STATE OF WEST VIRGINIA

Technical Proposal for Independent Financial Advisory Services

Solicitation No. CRFP 0201 SEC1700000001

May 8, 2017

PFM Financial Advisors LLC
11325 North Community House Road
Suite 325
Charlotte, NC 28207

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Linda Harper
Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

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Dear Ms. Harper:

On behalf of our colleagues at PFM Financial Advisors LLC ("PFM"), we are very pleased to submit our proposal to serve as the State of West Virginia's ("the State's") Financial Advisor. PFM understands that this RFP addresses the State as well as the departments and organizational entities on whose behalf the State issues debt or over which the State has management or governance responsibilities with regard to the issuance of debt.

PFM has been closely monitoring events in West Virginia since 2013 and we believe that our qualifications and expertise have continued to expand, strengthen and evolve. Given the varied needs and challenges of the State, this response provides our specific qualifications, expertise and experience with the wide range of services required to properly serve each financing sector for which the State is responsible for issuing debt. Our proposal provides a comprehensive look at the factors that positively differentiate us from other financial advisors who may propose to serve the State and its related organizations:

Nation's Leading Financial Advisor

PFM is the leading financial advisor in the country and has been for the past 16 years[1]. While our #1 rankings are certainly noteworthy, they are also indicative of the quality of services that PFM provides and the reputation of the firm in the market. We see our rankings as a vote of confidence from our clients and validation of the value we provide them on a day-in-day-out basis. We believe the State will want a partner that has such coast-to-coast, national credibility and experience.

Knowledge of the State and its Debt Structure, Credit, and Financing Policies

We have followed the State's financing program for some time. PFM recently completed a transaction with the Morgantown Utility Board that was the largest West Virginia utility bond issuance in history. Given this and other experiences, PFM is quite familiar with the financial issues that the State faces, the challenges of the current financial landscape in the State, and the debt, legal, and credit structure under which the State operates.

Wide Range of Services for Specific Expertise on Issues concerning the State

Given the magnitude of its funding needs and strategic efforts, the State will benefit from having the full resources of the PFM Team and this team has, by far, the largest staff and most extensive resources of any financial advisory firm. It is this team that provides our clients with financial, industry and regional expertise needed to craft customized solutions to specific problems. While the State will be served by a core financing team to ensure delivery of high quality service, the PFM Team of professionals slated to support the State have extensive experience and expertise in the sectors where the State has near-term financial needs – general government, transportation, education, water/state

[1] As ranked by Securities Data Corporation.

loan programs and public-private partnerships (P3). The PFM Team also draws on resources from other PFM Group affiliates to provide management/budget consulting (addressing OPEB, Worker's Compensation, Medicaid, etc.) and investment advisory services. Included among our professionals are former state budget directors, credit rating analysts, investment bankers, public sector CFOs and school business managers.

To illustrate our areas of breadth of expertise, this response includes several case studies. These case studies were selected based largely on a review of Governor Justice's inaugural address as well as the details of his proposed legislation over his Administration's first 100 days. Clearly, PFM has achieved results in the same areas that will likely become a priority for the State in the coming few months.

PFM Pricing Group

PFM, is the only financial advisory firm that has a dedicated, in-house bond Pricing Group. Using the transaction volume in 2016 as an example, this means PFM is involved directly in the capital markets pricing, on average, *3 transactions every business day*. The Pricing Group will join the core finance team to support the State's pricing, whether negotiated or competitive, and provide this market intelligence to price West Virginia's transaction. Additional benefits of the Pricing Group are that pricing knowledge and information is leveraged firm-wide while also honing PFM's understanding of the internal workings of the underwriting process at each investment bank. In summary, the Pricing Group provides actionable market intelligence that provides a significant competitive advantage to our clients – we understand the complex issues and can determine the best structures to match the State's needs while addressing investor preferences. These qualities will help the State minimize its financing costs.

Technical Resources

The PFM Team has the capability to independently develop or analyze the different financing alternatives that the State considers and to efficiently implement a cost-effective approach. Our resources and analytic capacity are on par with any investment bank, and certainly exceed those of any other financial advisory group. The State can be assured that it has access to state of the art evaluation tools in assessing all financial alternatives and financial products. The Co-engagement managers will ensure that all of the capabilities of PFM are brought to bear on the pressing issues facing the State.

National Reach from a Local Team

In perhaps no other financial pursuit than bond finance is it more important for an entity's financial advisor to have both a local, regional as well as national perspective. Investors and credit rating analysts have a national reach and so should the State's advisor.

Independence

The PFM Team has been, is and will always remain independent of conflicts of interest. The State can be assured that our recommendations will be in the best interest of the Mountaineer State. As an independent financial advisor, we are free to, and frequently do, recommend options that may not result in the sale of bonds.

Having managed (hundreds if not thousands) of RFP processes ourselves, we believe that all issuers ask 2 basic questions when considering changing to a new Financial Advisor:

1. **What capabilities does the new firm bring that are superior to the current firm?** We believe that our experience as the nation's largest and most active Municipal Advisory firm, registered with both the SEC and MSRB, provides a tremendous advantage to our clients and helps them address their most pressing issues in a cost-effective manner. We have more tools (and believe sharper tools) in the toolshed, such as the Pricing Group, to address the varied needs of the State and the State's Agencies.

2. **How difficult will it be to integrate the new Financial Advisor into the current financing team?** Being as active as we are in the municipal arena, PFM understands that completing transactions and projects is a concerted team effort across many organizations and that, occasionally, bringing a new member into that team can pose some challenges. To help the State answer this question, we would invite you to call the General Manager of the Morgantown Utility Board. PFM was hired by MUB and successfully brought the largest West Virginia utility transaction to market during the turbulent times immediately following the national election. We are now anticipating the next transaction, currently planned for the fall.

PFM wants to be your Financial Advisor. We understand the needs of the State of West Virginia. PFM has almost all of the current debt modeled in the system and we are familiar with all of the State's major credit structures. Keeping that in mind, PFM is ready to hit the ground running on day one and will not take up the State's time or money during this transition period. We have always been free of the inherent conflicts of interest – we seek long-term, cost effective solutions to address the State's needs.

PFM is committed to providing the same level of dedicated, hands-on service that we have brought to many other States, state agencies, and large municipalities. We look forward to the opportunity to discuss our credentials with the State and to serve as your Financial Advisor.

As Governor Justice said as he concluded in inaugural address, "Let's Go!"

Sincerely,

James Christopher Lover

Lisa H Daniel

Chris Lover
Managing Director

Lisa Daniel
Managing Director

I. Attachment A: Vendor Response Sheet

Section A: Staff

1. *Provide a proposed staffing plan and include a full resume for each consultant that will be assigned to the West Virginia account, resumes of other key personnel who may be involved in special projects for the State, and any regulatory actions taken or pending relating to each consultant. Also include any staff qualifications and experience in completing similar projects and copies of any staff certifications or degrees applicable to this project*

The team that PFM proposes to serve the State of West Virginia (the "State") is a very senior team that brings decades of relevant experience for State-level financings and the sectors in which the State is seeking funding. PFM organizes our staffing teams to fit the client's needs, both from a regional perspective for availability and understanding of the local economic and political issues, as well as sector specific expertise. ***We serve our clients by creating tailored project teams comprised of experts in specific financing techniques, governmental businesses and geographic regions that work seamlessly together to deliver the best ideas and results for our clients.***

Individuals assigned to the State's project team have been selected to meet the expected needs of the State. As the financing objectives may evolve to include new financing options, products, or sectors, PFM's team will incorporate additional resources from across our firm to meet the changing needs of the State given our breadth and depth of financial advisory experience and expertise. This is a quality PFM possesses which, we feel is beyond what traditional, small advisory firms can provide. As noted in subsequent questions, ***PFM's philosophy is to utilize the size and expertise of a larger firm to deliver better and more innovative ideas, and do it in a way that is highly responsive to client needs and timing.*** PFM's flexible project-oriented approach to staffing engagements enables us to bring the proper mix of resources and experience to bear on a given problem or transaction.

We are excited to have assembled a team specifically designed to provide the State with the talent, knowledge and resources to be especially responsive to your needs. To best serve the State, PFM proposes to dedicate a Primary Team, led by Chris Lover and Lisa Daniel as Engagement Managers. Chris Lover will also serve as the primary Project Manager to interface with the State's staff on a regular basis. The primary team will be regularly supported by other PFM professionals who possess specific expertise as needed for this particular advisory assignment. ***Mr. Lover and Ms. Daniel will be responsible for harnessing particular expertise as necessary for the State's projects and coordinating the project team. As Managing Directors and owners of the firm, they will guarantee accessibility to the State and the ability to leverage and bring the resources of PFM to bear.*** Ms. Daniel and Mr. Lover and the PFM Team assigned to the State commit to providing the necessary resources available throughout the term of the contract. We can also confirm that no regulatory actions have been taken or are pending relating to any of the consultants that will be assigned to the State.

Co-Engagement Managers	
Project Manager	**Senior Advisor**
Chris Lover *Managing Director*	Lisa Daniel *Managing Director*

Specialists	Investment Management	Analytical Support
Transportation / P3 David Miller, *Managing Director*	Pension / OPEB Jim Link, *Managing Director*	Brynne Piotrowski *Senior Managing Consultant*
State Revolving Funds Lauren Lowe, *Managing Director*	Asset Management / OPEB Nelson Bush, *Managing Director*	Eric Smith *Senior Managing Consultant*
Asset Securitization Dan Hartman, *Managing Director*	Structured Products Matt Eisel, *Managing Director*	Eric Brown *Senior Managing Consultant*
Health Care Errol Brick, *Managing Director*	**Other PFM Resources**	
Higher Education Emily Abrantes, *Director*	Pricing Group Todd Fraizer, *Managing Director*	
Management & Budget Consulting Randall Bauer, *Director*	Quantitative Strategies Dan Kozloff, *Managing Director*	
	Arbitrage Compliance Katia Frock, *Director*	

Chris Lover
Managing Director
General Financial Advisory & Utility Expertise
18 Years' Experience

Chris Lover is a Managing Director in the Charlotte, North Carolina office. Mr. Lover joined PFM in 2010 after 20 years of service in the U.S. Army.

At PFM, Mr. Lover works with large issuers nationally and has served as a financial advisor to many of the largest municipal entities in the country, including those supporting the District of Columbia and the City of Sacramento (CA), primarily assisting their utilities. Mr. Lover has completed over $15 billion in financings in the municipal market during his tenure with the firm. Chris led PFM's efforts, in 2014, for a transaction recognized as the northeast regional Bond Buyer Deal of the Year. This was the "first of its kind", municipal- issued, taxable, 100-year "Century bond" used to finance a large infrastructure project for the District of Columbia.

Mr. Lover has particular expertise with the largest public power, combined utility as well as water and wastewater agencies in the country, including DC Water, the Sacramento Municipal Utility District, Energy Northwest, Indiana Municipal Power Agency, WPPI Energy (Wisconsin), Southern Minnesota Municipal Power Agency, City of Gainesville (FL) Regional Utilities and City of Springfield (MO) Utilities.

Mr. Lover recently completed a transaction for a West Virginia issuer, the Morgantown Utility Board ("MUB"). The transaction was the largest individual, municipal utility issuance in West Virginia history. The transaction closed in November of 2016.

As part of Chris' client engagements, he has managed complex financing plans for large capital programs, led educational workshops with Boards and elected officials, devised and implemented rating strategies for new and existing credits and led pricing efforts for bonds and interest rate swaps. He is also a frequent speaker at public finance industry conferences and workshops.

Mr. Lover received his Bachelor's Degree in Finance and Economics from Georgetown University. He also was awarded a Master's in Business Administration from Columbia University. While in the Army, Chris taught Economics, Accounting and Corporate Finance at the U.S. Military Academy, West Point. His final few military assignments were in the Washington, D.C. area, where he was a budget analyst for the Army and Department of Defense staff. Chris also was assigned to the Office of Management and Budget, providing budget analysis for the White House. Chris holds the Chartered Financial Analyst designation. Mr. Lover is a registered Municipal Advisor Representative (Series 50).

Lisa Daniel
Managing Director
SRF and State Pooled Program Expertise
23 Years' Experience

Lisa Daniel joined PFM in 1999 and serves as the Co-Director of PFM's National State Revolving Fund and State Pool Program sector and is a Co-Director of PFM's Environmental Finance Group. Ms. Daniel has been appointed to the Environmental Finance Advisory Board to the EPA ("EFAB") where she is currently involved in several workgroups developing policy advice, particularly related to water infrastructure and green infrastructure. With EFAB, she is currently working as a Co-Committee Chair to explore Public-Private Partnerships (P3s) for water infrastructure. She has co-chaired past committees that explored EPA's potential involvement in establishing a Certified "Green Bond" designation. Ms. Daniel serves on the Board of Directors and the Finance Committee of the Council of Infrastructure Financing Authorities ("CIFA") and recently participated with CGI America to explore and develop solutions to address the Country's aging infrastructure needs.

Ms. Daniel serves as the primary Client Manager for several SRF programs, including those managed by the New York State Environmental Facilities Corporation; the Massachusetts Clean Water Trust; and the Kansas Development Finance Authority. To further support this practice sector, she has supervised the development of customized transaction management models, including those designed to assess program capacity, measure default tolerance levels and design optimal capital financing structures. Ms. Daniel has been integral in redesigning the legal and security frameworks of several SRF programs through new program resolutions and indentures aimed to improve efficiency and flexibility in changing market environments, lower capital funding costs and streamline administrative burdens. Her vast knowledge of program intricacies and the specific IRS regulations governing tax exempt financings originated in the nine years spent with Ernst & Young's bond verification and arbitrage rebate practices.

In addition to her participation in PFM's national state revolving fund and state pool program practice, Ms. Daniel manages the Mid-South PFM office, located in Memphis, Tennessee, and has served as the Client Manager for several state and municipalities throughout the South. Ms. Daniel's has managed several complex transactions including the first post-Katrina issuances and complete program restructure for the Sewerage and Water Board of New Orleans and those issued by the Memphis-Shelby County Sports Authority (Fed-Ex Forum, home of the Memphis Grizzlies) and the State of Tennessee.

Lisa was recognized as one of "25 Super Business Women in Memphis" by the Memphis Business Journal in 2014. Ms. Daniel graduated with a BA in Economics and Business Administration from Rhodes College in Memphis, Tennessee, and is a Certified Public Accountant (inactive). Ms. Daniel currently serves on the Board of Directors for Public Financial Management. Ms. Daniel is a registered Municipal Advisor Representative (Series 50).

David Miller
Managing Director
Transportation / P3 Expertise
29 Years' Experience

Mr. Miller is head of PFM's national transportation finance practice, based out of our Orlando office, where he specializes in all forms of transportation financings. He also is a leader in PFM's Public Private Partnership ("P3") practice. Mr. Miller joined PFM as a Financial Analyst in 1988 and has been with the firm continuously for over 29 years. Mr. Miller's major transportation clients include many large and innovative financing efforts, including the Kentucky Public Transportation Infrastructure Authority for the Louisville Southern Indiana Ohio River Bridges project; the North Carolina Turnpike Authority's development and financing of five separate toll facility projects; Texas Department of Transportation ("DOT") for the Grand Parkway; and CBBTD for its Thimble Shoal Tunnel project. Additional transportation clients include Maryland DOT, Hampton Roads Transportation Accountability Commission, South Carolina Transportation Infrastructure Bank, Central Florida Expressway Authority, Chesapeake Transportation System toll roads, and numerous others. He has researched extensively and utilized innovative financing programs, when applicable, such as Transportation Infrastructure Financing and Innovation Act ("TIFIA"), P3 evaluation, "shadow tolls" for the Federal Highway Administration, revolving loan structures for state infrastructure banks ("SIBs"), and other projects with project-revenue credits.

Mr. Miller has served as lead financial advisor on engagements that have included approximately $20 billion of new money and refunding debt structures secured by toll revenues, gas tax and vehicle registration fee revenue, general obligation, sales tax revenue, airport revenue, seaport revenue, tourist/hotel tax revenue, water and sewer system revenue, solid waste facilities revenue, and excise tax revenue. He also has advised on six TIFIA loans, various SIB programs and loans, the use of fixed-rate and variable-rate debt, bank financing, lease structures, and swaps, plus the development of long- term capital planning models and asset-liability matching models for public infrastructure programs.

Mr. Miller earned a Master of Public Administration degree from the University of Central Florida and a Bachelor of Science degree in Finance from the University of Tennessee, Knoxville. Mr. Miller is a registered Municipal Advisor Representative (Series 50).

Lauren Lowe
Managing Director
State Expertise
13 Years' Experience

Lauren Lowe joined PFM in 2004. Throughout her time with PFM, Lauren has provided technical and analytical support for a variety of clients including State, County, City, Public Power, Utility System and Airport clients. Ms. Lowe is involved in analytical analysis as well as transaction management on debt transactions and structuring, strategic planning, pricing, cash flow analysis, as well as debt structuring of over $4.5 billion in debt. Her experience includes: General Obligation; Capital Revenue; Airport Revenues; Gas Taxes; Water, Sewer and Solid Waste System Revenues; and Infrastructure Sales Surtax Transactions.

Ms. Lowe has developed and maintained complex cash flow models (Transportation-Toll Facilities) and capital improvement plans for the clients she has served at PFM. Other analyses completed by Ms. Lowe include debt capacity analysis and effective capital structure. Ms. Lowe serves as the project manager to the several clients but her primary focus has been her project management for the State of Tennessee.

Ms. Lowe graduated from Mississippi State University where she received a Bachelor of Science degree in Business Administration with a major in Finance. Ms. Lowe is a registered Municipal Advisor Representative (Series 50).

Dan Hartman
Managing Director
Asset Securitization & General Financial Advisory
28 Years' Experience

Dan Hartman is a Managing Director in the Arlington, Virginia office. Mr. Hartman worked for PFM from 1991-2000, and rejoined the firm in 2006. Mr. Hartman works with large issuers nationally and oversees PFM's national utility financial advisory practice. Mr. Hartman has completed over $50 billion in financings in the municipal market and has worked on some of the largest and most complex transactions to come to the municipal market. Mr. Hartman led PFM's efforts in 2011 for the national Bond Buyer Deal of the Year, a public/private partnership for the financing of a utility-scale wind project by the Southern California Public Power Authority.

Mr. Hartman has expertise with the largest water, wastewater, and public power agencies in the country, including the Los Angeles Department of Water and Power, the Metropolitan Water District, and the Philadelphia Water Department. On behalf of his municipal clients, Mr. Hartman has also provided expert witness testimony to legislative and regulatory bodies. Mr. Hartman is also a frequent speaker at public finance industry conferences and workshops.

For asset securitization, Dan is currently involved with the Los Angeles Department of Water and Power ("LADWP"). He has helped author and sponsor state legislation that will allow LADWP to securitize a non-bypassable charge on its utility bill to pay for federal and state environmentally mandated projects. Mr. Hartman has worked with LADWP throughout the development phase of the financing to include obtaining legislative approval as well as rating agency engagement to improve their understanding of the transaction. This securitization transaction is planned for early 2018.

Mr. Hartman received his Bachelor's Degree in Economics and International Relations from the University of North Carolina – Chapel Hill and a Diploma from the London School of Economics. Mr. Hartman is a registered Municipal Advisor Representative (Series 50).

Errol Brick
Managing Director
Healthcare Expertise
38 Years' Experience

Errol Brick joined PFM in 2011 when PFM acquired his financial advisory firm, The Killarney Group. Mr. Brick started Killarney in 1995 after spending 16 years providing investment banking services to non-profit healthcare clients as a senior healthcare banker at Goldman, Sachs & Co. His clients have included academic medical centers, large multi-hospital systems and stand-alone non-profit hospitals. He has served as a financial advisor to the Maryland Health and Higher Educational Facilities Authority, providing advisory services to all of the Authority's healthcare, higher education and non-collegiate school borrowers.

Errol assists clients in identifying and mitigating risks inherent in the structure of their financial assets and liabilities, recommends debt structures that meet clients' financial goals, and assists clients in evaluating and executing strategic options relating to their businesses. These options include delivery mode and organizational structure, as well as mergers and acquisitions.

Mr. Brick graduated from the University of the Witwatersrand, Johannesburg, South Africa with a B. Com degree in Economics and a Master of Business Administration degree in Applied Economics, is licensed as a Certified Public Accountant by the State of New York, and is designated as a Chartered Global Management Accountant by the American Institute of Certified Public Accountants. He holds a General Securities Principal license and a General Securities License issued by the Financial Industry Regulatory Authority (FINRA). Mr. Brick is a registered Municipal Advisor Representative (Series 50).

Emily Abrantes
Director
Higher Education Expertise
17 Years' Experience

Emily Abrantes is a Director in PFM's Arlington, Virginia office. With 17 years of higher education finance experience, Ms. Abrantes provides financial advisory services to a broad range of higher education institutions and other non-profit institutions both private and public. Ms. Abrantes advises her clients on a broad range of capital markets-related services, including capital structure evaluation, risk analysis, rating agency strategy, and transaction execution. Ms. Abrantes also has assisted clients in the development of debt and derivative policies to guide an institution's long-term debt strategy, which includes debt capacity analysis, liquidity optimization, and risk assessment.

Ms. Abrantes graduated from Furman University with a Bachelor of Arts degree in Economics and Political Science. Ms. Abrantes is a registered Municipal Advisor Representative (Series 50).

Randall Bauer
Director
Management & Budget Consulting / State Government Expertise
30 Years' Experience

Randall Bauer joined PFM's Management and Budget Consulting practice in 2005, where he leads its state government practice. His clients have included nearly half the states, including Georgia, Ohio, Oklahoma, Pennsylvania and Virginia, as well as major local governments from Baltimore, Maryland to Colorado Springs, Colorado.

Prior to joining PFM, Mr. Bauer served for nearly seven years as Budget Director for the State of Iowa. In that capacity, he was the Governor's chief adviser for the State's $12 billion budget as well as a senior adviser on tax and public finance issues. During Mr. Bauer's tenure, Iowa created: a new results-focused budget process; implemented a performance reporting methodology and developed a web-based budget system. Mr. Bauer also led the executive branch team on several high-profile public finance issues, including securitizing Iowa's tobacco settlement and creating the "Vision Iowa" program. An innovative partnership between state and local governments, Vision Iowa leveraged over $1 billion of non-state government investment in recreational, cultural, and tourism projects across the State. Bond Buyer magazine named Vision Iowa one of its "top ten deals" of 2001.

Mr. Bauer has a Bachelor of Arts degree from Coe College, the Certified Public Manager designation from Drake University, and was a Fannie Mae Foundation Fellow at Harvard University's program for senior executives in state and local government. He has served as President of the Iowa Society of Certified Public Managers, and is a life member of the National Association of State Budget Officers, where he served on its Executive Committee. He has also served as an external peer reviewer for budget and finance issues for the Pew Charitable Trust.

Jim Link
Managing Director
Pension / OPEB Expertise
25 Years' Experience

Mr. Link is a Managing Director with more than 25 years of experience in the asset management, institutional retirement, and related fields. Jim has co-led the investment consulting practice at PFM, heading the Other Post-Employment and deferred compensation plan practices. Additionally, he has worked with numerous government employers to rationalize and modernize their retiree benefit plans to be sustainable, affordable, and sufficient.

In terms of pension and OPEB responsibilities, Jim works with clients and public organizations around the country to provide education, plan design, governance, and asset management strategies that help meet clients' pension and OPEB needs. Jim is a regular instructor at various Government Finance Officers Association (GFOA) conferences, speaking at numerous industry conferences and at training events. He spoke at the 2012 Government Finance Officers Association (GFOA) conference on "What Works in Retirement Plan Design." In addition, he has lectured on retirement related issues at the Fels Institute of Government at the University of Pennsylvania. Mr. Link is actively involved with the GFOA and the National Association of Government Defined Contribution Administrators (NAGDCA). He is currently an advisor on the GFOA Committee on Retirement and Benefits Administration. With NAGDCA, he has served on the publication committee and is an elected Board Member of the Industry Committee.

Mr. Link is a graduate of Texas A&M University in College Station, Texas where he earned his Bachelor of Science Degree in Economics with a minor in Management. Mr. Link has also earned the Certified Employee Benefit Specialist designation awarded by the International Foundation of Employee Benefit Plans and the Wharton School of the University of Pennsylvania.

Nelson Bush
Managing Director
Asset Management & OPEB Expertise
24 Years' Experience

Nelson Bush joined PFM Asset Management LLC in 1993. Mr. Bush focuses on providing investment advisory services to public entities and not-for-profit organizations in the Commonwealth of Virginia, Washington DC, and the Mid-Atlantic region.

Mr. Bush has helped thousands of PFM's clients in virtually every aspect of their banking and investment service needs including procurement and implementation of treasury management services, design and adoption of investment policies, benchmarking investment performance, development and implementation of investment strategies, and discretionary management of public funds.

Mr. Bush currently helps municipal governments, operating authorities and institutions of higher education manage over $4 billion of public funds including general operating funds, reserve funds, OPEB trusts, and bond proceeds. Mr. Bush provides these clients with regular reviews of portfolio performance, general economic and market updates, and assistance with the preparation of financial statements and disclosures.

Mr. Bush is a recognized expert on the management of tax-exempt bond proceeds and related arbitrage rebate issues and currently helps manage the proceeds of over 700 separate bond issues. Mr. Bush is the Program Administrator for the Virginia State Non-Arbitrage Program (VA SNAP). In this role, Mr. Bush helps Virginia's political subdivisions with the investment and tracking of bond proceeds in compliance with the IRS arbitrage rebate regulations.

Mr. Bush is member of and frequent instructor for the Virginia Government Finance Officers Association and Treasurers' Association of Virginia and regularly teaches classes on cash management, investment management and debt management.

Mr. Bush is a graduate of York College of Pennsylvania with a Bachelor of Science in accounting. Mr. Bush holds series 6, 52 and 63 licenses from the Financial Industry Regulatory Authority, (FINRA).

Matthew Eisel, CFA
Managing Director
Structured Products
13 Years' Experience

Matthew Eisel joined PFM Asset Management's Structured Products Group as an intern in 2004 and was named a Managing Director in 2015. Mr. Eisel advises clients on the structuring, optimization, and procurement of bond proceeds investments including portfolios of fixed-income securities and structured investments. He also specializes in the structuring and procurement of refunding and cash defeasance escrow investments.

In addition to his work on bond proceeds and escrow engagements, Mr. Eisel conducts training sessions for clients and newly hired analysts, serves as a technical resource to colleagues throughout the firm, and coordinates analyst recruiting for PFM Asset Management.

Matthew graduated magna cum laude with honors from the University of South Carolina with a Bachelor of Science degree in Business Administration. His majors were Entrepreneurial Management, Finance, and Risk Management & Insurance. Mr. Eisel's volunteer work includes providing strategic and financial advice related to the construction and budget of a local health center that serves low-income individuals and families. He also helps to organize a charity golf tournament that benefits the health center each year.

Matthew holds the Chartered Financial Analyst designation, is a member of the CFA Institute, and is a General Securities Registered Representative holding Financial Industry Regulatory Authority (FINRA) Series 6 and 63 licenses.

Todd Fraizer
Managing Director
Pricing Group
22 Years' Experience

Todd Fraizer is a Managing Director and leads PFM's Pricing Group and is based in Charlotte, North Carolina. The Pricing Group provides pricing resources and negotiation support for PFM's clients nationwide. The Pricing Group's efforts and activity continually enhance, expand and centralize PFM's bond pricing expertise. Since 2006, Mr. Fraizer has assisted in pricing thousands of transactions totaling over $400 billion of municipal bonds for PFM'sclients.

Mr. Fraizer in his prior employment as the Vice President of Finance for the Kansas Development Finance Authority, served as the primary project manager for over $2 billion of general purpose, higher education, pension obligation, transportation, and SRF transactions. Prior to that, Mr. Fraizer also gained futures and options trading experience while at the Kansas City Board of Trade.

Mr. Fraizer has a Bachelor of Arts in English Literature from the University of Kansas and a Masters of Business Administration, Finance from the University of Missouri-Kansas City. He is a CFA charter holder, as well as a member of the CFA Institute and the Charlotte Society of Financial Analysts. Mr. Fraizer is a registered Municipal Advisor Representative (Series 50).

Daniel Kozloff
Managing Director
Quantitative Strategies Expertise
18 Years' Experience

Daniel Kozloff is a Managing Director in PFM's Philadelphia office and Manager of the Quantitative Strategies Group, a dedicated group of professionals who provide primary technical, new product, transactional and modeling expertise for PFM's clients and develops proprietary analytical tools used throughout PFM's various business practices. Dan also oversees PFM's firm-wide training program, including comprehensive sessions for new hires, current employees, lateral hires, and clients.

He leads and manages PFM's Research Group, a centralized source of data and research for PFM's national financial advisory practice. Dan also leads PFM's Tobacco Securitization Group, PFM's efforts in state-level unemployment compensation solutions, and is a co-leader of PFM's Center for Retirement Finance.

Daniel has provided primary transactional support on various complex refunding and new money issues for the Commonwealth of Pennsylvania (the Commonwealth); the States of Michigan, Ohio, New York and Nevada; and New York City. He was involved in the comprehensive restructuring of the Commonwealth's Public Education Funding System and state-wide tax reform to supplement the Commonwealth's Education Funding. Daniel has advised the Commonwealth on approximately $19 billion of debt issuance.

Daniel serves as financial advisor to Philadelphia-area governments, authorities and institutions, including Montgomery County, Lower Merion Township, Radnor Township, Girard Estate and College, as well as York County Solid Waste Authority and The Pennsylvania State University. Mr. Kozloff is a registered Municipal Advisor Representative (Series 50).

Katia Frock
Director
Arbitrage & Tax Compliance
14 Years' Experience

Katia Frock joined PFM's Arbitrage & Tax Compliance Group in 2003. During her tenure, she has prepared hundreds of arbitrage rebate, yield restriction, and exception compliance analyses. Her responsibilities include managing select issuers primarily in the Southern, Mid-Atlantic and Western states, staff supervision and development, and working on more complex arbitrage rebate calculations that involve transferred proceeds calculations, commingled funds analysis, variable-rate yield computations, liability optimization strategies, and other arbitrage related services.

Ms. Frock manages the arbitrage rebate-related services provided to participants with bond proceeds invested in several of the local government investment pools managed by PFM Asset Management. Additionally, she provides investors with training, technical, and analytical support with respect to the investment of participants' tax-exempt bond proceeds.

Ms. Frock is a graduate of Shippensburg University where she earned a Bachelor of Science in Business Administration with a dual major in Accounting and Management. She holds the Financial Industry Regulatory Authority (FINRA) Series 6 and 63 licenses.

Brynne Piotrowski
Senior Managing Consultant
Analytical Support
6 Years' Experience

Brynne Piotrowski joined PFM in 2011 and currently serves as a Senior Managing Consultant in the firm's Charlotte office. Brynne focuses primarily on municipal utility clients, and is a member of PFM's Public Power practice.

Her responsibilities involve bond sizing and structuring, performing refunding analysis, providing support for rating agency strategy and engagement, and supporting senior staff on debt transactions and financial planning. She works with a variety of municipal utility clients including Gainesville Regional Utilities, Grand River Dam Authority, Indiana Municipal Power Agency, JEA, Lansing Board of Water and Light, Lincoln Electric System, and Public Power Generation Agency.

Ms. Piotrowski graduated from Rollins College with a Bachelor of Arts in Economics and a minor in Mathematics. Ms. Piotrowski is a registered Municipal Advisor Representative (Series 50).

Eric Smith
Senior Managing Consultant
Analytical Support
10 Years' Experience

Eric Smith joined PFM in 2007 and currently serves as a Senior Managing Consultant in the firm's Charlotte office. Mr. Smith works within PFM's municipal utility group, where his responsibilities involve providing analytical and advisory support related to debt financings and refundings, capital planning, and risk management for a variety of joint action agencies and municipal utilities. Mr. Smith has worked with some of PFM's largest municipal utility clients, including: Municipal Electric Authority of Georgia, Orlando Utilities Commission, Santee Cooper, ElectriCities, and the Salt River Project.

Mr. Smith has also been an integral member within PFM's Pricing Group, which provides pricing resources and negotiation support for PFM's clients nation-wide, continually enhancing, expanding and centralizing the firm's bond pricing expertise. During his time with the Pricing Group, Mr. Smith led negotiations on hundreds of bond transactions totaling more than $20 billion in par.

Prior to joining PFM, Mr. Smith worked as an actuarial analyst for an actuarial and financial consultancy firm, advising a national client base of public employers, Taft-Hartley plans, non-profits and corporations on identifying, measuring, and monitoring financial risks, associated with their pension and health benefit plans.

Mr. Smith, after service in the U.S. Air Force, graduated from Bowling Green State University with a B.S. in Mathematics. Mr. Smith is a registered Municipal Advisor Representative (Series 50).

Eric Brown
Senior Managing Consultant
Analytical Support
7 Years' Experience

Eric Brown is a Senior Managing Consultant based in the firm's Arlington, Virginia office. Mr. Brown currently works in the firm's national utilities practice, where he is relied upon by some of the largest water, wastewater, and public power agencies in the country, including the District of Columbia Water and Sewer Authority, CPS Energy, Nashville Electric Service, and the Great Lakes Water Authority. His client engagements frequently include design and implementation of complex plans of finance for large capital programs, restructuring and refunding opportunity evaluation and execution, financial policy analysis, and rating agency strategy. Since joining PFM in 2010, Mr. Brown has participated on debt transactions totaling over $8 billion.

As part of his project engagements, Mr. Brown has provided financial advisory services to state and municipal governments, transportation authorities, and utilities throughout the country. His transactional experience includes advising on the first 100-year bond issuance by a U.S. utility, the first independently-certified "green bond" issuance by a U.S. issuer, and the largest approved federal Transportation Infrastructure Finance and Innovation Act loan package in the history of the program.

Mr. Brown also provides analytical and advisory support for a large and diverse base of state and local level clients such as the Virginia Port Authority, Fairfax County, Fairfax Water, and Arlington County, amongst others.

Mr. Brown holds a Bachelor's degree in Politics from Bates College, with a minor in Economics. Mr. Brown is a registered Municipal Advisor Representative (Series 50).

2. *Please list the total number of financial advisory consultants that your firm employs. Please describe the respective seniority of each consultant. Please indicate the number of clients for which each consultant is responsible.*

PFM is comprised of over 600 professionals in 41 offices throughout the United States. Like many states across the country, West Virginia continues to face myriad financial matters, including issues related to closing budget shortfalls, transportation needs, school construction, proposed public-private partnerships, workers compensation, and OPEB liabilities among other challenges. To accommodate this range of issues, PFM has staffed and organized itself accordingly. Our geographically oriented advisors team with sector specific experts (including financial advisory consultants who focus solely on transportation, public-private partnerships, water and power, state revolving loan programs, health care, and asset securitizations, among many other specific practice areas) to best support individual client needs. PFM also employs individuals in specialized functions, such as the Pricing Group and Structured Products Group, which advise all PFM clients in highly specialized areas, such as bond transaction pricing or the procurement of escrow and construction fund investments.

The number of clients for which each financial advisory consultant is responsible varies based on the type of client and the nature of the engagement. Additionally, PFM prides itself on its mix of general municipal and industry-specific consultants. The general financial advisory consultants ("generalists") are focused on providing PFM's full range of financial advisory services to a specific group of clients located in one particular State or region. This consultant–client relationship enables these PFM professionals to develop a deep understanding of the financial matters particular to that region so as to better serve their state and local clients. Generalists are responsible for anywhere from three to upwards of a dozen clients, depending on the specific needs and commitments associated with each locality. The PFM professionals who specialize in a particular field of municipal finance will generally service clients across the county, but will focus on providing only those services directly related to their specific expertise. The client base for PFM's specialists is much broader than that of PFM's generalists, but the nature of the engagement with each client usually entails a more hyper-focused and acute set of tasks and outputs.

As of March 2017, PFM has 617 employees across the entire firm. Of these over 600 employees, more than 500 are finance professionals. Below are brief job descriptions for the positions that provide advisory services for our clients. As is indicated in the title, Managing Directors and Directors have the most seniority, experience and expertise at PFM, followed by Senior Managing Consultants and then the Senior Analysts and Analysts.

Managing Director / Director. Managing Directors and Directors are responsible for managing client relationships, which involves working directly with clients to define their goals and managing PFM's resources to ensure these goals are achieved. The majority of PFM's Managing Directors and Directors have well over ten years of public finance experience. Managing Directors are also owners of the firm.

Senior Managing Consultant. Senior Managing Consultants develop financial solutions and assist with the coordination of activities associated with the execution of client engagement projects. The position requires a minimum of six years of experience in public finance.

Senior Analyst / Analyst. Analysts develop complex models and financial analyses, prepare reports, proposals and presentation material, and conduct research. Experience typically ranges from one to five years.

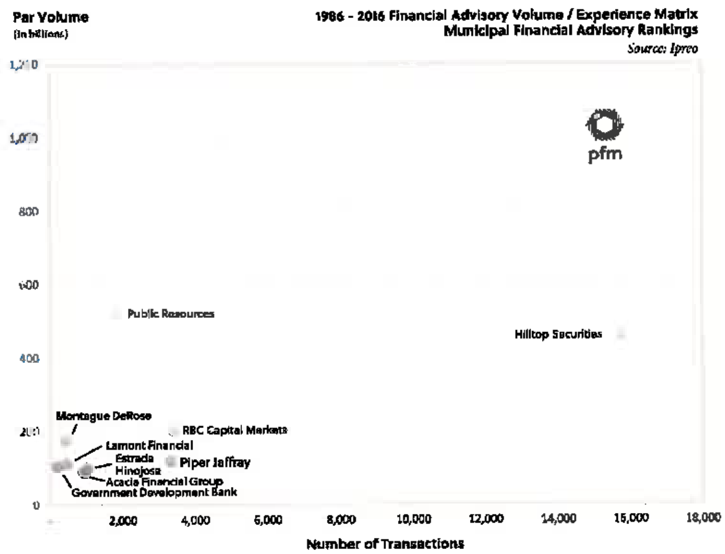
Below we outline the number of clients for which each member of the proposed State project team is responsible.

State of West Virginia Project Team Team Member & Seniority	Nature of Service	Years Experience	Number of Clients
Local Day-to-Day Team			
Chris Lover Managing Director	Co-Engagement and Project Manager	18	12
Lisa Daniel Managing Director	Co- Engagement Manager and Senior Advisor	23	11
Technical Support Team			
David Miller Managing Director	Transportation & P3 Expertise	29	12
Lauren Lowe Managing Director	State Level Expertise	13	13
Dan Hartman Managing Director	Asset Securitization Expertise	28	7
Errol Brick Managing Director	Healthcare Expertise	38	6
Emily Abrantes Director	Higher Education Expertise	17	6
Randall Bauer Director	Management and Budget Expertise	30	8
Investment Management			
Jim Link Managing Director	Pension/OPEB Expertise	25	N/A[1]
Nelson Bush Managing Director	Investment/OPEB Expertise	24	N/A[2]
Matt Eisel Managing Director	Structured Products Expertise	13	N/A[3]
Other PFM Resources			
Todd Fraizer Managing Director	Pricing Expertise	22	N/A[4]
Dan Kozloff Managing Director	Quantitative Strategies	18	N/A[5]
Katia Frock Director	Arbitrage & Tax Compliance	14	N/A[6]
Analytical Support			
Brynne Piotrowski Senior Managing Consultant	Analytical Support	6	11
Eric Smith Senior Managing Consultant	Analytical Support	10	9
Eric Brown Senior Managing Consultant	Analytical Support	7	8

1. Co-manages all pension/OPEB activity.
2. Manages over $4 billion of public funds for hundreds of clients.
3. Manages all one-time investment transactions.
4. Manages all bond pricing activity.
5. Provides quantitative analytics and analysis for all clients.
6. Provides arbitrage and tax compliance as needed for all clients.

Section B: Company Background

1. *Describe your firm's background and history in providing services requested herein. This should include descriptions of past projects completed, the location of the projects, project manager names and contact information, type of projects, and what the project goals and objectives were and how they were met.*



Since inception over 40 years ago, PFM has built a solid presence in the municipal marketplace. PFM was founded on the principle of providing independent financial advice to state and local governments and other tax-exempt entities. PFM stands apart from other independent financial advisors when combining par value and number of transactions. Among the nationally known financial advisory firms, only PFM combines the experience gained in completing large numbers of transactions with the sophistication and analytic capability required to bring high par value transactions to market. As a result, ***PFM has been the top-ranked financial advisor nationwide in each of the last 17 years.***

Value of Top Rankings Nationally. As the largest financial advisory firm, PFM has the ability to solve our clients' intractable problems by using our market power to move the agenda. Our constant participation in the markets further enhances our ability, expertise and knowledge. ***PFM serves as financial advisor on many of the largest transactions brought to market each year – often involving intricate financial plans, the sale of sophisticated securities, high-end quantitative modeling and complicated tax analysis. These are the same type of transactions West Virginia needs or is contemplating.***

Our management of such complex transactions ensures that PFM remains on the cutting edge of the public finance industry. Our clients benefit from our ability to optimize their financings using the complete array of structures, securities and available techniques.

PFM has developed a broad and deep network of capital market professionals with whom we interact. This network of investors, underwriters, bankers, credit specialists and lawyers allows us to provide our clients with fresh market information. ***We know the preferences of the investor community and the financial and credit structures that are currently best accepted.*** We know which investors are active buyers, the types of securities they currently prefer, and the maximum price they are willing to pay for a given security.

Additionally, we know what constitutes reasonable compensation levels for other professional services rendered during the transaction. With this library of information, ***PFM can structure transactions to minimize our clients' cost of borrowing.*** Again, among independent financial advisors, only PFM participates in the capital markets so broadly.

Our True Success is Behind the Numbers. ***Although rankings provide a shorthand method of measuring success, the length of service and level of satisfaction we provide our clients is a better indicator of true success.***

At PFM, we view our longstanding association with many of our clients as an affirmation of our ability to service their needs thoughtfully, effectively and efficiently. We are committed to ensuring our clients' interests are protected and their goals are achieved.

State Level Expertise. Since 1989, PFM has made a major commitment to serving states and statewide agencies and has consequently developed a resume of extensive experience advising these types of entities throughout the country. ***PFM's services to state-level issuers span across 49 states as well as the U.S. commonwealths and territories.***

We believe states and statewide agencies are different from local governments and therefore require unique expertise and resources. In general, state governments have larger, more experienced staffs that can do much of the work associated with a capital program in house; the financings tend to be larger and therefore attract more national investor interest; the revenue streams tend to have broader bases; the political and public policy issues tend to involve multiple communities and constituencies and finally the credit issues associated with state and statewide agencies tend to be broader and more complex. ***PFM's services go beyond traditional transaction management and provide the State a partnership and resource for continued strategic financial planning.***

No other firm can match PFM's level of experience or our record of innovation in the field of municipal finance, both on the capital creation and the investment management sides of the business. PFM offers the State and its agencies a comprehensive range of strategic and financial planning, debt management and investment management services from a staff of expertly trained and uniquely qualified professionals. ***Because of the depth and breadth and experience of our professional staff, we can commit the human and business resources necessary to move several projects ahead simultaneously in an expeditious manner, and assure the State that program implementation will be coordinated and timely, that senior financial advisory professionals will be available at all times and that the professional advice given will be independent of hidden agendas based upon current market information.***

Since January of 2008, PFM has served our state-level clients (State and State Agencies) on over 1,600 projects with a total dollar volume of over $166 billion in 39 states, including the District of Columbia. Below is a representative list of some of our work for State Clients -- note that much of the work and projects identified are ongoing:

Alabama

- Developed a first of its kind pooled financing program for thirty-seven Public Housing Authorities in Alabama to provide funds for needed repairs and renovations for over 6,899 housing units across the State.
- Served as financial advisor for over 50 debt issues for the State and State related agencies.
- Assisted the State through the J. P. Morgan litigation and the resulting negative outlook from one of the rating agencies.
- Worked with the State during the months leading up to the Jefferson County bankruptcy filing.
- Served as financial advisor to the Alabama Community College System since 2013.

Alaska

- Served as financial advisor to the Alaska Municipal Bond Bank Authority since 1998, advising on more than $2 billion in pooled loan financings for communities throughout Alaska.
- Advised on the structuring and pricing of Certificates of Participation issues for correctional facilities.

- Served as financial advisor to the University of Alaska for bond issues for capital improvements.
- Served as financial advisor for student loan program of the Alaska Student Loan Corporation

Arizona

- Evaluated feasibility of a privately developed toll loop for the Arizona Department of Transportation. Reviewed Arizona DOT business practices, capital structure and funding procedures. Also provided asset management and arbitrage rebate services.
- Assisted State of Arizona Wastewater Management Authority with bond issue to finance the State Revolving Loan Fund.
- Assisted in the creation of the Greater Arizona Development Authority, an pooled infrastructure program utilized by jurisdictions throughout Arizona.

Arkansas

- Managed bond issues for the Arkansas State Highway Commission.
- Served as financial advisor to the Arkansas Department of Transportation.
- Served as financial advisor to the University of Arkansas, Fayetteville

California

- Financial Advisor to the California State Water Resources Control Board for clean water and drinking water revolving funds.
- Financial Advisor to the California Health and Higher Education Facilities Financing Authority.
- Financial Advisor to the California Housing Finance Authority for statewide economic development bond pool.
- Provided financial advisory services to some of the largest California utilities, serving their major population centers. Examples include the Los Angeles Department of Water & Power, the Sacramento Municipal Utility District, the California Department of Water Resources, the Southern California Public Power Authority and the Northern California Power Agency.

Colorado

- Performed pension advisory consulting for the Colorado Public Employees' Retirement Association.
- Developed low interest Title VI leveraged State Revolving Fund program for Water.
- Developed bond bank to fund small water development projects.
- Provided management and budget consulting to the Department of Human Services.

Connecticut

- Financial Advisor to the State of Connecticut UCONN 2000 bonding program, the State of Connecticut General Obligation bonding program and the Special Tax Obligation bonding program (Transportation).
- Served as P3 Advisor to the State Office of Policy Management.
- Served as Financial Advisor to the Connecticut Development Authority and the Connecticut Higher Education Supplemental Loan Authority.
- Provided financial advisory services to the largest municipal utility in the state, the Connecticut Municipal Electric Energy Cooperative. Provided arbitrage rebate calculation services to the Cooperative.

