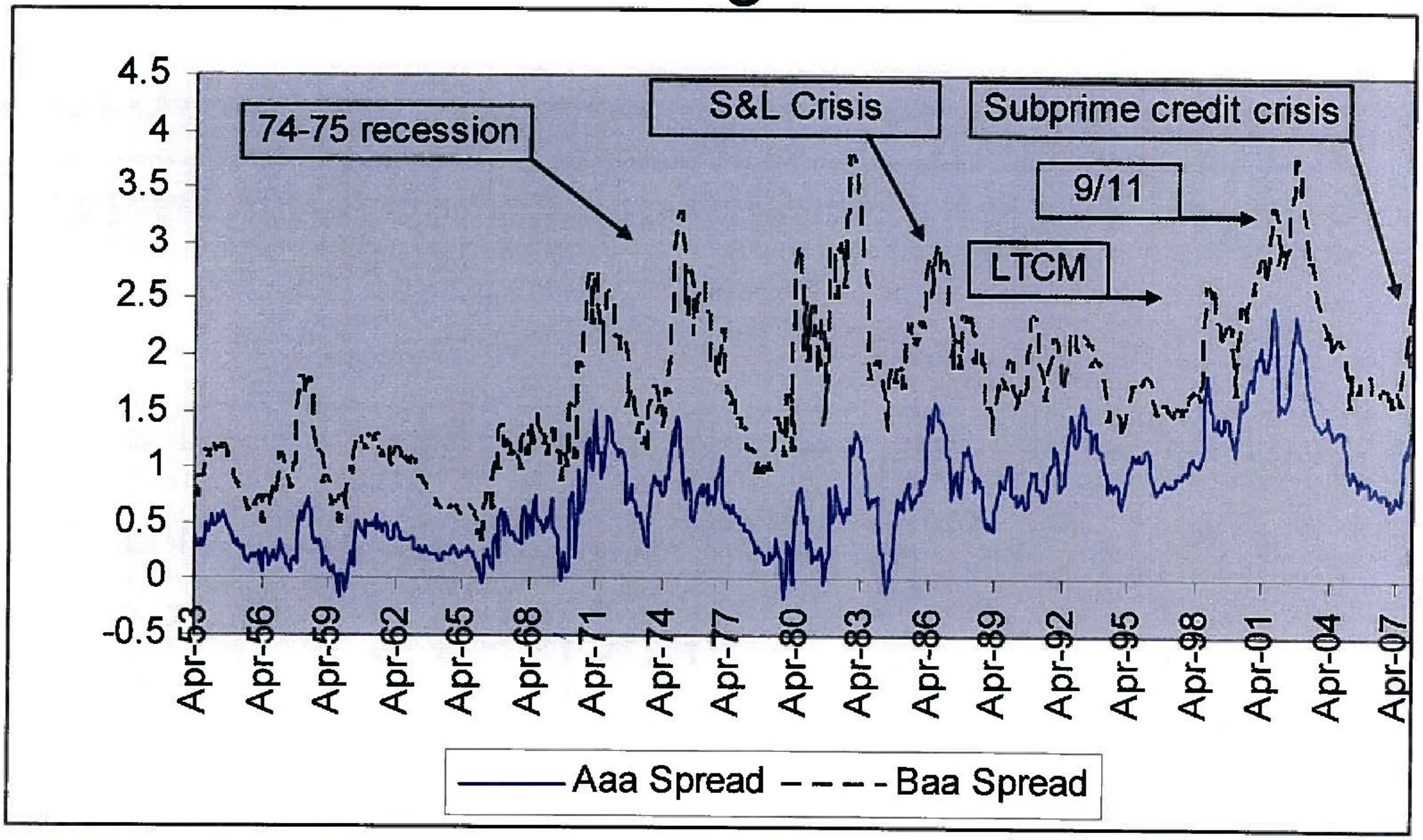
| **Upfront Amount ($BN)** | **Investment Rate** 7.0% | 8.0% | 9.0% |
|---|---|---|---|
| 18.0 | 1.26 | 1.44 | 1.62 |
| 15.0 | 1.05 | 1.20 | 1.35 |
| 12.0 | 0.84 | 0.96 | 1.08 |

Morgan Stanley

Notes

(a) Assumes $12.0 – $18.0 Bn in upfront proceeds invested at a rate of 7.0% - 9.0% in perpetuity

# Morgan Stanley Goes out for Turnpike Bid In Face of Tough Credit Market



# Market Abysmal for Bidders

- Morgan Stanley receives only three initial bids and 2 final bids
  - $12.801 billion bid from Abertis Group
  - $12.1 billion bid from Goldman Sachs Group

- **Bids significantly lower than levels projected in Morgan Stanley Study**.

# Adjustments to Winning Gross Bid to Determine Net Investable Proceeds

| | |
|---|---|
| • Winning Gross Bid | $12.801B |
| – Defeasance Costs | -2.817 |
| – Derivatives Termination | -0.096 |
| – Indenture Funds | +0.300 |
| • Net Investable Proceeds | $10.188B |
| • Abertis Rate Option (6/24/08) | -$358.4 M |

# Present Value of the Bid

| | |
|---|---|
| • Net Investable Proceeds | $10.188B |
| – PV State Police | -.808 |
| – PV CapEx (PTC vs. Lease) | -1.400 |
| **PV of the Bid is** | **$7.98B** |

# Differences in Present Value

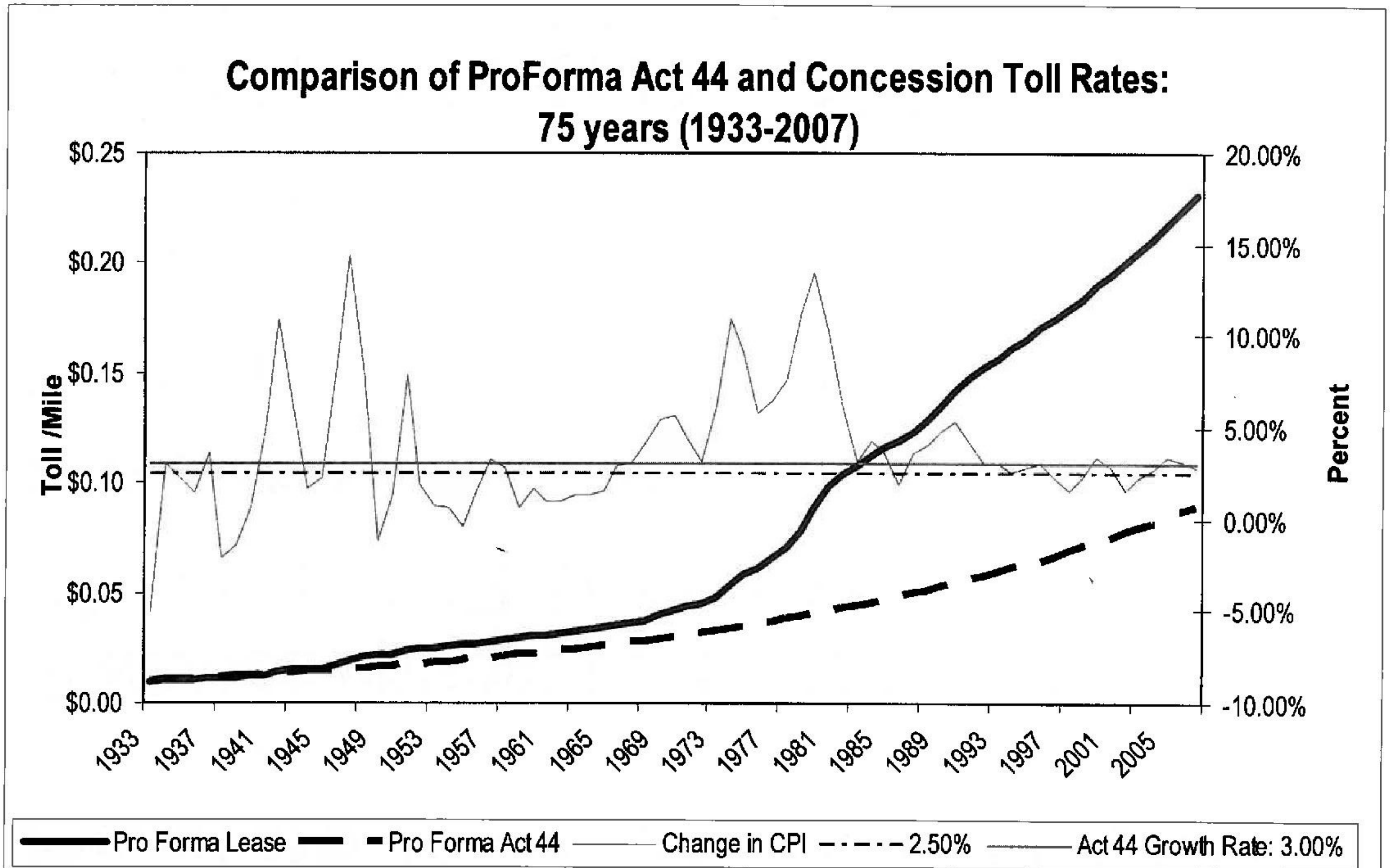
- $7.98 B is PV of 75-year Turnpike Lease
  - Is 55% below MS high estimate of $18 Billion
  - Is 33% below MS low estimate of $12 Billion
  - Is 70% below Act 44 PV estimate of $26.5 Billion (50 years) with tolling I-80
  - Is 20% below Act 44 PV estimate of $9.94 Billion (50 years) without tolling I-80