Delaware

- Advised DELDOT with 15 new money and refunding transportation system revenue bond issues totaling $1.9 billion, including the Department's first GARVEE issue and Build America Bond issue.
- Assisted the State with 24 new money and refunding general obligation bond issues totaling $4.1 billion. These included five series of Qualified Zone Academy Bonds, two series of Build America Bonds and one series of Qualified School Construction Bonds.
- Provided on-going financial analysis, modeling and management of rating agency relations for the state.

- Provided management and budget consulting to the Office of Administration and Office of Management and Budget.
- Provided arbitrage rebate calculation services to the State of Delaware and the Delaware Transportation Authority.
- Served as financial advisor to the Delaware Health Facilities Financing Authority.
- As part of PFM's Treasury Consulting services, rebid several of the banking services supporting the Office of the State Treasurer.

District of Columbia

- Served as financial advisor to District of Columbia. Advised on $1.9 billion in issuance since 2010. Advised on and developed the financial modeling component of the District's Long-Term Capital Financing Plan and other management and budget initiatives.
- Served as financial advisor to the District's Water and Sewer Authority. Advised on over $2.5 billion in issuance since 2010. Issued a 100 year "Century Bond" that was also the first certified "Green Bond" for a municipal agency. Brought to market a "first of its kind" pay for performance bond to implement "Green Infrastructure".
- Served as financial advisor to Washington Metropolitan Are Transit Authority. Advised on $220 million in issuance since 2010.

Florida

- Advised in all areas of the Division of Bond Finance, assisting with debt capacity studies, study on pricing of costs of issuance, and State Revolving Fund issues.
- Provided financial advisory services on the structuring and sale of Turnpike Revenue Bonds and State Education Bonds.
- Served as financial advisor to the Florida High Speed Rail Commission.
- Provide arbitrage rebate calculation services to the Central Florida Expressway Authority
- Served as financial advisor to a number of public universities including the University of North Florida, the University of West Florida, the University of South Florida, New College and Florida Gulf Coast University.
- Provided financial advisory services to the largest municipal utilities in the state supporting some of Florida's largest cities. Utilities include Orlando Utilities Commission, Jacksonville Electric Authority and Gainesville Regional Utilities.

Georgia

- Served as P3 Advisor to the State
- Served as financial advisor to the State for Public-Private Partnerships.
- Performed fiscal & structuring analysis of toll revenue versus general obligation bond financing for State highway system through the Georgia Department of Transportation.
- Served as financial advisor to the State on combined competitive new money and refunding issue.
- Provided financial advisory services to the State's largest municipal utility, the Municipal Energy Agency of Georgia.

Hawaii

- Served as the financial advisor to all State Departments; performed various best-practices studies and provided memos and analysis on a multitude of topics.
- Developed and drafted a state-wide Debt Management Policy and Debt Affordability Study for all State Departments including the Budget and Finance Department, the Department of Transportation (Highways, Harbors and Airports), Hawaii Housing, State Home Lands Trust, and the University of Hawaii system.
- Served as financial advisor for the State of Hawaii Public Utilities Commission ("PUC") for both their Green Energy Market Securitization project and their On Bill Financing project.
- Provided management and budget consulting to the Tax Review Commission.
- Served as a financial advisor for the state-wide rental car facility program.

- Completed feasibility study for Hawaiian Homelands Commission to evaluate leases intended to support a revenue bond issue which will provide for affordable housing and infrastructure improvements.
- As part of PFM's Treasury Consulting services, supported Hawaii's Department of Budget and Finance with a full-scope treasury consulting project that included developing and issuing an RFP for the State's Primary Depository Bank, Lockbox Services, Custody Services, and a Data Collection Center for the Department of Taxation. PFM also assisted in evaluating and interviewing all vendors, contract review and final negotiations.

Idaho

- Served as financial advisor to the Idaho Bond Bank since its creation in 2002.

Illinois

- Served as financial advisor on multiple bond issues for the State of Illinois, serving on over $10.9 billion in par of bond transactions.
- Advised on numerous transactions and credits, including General Obligation Bonds (G.O. Bonds, Series of January 2016, G.O. Refunding Bonds, Series of May 2012), Build Illinois Bonds (Taxable Series of May 2013 and Junior Obligation Bonds, Series of June 2010), the Railsplitter Tobacco Settlement Receipt Bonds and the Illinois Lottery Private Management transaction.
- Served as Financial Advisor to the Illinois Finance Authority for the clean water and drinking water state revolving funds.
- Provided management and budget consulting to the Central Management System.
- Provide arbitrage rebate calculation services to the Illinois State Toll Highway Authority and the Northern Illinois Municipal Power Agency.
- Provided financial advisory services to Illinois' largest municipal utility, Illinois Municipal Electric Agency.

Indiana

- Provided financial advisory services Illinois' largest municipal utility, Indiana Municipal Power Agency.

Iowa

- Managed bond issues for the State of Iowa, including their $900 million tobacco securitization financing.
- Served as financial advisor to Iowa Finance Authority, the State's manager of the Clean Water and Drinking Water SRF programs.

Kansas

- Developed plan of finance for a multibillion capital improvement program for the State of Kansas Department of Transportation.
- Provided management and budget consulting to the Kansas Finance Authority.
- Served as financial advisor to the pension obligation bonds issued by Kansas Development Finance Authority.
- Provided arbitrage rebate calculation services to the Kansas Department of Transportation.

Kentucky

- Served as financial advisor to Kentucky Infrastructure Authority and the Kentucky Public Transportation Infrastructure Authority.
- Engaged by the State of Kentucky to advise on retirement finance services; provided a comprehensive pension plan and employee benefits review of the State's sponsored retirement systems.
- Provided management and budget consulting to the Governor's office.
- Provided escrow restructuring for the State general obligation bonds.

Louisiana

- Served as financial advisor to Louisiana Insurance Guaranty Association on bond issue to fund insolvent insurer's claims payments.
- Served as financial advisor to the Louisiana Department of Environment and the Louisiana Department of Health and Hospitals
- Served as financial advisor for the superdome and convention center.
- Provided interest rate swap monitoring services through PFM Swap Advisors.

Maine

- Provided financial advice and consulting services to the State. Reviewed outstanding debt structure of the State, developed recommendations regarding use of moral obligation pledge and assisted in analyzing feasibility of tobacco securitization for the State of Maine.
- As part of PFM's Treasury Consulting services, supported the Maine State Treasurer's office in a full-scope treasury consulting project that included developing and issuing an RFP for Branch Deposits, Disbursements and Electronic Deposits, as well as evaluating and interviewing all vendors, contract review and negotiation.

Maryland

- Served as financial advisor to the State on 52 separate series of new money and refunding general obligation bond issues totaling $10.8 billion in principal; including seven series of Qualified Zone Academy Bonds, two series of Qualified School Construction Bonds, one series of Qualified Energy Construction Bonds, and four series of Build America Bonds. Successfully expanded and diversifies the State's investor base by developing a retail sales and distribution strategy. Developed a debt management model/tool for the State of Maryland.
- Served as P3 advisor to the Maryland Port Authority resulting in Seagirt Terminal concession.
- Served as financial advisor to the University System of Maryland.
- Serves as the financial advisor to the Maryland Stadium Authority, including working with sports related assets and the new financing credit for the Baltimore School Construction Program.
- Assisted with issue of Revolving Loan Fund Revenue Bond issue for the Maryland Water Quality Financing Administration.
- Provided arbitrage rebate calculation services to the Maryland Economic Development Corporation and the Maryland Stadium Authority.
- Served as financial advisor to the Maryland Health and Education Facilities Financing Authority.

Massachusetts

- Served as the financial advisor to the Commonwealth of Massachusetts. Supported the Office of State Treasurer on the General Obligation and Commonwealth Transportation Fund Bond Program, the Executive Office for Administration and Finance, the Massachusetts Clean Water Trust, the Massachusetts Port Authority, the Massachusetts Bay Transportation Authority and the Massachusetts Water Resources Authority.
- Provided, through PFM Asset Management, investment advisory services to the Massachusetts Development Finance Agency (MassDevelopment) since 2011 regarding the management of the Agency's General and Restricted Funds and has managed the Agency's Short Term Asset Reserve Fund (the "STAR Fund") for investment of bond proceeds on a continuous basis since assisting with its creation in 1991.
- Served as financial advisor to the Massachusetts Development Finance Agency (MassDevelopment) for Infrastructure Investment Incentive (I-Cubed) Financing Program, other Special Financing Programs and borrowings directly by the Agency. Provided Management and Budget Consulting services to the State Resource Network at MassDevelopment is providing technical assistance related to economic challenges to six Gateway Cities.

- Provided arbitrage rebate calculation services to the Massachusetts Clean Water Trust, the Massachusetts Port Authority, the Massachusetts Water Resource Authority and the Massachusetts Municipal Wholesale Electric Company.
- Served as financial advisor and P3 advisor to the University of Massachusetts Building Authority.
- Provided Asset Management advice to MassHousing on its Single-Family Mortgage Program funds.
- Served as investment advisor and arbitrage rebate consultant to the Massachusetts Clean Water Trust, the Massachusetts Port Authority and the Massachusetts Water Resources Authority.
- Provided investment consulting services to the Massachusetts Bay Transportation Authority on a project specific basis.
- Served as investment advisor to the Massachusetts Development Finance Agency.
- Provided financial advisory services to Massachusetts' largest municipal utility, Massachusetts Municipal Wholesale Electric Company.

Michigan

- Served as financial advisor to the Michigan Department of Treasury on its State Trunk Lind Fund Bonds, Comprehensive Transportation Bonds and the Blue Water Bridge Financing.
- Served as investment advisor to the Michigan Liquid Asset Fund (MILAF).
- Provided financial advisory services to Michigan's largest municipal utilities; Michigan Public Power Agency and Lansing Board of Water & Light.

Minnesota

- Structured the sale of competitive GO refundings for State.
- Structured and assisted with pricing of bonds for Minnesota State Colleges and Universities, to include the University of Minnesota.
- Reviewed and recommended enhancement of Title VI leveraged State Revolving Fund program and resulting sale of bonds for State Public Facilities Authority.
- Served as financial advisor for the Minnesota Higher Education Services Office.
- Provide arbitrage rebate calculation services to the Minnesota Public Facilities Authority.
- Provided financial advisory services to Minnesota's largest municipal utilities; Southern Minnesota Municipal Power Agency and Central Minnesota Municipal Power Agency.

Missouri

- Managed bond issues for the State of Missouri.
- Served as financial advisor to the Missouri Department of Highways and Transportation and also provide arbitrage rebate calculation services to this agency.
- Provided financial advisory services to the State's largest municipal utility; City Utilities of Springfield.

Montana

- Managed bond issues for the Montana Department of Natural Resources & Conservation, the Montana Facility Financial Authority, and the Montana Higher Education Student Assistance Corporation.
- Provided arbitrage rebate services for the Department of Natural Resources.

Nebraska

- Managed bond issues for the State of Nebraska.
- Provided financial advisory services to some of Nebraska's largest municipal utilities; Municipal Energy Agency of Nebraska, Lincoln Electric System and Public Power Generation Agency.

Nevada

- Developed and managed ongoing plan of finance for Nevada Department of Transportation.

- Evaluated P3 versus public delivery strategies for Nevada Department of Transportation and State Treasurer.
- Advisor on debt issuance through the State Treasurer's Office.

New Hampshire

- Engaged and provided investment advisory and administration services to the New Hampshire Public Deposit Investment Pool in 2015; the Pool is a commingled investment fund for the operating assets of NH public entities and is offered under the authority of the NH Banking Commission.

New Jersey

- Served as P3 Advisor to New Jersey Transit for development of a system wide commuter parking Public Private partnership.
- Provided management and budget consulting to the Community Development Finance Authority and the Transit Authority.
- Developed and implemented plan of financing including commercial paper and fixed rate bonds to fund water distribution system for Water Supply Authority.
- Provided policy and financial analysis of privatization of PATCO High Speed Line.
- Provided financial advice on the restructuring and sale of debt for New Jersey Turnpike.
- Performed study for New Jersey Transit Corporation to evaluate alternative strategies for gaining State assistance.
- Evaluated and revised state reimbursement regulations for Health Care Facilities Finance Authority to create a method to overcome disincentives to local hospitals which were refinanced in order to reduce debt costs.
- Served as advisor to the New Jersey Wastewater Treatment Trust, the State Revolving Fund.

New Mexico

- Served as financial advisor to the New Mexico Finance Authority since 1992. Additionally provided arbitrage rebate calculation services to the Authority.
- Served as financial advisor to the New Mexico DOT for ongoing debt issuance and swap portfolio management.

New York

- Advised the Metropolitan Transportation Authority on more than $18 billion of debt issuance and remarketings across several credits including the launch of its Green Bond program.
- Provided analysis to help the Metropolitan Transportation Authority secure its first RIFF loan to implement Positive Train Control on Metro North and the Long Island Railroad.
- Financial advisor to the New York State Environmental Facilities Authority on the issuance of over $4.8 billion of debt for four different programs.
- Advised on personal income tax, State service contract, dedicated tax and mental health transactions for State authorities including the Dormitory Authority, Thruway Authority, and Empire State Development.
- Financial advisor to the New York State Environmental Facilities Authority and the clean water and drinking water revolving funds. Also provided arbitrage rebate advice to the Authority.
- Advised the Buffalo Fiscal Stability Authority, the State oversight board for the City of Buffalo, on debt structuring and transaction management.
- For the Battery Park City Authority, advised on ~$1 billion refunding composed of both fixed rate bonds as well as direct purchases.
- Provided management and budget consulting to the Governor's office.
- Served as financial advisor to the Dormitory Authority for the State of New York, closing the most recent transaction ($345 million) at the end of April 2017. Assisted the Dormitory Authority with underwriter RFP review and internal consulting projects.
- Provided financial advisory services to the State's largest municipal utilities; New York Power Agency and Long Island Power Authority. Provided financial advisory services to Long Island Power Authority to implement their asset securitization program.

North Carolina

- Served as financial advisor to the North Carolina Department of Transportation and the North Carolina Turnpike Authority.
- Provided financial advisory services to the State's largest municipal utilities; North Carolina Municipal Power Agency One and North Carolina Eastern Municipal Power Agency.
- Provide arbitrage rebate calculation services to the North Carolina Department of Transportation.

North Dakota

- Managed State Revolving Fund bond issue for the State of North Dakota.
- Served as financial advisor for appropriation backed credits and fee-backed securities for the North Dakota Building Authority.
- Provided analysis of the desirability of initiating a GARVEE program with the North Dakota Student Loan Trust.

Ohio

- Served as the financial advisor to the following entities in the State: the Treasurer of Ohio, the Ohio Public Facilities Commission, the Buckeye Tobacco Settlement Financing Authority (including with respect to $5.5 billion tobacco settlement financing), the Ohio Turnpike and Infrastructure Commission, the Ohio Water Development Authority, and the Ohio Air Quality Development Authority's Qualified Energy Conservation Bond Program.
- Authored the State's Debt and Interest Rate Risk Management Policy.
- Served as the financial advisor for the Financial Planning, consulting and P3 Advisory Services to Ohio Department of Transportation.
- Engaged by the State Treasurer to perform Arbitrage Rebate Services for State general fund supported debt.
- Provided management and budget consulting services to the Auditor's Office.

Oklahoma

- Served as the financial advisor for the Oklahoma Transportation Authority.
- Served as the financial advisor for the Water Resources Board.
- Assisted with the development of a leveraged, cross collateralized structure for the state revolving fund program.
- Provided management and budget consulting services to the Office of Management and Enterprise Services.
- Provided financial advisory services to one of the State's largest municipal utilities; Grand River Dam Authority.

Oregon

- Served as the financial advisor to Business Oregon, State of Oregon General Purpose General Obligation program, the Department of Energy and Department of Environmental Quality General Obligation Programs, and the Oregon Lottery Revenue Bond program.
- Served as financial advisor to the University of Oregon and Oregon State University.
- Developed and managed rating upgrade program for the State.
- Developed administrative and debt issuance procedures for the Treasurer of the Oregon Facility Authority and managed the Authority's multiple bond issuances.
- Conducted credit analysis for the Oregon Economic Development Department.
- Aided in the establishment of Oregon Bond Bank and have been its financial advisor since 1989.
- Advised the State on the State's Pension Bond and Tobacco Settlement Bond programs.
- Provided management and budget consulting services to the Department of Administrative Services.

- As part of PFM's Treasury Consulting services, rebid several of the banking services supporting the Oregon State Treasury in a full-scope treasury consulting project that included developing and issuing an RFP for Treasury Management Services, including ACH Origination and Receiving, Intra- and Inter-Account Transfer Services, Domestic Wire Services and Remote Deposit Capture Services. PFM also assisted in evaluating and interviewing all vendors, contract review and negotiation.
- Provided financial advisory services to the federal power marketing agency, Bonneville Power Administration.

Pennsylvania

- Managed Bond issues for the Commonwealth of Pennsylvania totaling over $14 billion.
- Performed pension advisory consulting for the Commonwealth of Pennsylvania.
- Provided investment advisory services to the Pennsylvania Higher Education Assistance Agency (PHEAA) since 2003 for its loan administration and operating funds.
- Serve as the financial advisor for the Commonwealth Financing Authority and the Pennsylvania Industrial Development Authority, financing authorities for the Commonwealth's Department of Economic Development.
- Managed student loan financings for Higher Education Assistance Agency.
- Provided management and budget consulting services to the Department of Administration, Department of Economic and Community Development, Department of Education and Department of Human Services.
- Developed the Title VI leveraged State Revolving Fund program and State funded program.
- Conducted study for the Pennsylvania Department of Transportation to develop mechanisms to expand private sector involvement in the financing of mass transit.
- Managed the Pennsylvania Turnpike Revenue Bond program.
- Served as the financial advisor to Pennsylvania State University
- Investigated alternative methods of financing to allow the Hospital Association of Pennsylvania to provide loans for purchase of equipment.
- Provided arbitrage rebate calculation services to the Commonwealth Financing Authority of Pennsylvania, the Commonwealth of Pennsylvania, the Pennsylvania Housing Finance Authority, the Pennsylvania Turnpike Commission, the Southeastern Pennsylvania Transportation Authority and the Pennsylvania State Public School Building Authority.

Puerto Rico

- Analyzed and provided an assessment of the financial feasibility of developing private toll road for the Highway Authority.
- Provided analysis for P3 and privatization of Puerto Rico's lottery and gaming system.
- Assumed financial advisory role of the Government Development Bank. Recently, provide financial advisory services to the many entities in Puerto Rico (e.g. Puerto Rico Electric Power Authority, Puerto Rico Aqueduct and Sewer Authority).

Rhode Island

- Serve as Financial Advisor to the Rhode Island Health and Educational Building Corporation, the Rhode Island Convention Center Authority, the Rhode Island Commerce Corporation and the Rhode Island Airport Corporation. Also provide arbitrage rebate services to the Rhode Island Health and Educational Building Corporation and investment advisory services to the Rhode Island Commerce Corporation.

South Carolina

- Served as financial advisor to the South Carolina Department of Transportation.
- Served as financial advisor to the University of South Carolina and The Citadel
- Provided financial advisory services to the State's largest municipal utility; Santee Cooper

South Dakota

- Managed bond issues for the State of South Dakota.

- Provided financial advisory services to the State's largest municipal utility; Heartland Consumer's Power District.

Tennessee

- Served as financial advisor to the State of Tennessee since 1998. Supports the structuring and issuance of all debt issued by the Tennessee State Funding Board as well as higher educational bonds issued through the Tennessee State School Bond Authority ("TSSBA")
- PFM Asset Management provided escrowing structure and procurement of escrowed securities for the State to include managing debt service reserve funds.
- PFM Asset Management advised the State and its bond programs through the development of a Post-Issuance Compliance Procedures Manual.
- Provide arbitrage rebate calculation services to the State of Tennessee.
- Served as financial advisor to the University of Memphis

Texas

- Served as financial advisor to the Texas Water Development Board.
- Managed bond issues for the Texas Department of Housing & Community and well as the Texas Dormitory Finance Authority.
- Provided arbitrage rebate calculation services to the Texas Public Finance Authority.
- Provided financial advisory services to the State's largest municipal utilities; San Antonio Water & Sewer, CPS Energy and Austin Energy.

Vermont

- Managed bond issues for the Vermont Housing Finance Agency and the Vermont Educational and Health Building Financing Authority.

Virgin Islands

- Provided arbitrage rebate calculation services to the Virgin Islands Port Authority.
- Developed debt management and investment policy guidelines for the Virgin Islands to include the long-term and immediate steps necessary to upgrade bond ratings.
- Developed and implemented transportation trust fund; water desalination plant, electric generation and insurance excise tax financing programs.
- Advised on the sale of 5 issues in excess of $600 million of general obligation matching fund bonds.

Virginia

- Currently serve as financial advisor on bond transactions to a multitude of state agencies, including Virginia Public Building Authority, Virginia Public School Authority, and Virginia Port Authority.
- Provided specialized transportation planning advice to the Virginia Department of Transportation and Virginia Resources Authority to include P3 advisor to the P3 office.
- Provided management and budget consulting services to the Finance Secretary as well as the Department of Behavioral Health and Developmental Services.
- Financial Advisor to University of Virginia, Virginia Commonwealth University and George Mason University
- Investment Manager to the Virginia State Non-Arbitrage Program (SNAP®) with over $3.2 billion of assets under management as of April 30, 2017[1].

[1] Investment Advisory services are provided by PFM Asset Management LLC.
SNAP® is a registered trademark of the Commonwealth of Virginia.

Washington

- Served as the financial advisor to the Washington Department of Transportation.
- Authored recruiting and retention study for the State of Washington's Department of Transportation and the Transportation Commission for State Troopers

- Developed and completed sale of the State's first master lease program for State Treasurer's office.
- Developed debt policies regarding lease purchase financing program.
- Advised the State in bond issue to finance the construction of state headquarters for the Department of Ecology.
- Authored a report for the Department of Agriculture for revenue projections.
- Provided financial advisory services to the largest municipal utility in the State, Energy Northwest.

West Virginia

- On behalf of Morgantown Utility Board, finalized the largest Water & Sewer bond transaction in state history.

Wisconsin

- Developed the Title VI leveraged State revolving Fund Program for State Clean Water Fund.
- Served as the advisor to State's Equipment Lease Program, the Wisconsin Intergovernmental Transfer Program.
- Served as the financial advisor to the University of Wisconsin, Milwaukee

Based on the priories outlined by West Virginia's Governor Justice's inaugural address and themes for the First 100 Days, there are several case studies provided beginning on the following page. The intent of these case studies is to detail PFMs result-orientated approach to many of the same issues that are on the Administration's agenda for the State for the next several years. While PFM cannot predict the political outcome of the Governor's agenda, we can illustrate the results of our collaborative efforts. In each situation, PFM worked with stakeholders to identify an economically superior, executable and politically palatable solution. Each of these projects were completed by the PFM employees that will be assigned to the West Virginia team:

PFM Team Member(s): Chris Lover, Dan Hartman, Nelson Bush, Eric Brown, Todd Fraizer

Client Contact:

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dc water is life

PFM has served as financial advisor to the District of Columbia Water & Sewer Authority for nearly a decade. As the Authority's advisor, PFM supports the structuring and issuance of all revenue obligation debt issued as well as advises and assists on all financial matters. As financial advisor to DC Water, we have collectively issued $2.5 billion through 13 financings since 2010.

DC Water has a ten-year $3.7 billion capital improvement program. Many of the projects are mandated through a consent decree between DC Water and the Environmental Protection Agency. This decree seeks to improve the water quality of the Potomac and Anacostia Rivers, primarily by reducing the water and sewer overflows that occur periodically into these rivers.

In 2014, to assist the authority with these transactions, PFM explored several alternatives to both attract a new pool of investor interest as well as reduce the cost of borrowing. Given that the primary project, a massive tunnel system under the nation's capital that stores and moves runoff and wastewater to the treatment plan, has a useful life in excess of 100 years, PFM explored Century Bonds. After debate and discussion, the Authority elected to issue $350 million of taxable "Century Bonds". In addition to their very long tenor, these bonds were the first bonds in the U.S. to be certified "Green Bonds" by an independent, third party. The transaction, given the taxable nature as well as "Green" certification, attracted significant investor interest, to include investors with a primary interest in the "Green" nature of the 2014 Bonds. PFM's Pricing Group, based on significant demand from investors, negotiated with the senior managing underwriter to reduce spreads to MMD for pricing. In all, the Authority issued $350 million in taxable bonds yielding 4.82%, a very favorable rate considering the 100 year final maturity of the bonds. The Bond Buyer recognized this transaction as a very unique financing tool and awarded this the northeast regional Deal of the Year.

More recently, in 2016, DC Water elected to issue a "pay for performance" bond to finance a "green" infrastructure ("GI") project. The intent of this project is to effectively replace the construction, a material and labor intensive "cement and pipes" project, with a project that is designed to minimally impact the environment while also achieving the same technical results. Investors that purchase the bonds receive a set rate of interest for a specific period of time. After the project has been operational for an agreed to period, the coupon rate is adjusted to reflect the overall performance of the project. If the GI project's results are better than required, the investor receives a premium. If the GI project does not work or fails to meet the performance parameters, then the investor's return is reduced. PFM develop a legal framework as well as policies and authorizations, to issue this Environmental Impact Bond ("EIB"). As with the ground-breaking 2014 transaction, The Bond Buyer recognized these EIB bonds as very unique as a financing tool and awarded this the northeast regional Deal of the Year.

PFM has also assisted the Authority with developing Board approved Debt Management and Investment Management Policies that were well received by the rating agencies.

Since working at DC Water, PFM developed a rating agency strategy to ensure open and transparent lines of communication with the respective analysts. Given the magnitude of borrowing expected for the Capital Improvement Plan, any downgrade or risk of a downgrade would have severe consequences on DC Water's borrowing costs. PFM and DC Water conducted a "deep dive" with the ratings analysts to review the strengths of the credit as well as detail areas that could be of some concern. For these areas, the Authority discussed what specific steps were being implemented to address risks. After a series of discussions, DC Water was upgraded to AAA by S&P and Aa1 by Moody's.

PFM has also helped the Authority navigate the process required for Moody's Green Bond Assessment and S&P's Green Bond Evaluation. For the Moody's Green Bond Assessment, DC Water was able to achieve the highest category of assessment.

State of Tennessee | **Comprehensive State Support**

PFM Team Member(s): Lisa Daniel, Lauren Lowe, Todd Fraizer, Jim Link

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PFM has served as financial advisor to the State of Tennessee ("Tennessee") since 1998. As the State's advisor, PFM supports the structuring and issuance of all debt issued by the Tennessee State Funding Board as well as higher educational bonds issued through the Tennessee State School Bond Authority ("TSSBA"). PFM understands the needs of larger issuers, like Tennessee, and has provided the following services to address their sophisticated needs and challenges:

Triple A Rating Analysis: Using comparative analyses where Tennessee ranks in relation to other AAA and AA+ S&P Rated States based on certain S&P metrics, PFM was able to assist Tennessee in a rating upgrade by S&P.

Quantitative and Technical Expertise Applied to Project Amortization: For 7 universities, 13 community colleges, and 27 state technology centers, PFM provides TSSBA with detailed project amortization schedules for each new money bond issue as well as refunding project schedules if a refinancing is completed. In August 2014, PFM advised TSSBA on the largest refinancing in its history. The refinancing saved TSSBA 8.1% or $23.9 million on a present value basis and included over 80 projects.

Short-Term Financing Options: For 16 years, PFM has assisted Tennessee and the TSSBA to use commercial paper programs, supported with a joint revolving credit agreement, as an interim borrowing vehicle for projects, both tax-exempt and taxable.

Debt Capacity: The TSSBA intercepts state appropriations to the respective universities and colleges to provide security for higher education financing. PFM developed a capacity model to evaluate the impact of future projects on debt service coverage for each of the respective borrowing entities. The model has served as a useful tool to gauge the risk and credit impact of Tennessee.

Pension Advisory Services: In 2011, PFM's Center for Retirement Finance consulted the State Treasurer through the process of designing hybrid pension plan alternatives and additional defined benefit options that may be offered to political subdivisions of the State including, but not limited to, those that participate in the Tennessee Consolidated Retirement System ("TCRS"). The pension reform is expected to reduce the State's long-term pension liability.

Post Issuance Compliance Procedures: In 2014, PFM Asset Management advised the State and its bond programs through the development of a Post-Issuance Compliance Procedures Manual. The approach was unique to the needs of the State and reflected the practical nature of their bond programs while implementing best practices. The procedures addressed among other things, responsibilities, training, tax compliance, record retention and continuing disclosure requirements.

Commonwealth of Pennsylvania **Comprehensive State Support**

PFM Team Member(s): Dan Kozloff, Randy Bauer, Todd Fraizer

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PFM has served as the financial advisor to the Commonwealth of Pennsylvania for nearly fifteen years, spanning across three separate leadership administrations. Our role advising the Commonwealth has been comprehensive, including traditional debt and transaction management services as well as complex budgetary and management analyses of activities ranging from privatization opportunities to welfare reforms aimed at maximizing federal reimbursements.

A common attribute of our service to the Commonwealth has been tangible results. For example, in our financial advisory work for the Commonwealth, we helped to achieve over $577.5 million in debt service savings through timely refundings, in conjunction with over $7.6 million of benefit from the structuring and competitive procurement of open-market refunding escrow portfolios. In our consulting assignments, we contributed to high-priority initiatives including Liquor Control Board (LCB) privatization analysis, pension funding evaluation and State employee bargaining and interest arbitration, while our work improving fiscal administration for county-level child welfare programs has drawn down more than $130 million in new Title IV-E funding and helped to successfully address a federal audit failure that had led to the deferment of over $100 million to the Commonwealth. We have elaborated on our service to the Commonwealth below.

Debt & Transaction Management. PFM has supported the Commonwealth for nearly fifteen years in the management of its General Obligation debt portfolio and in providing general financial advisory services. During this period, we have successfully executed 27 long-term debt transactions, including 14 refundings, and an additional two Tax Anticipation Notes ("TANs") for a total of $21.12 billion – including some of the largest competitive sales in the nation. These issues have included numerous types of financings, such as tax-exempt, taxable Build America Bonds ("BABs"), long- and short-term, and new money and refundings. Several refundings involved complicated debt structuring that required significant coordination to ensure the proper simultaneous purchase of escrow investment securities. Throughout this partnership, PFM has assisted the Commonwealth in capturing market-related opportunities to achieve significant cost savings across the Commonwealth's General Obligation debt profile.

PFM constantly monitors the Commonwealth's debt portfolio using proprietary, internally developed analytic models to ensure that the Commonwealth is aware of and in a position to act on emerging opportunities. PFM has worked with the Commonwealth to bring approximately $6.5 billion of refunding transactions to market, adding value through our market insight, dedicated Pricing Group, and the capability of PFMAM's Structured Products Group to structure and competitively procure escrow securities to enhance refunding economics. In addition to the $577.5 million of cash-flow savings generated through these refinancings, PFM has worked with Commonwealth staff to structure and target savings into years that provided relief from expected budgetary pressures through the use of innovative structuring concepts and high-end optimization models, while also taking into account capacity for future capital needs. A central element to our optimization of refinancing savings has been the focus of a dedicated Structured Products group. Since 2003, this group has structured four open-market, competitively bid escrow portfolios for the Commonwealth that have generated in excess of $7.6 million of benefit over portfolios structured exclusively with United States Treasury Securities, State and Local Government Series ("SLGS"), including savings from escrows restructured on an intra-day basis.

In 2012 PFM served as the sole financial advisor to the Commonwealth's $2.8 billion Unemployment Compensation transaction. This transaction, comprising 3 tranches as well as an interim financing component utilized innovative structures and priced at very aggressive levels for transactions of this type, saving the Commonwealth and the employers and employees throughout Pennsylvania over $140 million over a four year period. PFM's role as independent financial advisor was integral to all aspects of the transaction, beginning with drafting of the authorizing legislation, assisting the selection of the financing team, running analysis to optimize and determine structural options, and culminating with negotiating pricing levels on behalf of the Commonwealth. It is through this type of thorough and in depth partnership with our clients that we are able to provide significant value that manifests in a multitude of areas.

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Rating Agency Relations. PFM plays an active and leading role in assisting the Commonwealth in its communications and relationship with the rating agencies. Despite ongoing credit pressure in the state sector, Pennsylvania has maintained ratings in the double-A category. The Commonwealth's financial management and relationship and interactions with the rating agencies play a large role in its general credit stability, however PFM has provided regular insights into the developments at the rating agencies over recent years, which we view as an important ingredient in sustaining successful standing with the rating agencies and helping our client navigate the ever- and fast-changing views and methodologies of the rating agencies.

Management & Budget Consulting. During our tenure as the Commonwealth's financial advisor, PFM has delivered significant non-transactional advice to the Commonwealth on a wide range of budgetary and management concerns, including:

- Assistance with county-level financial administration reforms for the Department of Human Services Office of Children, Youth, and Families, drawing down more than $130 million in new Title IV-E federal funding since FY2008-09 to effectively reduce State Act 148 expenditures, and helping to successfully resolve a Title IV-E federal audit failure that had led to the deferment of more than $100 million in funding to the Commonwealth.
- Expert testimony on fiscal constraints and comparative compensation in interest arbitration involving the State Police, Corrections Officers, Park Police, Capital Police, and Game Conservation Officers spanning four rounds of collective bargaining. To address the impact of two recessions during this period, the Commonwealth established and expanded healthcare premium cost-sharing, and negotiated moderated wage growth.
- Support to the Pennsylvania Department of Education in establishing the initial financial workout plans for all four recovery school districts, including developing multi-year budgets; drafting narrative descriptions of academic and support system reforms; staffing state-appointed chief recovery officers in each district; providing ongoing budget analysis, forecasting, and reporting; and offering a separate engagement to analyze financial aspects of cyber charter school operator applications and renewal.
- Evaluation of options for the Pennsylvania Liquor Control Board, including the development of detailed fiscal and programmatic impact assessments.
- Organizational assessment of the Pennsylvania Public Utilities Commission, conducted via a separate engagement, which has contributed to outcomes such as the dramatic reductions in the backlog of complaints in the PUC Bureau of Consumer Services.

North Carolina Turnpike Authority **Transportation and P3**
North Carolina Department of Transportation

PFM Team Members: David Miller, Matt Eisel, Todd Fraizer

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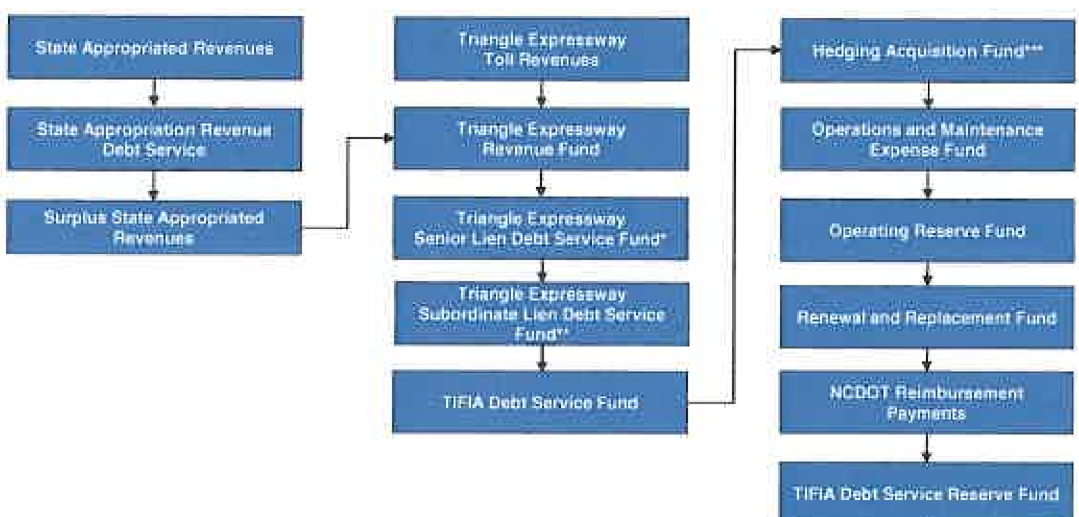
PFM and David Miller serve as financial advisor to the North Carolina Turnpike Authority ("NCTA") and the North Carolina DOT ("NCDOT") for a variety of projects. NCTA was created in 2002 as a start-up organization to study, plan, develop, construct, operate, and maintain the State's first toll roads. PFM was retained by NCTA in 2006 to develop and implement financing plans for each of its five toll projects. In 2010, NCTA was merged into NCDOT as a special unit of NCDOT, and retained the same tolling powers and mission. PFM has assisted both NCTA and NCDOT in executing several new liens, programs, and innovative financings.

State Appropriation Revenue Bonds. PFM prepared initial financial feasibility assessments for each of NCTA's toll projects and, as is true of most new toll road projects, identified funding gaps. As a result, several NCTA projects received annual state appropriation funds in addition to the toll revenues generated by each project. The state appropriation funds are allocated from NCDOT's Highway Trust Fund, which consists of various transportation-oriented tax and non-tax pledges. PFM evaluated the benefits of issuing a combined credit backed by state appropriation revenues and toll revenues for the Triangle Expressway, and ultimately recommended a bifurcated lien to take advantage of North Carolina's high credit rating, as well as improve the plan of finance with an overall lower cost of funds. PFM was instrumental in helping to craft the indenture and recommending the use of BABs, which further enhanced the project's cash flow. The flow of funds model (detailed in the diagram below) was also adopted for the Monroe Connector project, and in each case accommodates all elements of the financial plan including a TIFIA loan secured by toll revenues:



* Deposits made in the following order: Interest, Principal, Sinking Fund, Senior Lien Parity Reserve Account
** No plans to issue subordinate lien revenue bonds (excluding TIFIA Loan)
*** Hedging Account reserved for variable rate bonds

Triangle Expressway and Monroe Connector Toll Road Projects. PFM has performed extensive technical analysis and due diligence for NCTA/NCDOT in the process of creating financial feasibility plans for its toll projects. In 2009, NCTA reached financial close on the $1 billion Triangle Expressway project, the State's first toll road, located in the Raleigh-Durham area. This groundbreaking was the first start-up toll road project to close after the 2008 financial crisis, and it comprised a bifurcated lien that included state highway annual appropriations bonds and toll revenue bonds, as well as a TIFIA loan—a structure that was originally conceived by PFM, and was accepted by the market and rating agencies. NCTA also issued the state appropriation bonds for the Monroe Connector project in October of 2010 as BABs ahead of the toll revenue financing—which took advantage of the BABs window.

The initial financing Monroe Expressway, a new toll road corridor in the greater Charlotte region, was completed in fall 2011 with a combination of: toll revenue bonds, state appropriation bonds, and GARVEE bonds structured to be retired from future toll revenue bonds. The project had a projected opening date of December 31, 2014 but was delayed due to litigation. With all funding in place and construction underway, NCTA was forced to put the project on hold from May 2012 to May of 2015. A key provision of the original plan was the planned repayment of the GARVEE bonds through project residual cash flow and a future issuance of Toll Revenue Bonds. NCTA anticipated the future issuance would have a higher credit rating given that construction risk would be eliminated and the risk of unknown traffic volumes and associated toll revenues would have been reduced. Due to the delay, NCDOT intended to direct interim construction funds (GARVEEs) away from the Monroe Expressway. A new financial plan was crafted to meet the following goals: cover the increased costs associated with the environmental delays, reduce NCDOT's State Transportation Improvement Program contribution to the project and redirect the proceeds from the GARVEE Bonds to other projects.

Through the issuance of the 2016 Toll Revenue Bonds and subordinate TIFIA Loan, these goals were achieved. Notably, the NCDOT's State Transportation Improvement Program contribution was reduced from $77 million to $22 million, a difference of over $50 million. The 2016 Toll Revenue Bond and TIFIA Loan closed in January 2017, completing the complex funding package.

NCTA toll project financing plans use tax-exempt toll revenue bonds as the primary method of financing, and are designed to meet the standards of the ratings and investment communities. PFM also helped to craft several NCDOT guaranties to strengthen the toll revenue credit, including an O&M, renewal and replacement ("R&R"), and construction completion guaranties that support investment-grade credit ratings for all of NCTA's projects. PFM worked closely with the project engineers to develop design build contract documents with investment grade credit rating features such as fixed price guarantees, appropriate insurance and Performance & Payment bond packages, and liquidated damages. We also reviewed and commented on all aspects of the Traffic & Revenue forecast, including sensitivity analyses designed to satisfy credit markets. The technical analysis and due diligence required for a "greenfield" toll road financing is as rigorous as any P3 financing approach. The Triangle Expressway and Monroe Expressway each received investment-grade ratings and TIFIA credit council approval.

I-95 Tolling Study. PFM, serving as municipal advisor member of an engineering led team, has assisted NCDOT with studying the feasibility of using tolling to improve and add capacity in the I-95 corridor. NCDOT was awarded one of three Federal Highway Administration pilot program slots to potentially toll an existing interstate corridor. Working with the study team, PFM developed a sophisticated financial planning model that examines toll revenue financing for the multi-year phased development of 180 centerline miles of corridor improvements. Alternatives have included express lanes and tolling all lanes, as well as a mix of toll revenue bonds, TIFIA loans, and pay-go funding. Initial indications are that the project is financially feasible with relatively minimal funding required from NCDOT.

I-77 HOT Lanes Project. The I-77 Managed Lanes project is a Toll Concession P3 deal that was procured by NCDOT. The funding sources include senior lien non-recourse toll revenue Private Activity Bonds ("PABs"), a TIFIA loan, equity contribution, and NCDOT upfront funds. NCDOT also provides a revenue guarantee up to $75 million to cover debt service. During the financing phase, PFM was engaged to review funding structures and financing documents as well as to assist in the negotiated pricing of the non-recourse toll revenue PABs. PFM thoroughly reviewed, replicated and verified the concessionaire's financial model by creating our own P3 model for the project. PFM served as the lead advisor to NCDOT for the bond pricing of the concession's toll revenue bonds, as NCDOT was the conduit issuer.

State Transportation Plan. The North Carolina Department of Transportation is charged with developing a long-term vision for transportation in the state and with ensuring that public and private transportation service providers work together to achieve that vision. NCDOT defines that vision through its 2040 State Transportation Plan ("STP"). The 2040 Plan identifies needed investment, estimated revenue to fund that investment, transportation infrastructure and service investment strategies, and policies supporting them. The plan focuses on the policies and programs needed to enhance safety, improve mobility, and reduce congestion while addressing all types (modes) of transportation for which NCDOT has responsibility: highways, aviation, ferries, rail, bicycle, walking, ports and public transportation. PFM, as a member of a multidisciplinary consultant team, led the financial planning analysis for the 2040 Plan. This included:

- Projecting NCDOT's existing funding sources over the 2040 Plan period considering economic, demographic, and policy factors that are expected to influence the Department's revenue sources.
- Assessing forecasted funding available from existing sources relative to the alternative investment strategies developed as part of the 2040 Plan and define the funding gaps between projected revenues and needs. As part of this effort, PFM considered the effects of diminished Federal funding support and lower motor fuel tax revenues due to an increase in fuel efficiency standards.
- In concert with NCDOT finance and planning staff, defining and forecasting alternative revenue options to close identified gaps. These options include continued motor fuel tax rate indexing and increases for existing funding sources, changes to the distribution of transportation sources between the NCDOT transportation program and other State purposes and the introduction of new revenue sources such as interstate tolling and Vehicle Miles Traveled fees. As part of this effort, the projection of new revenue sources considered the impacts of projected economic, demographic and travel variables on estimated revenue yield.
- Evaluating each revenue source based on its ranking against financial, policy, and administrative factors
- Incorporating, not just baseline revenue estimates and project needs, but also tolling opportunities, GARVEE Bonds, P3 initiatives, and NCDOT's Mobility Fund which is envisioned to function as a revolving loan fund.
- Identifying a range of gap closing options based on a combination of alternative investment strategies as well as current and potentially new funding sources. The range of funding options identified by PFM have been published in the 2040 Plan which has been posted on NCDOT's web site.

South Carolina Transportation Infrastructure Bank **Transportation and P3**

PFM Team Members: David Miller

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PFM was retained as Financial Advisor to the South Carolina Transportation Infrastructure Bank ("SCTIB") in April 1998 to assist in the development of its financial plans and remains the only advisor the SCTIB has had. PFM made recommendations as to SCTIB structure alternatives, and ultimately wrote the financial business plan that is allowing funding of critical transportation projects totaling over $4 billion. Because of the financial pressures created by vast transportation infrastructure needs in this rapidly growing state, many of these projects would have been unfunded for years without the SCTIB.

Business Plan Development and Implementation. The SCTIB solicited applications from governmental units in South Carolina for eligible projects for which the SCTIB would consider providing financial assistance. Seven responsive applications were received. The Board has since approved SCTIB loans and financial assistance of over $3.8 billion to facilitate project construction of over $4 billion. Given the anticipated significant funding requirements over a short period of time, PFM created a business plan for the SCTIB. The business plan outlined the types of financial assistance considered, a leveraged revolving loan financial structure for the SCTIB, credit rating issues related to financial assistance, suggested project credit criteria, and the suggested administration for the program.

The SCTIB reviewed and approved PFM's suggested business plan utilizing the leveraged revolving loan concept. From the business plan, PFM developed a capital planning model to optimize the timing of bond issues as well as the mixture between revenue bonds and general obligation bonds given the unique cash flow constraints and project draw requirements of the SCTIB. The business plan and capital planning model provided a springboard into the development of the SCTIB's first revenue bond indenture.

A somewhat aggressive but feasible financial plan was required to fund approved financial assistance and yet achieve the desired A category credit ratings. PFM solicited feedback from the rating agencies early in the process of developing the revenue bond indenture, as the 1998A Bonds represented the first issuance of Bonds by the SCTIB. Timing was critical, as the SCTIB had already advanced funds to a project. Furthermore, PFM recommended that the SCTIB "tell the story" to potential investors and underwriters to improve transparency. Consequently, the SCTIB had extensive Rating Agency/Insurer visits to New York and participated in investor meetings in New York, Boston, Chicago, and Charlotte. These investor meetings were designed to inform the investor community of the Bank's goals, objectives, and the first project. As a result of extensive discussions with the rating agencies, the SCTIB received credit ratings from Moody's and Fitch of A1 and A, respectively.