# Differences in Future Tolls

- Act 44 Tolling Schedule: +25% in 2010 and +3% per year thereafter

- Turnpike Lease Tolling Schedule: +25% in 2010 and then the higher of 2-1/2% or CPI

# Act 44 Tolls Versus Lease Tolls
# Estimated Lease Tolls are 159% Higher



# Abertis Interest Rate Option

- Reduces upfront payment for increase in 30-year LIBOR Swap Rate.
- Is a one-way option.
- 30-year swap rate increased from 4.838% (May $9^{th}$) to 5.120% (June $24^{th}$) by 28 basis points.
- Upfront payment of $12.801 billion decreases by 2.8% or $358.4 million.

# Proposed Turnpike Lease: Our Recommendation-Reject the Bids!

- Gross lease bid of $12.801 billion and present value of $7.98 billion are far too low for 75-year lease of Turnpike.
- We believe the level of the bid is inadequate.
- The Toll Structure under Lease is much more aggressive than under Act 44.
- The Interest Rate Option is one-sided, unfair and costly.

# Proposed Reinvestment Program

- Proceeds of $10.188 Billion invested by not yet created P3 Investment Board
- Proceeds far lower than expected.
- Morgan Stanley raises investment rate to 12% up 3% to 5%.
- SERS Actuarial Investment Assumption is 8.5%--much lower than MS assumption

# Exhibit 3
# Morgan Stanley Project Eagle Graph
# Concession Analysis Versus Act 44



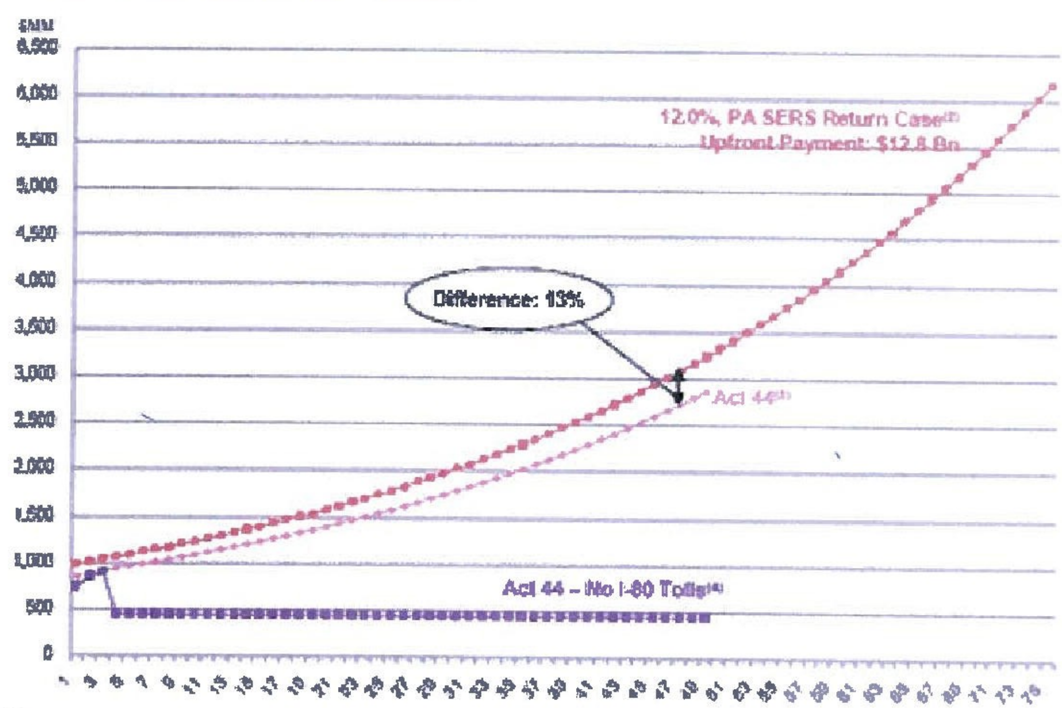
*Confidential Working Draft: 5/19/08*

## Final Bids Annual Proceeds Analysis

Act 44 vs. Concession Lease of $12.8 Bn

- The upfront payment of $12.8 Bn provided by the winning bidder will need to be reduced by $2.33 Bn for defeasance of Turnpike debt
- Once invested, the annual 'return' from the Concession Lease proceeds has the potential to be significantly higher than that of Act 44:
  - SERS average return of 12.0% over the past 20 years
  - The average annual payment for the first 10 years of the concession is 13% higher than the average proceeds derived by Act 44 over that period:
    - –Act 44: $981 MM[1]
    - –Concession: $1.1 Bn

Annual Payments Received by Commonwealth[1]



## Exhibit 2
## Morgan Stanley
## Estimated Gross Concession Proceeds

### Summary of Pennsylvania Turnpike Concession Proceeds ($MMs)

| | |
|---|---|
| Total Upfront Payment | $12,801 |
| Less: Debt Defeasance | ($2,330) |
| **Total Net Upfront Payment** | **$10,471** |
| Act 44: Total payments over 50 years[1] | $83,374 |
| Act 44: Total payments over 50 years (No I-80 Tolling)[2] | $23,650 |
| Concession: Total payments over 50 years[3] | $96,793 |
| Concession: Total payments over 75 years[3] | $213,364 |

**Notes**

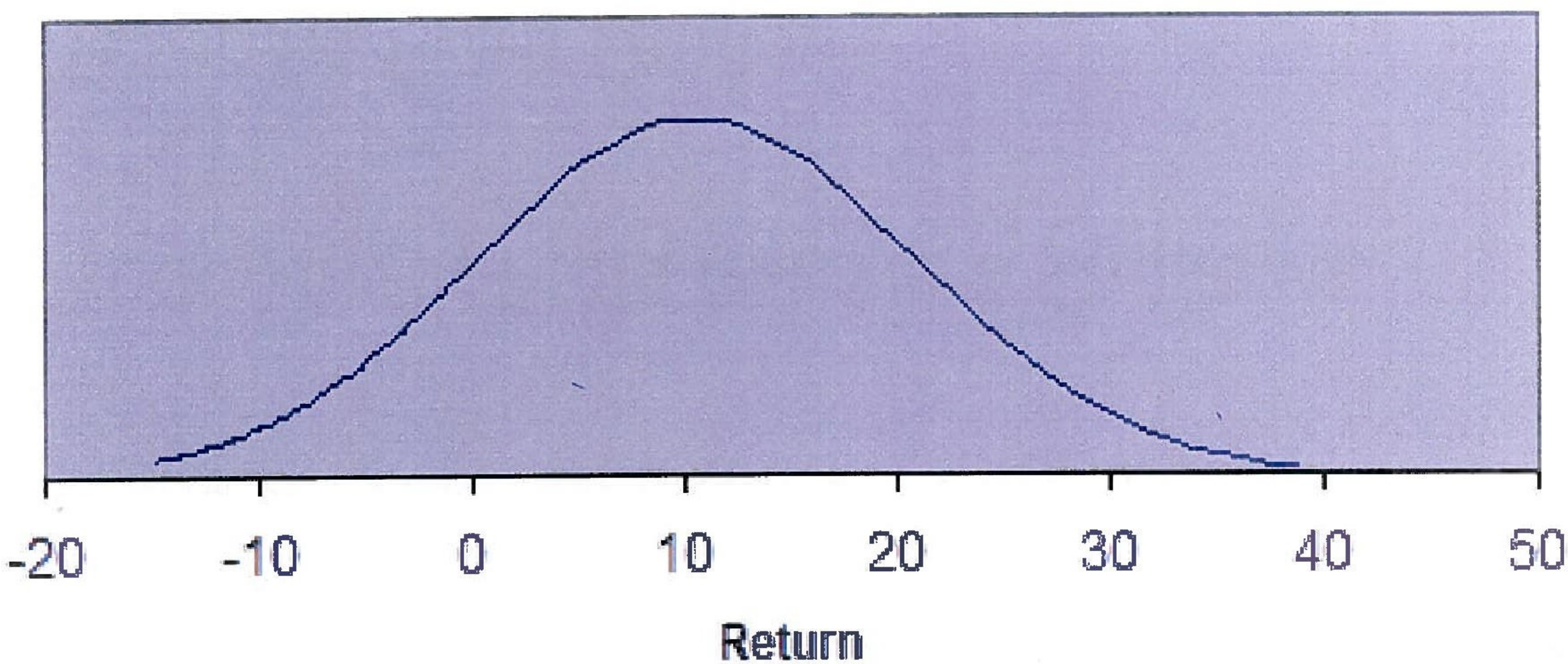
1. Reflects "Scheduled Annual Commission Contribution" specified on pages 282-283 of House Bill No. 1590
2. Reflects "Scheduled Annual Commission Contribution" specified on pages 282-283 of House Bill No. 1590; Without tolling I-80, annual proceeds reduce to $450/year from year 4 onward
3. Applies maximum allowable yearly withdrawals for 75 years, with such draws increasing at 2.5% per year, assuming annual interest rate is a cycle that reflects the return received by PA SERS from 1988-2007 (20-year period), beginning with 1988; Net of annual Pennsylvania State Police costs of $33.5 MM increasing at 2.5%