Supporting Debt Issuance. To date PFM has advised on approximately $4.3 billion of Revenue and General Obligation Bond sales encompassing 19 series of senior lien and junior lien bonds. These are listed below:

1. $275,000,000 Revenue Bonds, Series 1998A
2. $308,900,000 Revenue Bonds, Series 1999A
3. $268,810,000 Revenue Bonds, Series 2000A
4. $249,140,000 Revenue Bonds, Series 2001A
5. $121,880,000 Revenue Bonds, Series 2001B (Junior Lien)
6. $285,195,000 Revenue Bonds, Series 2002A
7. $275,435,000 Revenue Bonds, Series 2003A
8. $368,300,000 Revenue Refunding Bonds, Series 2003B
9. $228,840,000 Revenue Bonds, Series 2004A
10. $153,450,000 Revenue Refunding Bonds, Series 2004B
11. $60,000,000 General Obligation Bonds, Series 2004A
12. $221,045,000 Revenue Refunding Bonds, Series 2005A
13. $286,355,000 Revenue Bonds, Series 2007A
14. $102,015,000 Revenue Refunding Bonds, Series 2007B
15. $88,590,000 Revenue Refunding Bonds, Series 2009A
16. $203,580,000 Revenue Bonds, Series 2010A
17. $265,965,000 Revenue Refunding Bonds, Series 2012A
18. $424,910,000 Revenue Refunding Bonds, Series 2012B
19. $157,095,000 Revenue Refunding Bonds, Series 2015A

GARVEE Structure Initiatives. The SCDOT appropriates the Highway Funds to SCTIB annually, and SCDOT has also entered into several project loan agreements with the Bank. However, under South Carolina's constitution, the SCDOT's motor fuel taxes can only secure general obligation bonds. Therefore, these payments from SCDOT to SCTIB are sourced to FHWA Reimbursement Funds. In order to create a sound security for SCTIB's revenue bonds, DOT and the Bank entered into a Master Funding Agreement that incorporate industry best practice debt covenants for GARVEE Bonds. Therefore, SCTIB has effectively become SCDOT's GARVEE Bonds program.

TIFIA Program. PFM also assisted the SCTIB in receiving a $215 million direct loan under the USDOT's TIFIA program. This innovative transportation financing mechanism allowed the SCTIB to raise capital for a significant portion of its commitment to the Cooper River Bridge project in Charleston, SC. The loan, which has since been repaid in full, was secured separately from the Revenue Bonds.

Pennsylvania Turnpike Commission **Transportation**

PFM Team Members: David Miller, Dan Kozloff

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Since 2008, PFM has been serving the Commission on the development of its annual Act 44 financial plan. This work has entailed crafting a comprehensive 50-year financial planning model to develop and test alternative toll revenue; operations and maintenance; capital program and financing strategies for maintaining and improving the Mainline; and providing mandated funding for the Commonwealth's non-tolled highways and transit agencies. The annual financial plan report is provided to the Secretary of the Budget, rating agencies, investors, and underwriters to advise these parties on the Commission's near- and long-term strategies. In addition, PFM has supported the Commission in developing rating agency strategies and presentation materials, and evaluating alternative tolling, O&M, capital program, and financing approaches.

PFM also has served as the Commission's financial advisor for debt transactions since 2011. During this period, we have advised on the structuring and pricing of more than $8.5 billion in debt, including structures utilizing current interest bonds, capital appreciation bonds, callable capital appreciation bonds, and variable floating-rate notes. As part of our work with the Commission, we utilize the debt strategies and structures defined in the Act 44 financial plan to organize upcoming debt issuances, which help to ensure debt service is consistent with Act 44 guidelines.

In addition to long-term financial planning and debt issuance, we also provide a broad array of services including review of investor banker presentations, escrow structuring with treasuries to enhance refunding savings, and verification services to the Commission.

Pennsylvania Department of Human Services **Management and Budget Consulting**

PFM Team Members: Randy Bauer, Dan Kozloff

Client Contact:

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In July 2008, as a result of a failed Federal audit, PFM was engaged by Pennsylvania's Department of Public Welfare to assist the Department with attaining compliance with Title IV-E of the Federal Social Security Act, which provides funding for children in out-of-home foster care placements. The primary focus of this effort was the City/County of Philadelphia, where the Federal audit found repeated reporting failures. PFM employed a variety of analytical techniques to assess organizational effectiveness and program compliance—including interviews with programmatic staff, reviews of documented policies and procedures, assessments of existing IT systems, and observations and analyses of business processes. PFM's analysis identified a series of structural deficiencies in how Philadelphia tracked children, processed payments for foster care providers, and submitted claims for State and Federal reimbursement.

To address these issues, PFM recommended the development of a new, Web-based system, and a series of data integrity analysis techniques to assure that caseworker-driven information on child placements and services matched provider records and claims. PFM partnered with a technology development firm to design and build this system (called P-Drive). PFM worked collaboratively with its technology partner and with stakeholders from Philadelphia and the State to generate a series of detailed requirements documents for this new system. System development followed a spiral development approach as system features were iteratively designed, developed, implemented, tested, and refined. System design incorporated a variety of user tools to allow stakeholders to manage caseloads and invoices and extract management information from the system. PFM maintained the system through mid-March 2012, when it was successfully transitioned to DHS to be managed internally.

In conjunction with system development, PFM worked with Philadelphia and the State to develop and modify processes and procedures designed to meet the strict compliance requirements set forth by Title IV-E. PFM managed these business processes to ensure that Philadelphia's child welfare invoices were successfully transmitted to the State's system for maximum reimbursement by the Federal Government. PFM then developed and led training sessions for stakeholders to roll out the new system.

As a result of PFM's efforts, Philadelphia dramatically improved its compliance with Federal reimbursement guidelines, addressing the key findings from the original Federal audit. PFM's work directly contributed to Pennsylvania passing its most recent Federal audit of its Title IV-E claims.

State of Ohio's Buckeye Tobacco Settlement Financing Authority	Asset Securitization Tobacco

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PFM was selected in 2007 to serve as the sole Financial Advisor to the State of Ohio's Buckeye Tobacco Settlement Financing Authority (the "Authority"). As the first professional service provider to be hired by the Authority, the Authority conducted a national competitive solicitation process for Financial Advisor. PFM was selected for three primary reasons. Primarily, PFM is one of the due nation's leading advisors with respect to the structuring and issuance of tobacco revenue bonds. Additionally, PFM ranked among financial advisors as the #1 firm nationally with respect to the structuring and issuance of large tax-exempt and taxable municipal bond transactions exceeding $1 billion. Finally, PFM ranked as the overall leading financial advisor to public agencies nationally and in the State of Ohio.

Preparatory Activiies. As the first professional service provider to the Authority, PFM was asked to assist with numerous preparatory activities, including the drafting of issuance legislation, and the drafting of requests for proposals and conducting the competitive solicitation process and making recommendations concerning the selection of other professional service providers, including Bond Counsel, Issuer Counsel, and the entire underwriting syndicate including: Senior Managing Underwriters, Co-Senior Underwriters, Co-Managing Underwriters, and Selling Group Members.

Underwriter Selection and Syndicate Struture. As part of its effort in assisting with the selection of the underwriting syndicate, PFM conducted primary and secondary market analysis and the review of other large tax-exempt and taxable municipal issuances (including tobacco securitizations). This analysis focused on the performance of book-running senior managing underwriters with respect to the marketing, market penetration, order generation, underwriting capital capacity and the ability and willingness to use capital to create a market for and provide pricing support for large, long-dated, complex debt issues. As a result of this analysis, and given the initial indications of financial pressures and market volatility in July/August 2007, PFM developed and recommended to the Authority a unique approach to the selection of and scope of duties for the Senior Managing Underwriters. Under this approach, predicated on the unprecedented size ($5.4 billion, the second largest long-term municipal bond transaction in history), structural complexity (several tiers of senior and subordinate debt), high sensitivity to pricing (1 basis point (1/100 of 1%) on total interest cost equated to over $6 million), and potentially unstable market conditions, PFM recommended the selection and naming of two firms to the role of Senior Managing Underwriter, but, uniquely, with **both** firms required to combine their marketing, sales, underwriting, and capital support under a single umbrella organizational structure for the Authority's issuance. In effect, the two selected firms would be directed to act as a single firm combining their staffing and resources for all aspects of the structuring, marketing, placement and pricing of the transaction (as opposed to the division of duties between the two firms). The Authority accepted PFM's recommendation and a separate selection process was held for Senior Managing underwriters. Following the selection process, the named firms were notified of the desired approach to the role of "Joint" Senior Managing Underwriter and asked for their acceptance and willingness to serve in such capacity. As further incentive to assure the required level of cooperation and integration sought by the Authority, 20 percent of the compensation to the Joint Senior Managers was to be withheld and allocated to and between the two firms by the Authority after the pricing of the transaction, based on the level and success of their integration and cooperation in serving the Authority (or, alternatively, distributed on a performance basis to other syndicate members).

Given the size of the transaction and the necessity to generate the maximum market interest among potential investors in all market sectors and geographic regions, PFM recommended to the Authority that compensation structures for the Co-Senior Managers and Co-Managers be developed and communicated that both incentivized and assured compensation to firms generating and placing orders for bonds. In this regard, PFM worked with the Authority in developing and made recommendations concerning designation rules and direct compensation rules, and worked with the Joint Senior Managers and syndicate members to accommodate specialized bond structures targeted toward particular market segments and buyers identified by syndicate members. PFM worked closely with the Authority in establishing and communicating such rules and structures well in advance of sale so that all syndicate members were fully incented and able to conduct pre-sale marketing within their respective client bases. PFM also recommended and assisted in implementing a sale schedule that required that syndicate members be continuously and fully informed of the transaction's schedule, status and structuring via weekly calls leading up to the sale. PFM also participated proactively as a lead member in weekly calls among the transaction working group members, and recommended and led specially scheduled calls with the Joint Senior Managers to communicate and discuss questions and issues of concern regarding schedule, structuring, and especially pre-pricing analyses.

Sale Preparation. PFM assisted in document preparation (including development of a new multi-tiered senior/subordinate bond indenture, and disclosure documents); credit rating preparations, and structuring analysis. In addition, in preparing for the pricing of the transaction, PFM conducted comprehensive daily market analysis beginning over two months prior to sale with respect to both primary and secondary market pricings and trading activity of tobacco revenue bonds using the resources and staffs of PFM's dedicated Quantitative Strategies Group and Bond Pricing Group and its proprietary pricing systems that monitor all new issue and secondary market sale transactions daily on a maturity-by-maturity basis. Trading activity and pricing spreads over time were also monitored on a daily basis using PFM's proprietary Bond Tracker software system. These detailed pricing analyses allowed PFM and the Authority to have fully informed and effective communications with the Joint Senior Managers in the weeks preceding the sale concerning pre-pricing spread discussions being held with potential investors, and provided the strongest platform possible for proactive and informed pre-pricing and day of sale pricing negotiations between the Authority and the Joint Senior Managers.

Transaction Execution. The transaction was successfully managed and executed under an aggressive schedule designed to assure that the Authority could take advantage of attractive market conditions and was prepared to execute a sale at the earliest opportunity to avoid any unexpected and potentially disruptive legal or financial market developments (especially during the period of late summer and fall of 2007).

The bonds were successfully sold in October 2007 and priced with very aggressive interest rate spreads, with extremely strong investor demand from all market segments and regions. Due to the high level of investor interest and orders placed throughout the maturity schedule, and informed by PFM's real-time primary and secondary market trade data available during pricing negotiations, the Authority was able, with PFM leading pricing negotiations at the Authority's request, to both negotiate aggressive initial order-period spreads, and to successfully negotiate significant reductions in spreads throughout the maturity schedule following the close of the order period. Given the pricing sensitivity of the transaction, we believe PFM's efforts were a significant factor in the Authority achieving present value savings of tens of millions of dollars in the pricing of the bonds.

The successful execution of the transaction was a critical element in the State of Ohio meeting its objectives to transfer risks associated with the continued receipt of tobacco industry Master Settlement Agreement payments, and to meet important capital funding needs of the State's primary, secondary and higher education school systems.

Secondary market monitoring of post-sale trading activity over an extended period of time demonstrated that the transaction's pricing was among the very strongest and most aggressive of all tobacco revenue bonds ever sold.

Other Tobacco-Related Transactions and Activities. PFM has continued to dedicate senior staff and resources to the municipal tobacco securitization sector, with proprietary models that allow for calculations of Master Settlement Agreement-driven projections (e.g., Tobacco Settlement Receipts remitted to states) as well as bond structuring models that take into account the sophisticated nuances of many bond issuances in this sector (e.g., long-dated CABs, turbo redemption bonds and structural optimization through linear optimization software). Most recently, PFM served as co-financial advisor to the New York City TSASC Inc. refunding of its outstanding tobacco securitization bonds. Throughout this transaction, which was executed during a time of significant market volatility, the City was able to rely on PFM to model and evaluate numerous complex structuring features and to provide pricing negotiation leadership to provide a successful execution of the sale.

Los Angeles Department of Water and Power **Asset Securitization - Utility**

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PFM has served as the Financial Advisor to the Los Angeles Department of Water and Power (LADWP) in various capacities since 1998. In this role, PFM has advised LADWP on over $5 billion in bond transactions, including several projects with off balance sheet financing through the Southern California Public Power Authority.

As the largest municipal provider of water and power service in the country, LADWP is faced with a sizeable, multi-billion capital program for both enterprises, while continually having to meet stricter regulatory standards for water and power programs. PFM has worked with LADWP to identify innovative ways to accomplish the financing of the multi-billion dollar capital program and has served as LADWP's general financial advisor throughout the implementation of these borrowings. PFM has amassed a stellar record in providing innovative solutions to LADWP, which have both lowered the costs to LADWP's ratepayers and utilized innovative taxable and tax-exempt debt to accomplish LADWP's financing objectives.

PFM, over the past several years, has worked with LADWP to implement a securitization structure to cost effectively finance mandated environmental projects for the water utility. PFM worked with LADWP to write and sponsor state legislation that allows LADWP to securitize a non-bypassable charge on its utility bill to pay for federal and state environmentally mandated projects. Because the securitization structure can achieve AAA ratings and only requires 1.0x debt service coverage, this financing structure is a cost effective way to deal with a number of federal mandates that LADWP must implement. PFM worked with LADWP throughout the development phase of the financing, obtaining legislative approval for the financing structure as well as rating agency engagement to set positive conditions when this transaction comes to market in 2018.

University of Virginia — **Higher Education**

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PFM has worked with the University of Virginia ("UVA") for more than five years touching a broad range of treasury functions, including financial advisory, strategic forecasting, asset management, and treasury consulting services.

In our role as financial advisor, PFM has assisted UVA in analysis of its credit, liquidity and capital structure. This has included peer comparison with other triple-A peers and academic medical centers. PFM has also provided assistance to the University as they re-evaluated their liquidity strategy and use of internal and external liquidity sources for all components of the institution, including academic division, medical center, and the University of Virginia's Investment Management Company.

PFM most recently advised the University on the Series 2017 Bond transactions that refinanced a portion of their outstanding commercial paper, refunded the Series 2008 Bonds and reimbursed the University for the purchase of a transitional care facility for its Medical Center. The bonds were sold in two series for a total par amount of $355 million. PFM worked with the University and its underwriting team to optimize the amortization of the bonds in consideration of the existing principal amortization, investor interest, and tax implications for the refunding component. In conjunction with the University's Series 2015 offering, UVA desired to increase its variable rate exposure while minimizing its reliance on self-liquidity and bank liquidity to more efficiently enable UVA to invest or utilize its financial resources. As part of this strategy, UVA issued debt using intermediate-term fixed-rate bullets with a mix of coupon structures and maturities. In order to achieve variable-rate exposure, UVA entered into a fixed receiver swap and was able to obtain the most cost-effective form of variable-rate debt at the time.

Commonwealth of Virginia — **Management and Budget Consulting**
Department of Behavioral Health and Developmental Services
Assessment of Fiscal, Budgeting and Organizational Capacity

PFM Team Members: Randy Bauer, Matt Eisel, Dan Kozloff

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The Department of Behavioral Health and Developmental Services is a large and complex agency within Virginia state government responsible for providing and/or ensuring local access to services for individuals with (among other things) developmental disabilities, substance abuse and mental health issues. In August 2011, the Commonwealth entered into a settlement agreement with the US Department of Justice (DOJ) that created significant new requirements and milestones for the Department related to treatment in the least restrictive environment for residents of the Commonwealth's five residential treatment facilities for individuals with developmental disabilities. This wide-ranging 10 year agreement required the closing of all but one of the Commonwealth training facilities as well as extensive new support for community based programming and services. This created significant concern that the Department lacked the capacity with existing budget forecasting and fiscal management processes and staff to monitor and ensure progress against the settlement agreement and provide estimates of costs going forward for compliance purposes.

As a result, the PFM Management and Budget Consulting practice was engaged in November 2011 to assess current systems and processes, identify fiscal risks associated with current operations and determine the Department's ability to comply with the DOJ settlement agreement requirements. Because of the critical nature of this analysis, the project was developed on a very short timeline, with just seven weeks from project start to finish. To comply with this need, PFM organized a senior team and put that team on the ground the first week of the project. PFM returned on a weekly basis for additional meetings and interviews for the entirety of the project.

PFM conducted extensive interviews with Department leadership and key staff as well as other stakeholders in Virginia State government, reviewed financial data and estimates going forward and made recommendations for reconfiguring staffing and project management for the multiple initiatives involved in the consent decree. PFM also built an Excel-based multi-year financial model with multiple components for estimating system revenues, expenditures, staffing and other on-going and one-time costs and savings.

PFM then quickly developed high level phase one findings and presented them, along with preliminary recommendations, to the Secretary of Health and Human Services and Department Commissioner, within one month. PFM also briefed the Secretary of Finance on recommendations and analyzed some of the high level findings in greater depth, particularly related to changes to organizational structure and staff capacity. The final report was delivered December 21, 2012.

PFM was subsequently re-hired by the Department in 2013 to add additional functionality to the financial model. The Department is using the financial model and its improved staffing capacity in its budget projections and its regular assessment of the financial outcomes from the consent decree.

State of Tennessee (the "State") – Treasurer's Office **Pension / OPEB**
Pension Plan Strategic Review, Financial and Redesign Analysis

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In 2012, the State engaged PFM to support reform of the Tennessee Consolidated Retirement System ("TCRS"), the state pension plan that includes state employees, teachers, judges, and higher education employees. PFM worked with the Tennessee State Treasurer, pension staff, and pension plan actuary to review the costs of the TCRS, to evaluate the plan risk profile as it was then constructed, to benchmark statewide plans for all 50 states nationally and collect best practice information, and to explore alternatives for improved long-term sustainability while maintaining sufficient benefit levels.

Through this collaborative effort, PFM helped the State design a hybrid plan for new hires that included both a retained defined benefit ("DB") and a defined contribution ("DC") element with an innovative risk management feature that will continue to provide strong income replacement levels with reduced risk exposure for the State. Under this nationally recognized approach — in the event that future unfunded liabilities emerge — the planned employer DC component of the hybrid design can be redirected toward paying down the unfunded liability, with additional self-correcting measures taking hold further as needed. The hybrid plan also introduced an employee contribution for all new members and adjusted the retirement eligibility criteria, while still featuring a design expected to provide income replacement at levels sufficient for career employees to retire with dignity.

Subsequent to the plan design efforts, PFM assisted in the process to have the new TCRS plan successfully approved through the state legislature in early 2013. The recommendations of PFM's final report were enacted into law in April 2013 and implemented for new employees hired after July 1, 2014.

This comprehensive statewide reform built on a prior 2011 engagement under which PFM developed options for pension plan changes for political subdivisions participating in the State's plans. Specifically, the State sought recommendations for a new, comprehensive pension package that political subdivisions could offer to new employees, and explicitly requested that PFM's recommended plan design provide as much flexibility as possible for local government employers, rather than a "one-size-fits-all" approach. PFM ultimately recommended a DB-DC structure that combined simplified and standardized options for the DB plan with more complex options in the DC components. The State implemented these recommendations by legislation and offered them to new employees beginning July 1, 2012.

Following is a table that lists all of the state-level bond transactions that PFM has completed since 2008, including, where applicable, those discussed in the case studies above.

PFM Bond Transaction Experience with State Level Clients Since 2008			
Issuer	Offering Type	Number of Issues	Dollar Volume
ALABAMA			
Alabama Federal Aid Highway Finance Authority	Negotiated	2	$419,130,000
Alabama Incentives Financing Authority	Negotiated	2	$264,575,000
State of Alabama	Competitive	7	$386,190,000
Alabama Building Renovation Finance Authority	Competitive	1	$26,990,000
Alabama Revolving Loan Fund Authority	Competitive	1	$20,755,000
Alabama 21st Century Authority	Negotiated	1	$92,810,000
ALASKA			
Alaska Industrial Development and Export Authority	Negotiated	5	$397,400,000
Alaska Railroad Corporation	Negotiated	1	$97,915,000
Alaska Municipal Bond Bank (AK)	Competitive	7	$250,565,000
	Negotiated	29	$1,234,205,000
State of Alaska (AK)	Competitive	1	$165,000,000
	Negotiated	3	$421,060,000
ARIZONA			
Greater Arizona Development Authority (AZ)	Competitive	1	$15,265,000
	Negotiated	6	$149,140,000
CALIFORNIA			
California Educational Facilities Authority	Negotiated	42	$2,841,200,000
California Health Facilities Financing Authority	Negotiated	18	$3,912,895,000
California Infrastructure and Economic Development Bank	Negotiated	5	$1,019,675,000
California Municipal Finance Authority	Negotiated	6	$410,685,000
California Statewide Communities Development Authority	Negotiated	5	$1,149,390,000
Northern California Power Agency	Negotiated	8	$905,355,000
Southern California Public Power Authority	Negotiated	30	$4,051,060,000
Transmission Agency of Northern California	Negotiated	2	$302,735,000
COLORADO			
Colorado Educational and Cultural Facilities Authority	Negotiated	8	$108,745,000
CONNECTICUT			
Connecticut Health and Educational Facilities Authority	Competitive	8	$300,285,000
	Negotiated	19	$1,626,895,000
Connecticut Higher Education Supplemental Loan Authority	Negotiated	3	$88,085,000
Connecticut Municipal Electric Energy Cooperative	Negotiated	4	$177,820,000
State of Connecticut (CT)	Competitive	8	$1,710,590,000
DELAWARE			
Delaware Health Facilities Authority	Negotiated	9	$528,685,000
Delaware Transportation Authority (DE)	Competitive	7	$866,375,000
	Negotiated	3	$507,500,000
State of Delaware	Competitive	10	$1,559,105,000
	Negotiated	9	$1,540,220,000
DISTRICT OF COLUMBIA			
District of Columbia (DC)	Competitive	1	$250,000,000
	Negotiated	18	$3,856,945,000
District of Columbia Water and Sewer Authority	Negotiated	14	$3,497,830,000
Washington Metropolitan Area Transit Authority	Negotiated	2	$517,675,000
FLORIDA			
First Florida Governmental Financing Commission	Private Placement	1	$7,965,000
Florida Higher Educational Facilities Financing Authority	Negotiated	5	$271,690,000
Florida Water Pollution Control Financing Corporation	Competitive	1	$225,000,000
	Negotiated	1	$250,000,000
South Florida Water Management District	Negotiated	1	$385,425,000
Sunshine State Government Financing Commission	Negotiated	8	$558,460,000

PFM Bond Transaction Experience with State Level Clients Since 2008			
Issuer	Offering Type	Number of Issues	Dollar Volume
GEORGIA			
Georgia Municipal Association, Inc. (GA)	Negotiated	2	$37,545,000
Municipal Electric Authority of Georgia	Competitive	1	$299,425,000
	Negotiated	21	$6,004,150,474
HAWAII			
Hawaii Department of Transportation	Negotiated	1	$300,885,000
State of Hawaii (HI)	Negotiated	4	$1,455,970,000
IDAHO			
Idaho Bond Bank Authority (ID)	Competitive	9	$171,035,000
	Negotiated	14	$317,120,000
ILLINOIS			
Illinois Finance Authority	Negotiated	100	$9,180,669,000
	Private Placement	1	$14,545,000
Illinois Municipal Electric Agency	Negotiated	1	$594,685,000
Illinois Toll Highway Authority	Negotiated	11	$4,659,925,000
Regional Transportation Authority of Illinois (IL)	Competitive	5	$516,120,000
	Negotiated	1	$260,000,000
State of Illinois (IL)	Competitive	11	$4,580,000,000
	Negotiated	6	$5,783,270,000
Southwestern Illinois Development Authority	Negotiated	1	$94,195,000
Illinois Student Assistance Commission	Negotiated	2	$654,000,000
Illinois Sports Facilities Authority	Negotiated	1	$292,475,000
INDIANA			
Indiana Finance Authority	Competitive	1	$100,000,000
	Negotiated	7	$822,370,000
Indiana Municipal Power Agency	Negotiated	5	$814,990,000
IOWA			
Iowa Finance Authority	Negotiated	6	$1,242,635,000
Iowa Higher Education Loan Authority	Negotiated	2	$66,785,000
State of Iowa (IA)	Competitive	1	$20,910,000
	Negotiated	5	$1,258,230,000
KANSAS			
Kansas Department of Transportation (KS)	Competitive	2	$344,885,000
	Negotiated	9	$1,857,665,000
Kansas Development Finance Authority	Competitive	5	$228,150,000
	Negotiated	2	$490,915,000
KENTUCKY			
Kentucky Infrastructure Authority	Negotiated	3	$118,305,000
LOUISIANA			
Louisiana Energy & Power Authority	Negotiated	1	$120,770,000
Louisiana Offshore Terminal Authority	Negotiated	1	$70,000,000
Louisiana Public Facilities Authority	Negotiated	2	$166,895,000
Louisiana Stadium and Exposition District	Negotiated	1	$311,345,000
MAINE			
Maine Governmental Facilities Authority	Competitive	1	$33,000,000
State of Maine (ME)	Competitive	10	$380,995,000
	Negotiated	2	$190,180,000

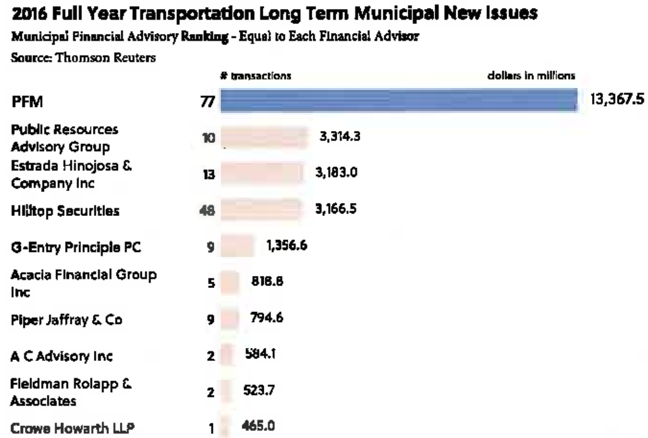
PFM Bond Transaction Experience with State Level Clients Since 2008			
Issuer	Offering Type	Number of Issues	Dollar Volume
MARYLAND			
Department of Transportation of Maryland (MD)	Competitive	20	$3,454,645,000
Maryland Economic Development Corporation	Negotiated	6	$219,520,000
Maryland Health and Higher Educational Facilities Authority	Negotiated	73	$7,085,295,000
Maryland Stadium Authority (MD)	Competitive	2	$26,990,000
	Negotiated	2	$414,350,000
Maryland Transportation Authority (MD)	Competitive	6	$1,014,450,000
	Negotiated	4	$1,344,220,000
State of Maryland (MD)	Competitive	36	$9,974,935,000
	Negotiated	12	$1,954,125,000
MASSACHUSETTS			
Massachusetts Bay Transportation Authority (MA)	Competitive	2	$407,455,000
Massachusetts Clean Energy Cooperative Corp.. (MA)	Negotiated	1	$49,885,000
Massachusetts Clean Water Trust (MA)	Competitive	1	$207,805,000
	Negotiated	2	$531,785,000
Massachusetts Development Finance Agency (MA)	Competitive	3	$49,485,000
	Negotiated	31	$3,478,215,000
Massachusetts Educational Financing Authority	Negotiated	4	$1,390,005,000
Massachusetts Health and Educational Facilities Authority	Negotiated	18	$1,816,410,000
Massachusetts Municipal Wholesale Electric Company	Negotiated	2	$261,450,000
Massachusetts Port Authority	Negotiated	4	$927,175,000
Massachusetts Water Pollution Abatement Trust (MA)	Competitive	3	$319,130,000
	Negotiated	2	$820,150,000
Massachusetts Water Resources Authority (MA)	Competitive	3	$243,905,000
	Negotiated	13	$3,565,275,000
The Commonwealth of Massachusetts (MA)	Competitive	12	$4,431,995,000
	Negotiated	16	$7,331,415,000
MICHIGAN			
Michigan Municipal Bond Authority	Negotiated	2	$262,710,000
Michigan Public Educational Facilities Authority	Negotiated	1	$2,410,000
Michigan Public Power Agency	Negotiated	1	$32,520,000
Northwestern Michigan College	Competitive	1	$20,890,000
State of Michigan (MI)	Competitive	3	$57,980,000
	Negotiated	8	$1,536,970,000
MINNESOTA			
Central Minnesota Municipal Power Agency (MN)	Negotiated	1	$32,670,000
Minnesota Office of Higher Education	Negotiated	1	$100,000,000
Minnesota Public Facilities Authority (MN)	Competitive	9	$1,004,450,000
Minnesota Rural Water Finance Authority	Negotiated	1	$30,000,000
Southern Minnesota Municipal Power Agency	Negotiated	3	$249,555,000
State of Minnesota	Competitive	8	$744,380,000
	Negotiated	2	$1,118,285,000
MISSOURI			
Missouri Highways and Transportation Commission	Competitive	1	$130,390,000
	Negotiated	5	$2,128,725,000

PFM Bond Transaction Experience with State Level Clients Since 2008			
Issuer	Offering Type	Number of Issues	Dollar Volume
NEBRASKA			
Nebraska Municipal Energy Agency	Negotiated	4	$250,680,000
Nebraska Utility Corporation	Negotiated	1	$15,120,000
NEVADA			
Nevada Housing Division	Negotiated	4	$108,310,000
State of Nevada (NV)	Competitive	4	$569,790,000
	Negotiated	1	$548,900,000
NEW HAMPSHIRE			
New Hampshire Health and Education Facilities Authority (NH)	Competitive	1	$53,890,000
	Negotiated	2	$125,970,000
New Hampshire Higher Educational & Health Facilities Authority	Negotiated	1	$30,230,000
NEW JERSEY			
New Jersey Building Authority	Competitive	1	$20,000,000
	Negotiated	2	$121,395,000
New Jersey Economic Development Authority (NJ)	Competitive	2	$442,085,000
	Negotiated	1	$183,670,000
New Jersey Educational Facilities Authority (NJ)	Competitive	2	$500,000,000
	Negotiated	7	$577,450,000
New Jersey Environmental Infrastructure Trust (NJ)	Competitive	29	$1,413,440,000
State of New Jersey (NJ)	Competitive	1	$228,760,000
New Jersey Higher Education Assistance Authority	Negotiated	1	$280,000,000
New Jersey Transportation Trust Fund Authority	Negotiated	2	$1,538,975,563
NEW MEXICO			
New Mexico Finance Authority	Competitive	12	$504,410,000
	Negotiated	26	$2,068,480,000
NEW YORK			
Buffalo Fiscal Stability Authority (A Public Benefit Corporation of the State of New York)	Negotiated	1	$14,170,000
Dormitory Authority of the State of New York (NY)	Competitive	9	$3,779,290,000
	Negotiated	17	$9,279,870,000
Empire State Development	Competitive	2	$702,395,000
Empire State Development Corporation (NY)	Competitive	3	$1,208,615,000
	Negotiated	1	$672,100,000
New York State Environmental Facilities Corporation	Competitive	2	$159,685,000
	Negotiated	18	$5,197,195,000
New York State Housing Finance Agency (NY)	Negotiated	4	$260,725,000
New York State Thruway Authority	Negotiated	2	$1,011,495,000
Port Authority of New York and New Jersey	Negotiated	7	$4,980,280,000
Power Authority of the State of New York	Negotiated	2	$177,435,000
NORTH CAROLINA			
North Carolina Capital Facilities Finance Agency	Negotiated	1	$62,490,000
North Carolina Eastern Municipal Power Agency	Negotiated	5	$1,409,640,000
North Carolina Medical Care Commission (NC)	Negotiated	1	$42,585,000
North Carolina Municipal Power Agency No. 1	Negotiated	8	$1,582,970,000
North Carolina State Ports Authority	Negotiated	2	$64,435,000

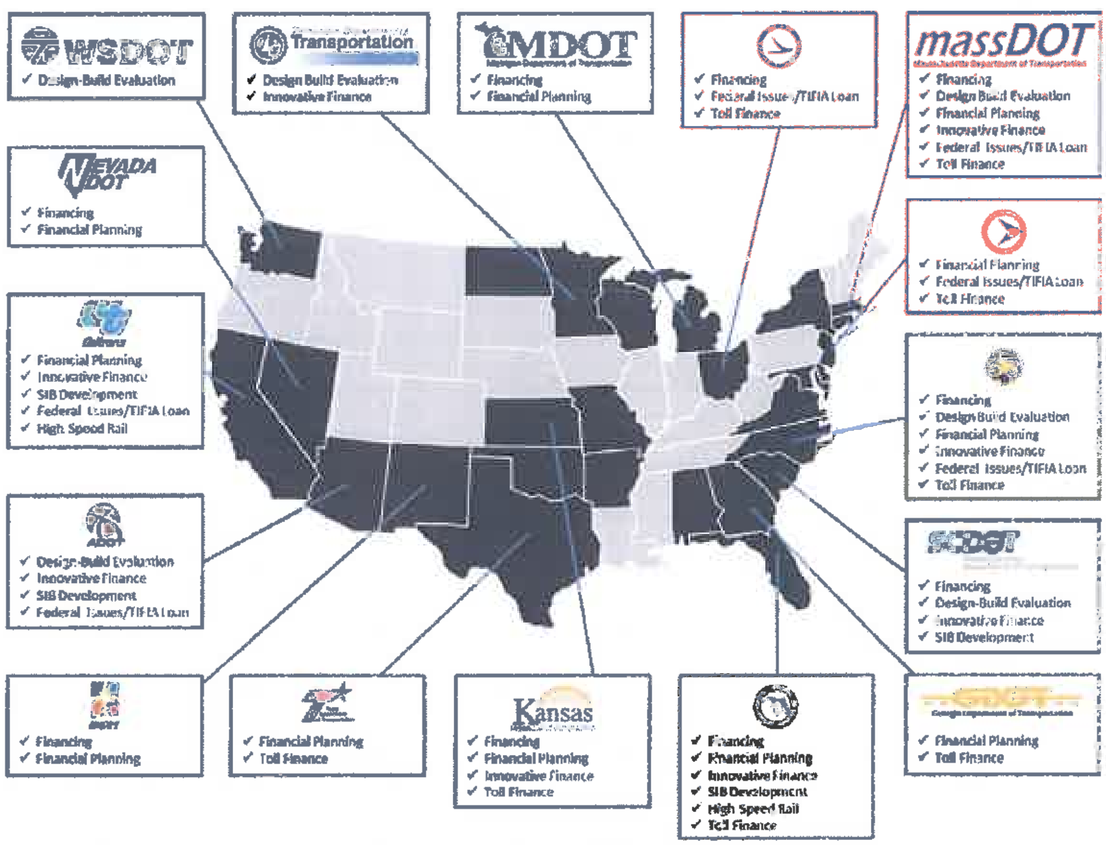
PFM Bond Transaction Experience with State Level Clients Since 2008			
Issuer	Offering Type	Number of Issues	Dollar Volume
NORTH DAKOTA			
North Dakota Building Authority	Competitive	3	$26,320,000
North Dakota Public Finance Authority	Competitive	14	$359,750,000
	Negotiated	2	$138,815,000
State Board of Higher Education of the State of North Dakota (ND)	Competitive	8	$92,145,000
	Negotiated	4	$25,470,000
OHIO			
Ohio Air Quality Development Authority	Private Placement	3	$44,405,914
Ohio Public Facilities Commission (OH)	Competitive	3	$197,000,000
	Negotiated	24	$2,341,895,000
Ohio Turnpike and Infrastructure Commission (OH)	Negotiated	1	$1,068,307,816
Ohio Water Development Authority	Competitive	1	$35,000,000
	Negotiated	19	$2,638,955,000
State of Ohio (OH)	Competitive	26	$2,905,260,000
	Negotiated	49	$3,902,750,000
OKLAHOMA			
Central Oklahoma Transportation and Parking Authority	Negotiated	1	$22,000,000
OREGON			
Oregon Board of Higher Education	Negotiated	2	$413,770,000
Oregon Facilities Authority (OR)	Negotiated	15	$562,775,000
State of Oregon (OR)	Competitive	20	$314,910,000
	Negotiated	23	$4,358,565,000
Oregon State Department of Administrative Services	Competitive	1	$40,825,000
	Negotiated	5	$1,010,340,000
Oregon Bond Bank	Negotiated	1	$21,555,000
PENNSYLVANIA			
Commonwealth of Pennsylvania (PA)	Competitive	23	$16,373,795,000
	Negotiated	1	$17,025,000
Delaware River Port Authority	Negotiated	8	$1,646,165,000
Northeastern Pennsylvania Hospital and Education Authority	Negotiated	2	$23,575,000
Pennsylvania Economic Development Financing Authority	Negotiated	3	$2,827,405,000
	Private Placement	1	$721,485,000
Pennsylvania Higher Education Assistance Agency	Negotiated	3	$494,835,000
Pennsylvania Higher Educational Facilities Authority (PA)	Negotiated	9	$802,215,000
Pennsylvania Industrial Development Authority (PA)	Negotiated	3	$416,145,000
Pennsylvania Intergovernmental Cooperation Authority (PA)	Negotiated	1	$214,565,000
Pennsylvania Turnpike Commission	Negotiated	38	$8,823,906,827
Southeastern Pennsylvania Transportation Authority	Negotiated	2	$424,090,000

PFM Bond Transaction Experience with State Level Clients Since 2008			
Issuer	Offering Type	Number of Issues	Dollar Volume
RHODE ISLAND			
Rhode Island Commerce Corporation (RI)	Negotiated	3	$516,535,000
Rhode Island Convention Center Authority	Negotiated	2	$69,235,000
Rhode Island Economic Development Corporation	Negotiated	1	$32,755,000
Rhode Island Health and Educational Building Corporation (RI)	Competitive	1	$118,240,000
	Negotiated	25	$1,422,520,000
SOUTH CAROLINA			
South Carolina Jobs and Economic Development Authority	Negotiated	1	$24,360,000
South Carolina Public Service Authority	Negotiated	22	$7,251,399,900
	Private Placement	1	$21,873,500
South Carolina Transportation Infrastructure Bank (SC)	Competitive	6	$1,353,735,000
SOUTH DAKOTA			
South Dakota Conservancy District	Competitive	2	$109,330,000
	Negotiated	4	$315,500,000
TENNESSEE			
State of Tennessee	Competitive	6	$543,130,000
	Negotiated	8	$2,615,500,000
Tennessee Local Development Authority	Competitive	3	$162,250,000
TEXAS			
State of Texas (TX)	Negotiated	4	$308,855,000
Texas Transportation Commission (TX)	Competitive	1	$99,570,000
	Negotiated	2	$1,796,445,000
Texas Water Development Board	Negotiated	3	$321,655,000
VIRGINIA			
Virginia College Building Authority (VA)	Negotiated	5	$174,590,000
Virginia Port Authority	Negotiated	8	$614,605,000
Virginia Public Building Authority (VA)	Competitive	9	$1,708,935,000
Western Virginia Regional Jail Authority	Negotiated	2	$58,680,000
VERMONT			
Vermont Educational and Health Buildings Financing Agency	Negotiated	19	$913,397,000
	Private Placement	1	$24,515,000
WASHINGTON			
State of Washington (WA)	Competitive	33	$1,184,835,000
Tobacco Settlement Authority (WA)	Negotiated	1	$334,700,000
Washington Health Care Facilities Authority	Negotiated	30	$3,054,150,000
Washington Higher Education Facilities Authority	Negotiated	5	$218,945,000
WISCONSIN			
State of Wisconsin (WI)	Competitive	2	$48,015,000
	Negotiated	12	$4,312,570,000
Wisconsin Dells Community Development Authority	Negotiated	2	$3,435,000

Transportation Experience and Expertise.
PFM has established an unparalleled record of expertise, experience and commitment in the area of transportation finance. Our transportation practice, which is headed nationally by David Miller, includes 20 professionals dedicated almost exclusively to transportation agencies. Over the past five years, the firm has been ranked the leading financial advisor to transportation clients including investment and commercial banks, according to Thomson Reuters. For this period, PFM completed 367 transportation transactions for a total par of over $83 billion. In 2016, we were the top financial advisor in transportation and worked on $13.3 billion of transportation issues, more than four times the amount of our closest competitor.



State DOT Experience.
PFM serves as financial advisor to many of the nation's state DOTs, which includes significant experience on GARVEE bonds issuance. David Miller has served as PFM's lead financial advisor for the following state DOTs: Arizona, Florida, Maryland, North Carolina, South Carolina, Texas, and Virginia. Additionally, the transportation finance team is currently working with Maryland, North Carolina, and South Carolina. A representative sample of PFM's state DOT clients and services is portrayed by the following graphic. This work includes toll projects, GARVEE bonds, state infrastructure banks, and TIFIA loans among many other types of capital programs. The map below details some recent experiences:



Partial list of both past and current clients

Toll Project Experience.

PFM has a long history of working with many governmental agencies to implement non-recourse toll revenue financing including TIFIA loans. The matrix on the following page shows our various toll agency clients and the types of services we have provided to each. David Miller has served as PFM's lead financial advisor for the following toll project clients: Central Florida Expressway Authority, Chesapeake Bay Bridge & Tunnel, Chesapeake Transportation System, Greater New Orleans Expressway Commission, Hampton Roads Transportation Accountability Commission, Maryland Transportation Authority, North Carolina Turnpike Authority, Osceola County (FL) for the Osceola and Poinciana Parkways, SANBAG for I-10 & I-15 Managed Lanes, Texas DOT for the Grand Parkway, and Virginia DOT for I-66 Managed Lanes. The following table provides additional details:

PFM Toll Facilities Experience

	Long-Term Financing Plan	Privatization	Alternative Funding Sources	Project Revenue Bonds	Operating/Development Agreement	FHWA Grants / TIFIA Loans	Refunding Bonds	State DOT O&M Agreement	State DOT Loans/Grants	Variable Rate Bonds	Letter of Credit	SWAPS	Structured Products	Commercial Paper
Arkansas Highway and Transportation Department	♦		♦											
Bay Area Toll Authority (CA)*	♦			♦			♦			♦	♦	♦	♦	
Buffalo & Ft. Erie Public Bridge Authority	♦		♦	♦									♦	
Central Florida Expressway Authority*	♦			♦			♦	♦			♦	♦	♦	
Chesapeake Bay Bridge & Tunnel District*	♦			♦			♦					♦	♦	
Chesapeake Transportation System (Virginia)*	♦	♦	♦	♦	♦		♦		♦					
Colorado High Performance Transportation Enterprise						♦								
Delaware River Port Authority (DRPA)	♦		♦	♦			♦				♦	♦	♦	
Delaware Transportation Authority*	♦		♦	♦									♦	
E-470 Public Highway Authority										♦			♦	
Florida's Turnpike Enterprise				♦			♦							
Foothill/Eastern TCA*	♦		♦	♦		♦	♦	♦			♦	♦	♦	
Georgia 400	♦			♦		♦			♦					
Golden Gate Bridge Highway and Transportation District	♦			♦							♦		♦	♦
Hampton Roads Transportation Accountability Commission*	♦		♦											
Illinois Toll Highway Authority*	♦			♦			♦			♦	♦	♦		
Kentucky Public Transportation Infrastructure Authority*	♦	♦	♦			♦								
Lee County, Florida Transportation Facilities	♦		♦	♦		♦	♦	♦	♦					
Los Angeles County Metro (I-5 / HDMC)	♦		♦											
Mackinac Bridge Authority	♦		♦										♦	
Maryland Transportation Authority (MTA)	♦			♦			♦							
Massachusetts Turnpike Authority	♦	♦					♦		♦	♦	♦	♦	♦	
New Jersey Turnpike Authority	♦			♦			♦						♦	
New York State Thruway Authority*	♦			♦			♦							
North Carolina Turnpike Authority & DOT*	♦	♦	♦	♦		♦		♦						
Ohio Turnpike*	♦		♦											
Orange County Transportation Authority 91 Express Lanes												♦		
Osceola Parkway - Poinciana Parkway (Florida)*	♦	♦	♦	♦	♦				♦					
Pennsylvania Turnpike Commission*	♦		♦	♦			♦			♦	♦	♦	♦	
San Bernardino Associated Governments (I-10/I-15 Managed Lanes)*	♦		♦											
San Diego Association of Governments (SR 11 / SR 125)*	♦		♦											
San Joaquin Hills TCA*	♦		♦	♦			♦						♦	
Texas Department of Transportation*	♦	♦		♦	♦		♦	♦			♦			

* Current client engagements As of 07/14/16

Public Private Partnerships (P3) Experience.