# Morgan Stanley's Project Eagle: Flawed and Inappropriate Structure

- Pension Plan Inflows & Outflows
- Endowment Fund Inflows & Outflows
- Turnpike Fund Outflows
  - Immediate Pay SPA: (10% of corpus)
  - 2-1/2% accretion
  - Probable rates: 6% to 7%

# Risk Versus Return

Distribution of SERS Investment Returns
Average Return of 12%, Standard Deviation of 10.35%



# Risk Versus Return

**Table A-2**
**Risk Versus Reward**
**Ibbotson & Sinquefield Study**

| Asset Class | Annual Return | Standard Deviation of Return |
|---|---|---|
| US Treasury Bills | 3.70% | 3.10% |
| US Treasury Bonds | 5.50% | 9.20% |
| Corporate Bonds | 5.90% | 8.40% |
| Large Company Stocks | 10.40% | 20.00% |
| Small Company Stocks | 12.50% | 32.60% |

# Risk Versus Return

**Table A-3**
**21st Century History--S&P 500 Index**

| Year Ending 31-Dec | | Ending Index* | | Annual Return |
|---|---|---|---|---|
| 1999 | | 1469.25 | | |
| 2000 | | 1320.28 | | -10.14 |
| 2001 | | 1148.08 | | -13.05 |
| 2002 | | 879.82 | | -23.37 |
| 2003 | | 1111.92 | | 26.38 |
| 2004 | | 1211.92 | | 8.99 |
| 2005 | | 1248.29 | | 3.01 |
| 2006 | | 1418.31 | | 13.62 |
| 2007 | | 1468.36 | | 3.53 |

*Adjusted for dividends and splits—Source: Yahoo Finance

# SERS Actual Historic Returns 1988-2007 (28 years)
# P3 Board/SERS Base Case Pro Forma 2009 to 2036

## Pennsylvania State Employees' Retirement System
### 20-year Historical Portfolio Returns and Fund Balance

| | | | |
|---|---|---|---|
| Initial deposit | 10,188 | | |
| Initial Penn Dot Draw | 993 | Growth in Penn Dot Draw | 2.50% |
| Initial State Police Draw | 33 | Growth in State Police Draw | 5.00% |

| Year | Return | Interest | Penn DOT Draw | State Police Draw | Balance |
|---|---|---|---|---|---|
| 2009 | 12.8% | 1,304 | 993 | 33 | 10,466 |
| 2010 | 17.8% | 1,863 | 1,018 | 35 | 11,276 |
| 2011 | 1.0% | 113 | 1,043 | 37 | 10,309 |
| 2012 | 22.6% | 2,330 | 1,069 | 39 | 11,531 |
| 2013 | 7.4% | 853 | 1,096 | 40 | 11,248 |
| 2014 | 13.2% | 1,485 | 1,123 | 43 | 11,567 |
| 2015 | -1.1% | -127 | 1,151 | 45 | 10,243 |
| 2016 | 25.2% | 2,581 | 1,180 | 47 | 11,598 |
| 2017 | 15.9% | 1,844 | 1,210 | 49 | 12,183 |
| 2018 | 18.0% | 2,193 | 1,240 | 52 | 13,084 |
| 2019 | 16.3% | 2,133 | 1,271 | 54 | 13,891 |
| 2020 | 19.9% | 2,764 | 1,303 | 57 | 15,296 |
| 2021 | 2.2% | 337 | 1,335 | 60 | 14,237 |
| 2022 | -7.9% | -1,125 | 1,369 | 63 | 11,681 |
| 2023 | -10.9% | -1,273 | 1,403 | 66 | 8,939 |
| 2024 | 24.3% | 2,172 | 1,438 | 69 | 9,604 |
| 2025 | 15.1% | 1,450 | 1,474 | 73 | 9,507 |
| 2026 | 14.5% | 1,379 | 1,511 | 76 | 9,298 |
| 2027 | 16.4% | 1,525 | 1,549 | 80 | 9,195 |
| 2028 | 17.2% | 1,581 | 1,587 | 84 | 9,105 |
| 2029 | 12.8% | 1,165 | 1,627 | 87 | 8,556 |
| 2030 | 17.8% | 1,523 | 1,668 | 91 | 8,320 |
| 2031 | 1.0% | 83 | 1,709 | 96 | 6,598 |
| 2032 | 22.6% | 1,491 | 1,752 | 101 | 6,237 |
| 2033 | 7.4% | 462 | 1,796 | 106 | 4,797 |
| 2034 | 13.2% | 633 | 1,841 | 111 | 3,478 |
| 2035 | -1.1% | -38 | 1,887 | 117 | 1,436 |
| 2036 | 25.2% | 362 | 1,934 | 122 | (258) |