PFM has been at the forefront of P3s since their introduction to the U.S. markets including various forms of joint development agreements up through and including the current private equity forms of P3s. PFM has assisted its governmental clients to negotiate with the private sector on a variety of development, lease, and concession structures to support financing of transportation infrastructure projects. These types of arrangements are not new to the U.S. but have been used for decades, especially in the airport and seaport sectors, but also across the range of governmental infrastructure including solid waste facilities, public power facilities, toll facilities, and water/sewer facilities. There is a reason private activity bonds were created over 30 years ago – and that reason was to bring low cost municipal financing to public-private ventures. PFM has substantial experience in assisting its clients with P3 services from advising on a long-term concession with a private developer, to reviewing and evaluating financial position of private sector concessionaires, to assessing counterparty risks for public sponsors. PFM has advised state and local agencies in the review and evaluation of numerous transportation P3s including value for money/delivery alternatives analyses through, in some cases, lease/concession closing. The matrix below demonstrates that PFM has P3 experience with a variety of transportation credits – including toll authorities, transit agencies highway systems and seaports. Our skills and experience demonstrate that we are ready to provide the State a comprehensive range of P3 services that are combined with second to none knowledge of the municipal credit markets including private activity bonds. The table below outlines additional experience in this area:

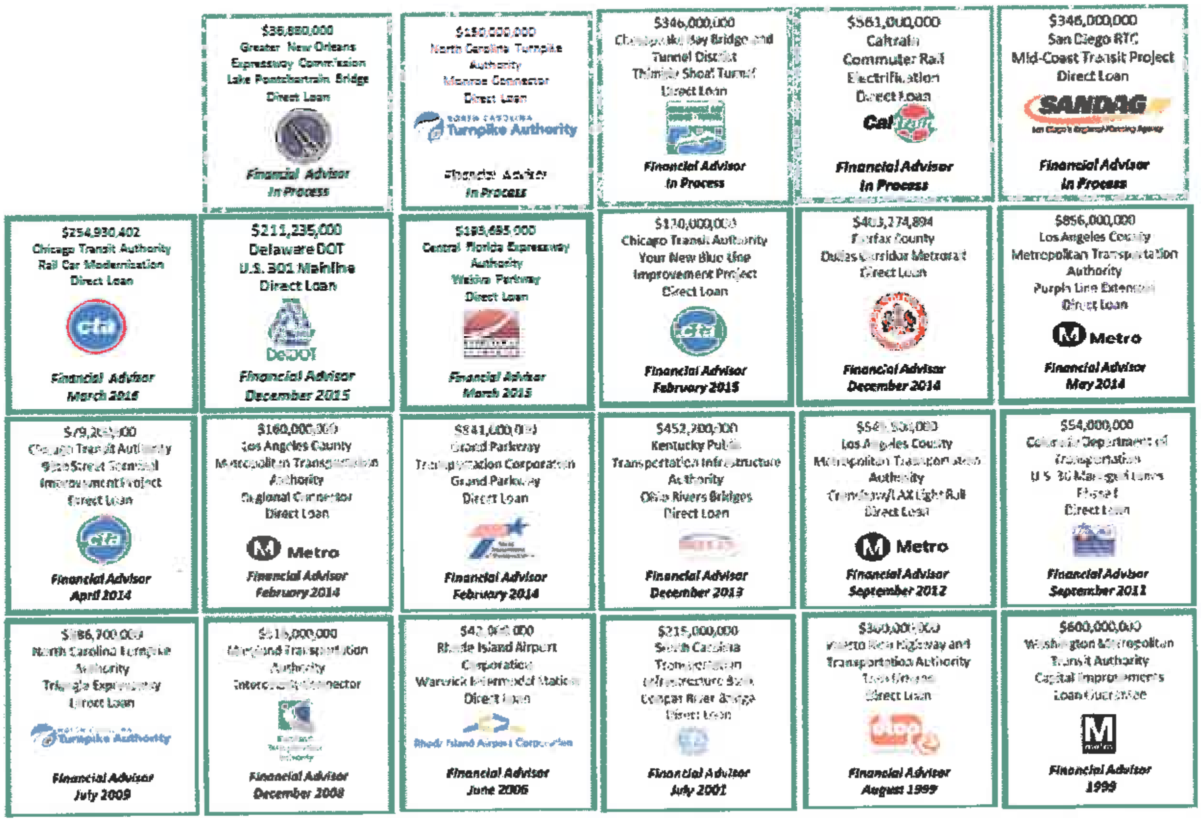
PFM Public-Private Partnership Experience

	Evaluate P3 Proposals	Negotiate Development Agreements	Funding Alternatives Analysis	Project Debt Issuance	Project TIFIA/SIB Loan	Project Grant Assistance	P3 Asset Valuation / VFM
Alameda Corridor Transportation Authority			◆	◆	◆		
Anaheim, City of		◆		◆			
Arizona DOT	◆	◆	◆				◆
Chesapeake Expressway Toll Road		◆	◆	◆	◆		◆
Chicago Skyway			◆				
Colorado Southeast Corridor Project	◆			◆			
Connecticut, State of					◆		
Delaware DOT	◆		◆	◆	◆		
Florida DOT and High Speed Rail	◆	◆	◆				◆
Illinois Finance Authority (O'Hare Bypass Project)		◆		◆	◆		
Jacksonville Port Authority		◆	◆	◆	◆	◆	
Las Vegas Monorail and Clark County RTC	◆	◆	◆				
Los Angeles, City of (Parking Concession)		◆	◆				◆
Los Angeles to Pasadena Metro Blue Line	◆						
Maryland Ports Administration	◆	◆	◆	◆			◆
Massachusetts Turnpike Authority	◆						
Minnesota DOT	◆	◆	◆	◆			◆
New Jersey Transit Parking		◆	◆				◆
North Carolina State Ports Authority			◆				
North Carolina Turnpike Authority			◆				◆
Osceola County, FL Expressway		◆	◆	◆			◆
Pennsylvania DOT / Pennsylvania Turnpike	◆		◆				◆
Pittsburg, City of (Parking Concession)		◆	◆				◆
San Bernardino Associated Governments			◆				◆
San Diego RTC				◆			◆
South Carolina DOT Southern Connector Project	◆	◆	◆				
Texas Cotton Belt Commuter Rail			◆				◆
Transportation Corridor Agencies	◆	◆	◆	◆	◆		

Partial list of both past and current clients

TIFIA Loan Experience.

Most stand-alone toll project financings, i.e. not part of an existing system, whether public agency financed or P3 concession financed, today seek to use the USDOT's TIFIA loan program. Given the PFM team's extensive knowledge of toll roads and Federal programs we are very familiar with the terms and flexibility offered by the TIFIA program. We have the expertise to develop TIFIA structures that maximize the use of flexible repayment terms and mitigate the risks of TIFIA's non-typical security terms such as "springing lien" events where the TIFIA loan would rise on parity with senior debt. We seek to incorporate important protections such as forward looking covenants to ensure the maximum benefit to our clients rather than to TIFIA. We have supported numerous clients in the TIFIA loan application process and successfully closed more TIFIA loans than any municipal advisor in the nation, as represented by the graphic below:



GARVEE Bonds Experience.

While leveraging Federal transportation funds is now a common and accepted financing practice with over $20 billion in GARVEE debt issued by states, PFM is mindful of the need to identify and implement GARVEE financing strategies that maintain financial flexibility and protect against reauthorization risk. This is particularly important given the near term funding constraints facing the Federal Highway Trust Fund. Important structural features include maintaining strong debt service coverage, managing maximum maturities and, if cost effective, as is the case for the Federal Reimbursement Anticipation Notes, providing an additional pledge of non-Federal revenues.

The PFM Team has extensive experience using federal discretionary and formula funds to address capital needs and has pioneered the use of federal formula funds as a security source. Our use in San Diego of federal formula funds as the primary repayment source for lease obligation debt became the model for the federal grant anticipation revenue vehicle program. PFM also executed the first leveraging of Congestion Mitigation and Air Quality ("CMAQ") funds to remedy state funding cutbacks for the North County Transit District in California. Our recent experience developing and managing programs secured by Federal transportation funds includes the states of Delaware, South Carolina, Ohio and Michigan, among others.

PFM's Select GARVEE Experience				
New Mexico Department of Transportation February 2014 $70,110,000 Indirect	**Nevada Department of Transportation** February 2014 $86,020,000 Indirect	**Alabama Federal Aid Highway Finance Authority** November 2012 $327,935,000 Direct	**Delaware Transportation Authority** June 2010 $113,490,000 Direct	**State of Ohio** May 2010 $78,185,000 / $136,815,000 Direct
Missouri Highway and Transportation Commission September 2009 $195,625,000 / $404,375,000 Direct	**State of Michigan** June 2009 $281,910,000 Indirect	**Maryland Transportation Authority** December 2008 $425,000,000 Direct	**New Jersey Transportation Trust Fund** June 2006 $131,555,000 Direct	**Oklahoma Department of Transportation** August 2005 $48,875,000 Direct

State Revolving Fund Experience and Expertise.
PFM is proud to have served as financial advisor to water, wastewater, and infrastructure revolving funds in 21 states and territories. Our clients range from very large issuers, focused on frequent leveraging opportunities to smaller issuers who focus on operational best practices and the means to best utilize their program capacity. The issues and challenges for all pooled programs and state revolving funds ("SRFs"), however, are wholly similar: how to manage a program through increasingly burdensome Environmental Protection Agency ("EPA") rules and regulations; how to execute a bond pricing strategy that minimizes all-in effective yields; how to meet borrower demand while preserving program capacity; how to maximize retainable income while meeting federal arbitrage regulations; how to refund high coupon debt effectively; and how to design and implement tools to best manage for efficient operations.

PFM has provided numerous innovative ideas and solutions to pooled programs:

- Creative security structures
- Thoughtful interpretation and understanding of EPA regulations
- Innovative State match funding source options
- Flexible leveraging structures: reserve fund, cash flow, hybrid, and guaranty models
- Cross-collateralization and other enhanced security means
- Pricing strategies, including use of both competitive, negotiated and hybrid sales
- Asset management strategies to maximize retainable program return
- Commercial paper programs
- Analysis and execution of derivative products
- Tax Increase Prevention and Reconciliation Act of 2005 ("TIPRA") mitigation
- Program capacity and subsidy change impact studies
- Borrower prepayment strategies
- In coordination with PFM Asset Management LLC, provided asset management strategies to maximize retainable program return
- In coordination with PFM Swap Advisory LLC, provided analysis and execution of derivative products to manage risk in pool programs

A representative list of our current pool/SRF clients is listed below.

	Financial Advisory PFM		Investment Advisory PFMAM**		
PFM Group Client	Transaction Planning / Execution	LT Planning	Separately Managed Accounts	Structured Products / Swap Advisory	Arbitrage Rebate
California State Water Resources Control Board*	♦	♦			
Delaware Department of Natural Resources and Environmental Control *		♦			
Florida Water Pollution Control Financing Co	♦	♦			
Georgia Environmental Facilities Authority		♦			
Illinois Finance Authority	♦	♦	♦	♦	
Indiana Finance Authority *	♦	♦		♦	
Iowa Finance Authority *	♦	♦		♦	
Kansas Development Finance Authority *	♦	♦		♦	
Kentucky Infrastructure Authority *	♦	♦			
Louisiana Public Facilities Authority *		♦			
Massachusetts Clean Water Trust *	♦	♦		♦	♦
Minnesota Public Facilities Authority *	♦	♦		♦	
New Jersey Environmental Infrastructure Trust *	♦	♦	♦	♦	
New York State Environmental Facilities Co *	♦	♦			
North Dakota Public Finance Authority *	♦	♦	♦	♦	
Ohio Water Development Authority *	♦	♦		♦	
South Dakota Conservancy District *	♦	♦	♦	♦	
Texas Water Development Board	♦				
Virginia Resources Authority*			♦		
State of Wisconsin*	♦	♦		♦	

Current contracts.

***PFM and PFMAM services would be provided under separate agreements.*

Client list is as of December 31, 2016 and is being provided for informational purposes only and does not constitute an endorsement or testimonial by clients listed of services provided by PFM. A full listing is available upon request.

Management and Budget Consulting Experience and Expertise.

PFM Group Consulting LLC houses the firm's Management and Budgeting Consulting (MBC) practice which started 25 years ago and now includes more than two dozen professionals located in seven offices around the nation.

The MBC practice has helped public sector leaders of state and local governments to improve operational and fiscal performance and advised local governments on fiscal and economic turnarounds that have gained national recognition. We assist state and local governments by providing assistance on budgeting and operational issues with a focus on the intersection of policy, program, budget and results.

Through our broad range of public-sector consulting services, we are highly qualified to provide assistance to state and local governments, including:

- Multi-year strategic, financial and management plans
- Priority Based Budgeting/Budget for Outcomes support
- Shared services and multi-jurisdiction service delivery
- Operational and organizational efficiency studies
- Program evaluation
- Benchmarking, performance measurement, comparability analysis
- Revenue maximization
- Non-tax revenue enhancements

- Departmental expenditure and operational improvements
- Operating and capital budget development support
- Capital program management improvements
- Financial policy development
- Cash flow and fiscal position assessment
- Labor-management analysis and expert testimony
- Workforce and retiree benefits alternatives
- Economic development analysis

Healthcare Experience and Expertise.
PFM has a robust Healthcare practice that serves healthcare institutions as their financial advisors in all of their capital markets transactions and, where appropriate, providing sound strategic endeavors and initiatives. The Healthcare specialty field started at PFM in 2011 with the acquisition of an existing smaller firm and, over the past six years, has continued to grow and thrive. The following diagram is a representative sample of some of the organizations that PFM supports:

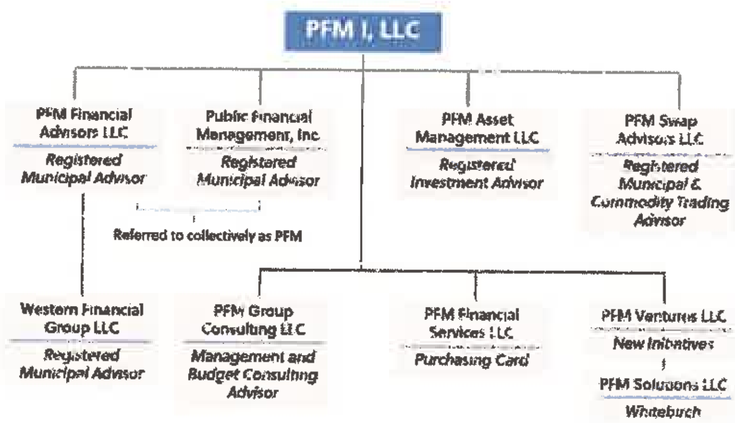
FLOYD
JOHNS HOPKINS MEDICINE
CAREGROUP HEALTHCARE SYSTEM
Berkshire Health Systems
Lahey CLINIC
DANA-FARBER CANCER INSTITUTE
PeaceHealth
RUSH UNIVERSITY MEDICAL CENTER
HHC
YKHC
PENNSTATE HERSHEY Milton S. Hershey Medical Center
Sutter Health We Plus You
Spartanburg Regional Healthcare System

As detailed above, PFM provides a broad scope of services to our healthcare clients and in many instances, these are strategic in nature as the Healthcare industry adapts to an every-changing, politically charged, and highly regulated operating environment. In these unique circumstances, PFM provides advice and guidance that is beyond a bond transaction. Some of the strategic areas are:

- Strategic Partnership Evaluations
- Hospital enterprise Valuation
- Network Growth and Development
- Evaluating Long Range Capital Plans
- Governance and Credit Structures
- Optimizing Use of Real Assets

2. *Provide a broad overview of your firm, including a functional description of any parent, affiliated, or subsidiary company, and any business partners. Provide an organization chart of your firm and describe the working relationships between each component and your consulting group.*

Overview. *Public Financial Management, Inc. was founded in 1975* with a staff of five. Today, The PFM Group (PFM) which includes Public Financial Management, Inc. and PFM Asset Management LLC (PFMAM) is the nation's leading provider of independent financial and investment advisory services to the public sector. ***The firm has a staff of more than 600 professionals located in 41 offices across the country.*** The firm is led by John Bonow, Chief Executive Officer, and governed by the firm's Managing Directors. PFM is a privately held firm owned by the Managing Directors.



Market Presence & Stature. *PFM is the largest financial advisory firm in the public finance industry.* Headquartered in Philadelphia, Pennsylvania, the firm's professionals are located in every region of the country within easy distance our clients. This proximity gives us a better understanding of the local issues and problems affecting our clients, as well as providing the day-to-day contact needed to properly meet their needs.

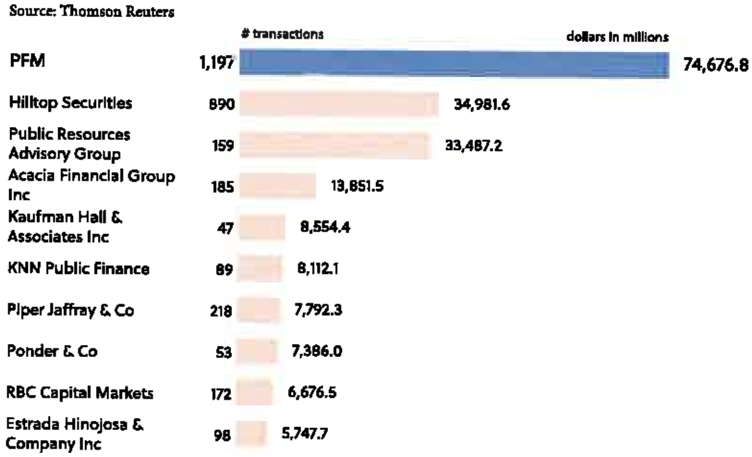
Proximity also means that PFM is able to attend meetings on relatively short notice. For example, the Project Manager, Chris Lover, is based in Charlotte, North Carolina. There are four direct flights each day to Charleston from Charlotte with a flight time of about an hour.

Over its 42 year history, PFM has built a solid presence in the municipal marketplace. We have been involved in financing programs totaling in excess of $1.05 trillion. ***As detailed in the following chart, last year, PFM advised on 1,197 bond transactions with a total par amount of over $74.6 billion (over twice as much volume as our nearest competitor).***

2016 Full Year Overall Long Term Municipal New Issues

Municipal Financial Advisory Ranking - Equal to Each Financial Advisor

Source: Thomson Reuters



The State will have access to any of our five primary business activities, which are summarized below and described in more detail below:

- **Financial Advisory:** managing transactions related to debt issuance
- **Investment Management:** providing investment advice and portfolio management for working capital reserves and bond proceeds
- **Investment Consulting:** structuring simple, reliable, and fundamentally sound asset management strategies
- **Management and Budget Consulting:** offering highly effective capital and operating budget advice
- **Structured Products:** developing innovative financing techniques and investment products

Financial Advisory. As a SEC Registered Independent Registered Municipal Advisor, PFM engages in capital planning, revenue forecasting and evaluation, resource allocation, debt management policy development and debt transaction management (including structuring, documentation and execution).

PFM delivers superior experience and expertise that helps clients resolve the entire range of technical and financial challenges they routinely encounter during the capital formation process. ***Our national reputation and consistent growth, from $5 billion in managed debt transactions in 1986 to $74.6 billion at year-end 2016, reflect our clients' recognition of our capabilities and the value we add.***

Investment Management. PFM Asset Management LLC ("PFMAM") is devoted primarily to providing investment advice and portfolio management for governmental and not-for-profit organizations, corporations, pension funds and other institutions.

As an investment manager, PFMAM brings a comprehensive spectrum of services to the business of money management. Managing both investment pools and individual client portfolios designed to earn competitive yields while maximizing safety and liquidity, PFMAM's services include timely market-driven portfolio management, portfolio design, state-of-the-art accounting and arbitrage rebate calculation services. ***The value of this service to clients is evident in the growth of assets under our management, from $1 billion in 1986 to over $112 billion in total assets under advisement as of December 31, 2016, including $70.9 billion in discretionary assets under management and $41.3 billion in non-discretionary assets.*** PFMAM is registered under the Investment Advisers Act of 1940. A copy of its Form ADV, Part II is available upon request.

Investment Consulting. PFM Advisors is a specialized component division of PFMAM providing investment and retirement plan consulting services to pension funds, endowments and similar funds.

We believe that a true partnership with our clients can only be achieved by fully understanding the unique characteristics of their funds. Therefore, our ability to structure simple, reliable, and fundamentally sound asset and retirement planning management strategies results in predictable investment returns, sound vendor services and few surprises. PFM Advisors clients include public funds, Taft-Hartley funds, corporate funds, hospitals, foundations and endowment funds.

Management and Budget Consulting. As a management and budget consultant, PFM offers its clients the most effective capital and operating budget advice available.

We have a proven track record in using various techniques for performance management, benchmarking, revenue enhancement and privatization. From Washington, D.C. to the Commonwealth of Pennsylvania to Los Angeles County, PFM helps leaders chart a path through each phase of fiscal health. From financial distress to balance...from balance that is temporary to that which can be sustained...from sustainability to expanded coverage and excellent quality, PFM produces results for our clients.

Structured Products. While industry statistics are not maintained for investment management and advisory services provided for proceeds of bond issues, we are unaware of any firm with more experience in this specialized field than PFMAM. As of December 31, 2016, PFMAM managed $70.9 billion in discretionary assets, of which approximately $9.512 billion include bond funds, construction funds, debt service reserve funds, and debt service funds. ***Since 2006, PFMAM's Structured Products Group ("SPG") has advised on over 2,029 bond proceeds related transactions totaling more than $193.8 billion in related assets.*** These transactions included the valuation and procurement of 379 structured investments for $46.8 billion of related assets and structuring over 1,650 defeasance escrows for more than $147 billion of related assets on behalf of a wide range of issuers (as of December 31, 2016). The seven members of SPG are dedicated to the structured financial products practices and are located in our Harrisburg, PA office.

In addition to our bond proceeds-related engagements that resulted in these transactions, we provided advice and implementation services for well over one hundred other transactions that ultimately resulted in proceeds being invested in traditional fixed-income portfolios and/or a variety of pooled investment funds. PFMAM provides both investment advice for portfolios and advice on passive strategies such as guaranteed investment contracts. We have no bias toward one or another of these strategies.

Refunding/Defeasance Escrow Optimization. PFMAM optimizes escrows based upon live pricing feeds from a variety of sources, including Bloomberg, TradeWeb, and MarketAxess. We utilize a unique, security-by-security optimization and procurement process that enables our clients to receive the best price possible on each security purchased, which may result in multiple winning brokers and a much more efficient escrow compared to what one broker could have offered as a whole. Our SPG and trading desk professionals work as a team to ensure that the procurement process is conducted in a careful and efficient manner with an emphasis on documentation and compliance with all applicable regulations. The procurement process is governed by an exhaustive term sheet, which is reviewed and approved by counsel and includes both legal and business provisions designed to protect our clients. Our team stands ready on the pricing date to move forward with the competitive procurement of the escrow as soon as the bonds have finished pricing. The entire procurement process is conducted via Bloomberg, which allows us to maintain time-stamped documentation of all offers received. These records, along with the term sheet and broker acknowledgments, are included as part of the bidding agent certificate and final report summarizing the results of the transaction.

Once the investments have been purchased, PFMAM will coordinate the closing on the transactions and establish instructions to ensure that all securities settle successfully and on time. PFMAM will provide detailed instructions to both the escrow agent (trustee) and securities providers in advance of the closing. Our SPG and trading desk professionals work as a team throughout the entire process. In the event of any complications or delivery failures, PFMAM's portfolio managers and bond proceeds specialists will serve as intermediaries between the escrow agent and securities provider(s) to help quickly resolve any problems.

Bond Proceeds Investment Strategies. PFMAM takes a holistic approach to bond proceeds investment management and makes investment recommendations based upon the specific needs and investment objectives of our clients. Our services include analysis of a variety of different reinvestment alternatives including structured portfolios, actively-managed portfolios, structured investment agreements, and investment pools or other money market instruments. PFMAM also has the resources available to evaluate and implement less common investment approaches including investments in tax-exempt bonds. We run breakeven and sensitivity analyses to help our clients understand the risks and returns associated with various investments. ***Our goal is always to provide an objective investment recommendation that we believe represents the best approach for each individual client.***

Structured Investments. PFMAM's approach the procurement of structured investments is detailed and comprehensive. We draft an exhaustive set of bidding specifications that typically includes over 40 individual business and legal provisions. These bidding specifications help facilitate conversations among the working group about important business points and tax compliance. Such conversations ultimately enable us to refine and further tailor the bidding specifications to match the nuances of each individual client's needs. We also advise our clients on the distinguishing factors of various types of structured investments, most notably from the standpoint of how the mechanics of each structure impacts the credit risk and ability to obtain a clean bankruptcy opinion from counsel. Lastly, our recommendations are always made in the context of current and reasonably expected market conditions while taking into account historical averages and the nature of the business and interest rate cycles.

Prior to conducting the bidding process, PFMAM is in communication via telephone and electronic mail with providers to ensure no details are overlooked. All communication with the potential providers is halted fifteen minutes prior to the opening of the allotted time window in which bids are due. The bidding process itself is conducted via facsimile (fax). The providers fax their bids to PFMAM within the allotted time window in which bids are due. After bids are received, PFMAM reviews the results with counsel and the client, and if the client is comfortable with the results of the bid, it gives PFMAM approval to award to the winning provider. In our experience, the IRS strongly prefers time-stamped bid sheets, which can be produced when conducting the bid via fax but not via telephone. The bid sheets are then incorporated into our broader documentation as part of our bidding agent certificate and final report.

Structured Investment Terminations. As an SEC registered investment advisor, PFMAM has significant experience with all forms of structured investments including guaranteed investment contracts, repurchase agreements, and forward delivery agreements. We understand the nuances of each structure and the various provisions that may be included in each contract, particularly with regard to transfer, default, termination, and calculation methodologies. ***Since 2009, PFMAM has advised on the valuation and/or termination of 162 structured investments for 87 clients totaling over $16.13 billion in notional amounts (as of December 31, 2016).***

An understanding of the documents is imperative to accurately price (if applicable) and facilitate settlements, transfers, and terminations. We have extensive experience providing independent, third-party market valuations for structured investments. Historically, determining fair market values for structured investments was a more regimented, straightforward process due to a high degree of market participation. However, as a result of the financial crisis, numerous structured investment providers have exited the market, which makes it extremely difficult to establish a market price for structured investments. In this new environment, traditional pricing methodologies are no longer applicable due to an abandonment of industry standards and much higher corporate credit spreads. In response, PFMAM has developed independent, third-party comparative pricing and evaluation methodologies using various benchmarks and pricing sources including Treasury and agency securities pricing, the TED Spread, credit default swaps, and other corporate borrowing cost metrics to provide accurate and defensible pricing analyses. Regardless of the nature of the structured investment documentation, we will create a customized analysis to evaluate the specifics of each individual transaction.

3. Provide copies of any written Code of Conduct, Ethics Policy, or Conflict of Interest Policy. If your firm does not have such a policy please so state.

As a leading independent financial and investment advisory firm, PFM's record of integrity is critical in maintaining the trust of our clients and our good name throughout the industry. We take standards of professional and ethical behavior seriously at PFM, and are extremely proud of our strong reputation for integrity.

Independence and integrity have long been the hallmarks of PFM and the way that the firm approaches the public finance business. Throughout the last few decades in which there have been a number of municipal bond scandals, PFM has also maintained an impeccable record of integrity in delivering its financial advisory services. Indeed, PFM has pioneered many of the methods for the conduct of municipal bond business, including the competitive bidding of refunding escrow securities.

PFM also has an internal Code of Ethics which is signed by all newly hired employees of PFM and adheres to the standards of the National Association of Independent Public Financial Advisors (NAIPFA).

The PFM Code of Ethics is attached as Appendix D to this proposal.

4. Disclose in full detail anything that may create a conflict or appearance of a conflict of interest. Please include any financial investment by you or your firm in any underwriting activity and any joint venture, partnership, or similar arrangement for any product or service with any underwriter.

No circumstances exist which will cause a conflict of interest in performing services for the State of West Virginia. No member of PFM's ownership, management, or staff is a party to any agreements or holds any property interest that would present a conflict with the State of West Virginia. No employee of PFM or employees affected by this Request for Proposal has any pecuniary interest in this engagement or has any interest that would conflict in any manner or degree with the performance of services for West Virginia.

5. Please provide an explanation and indicate the current status or disposition of any business litigation, legal, regulatory, or other proceedings that your organization or an officer or principal been involved in within the last five years. If none, please so state.

Public Financial Management, Inc. and an affiliate (collectively "PFM") were joined as "4th party defendants" in a lawsuit initiated by a school district against its swap counterparty for declarative relief that the swap is unenforceable. The swap counterparty joined the school district's bond counsel as a defendant, claiming that if the swap is unenforceable, that condition was the result of negligence by bond counsel. Then, bond counsel joined PFM claiming that, if counsel were to be liable for any damages, it would be entitled to contribution from PFM. This suit was settled in early 2013 with PFM contributing less than 1% of the amounts agreed in settlement.

6. Please describe the level of coverage for errors and omissions insurance and any fiduciary or professional liability insurance your firm carries. List the insurance carrier(s) supplying the coverage.

PFM meets the levels of coverage for errors and omission insurance as well as fiduciary or professional liability insurance. Please see Appendix E for PFM's response to this question.

7. List the percentage of your firm's revenues that are derived from financial advisory services. Please list any other services that your firm derives.

PFM Firm Revenue Breakdown for 2016			
Financial Advisory Revenue	Investment Advisory Revenue	Strategic Municipal Consulting Revenue	Structured Products Revenue
47%	47%	3%	3%

Section C: Management Summary

1. Please describe the underlying philosophy of your firm in providing financial advisory services. Also list any particular strengths that your firm may have.

The underlying philosophy of PFM in providing financial advisory services is to provide specialized expertise for the issues that our clients face, and provide that service independently and always with the client's best interest in mind. Unlike many smaller advisory firms that use one person to provide general financial advice, PFM has built itself and organizes financial advisory teams to bring specific, in-depth expertise to our clients on the issues that they face. Given the breadth of the State's financial advisory needs, there is no way for one or two people to advise knowledgeably on all the issues that are or may become an issue for the State. ***PFM's philosophy, which has led to the formation of sector specific expertise and financial advisory groups for most of the sectors in which the State will issue debt, allows us to have leading experts that stay informed on the most innovative and up-to-date financing options for the State.***

For the State of West Virginia, the team that PFM has assembled represents significant expertise in the areas that the State intends to address: transportation funding, public/private partnerships, school funding, OPEB considerations and funding, state level rating agency expertise, lottery backed revenue bonds, loan programs to local water (as well as sewer) agencies, and asset securitization, among others. ***The organizing principles and philosophy of PFM allow us to be the #1 nationally ranked advisor in transportation, education, water, public power, as well as virtually all other sectors.***

Notwithstanding this sector expertise that is the hallmark of PFM, PFM is also deeply committed to superior client service, both in terms of independence as well as availability and responsiveness. PFM organizes its client team to ensure that there are specific engagement managers who are directly accountable for ensuring that resources are allocated to our clients and that financial advice is provided with the highest level of integrity. PFM believes this philosophy has served our clients well, and the significant growth that PFM has enjoyed in the past two decades is a testament to the success of this philosophy.

2. List all current clients covered by the individual(s) that your firm includes in its staffing plan for the State of West Virginia account. Include a brief description of the scope of work performed for each client.

State of West Virginia
Project Team
Client & Scope of Work

Chris Lover, Managing Director

- **Morgantown Utility Board, WV.** General FA/Debt Transaction services
- **Indiana Municipal Power Agency, IN.** General FA/Debt Transaction services
- **WPPI Energy, WI.** General FA/Debt Transaction services
- **Bonneville Power Administration, OR.** General FA/Debt Transaction services
- **District of Columbia Water and Sewer Authority, DC.** General FA/Debt Transaction services
- **City Utilities of Springfield Missouri, MO.** General FA/Debt Transaction services
- **Energy Northwest, WA.** General FA/Debt Transaction services
- **Gainesville Regional Utilities, FL.** General FA/Debt Transaction services
- **Lansing Board of Water and Light, MI.** General FA/Debt Transaction services
- **Municipal Energy Agency of Nebraska, NE.** General FA/Debt Transaction services
- **Sacramento Municipal Utility District, CA.** General FA/Debt Transaction services
- **Southern Minnesota Municipal Power Agency, MN.** General FA/Debt Transaction services

Lisa Daniel, Managing Director

- **State of Tennessee.** General FA/Debt Transaction services
- **Tennessee State School Board Authority.** General FA/Debt Transaction services
- **New York State Environmental Facilities Authority.** General FA/Debt Transaction services
- **Massachusetts Water Pollution Abatement Trust.** General FA/Debt Transaction services
- **Kansas Development Finance Authority.** General FA/Debt Transaction services
- **Minnesota Public Finance Authority.** General FA/Debt Transaction services
- **California State Water Resources Control Board.** General FA/Debt Transaction services
- **Texas Water Development Board.** General FA/Debt Transaction services
- **Iowa Finance Authority.** General FA/Debt Transaction services
- **Ohio Water Development Authority.** General FA/Debt Transaction services
- **Louisiana Department of Environmental Quality,** General FA/Debt Transaction services

State of West Virginia
Project Team
Client & Scope of Work

David Miller, Managing Director

- **North Carolina Turnpike Authority.** Transportation and General FA transactions
- **North Carolina Department of Transportation.** Transportation and General FA transactions
- **Maryland Department of Transportation.** Transportation and General FA transactions
- **Kentucky Public Transportation Infrastructure Authority.** Transportation and General FA transactions
- **South Carolina Transportation Infrastructure Bank.** Transportation and General FA transactions
- **Florida Department of Transportation.** Transportation and General FA transactions
- **Texas Department of Transportation.** Transportation and General FA transactions
- **Chesapeake Bay Bridge and Tunnel District.** Transportation and General FA transactions
- **Orlando-Orange County Expressway Authority.** Transportation and General FA transactions
- **NC State Ports Authority.** Transportation and General FA transactions
- **Tampa Port Authority.** Transportation and General FA transactions
- **Jacksonville Port Authority.** Transportation and General FA transactions

Lauren Lowe, Managing Director

- **State of Tennessee (inclusive of Tennessee State School Bond Authority and Tennessee Local Development Authority).**- Project Manager (FA Debt)
- **City of Bartlett, TN.** Project Manager (FA Debt)
- **Town of Collierville, TN.** Project Manager (FA Debt)
- **City of Germantown, TN.** Project Manager (FA Debt)
- **City of Franklin, TN.** Project Manager (FA Debt)
- **City of Chattanooga, TN.** Project Manager (FA Debt)
- **Blount County, TN.** Project Manager (FA Debt)
- **Hamilton County, TN.** Project Manager (FA Debt)
- **Metropolitan Nashville Airport Authority.** Project Manager (FA Debt)
- **Montgomery County, TN.** Project Manager (FA Debt)
- **Shelby County, TN.** Project Manager (FA Debt)
- **City of Spring Hill, TN.** Project Manager (FA Debt)
- **Northwest Arkansas Regional Airport Authority.** Project Manager (FA Debt)

Dan Hartman, Managing Director

- **Los Angeles Department of Water and Power.** Financial Advisory and Bond Transaction
- **Southern California Public Power Authority.** Financial Advisory and Bond Transaction
- **Orlando Utilities Commission.** Financial Advisory and Bond Transaction
- **City of San Antonio, Electric and Gas Systems (CPS Energy).** Financial Advisory and Bond Transaction
- **San Antonio Water System**, Financial Advisory and Bond Transaction
- **Philadelphia Gas Works.** Financial Advisory and Bond Transaction
- **Colorado Springs Utilities.** Financial Advisory and Bond Transaction

Errol Brick, Managing Director

- **Maryland Health & Higher Educational Facilities Authority.** General FA/Debt Transaction services
- **The Johns Hopkins Health System.** General FA/Debt Transaction services
- **Rush University Medical Center.** General FA/Debt Transaction services
- **PeaceHealth.** General FA/Debt Transaction services
- **Yukon Kuskokwim Health Corporation.** General FA/Debt Transaction services
- **Floyd Health.** General FA/Debt Transaction services

Emily Abrantes, Director

- **University of Virginia.** General FA/Debt Transaction services
- **Virginia Commonwealth University.** General FA/Debt Transaction services
- **George Mason University.** General FA/Debt Transaction services
- **University of South Carolina.** General FA/Debt Transaction services
- **Armstrong State University.** General FA/Debt Transaction services
- **University of North Florida.** General FA/Debt Transaction services

Randall Bauer, Director

- **Virginia Department of Behavioral Health and Developmental Services.** Modeling the financial impacts of a settlement agreement with the US Department of Justice.
- **Virginia Department of Behavioral Health and Developmental Services.** Organizational assessment.
- **Pennsylvania Department of Public Welfare.** Implementation of a federal waiver for 4E (foster care) services.
- **Pennsylvania Governor's Budget Office.** Financial and program analysis for privatization of the wholesale and retail sale of alcoholic beverages.
- **Nebraska Department of Labor.** Enhancements to a reporting system for the federal Workforce Investment Act.
- **National Association of State Budget Officers.** Analysis of state approaches to performance based budgeting.
- **Los Angeles County, CA.** Development of an integrated site listing policies and procedures.
- **Philadelphia Department of Human Services.** Development of a model for transition of services to not-for-profit organizations.

State of West Virginia
Project Team
Client & Scope of Work

- Qualified on master or broad based financial advisory contracts for the states of Delaware, Minnesota, New York, and New Jersey. Oregon, Pennsylvania and Utah

Jim Link, Managing Director
Provides services to all clients as needed.

Nelson Bush, Managing Director
Provides services to all clients as needed.

Matt Eisel, Director
Provides services to all clients as needed.

Todd Fraizer, Managing Director
Provides services to all clients as needed.

Dan Kozloff, Managing Director
Provides services to all clients as needed.

Katia Frock, Director
Provides services to all clients as needed.

Brynne Piotrowski, Senior Managing Consultant

- **Indiana Municipal Power Agency, IN.** General FA/Debt Transaction services
- **City Utilities of Springfield Missouri, MO.** General FA/Debt Transaction services
- **Gainesville Regional Utilities, FL.** General FA/Debt Transaction services
- **Grand River Dam Authority, OK.** General FA/Debt Transaction services
- **JEA, FL.** General FA/Debt Transaction services
- **Lansing Board of Water and Light, MI.** General FA/Debt Transaction services
- **Lincoln Electric System, NE.** General FA/Debt Transaction services
- **Long Island Power Authority, NY.** General FA/Debt Transaction services
- **Morgantown Utility Board, WV.** General FA/Debt Transaction services
- **Municipal Energy Agency of Nebraska, NE.** General FA/Debt Transaction services
- **Sacramento Municipal Utility District, CA.** General FA/Debt Transaction services

Eric Smith, Senior Managing Consultant

- **Municipal Electric Authority of Georgia (MEAG Power), GA.** General FA/Debt Transaction services
- **Gainesville Regional Utilities, FL.** General FA/Debt Transaction services
- **Orlando Utilities Commission, FL.** General FA/Debt Transaction services
- **South Carolina Public Service Authority (Santee Cooper), SC.** General FA/Debt Transaction services
- **North Carolina Eastern Municipal Power Agency, NC.** General FA/Debt Transaction services
- **North Carolina Municipal Power Agency Number 1, NC.** General FA/Debt Transaction services
- **Sacramento Municipal Utility District, CA.** General FA/Debt Transaction services
- **Salt River Project, AZ.** General FA/Debt Transaction services
- **Massachusetts Municipal Wholesale Electric Company, MA.** General FA/Debt Transaction services

Eric Brown, Senior Managing Consultant

- **CPS Energy, TX.** General FA/Debt Transaction services
- **District of Columbia Water and Sewer Authority, DC.** General FA/Debt Transaction services
- **Electric Power Board of Chattanooga, TN.** General FA/Debt Transaction services
- **Fairfax Water, VA.** General FA/Debt Transaction services
- **Great Lakes Water Authority, MI.** General FA/Debt Transaction services
- **Platte River Power Authority, CO.** General FA/Debt Transaction services
- **Nashville Electric Service, TN.** General FA/Debt Transaction services
- **San Antonio Water System, TX.** General FA/Debt Transaction services

3. *Please provide references that can attest to prior work performed by your firm and by the individuals that are included in the staffing plan.*

PFM References		
Sandi Thompson *Director of State & Local Finance* **State of Tennessee** **Office of State & Local Finance** 505 Deaderick Street Nashville, TN 37243 615.747.5369 Sandi.Thompson@cot.tn.gov	**David Tyeryar** *Chief Financial Officer* **North Carolina** **Department of Transportation** 1 South Wilmington Street Raleigh, NC 27601 919.707.2701 dtyeryar1@ncdot.gov	**Robert Hunt** *Chief Financial Officer (Int)* **District of Columbia** **Water & Sewer Authority** 5000 Overlook Avenue, SW Washington, DC 20032 202.787.2167 Robert.Hunt@dcwater.com
Tim Ball, PE *General Manager* **Morgantown Utility Board** 278 Green Bag Road Morgantown, WV 26507 304.292.8443 tball@mub.org	**Ric Brown** *Secretary of Finance* **State of Virginia** P.O. Box 1475 Richmond, VA. 23218 804.786.2211 Ric.Brown@governor.virginia.gov	**Mario Ignacio** *Assistant Chief Financial Officer* **Los Angeles** **Department of Water & Power** 111 North Hope Street Los Angeles, California 90012 213.367.0690 Mario.Ignacio@ladwp.com
Jim Matteo *Treasurer* **University of Virginia** 445 Rugby Road Charlottesville, VA 22904 434.243.0069 jsm6y@eservices.virginia.edu	**Steven Heuer** *Director, Bur. of Rev., Capital & Debt* **Commonwealth of Pennsylvania** **Bureau of Revenue, Capital & Debt** 333 Market Street Harrisburg, PA 17101 717.787.7342 stheuer@pa.gov	**Tami Reed** *Chief Financial Officer* **South Carolina Transportation** **Infrastructure Bank** 955 Park Street Columbia, SC 29201 803.737.2875 ReedTB@scdot.org
Susan Perez *Asst. Treasurer, Commonwealth of MA* **State of Massachusetts** **Clean Water Trust** Three Center Plaza Boston, MA 02108 617.367.9333 susan.perez@state.ma.us	**Chris Rettig** *Chief Financial Officer* **Indiana** **Municipal Power Agency** 11610 N. College Avenue Carmel, IN 46032 317.575.3378 crettig@impa.com	**Jim MacMurray** *Vice President of Finance* **State of Kansas** **Development Finance Authority** 555 S. Kansas Avenue Topeka, KS 66603 785.357.4445 jmacmurray@kdfa.org

Section D: Process and Experience

1. Describe in detail your process for developing and structuring procedures for the issuance of tax exempt bonds. Describe in detail how this process differs with credit enhancement, lease financings, asset-backed, or taxable issuance.

PFM's process for developing and structuring procedures for the issuance of tax-exempt bonds is straightforward and intended to provide a transparent process that produces the best results for the State of West Virginia and its taxpayers. Typically, PFM's procedures for the issuance of tax-exempt bonds would involve the following:

Identify Objectives for the Financing. PFM would identify the key objectives that the State intends to achieve for any tax-exempt bond issuance. Those objectives would not only be to fund necessary projects and/or achieve refinancing savings, but they may also include educational and other outreach efforts to ensure that all stakeholders in the State are apprised of the financing program and the key objectives.

Understand the Policy Issues Involved. PFM would intend to understand the policy issues that may need to be addressed for any planned financing. Sensitivity to such issues is critical to ensure that the key objectives can be reached, but also to understand the potential implication to various parties to the financing – whether they be elected officials, rating agencies, or investors – as well as the financial implications for the State of West Virginia.

Build the Appropriate Financing Team. Based upon the objectives of the financing, as well as the size and complexity of the contemplated financing, PFM would assist the State in putting together a financing team that would best serve the State of West Virginia. The decision of whether to undertake a competitive or negotiated sale would be chief among the decision process in this stage, as would the decision of whether any third party experts would be necessary – economic consultants, engineering firms, etc. The intent is to design a team that is well suited to meet the necessary financing requirements of the State as well as the ultimate investors in the State's debt.

Design the Most Advantageous Finance Plan. PFM would help coordinate the development of a finance plan with the finance team to best achieve the financing goals of the State, within the context of the policy considerations and concerns that may exist. The finance plan would consider all of the technical, legal, and financial parameters of the State – including the cost effectiveness of the plan, the risk allocation of the transaction, the impact on financial metrics and the State's balance sheet, and the reception from both the rating agencies and investors. PFM works transparently to ensure that all parties are supportive of the finance plan and that it reflects the input of all parties, and notably the consideration of the investor community.

Implementation of the Financing. Ultimately, any financing's success relies on the successful implementation of the financing plan. PFM would see a transparent process in which all parties to the financing are aware of the objectives and timeline, and we would strive to have all parties coordinate and working toward known goals. It is important that key stakeholders at the State are aware of the financing progress and participate in the process.

Review of the Financing. It is important that the process for debt issuance include a review of the project to critically evaluate the transaction. This allows for the State to identify its successes, as well as problems, such that improvements to the process and procedure are realized moving forward.

Whether the financing is a straight forward, such as a general obligation refunding, or more complex, such as a taxable/tax-exempt tobacco securitization, the approach and procedure with which PFM addresses an issuance of bonds really does not change. Clearly, the financing team and finance plan will differ significantly with greater complexity of a financing project, but the approach and process that PFM would recommend do not. We would fully expect to have more investor and rating agency outreach for two complex transaction, as well as more internal educational efforts, but the way in which the financing process would be undertaken would not be materially different. It is our view that this approach will be successful in its consistency and transparency, and will work well for the State.

2. *Provide a summary chart of competitive, negotiated, or private placement of debt for which you played the senior financial advisory role in the past three years.*

	State Level		Overall	
	Number of Transactions	Total Par $(000s)	Number of Transactions	Total Par $(000s)
Competitive	135	24,617,370	1,330	60,603,451
Negotiated	318	65,802,819	1,559	181,759,518
Private Placement	2	729,450	132	2,799,565
Total	**455**	**91,149,639**	**3,061**	**245,162,535**

3. *Describe any experience your firm has had with other forms of public debt issuance besides General Obligation Bonds such as GARVEE Bonds, Pension Obligation Bonds, or Revenue Bonds. If none, please so state.*

Revenue Bonds. ***Since January 1, 2007, PFM has been the financial advisor on over $500 billion of revenue bond financings for clients nationwide.*** These financings have included all manner of revenue bonds, backed by a diversity of fee generating activities, such as:

- Water & Sewer Revenue Bonds
- Sales Tax Revenue Bonds
- Toll Revenue Bonds
- Public Utility (Electric, Gas) Revenue Bonds
- Multifamily Housing Revenue Bonds
- University Revenue Bonds
- Transportation System Revenue Bonds
- Tobacco Settlement Asset-Backed Bonds
- Arena Revenue Bonds
- Airport System Revenue Bonds
- State Personal Income Tax Revenue Bonds
- State Revolving Loan Funds Revenue Bonds
- Special Tax Revenue Bonds
- Local Option Fuel Tax Revenue Bonds

PFM's First Place Ranking
Revenue Long Term
2000 - 2016

	Par Amount (millions)	# of Transactions
2016	56,255.3	445
2015	54,901.3	434
2014	44,721.0	367
2013	44,466.2	343
2012	48,618.4	404
2011	36,812.0	329
2010	64,327.9	486
2009	54,693.8	418
2008	47,101.1	431
2007	48,951.6	415
2006	37,388.5	377
2005	31,341.7	376
2004	17,582.0	270
2003	25,757.2	371
2002	22,476.7	330
2001	19,152.7	283
2000	12,319.6	211

Source: Ipreo

PFM has been the nation's number one financial advisor for Revenue Bonds since 1995. When advising on the issuance of revenue bonds, understanding the credit and debt capacity of the revenue stream and the enterprise which generates those revenues is critical in order to optimize financing approaches. Additionally, revenue bonds can often be used in combination with other financing approaches, such as state or federal financing programs or even private debt and/or equity.

Lease Revenue Bonds. ***Since January 1, 2007, PFM has assisted clients in the issuance of over $40.2 billion of lease revenue and annual appropriation-backed financings.*** The class of debt backed by subject to appropriation pledges has undergone many shifts in investor appetite and preferences over the past 10+ years. Additionally, rating agency perspectives and methodologies have shifted over time with regard to these structures. PFM has worked with a number of our clients to ensure current market and rating agency tolerance for these approaches are appropriately incorporated prior to sale. Specifically, PFM has seen greater scrutiny and concern from Moody's on the matter of project essentiality during reviews of appropriation backed credits by a number of high-rated entities. In essence, the acknowledgement that a Aa1 rated issuer would be even more inclined to appropriate has diminished in favor of a tougher scrutiny of the financed projects' essentiality. In some cases, Moody's has considered or assigned a "2-notch hit" to certain subject to appropriation ratings.

To overcome this shift, PFM has helped clients combine, where possible, their various subject to appropriation financings into "master" credit structures or to mix and match projects with varying levels of essentiality, as judged by the rating agencies. In 2004, PFM developed an inaugural lease revenue bond structure for a current client that financed a mix of projects that included projects where not all of the financed property was subject to the underlying leases. The ratio of leased assets to debt at the time of the financing was 77%. This approach gave our client a single financing mechanism at the most cost effective rate available in the capital markets as opposed to a series of smaller, "one-off" private placement type financings to manage in their debt portfolio. By combining the financing into a single structure, Moody's assigned a rating of Aa1 versus a lower rating of Aa2 which likely would have resulted if the two financings were implemented on a standalone basis.

Pool Borrowings. ***PFM has extensive experience with pooled financings, having served as financial advisor on nine pooled issues totaling over $642 million over the last five years.*** PFM has assisted clients in structuring all types of bond pool programs including: dedicated pools, equity-leveraged pools, 50-year recycling pools, and variable rate pools to name a few. We have experience working with pools secured by moral obligation pledges, state-aid intercept provisions, over collateralization, and joint and several pledges, among other security structures. As financial advisor, PFM assists with all bond sales and specific program development, which often involves the development of customized computer models. PFM has the knowledge and experience to create and administer pooled financings involving a large number of borrowers and will draw upon our experience to best advise the State on the mechanics, legalities and capital formation process for pooled financings.

GARVEE Bonds. While leveraging Federal transportation funds is now a common and accepted financing practice with over $20 billion in GARVEE debt issued by states, PFM is mindful of the need to identify and implement GARVEE financing strategies that maintain financial flexibility and protect against reauthorization risk. This is particularly important given the near term funding constraints facing the Federal Highway Trust Fund. Important structural features include maintaining strong debt service coverage, managing maximum maturities and, if cost effective, providing an additional pledge of non-Federal revenues.

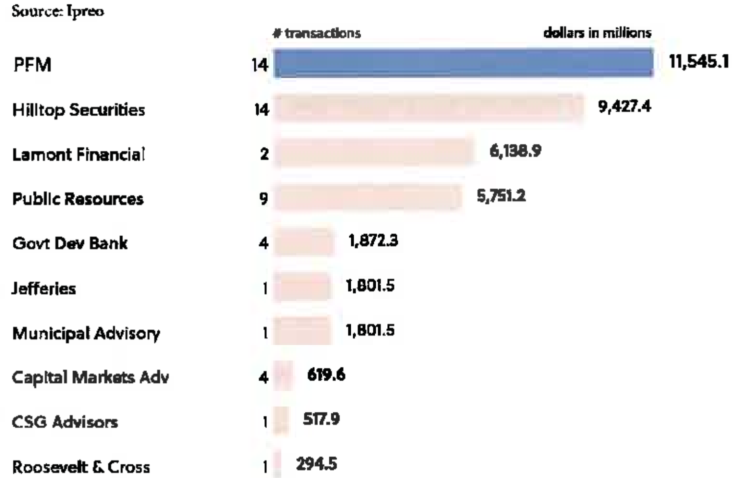
The PFM Team has extensive experience using federal discretionary and formula funds to address capital needs and has pioneered the use of federal formula funds as a security source. Our use in San Diego of federal formula funds as the primary repayment source for lease obligation debt became the model for the federal grant anticipation revenue vehicle program. PFM also executed the first leveraging of Congestion Mitigation and Air Quality funds to remedy state funding cutbacks for the North County Transit District in California. Our recent experience developing and managing programs secured by Federal transportation funds includes the states of Delaware, South Carolina, Ohio and Michigan, among others.

Tobacco Settlement Issues. Since 1998, when the attorneys general of 46 states and five territories (collectively, the "Settling States") signed the Master Settlement Agreement (the "MSA") with the four largest tobacco companies in the country, PFM has been helping entities throughout the United States decide how best to utilize the tobacco revenues they would receive as a result of the settlement. Some of our clients have decided that securitization was the best method to provide for their financial needs, and PFM has assisted them with the securitization process. Importantly, we have provided a wide variety of services as it relates to tobacco securitization. These services have ranged from the drafting of a financial plan that was presented to the State legislature in Iowa, to providing expert testimony in the settlement between "represented" cities and counties in California and their attorney Lieff, Cabraser to the implementation of various financings. Not only has the experience afforded us the ability to hone our technical skills, but also has given us the needed sensitivity to draft and implement strategies consistent with the financial and policy objectives of our clients. Some clients have elected a pay-as-you-go approach. In each case, the decision has come after helping to analyze all of the options available.

1999 - 2016 Tobacco Settlement Long Term Municipal New Issues

Municipal Financial Advisory Ranking - Full Credit to Each Financial Advisor

Source: Ipreo



Securitization: Utility Issues. Asset securitization can help many utilities and other entities to address significant capital needs at a lower cost of funds given the securitized debt is normally highly rated compared to the municipal issuer's own credit rating. Los Angeles Department of Water and Power ("LADWP") and the Long Island Power Authority also are implementing or have successfully implemented a securitization process that has been extremely successful.

Pension Bonds. PFM is uniquely qualified to serve the State in the evaluation of issuing Pension Obligation Bonds (POBs), based on our experience in counseling public sector entities on the complex risks and benefits of POBs. Before describing these services, we wish to discuss pension bonds generally. Pension bonds generally only make sense when the long-term investment returns of the generated assets will exceed the cost of borrowing.

2007 - 2016 Pension Long Term Municipal New Issues

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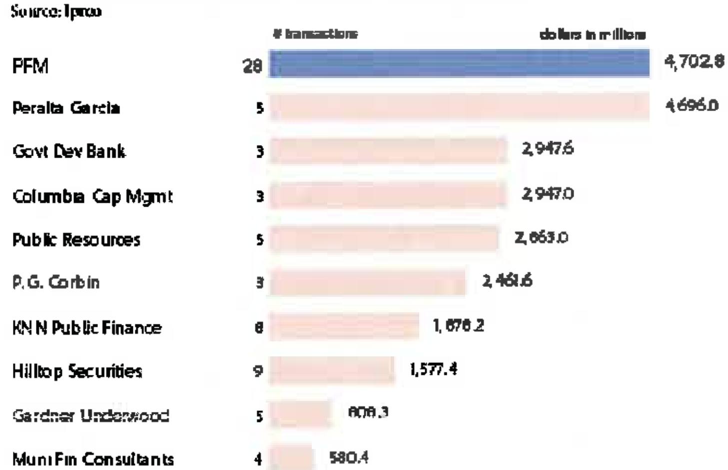


The advantageous time to issue POBs depends greatly on the business cycle, as well as interest rates in the bond market. In the process of determining the funds needed to fund defined benefit pension obligations in the future, an actuary determines a rate that pension fund assets earn on average (actuarial rate) and a corresponding yearly contribution by the municipality. Throughout the prosperity of the late 1990's, many municipalities had 100% funded pensions. As interest rates and stock market returns have decreased in recent years, many municipalities have pension funds with assets that are not earning the actuarial rate, which creates an unfunded liability to the pension fund. The existence of an Unfunded Actuarial Accrued Liability (UAAL) is a common issue in today's market. POBs are issued based on the premise that if you can receive a greater return on POB proceeds than the interest cost of the POBs, POBs should be issued to fund an UAAL. By issuing Pension Obligation Bonds the issuer will replace a "soft" budgetary liability (annual payments into the plan) with a "hard" liability (debt service payments to bond holders). There are 4 principal Risk Factors to consider when issuing POBs:

- Leverage
- Market Risk
- Political
- Arbitrage

PFM is qualified to advise the State on whether market conditions and fiscal realities make POBs a worthwhile risk as part of the overall pension funding strategy. PFM has counseled several governments regarding the potential benefits and risks of POBs and we are receiving an increased number of calls from clients interested in exploring whether POBs make sense for their particular situation. Members of our diverse team can draw on their respective experience in bond pricing and transactions, asset management, and multi-year public budget planning to assist the State in working through all of the factors that affect a decision to enter into this type of complex transaction. Among the issues that PFM would examine are the strength of the economy at the time of potential bonding, any legal constraints on the issuance of POBs at the state level, the ratio of the proposed issuance to the pension plan's total liabilities, the investment strategy for the bond proceeds (e.g., is the government selling bonds to buy bonds?), and whether the fees for underwriters and investment managers can be justified by the expected returns. PFM has specifically advised on many POB and pension-related (POB refunding, etc.) transactions.

4. *Describe the depth of your firm's analytical capabilities: personnel assigned to modeling and other quantitative analyses, use of unique proprietary and other financial models, ability to analyze and verify time sensitive and complex bids and other proposed financings, etc.*

As a firm, PFM places particular emphasis on analytical capabilities and financial modeling. PFM uses the latest versions of powerful spreadsheets, incorporating numerous proprietary functions and macros, to build flexible, customized models that address the specific analytical requirements of our clients.

As evidence of PFM's commitment to analytical capabilities, PFM maintains a core of professionals, the Quantitative Strategies Group (QSG), dedicated to the development of proactive strategies and analytical tools for all of PFM's business practices. Through the use of advanced financial analysis and commercial and proprietary software, the QSG develops customized solutions to meet the individual quantitative needs of all of our clients.

Our extensive quantitative capabilities allow us to provide services which address the full scope of our clients' financial needs, ranging from capital financing strategies, to strategic planning and budgeting, to investment management strategies. Our Financial Risk Management, Structural Optimization, Refunding Efficiency, and Forward Pricing, to name a few, assist us in achieving these objectives.

Below we have described selected analytical tools and models PFM would use to provide the scope of services requested by the State.

Debt Profile. In an effort to present a comprehensive yet simple to understand analysis of all historical and current debt, PFM has refined a process which has become known as "debt profiling." The debt profile includes a schematic diagram of all of a client's debt as well as individual reports detailing each bond issue. The debt profile is helpful in preparing presentations to decision-makers regarding the State's debt burden and analyzing the impact of future debt issues on the State's overall debt burden. PFM has custom built the State's debt profile for most of the State's issuers as part of our RFP response, which can be found in Appendix A.

Refunding Screen. PFM provides rigorous monitoring of our clients' outstanding debt portfolio for refunding opportunities. This analysis is facilitated by and runs in concert with the debt profile. PFM monitors each client's refunding opportunities on a regular basis, and more often, if market conditions warrant more frequent analyses.

To address the need for more rigorous analysis to support our clients' refunding decisions, PFM developed our proprietary, Excel-based Option Valuation (OV) model to screen refunding candidates. Together with calculations of Net Present Value savings and negative arbitrage considerations, PFM uses this tool to measure the "efficiency" of a given refunding. PFM's OV model incorporates many of the high-end features common to corporate bond option pricing models that are available from online information service companies (e.g., Bloomberg Financial Services). At the same time, our OV model accounts for constraints and concepts only applicable to municipal bonds, such as limitations on advance refundings and/or "recoverable" expenses.

Customized Models. Over the years, PFM has built numerous customized models for its clients, including, but not limited to: capital improvement plan models, debt capacity models, and cash flow models. Each model is built from scratch and tailored to the client's specific needs and goals. Below, we describe two such models that may be of interest to the City.

Many of our clients have looked to PFM to assist with the analysis of their debt capacity. In some cases, PFM builds and maintains the model, but in others we build it for the client's use. Screen models allow our clients to analyze various debt issuance scenarios and the subsequent impact on their debt ratios. Models are built with a bond issue sizer with flexibility to allow various inputs including interest rates, amortization structure, term of the bonds, and costs of issuance.

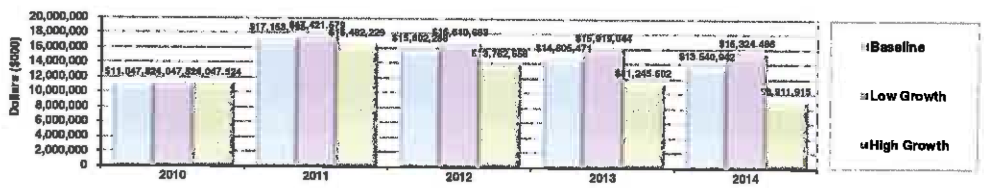
Sample screenshots from a PFM debt capacity model are shown below.

Multi-Year Budget Forecasting. PFM has developed a multi-year budget forecasting tool which is designed to give our clients the ability to quickly see the impact of different budget and operational decisions. This creates detailed budgetary projections, graphically updated in real time, based on a series of flexible inputs, which also allow users to quickly develop and compare "What If?" scenarios. Models are customized for each client and serve as effective planning tools for a wide range of users and stakeholders.

A sample screenshot from the multi-year budget forecasting model is shown below.

FY Surplus / (Deficit)

FY Ending Fund Balance



Structural Optimization. One of the many value added components of PFM's robust modeling capabilities is the incorporation of What's Best! linear optimization software. What's Best! is a third party software provider that offers an Excel add-in package which assists in attaining an optimal answer to problems that must adhere to various linear constraints. For complex bond structuring and sizing scenarios, the use of this software enables our models to derive an optimal structuring solution, one which cannot be achieved through standard Excel functionality, DBC, or similar products due to limitations surrounding the complexity of user-defined constraints. Situations which necessitate such rigid and complex constraints, for reasons of legal compliance or internal policy, can be seamlessly incorporated and accounted for in PFM's proprietary models which utilize the What's Best! linear optimization software. PFM leverages its internal Quantitative Strategies Group to build robust and customized applications of What's Best! models which provide optimal structuring solutions that cannot be achieved through standard modeling.

A recent example of PFM's incorporation of the What's Best! software into a bond structuring framework is our work as financial advisor to numerous large and complex issuers within the State of New York, with a focus on New York City. New York state local finance laws impose strict limits on the amortization schedule of bonds based on the projected useful life of the underlying projects being financed. Additionally, all bond issuances in the State must adhere to bond par and debt service schedule restrictions. The combination of these compliance regulations with issuer-directed policy results in the need for a complex and flexible structuring model with many interconnected constraints. Utilization of a What's Best!-incorporated proprietary model allows PFM to create structuring solutions that are fully compliant with the applicable laws while also meeting the policy goals of the client surrounding debt service structure and costs of borrowing.

Whitebirch. Beyond What's Best!, PFM is in the process of developing and deploying to many of our existing clients the next generation of strategic financial modeling software. Interestingly, the catalyst for this development was our current municipal clients. Municipal entities need to understand their future financial position so that they can make proactive business decisions today. There are many variables, both known and unknown, that influence these impactful and necessary strategic decisions:

- Consideration of new product, pricing, and rate possibilities, alternative staffing and compensation plans, new locations and facilities, and alternative financing vehicles.
- Alignment of strategic and tactical portfolios against shifting market, demographic, and regulatory landscapes.
- Sensitivity analysis to review permutations of changes to variables, as well as multiple versions of capital projects and operating initiatives.

Many issuers, we find, have a financial model, based on Excel, that has been continually refined, updated and modified over many budget cycles. Typically, this spreadsheet-based model has bolt on modules for Enterprise Resource Planning and budgeting/forecasting. However, these current models are often underpowered and become too unwieldy to use with confidence when anything more than simple projections are needed. In addition, given the "ad-hoc" nature of many models we have seen, several believe that spreadsheets and forecasting tools have become too simple, and in some cases, risky and/or error prone for their purposes.

Whitebirch is different. It is a is a software tool that helps out clients better understand the impacts of these changes and how their strategies and tactics can and should be differently shaped in light of those changes. Whitebirch can consider more complex use cases – large suites of variables, complex and sometimes alternative projection logic, and unlimited scenarios while providing comfort through transparency and auditability of formulas and logic-flow. It is both an analytical engine and collaboration tool, a way for key participants to share and drive the analysis.

Simply, our clients recognized a weakness with their financial forecasting models. PFM, through Whitebirch, has helped them addresses these issues. Whitebirch is a serious tool for serious financial modeling that is helping the "C-Suite" make informed strategic decisions. Whitebirch has been, or will be, deployed to support state and local governments, higher education institutions, utilities, healthcare organizations, transportation agencies, and other public and private entities. It is a remarkable tool and an example of how PFM can addresses the quantitative needs and analytical tools that our clients require.

Project Goals and Objectives

Vendor should explain and describe how it will perform each of the services contained in Section Four, Subsection 4 and as shown below.

4.1 *Advise the State on general market conditions and outlook for financings, including: the issuance of bonds and other financing instruments, marketability, refunding opportunities, debt affordability, budgeting of debt service, and investor preferences.*
4.8 *Advise the State in the development, structure, and timing of issuance of bonds and other modes of financing including, but not limited to refundings, credit- enhancements, leased financings, asset-backed financings, GARVEE bonds, and private placements and in accordance with applicable Federal and State laws, regulations, customs, and practices governing such issuance.*
4.9 *Advise on the amount, timing, and nature of borrowings, as well as the credit structure, maturity schedule, call provisions and other items, as needed.*

PFM prides itself on finding optimal solutions to solving client problems. Most financial advisors define their services as they relate to specific issuances of debt or even simply the process of issuing the debt. PFM, on the other hand, takes a different approach by defining its services as they relate to the formation and management of capital assets. Furthermore, PFM has deliberately staffed individuals who are able to go beyond the numbers and thereby contribute materially to the credit assessment process as well as the formation of structurally and legally sound financings. This is true whether it is a GO bond sale, or more complex GARVEE bonds or asset-backed financings.

During the financing process we would seek guidance from the State in regard to objectives, constraints and other considerations and we would then formulate recommendations on the most efficient structures and timing, and would develop an evaluation of all of the financing options. At PFM we believe it is our role to advise on available options, provide recommendations based on feedback from each client, and ultimately to make them work.

Analyze Debt Service Structures. ***The determination of an efficient issue structure is a function of three elements: (i) is the proposed amortization schedule well-coordinated with the State's existing debt obligations and revenues?; (ii) are the resources pledged to debt redemption sufficient to meet total debt service coverage requirements when existing and proposed debt is combined?; and (iii) is the proposed maturity schedule designed to attract maximum interest from underwriters and potential investors in the current market?***

Working with other members of the financing team and State staff, PFM will use the information it has gathered from the policy review and development phase of the engagement to facilitate the formulation of the issue structure and the terms under which the bonds are to be offered in order to the best market reception, given the current market. PFM's experience has given us an appreciation for this task and an awareness of how to design terms and conditions of sale that are compatible with underwriter and investor interests under varying market conditions while consistent with the State's fiscal policy objectives. Some of the key issues to be addressed are:

Maturity Schedule and Pattern of Debt Service. ***In general, PFM believes that State should schedule the redemption of its debt to maintain strong credit metrics and ratings, while preserving future debt capacity.*** PFM will utilize its technical expertise, understanding of the specific credit requirements needed to preserve credit ratings, and extensive market experience to develop a maturity schedule for each bond issue that addresses all of these concerns.

Security. Our experience in the municipal market will enable us to identify reasonable security provisions for each State financing program. As these provisions are developed, ***PFM will evaluate the potential impact of each term and condition of the financing on the State's ability to: (i) efficiently fund other projects in the future, (ii) efficiently manage its investments, (iii) minimize required debt service coverage without affecting bond ratings, (iv) refinance debt in the future.***

Call Features. PFM believes that call or early redemption provisions should be included in the terms and conditions of sale after an assessment of the following: (i) the likelihood that the issuer will have sufficient resources available in the future to redeem the securities prior to maturity, (ii) the likelihood that interest rates will fall sufficiently to provide an opportunity to achieve savings through a refunding at some future date, (iii) any characteristics of the revenue stream securing the issue that suggest a potential benefit from restructuring the maturities at some later date, (iv) the extent to which there are restrictive covenants included in the terms and conditions of sale that are necessary to market the bonds successfully, but that may be modified in the future to give the issuer greater financing flexibility, or (v) the interest rate penalty for the inclusion of call provisions. The latter consideration is in keeping with PFM's commitment to preserving maximum financing flexibility for the issuer so long as there is no significant negative impact on total borrowing costs.

Reserves. Our recommendation regarding types, uses, and size of reserve funding would be made to preserve the desired credit quality, give the utmost flexibility in the use of the funds, and minimize the cost of providing such funds.

Premium or Discount Restrictions. In the event of a competitive sale, the issuer normally will receive slightly more aggressive bids (i.e., bids at lower true interest cost to the issuer) if the bidding parameters reflect current market preferences. PFM will recommend a set of bidding parameters which will allow the issuer's debt to be well received in the market.

Timing of Sale. In recent years, volatile market conditions have forced issuers to carefully consider when they enter the market. Factors such as Trump Administration policy announcements, wildly fluctuating interest rates, unprecedented upheaval in the political and economic community (both domestic and international), and regulatory reform proposals have combined to create a volatile market environment. To assist its clients with the timing of proposed issues, PFM closely monitors all such developments and evaluates the potential impacts of each.

In addition, PFM's regional and national perspective would allow the State to coordinate its offerings with those of other issuers. This effort is designed to focus underwriter and investor interest on the State's transaction by separating them from other sales. ***Our overall goal is to identify a market in which: (i) interest rates are stable, (ii) the supply is light, and (iii) there is significant demand from both institutional and retail investors.***

While PFM is committed to identifying a favorable sale date for any transaction, we recognize that there are inherent risks in trying to anticipate market trends and believe that the cash flow needs would normally be the most important factor affecting the timing of a particular sale. Our advice concerning issue timing will reflect PFM's sensitivity to your needs, our experience, as well as our cautious interpretation of all current market and legislative information.

***4.2** Advise the State on alternative mechanisms to finance projects, such as the use of public-private partnerships and securitization of revenue streams.*

PFM's experience throughout the country and across various market sectors exposes our professionals to every type of alternative financing approach. Innovations in another state or industry could have valuable applicability to the State. Our network of experience and our exposure to all types of alternatives are a resource for the State. Also, because PFM is in the market with more pricings than any investment banker, we have an extensive knowledge of the types of structures that investors are particularly interested in.
PFM is at the forefront of current P3 trends as confirmed by several award-winning projects. The Port of Baltimore/Seagirt Terminal Concession won Project Finance Magazine's North America Logistics Deal of the Year Award for 2011 and the Milford Wind Corridor Renewable Energy P3 won Bond Buyer's 2010 Deal of the Year Award. The Seagirt Terminal Concession was Maryland's first P3 project and we are currently guiding North Carolina through its first P3 project, the Mid-Currituck Bridge, using an innovative Pre-Development Agreement under which the presumed concessionaire conducts the project's feasibility study and preparatory work.

PFM's experience with public-private partnerships incorporate the evolving trends in P3s, ranging from design-build construction contracts to multi-decade concession agreements which encompass financing, design, construction, operations and maintenance, fee setting, and revenue sharing. Beyond the current trends, PFM has for decades advised its clients on various contracts and arrangements with the private sector. These include ground leases, real estate developments, management contracts, utility service contracts and Private Activity Bonds (PABs). PFM has substantial experience in assisting its clients with developing multi-year and multi-project P3 greenfield projects as well as incorporating P3 structures on existing infrastructure assets. We view P3 as an extension of project finance and understand that it often involves the use of complimentary financing strategies such as federal funding (i.e.TIFIA loans) and/or PABs.

The PFM Team brings the State unmatched expertise in project finance, construction management, financial feasibility studies, revenue studies, innovative financing strategies as well as in-depth analytical framework specific to P3 financial structures. PFM has advised state and local government agencies in the review, evaluation, and execution of more than 50 P3 projects. We have advised on the negotiation of numerous development agreements and on the financing of billions of dollars of projects. We have strong relationships with the infrastructure investor communities and leverage our relationships to provide market color to our clients with regards to project structure and value for money analysis.

The PFM approach embraces all of the characteristics of a successful P3 program. PFM developed a decision framework, the Demonstrated Value Analysis ("DVA"), which analyzes project cost, schedule, value engineering and the benefits of risk transfer at different stages of the P3 procurement process. At each critical stage of the project, the DVA compares the P3 model to traditional agency financing and delivery of the project. After confirming investor interest in the project, after the RFQ process, and again after extensive investor due diligence but prior to solicitation of bids, the DVA approach enables our clients to adjust the P3 contract to secure more favorable terms or, if the analysis justifies it, revert to a traditional in-house managed design/bid/build approach to project delivery. This analytic framework, coupled with our proprietary cash flow models, will ensure that our client's approach to privatizing selected projects is sound. Using these tools and our access to current market information through a broad network of infrastructure funds and major contracting firms, PFM will provide a transparent comparative analysis of cost, schedule, value, and risk of P3 or traditional delivery mechanism that supports the project delivery choice our client selects.

Additionally, PFM has substantial experience advising its clients on asset securitizations and working capital financings. Our experience at the State level in this regard has primarily originated from tobacco financings. Since 2005, PFM has worked on ten tobacco working capital transactions totaling $10.2 billion for the states of Illinois, Michigan, Minnesota, Ohio, Iowa, New York, Washington, California, Alabama, and for the District of Columbia. In addition, our experience with tobacco securitization has been applied to utilities that are seeking ways to lower the cost of borrowing for their rate-payers. For example, PFM's utility practice assisted Long Island Power Authority with four securitization transaction since the inaugural one in December of 2013. Given the legal structure of the fees collected by the utility, LIPA's securitization transactions were rated "AAA", seven notches above their bond rating at that time, resulting in significant savings for customers. PFM has assisted LIPA over $4 billion I securitized transactions in the past 4 years.

4.3 *Advise the State on rating agency matters and strategies for rating agency meetings, including: preparing material for rating agency visits or calls, or meetings; identifying identity and background of rating agency personnel and a synopsis of their likely concerns and questions; preparing the State participants, including providing outlines of talking points to be made by each State presenter.*

4.6 *Present on proposed bond issues and financings to rating agencies and potential purchasers of the securities.*

4.11 *Assist in preparing and presenting timely and adequate information on proposed financings and the State's finances and operations to the bond rating agencies and institutions providing credit enhancement.*

PFM has developed considerable experience working with the major national rating agencies. PFM maintains constant dialogue with rating analysts and is well aware of any changing criteria or areas of focus. As such, ***PFM's rating expertise and advice is considered throughout our financial advisory engagement and is seamlessly integrated into PFM's delivery of ongoing financial advice***.

The PFM team is extremely active in the credit rating review process, ensuring that our clients are well prepared to respond to issues raised by rating analysts as well as investors, who now also perform their own credit analysis. As a result of our frequent interactions, PFM has developed a clear understanding of the analytical methods utilized by each rating agency for State level issuers and state credits. Our team is trained to conduct in-depth credit analyses comparable to the rating agencies so that both credit strengths and weaknesses can be identified prior to any presentation of data to rating analysts. ***This experience has been utilized effectively to improve the credit ratings assigned to numerous issuers across the nation and to introduce new credits to the market.***

PFM considers participation in the creation and implementation of the credit strategy a vital part of our role as a financial advisor. We collaborate with the financial working group to determine the best approach to telling the "credit story" of our clients and how to best convey that message. Each rating agency looks for specific, yet different key data and the benefit of our experience and understanding of your issues is that PFM can help devise the proper message for the State of West Virginia. We will work closely with the rating agencies to fully understand their concerns and methodology and to design the rating presentations to specifically address each agency's questions in a meaningful way, while highlighting the State's strengths and providing the appropriate context for the State's weaknesses.

As a local example of this process, the Morgantown Utility Board ("MUB") hired PFM to serve as financial advisor given the significant capital needs and environmental upgrades of their water and wastewater system. PFM provided MUB leadership with analysis of how the MUB credit is perceived and likely scored by the rating agencies. A strategy was developed with messages for each significant rating criteria used by each of the rating agencies. ***This process led to MUB using two rating agencies for the 2016 transaction rather than just the one they had historically used. MUB received an upgrade from S&P to "A+" and received an initial rating of "A1" by Moody's.***

In addition to issuer specific credit strategies, PFM plays a very active role in the evolving criteria changes that rating agencies propose and implement. Aside from alerting clients of changes and potential impacts, PFM actively responds to proposed criteria changes and requests for comments by the agencies as well as initiates dialogue with the agencies and specific analysts. ***Additionally, PFM often works with other industry participants and representative bodies to encourage more open dialogue of sweeping changes and to ensure the issuers' concerns are heard.*** An example of this is the proposed new methodology for how S&P planned to update the U.S. State Ratings Methodology in the summer of 2016. PFM took a leading in providing feedback, both representing our state and local government clients as well as industry groups providing feedback to S&P. Please see Appendix C for our comments submitted to the lead state analysts of S&P on their proposed changes.

Perhaps more important to the State is our full understanding of the State's current credit profile, and the active credit structures which the State employs for much of its funding needs in the capital markets. While many of the credits are capacity constrained, they are active credits with substantial outstanding debt. We have summarized four of the current credit structures of the State – general obligation, lease revenue, lottery revenue, and excess lottery revenue – as they are viewed by the three rating agencies. We maintain strong relationships with not only the rating agencies as an institution, but also with the analysts currently assigned to the State of West Virginia. We work with John Sugden, Genenieve Nolan and Karen Krop in other state-level assignments in the mid-Atlantic region. As such, PFM is ready to move quickly on credit related issues for the State and push forward key agenda items, especially in light of the recent Moody's downgrade (following in the footsteps of Fitch and S&P). We do not believe that an upgrade with any of the agencies is possible given the current state of the State Budget as well as overall economic conditions in the State.

Summary of State of West Virginia General Obligation and Lease Credits		
Standard & Poor's	**Moody's Investors Service**	**Fitch Ratings**
Analysts: John Sugden, Nora Wittstruck	Analysts: Genevieve Nolan, Marcia Van Wagnerr	Analysts: Karen Krop, Marcy Block
AA- (GO) / A+ (Lease) – Stable	Aa2 (GO) / Aa3 (Lease) – Stable	AA (GO) / AA (Lease) – Negative
Strengths • Strong "rainy day" fund balances that provide flexibility • Statutory provisions that allow for payment of debt service in the absence of a budget • Responsive actions to challenges such as the unfunded pension liability.	**Strengths** • Fiscal conservatism and discipline are a hallmark of the budget process and execution of the budget • Favorable General Fund performance • Budget Reserve Fund levels are high and provide a financial cushion • Strong executive power to make mid-year spending adjustments	**Strengths** • Sizeable Rainy Day fund balances • Diversification of economic base over recent years, emergence of natural gas to replace economic driver of coal • Disciplined effort to look at financial challenges (Pension) • Tax supported debt is low and equal to the U.S. average.

Considerations	Considerations	Considerations
• Challenged economic base that has suffered significant deteriorations year-over-year • Sizeable Pension and OPEB liabilities remain in an economy that is expected to weaken while unemployment rises • Budget shortfall that can stress the "rainy day fund" • Lease rating is notched off of GO rating	• Growing structural imbalance between revenues and annual expenditures • Declining revenues with a weakening demographic profile in light of the coal market • Significant unfunded pension liabilities, especially in Teachers Retirement System • Above average concentration in coal industry • Lease rating one notch off of GO credit	• Economic reliance on coal industry that appears to be in a prolonged slump • Pension funding levels remain weak, notwithstanding recent actions • Economic base subject to cyclical natural resources • Lease rating one notch off of GO

Summary of State of West Virginia Lottery Revenue and Excess Lottery Revenue Credits		
Standard & Poor's	**Moody's Investors Service**	**Fitch Ratings**
Analysts: John Sugden, Nora Wittstruck	Analysts: Genevieve Nolan, Marcia Van Waqner	Analysts: Karen Krop, Marcy Block
AAA/AA – Stable	A1/A1 – Stable	A+/A+ – Stable
Strengths • Very strong debt coverage levels, including current 13.7x coverage and strong coverage on all liens • Rapid planned retirement of debt • State Lottery Commission's strong oversight • Importance of lottery revenues to General Fund • Very limited leverage and excess lottery	**Strengths** • Strong debt service coverage even in times of significant revenue declines • High priority of debt service from lottery revenues • Historically strong management of the state's lottery enterprise	**Strengths** • Ample debt service coverage (4.8 and 5.6x); no rating differential between liens due to debt coverage • Well-managed lottery operations • Recent legislative action to improve operations (2014) • Testing indicates that the bonds can absorb further declines in
Considerations • Forecast of declining revenue due to competition in neighboring states and a weak economy that has reduced disposable income • Increasing competition for lottery dollars from neighboring states • Reliance on "Rainy day Fund"	**Considerations** • Lack of constitutional protections for the pledged revenue streams • Increasing competition from neighboring states and below average income and low labor force participation rates • Narrow source of pledged revenues • Potential changes in consumer interest in gaming	**Considerations** • Revenues continue to decline and forecasted to decline • Discretionary revenue stream, subject to competition and under stress • Continued competition in neighboring states (National Harbor)

We are certainly aware that the State uses other credits, such as the securitization of federal funds for transportation (GARVEEs) and the one-time securitization of tobacco settlement receipts. We also are closely watching the recommendation of Trump Administration and their "America First" policies – to include the President's message during the campaign to improve the coal industry as well as jump start infrastructure projects. It is certainly our expectation that alternative financing structures and credits, particularly within the public-private partnership space will also be carefully considered and reviewed

4.4 Develop and maintain a model of all of the State's outstanding debt issuances on a maturity-by-maturity basis, with all relevant descriptive information for each maturity (CUSIP, series, dated date, sale date, maturity date, original par, outstanding par, coupon, call provisions, refunded status, type of issue, debt service, etc.), to allow, among other purposes, for graphical depictions of the State's debt profile, and scenario analyses of the impact of future debt issuance and for use in State budgeting processes and official statements.

PFM maintains a comprehensive database of the State's General Obligation and Revenue Bonds, including those issued through the State's Economic Development Authority, School Building Authority, Higher Education Policy Commission, Tobacco Settlement Finance Authority, and Water Development Authority in a proprietary database called the "Debt Profile." The Debt Profile includes schematic diagrams of the State's debt and catalogs each maturity of each bond issue in a series report. Each series report shows the important structural features of the State's bonds including the maturity date, coupon, yield, call date and price, and eligibility for advance, current or forward refunding under the tax code.

PFM begins each client engagement by creating and monitoring a sophisticated debt profile model specific to each client. The debt profile model is a powerful tool and is custom built for the State of West Virginia. Each bond series report shows the important structural features of all bonds including the maturity date, coupon, yield, call date and price, and eligibility for advance, current or forward refunding under the tax code. These tools permit PFM and the State to analyze the impact of future debt issues on the State's overall debt burden and prepare presentations to decision-makers regarding the profile of the State's debt. PFM has developed a first draft of the State's general obligation debt profile using publicly available information from TM3, Bloomberg, the State's financial documents and other subscription-based information services. To jump start the initial phase, PFM has already analyzed the State's existing general obligation debt composition. A screen shot of the summary of general obligation debt outstanding as well as a sample series report are included below.

State of West Virginia

as of May 5, 2017

Series Name	Tax Status	Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Refunding Status			
							Advance	Forward	Current	Non-Callable
School Building Bonds	Tax-Exempt	New Money	50,000,000	3/29/77	3/1/02	-	-	-	-	-
Road Bonds	Tax-Exempt	New Money	50,000,000	6/28/77	6/1/02	-	-	-	-	-
Series 1978	Tax-Exempt	New Money	26,000,000	6/1/78	6/1/03	-	-	-	-	-
Series 1979	Tax-Exempt	New Money	56,000,000	6/1/79	3/1/04	-	-	-	-	-
1980 Road Bonds	Tax-Exempt	New Money	30,000,000	3/1/80	3/1/05	-	-	-	-	-
1981 Road Bonds	Tax-Exempt	New Money	32,000,000	2/1/81	2/1/06	-	-	-	-	-
1992A Highway Refund	Tax-Exempt	Refunding	56,750,000	7/30/92	2/1/06	-	-	-	-	-
1996A (Non-AMT)	Tax-Exempt	New Money	35,300,000	6/4/96	11/1/26	5,030,000	-	-	-	5,030,000
1996B (AMT)	AMT	New Money	14,700,000	6/4/96	11/1/15	-	-	-	-	-
1996C (Taxable)	Taxable Municipal	New Money	10,000,000	6/4/96	11/1/11	-	-	-	-	-
1996D (Non-AMT)	Tax-Exempt	New Money	50,000,000	12/19/96	11/1/26	-	-	-	-	-
1996E (Taxable)	Taxable Municipal	New Money	7,000,000	12/19/96	11/1/11	-	-	-	-	-
1998A (Non-AMT)	Tax-Exempt	New Money	68,000,000	3/11/98	11/1/26	-	-	-	-	-
1998B (AMT)	AMT	New Money	10,000,000	3/11/98	11/1/17	-	-	-	-	-
1998C (Taxable)	Taxable Municipal	New Money	14,000,000	3/11/98	11/1/11	-	-	-	-	-
Series 1998	Tax-Exempt	New Money	225,000,000	7/15/98	6/1/23	-	-	-	-	-
1999A (Non-AMT)	Tax-Exempt	New Money	69,693,910	5/25/99	11/1/26	24,820,959	-	-	-	24,820,959
1999C (Taxable)	Taxable Municipal	New Money	14,000,000	5/25/99	11/1/18	-	-	-	-	-
1999B (AMT)	AMT	New Money	7,300,000	6/9/99	11/1/22	-	-	-	-	-
Series 1999	Tax-Exempt	New Money	110,000,000	7/16/99	6/1/17	-	-	-	-	-
Series 2000	Tax-Exempt	New Money	110,000,000	7/12/00	6/1/25	-	-	-	-	-
Series 2001	Tax-Exempt	New Money	116,000,000	7/12/01	6/1/13	-	-	-	-	-
2005 Refund	Tax-Exempt	Refunding	321,405,000	5/26/05	6/1/25	-	-	-	-	-
2006 Refund	Tax-Exempt	Refunding	94,160,000	11/1/06	11/1/26	-	-	-	-	-
2010A Refund	Tax-Exempt	Refunding	35,135,000	7/22/10	6/1/23	35,135,000	-	21,905,000	-	13,230,000
2011A Refund	AMT	Refunding	18,615,000	9/28/11	11/1/22	3,420,000	-	-	-	3,420,000
2015A Infrastructure Refund	Tax-Exempt	Refunding	65,965,000	1/29/15	11/1/26	65,965,000	-	-	-	65,965,000
2015B Infrastructure Refund	Taxable Municipal	Refunding	5,690,000	1/29/15	11/1/19	2,910,000	-	-	-	2,910,000
2015A Road Refund	Tax-Exempt	Refunding	133,710,000	4/28/15	6/1/25	131,250,000	-	-	-	131,250,000
2017A Infrastructure Refund	Tax-Exempt	Refunding	28,215,000	1/12/17	11/1/26	28,215,000	-	-	-	28,215,000

State of West Virginia

Series-by-Series Analysis

2017A Infrastructure Refund (Tax-E	*General Obligation Bonds*						*Jefferies LLC*	*Counsel*	*Goodwin & Goodwin*				
Bond			Bond Price				Redemption		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Status	Date	Year	Principal	Int./Accr.	Fee	Net Debt Service
11/1/17									11/1/17		588,400		588,400
11/1/18	Serial	1,860,000	2.000%	1.170%	101.475		Non-Callable		11/1/18	1,860,000	1,176,800		3,036,800
11/1/19	Serial	4,430,000	2.000%	1.470%	101.449		Non-Callable		11/1/19	4,430,000	1,139,600		5,569,600
11/1/20	Serial	4,525,000	4.000%	1.630%	108.702		Non-Callable		11/1/20	4,525,000	1,051,000		5,576,000
11/1/21	Serial	4,700,000	5.000%	1.810%	114.607		Non-Callable		11/1/21	4,700,000	870,000		5,570,000
11/1/22	Serial	1,400,000	5.000%	1.940%	116.714		Non-Callable		11/1/22	1,400,000	635,000		2,035,000
11/1/23	Serial	1,490,000	5.000%	2.070%	118.500		Non-Callable		11/1/23	1,490,000	565,000		2,055,000
11/1/24	Serial	3,110,000	5.000%	2.170%	120.209		Non-Callable		11/1/24	3,110,000	490,500		3,600,500
11/1/25	Serial	3,265,000	5.000%	2.270%	121.868		Non-Callable		11/1/25	3,265,000	335,000		3,600,000
11/1/26	Serial	3,435,000	5.000%	2.360%	122.980		Non-Callable		11/1/26	3,435,000	171,750		3,606,750
Issuance Par:		28,215,000							Outstanding Par:	28,215,000			
Average Life:		5.69 years							Average Life:	5.37 years			

Purpose of Issue	*Dates*		*Sources of Funds*		*Uses of Funds*	
Currently refund remaining outstanding Series 2006			Par Amount:	28,215,000.00	SLGS Escrow:	32,021,889.30
	Dated Date:	1/12/17	Plus: OIP(OID):	3,806,889.30		
	Delivery Date:	1/12/17				
	Sale Date:	1/5/17	Total Proceeds:	32,021,889.30		
					Underwriters' Discount:	54,892.28
	First Interest Payment:	5/1/17			Costs of Issuance:	168,000.00
	First Maturity Date:	11/1/18				
			Liquidated BF:	222,892.28		
					Accrued Interest:	
			Total Sources	$32,244,781.58	Total Uses	$32,244,781.58

We have provided the State's General Obligation Bonds debt profile as part of Appendix A.

***4.5** Maintain and regularly update a "refunding screen" which uses current municipal bond and reinvestment rates, as well as call option values, to provide a maturity- by-maturity listing of refunding candidates, rank-ordered by present-value savings both in dollars and as a percentage of refunded principal.*

At least monthly, or more frequently if market conditions warrant, PFM will analyze the State's entire debt portfolio for refunding opportunities using PFM's "Refunding Screen." Beyond the typical savings shown in any refunding analysis, PFM provides analysis of both savings and option value on a maturity–by–maturity basis. Option value measures the current savings as a percent of the total estimated, potential savings for each bond maturity. To run the option value analysis, PFM uses a proprietary model which estimates the theoretical value of the call option retained by the State for a given bond.

As preparation for our response, we have already developed a customized excel-based debt profile which we will interface with our customized refunding screen model and our option valuation model to identify refunding opportunities for the State.

PFM has been an industry leader in analyzing and structuring a variety of current and advanced refunding techniques and has developed several models that maximize the present value debt service savings realized by the issuer. PFM also has the capability to perform complicated financing structures that may provide alternatives to traditional refunding techniques including cross-over refundings, variable rate debt restructuring options, fixed rate conversions, replacement commercial paper programs, Dutch auction variable rate bonds, and synthetic fixed/synthetic variable rate periodic auction reset securities.

Additionally, PFM has the ability to analyze not only refunding savings on a maturity-by-maturity basis, but also negative arbitrage, transferred proceeds and call option value for each of our client's outstanding bonds. These proprietary models are of crucial importance if a refunding is to be optimally structured.

Through an initial assessment of your debt profile, we have examined opportunities for the State to achieve debt service savings through traditional refunding opportunities. Based upon current market interest rates and the refundability of outstanding maturities, general obligation bonds do not currently present savings opportunities. However, some outstanding loan programs for the Water Development Authority do have the potential to yield refunding savings. Specifically, 2005A-IV and 2005B-IV have several maturities that appear currently refundable. Our analysis assumes a traditional tax-exempt, fixed rate refunding with uniform savings. Aggregate savings from this refunding would be approximately $5.4 million on a PV basis, or 13.6% of refunded par. We have included below a screen shot of the Water Development Authority refunding analysis. A more complete screen for both the Water Development Authority and general obligation bonds are included in Appendix B. If hired as your independent registered municipal advisor, we would provide you with a more detailed analysis of the refunding, considerations and recommended structuring alternatives and transaction timing and execution. Furthermore, we will continue to monitor other West Virginia debt (general obligation, Commissioner of Highways, etc.) for refunding opportunities based on changing market conditions and approaching call dates.