# SERS Actual Historic Returns 1988-2007 (13 years)

## P3 Board/SERS Bad Case Pro Forma 2009 to 2021

### 20-year Historical Portfolio Returns and Fund Balance

| | | | |
|---|---|---|---|
| Initial deposit | 10,188 | | |
| Initial Penn Dot Draw | 993 | Growth in Penn Dot Draw | 2.50% |
| Initial State Police Draw | 33 | Growth in State Police Draw | 5.00% |

| Year | Return | Interest | Penn DOT Draw | State Police Draw | Balance |
|---|---|---|---|---|---|
| 2009 | 2.2% | 224 | 993 | 33 | 9,386 |
| 2010 | -7.9% | -741 | 1,018 | 35 | 7,592 |
| 2011 | -10.9% | -827 | 1,043 | 37 | 5,684 |
| 2012 | 24.3% | 1,381 | 1,069 | 39 | 5,957 |
| 2013 | 15.1% | 900 | 1,096 | 40 | 5,720 |
| 2014 | 14.5% | 829 | 1,123 | 43 | 5,384 |
| 2015 | 16.4% | 883 | 1,152 | 45 | 5,071 |
| 2016 | 17.2% | 872 | 1,180 | 47 | 4,716 |
| 2017 | 12.8% | 604 | 1,210 | 49 | 4,060 |
| 2018 | 17.8% | 723 | 1,240 | 52 | 3,491 |
| 2019 | 1.0% | 35 | 1,271 | 54 | 2,201 |
| 2020 | 22.6% | 497 | 1,303 | 57 | 1,338 |
| 2021 | 7.4% | 99 | 1,335 | 60 | 42 |
| 2022 | 13.2% | 6 | 1,369 | 63 | (1,384) |
| 2023 | -1.1% | 15 | 1,403 | 66 | (2,838) |
| 2024 | 25.2% | -715 | 1,438 | 69 | (5,061) |
| 2025 | 15.9% | -805 | 1,474 | 73 | (7,412) |
| 2026 | 18.0% | -1,334 | 1,511 | 76 | (10,334) |
| 2027 | 16.3% | -1,684 | 1,549 | 80 | (13,647) |
| 2028 | 19.2% | -2,620 | 1,587 | 84 | (17,939) |
| Average | 12.0% | | | | |

# CAPM Expected Rate of Return: 8.89% (16 Years)

# P3 Board/SERS CAPM Case Pro Forma 2009 to 2025

**75-year Portfolio Returns and Fund Balance-CAPM 8.89%**

| | | | |
|---|---|---|---|
| Initial deposit | 10,188 | | |
| Initial Penn Dot Draw | 993 | Penn Dot Draw | 2.50% |
| Initial State Police Draw | 33.5 | Growth in State Police Draw | 5.00% |

| Year | Return | Interest | Penn DOT Draw | State Police Draw | Balance |
|---|---|---|---|---|---|
| 2009 | 8.89% | 906 | 993 | 34 | 10,067 |
| 2010 | 8.89% | 895 | 1,018 | 35 | 9,909 |
| 2011 | 8.89% | 881 | 1,043 | 37 | 9,710 |
| 2012 | 8.89% | 863 | 1,069 | 39 | 9,465 |
| 2013 | 8.89% | 841 | 1,096 | 41 | 9,170 |
| 2014 | 8.89% | 815 | 1,123 | 43 | 8,819 |
| 2015 | 8.89% | 784 | 1,151 | 45 | 8,407 |
| 2016 | 8.89% | 747 | 1,180 | 47 | 7,927 |
| 2017 | 8.89% | 705 | 1,210 | 49 | 7,372 |
| 2018 | 8.89% | 655 | 1,240 | 52 | 6,736 |
| 2019 | 8.89% | 599 | 1,271 | 55 | 6,009 |
| 2020 | 8.89% | 534 | 1,303 | 57 | 5,183 |
| 2021 | 8.89% | 461 | 1,335 | 60 | 4,248 |
| 2022 | 8.89% | 378 | 1,369 | 63 | 3,194 |
| 2023 | 8.89% | 284 | 1,403 | 66 | 2,009 |
| 2024 | 8.89% | 179 | 1,438 | 70 | 680 |
| 2025 | 8.89% | 60 | 1,474 | 73 | (807) |
| 2026 | 8.89% | -72 | 1,511 | 77 | (2,466) |
| 2027 | 8.89% | -219 | 1,549 | 81 | (4,315) |
| 2028 | 8.89% | -384 | 1,587 | 85 | (6,370) |
| Average | 8.89% | | | | |