West Virginia Water Development Authority, Loan Program Only
Refunding Opportunities
Maturity by Maturity Savings Analysis

Description	Bonds			Call Provisions		Yield			Savings			Option Value (3)		Cumulative Results			
Series	Maturity	Par Amount	Coupon	Date	Price	Bond(1)	SLGS (2)	Escrow	Gross	PV(3)	% of Par(4)	PV(3)	Svgs. as %	Refunded Par	Refunding Par	PV Savings	% of Par(4)
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Series 2005 B-IV	11/1/2018	325,000	5.125%	10/1/2017	100.0%	1.182%	0.710%	0.710%	11,118	11,034	3.395%	9,935	111.066%	40,105,000	35,937,789	5,446,603	13.581%
Series 2005 A-IV	11/1/2018	655,000	5.000%	10/1/2017	100.0%	1.182%	0.710%	0.710%	21,528	21,364	3.262%	19,213	111.195%	40,760,000	36,582,763	5,467,967	13.415%
Series 2005 B-IV	11/1/2017	310,000	5.125%	10/1/2017	100.0%	1.102%	0.710%	0.710%	(1,621)	(1,618)	(0.522%)	NC	NC	41,070,000	36,899,687	5,466,348	13.310%
Series 2005 A-IV	11/1/2017	625,000	5.000%	10/1/2017	100.0%	1.102%	0.710%	0.710%	(3,331)	(3,325)	(0.532%)	NC	NC	41,695,000	37,538,321	5,463,024	13.102%

(1) MMD AAA G.O. Scale plus 0.44 % as of 5/5/17.
(2) State and Local Government Series (SLGS) rates as of 5/5/17.
(3) Present Value Savings as of 9/1/17.
(4) PV Savings as a percentage of Refunded Par.
(5) Call date on refunding bonds is 11/01/2027.

Once the State has identified the need to approach the market with a refinancing transaction, PFM will work through the transaction management process to make certain that the necessary actions take place to complete the financing. Our expertise in debt structuring, creating credit structures, managing the rating agency/insurer relationship and pricing bonds adds value during each phase of the financing process.

PFM's approach in serving as a Financial Advisor goes beyond traditional transaction management; our approach incorporates our professionals' expertise with long-term financial planning, sophisticated model development and quantitative strategies to answer complex questions and reduce financing costs and risks in all market environments. We are prepared to assist in the development of financial strategies which support the State's long-term vision, policy goals and objectives.

As financial advisor, PFM analyzes a potential borrower's outstanding bond issues and structures relative to a client's legal and financial constraints. We look for opportunities to improve the structure of the outstanding debt and to reduce borrowing costs for our clients. PFM regularly runs debt profiles on each of their clients to monitor the market for any opportunities that may arise in the market. PFM has spent a significant amount of time developing a suite of analytical tools which are available to the State to prepare and analyze potential refunding opportunities, new money issues, and cost benefit analysis of pursuing credit support.

4.7 Provide the State with any training, newsletters, and other informational material routinely provided to clients or on request as necessary to enhance State capacity for financing-related activities.

Unlike any of our competitors, PFM places a significant emphasis on formal training for our clients. PFM believes that the more knowledge and quantitative capabilities we can share, the better positioned our clients will be to enhance their existing programs and generate ideas for structural improvements. We offer both formal and informal training approaches for our clients. Formally, PFM offers multiple complimentary client training seminars each year. These courses address current topics in municipal finance, current market dynamics and the issuance and post issuance processes for tax exempt bonds. Our upcoming training agenda is available at http://clientseminars.pfm.com.

This formal client training program consists of a week-long seminar in training facilities located near various PFM offices nationwide. During this week, our clients spend four to eight hours a day learning the intricacies of bond finance (time value of money, yield curve, forward rates, etc.), public finance fundamentals, and the basics of arbitrage rebate and investment management. Seminars are led by senior professionals from around the firm, and all of our structured programs qualify for continuing education credits. Our next training program is scheduled for June 5-9th in Philadelphia and there will be another training session before the end of the year and, if appropriate, would offer this opportunity to the State to send a few staff members to the training.

We also offer client training programs at client sites tailored for specific topics of interest. We have designed on-site seminars covering basic municipal finance concepts, complex topics such as derivatives, as well as cash management, arbitrage rebate, yield restriction and post issuance compliance.

PFM professionals are supported by several centralized resources that facilitate the regular flow of relevant market and other information. Our Marketing, Research and Training Support group maintains an extensive library of industry publications and reports as well as on-line news resources such as Factiva, Bond Buyer and Thomson Municipal News. The PFM Pricing Group has access to TM3, MMA, MMD, MSRB data and Bloomberg, among other resources shown below, which along with their daily participation on the negotiated pricing of our clients' bonds is a centralized source of real time municipal market information.

PFMAM is a Registered Investment Advisor. For the period ending December 31, 2016, PFM Asset Management LLC had $112.2 billion in total assets, including $70.9 billion in discretionary assets under management and $41.3 billion in non-discretionary assets under advisement. Our daily participation in the fixed income markets serves as an additional source for developing market insights for our clients. Collectively, these resources allow us to stay abreast of the latest market developments, track municipal new issue pricings, access market interest rate scales, and track secondary market trading activity and holders of bonds.

Lastly, PFM has full access to all rating reports that are produced by Moody's, Standard & Poor's, and Fitch. Given the volume of change at the rating agencies, PFM regularly disseminates updates to our clients on developing trends at the rating agencies, and creates forums (such as webinars) for information exchange among our clients. We find these efforts make PFM and our clients more effective when the rating agencies or other municipal market participants are seeking requests for comments on major criteria changes. Lastly, PFM subscribes to Moody's Municipal Financial Ratio Analysis Database that includes key statistics of all U.S. issuers that are rated by Moody's. PFM uses the MFRA database extensively in preparing our clients for the rating process. Additional discussion regarding PFM's approach to advising the State with regard to the rating process is presented in response to scope of service items 4.3 and 4.6 herein.

4.10. Assist in preparation of official statements, notices of sale, bond documents and other appropriate information to prospective bond and note investors.
4.20 Advise the State of continuing disclosure requirements and best practices.

PFM will coordinate with State officials, bond counsel, underwriters, banks, and other team members to review and comment on all bond documents, such as trust indentures, official statements, loan agreements, reimbursement contracts, bond purchase contracts, remarketing agreements, feasibility studies, use agreements, arbitrage certificates and other documents that may be necessary for bond issues and other debt instruments considered by the State. Although PFM does not prepare these documents, we review them and recommend changes and improvements where necessary to serve the interests of our clients.

Working closely with the State's staff and legal counsel, ***PFM will be actively involved in the review of key disclosure materials required to effectively market the bonds.*** These disclosure materials include the preliminary official statement ("POS"), the final official statement ("OS"), and the notice of sale ("NOS"). Typically the POS is drafted by legal counsel, and PFM prepares the NOS.

On competitive sales, the NOS is a critical document for communicating to the underwriting community. The NOS sets forth the parameters for bids on the State's bonds and those parameters must reflect current market conditions and investor appetites so that interest in the State's bonds is maximized. Appealing to investors must be balanced, however, with providing the State with flexibility and favorable provisions to meet its needs. When developing a NOS, PFM surveys current market transactions, both competitive and negotiated to determine which bond structures and features are attractive. We engage our internal pricing group and the underwriting community in discussions to solicit their opinions on investor demand and marketable bond structures. We then develop bidding parameters that reflect that research, the legal provisions set forth in the authorizing resolution adopted by our clients' governing body and the financial objectives of our client. These parameters are then distilled into the NOS which we seek to make as clear and straightforward as possible to avoid any confusion on the sale date.

For the State's offerings, PFM will review the State's existing POS format and recommend any changes that may enhance the presentation of relevant information. The importance of the POS cannot be overstated. It serves not only as the primary marketing and promotional tool for issuer and underwriter and as the vehicle for the disclosure of important financial and legal information about the issuer, but also as the primary source of information to rating agencies. It distributes factual data, but also relays a message about the issuer's management style. Therefore, summary and technical explanations must be clear and the documentation must be comprehensive and well organized. With minor modification following the sale, the POS becomes the final OS — the public document of record for the financing and in some cases, the issuer's only official contact with its investors at the time of sale.

While recent market developments suggest that legal counsel, rather than financial advisors, should have primary responsibility for the preparation of disclosure documents, ***PFM believes that sound disclosure is the foundation for effective investor relations, a key area of focus for the financial advisor.*** The erosion of confidence in the rating agencies has taken its toll on investors who purchase the State's bonds. No longer willing to rely on the rating agencies as proxies, credit analysts at major institutional investors are performing their own detailed credit analysis. In the last several years, PFM has fielded many more calls from investors seeking meetings and audiences directly with our clients, outside the cycle of a bond sale.

To position our clients to meet this market trend, we recommend dialog, to include the State's legal advisors, regarding a formal investor relations program and enhanced disclosure. A chief complaint from the buy side is that compared to the corporate bond and equity markets, municipal disclosure is not timely, and financial information is stale when released many months after the close of a fiscal year. Investors continue to rely on internal credit analysis and issuers who quickly act to remedy any information gap will be rewarded. Even as the MSRB's Electronic Municipal Market Access ("EMMA") portal has facilitated the availability of information, EMMA serves as a spotlight, identifying how municipal issuers differ in the quality and timeliness of disclosure. Many investors can routinely point to a handful of issuers that are considered "best in class" and PFM can further assist the state with this developmental process.

PFM's role in advising our clients with respect to continuing disclosure varies with each client and is dependent on their particular situation. Our assistance to the State may include some or all of the following:

- Assisting with review of the official statement for the primary offering. The official statement will create certain information standards for the annual information statements which are to be filed with EMMA.
- Reviewing the agreement, drafted by legal counsel, that is made between the State and bondholders which sets forth the ongoing obligations of the State to comply with the SEC rules for continuing disclosure.
- Assisting with preparing and filing the annual information statement required by the SEC. We will review the information statement or assist in its preparation, and we will distribute the statement to the required information repositories if requested.
- Assisting the State with developing procedures for determining when an "event" disclosure has occurred, assessing specific financial events to determine whether such events should be disclosed, preparing the event disclosure statement, and filing the disclosure statement with EMMA.

4.12 Evaluate the terms and recommendation of acceptance, rejection or renegotiation with respect to sale bids or final pricing.

During a competitive sale, after the electronic bids are submitted, PFM reviews each bid for compliance with the bidding parameters in consultation with legal counsel. Once the bids are determined acceptable, we quickly calculate and verify the true interest cost of each bid, identify the winning bidder, and make a recommendation to the State as to the award of bonds. If the bond issue has a refunding component, we also re-evaluate the refunding candidates, re-size the bond issue (when appropriate) and work with the verification agent to ensure that the bonds are verified, as required by the indenture.

In the case of a negotiated sale, a hallmark of the PFM approach to advising our clients is that we are able to draw upon a dedicated resource focused solely on the effective pricing of our clients' bonds, the PFM Pricing Group. This group of professionals is led by Todd Frazier, a Managing Director at PFM. The Pricing Group is focused on providing centralized access to market information and trends. PFM is in the primary market, on average, three times per day pricing tax-exempt bond issues for our clients. The Pricing Group leverages our knowledge firm-wide for our clients' benefit, cultivates professional peer-to-peer relationships with underwriting desks, and fosters a better understanding of the internal workings of the underwriting process at the investment banks.

PFM's pricing group operates completely independent of the underwriting of municipal securities and has the ability to quickly and independently benchmark pricing performance of comparable transactions. Instead of "calling around" to underwriting desks to get a feel for the market, we provide our clients with informed, independent advice on the structure and pricing of their bonds based on our own in-house analyses. As part of our approach, PFM performs option-adjusted spread analysis on comparable transactions. Given the rigorous OAS analysis conducted (and described in further detail in Scope of Service item 4.5 of this proposal), PFM begins every negotiated pricing with our own independent pricing thoughts which are provided to the client prior to pricing the transaction.

PFM takes great pride in providing aggressive and informed representation to its clients in the pricing of securities. For a negotiated financing, we would serve as the State's agent with respect to the pricing of the bonds. PFM would work with the State to establish the pricing parameters for the gross spread, the debt structure and target interest rates. We would actively monitor the sale of the debt during the order period. Recommendations would be made to the State regarding re-pricing of all or a part of the debt structure based on preliminary orders and municipal and government market conditions over the course of the order period, and our own quantitative analysis of the State's appropriate yield schedule vis-à-vis the whole of the market. PFM would assemble and distribute regularly updated pricing materials containing comparable rate and spread information on other recent bond sales. This pricing information, along with our on-line-data and quantitative analysis, will then be used to provide a picture as to the reasonableness of the underwriter's proposed pricing.

PFM would work with the State throughout the pricing, assisting in evaluating the efforts of the underwriting team. Our interactions with other underwriting firms, along with our own market analysis, give us sufficient information to objectively evaluate the underwriter's performance, increasing the probability that the State would obtain the very lowest interest cost possible on its debt. PFM may also make recommendations regarding the "bond allocation" among underwriters, to ensure that those who are selling the bonds at the best rates are receiving a sufficient supply of bonds.

We are the only financial advisory firm, independent or not, actively providing this level of analysis for our clients. Consequently, PFM clients enter negotiated pricings with an informed opinion about where their debt "should" price. We have found that this not only helps our clients to understand the bond pricing process but also helps the underwriter in their discussions with the potential investors by providing a justification for a particular yield level or coupon structure.

4.13 *Participate in meetings related to debt offerings including, due diligence, rating agency presentations, pricings, and closings.*
4.15 *Resolve issues regarding the sale and issuance e of bonds that are raised by prospective purchasers, rating agencies, or public officials.*
4.16 *Participate in public forums as the State's Financial Advisor to explain financial aspects of borrowings or debt.*

Once a financing team is assembled, PFM assumes the role of coordinator and catalyst, ensuring that the financing team stays on task. Our approach begins with the preparation of a financing schedule to give the working group a defined timeline to pursue. We then work seamlessly with the State in helping to coordinate and schedule the various aspects of its financings. We believe the best way to be successful is to foster a team oriented working environment with the State's group of assembled experts.

For meetings such as those listed in Scope 4.13 and matters described in Scope 4.15, we will act as your advocate and aid in the preparations for such meetings, calls and the like. At all times we will argue on the State's behalf (e.g., during bond pricing negotiations). For example, in the case of due diligence meetings, we ensure that our clients receive a list of due diligence questions in advance and discuss them prior to the due diligence call to ensure that all information requested can be referenced in the POS. In the case of the credit analysts, we have described our approach to managing the rating process and analyst interactions earlier in our proposal.

Another key role for the financial advisor is to serve as an extension of the State and its staff, and our purpose in that capacity is to best implement the strategic vision with our accumulated expertise in the applicable area. As such, we are the State's independent market expert and available to make presentations as needed in public forums where such external expertise is needed.

4.14 *Review proposed rules, proposed legislation, and other documents relating to the State's financing programs.*

From the federal, state, and local levels, PFM's market reach, client base, and transaction volume necessarily keeps the firm at the forefront of legislative matters that have the potential to affect how our clients operate, fund and/or finance facilities and projects. Our team will work with the State to evaluate the merits of any legislation that may affect the State and provide input to the development of legislative proposals to facilitate the State's financial goals.

A powerful example is the Dodd-Frank Act's new requirements for municipal swap end-users and the Commodity Futures Trading Commission (CFTC) released final rules on business conduct standards for Swap Dealers and Major Swap Participants. As a result, for end-users of swaps—including for-profit corporations, healthcare and higher education institutions, non-profit organizations, and "Special Entities" (the term for municipalities under the Dodd-Frank Act)—the rules require that Swap Dealers must have a reasonable basis to believe that the end-user has a Designated Evaluation Agent (DEA) in the case of non-Special Entities, or, in the case of Special Entities, a "Qualified Independent Representative" (QIR) who is capable of independently evaluating investment risks with regard to swap transactions.

More recently and in light of recent tax reform discussions and proposals form the Trump Administration, PFM has worked with many of our issuers to develop strategic talking points and white papers on the benefits of the municipal tax exemption. Our clients have used these points to influence the debate, largely on Capitol Hill, of the quantifiable benefit of tax exempt compared to taxable debt.

4.17 *Prepare pre-pricing books to provide estimates of the State's true interest cost for upcoming bond sales, and provide a financial advisory memorandum following each sale to demonstrate how the State's bond issues priced compared to expectations.*

PFM believes that evaluating the success of any pricing is of the utmost importance and makes it a primary component of every engagement. To provide this information to our clients during a negotiated sale we use both Pre-Pricing Books and Financial Advisory Reports. A Pre-Pricing Book is prepared prior to a negotiated deal to compare the issue we have priced with other issues of similar characteristics. Included in a Pre-Pricing Book is information on the competitive and negotiated calendar, municipal bond supply figures, and a general market overview. ***The Pre-Pricing book contains the technical pricing analysis of the Pricing Group, detailing how PFM sees the State's bonds pricing the day of the transaction.***

A Financial Advisory Report is a more detailed document that evaluates various aspects of a negotiated sale. Contained in the report is a list of yields on recently priced comparable issues, a comparison of underwriters' fees on recently priced deals, municipal market conditions leading up to and on the day of sale, a pricing analysis of the transaction, a description of the call provisions, ratings, credit enhancements and special features of the issue and a general background of the issue. ***The Financial Advisory Report not only measures the fairness of the sale terms but serves as a comprehensive reference to chart the market's evolving perception of the client's debt. Many issuers use the Financial Advisory report as a summary for their management Board and Committees.***

4.18 *Analyze various financing proposals that are presented by state and local agencies, investment bankers, and other outside entities.*

4.19 *Assist the State in the procurement and selection of agents and services necessary or desirable for the sale and issuance of bonds and other financing instruments, including but not limited to verification agents, underwriters, remarketing agents, dealers, tender agents, insurers, liquidity providers, counterparties, printers, electronic bidding and posting services, and advertisers.*

4.22 *Review the performance of verification agents, underwriters, remarketing agents, dealers, tender agents, insurers, liquidity providers, counterparties, printers, electronic bidding and posting services, and advertisers.*

PFM often assists its clients in the selection of parties to transactions, including underwriters, counsel, trustees, verification agents, remarketing agents, dealers, tender agents, insurers, liquidity providers, counterparties, printers, electronic bidding and posting services, advertisers and other vendors that provide services for a successful sale and issuance of bonds and other financings. We do not employ one standard method to such assistance; rather this service is tailored to the preferences and circumstances of each client.

We often find that a competitive process provides our clients the most advantageous service conditions (pricing and conditions). The level of formality of a competitive process varies significantly by client. Certain clients prefer (or are required) to utilize a very formal procurement process driven either by internal policy or by external circumstances. In either case, PFM will work with the State to carefully define the scope of work sought for services, the experience sought by potential participants, and the broad conditions under which participants must be willing to participate. We are experienced in drafting formal requests for proposals (including state procurement requirements) and evaluating respondents (whether through interviews, written assessment, or informal discussion).

PFM's typical role in the selection of members of a financing team includes working with the client to prepare a detailed Request for Proposals ("RFP") as well as a list of firms to receive the RFP that together ensure a highly experienced working group that best understands and is prepared to address the specific needs of the State. In all selection processes and throughout the financial transaction, PFM will negotiate on the State's behalf to ensure that all services are priced fairly according to current market rates.

RFP Process Activities. The PFM team will provide assistance as necessary with the RFP process. As previously noted, PFM has broad experience both advising on RFP development and assessment and can, if needed, act as an 'extension of staff' to take the lead (or take on a secondary role) in RFP development, response to vendor written questions, etc. In either event, PFM staff for the associated tasks will have prior experience in RFP development and implementation.

Review of RFQ Responses. Once proposals are submitted, PFM will provide a qualitative and quantitative assessment of vendor proposals. These will include the minimum activities for vendor assessment of their qualifications and experience, financial capacity, organizational structure and proposed team members, policies and procedures, technology, reporting, cost structure and contract structure. Because some of these will rise to a higher level of importance than others, PFM will develop a framework for assessment. It is entirely possible, for example, that some aspect of a vendor proposal will materially impact the overall assessment regardless of other considerations, and PFM will identify these as needed. At the same time, individual comparisons in some aspects, particularly on qualitative issues, can be subjective, and we would initially propose developing a scoring system (such as +/=/-) for some of these measures, with discussion and analysis providing an overall score for vendors in these areas.

We bring discipline to this approach after the fact with routine and regular monitoring of vendor performance. For example, in the case of underwriter performance, PFM actively monitors secondary trading of our clients bonds. In the case of remarketing agents and liquidity providers, PFM maintains a database of comparable variable rate transactions nationwide and provides regular reporting to our clients with variable rate debt as to the pricing performance of their variable rate obligations. Using this approach, we can quickly identify anomalies and address them with the service provider.

One of the primary benefits of the formal RFP process that PFM helps issuers conduct is that, at the end of the selection process, there is a formal record of every decision influencing the selection process. This record, for some issuers, has been very successful in the event that they are asked questions on the evaluation process.

4.21 Advise the State on issuing, monitoring, revising and updating debt, swap and disclosure policies and options related to variable interest rate bonds and interest rate exchange agreements and post-sale options.

PFM reviews a client's existing policies regarding the issuance of debt and management of borrowers' financing needs. We work with clients to modify or update these policies so as to improve and clarify the client's activities. In addition to potentially improving the client's internal operations, such a review will improve the standing of the client with the rating agencies and with the investor community. For example, PFM was asked to review the State of Tennessee's Model Debt Management Policy. Since adopting the

Model Debt Management Policy, the Comptroller of Tennessee has required that all issuers of debt formally adopt a debt management policy. PFM has assisted many of our clients with the development of customized debt management policies to fit their needs and objectives.

PFM also has experience with debt policies at the local level. PFM helped, for example, DC Water devise their debt policies into a "training manual" that not only details how the Authority thinks about the debt transaction but also, given its thoroughness, stands as a training tool for new members of the organization. This Board-approved policy was well received by the rating agencies.

PFM is unique among financial advisory firms in that we have a group of professionals solely dedicated to the derivatives and structured financial products area—PFM Swap Advisors, LLC. Today, PFM is the recognized leader in the industry in both providing swap analysis, policy and strategy development, and in providing swap procurement services on both competitive and negotiated swap transactions while enabling issuers to adhere to the Dodd-Frank protocols as they apply to derivatives.

As for the use of variable rate debt, there are three primary benefits of utilizing variable rate debt on the State's Financing Programs: (1) lower cost of capital over the long term compared to fixed rate debt; (2) a natural asset-liability hedge whereby the interest expense may be offset by the income received on a short-term investment balance; and (3) greater prepayment flexibility than fixed rate debt. In the current market, SIFMA is resetting in the 0.70% – 0.90% range and the expectation is that rates will remain at this level until the Federal Reserve's next rate action. Further, due to exceedingly low new issue variable rate volume and the resulting competition among bank facility providers, the cost of bank facilities has been reduced to fairly low levels. There are also other options for accessing variable rate debt efficiently including publicly offered and direct purchase Variable Rate Notes.

PFM has extensive experience in developing variable rate debt strategies for our clients based on analysis that includes an assessment of current market conditions, impact of the variable rate issue on the broader client debt profile, cost of capital, and risk. In the last two years PFM has advised clients on over $3.3 billion in publically offered and direct purchase variable rate bond issues.

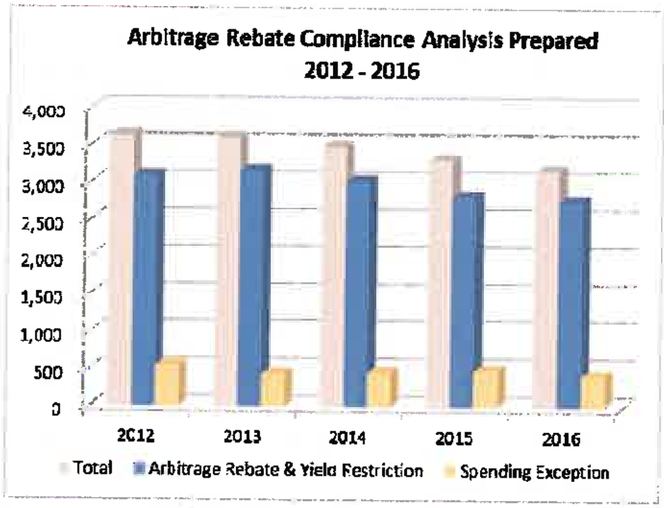
The best time to issue variable rate debt is when the yield curve is steep and fixed rates are high. Generally speaking, for state-level issuers, including the State, the amount of variable rate debt should be a modest allocation in the capital portfolio (i.e. less than 20%). We believe that this percentage is prudent considering the additional risks associated with variable rate instruments which include budget, put, acceleration, rollover and counterparty risk.

Variable rate debt would be appropriate for those Financing Programs that currently have little to no variable rate debt and programs with more robust cash positions, which will naturally have a better asset-liability hedge and are more appropriately positioned to manage rollover and other risks associated with variable rate structures.

4.23 *Assist the State in any response to inquiries or audits from any governmental entity.*

As a leading financial advisor, PFM has assisted many of its clients with inquiries and audits from various federal, state, and local governmental entities. In our role as financial advisor, PFM will act as the quarterback and orchestrate a response by coordinating with all of the required parties including, but not limited to various state officials and external advisors for audit, arbitrage compliance and legal (bond, disclosure and tax) as appropriate.

IRS Audits and Inquiries. PFM's Arbitrage & Tax Compliance Group completes a significant number of arbitrage rebate compliance analyses each year. As illustrated in the chart below, PFM has prepared over 3,000 calculations annually during the past five years. In total, approximately 17,000 calculations have been provided to our clients since 2011 alone. These calculations include our analyses of the arbitrage rebate compliance status relating to a variety of tax-exempt/advantaged debt, including general obligation bonds, certificates of participation, tax notes, Build America Bonds, revenue bonds, variable-rate bonds, conduit financings, commercial paper, anticipation notes, and state revolving fund bonds.



From time to time, PFMAM has been called upon to assist issuers in responding to IRS audits, information document requests, and other regulatory proceedings and is often referred to issuers by bond and tax counsel in the event of an IRS audit. We have had good success in defending our own work. The most exhaustive and problematic audits are those where we are retained by a client after they receive an IRS notice and where we were not the original rebate consultant. One of the best defenses that an issuer can undertake is to have proper policies and procedures in place to detect problems early. PFM and our Arbitrage & Tax Compliance Group can assist with authoring these policies to but the State on solid footing.

4.24 Perform other tasks consistent with the purpose of this Procurement as may be specified by the State including any other service necessary, customary, or incidental to the sale of the issuance of debt and the financing of projects.

The State is seeking a comprehensive set of services in this solicitation which extends well beyond the confines of how the public finance industry defines the "traditional" financial advisor role in which the execution and processing of transactions is the primary focus. PFM's organization and core business philosophy is completely aligned with the financial advisory partnership that the state's RFP contemplates and enables us to comfortably meet an "other duties as assigned" scope item such as 4.24. We point to our experience advising clients described in Attachment A – Section B as evidence of our ability to meet this scope. Lastly, all municipal market participants have faced significant and unprecedented changes over the past several years. During this time, PFM's comprehensive approach and extensive national reach has enabled us to help our clients to effectively navigate through these challenges.

II. Attachment B: Mandatory Specification Checklist

5.1 As a firm, the Vendor must have performed work in a minimum of ten states.

PFM meets the criteria, given our national presence and work in almost every state in the United States. Our experience with clients is outlined in Attachment A, Section B1 and demonstrates engagements in more than ten states.

5.2 The Vendor must have served as the Financial Advisor to a minimum of five states or municipalities with populations in excess of one million citizens.

PFM meets the criteria easily, having worked with virtually in every state for a state agency or state level credit, along with dozens of municipalities with populations in excess of one million citizens. These states are listed in a number of relevant sections of the proposal, including Attachment A, Section B.

5.3 The Vendor must have provided financial advice on over $50 billion dollars in debt issuances, including $10 billion since January 1, 2008.

PFM meets the criteria. As compiled by Ipreo, PFM has advised over $718 billion of financings since 2008 and on more than $74.6 billion in 2016 alone.

5.4 The Vendor must have transaction experience with complex taxable and tax-exempt public financings.

PFM meets these criteria. PFM has brought to market some of the largest and most complex transactions ever undertaken in the public finance arena. These include billion dollar tobacco and utility securitization financings, large public-private partnership financings, and other large refinancing transactions, several of which have been noted as Deals of the Year in the public finance market.

5.5 The Vendor must have credit experience resulting in upgrades by rating agencies.

As outlined in Attachment A, Section D, PFM has substantial experience in working with rating agencies, for which many of our clients have been upgraded. This includes general State credits, such as the State of Delaware and Commonwealth of Pennsylvania, as well as large municipal credits (serving over 1 million people) for the City of San Antonio. Our RFP response also details the experience with smaller entities, such as the Morgantown Utility Board, that receiving an upgrade from S&P last fall. PFM has obtained hundreds of upgrades for our clients large and small, and many of which are comparable in size to the State of West Virginia.

5.6 The Vendor must have no affiliation with any investment bank, commercial bank, or law firm.

PFM has no affiliation with any investment bank, commercial bank or law firm. Independence is one of key elements of PFM's philosophy, and PFM can assure the State of West Virginia that the advice given to it will be free of any conflict of interest.

III. Signed Forms

- RFP – Signature Page
- Certification and Signature Page
- Addendum Acknowledgement Form
- Purchasing Affidavit

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Name, Title)

Fiona Heldt, Associate

(Printed Name and Title)

11325 N Community House Road, Charlotte NC 28277

(Address)

704.319.7925 (phone), 704.541.8393 (fax)

(Phone Number) / (Fax Number)

heldtf@pfm.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Public Financial Management

(Company)

, Managing Director

(Authorized Signature) (Representative Name, Title)

James Christopher Lover, Managing Director

(Printed Name and Title of Authorized Representative)

May 8, 2017

(Date)

704.319.7922 (phone) and 704.541.8393 (fax)

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- [x] Addendum No. 1
- [ ] Addendum No. 2
- [ ] Addendum No. 3
- [ ] Addendum No. 4
- [ ] Addendum No. 5
- [ ] Addendum No. 6
- [ ] Addendum No. 7
- [ ] Addendum No. 8
- [ ] Addendum No. 9
- [ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Public Financial Management
Company

James Christoph L
Authorized Signature

May 8, 2017
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

REQUEST FOR PROPOSAL

Financial Advisory Services

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Public Financial Management

(Company)

James Christopher Lover, Managing Director

(Representative Name, Title)

704.319.7922 (phone), 704.541.8339 (fax)

(Contact Phone/Fax Number)

May 8, 2017

(Date)

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Public Financial Management - James Christopher Lover

Authorized Signature: James Christopher Lover Date: May 8, 2017

State of North Carolina.

County of Mecklenburg, to-wit:

Taken, subscribed, and sworn to before me this 8 day of May, 2017

My Commission expires April 13, 2020

AFFIX SEAL HERE

JAIME MORENO RAMIREZ
Notary Public
Mecklenburg Co., North Carolina
My Commission Expires Apr. 13, 2020

NOTARY PUBLIC

IV. Appendices

A. Debt Profile
B. Refunding Analysis
C. PFM's Response to Rating Agency Requests for Comment
D. PFM's Code of Ethics
E. Evidence of Coverage Certificates

Appendix A: Debt Profiles

State of West Virginia

as of: May 5, 2017

Series Name	Indenture	Tax Status	Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Call Date	Refunding Status			
									Advance	Forward	Current	Non-Callable
School Building Bonds	General Obligation Bonds	Tax-Exempt	New Money	50,000,000	3/29/77	3/1/02	-	-	-	-	-	-
Road Bonds	General Obligation Bonds	Tax-Exempt	New Money	50,000,000	6/28/77	6/1/02	-	-	-	-	-	-
Series 1978	General Obligation Bonds	Tax-Exempt	New Money	26,000,000	6/1/78	6/1/03	-	-	-	-	-	-
Series 1979	General Obligation Bonds	Tax-Exempt	New Money	56,000,000	6/1/79	6/1/04	-	-	-	-	-	-
1980 Road Bonds	General Obligation Bonds	Tax-Exempt	New Money	30,000,000	3/1/80	3/1/05	-	-	-	-	-	-
1981 Road Bonds	General Obligation Bonds	Tax-Exempt	New Money	32,000,000	2/1/81	2/1/06	-	-	-	-	-	-
1992A Highway Refund	General Obligation Bonds	Tax-Exempt	Refunding	58,750,000	7/30/92	2/1/06	-	-	-	-	-	-
1996A (Non-AMT)	General Obligation Bonds	Tax-Exempt	New Money	35,300,000	6/4/96	11/1/26	5,030,000	-	-	-	-	5,030,000
1996B (AMT)	General Obligation Bonds	AMT	New Money	14,700,000	6/4/96	11/1/15	-	-	-	-	-	-
1996C (Taxable)	General Obligation Bonds	Taxable Municipal	New Money	10,000,000	6/4/96	11/1/11	-	-	-	-	-	-
1996D (Non-AMT)	General Obligation Bonds	Tax-Exempt	New Money	50,000,000	12/19/96	11/1/26	-	-	-	-	-	-
1996E (Taxable)	General Obligation Bonds	Taxable Municipal	New Money	7,000,000	12/19/96	11/1/11	-	-	-	-	-	-
1998A (Non-AMT)	General Obligation Bonds	Tax-Exempt	New Money	68,000,000	3/11/98	11/1/26	-	-	-	-	-	-
1998B (AMT)	General Obligation Bonds	AMT	New Money	10,000,000	3/11/98	11/1/17	-	-	-	-	-	-
1998C (Taxable)	General Obligation Bonds	Taxable Municipal	New Money	14,000,000	3/11/98	11/1/11	-	-	-	-	-	-
Series 1998	General Obligation Bonds	Tax-Exempt	New Money	220,000,000	7/15/98	6/1/23	-	-	-	-	-	-
1999A (Non-AMT)	General Obligation Bonds	Tax-Exempt	New Money	69,693,910	5/25/99	11/1/26	24,820,959	-	-	-	-	24,820,959
1999C (Taxable)	General Obligation Bonds	Taxable Municipal	New Money	14,000,000	5/25/99	11/1/18	-	-	-	-	-	-
1999B (AMT)	General Obligation Bonds	AMT	New Money	7,300,000	6/9/99	11/1/22	-	-	-	-	-	-
Series 1999	General Obligation Bonds	Tax-Exempt	New Money	110,000,000	7/15/99	6/1/17	-	-	-	-	-	-
Series 2000	General Obligation Bonds	Tax-Exempt	New Money	110,000,000	7/12/00	6/1/25	-	-	-	-	-	-
Series 2001	General Obligation Bonds	Tax-Exempt	New Money	110,000,000	7/12/01	6/1/13	-	-	-	-	-	-
2005 Refund	General Obligation Bonds	Tax-Exempt	Refunding	321,405,000	5/26/05	6/1/25	-	-	-	-	-	-
2006 Refund	General Obligation Bonds	Tax-Exempt	Refunding	94,180,000	11/1/06	11/1/26	-	-	-	-	-	-
2010A Refund	General Obligation Bonds	Tax-Exempt	Refunding	35,135,000	7/22/10	6/1/23	35,135,000	6/1/2020	-	21,905,000	-	13,230,000
2011A Refund	General Obligation Bonds	AMT	Refunding	18,815,000	9/28/11	11/1/22	3,420,000	-	-	-	-	3,420,000
2015A Infrastructure Refun	General Obligation Bonds	Tax-Exempt	Refunding	65,965,000	1/29/15	11/1/26	65,965,000	-	-	-	-	65,965,000
2015B Infrastructure Refun	General Obligation Bonds	Taxable Municipal	Refunding	5,590,000	1/29/15	11/1/18	2,910,000	-	-	-	-	2,910,000
2015A Road Refund	General Obligation Bonds	Tax-Exempt	Refunding	133,710,000	4/28/15	6/1/25	131,250,000	-	-	-	-	131,250,000
2017A Infrastructure Refun	General Obligation Bonds	Tax-Exempt	Refunding	28,215,000	1/12/17	11/1/26	28,215,000	-	-	-	-	28,215,000

State of West Virginia
Series-by-Series Analysis

1996A (Non-AMT) (Tax-Exemp General Obligation Bonds — *Underwriter* *Ferris, Baker Watts, Inc* — *Bond Counsel* *Steptoe & Johnson*

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Fiscal Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
11/1/96													6/30/96				
11/1/97													6/30/97				
11/1/98													6/30/98				
11/1/99													6/30/99				
11/1/00													6/30/00				
11/1/01													6/30/01				
11/1/02													6/30/02				
11/1/03													6/30/03				
11/1/04													6/30/04				
11/1/05													6/30/05				
11/1/06													6/30/06				
11/1/07													6/30/07				
11/1/08													6/30/08				
11/1/09													6/30/09				
11/1/10													6/30/10				
11/1/11													6/30/11				
11/1/12													6/30/12				
11/1/13													6/30/13				
11/1/14													6/30/14				
11/1/15	Term 18	665,000	7.625%	5.680%	122.687	5.65%	FGIC		Matured				6/30/15				
11/1/16	Term 18	2,300,000	7.625%	5.680%	123.316	5.65%	FGIC		Matured				6/30/16				
11/1/17	Term 18	2,440,000	7.625%	5.680%	123.911	5.65%	FGIC		Non-Callable				6/30/17				
11/1/18	Term 18	2,590,000	7.625%	5.680%	124.473	5.65%	FGIC		Non-Callable				6/30/18	2,440,000	290,513		2,730,513
11/1/19	Term 21	2,745,000	5.750%	5.800%	99.333	5.70%	FGIC		2006 Refund	11/1/06			6/30/19	2,590,000	98,744		2,688,744
11/1/20	Term 21	2,915,000	5.750%	5.800%	99.333	5.70%	FGIC		2006 Refund	11/1/06			6/30/20				
11/1/21	Term 21	3,095,000	5.750%	5.800%	99.333	5.70%	FGIC		2006 Refund	11/1/06			6/30/21				
11/1/22	Term 26	3,280,000	5.250%	5.850%	91.514	5.75%	FGIC		2006 Refund	11/1/06			6/30/22				
11/1/23	Term 26	3,485,000	5.250%	5.850%	91.514	5.75%	FGIC		2006 Refund	11/1/06			6/30/23				
11/1/24	Term 26	3,695,000	5.250%	5.850%	91.514	5.75%	FGIC		2006 Refund	11/1/06			6/30/24				
11/1/25	Term 26	3,925,000	5.250%	5.850%	91.514	5.75%	FGIC		2006 Refund	11/1/06			6/30/25				
11/1/26	Term 26	4,165,000	5.250%	5.850%	91.514	5.75%	FGIC		2006 Refund	11/1/06			6/30/26				
													6/30/27				

Issuance Par: 35,300,000
Average Life: 25.87 years

Outstanding Par: 5,030,000
Average Life: n.a. w/ fiscal dates

Purpose of Issue	*Dates*		*Sources of Funds*		*Uses of Funds*	
Capital projects			Par Amount:	35,300,000.00		
	Dated Date:	4/1/96	Plus: OIP/(OID):	271,866.80		
	Delivery Date:	6/4/96	Accrued Interest:	365,208.59		
	Sale Date:	5/22/96	Total Proceeds:	35,937,075.39		
	First Interest Payment:	11/1/96				
	First Maturity Date:	11/1/15				
					Other Uses:	35,571,866.80
					Accrued Interest:	365,208.59
No Sources and Uses available			Total Sources	$35,937,075.39	Total Uses	$35,937,075.39

State of West Virginia

Series-by-Series Analysis

1999A (Non-AMT) (Tax-Exemp *General Obligation Bonds* — *Underwriter:* *Salomon Smith Barney* — *Bond Counsel:* *Stepioe & Johnsor*

Bond Date	Bond Comp	Bond Par Amount	Bond Price Coupon	Bond Price Yield	Bond Price Price	Bond Price MMD	Bond Insurance Insurer	Bond Insurance Prem	Redemption Status	Redemption Date	Optional Date	Optional Price
11/1/99												
11/1/00												
11/1/01												
11/1/02												
11/1/03												
11/1/04												
11/1/05	Serial	2,882,438		4.550%	74.868	4.03%			Matured			
11/1/06	Serial	4,867,379		4.650%	71.056	4.13%			Matured			
11/1/07	Serial	4,677,862		4.750%	67.307	4.23%			Matured			
11/1/08	Serial	4,506,748		4.800%	63.925	4.30%			Matured			
11/1/09	Serial	4,284,585		4.900%	60.346	4.40%			Matured			
11/1/10	Serial	3,986,100		5.050%	56.540	4.53%			Matured			
11/1/11	Serial	3,706,622		5.150%	53.141	4.63%			Matured			
11/1/12	Serial	3,587,679		5.200%	50.177	4.70%			Matured			
11/1/13	Serial	3,384,266		5.250%	47.332	4.75%			Matured			
11/1/14	Serial	3,166,980		5.300%	44.605	4.80%			Matured			
11/1/15	Serial	2,984,408		5.300%	42.332	4.88%			Matured			
11/1/16	Serial	2,838,237		5.350%	39.834	4.93%			Matured			
11/1/17	Serial	2,625,825		5.450%	37.114	4.98%			Non-Callable			
11/1/18	Serial	2,447,518		5.500%	34.840	5.03%			Non-Callable			
11/1/19	Serial	2,829,762		5.500%	33.000	5.06%			Non-Callable			
11/1/20	Serial	2,695,947		5.500%	31.257	5.08%			Non-Callable			
11/1/21	Serial	2,583,176		5.500%	29.606	5.09%			Non-Callable			
11/1/22	Serial	2,439,743		5.500%	28.043	5.10%			Non-Callable			
11/1/23	Serial	2,496,831		5.500%	26.562	5.11%			Non-Callable			
11/1/24	Serial	2,364,969		5.500%	25.159	5.12%			Non-Callable			
11/1/25	Serial	2,204,325		5.500%	23.830	5.13%			Non-Callable			
11/1/26	Serial	2,133,055		5.500%	22.572	5.14%			Non-Callable			

Issuance Par: 69,694,454
Average Life: 15.53 years

Outstanding Fiscal Year Debt Service as of 5/5/17

Year	Principal	Int./Accr.	Fee	Net Debt
6/30/99				
6/30/00				
6/30/01				
6/30/02				
6/30/03				
6/30/04				
6/30/05				
6/30/06				
6/30/07				
6/30/08				
6/30/09				
6/30/10				
6/30/11				
6/30/12				
6/30/13				
6/30/14				
6/30/15				
6/30/16				
6/30/17				
6/30/18	2,625,825	4,449,175		7,075,000
6/30/19	2,447,518	4,577,482		7,025,000
6/30/20	2,829,762	5,745,238		8,575,000
6/30/21	2,695,947	5,929,053		8,625,000
6/30/22	2,583,176	6,141,824		8,725,000
6/30/23	2,439,743	6,260,257		8,700,000
6/30/24	2,496,831	6,903,169		9,400,000
6/30/25	2,364,969	7,035,031		9,400,000
6/30/26	2,204,325	7,045,675		9,250,000
6/30/27	2,133,055	7,316,945		9,450,000

Outstanding Par: 24,821,150
Average Life: n.a. w/ fiscal dates

Purpose of Issue	Dates		Sources of Funds		Uses of Funds	
Capital projects	Dated Date:	5/25/99	Par Amount:	69,694,453.78		
	Delivery Date:	5/25/99	Plus: OIP/(OID):			
	Sale Date:	5/12/99	Total Proceeds:	69,694,453.78		
	First Interest Payment:	11/1/99				
	First Maturity Date:	11/1/05				
					Other Uses:	69,694,453.78
					Accrued Interest:	
No Sources and Uses available			Total Sources	$69,694,453.78	Total Uses	$69,694,453.78

State of West Virginia

Series-by-Series Analysis

2010A Refund (Tax-Exempt) *General Obligation Bonds* *Underwriter Hutchinson, Sheckey, Erley & Co* *Bond Counsel Jackson & Kelly Pl*

Bond			Bond Price				Bond Insurance		Redemption		Optional	
Date	**Comp**	**Par Amount**	**Coupon**	**Yield**	**Price**	**MMD**	**Insurer**	**Prem**	**Status**	**Date**	**Date**	**Price**
6/1/11												
6/1/12												
6/1/13												
6/1/14												
6/1/15												
6/1/16												
6/1/17												
6/1/18												
6/1/19	Serial	6,485,000	4.000%	2.670%	110.427	2.49%			Non-Callable			
6/1/20	Serial	6,745,000	4.000%	2.870%	109.640	2.67%			Non-Callable			
6/1/21	Serial	7,015,000	4.000%	3.000%	108.476	2.82%			Forward Refundable		6/1/20	100%
6/1/22	Serial	7,300,000	4.000%	3.150%	107.152	2.95%			Forward Refundable		6/1/20	100%
6/1/23	Serial	7,590,000	4.000%	3.260%	106.193	3.07%			Forward Refundable		6/1/20	100%

Outstanding Fiscal Year Debt Service as of 5/5/17				
Year	**Principal**	**Int./Accr.**	**Fee**	**Net Debt**
6/30/11				
6/30/11				
6/30/12				
6/30/13				
6/30/14				
6/30/15				
6/30/16				
6/30/17		702,700		702,700
6/30/18		1,405,400		1,405,400
6/30/19	6,485,000	1,405,400		7,890,400
6/30/20	6,745,000	1,146,000		7,891,000
6/30/21	7,015,000	876,200		7,891,200
6/30/22	7,300,000	595,600		7,895,600
6/30/23	7,590,000	303,600		7,893,600

Issuance Par: 35,135,000
Average Life: 10.94 years

Outstanding Par: 35,135,000
Average Life: n.a. w/ fiscal dates

Purpose of Issue

Partly refunding series 1998 and 2001

Series 1998
Series 2001

$36,389,152 deposited to 1998 escrow fund; $1,778,617.40 desposited to 2001 escrow fund

Dates

Dated Date:	7/22/10
Delivery Date:	7/22/10
Sale Date:	7/8/10
First Interest Payment:	12/1/10
First Maturity Date:	6/1/19

Sources of Funds

Par Amount:	35,135,000.00
Plus: OIP/(OID):	2,913,145.05
Total Proceeds:	38,048,145.05
Other Sources 1:	340,071.88
Total Sources	$38,388,216.93

Uses of Funds

SLGS Escrow:	38,167,769.40
Accrued Interest:	
Total Uses	$38,167,769.40

State of West Virginia

Series-by-Series Analysis

2011A Refund (AMT) *General Obligation Bonds* — *Underwriter:* *BOSC, Inc* — *Bond Counsel:* *Goodwin & Goodw*

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Fiscal Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
11/1/11	Serial	465,000	0.200%	0.200%	100.000	0.22%			Matured				6/30/12				
11/1/12	Serial	3,020,000	0.300%	0.300%	100.000	0.22%			Matured				6/30/12				
11/1/13	Serial	3,470,000	3.000%	0.750%	104.660	0.30%			Matured				6/30/13				
11/1/14	Serial	3,580,000	3.000%	1.000%	106.073	0.40%			Matured				6/30/14				
11/1/15	Serial	3,060,000	4.000%	1.150%	111.358	0.55%			Matured				6/30/15				
11/1/16	Serial	1,600,000	3.000%	1.500%	107.325	0.88%			Matured				6/30/16				
11/1/17	Serial	1,650,000	3.000%	1.750%	107.191	1.14%			Non-Callable				6/30/17				
11/1/18	Serial	325,000	3.000%	2.000%	106.580	1.41%			Non-Callable				6/30/18	1,650,000	77,850		1,727,850
11/1/19	Serial	335,000	3.000%	2.270%	105.367	1.68%			Non-Callable				6/30/19	325,000	48,225		373,225
11/1/20	Serial	365,000	3.000%	2.500%	104.042	1.92%			Non-Callable				6/30/20	335,000	38,325		373,325
11/1/21	Serial	370,000	3.000%	2.750%	102.188	2.09%			Non-Callable				6/30/21	365,000	27,825		392,825
11/1/22	Serial	375,000	3.000%	3.000%	100.000	2.27%			Non-Callable				6/30/22	370,000	16,800		386,800
													6/30/23	375,000	5,625		380,625

Issuance Par: 18,615,000
Average Life: 3.69 years

Outstanding Par: 3,420,000
Average Life: n.a. w/ fiscal dates

Purpose of Issue

Partly refunding series 1996B and 1998B

1996B (AMT)
1998B (AMT)
1999B (AMT)

Dates

Dated Date:	9/28/11
Delivery Date:	9/28/11
Sale Date:	9/14/11
First Interest Payment:	11/1/11
First Maturity Date:	11/1/11

Sources of Funds

Par Amount:	18,615,000.00
Plus: OIP/(OID):	1,024,735.05
Total Proceeds:	19,639,735.05
Other Sources 1:	280,000.00
Total Sources	$19,919,735.05

Uses of Funds

SLGS Escrow:	19,681,542.50
Underwriters' Discount:	84,240.32
Costs of Issuance:	150,000.00
Accrued Interest:	
Total Uses	$19,915,782.82

State of West Virginia

Series-by-Series Analysis

2015A Road Refund (Tax-Exer *General Obligation Bonds* — *Underwriter* *Morgan Stanley & Co LLC* — *Bond Counsel* *Bowles Rice LLP*

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Fiscal Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
6/1/15													6/30/15				
6/1/16	Serial	2,460,000	5.000%	0.300%	105.118				Matured				6/30/15				
6/1/17	Serial	15,225,000	5.000%	0.620%	109.087				Non-Callable				6/30/16				
6/1/18	Serial	15,985,000	5.000%	0.900%	112.472				Non-Callable				6/30/17	15,225,000	3,281,250		18,506,250
6/1/19	Serial	10,300,000	5.000%	1.140%	115.387				Non-Callable				6/30/18	15,985,000	5,801,250		21,786,250
6/1/20	Serial	10,815,000	5.000%	1.320%	118.062				Non-Callable				6/30/19	10,300,000	5,002,000		15,302,000
6/1/21	Serial	11,355,000	5.000%	1.490%	120.366				Non-Callable				6/30/20	10,815,000	4,487,000		15,302,000
6/1/22	Serial	11,920,000	5.000%	1.690%	122.032				Non-Callable				6/30/21	11,355,000	3,946,250		15,301,250
6/1/23	Serial	12,520,000	5.000%	1.820%	123.824				Non-Callable				6/30/22	11,920,000	3,378,500		15,298,500
6/1/24	Serial	21,040,000	5.000%	1.950%	125.296				Non-Callable				6/30/23	12,520,000	2,782,500		15,302,500
6/1/25	Serial	22,090,000	5.000%	2.050%	126.767				Non-Callable				6/30/24	21,040,000	2,156,500		23,196,500
													6/30/25	22,090,000	1,104,500		23,194,500

Issuance Par: 133,710,000
Average Life: 6.36 years

Outstanding Par: 131,250,000
Average Life: n.a. w/ fiscal dates

Purpose of Issue

Currently refund Series 2005 bonds

2005 Refund

Dates

Dated Date:	4/28/15
Delivery Date:	4/28/15
Sale Date:	4/16/15
First Interest Payment:	12/1/15
First Maturity Date:	6/1/16

Sources of Funds

Par Amount:	133,710,000.00
Plus: OIP/(OID):	26,197,961.25
Total Proceeds:	159,907,961.25
Liquidated BF:	30,724,750.00
Total Sources	$190,632,711.25

Uses of Funds

SLGS Escrow:	190,024,750.00
Underwriters' Discount:	292,651.08
Costs of Issuance:	315,310.17
Accrued Interest:	
Total Uses	$190,632,711.25

State of West Virginia

Series-by-Series Analysis

2015A Infrastructure Refund (*General Obligation Bonds* | *Underwriter* *JP Morgan Securities LLC* | *Bond Counsel* *Goodwin & Goodw*

Bond			Bond Price				Bond Insurance		Redemption		Optional	
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price
11/1/15												
11/1/16												
11/1/17	Serial	2,300,000	4.000%	0.620%	109.219				Non-Callable			
11/1/18	Serial	3,210,000	5.000%	0.830%	115.386				Non-Callable			
11/1/19	Serial	4,920,000	5.000%	1.030%	118.376				Non-Callable			
11/1/20	Serial	5,130,000	5.000%	1.240%	120.822				Non-Callable			
11/1/21	Serial	5,350,000	5.000%	1.440%	122.836				Non-Callable			
11/1/22	Serial	9,180,000	5.000%	1.620%	124.538				Non-Callable			
11/1/23	Serial	9,575,000	5.000%	1.760%	126.181				Non-Callable			
11/1/24	Serial	8,445,000	3.000%	1.960%	109.192				Non-Callable			
11/1/25	Serial	8,850,000	3.000%	2.050%	109.126				Non-Callable			
11/1/26	Serial	9,005,000	5.000%	2.110%	129.945				Non-Callable			

Outstanding Fiscal Year Debt Service as of 5/5/17				
Year	Principal	Int./Accr.	Fee	Net Debt
6/30/15				
6/30/16				
6/30/17				
6/30/18	2,300,000	2,883,350		5,183,350
6/30/19	3,210,000	2,757,100		5,967,100
6/30/20	4,920,000	2,553,850		7,473,850
6/30/21	5,130,000	2,302,600		7,432,600
6/30/22	5,350,000	2,040,600		7,390,600
6/30/23	9,180,000	1,677,350		10,857,350
6/30/24	9,575,000	1,208,475		10,783,475
6/30/25	8,445,000	842,425		9,287,425
6/30/26	8,850,000	583,000		9,433,000
6/30/27	9,005,000	225,125		9,230,125

Issuance Par: 65,965,000
Average Life: 8.28 years

Outstanding Par: 65,965,000
Average Life: n.a. w/ fiscal dates

Purpose of Issue

Refunding series 1996D, 1998A, 1999C, 2006

1996D (Non-AMT)
1998A (Non-AMT)
1999C (Taxable)
2006 Refund

Dates

Dated Date:	1/29/15
Delivery Date:	1/29/15
Sale Date:	1/22/15
First Interest Payment:	5/1/15
First Maturity Date:	11/1/17

Sources of Funds

Par Amount:	65,965,000.00
Plus: OIP/(OID):	12,939,803.20
Total Proceeds:	78,904,803.20
Liquidated BF:	334,735.00
Total Sources	$79,239,538.20

Uses of Funds

SLGS Escrow:	78,904,833.33
Underwriters' Discount:	111,771.10
Costs of Issuance:	222,933.77
Accrued Interest:	
Total Uses	$79,239,538.20

State of West Virginia

Series-by-Series Analysis

2015B Infrastructure Refund (*General Obligation Bonds* | *Underwriter:* *JP Morgan Securities LLC* | *Bond Counsel:* *Goodwin & Goodw*

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Fiscal Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	Applicabl	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
11/1/15	Serial	1,370,000	2.000%	0.300%	101.281				Matured				6/30/15				
11/1/16	Serial	1,410,000	2.000%	0.600%	102.440				Matured				6/30/16				
11/1/17	Serial	1,440,000	2.000%	0.900%	102.986				Non-Callable				6/30/17				
11/1/18	Serial	1,470,000	2.000%	1.250%	102.742				Non-Callable				6/30/18	1,440,000	43,800		1,483,800
													6/30/19	1,470,000	14,700		1,484,700

Issuance Par: 5,690,000
Average Life: 2.28 years

Outstanding Par: 2,910,000
Average Life: n.a. w/ fiscal dates

Purpose of Issue

Refunding series 1996D, 1998A, 1999C, 2006

Dates

Dated Date:	1/29/15
Delivery Date:	1/29/15
Sale Date:	1/22/15
First Interest Payment:	5/1/15
First Maturity Date:	11/1/15

Sources of Funds

Par Amount:	5,690,000.00
Plus: OIP/(OID):	135,259.50
Total Proceeds:	5,825,259.50
Liquidated BF:	36,000.00
Total Sources	$5,861,259.50

Uses of Funds

SLGS Escrow:	5,826,817.82
Underwriters' Discount:	15,013.63
Costs of Issuance:	19,428.05
Accrued Interest:	
Total Uses	$5,861,259.50

State of West Virginia

Series-by-Series Analysis

2017A Infrastructure Refund (General Obligation Bonds | Underwriter: Jeffenes LLC | Bond Counsel: Goodwin & Goodw

Bond Date	Bond Comp	Bond Par Amount	Bond Price Coupon	Bond Price Yield	Bond Price Price	Bond Price MMD	Bond Insurance Insurer	Bond Insurance Prem	Redemption Status	Redemption Date	Optional Date	Optional Price
11/1/17												
11/1/18	Serial	1,860,000	2.000%	1.170%	101.475				Non-Callable			
11/1/19	Serial	4,430,000	2.000%	1.470%	101.449				Non-Callable			
11/1/20	Serial	4,525,000	4.000%	1.630%	108.702				Non-Callable			
11/1/21	Serial	4,700,000	5.000%	1.810%	114.607				Non-Callable			
11/1/22	Serial	1,400,000	5.000%	1.940%	116.714				Non-Callable			
11/1/23	Serial	1,490,000	5.000%	2.070%	118.500				Non-Callable			
11/1/24	Serial	3,110,000	5.000%	2.170%	120.209				Non-Callable			
11/1/25	Serial	3,265,000	5.000%	2.270%	121.668				Non-Callable			
11/1/26	Serial	3,435,000	5.000%	2.360%	122.980				Non-Callable			

Issuance Par: 28,215,000
Average Life: 5.69 years

Outstanding Fiscal Year Debt Service as of 5/5/17

Year	Principal	Int./Accr.	Fee	Net Debt
6/30/17				
6/30/18		1,176,800		1,176,800
6/30/19	1,860,000	1,158,200		3,018,200
6/30/20	4,430,000	1,095,300		5,525,300
6/30/21	4,525,000	960,500		5,485,500
6/30/22	4,700,000	752,500		5,452,500
6/30/23	1,400,000	600,000		2,000,000
6/30/24	1,490,000	527,750		2,017,750
6/30/25	3,110,000	412,750		3,522,750
6/30/26	3,265,000	253,375		3,518,375
6/30/27	3,435,000	85,875		3,520,875

Outstanding Par: 28,215,000
Average Life: n.a. w/ fiscal dates

Purpose of Issue

Currently refund remaining outstanding Series 2006

Dates

Dated Date:	1/12/17
Delivery Date:	1/12/17
Sale Date:	1/5/17
First Interest Payment:	5/1/17
First Maturity Date:	11/1/18

Sources of Funds

Par Amount:	28,215,000.00
Plus: OIP/(OID):	3,806,889.30
Total Proceeds:	32,021,889.30
Liquidated BF:	222,892.28
Total Sources	$32,244,781.58

Uses of Funds

SLGS Escrow:	32,021,889.30
Underwriters' Discount:	54,892.28
Costs of Issuance:	168,000.00
Accrued Interest:	
Total Uses	$32,244,781.58

State of West Virginia

as of: May 5, 2017

Series Name	Indenture	Tax Status	Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Call Date	Refunding Status			
									Advance	Forward	Current	Non-Callable
Series 2006A	Commissioner of Highways	Tax-Exempt	New Money	75,970,000	10/25/06	9/1/15	-	-	-	-	-	-
Series 2007A	Commissioner of Highways	Tax-Exempt	New Money	33,190,000	4/18/07	9/1/15	-	-	-	-	-	-
Series 2009A	Commissioner of Highways	Tax-Exempt	New Money	76,835,000	3/18/09	9/1/15	-	-	-	-	-	-
Series 2016A	Commissioner of Highways	Tax-Exempt	New Money	53,380,000	12/22/16	9/1/22	53,380,000	-	-	-	-	53,380,000

State of West Virginia

Series-by-Series Analysis

Series 2016A (Tax-Exempt) | Commissioner of Highways | Underwriter: Citigroup | Bond Counsel: Jackson & Kelly Pl

Bond Date	Bond Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Redemption Status	Redemption Date	Optional Date	Optional Price
9/1/17	Serial	8,515,000	5.000%	1.100%	102.678		None		Non-Callable			
9/1/18	Serial	8,120,000	5.000%	1.450%	105.909		None		Non-Callable			
9/1/19	Serial	8,525,000	5.000%	1.750%	108.506		None		Non-Callable			
9/1/20	Serial	8,950,000	5.000%	2.030%	110.509		None		Non-Callable			
9/1/21	Serial	9,400,000	5.000%	2.270%	112.081		None		Non-Callable			
9/1/22	Serial	9,870,000	5.000%	2.460%	113.410		None		Non-Callable			

Issuance Par: 53,380,000
Average Life: 3.30 years

Outstanding Bond Year Debt Service as of 5/5/17

Year	Principal	Int./Accr.	Fee	Net Debt
9/1/17	8,515,000	1,334,500		9,849,500
9/1/18	8,120,000	2,243,250		10,363,250
9/1/19	8,525,000	1,837,250		10,362,250
9/1/20	8,950,000	1,411,000		10,361,000
9/1/21	9,400,000	963,500		10,363,500
9/1/22	9,870,000	493,500		10,363,500

Outstanding Par: 53,380,000
Average Life: 2.93 years

Purpose of Issue

Transportation Project

Dates

Dated Date: 12/22/16
Delivery Date: 12/22/16
Sale Date: 12/15/16

First Interest Payment: 3/1/17
First Maturity Date: 9/1/17

Sources of Funds

Par Amount: 53,380,000.00
Plus: OIP/(OID): 4,832,715.50
Total Proceeds: 58,212,715.50

Total Sources $58,212,715.50

Uses of Funds

Project Fund: 57,803,062.49
Costs of Issuance: 409,653.01
Accrued Interest:
Total Uses $58,212,715.50

WV Water Development Authority

as of: May 5, 2017

Series Name	Indenture	Tax Status	Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Call Date	Refunding Status			
									Advance	Forward	Current	Non-Callable
Series 2000 AIII	Revenue Bonds	AMT	New Money	22,065,000	1/26/00	7/1/39	-	-	-	-	-	-
Series 2000 BIII	Revenue Bonds	AMT	New Money	10,905,000	9/20/00	7/1/40	-	-	-	-	-	-
Series 2002 AI	Revenue Bonds	Tax-Exempt	Refunding	8,650,000	1/29/02	11/1/25	-	-	-	-	-	-
Series 2003 AI	Revenue Bonds	Tax-Exempt	Refunding	24,925,000	9/24/03	11/1/26	-	-	-	-	-	-
Series 2003 AII	Revenue Bonds	Tax-Exempt	New Money	10,115,000	5/15/03	11/1/23	-	-	-	-	-	-
Series 2003 BII	Revenue Bonds	Tax-Exempt	Refunding	53,750,000	9/24/03	11/1/29	-	-	-	-	-	-
Series 2003 CII	Revenue Bonds	Tax-Exempt	Refunding	17,890,000	9/24/03	11/1/33	-	-	-	-	-	-
Series 2003 DII	Revenue Bonds	Tax-Exempt	Refunding	5,555,000	9/24/03	11/1/24	-	-	-	-	-	-
Series 2003A	Revenue Bonds	Tax-Exempt	New Money	45,000,000	10/28/03	10/1/39	-	-	-	-	-	-
Series 2005 A-II	Revenue Bonds	Tax-Exempt	Refunding	19,295,000	10/27/05	11/1/33	-	-	-	-	-	-
Series 2005 A-IV	Revenue Bonds	Tax-Exempt	Refunding	37,775,000	5/4/05	11/1/44	32,200,000	-	-	-	32,200,000	-
Series 2005 B-II	Revenue Bonds	Tax-Exempt	Refunding	12,315,000	10/27/05	11/1/33	-	-	-	-	-	-
Series 2005 B-IV	Revenue Bonds	Tax-Exempt	Refunding	11,825,000	12/20/05	11/1/44	9,495,000	-	-	-	9,495,000	-
Series 2006 A-II	Revenue Bonds	Tax-Exempt	Refunding	41,225,000	2/14/06	11/1/39	-	-	-	-	-	-
Series 2006A	Revenue Bonds	Tax-Exempt	Refunding	44,650,000	6/22/06	10/1/39	-	-	-	-	-	-
Series 2006B	Revenue Bonds	Tax-Exempt	Refunding	10,150,000	6/22/06	10/1/23	-	-	-	-	-	-
Series 2007A	Revenue Bonds	Tax-Exempt	New Money	38,135,000	3/8/07	10/1/45	-	-	-	-	-	-
Series 2012 AI	Revenue Bonds	Tax-Exempt	Refunding	4,430,000	12/19/12	11/1/25	2,290,000	11/1/2022	-	510,000	-	1,780,000
Series 2012 BI	Revenue Bonds	Tax-Exempt	Refunding	15,965,000	12/19/12	11/1/26	12,170,000	11/1/2022	-	5,465,000	-	6,705,000
Series 2012A	Revenue Bonds	Tax-Exempt	Refunding	27,435,000	12/19/12	10/1/39	24,435,000	10/1/2022	-	22,570,000	-	1,865,000
Series 2012AII	Revenue Bonds	Tax-Exempt	Refunding	6,055,000	12/19/12	11/1/23	3,970,000	11/1/2022	-	560,000	-	3,410,000
Series 2012AIII	Revenue Bonds	Tax-Exempt	Refunding	16,015,000	12/19/12	7/1/39	14,695,000	7/1/2022	-	11,900,000	-	2,795,000
Series 2012BII	Revenue Bonds	Tax-Exempt	Refunding	14,615,000	12/19/12	11/1/33	12,440,000	11/1/2022	-	8,780,000	-	3,660,000
Series 2012BIII	Revenue Bonds	Tax-Exempt	Refunding	9,775,000	12/19/12	7/1/40	8,925,000	7/1/2022	-	7,295,000	-	1,630,000
Series 2013AII	Revenue Bonds	Tax-Exempt	Refunding	40,245,000	11/14/13	11/1/29	32,535,000	11/1/2023	-	15,080,000	-	17,455,000
Series 2014A	Revenue Bonds	Tax-Exempt	New Money	75,790,000	10/16/14	7/1/34	70,100,000	7/1/2024	46,305,000	-	-	23,795,000
Series 2016A	Revenue Bonds	Tax-Exempt	Refunding	74,320,000	12/20/16	10/1/45	74,320,000	10/1/2026	-	46,735,000	-	27,585,000
Series 2016AII	Revenue Bonds	Tax-Exempt	Refunding	51,100,000	12/20/16	11/1/38	51,100,000	11/1/2026	-	30,115,000	-	20,985,000

WV Water Development Authority

Series-by-Series Analysis

Series 2005 A-IV (Tax-Exempt) Revenue Bonds — Underwriter: Ferris, Baker Watts, Inc — Bond Counsel: Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt Service
11/1/05													11/1/05				
11/1/06	Serial	425,000	3.000%	2.800%	100.290	2.64%			Matured				11/1/06				
11/1/07	Serial	445,000	3.000%	2.900%	100.239	2.75%			Matured				11/1/07				
11/1/08	Serial	455,000	3.250%	3.000%	100.822	2.86%			Matured				11/1/08				
11/1/09	Serial	470,000	3.250%	3.100%	100.624	2.96%			Matured				11/1/09				
11/1/10	Serial	485,000	3.375%	3.200%	100.874	3.07%			Matured				11/1/10				
11/1/11	Serial	500,000	3.500%	3.350%	100.868	3.20%			Matured				11/1/11				
11/1/12	Serial	520,000	3.500%	3.460%	100.130	3.33%			Matured				11/1/12				
11/1/13	Serial	535,000	3.625%	3.600%	100.181	3.45%			Matured				11/1/13				
11/1/14	Serial	555,000	3.750%	3.700%	100.396	3.55%			Matured				11/1/14				
11/1/15	Serial	580,000	4.000%	3.800%	101.716	3.65%			Matured				11/1/15				
11/1/16	Serial	605,000	4.000%	4.000%	100.000	3.73%			Matured				11/1/16				
11/1/17	Term 19	625,000	5.000%	4.070%	107.876	3.92%			Currently Callable				11/1/17	625,000	794,484		1,419,484
11/1/18	Term 19	655,000	5.000%	4.070%	107.876	3.92%			Currently Callable				11/1/18	655,000	1,557,719		2,212,719
11/1/19	Term 19	690,000	5.000%	4.070%	107.876	3.92%			Currently Callable				11/1/19	690,000	1,524,969		2,214,969
11/1/20	Term 25	350,000	4.375%	4.500%	98.337	4.23%			Currently Callable				11/1/20	725,000	1,490,469		2,215,469
11/1/20	Term 25	375,000	4.750%	4.530%	101.820	4.23%			Currently Callable				11/1/20				
11/1/21	Term 25	370,000	4.375%	4.500%	98.337	4.23%			Currently Callable				11/1/21	755,000	1,457,344		2,212,344
11/1/21	Term 25	385,000	4.750%	4.530%	101.820	4.23%			Currently Callable				11/1/21				
11/1/22	Term 25	385,000	4.375%	4.500%	98.337	4.23%			Currently Callable				11/1/22	795,000	1,422,869		2,217,869
11/1/22	Term 25	410,000	4.750%	4.530%	101.820	4.23%			Currently Callable				11/1/22				
11/1/23	Term 25	400,000	4.375%	4.500%	98.337	4.23%			Currently Callable				11/1/23	825,000	1,386,550		2,211,550
11/1/23	Term 25	425,000	4.750%	4.530%	101.820	4.23%			Currently Callable				11/1/23				
11/1/24	Term 25	420,000	4.375%	4.500%	98.337	4.23%			Currently Callable				11/1/24	860,000	1,348,863		2,208,863
11/1/24	Term 25	440,000	4.750%	4.530%	101.820	4.23%			Currently Callable				11/1/24				
11/1/25	Term 25	440,000	4.375%	4.500%	98.337	4.23%			Currently Callable				11/1/25	905,000	1,309,588		2,214,588
11/1/25	Term 25	465,000	4.750%	4.530%	101.820	4.23%			Currently Callable				11/1/25				
11/1/26	Term 35	830,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/26	830,000	1,268,250		2,098,250
11/1/27	Term 35	870,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/27	870,000	1,226,750		2,096,750
11/1/28	Term 35	915,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/28	915,000	1,183,250		2,098,250
11/1/29	Term 35	960,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/29	960,000	1,137,500		2,097,500
11/1/30	Term 35	1,010,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/30	1,010,000	1,089,500		2,099,500
11/1/31	Term 35	1,060,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/31	1,060,000	1,039,000		2,099,000
11/1/32	Term 35	1,115,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/32	1,115,000	986,000		2,101,000
11/1/33	Term 35	1,170,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/33	1,170,000	930,250		2,100,250
11/1/34	Term 35	1,225,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/34	1,225,000	871,750		2,096,750
11/1/35	Term 35	1,290,000	5.000%	4.520%	103.974	4.44%			Currently Callable				11/1/35	1,290,000	810,500		2,100,500
11/1/36	Term 44	1,355,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/36	1,355,000	746,000		2,101,000
11/1/37	Term 44	1,420,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/37	1,420,000	678,250		2,098,250
11/1/38	Term 44	1,490,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/38	1,490,000	607,250		2,097,250
11/1/39	Term 44	1,565,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/39	1,565,000	532,750		2,097,750
11/1/40	Term 44	1,645,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/40	1,645,000	454,500		2,099,500
11/1/41	Term 44	1,725,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/41	1,725,000	372,250		2,097,250
11/1/42	Term 44	1,815,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/42	1,815,000	286,000		2,101,000
11/1/43	Term 44	1,905,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/43	1,905,000	195,250		2,100,250
11/1/44	Term 44	2,000,000	5.000%	4.650%	102.879	4.44%			Currently Callable				11/1/44	2,000,000	100,000		2,100,000
Issuance Par:		37,775,000											Outstanding Par:	32,200,000			
Average Life:		25.49 years											Average Life:	16.72 years			

Purpose of Issue	Dates		Sources of Funds		Uses of Funds	
			Par Amount:	37,775,000.00		
	Dated Date:	5/4/05	Plus: OIP/(OID):	1,037,296.70		
	Delivery Date:	5/4/05			Project Fund:	38,117,310.00
	Sale Date:	4/26/05	Total Proceeds:	38,812,296.70		
					Underwriters' Discount:	260,809.50
	First Interest Payment:	11/1/05			Costs of Issuance:	384,268.39
	First Maturity Date:	11/1/06			Insurance Premium:	49,908.81
					Accrued Interest:	
			Total Sources	$38,812,296.70	Total Uses	$38,812,296.70

WV Water Development Authority

Series-by-Series Analysis

Series 2005 B-IV (Tax-Exempt) Revenue Bonds — Underwriter: Ferris, Baker Watts, Inc. — Bond Counsel: Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt Service
11/1/06	Serial	15,000	3.750%	3.280%	100.394	3.20%			Matured				11/1/06				
11/1/07	Serial	55,000	3.750%	3.320%	100.767	3.23%			Matured				11/1/07				
11/1/08	Serial	210,000	3.750%	3.360%	101.053	3.26%			Matured				11/1/08				
11/1/09	Serial	225,000	3.750%	3.450%	101.073	3.35%			Matured				11/1/09				
11/1/10	Serial	230,000	3.750%	3.540%	100.927	3.44%			Matured				11/1/10				
11/1/11	Serial	245,000	4.000%	3.640%	101.882	3.54%			Matured				11/1/11				
11/1/12	Serial	250,000	4.000%	3.730%	101.618	3.63%			Matured				11/1/12				
11/1/13	Serial	260,000	4.000%	3.820%	101.209	3.72%			Matured				11/1/13				
11/1/14	Serial	270,000	4.000%	3.910%	100.664	3.80%			Matured				11/1/14				
11/1/15	Serial	280,000	4.000%	3.980%	100.157	3.87%			Matured				11/1/15				
11/1/16	Term 24	290,000	5.125%	4.400%	105.745	4.25%			Matured				11/1/16				
11/1/17	Term 24	310,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/17	310,000	232,191		542,191
11/1/18	Term 24	325,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/18	325,000	448,494		773,494
11/1/19	Term 24	340,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/19	340,000	431,838		771,838
11/1/20	Term 24	355,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/20	355,000	414,413		769,413
11/1/21	Term 24	375,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/21	375,000	396,219		771,219
11/1/22	Term 24	390,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/22	390,000	377,000		767,000
11/1/23	Term 24	415,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/23	415,000	357,013		772,013
11/1/24	Term 24	435,000	5.125%	4.400%	105.745	4.25%			Currently Callable				11/1/24	435,000	335,744		770,744
11/1/25	Term 35	455,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/25	455,000	313,450		768,450
11/1/26	Term 35	440,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/26	440,000	291,838		731,838
11/1/27	Term 35	460,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/27	460,000	270,938		730,938
11/1/28	Term 35	485,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/28	485,000	249,088		734,088
11/1/29	Term 35	505,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/29	505,000	226,050		731,050
11/1/30	Term 35	535,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/30	535,000	202,063		737,063
11/1/31	Term 35	555,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/31	555,000	176,650		731,650
11/1/32	Term 35	580,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/32	580,000	150,288		730,288
11/1/33	Term 35	610,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/33	610,000	122,738		732,738
11/1/34	Term 35	635,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/34	635,000	93,763		728,763
11/1/35	Term 35	670,000	4.750%	4.800%	99.205	4.50%			Currently Callable				11/1/35	670,000	63,600		733,600
11/1/36	Term 44	55,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/36	55,000	31,775		86,775
11/1/37	Term 44	60,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/37	60,000	28,956		88,956
11/1/38	Term 44	60,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/38	60,000	25,881		85,881
11/1/39	Term 44	65,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/39	65,000	22,806		87,806
11/1/40	Term 44	70,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/40	70,000	19,475		89,475
11/1/41	Term 44	70,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/41	70,000	15,888		85,888
11/1/42	Term 44	75,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/42	75,000	12,300		87,300
11/1/43	Term 44	80,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/43	80,000	8,456		88,456
11/1/44	Term 44	85,000	5.125%	4.660%	103.637	4.50%			Currently Callable				11/1/44	85,000	4,356		89,356

Issuance Par: 11,825,000
Average Life: 19.79 years

Outstanding Par: 9,495,000
Average Life: 11.56 years

Purpose of Issue

Dates

Dated Date: 12/20/05
Delivery Date: 12/20/05
Sale Date: 12/8/05

First Interest Payment: 5/1/06
First Maturity Date: 11/1/06

Sources of Funds

Par Amount:	11,825,000.00
Plus: OIP/(OID):	182,526.95
Total Proceeds:	12,007,526.95
Total Sources	$12,007,526.95

Uses of Funds

Project Fund:	11,730,764.00
Underwriters' Discount:	99,026.25
Costs of Issuance:	177,736.70
Accrued Interest:	
Total Uses	$12,007,526.95

WV Water Development Authority

Series-by-Series Analysis

Series 2012A (Tax-Exempt) Refunding Bonds — Underwriter: Piper Jaffray — Bond Counsel: Jackson Kelly PLLC

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
10/1/13	Serial	1,335,000	3.000%	0.420%	102.015	0.20%			Matured				10/1/13				
10/1/14	Serial	490,000	3.000%	0.571%	104.304	0.20%			Matured				10/1/14				
10/1/15	Serial	505,000	3.000%	0.740%	106.212	0.20%			Matured				10/1/15				
10/1/16	Serial	670,000	3.000%	0.920%	107.715	0.20%			Matured				10/1/16				
10/1/17	Serial	695,000	3.000%	1.140%	108.633	0.20%			Non-Callable				10/1/17	695,000	385,225		1,080,225
10/1/18	Serial	770,000	3.000%	1.260%	109.673	0.20%			Non-Callable				10/1/18	770,000	749,600		1,519,600
10/1/19	Serial	155,000	2.000%	1.390%	103.933	0.20%			Non-Callable				10/1/19	155,000	726,500		881,500
10/1/20	Serial	90,000	2.000%	1.580%	103.062	0.20%			Non-Callable				10/1/20	90,000	723,400		813,400
10/1/21													10/1/21		721,600		721,600
10/1/22	Serial	155,000	2.000%	2.000%	100.000	0.20%			Non-Callable				10/1/22	155,000	721,600		876,600
10/1/23	Serial	180,000	2.000%	2.180%	98.276	0.20%			Forward Refundable		10/1/22	100%	10/1/23	180,000	718,500		898,500
10/1/24	Serial	1,450,000	2.250%	2.250%	100.000	0.20%			Forward Refundable		10/1/22	100%	10/1/24	1,450,000	714,900		2,164,900
10/1/25	Serial	1,315,000	2.250%	2.250%	100.000	0.20%			Forward Refundable		10/1/22	100%	10/1/25	1,315,000	682,275		1,997,275
10/1/26	Serial	1,345,000	4.000%	2.811%	110.101	0.20%			Forward Refundable		10/1/22	100%	10/1/26	1,345,000	652,688		1,997,688
10/1/27	erm_203	1,400,000	3.000%	3.120%	98.172	0.20%			Forward Refundable		10/1/22	100%	10/1/27	1,400,000	598,888		1,998,888
10/1/28	erm_203	1,440,000	3.000%	3.120%	98.172	0.20%			Forward Refundable		10/1/22	100%	10/1/28	1,440,000	556,888		1,996,888
10/1/29	erm_203	1,440,000	3.000%	3.120%	98.172	0.20%			Forward Refundable		10/1/22	100%	10/1/29	1,440,000	513,688		1,953,688
10/1/30	erm_203	1,365,000	3.000%	3.120%	98.172	0.20%			Forward Refundable		10/1/22	100%	10/1/30	1,365,000	470,488		1,835,488
10/1/31	erm_203	1,440,000	3.000%	3.120%	98.172	0.20%			Forward Refundable		10/1/22	100%	10/1/31	1,440,000	429,538		1,869,538
10/1/32	erm_203	1,480,000	3.000%	3.120%	98.172	0.20%			Forward Refundable		10/1/22	100%	10/1/32	1,480,000	386,338		1,866,338
10/1/33	erm_203	1,520,000	3.000%	3.120%	98.172	0.20%			Forward Refundable		10/1/22	100%	10/1/33	1,520,000	341,938		1,861,938
10/1/34	rm_2039	780,000	4.000%	3.580%	103.436	0.20%			Forward Refundable		10/1/22	100%	10/1/34	1,570,000	296,338		1,866,338
10/1/34	rm_2039	790,000	3.250%	3.350%	98.236	0.20%			Forward Refundable		10/1/22	100%	10/1/34				
10/1/35	rm_2039	800,000	4.000%	3.580%	103.436	0.20%			Forward Refundable		10/1/22	100%	10/1/35	1,625,000	239,463		1,864,463
10/1/35	rm_2039	825,000	3.250%	3.350%	98.236	0.20%			Forward Refundable		10/1/22	100%	10/1/35				
10/1/36	rm_2039	825,000	4.000%	3.580%	103.436	0.20%			Forward Refundable		10/1/22	100%	10/1/36	1,680,000	180,650		1,860,650
10/1/36	rm_2039	855,000	3.250%	3.350%	98.236	0.20%			Forward Refundable		10/1/22	100%	10/1/36				
10/1/37	rm_2039	615,000	4.000%	3.580%	103.436	0.20%			Forward Refundable		10/1/22	100%	10/1/37	1,265,000	119,863		1,384,863
10/1/37	rm_2039	650,000	3.250%	3.350%	98.236	0.20%			Forward Refundable		10/1/22	100%	10/1/37				
10/1/38	rm_2039	565,000	4.000%	3.580%	103.436	0.20%			Forward Refundable		10/1/22	100%	10/1/38	1,175,000	74,138		1,249,138
10/1/38	rm_2039	610,000	3.250%	3.350%	98.236	0.20%			Forward Refundable		10/1/22	100%	10/1/38				
10/1/39	rm_2039	415,000	4.000%	3.580%	103.436	0.20%			Forward Refundable		10/1/22	100%	10/1/39	880,000	31,713		911,713
10/1/39	rm_2039	465,000	3.250%	3.350%	98.236	0.20%			Forward Refundable		10/1/22	100%	10/1/39				

Issuance Par: 27,435,000
Average Life: 16.31 years

Outstanding Par: 24,435,000
Average Life: 13.69 years

Purpose of Issue

Advance refund 2003 Series A Bonds

Series 2000 AIII
Series 2003 AII
Series 2003A

Dates

Dated Date:	12/19/12
Delivery Date:	12/19/12
Sale Date:	12/4/12
First Interest Payment:	4/1/13
First Maturity Date:	10/1/13

Sources of Funds

Par Amount:	27,435,000.00
Plus: OIP/(OID):	286,226.00
Total Proceeds:	27,721,226.00
Liquidated DSRF:	580,000.50
Total Sources	$28,301,226.50

Uses of Funds

SLGS Escrow:	28,276,884.63
Underwriters' Discount:	123,457.50
Costs of Issuance:	96,913.32
Accrued Interest:	
Total Uses	$28,497,255.45

WV Water Development Authority

Series-by-Series Analysis

Series 2012 AI (Tax-Exempt) Revenue Bonds Underwriter: Piper Jaffray Bond Counsel: Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
11/1/13	Serial	525,000	3.000%	0.420%	102.229	0.20%			Matured				11/1/13				
11/1/14	Serial	520,000	3.000%	0.570%	104.505	0.30%			Matured				11/1/14				
11/1/15	Serial	540,000	3.000%	0.740%	106.398	0.42%			Matured				11/1/15				
11/1/16	Serial	555,000	3.000%	0.920%	107.882	0.52%			Matured				11/1/16				
11/1/17	Serial	570,000	3.000%	1.140%	108.780	0.64%			Non-Callable				11/1/17	570,000	31,325		601,325
11/1/18	Serial	590,000	3.000%	1.260%	109.809	0.76%			Non-Callable				11/1/18	590,000	45,550		635,550
11/1/19	Serial	150,000	3.000%	1.390%	110.508	0.90%			Non-Callable				11/1/19	150,000	27,850		177,850
11/1/20	Serial	155,000	3.000%	1.580%	110.464	1.09%			Non-Callable				11/1/20	155,000	23,350		178,350
11/1/21	Serial	155,000	3.000%	1.780%	109.964	1.29%			Non-Callable				11/1/21	155,000	18,700		173,700
11/1/22	Serial	160,000	2.000%	2.000%	100.000	1.48%			Non-Callable				11/1/22	160,000	14,050		174,050
11/1/23	Serial	165,000	2.000%	2.180%	98.265	1.59%			Forward Refundable		11/1/22	100%	11/1/23	165,000	10,850		175,850
11/1/24	Serial	170,000	2.125%	2.330%	97.884	1.64%			Forward Refundable		11/1/22	100%	11/1/24	170,000	7,550		177,550
11/1/25	Serial	175,000	2.250%	2.480%	97.478	1.69%			Forward Refundable		11/1/22	100%	11/1/25	175,000	3,938		178,938

Issuance Par: 4,430,000
Average Life: 5.11 years

Outstanding Par: 2,290,000
Average Life: 3.26 years

Purpose of Issue

Current Refunding of Series 2002A-I

Series 2002 AI

Dates

Dated Date:	12/19/12
Delivery Date:	12/19/12
Sale Date:	12/4/12
First Interest Payment:	5/1/13
First Maturity Date:	11/1/13

Sources of Funds

Par Amount:	4,430,000.00
Plus: OIP/(OID):	257,893.60
Total Proceeds:	4,687,893.60
Total Sources	$4,687,893.60

Uses of Funds

SLGS Escrow:	4,637,151.51
Underwriters' Discount:	25,472.50
Costs of Issuance:	25,269.59
Accrued Interest:	
Total Uses	$4,687,893.60

WV Water Development Authority

Series-by-Series Analysis

Series 2012 BI (Tax-Exempt) Revenue Bonds   Underwriter: Piper Jaffray   Bond Counsel: Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
11/1/13	Serial	970,000	3.000%	0.420%	102.229	0.20%			Matured				11/1/13				
11/1/14	Serial	915,000	3.000%	0.570%	104.505	0.30%			Matured				11/1/14				
11/1/15	Serial	940,000	3.000%	0.740%	106.398	0.42%			Matured				11/1/15				
11/1/16	Serial	970,000	3.000%	0.920%	107.882	0.52%			Matured				11/1/16				
11/1/17	Serial	1,000,000	4.500%	1.140%	115.861	0.64%			Non-Callable				11/1/17	1,000,000	254,088		1,254,088
11/1/18	Serial	1,045,000	4.500%	1.260%	118.265	0.76%			Non-Callable				11/1/18	1,045,000	463,175		1,508,175
11/1/19	Serial	1,090,000	4.500%	1.390%	120.299	0.90%			Non-Callable				11/1/19	1,090,000	416,150		1,506,150
11/1/20	Serial	1,140,000	4.500%	1.580%	121.519	1.09%			Non-Callable				11/1/20	1,140,000	367,100		1,507,100
11/1/21	Serial	1,190,000	4.000%	1.780%	118.133	1.29%			Non-Callable				11/1/21	1,190,000	315,800		1,505,800
11/1/22	Serial	1,240,000	4.000%	2.000%	117.825	1.48%			Non-Callable				11/1/22	1,240,000	268,200		1,508,200
11/1/23	Serial	1,285,000	4.000%	2.272%	116.559	1.59%			Forward Refundable		11/1/22	100%	11/1/23	1,285,000	218,600		1,503,600
11/1/24	Serial	1,335,000	4.000%	2.475%	115.596	1.64%			Forward Refundable		11/1/22	100%	11/1/24	1,335,000	167,200		1,502,200
11/1/25	Serial	1,395,000	4.000%	2.649%	114.642	1.69%			Forward Refundable		11/1/22	100%	11/1/25	1,395,000	113,800		1,508,800
11/1/26	Serial	1,450,000	4.000%	2.809%	113.603	1.75%			Forward Refundable		11/1/22	100%	11/1/26	1,450,000	58,000		1,508,000

Issuance Par: 15,965,000
Average Life: 7.96 years

Outstanding Par: 12,170,000
Average Life: 5.33 years

Purpose of Issue

Current Refunding of Series 2003A-I

Series 2003 AI

Dates

Dated Date:	12/19/12
Delivery Date:	12/19/12
Sale Date:	12/4/12
First Interest Payment:	5/1/13
First Maturity Date:	11/1/13

Sources of Funds

Par Amount:	15,965,000.00
Plus: OIP/(OID):	2,274,795.45
Total Proceeds:	18,239,795.45
Total Sources	$18,239,795.45

Uses of Funds

SLGS Escrow:	18,062,491.73
Underwriters' Discount:	91,798.75
Costs of Issuance:	85,504.97
Accrued Interest:	
Total Uses	$18,239,795.45

WV Water Development Authority

Series-by-Series Analysis

Series 2012AII (Tax-Exempt) Revenue Bonds | Underwriter: Piper Jaffray | Bond Counsel: Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
7/1/13													7/1/13				
7/1/14		510,000											7/1/14				
7/1/15		510,000											7/1/15				
7/1/16		525,000											7/1/16				
7/1/17		540,000											7/1/17				
7/1/18		560,000											7/1/18	560,000	99,600		659,600
7/1/19		570,000											7/1/19	570,000	82,650		652,650
7/1/20		590,000											7/1/20	590,000	65,250		655,250
7/1/21		610,000											7/1/21	610,000	47,250		657,250
7/1/22		530,000											7/1/22	530,000	30,150		560,150
7/1/23		550,000											7/1/23	550,000	16,700		566,700
7/1/24		560,000											7/1/24	560,000	5,600		565,600
7/1/25													7/1/25				
7/1/26													7/1/26				
7/1/27													7/1/27				
7/1/28													7/1/28				
7/1/29													7/1/29				
7/1/30													7/1/30				
7/1/31													7/1/31				
7/1/32													7/1/32				
7/1/33													7/1/33				
7/1/34													7/1/34				
7/1/35													7/1/35				
7/1/36													7/1/36				
7/1/37													7/1/37				
7/1/38													7/1/38				
7/1/39													7/1/39				

Issuance Par: 6,055,000
Average Life: 6.63 years

Outstanding Par: 3,970,000
Average Life: 4.13 years

Purpose of Issue

Current Refunding of Series 2003A-II

Series 2000 AIII
Series 2003 AII

Dates

Dated Date:	12/19/12
Delivery Date:	12/19/12
Sale Date:	12/4/12
First Interest Payment:	5/1/13
First Maturity Date:	11/1/13

Sources of Funds

Par Amount:	6,055,000.00
Plus: OIP/(OID):	384,495.80
Total Proceeds:	6,439,495.80
Liquidated DSRF:	38,814.16
Total Sources	$6,478,309.96

Uses of Funds

SLGS Escrow:	6,410,592.30
Underwriters' Discount:	34,816.25
Costs of Issuance:	32,901.41
Accrued Interest:	
Total Uses	$6,478,309.96

WV Water Development Authority

Series-by-Series Analysis

Series 2012BII (Tax-Exempt) Revenue Bonds — Underwriter: Piper Jaffray — Bond Counsel: Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
7/1/13													7/1/13				
7/1/14		565,000											7/1/14				
7/1/15		520,000											7/1/15				
7/1/16		535,000											7/1/16				
7/1/17		555,000											7/1/17				
7/1/18		565,000											7/1/18	565,000	379,075		944,075
7/1/19		580,000											7/1/19	580,000	361,900		941,900
7/1/20		605,000											7/1/20	605,000	344,125		949,125
7/1/21		620,000											7/1/21	620,000	325,750		945,750
7/1/22		635,000											7/1/22	635,000	306,925		941,925
7/1/23		655,000											7/1/23	655,000	290,850		945,850
7/1/24		670,000											7/1/24	670,000	270,900		940,900
7/1/25		695,000											7/1/25	695,000	243,600		938,600
7/1/26		725,000											7/1/26	725,000	215,200		940,200
7/1/27		750,000											7/1/27	750,000	189,450		939,450
7/1/28		775,000											7/1/28	775,000	166,575		941,575
7/1/29		800,000											7/1/29	800,000	142,950		942,950
7/1/30		825,000											7/1/30	825,000	118,575		943,575
7/1/31		845,000											7/1/31	845,000	93,525		938,525
7/1/32		870,000											7/1/32	870,000	67,800		937,800
7/1/33		900,000											7/1/33	900,000	41,250		941,250
7/1/34		925,000											7/1/34	925,000	13,875		938,875
7/1/35													7/1/35				
7/1/36													7/1/36				
7/1/37													7/1/37				
7/1/38													7/1/38				
7/1/39													7/1/39				
7/1/40													7/1/40				