**Figure 5**

**Lease Payments Versus Act 44 Payments**

**Patterned after Morgan Stanley's Eagle Summary Slide 2**

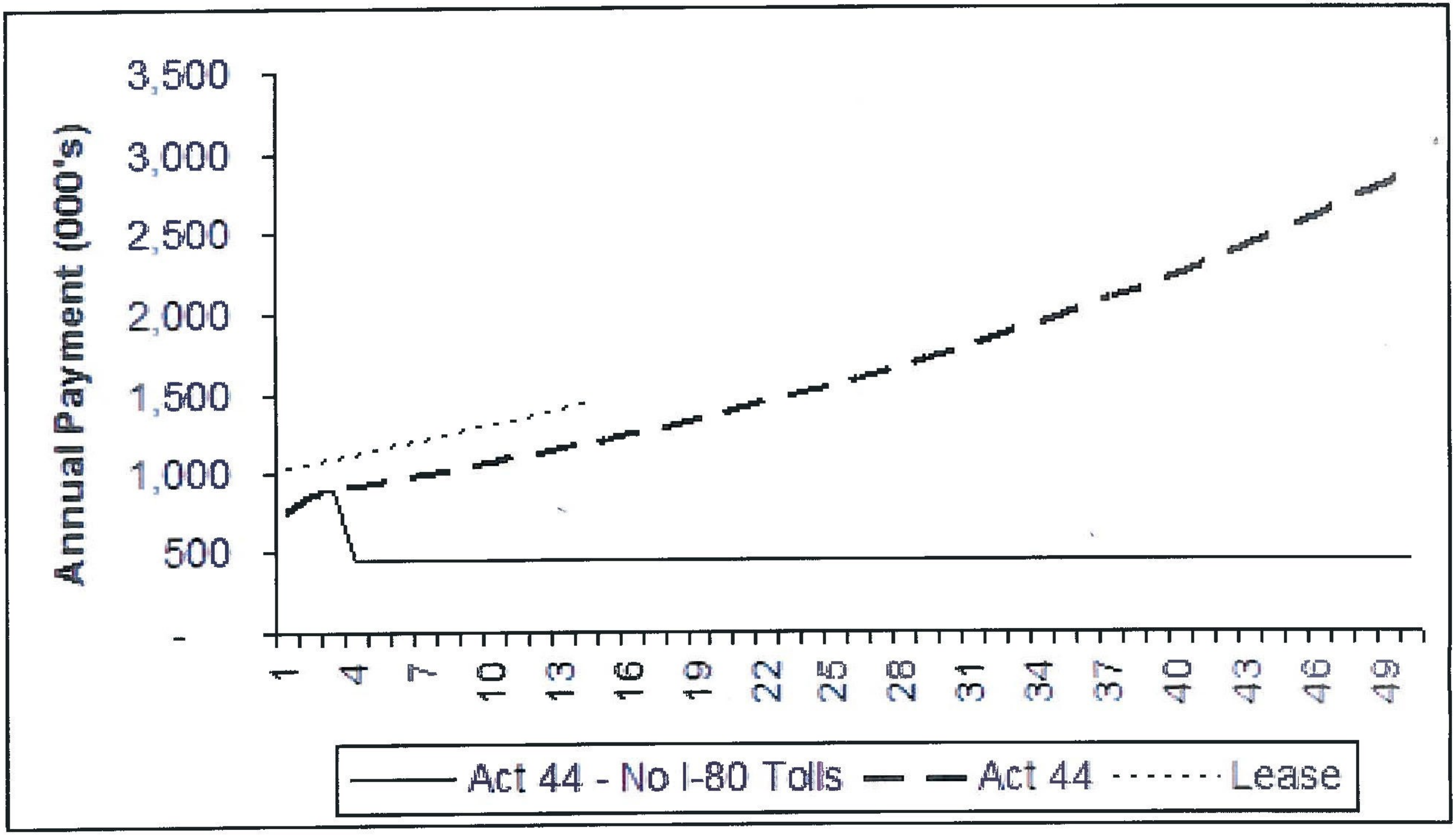
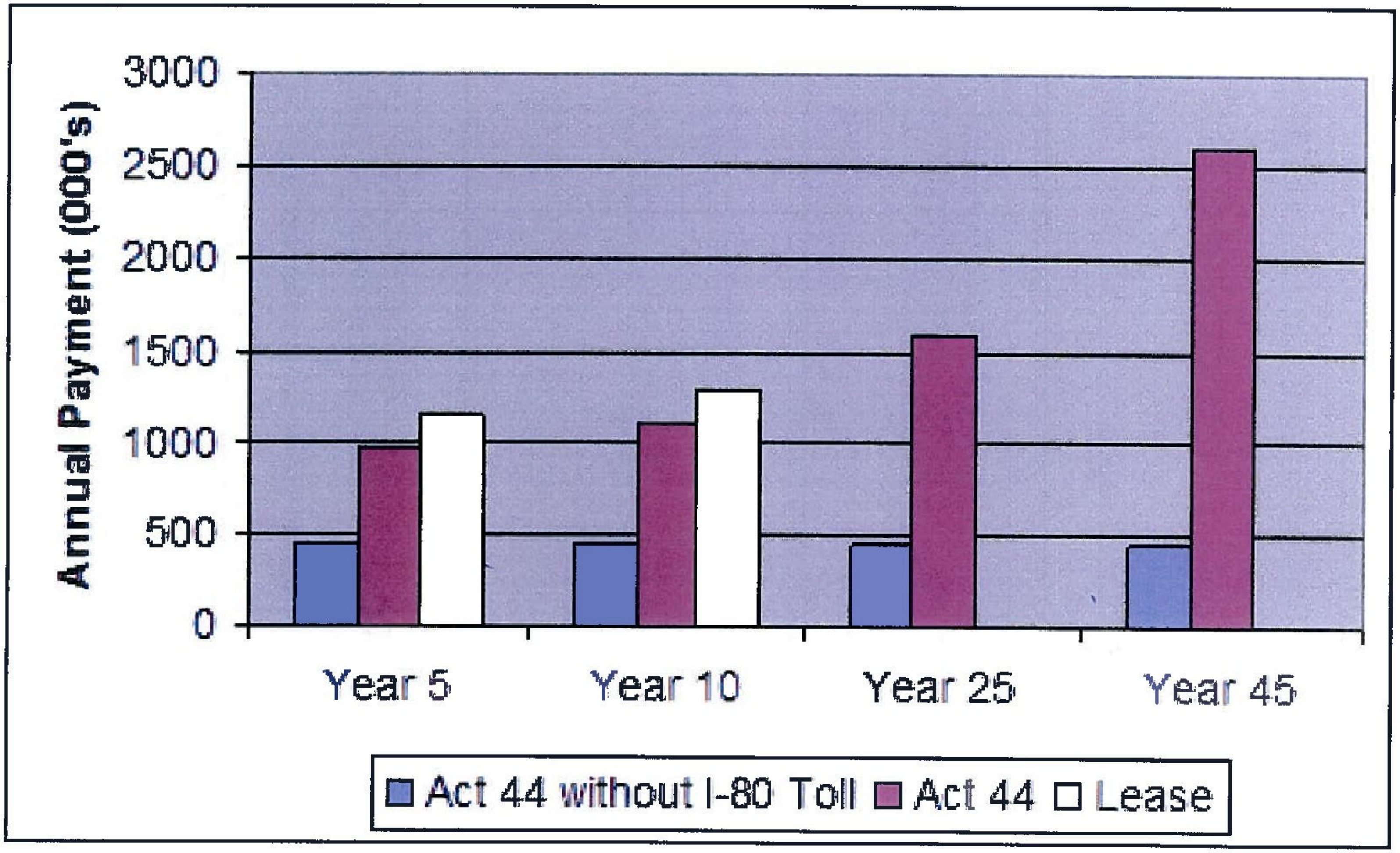


**Figure 6**
**Annual Payment Amounts: Years 5, 10, 25, 45**
**Patterned On Morgan Stanley's Slide 3 Eagle Summary**



## Table A-7

## Estimated Maximum Turnpike Fund Term Assuming a Fixed Rate of Return over the Life of the Lease

| Annual Return | Concession Term | Year |
|---|---|---|
| 7.50% | 14 | 2022 |
| 8.50% | 15 | 2023 |
| 8.89% | 16 | 2024 |
| 9.50% | 17 | 2025 |
| 10.50% | 20 | 2028 |
| 11.50% | 25 | 2033 |
| 12.67% | 75 | 2083 |

# Table A-8
## Estimated Initial Draw plus 2½%
## Supported by a Given Return

| Annual Return | Total Initial Draw |
|---|---|
| 7.50% | 500.3 |
| 8.50% | 600.3 |
| 8.89% | 639.3 |
| 9.50% | 701.3 |
| 10.50% | 803.3 |
| 11.50% | 906.3 |
| 12.67% | 1026.3 |

# Proposed Reinvestment Program: Our Recommendation-Reject the Bids!

- The proposed reinvestment program is seriously flawed and speculative. It does not work.
- The 12% rate assumed is too high and unrealistic.
- The P3 Investment Board has no operating history or investment experience.
- The investment income from the Turnpike Lease Fund would be risky, volatile and unpredictable.
- The present value of the three alternatives are
  - Turnpike Lease- $7.98 Billion
  - Act 44 without Tolling I-80- $9.94 Billion
  - Act 44 with Tolling I-80- $26.4 Billion