Issuance Par: 14,615,000
Average Life: 12.61 years

Outstanding Par: 12,440,000
Average Life: 9.90 years

Purpose of Issue

Current Refunding of Series 2003C-II

Series 2000 BIII
Series 2003 CII

Dates

Dated Date:	12/19/12
Delivery Date:	12/19/12
Sale Date:	12/4/12
First Interest Payment:	5/1/13
First Maturity Date:	11/1/13

Sources of Funds

Par Amount:	14,615,000.00
Plus: OIP/(OID):	600,556.95
Total Proceeds:	15,215,556.95
Liquidated DSRF:	274,483.27
Total Sources	$15,490,040.22

Uses of Funds

SLGS Escrow:	15,328,044.32
Underwriters' Discount:	84,036.25
Costs of Issuance:	77,959.65
Accrued Interest:	
Total Uses	$15,490,040.22

WV Water Development Authority

Series-by-Series Analysis

Series 2012AIII (Tax-Exempt) Revenue Bonds — Underwriter: Piper Jaffray — Bond Counsel: Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
7/1/13	Serial	140,000	3.000%	0.801%	101.168	0.20%			Matured				7/1/13				
7/1/14	Serial	385,000	3.000%	1.000%	103.035	0.30%			Matured				7/1/14				
7/1/15	Serial	390,000	3.000%	1.220%	104.425	0.42%			Matured				7/1/15				
7/1/16	Serial	405,000	3.000%	1.420%	105.424	0.52%			Matured				7/1/16				
7/1/17	Serial	420,000	3.000%	0.695%	110.269	0.64%			Non-Callable				7/1/17	420,000	220,425		640,425
7/1/18	Serial	440,000	3.000%	0.870%	111.480	0.76%			Non-Callable				7/1/18	440,000	428,250		868,250
7/1/19	Serial	455,000	3.000%	1.005%	112.581	0.90%			Non-Callable				7/1/19	455,000	415,050		870,050
7/1/20	Serial	475,000	3.000%	1.197%	112.950	1.09%			Non-Callable				7/1/20	475,000	401,400		876,400
7/1/21	Serial	490,000	3.000%	1.397%	112.854	1.29%			Non-Callable				7/1/21	490,000	387,150		877,150
7/1/22	Serial	515,000	3.000%	1.585%	112.471	1.48%			Non-Callable				7/1/22	515,000	372,450		887,450
7/1/23	Term 27	530,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/23	530,000	357,000		887,000
7/1/24	Term 27	545,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/24	545,000	341,100		886,100
7/1/25	Term 27	570,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/25	570,000	324,750		894,750
7/1/26	Term 27	580,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/26	580,000	307,650		887,650
7/1/27	Term 27	600,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/27	600,000	290,250		890,250
7/1/28	Term 33	625,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/28	625,000	272,250		897,250
7/1/29	Term 33	640,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/29	640,000	253,500		893,500
7/1/30	Term 33	660,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/30	660,000	234,300		894,300
7/1/31	Term 33	685,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/31	685,000	214,500		899,500
7/1/32	Term 33	710,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/32	710,000	193,950		903,950
7/1/33	Term 33	730,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/33	730,000	172,650		902,650
7/1/34	Term 39	760,000	3.000%	3.046%	99.166	2.45%			Forward Refundable		7/1/22	100%	7/1/34	760,000	150,750		910,750
7/1/35	Term 39	790,000	3.000%	3.046%	99.166	2.45%			Forward Refundable		7/1/22	100%	7/1/35	790,000	127,950		917,950
7/1/36	Term 39	820,000	3.000%	3.046%	99.166	2.45%			Forward Refundable		7/1/22	100%	7/1/36	820,000	104,250		924,250
7/1/37	Term 39	855,000	3.000%	3.046%	99.166	2.45%			Forward Refundable		7/1/22	100%	7/1/37	855,000	79,650		934,650
7/1/38	Term 39	885,000	3.000%	3.046%	99.166	2.45%			Forward Refundable		7/1/22	100%	7/1/38	885,000	54,000		939,000
7/1/39	Term 39	915,000	3.000%	3.046%	99.166	2.45%			Forward Refundable		7/1/22	100%	7/1/39	915,000	27,450		942,450

Issuance Par: 16,015,000
Average Life: 15.82 years

Outstanding Par: 14,695,000
Average Life: 12.65 years

Purpose of Issue

Current Refunding of Series 2000AIII and 2000BIII

Series 2000 AIII

Dates

Dated Date:	12/19/12
Delivery Date:	12/19/12
Sale Date:	12/4/12
First Interest Payment:	7/1/13
First Maturity Date:	7/1/13

Sources of Funds

Par Amount:	16,015,000.00
Plus: OIP/(OID):	274,910.00
Total Proceeds:	16,289,910.00
Liquidated DSRF:	505,065.63
Total Sources	$16,794,975.63

Uses of Funds

SLGS Escrow:	16,621,309.19
Underwriters' Discount:	104,097.50
Costs of Issuance:	69,679.14
Accrued Interest:	
Total Uses	$16,795,085.83

WV Water Development Authority

Series-by-Series Analysis

Series 2012BIII (Tax-Exempt) Revenue Bonds | Underwriter Piper Jaffray | Bond Counsel Jackson Kelly

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
7/1/13	Serial	110,000	3.000%	1.794%	100.637	0.20%			Matured				7/1/13				
7/1/14	Serial	245,000	3.000%	1.990%	101.517	0.30%			Matured				7/1/14				
7/1/15	Serial	245,000	3.000%	2.209%	101.938	0.42%			Matured				7/1/15				
7/1/16	Serial	250,000	3.000%	2.409%	101.990	0.52%			Matured				7/1/16				
7/1/17	Serial	255,000	3.000%	2.631%	101.565	0.64%			Non-Callable				7/1/17	255,000	133,875		388,875
7/1/18	Serial	260,000	3.000%	1.810%	106.238	0.76%			Non-Callable				7/1/18	260,000	260,100		520,100
7/1/19	Serial	265,000	3.000%	1.940%	106.473	0.90%			Non-Callable				7/1/19	265,000	252,300		517,300
7/1/20	Serial	270,000	3.000%	2.130%	106.024	1.09%			Non-Callable				7/1/20	270,000	244,350		514,350
7/1/21	Serial	285,000	3.000%	2.330%	105.156	1.29%			Non-Callable				7/1/21	285,000	236,250		521,250
7/1/22	Serial	295,000	3.000%	2.520%	104.043	1.48%			Non-Callable				7/1/22	295,000	227,700		522,700
7/1/23	Term 27	305,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/23	305,000	218,850		523,850
7/1/24	Term 27	310,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/24	310,000	209,700		519,700
7/1/25	Term 27	320,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/25	320,000	200,400		520,400
7/1/26	Term 27	330,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/26	330,000	190,800		520,800
7/1/27	Term 27	345,000	3.000%	3.104%	98.787	1.81%			Forward Refundable		7/1/22	100%	7/1/27	345,000	180,900		525,900
7/1/28	Term 33	350,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/28	350,000	170,550		520,550
7/1/29	Term 33	365,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/29	365,000	160,050		525,050
7/1/30	Term 33	375,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/30	375,000	149,100		524,100
7/1/31	Term 33	395,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/31	395,000	137,850		532,850
7/1/32	Term 33	400,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/32	400,000	126,000		526,000
7/1/33	Term 33	420,000	3.000%	3.067%	98.986	2.17%			Forward Refundable		7/1/22	100%	7/1/33	420,000	114,000		534,000
7/1/34	Term 40	435,000	3.000%	3.055%	98.980	2.46%			Forward Refundable		7/1/22	100%	7/1/34	435,000	101,400		536,400
7/1/35	Term 40	450,000	3.000%	3.055%	98.980	2.46%			Forward Refundable		7/1/22	100%	7/1/35	450,000	88,350		538,350
7/1/36	Term 40	465,000	3.000%	3.055%	98.980	2.46%			Forward Refundable		7/1/22	100%	7/1/36	465,000	74,850		539,850
7/1/37	Term 40	480,000	3.000%	3.055%	98.980	2.46%			Forward Refundable		7/1/22	100%	7/1/37	480,000	60,900		540,900
7/1/38	Term 40	500,000	3.000%	3.055%	98.980	2.46%			Forward Refundable		7/1/22	100%	7/1/38	500,000	46,500		546,500
7/1/39	Term 40	515,000	3.000%	3.055%	98.980	2.46%			Forward Refundable		7/1/22	100%	7/1/39	515,000	31,500		546,500
7/1/40	Term 40	535,000	3.000%	3.055%	98.980	2.46%			Forward Refundable		7/1/22	100%	7/1/40	535,000	16,050		551,050

Issuance Par: 9,775,000
Average Life: 16.27 years

Outstanding Par: 8,925,000
Average Life: 13.22 years

Purpose of Issue

Current Refunding of Series 2000AIII and 2000BIII

Series 2000 BIII

Dates

Dated Date:	12/19/12
Delivery Date:	12/19/12
Sale Date:	12/4/12
First Interest Payment:	7/1/13
First Maturity Date:	7/1/13

Sources of Funds

Par Amount:	9,775,000.00
Plus: OIP/(OID):	17,011.70
Total Proceeds:	9,792,011.70
Liquidated DSRF:	273,290.63
Total Sources	$10,065,302.33

Uses of Funds

SLGS Escrow:	9,958,225.79
Underwriters' Discount:	63,537.50
Costs of Issuance:	43,607.59
Accrued Interest:	
Total Uses	$10,065,370.88

WV Water Development Authority

Series-by-Series Analysis

Series 2013AII (Tax-Exempt) Revenue Bonds — Underwriter: Piper Jaffray — Bond Counsel: Jackson Kelly PLLC

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
11/1/14	Serial	2,560,000	2.000%	0.240%	101.693	0.18%			Matured				11/1/14				
11/1/15	Serial	2,535,000	3.000%	0.430%	105.020	0.18%			Matured				11/1/15				
11/1/16	Serial	2,615,000	4.000%	0.650%	109.817	0.18%			Matured				11/1/16				
11/1/17	Serial	2,740,000	3.000%	1.090%	107.389	0.18%			Non-Callable				11/1/17	2,740,000	650,519		3,390,519
11/1/18	Serial	2,810,000	2.000%	1.420%	102.770	0.18%			Non-Callable				11/1/18	2,810,000	1,218,838		4,028,838
11/1/19	Serial	2,530,000	4.000%	1.830%	112.207	0.18%			Non-Callable				11/1/19	2,530,000	1,162,638		3,692,638
11/1/20	Serial	2,175,000	4.000%	2.210%	111.494	0.18%			Non-Callable				11/1/20	2,175,000	1,061,438		3,236,438
11/1/21	Serial	2,275,000	5.000%	2.560%	117.477	0.18%			Non-Callable				11/1/21	2,275,000	974,438		3,249,438
11/1/22	Serial	2,395,000	5.000%	2.740%	117.853	0.18%			Non-Callable				11/1/22	2,395,000	860,688		3,255,688
11/1/23	Serial	2,530,000	5.000%	2.910%	117.963	0.18%			Non-Callable				11/1/23	2,530,000	740,938		3,270,938
11/1/24	Serial	2,655,000	3.000%	3.200%	98.162	0.18%			Forward Refundable		11/1/23	100%	11/1/24	2,655,000	614,438		3,269,438
11/1/25	Serial	2,380,000	3.250%	3.430%	98.244	0.18%			Forward Refundable		11/1/23	100%	11/1/25	2,380,000	534,788		2,914,788
11/1/26	Serial	2,455,000	5.000%	3.560%	111.989	0.18%			Forward Refundable		11/1/23	100%	11/1/26	2,455,000	457,438		2,912,438
11/1/27	Serial	2,525,000	5.000%	3.710%	110.662	0.18%			Forward Refundable		11/1/23	100%	11/1/27	2,525,000	334,688		2,859,688
11/1/28	Serial	1,665,000	3.750%	3.950%	97.755	0.18%			Forward Refundable		11/1/23	100%	11/1/28	2,665,000	208,438		2,873,438
11/1/28	Serial	1,000,000	5.000%	3.850%	109.440	0.18%			Forward Refundable		11/1/23	100%	11/1/28				
11/1/29	Serial	2,400,000	4.000%	4.070%	99.182	0.18%			Forward Refundable		11/1/23	100%	11/1/29	2,400,000	96,000		2,496,000

Issuance Par: 40,245,000
Average Life: 8.40 years

Outstanding Par: 32,535,000
Average Life: 6.44 years

Purpose of Issue

Current refund 2003 Series B and 2003 Series D

Series 2003 BII
Series 2003 DII

Dates

Dated Date:	11/14/13
Delivery Date:	11/14/13
Sale Date:	10/29/13
First Interest Payment:	5/1/14
First Maturity Date:	11/1/14

Sources of Funds

Par Amount:	40,245,000.00
Plus: OIP/(OID):	3,056,427.05
Total Proceeds:	43,301,427.05
Liquidated DSRF:	850,353.74
Total Sources	$44,151,780.79

Uses of Funds

SLGS Escrow:	43,761,671.43
Underwriters' Discount:	209,985.00
Costs of Issuance:	180,124.36
Accrued Interest:	
Total Uses	$44,151,780.79

WV Water Development Authority

Series-by-Series Analysis

Series 2014A (Tax-Exempt) Revenue Bonds Underwriter Citigroup Bond Counsel Jackson Kelly PLL

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
7/1/15	Serial	3,315,000	5.000%	0.150%	103.432	0.18%			Matured				7/1/15				
7/1/16	Serial	2,375,000	5.000%	0.370%	107.876	0.18%			Matured				7/1/16				
7/1/17	Serial	2,490,000	5.000%	0.640%	111.687	0.18%			Non-Callable				7/1/17	2,490,000	1,752,500		4,242,500
7/1/18	Serial	2,615,000	5.000%	0.950%	114.721	0.18%			Non-Callable				7/1/18	2,615,000	3,380,500		5,995,500
7/1/19	Serial	2,750,000	5.000%	1.290%	116.893	0.18%			Non-Callable				7/1/19	2,750,000	3,249,750		5,999,750
7/1/20	Serial	2,885,000	5.000%	1.600%	118.475	0.18%			Non-Callable				7/1/20	2,885,000	3,112,250		5,997,250
7/1/21	Serial	3,030,000	5.000%	1.880%	119.574	0.18%			Non-Callable				7/1/21	3,030,000	2,968,000		5,998,000
7/1/22	Serial	3,180,000	5.000%	2.190%	119.828	0.18%			Non-Callable				7/1/22	3,180,000	2,816,500		5,996,500
7/1/23	Serial	3,340,000	5.000%	2.410%	120.232	0.18%			Non-Callable				7/1/23	3,340,000	2,657,500		5,997,500
7/1/24	Serial	3,505,000	5.000%	2.510%	121.331	0.18%			Non-Callable				7/1/24	3,505,000	2,490,500		5,995,500
7/1/25	Serial	3,680,000	5.000%	2.620%	120.280	0.18%			Advance Refundable		7/1/24	100%	7/1/25	3,680,000	2,315,250		5,995,250
7/1/26	Serial	3,865,000	5.000%	2.720%	119.334	0.18%			Advance Refundable		7/1/24	100%	7/1/26	3,865,000	2,131,250		5,996,250
7/1/27	Serial	4,060,000	5.000%	2.800%	118.584	0.18%			Advance Refundable		7/1/24	100%	7/1/27	4,060,000	1,938,000		5,998,000
7/1/28	Serial	4,260,000	5.000%	2.900%	117.653	0.18%			Advance Refundable		7/1/24	100%	7/1/28	4,260,000	1,735,000		5,995,000
7/1/29	Serial	4,475,000	5.000%	2.970%	117.007	0.18%			Advance Refundable		7/1/24	100%	7/1/29	4,475,000	1,522,000		5,997,000
7/1/30	Serial	4,700,000	5.000%	3.040%	116.366	0.18%			Advance Refundable		7/1/24	100%	7/1/30	4,700,000	1,298,250		5,998,250
7/1/31	Serial	4,935,000	5.000%	3.100%	115.819	0.18%			Advance Refundable		7/1/24	100%	7/1/31	4,935,000	1,063,250		5,998,250
7/1/32	Serial	5,180,000	5.000%	3.160%	115.275	0.18%			Advance Refundable		7/1/24	100%	7/1/32	5,180,000	816,500		5,996,500
7/1/33	Serial	5,440,000	5.000%	3.210%	114.824	0.18%			Advance Refundable		7/1/24	100%	7/1/33	5,440,000	557,500		5,997,500
7/1/34	Serial	5,710,000	5.000%	3.260%	114.376	0.18%			Advance Refundable		7/1/24	100%	7/1/34	5,710,000	285,500		5,995,500

Issuance Par: 75,790,000
Average Life: 11.65 years

Outstanding Par: 70,100,000
Average Life: 9.95 years

Purpose of Issue	Dates	Sources of Funds	Uses of Funds
Provide grants to government instrumentalities for project costs	Dated Date: 10/16/14 Delivery Date: 10/16/14 Sale Date: 9/24/14 First Interest Payment: 1/1/15 First Maturity Date: 7/1/15	Par Amount: 75,790,000.00 Plus: OIP/(OID): 12,350,934.85 Total Proceeds: 88,140,934.85 Total Sources $88,140,934.85	Project Fund: 87,536,368.13 Costs of Issuance: 604,566.72 Accrued Interest: Total Uses $88,140,934.85

WV Water Development Authority

Series-by-Series Analysis

Series 2016A (Tax-Exempt) Revenue Bonds Underwriter: Piper Jaffray Bond Counsel: Jackson Kelly PLL

Bond Date	Bond Comp	Bond Par Amount	Bond Price Coupon	Bond Price Yield	Bond Price Price	Bond Price MMD	Bond Insurance Insurer	Bond Insurance Prem	Redemption Status	Redemption Date	Optional Date	Optional Price	Outstanding Bond Year Debt Service as of 5/5/17 Year	Principal	Int./Accr.	Fee	Net Debt
10/1/17	Serial	2,875,000	2.000%	1.241%	100.587	0.18%			Non-Callable				10/1/17	2,875,000	1,703,050		4,578,050
10/1/18	Serial	2,130,000	3.000%	1.630%	102.393	0.18%			Non-Callable				10/1/18	2,130,000	3,348,600		5,478,600
10/1/19	Serial	2,830,000	4.000%	1.940%	105.547	0.18%			Non-Callable				10/1/19	2,830,000	3,284,700		6,114,700
10/1/20	Serial	3,010,000	4.000%	2.190%	106.530	0.18%			Non-Callable				10/1/20	3,010,000	3,171,500		6,181,500
10/1/21	Serial	3,225,000	5.000%	2.450%	111.433	0.18%			Non-Callable				10/1/21	3,225,000	3,051,100		6,276,100
10/1/22	Serial	3,230,000	5.000%	2.610%	112.742	0.18%			Non-Callable				10/1/22	3,230,000	2,889,850		6,119,850
10/1/23	Serial	3,330,000	5.000%	2.800%	113.496	0.18%			Non-Callable				10/1/23	3,330,000	2,728,350		6,058,350
10/1/24	Serial	2,205,000	5.000%	3.010%	113.707	0.18%			Non-Callable				10/1/24	2,205,000	2,561,850		4,766,850
10/1/25	Serial	2,315,000	5.000%	3.190%	113.761	0.18%			Non-Callable				10/1/25	2,315,000	2,451,600		4,766,600
10/1/26	Serial	2,435,000	5.000%	3.340%	113.748	0.18%			Non-Callable				10/1/26	2,435,000	2,335,850		4,770,850
10/1/27	Serial	2,550,000	5.000%	3.572%	112.680	0.18%			Forward Refundable		10/1/26	100%	10/1/27	2,550,000	2,214,100		4,764,100
10/1/28	Serial	2,595,000	5.000%	3.734%	111.975	0.18%			Forward Refundable		10/1/26	100%	10/1/28	2,595,000	2,086,600		4,681,600
10/1/29	Serial	2,605,000	5.000%	3.881%	111.189	0.18%			Forward Refundable		10/1/26	100%	10/1/29	2,605,000	1,956,850		4,561,850
10/1/30	Serial	2,740,000	5.000%	3.986%	110.668	0.18%			Forward Refundable		10/1/26	100%	10/1/30	2,740,000	1,826,600		4,566,600
10/1/31	Serial	2,735,000	5.000%	4.078%	110.150	0.18%			Forward Refundable		10/1/26	100%	10/1/31	2,735,000	1,689,600		4,424,600
10/1/32	Serial	2,865,000	5.000%	4.168%	109.549	0.18%			Forward Refundable		10/1/26	100%	10/1/32	2,865,000	1,552,850		4,417,850
10/1/33	erm_203	3,010,000	5.000%	4.370%	108.275	0.18%			Forward Refundable		10/1/26	100%	10/1/33	3,010,000	1,409,600		4,419,600
10/1/34	erm_203	3,155,000	5.000%	4.370%	108.275	0.18%			Forward Refundable		10/1/26	100%	10/1/34	3,155,000	1,259,100		4,414,100
10/1/35	erm_203	3,315,000	5.000%	4.370%	108.275	0.18%			Forward Refundable		10/1/26	100%	10/1/35	3,315,000	1,101,350		4,416,350
10/1/36	erm_203	3,465,000	5.000%	4.370%	108.275	0.18%			Forward Refundable		10/1/26	100%	10/1/36	3,465,000	935,600		4,400,600
10/1/37	erm_204	3,515,000	4.000%	4.190%	97.083	0.18%			Forward Refundable		10/1/26	100%	10/1/37	3,515,000	762,350		4,277,350
10/1/38	erm_204	2,985,000	4.000%	4.190%	97.083	0.18%			Forward Refundable		10/1/26	100%	10/1/38	2,985,000	621,750		3,606,750
10/1/39	erm_204	2,265,000	4.000%	4.190%	97.083	0.18%			Forward Refundable		10/1/26	100%	10/1/39	2,265,000	502,350		2,767,350
10/1/40	erm_204	1,715,000	4.000%	4.190%	97.083	0.18%			Forward Refundable		10/1/26	100%	10/1/40	1,715,000	411,750		2,126,750
10/1/41	erm_204	1,785,000	4.000%	4.190%	97.083	0.18%			Forward Refundable		10/1/26	100%	10/1/41	1,785,000	343,150		2,128,150
10/1/42	erm_204	1,855,000	5.000%	4.549%	107.185	0.18%			Forward Refundable		10/1/26	100%	10/1/42	1,855,000	271,750		2,126,750
10/1/43	erm_204	1,545,000	5.000%	4.549%	107.185	0.18%			Forward Refundable		10/1/26	100%	10/1/43	1,545,000	179,000		1,724,000
10/1/44	erm_204	1,260,000	5.000%	4.549%	107.185	0.18%			Forward Refundable		10/1/26	100%	10/1/44	1,260,000	101,750		1,361,750
10/1/45	erm_204	775,000	5.000%	4.549%	107.185	0.18%			Forward Refundable		10/1/26	100%	10/1/45	775,000	38,750		813,750

Issuance Par: 74,320,000
Average Life: 13.68 years

Outstanding Par: 74,320,000
Average Life: 13.30 years

Purpose of Issue	Dates		Sources of Funds		Uses of Funds	
Current refund Series 2006A, 2006B, 2007A	Dated Date:	12/20/16	Par Amount:	74,320,000.00	SLGS Escrow:	79,696,939.45
	Delivery Date:	12/20/16	Plus: OIP/(OID):	5,479,630.90		
Series 2005 A-II	Sale Date:	11/30/16	Total Proceeds:	79,799,630.90		
Series 2005 B-II					Underwriters' Discount:	334,440.00
Series 2006 A-II	First Interest Payment:	4/1/17			Costs of Issuance:	187,211.17
Series 2006A	First Maturity Date:	10/1/17	Liquidated DSRF:	418,959.72		
Series 2006B						
Series 2007A					Accrued Interest:	
			Total Sources	$80,218,590.62	Total Uses	$80,218,590.62

WV Water Development Authority

Series-by-Series Analysis

Series 2016AII (Tax-Exempt) Revenue Bonds | Underwriter: Piper Jaffray | Bond Counsel: Jackson Kelly PLLC

Bond			Bond Price				Bond Insurance		Redemption		Optional		Outstanding Bond Year Debt Service as of 5/5/17				
Date	Comp	Par Amount	Coupon	Yield	Price	MMD	Insurer	Prem	Status	Date	Date	Price	Year	Principal	Int./Accr.	Fee	Net Debt
11/1/17	Serial	1,390,000	2.000%	1.111%	100.762	0.18%			Non-Callable				11/1/17	1,390,000	934,681		2,324,681
11/1/18	Serial	1,140,000	3.000%	1.470%	102.801	0.18%			Non-Callable				11/1/18	1,140,000	1,841,563		2,981,563
11/1/19	Serial	1,500,000	4.000%	1.770%	106.198	0.18%			Non-Callable				11/1/19	1,500,000	1,807,363		3,307,363
11/1/20	Serial	2,015,000	3.000%	2.000%	103.699	0.18%			Non-Callable				11/1/20	2,015,000	1,747,363		3,762,363
11/1/21	Serial	500,000	2.500%	2.260%	101.098	0.18%			Non-Callable				11/1/21	2,165,000	1,686,913		3,851,913
11/1/21	Serial	1,665,000	5.000%	2.260%	112.550	0.18%			Non-Callable				11/1/21				
11/1/22	Serial	500,000	2.750%	2.430%	101.737	0.18%			Non-Callable				11/1/22	2,250,000	1,591,163		3,841,163
11/1/22	Serial	1,750,000	5.000%	2.430%	113.963	0.18%			Non-Callable				11/1/22				
11/1/23	Serial	200,000	3.000%	2.610%	102.434	0.18%			Non-Callable				11/1/23	2,335,000	1,489,913		3,824,913
11/1/23	Serial	2,135,000	5.000%	2.610%	114.927	0.18%			Non-Callable				11/1/23				
11/1/24	Serial	2,420,000	5.000%	2.790%	115.504	0.18%			Non-Callable				11/1/24	2,420,000	1,377,163		3,797,163
11/1/25	Serial	2,895,000	5.000%	2.950%	115.883	0.18%			Non-Callable				11/1/25	2,895,000	1,256,163		4,151,163
11/1/26	Serial	2,875,000	5.000%	3.080%	116.221	0.18%			Non-Callable				11/1/26	2,875,000	1,111,413		3,986,413
11/1/27	Serial	2,865,000	3.000%	3.230%	97.904	0.18%			Forward Refundable		11/1/26	100%	11/1/27	2,865,000	967,663		3,832,663
11/1/28	Serial	2,930,000	3.125%	3.290%	98.387	0.18%			Forward Refundable		11/1/26	100%	11/1/28	2,930,000	881,713		3,811,713
11/1/29	Serial	3,020,000	5.000%	3.674%	113.488	0.18%			Forward Refundable		11/1/26	100%	11/1/29	3,020,000	790,150		3,810,150
11/1/30	Term_2033	3,050,000	3.000%	2.185%	111.445	0.18%			Forward Refundable		11/1/26	100%	11/1/30	3,050,000	639,150		3,689,150
11/1/31	Term_2033	3,200,000	3.000%	2.185%	111.445	0.18%			Forward Refundable		11/1/26	100%	11/1/31	3,200,000	547,650		3,747,650
11/1/32	Term_2033	2,400,000	3.000%	2.185%	111.445	0.18%			Forward Refundable		11/1/26	100%	11/1/32	2,400,000	451,650		2,851,650
11/1/33	Term_2033	2,485,000	3.000%	2.185%	111.445	0.18%			Forward Refundable		11/1/26	100%	11/1/33	2,485,000	379,650		2,864,650
11/1/34	Term_2039	1,615,000	3.000%	3.061%	99.000	0.18%			Forward Refundable		11/1/26	100%	11/1/34	1,615,000	305,100		1,920,100
11/1/35	Term_2039	1,680,000	3.000%	3.061%	99.000	0.18%			Forward Refundable		11/1/26	100%	11/1/35	1,680,000	256,650		1,936,650
11/1/36	Term_2039	1,745,000	3.000%	3.061%	99.000	0.18%			Forward Refundable		11/1/26	100%	11/1/36	1,745,000	206,250		1,951,250
11/1/37	Term_2039	1,815,000	3.000%	3.061%	99.000	0.18%			Forward Refundable		11/1/26	100%	11/1/37	1,815,000	153,900		1,968,900
11/1/38	Term_2039	1,835,000	3.000%	3.061%	99.000	0.18%			Forward Refundable		11/1/26	100%	11/1/38	1,835,000	99,450		1,934,450
11/1/39	Term_2039	1,480,000	3.000%	3.061%	99.000	0.18%			Forward Refundable		11/1/26	100%	11/1/39	1,480,000	44,400		1,524,400

Issuance Par: 51,105,000
Average Life: 11.93 years

Outstanding Par: 51,105,000
Average Life: 11.56 years

Purpose of Issue

Current refund Series 2005AII, 2005BII, 2006AII

Series 2005 A-II
Series 2005 B-II
Series 2006 A-II

Dates

Dated Date:	12/20/16
Delivery Date:	12/20/16
Sale Date:	12/7/16
First Interest Payment:	5/1/17
First Maturity Date:	11/1/17

Sources of Funds

Par Amount:	51,105,000.00
Plus: OIP/(OID):	3,775,162.95
Total Proceeds:	54,880,162.95
Liquidated DSRF:	843,382.96
Total Sources	$55,723,545.91

Uses of Funds

SLGS Escrow:	55,280,535.71
Underwriters' Discount:	268,301.25
Costs of Issuance:	174,708.95
Accrued Interest:	
Total Uses	$55,723,545.91

Appendix B: Refunding Analysis

State of West Virginia, General Obligation Bonds
Refunding Opportunities
Maturity by Maturity Savings Analysis

Maturities Ranked by Savings as a Percentage of Refunded Par

Description		Dates	Issue Amount	Issue Price	Call Provisions		Yields			Refunding Costs			Savings			Option Value (5)			Cumulative Results						
Series	Component	Maturity	Par Amount	Coupon	Date	Price	Bond (1)	SLGS (2)	Escrow	Escrow Cost	Arbitrage	NA % of PV Svgs	Gross	PV (3)	% of Par (4)	PV (3)	% Refunded Par	Svgs as %	Refunded Par	Refunding Par	PV Savings	% of Par (4)	Arbitrage	NA % of PV Svgs	#
2010A Refund	Serial	6/1/2023	7,590,000	4.000%	6/1/2020	100.0%	1.735%	1.450%	1.450%	8,185,694	(63,243)	16.68%	352,083	361,247	4.760%	342,489	4.51%	105.477%	7,590,000	6,924,471	361,247	4.760%	(63,243)	(16.68%)	1
2010A Refund	Serial	6/1/2022	7,300,000	4.000%	6/1/2020	100.0%	1.575%	1.450%	1.450%	7,872,934	(25,510)	10.10%	229,090	252,462	3.458%	228,058	3.12%	110.701%	14,890,000	13,704,002	613,708	4.122%	(85,753)	(13.97%)	2
2010A Refund	Serial	6/1/2021	7,015,000	4.000%	6/1/2020	100.0%	1.407%	1.450%	1.407%	7,574,052			87,457	115,649	1.706%	96,139	1.37%	124.455%	21,905,000	20,366,024	733,358	3.348%	(85,753)	(11.69%)	3
2015A Infrastructure Refund	Serial	11/1/2025	8,850,000	3.000%	11/1/2025	100.0%	2.115%	2.250%	2.115%	9,522,937			(1,805)	(63,562)	(0.718%)	NC	0.0%	NC	30,755,000	28,253,755	669,796	2.178%	(85,753)	(12.80%)	4
2015A Infrastructure Refund	Serial	11/1/2024	8,445,000	3.000%	11/1/2024	100.0%	1.905%	2.170%	1.905%	9,146,045			(21,599)	(61,457)	(0.728%)	NC	0.0%	NC	39,200,000	35,885,699	608,339	1.552%	(85,753)	(14.10%)	5
2017A Infrastructure Refund	Serial	11/1/2019	4,430,000	2.000%	11/1/2019	100.0%	1.110%	1.340%	1.110%	4,543,660			(32,918)	(33,942)	(0.766%)	NC	0.0%	NC	43,630,000	40,112,242	574,397	1.317%	(85,753)	(14.93%)	6
2010A Refund	Serial	6/1/2020	6,745,000	4.000%	6/1/2020	100.0%	1.253%	1.450%	1.254%	7,311,557			(89,715)	(53,023)	(0.786%)	NC	0.0%	NC	50,375,000	46,711,477	521,374	1.035%	(85,753)	(16.45%)	7
2017A Infrastructure Refund	Serial	11/1/2018	1,860,000	2.000%	11/1/2018	100.0%	0.962%	1.130%	0.962%	1,894,732			(14,709)	(14,641)	(0.787%)	NC	0.0%	NC	52,235,000	48,535,580	506,733	0.970%	(85,753)	(16.92%)	8
2010A Refund	Serial	6/1/2019	6,485,000	4.000%	6/1/2019	100.0%	1.110%	1.260%	1.110%	6,873,659			(82,798)	(51,348)	(0.792%)	NC	0.0%	NC	58,720,000	54,929,503	455,385	0.776%	(85,753)	(18.83%)	9
2017A Infrastructure Refund	Serial	11/1/2020	4,525,000	4.000%	11/1/2020	100.0%	1.253%	1.530%	1.254%	4,969,923			(37,474)	(36,041)	(0.796%)	NC	0.0%	NC	63,245,000	59,415,236	419,343	0.663%	(85,753)	(20.45%)	10
2015A Road Refund	Serial	6/1/2018	15,985,000	5.000%	6/1/2018	100.0%	0.962%	1.050%	0.962%	16,665,768			(196,204)	(128,784)	(0.806%)	NC	0.0%	NC	79,230,000	75,459,760	290,560	0.367%	(85,753)	(29.51%)	11
2015A Road Refund	Serial	6/1/2019	10,300,000	5.000%	6/1/2019	100.0%	1.110%	1.260%	1.110%	11,121,035			(135,553)	(83,077)	(0.807%)	NC	0.0%	NC	89,530,000	85,804,620	207,483	0.232%	(85,753)	(41.33%)	12
2015A Road Refund	Serial	6/1/2020	10,815,000	5.000%	6/1/2020	100.0%	1.253%	1.450%	1.254%	12,041,866			(152,326)	(87,326)	(0.807%)	NC	0.0%	NC	100,345,000	96,673,319	120,157	0.120%	(85,753)	(71.37%)	13
2015A Road Refund	Serial	6/1/2021	11,355,000	5.000%	6/1/2021	100.0%	1.407%	1.640%	1.407%	12,981,985			(171,665)	(91,794)	(0.808%)	NC	0.0%	NC	111,700,000	108,092,076	28,362	0.025%	(85,753)	(302.35%)	14
2015A Road Refund	Serial	6/1/2022	11,920,000	5.000%	6/1/2022	100.0%	1.575%	1.830%	1.575%	13,930,033			(194,227)	(96,485)	(0.809%)	NC	0.0%	NC	123,620,000	120,087,488	(68,123)	(0.055%)	(85,753)	125.88%	15
2015A Road Refund	Serial	6/1/2023	12,520,000	5.000%	6/1/2023	100.0%	1.735%	2.000%	1.735%	14,904,014			(219,016)	(101,465)	(0.810%)	NC	0.0%	NC	136,140,000	132,695,144	(169,588)	(0.125%)	(85,753)	50.57%	16
2015A Road Refund	Serial	6/1/2024	21,040,000	5.000%	6/1/2024	100.0%	1.905%	2.130%	1.905%	25,408,709			(395,887)	(170,734)	(0.811%)	NC	0.0%	NC	157,180,000	153,897,515	(340,322)	(0.217%)	(85,753)	25.20%	17
2015A Road Refund	Serial	6/1/2025	22,090,000	5.000%	6/1/2025	100.0%	2.115%	2.220%	2.115%	26,898,822			(451,614)	(179,540)	(0.813%)	NC	0.0%	NC	179,270,000	176,177,478	(519,862)	(0.290%)	(85,753)	16.50%	18
2015A Infrastructure Refund	Serial	11/1/2021	5,350,000	5.000%	11/1/2021	100.0%	1.407%	1.720%	1.407%	6,214,382			(51,092)	(43,941)	(0.821%)	NC	0.0%	NC	184,620,000	181,643,553	(563,803)	(0.305%)	(85,753)	15.21%	19
2017A Infrastructure Refund	Serial	11/1/2021	4,700,000	5.000%	11/1/2021	100.0%	1.407%	1.720%	1.407%	5,459,363			(44,884)	(38,603)	(0.821%)	NC	0.0%	NC	189,320,000	186,445,527	(602,406)	(0.318%)	(85,753)	14.24%	20
2015A Infrastructure Refund	Serial	11/1/2020	5,130,000	5.000%	11/1/2020	100.0%	1.253%	1.530%	1.254%	5,810,272			(46,796)	(42,136)	(0.821%)	NC	0.0%	NC	194,450,000	191,689,739	(644,541)	(0.331%)	(85,753)	13.30%	21
2015A Infrastructure Refund	Serial	11/1/2022	9,180,000	5.000%	11/1/2022	100.0%	1.575%	1.900%	1.575%	10,886,990			(92,365)	(75,408)	(0.821%)	NC	0.0%	NC	203,630,000	201,064,730	(719,949)	(0.354%)	(85,753)	11.91%	22
2017A Infrastructure Refund	Serial	11/1/2022	1,400,000	5.000%	11/1/2022	100.0%	1.575%	1.900%	1.575%	1,660,325			(14,086)	(11,500)	(0.821%)	NC	0.0%	NC	205,030,000	202,494,468	(731,449)	(0.357%)	(85,753)	11.72%	23
2015A Infrastructure Refund	Serial	11/1/2019	4,920,000	5.000%	11/1/2019	100.0%	1.110%	1.340%	1.110%	5,410,508			(43,120)	(40,418)	(0.821%)	NC	0.0%	NC	209,950,000	207,527,357	(771,867)	(0.368%)	(85,753)	11.11%	24
2017A Infrastructure Refund	Serial	11/1/2023	1,490,000	5.000%	11/1/2023	100.0%	1.735%	2.060%	1.735%	1,798,142			(15,843)	(12,242)	(0.822%)	NC	0.0%	NC	211,440,000	209,048,448	(784,109)	(0.371%)	(85,753)	10.94%	25
2015A Infrastructure Refund	Serial	11/1/2023	9,575,000	5.000%	11/1/2023	100.0%	1.735%	2.060%	1.735%	11,555,174			(101,813)	(78,667)	(0.822%)	NC	0.0%	NC	221,015,000	218,823,241	(862,775)	(0.390%)	(85,753)	9.94%	26
2015A Infrastructure Refund	Serial	11/1/2018	3,210,000	5.000%	11/1/2018	100.0%	0.962%	1.130%	0.962%	3,413,471			(27,175)	(26,377)	(0.822%)	NC	0.0%	NC	224,225,000	222,109,469	(889,153)	(0.397%)	(85,753)	9.64%	27
2017A Infrastructure Refund	Serial	11/1/2024	3,110,000	5.000%	11/1/2024	100.0%	1.905%	2.170%	1.905%	3,803,706			(35,119)	(25,559)	(0.822%)	NC	0.0%	NC	227,335,000	225,283,483	(914,712)	(0.402%)	(85,753)	9.37%	28
2017A Infrastructure Refund	Serial	11/1/2025	3,265,000	5.000%	11/1/2025	100.0%	2.115%	2.250%	2.115%	4,022,404			(39,530)	(26,848)	(0.822%)	NC	0.0%	NC	230,600,000	228,615,191	(941,560)	(0.408%)	(85,753)	9.11%	29
2015A Infrastructure Refund	Serial	11/1/2026	9,005,000	5.000%	11/1/2026	100.0%	2.267%	2.310%	2.267%	11,181,749			(116,074)	(74,074)	(0.823%)	NC	0.0%	NC	239,605,000	237,802,699	(1,015,634)	(0.424%)	(85,753)	8.44%	30
2017A Infrastructure Refund	Serial	11/1/2026	3,435,000	5.000%	11/1/2026	100.0%	2.267%	2.310%	2.267%	4,265,331			(44,277)	(28,256)	(0.823%)	NC	0.0%	NC	243,040,000	241,307,317	(1,043,890)	(0.430%)	(85,753)	8.21%	31
2015A Infrastructure Refund	Serial	11/1/2017	2,300,000	4.000%	11/1/2017	100.0%	0.892%	0.810%	0.810%	2,342,841			(19,180)	(19,151)	(0.833%)	NC	0.0%	NC	245,340,000	243,652,950	(1,063,041)	(0.433%)	(85,753)	8.07%	32
1996A (Non-AMT)	Term 18	11/1/2017	2,440,000	7.625%	11/1/2017	100.0%	0.892%	0.810%	0.810%	2,529,615			(20,709)	(20,678)	(0.847%)	NC	0.0%	NC	247,780,000	246,185,579	(1,083,719)	(0.437%)	(85,753)	7.91%	33
1996A (Non-AMT)	Term 18	11/1/2018	2,590,000	7.625%	11/1/2018	100.0%	0.962%	1.130%	0.962%	2,855,503			(23,190)	(22,066)	(0.852%)	NC	0.0%	NC	250,370,000	248,934,638	(1,105,785)	(0.442%)	(85,753)	7.75%	34
1999A (Non-AMT)	Serial	11/1/2018	2,447,510	0.000%	11/1/2018	100.0%	0.962%	1.130%	0.962%	6,946,773			(52,943)	(53,681)	(2.193%)	NC	0.0%	NC	257,395,000	255,622,458	(1,159,465)	(0.450%)	(85,753)	7.40%	35
1999A (Non-AMT)	Serial	11/1/2017	2,625,816	0.000%	11/1/2017	100.0%	0.892%	0.810%	0.810%	7,065,474			(57,841)	(57,756)	(2.200%)	NC	0.0%	NC	264,470,000	262,696,351	(1,217,221)	(0.460%)	(85,753)	7.04%	36
1999A (Non-AMT)	Serial	11/1/2019	2,829,750	0.000%	11/1/2019	100.0%	1.110%	1.340%	1.110%	8,371,748			(56,096)	(62,539)	(2.210%)	NC	0.0%	NC	273,045,000	270,483,806	(1,279,760)	(0.469%)	(85,753)	6.70%	37
1999A (Non-AMT)	Serial	11/1/2020	2,695,916	0.000%	11/1/2020	100.0%	1.253%	1.530%	1.254%	8,290,354			(42,430)	(60,121)	(2.230%)	NC	0.0%	NC	281,670,000	277,966,480	(1,339,881)	(0.476%)	(85,753)	6.40%	38
1999A (Non-AMT)	Serial	11/1/2021	2,583,124	0.000%	11/1/2021	100.0%	1.407%	1.720%	1.407%	8,229,963			(22,066)	(58,193)	(2.253%)	NC	0.0%	NC	290,395,000	285,205,430	(1,398,074)	(0.481%)	(85,753)	6.13%	39
1999A (Non-AMT)	Serial	11/1/2022	2,439,741	0.000%	11/1/2022	100.0%	1.575%	1.900%	1.575%	8,022,566			6,952	(55,568)	(2.278%)	NC	0.0%	NC	299,095,000	292,113,813	(1,453,642)	(0.486%)	(85,753)	5.90%	40
1999A (Non-AMT)	Serial	11/1/2023	2,496,828	0.000%	11/1/2023	100.0%	1.735%	2.060%	1.735%	8,450,106			47,846	(57,528)	(2.304%)	NC	0.0%	NC	308,495,000	299,261,956	(1,511,170)	(0.490%)	(85,753)	5.67%	41
1999A (Non-AMT)	Serial	11/1/2024	2,364,946	0.000%	11/1/2024	100.0%	1.905%	2.170%	1.905%	8,205,707			99,117	(55,138)	(2.331%)	NC	0.0%	NC	317,895,000	306,109,232	(1,566,308)	(0.493%)	(85,753)	5.47%	42
1999A (Non-AMT)	Serial	11/1/2025	2,204,275	0.000%	11/1/2025	100.0%	2.115%	2.250%	2.115%	7,789,704			163,270	(51,993)	(2.359%)	NC	0.0%	NC	327,145,000	312,561,348	(1,618,301)	(0.495%)	(85,753)	5.30%	43
1999A (Non-AMT)	Serial	11/1/2026	2,133,054	0.000%	11/1/2026	100.0%	2.267%	2.310%	2.267%	7,686,026			240,275	(50,917)	(2.387%)	NC	0.0%	NC	336,595,000	318,876,588	(1,669,218)	(0.496%)	(85,753)	5.14%	44

(1) MMD AAA G.O. Scale plus 0.20 % as of 5/5/17.
(2) State and Local Government Series (SLGS) rates as of 5/5/17.
(3) Present Value Savings as of 9/1/17.
(4) PV Savings as a percentage of Refunded Par.
(5) Call date on refunding bonds is 11/01/2027.

West Virginia Water Development Authority
Refunding Opportunities
Maturity by Maturity Savings Analysis

Maturities Ranked by Savings as a Percentage of Refunded Par

Series	Component	Maturity	Par Amount	Coupon	Call Provisions Date	Call Provisions Price	Yields Bond (1)	Yields SLGS (2)	Yields Escrow	Escrow Cost	Arbitrage	NA % of PV Svgs	Savings Gross	Savings PV (3)	Savings % of Par (4)	PV (3)	% Refunded Par	Svgs as %	Refunded Par	Refunding Par	PV Savings	% of Par (4)	Arbitrage	NA % of PV Svgs	#
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			3
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			57
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Series 2005 B-IV	Term 24	11/1/2018	325,000	5.125%	10/1/2017	100.0%	1.182%	0.710%	0.710%	331,744			11,118	11,034	3.395%	9,935	3.06%	111.066%	40,105,000	35,937,789	5,446,603	13.581%			59
Series 2005 A-IV	Term 19	11/1/2018	655,000	5.000%	10/1/2017	100.0%	1.182%	0.710%	0.710%	668,251			21,528	21,364	3.262%	19,213	2.93%	111.195%	40,760,000	36,582,763	5,467,967	13.415%			60
Series 2014A	Serial	7/1/2027	4,060,000	5.000%	7/1/2024	100.0%	2.727%	2.130%	2.130%	4,831,072	(165,506)	777.00%	(19,915)	21,301	0.525%	196,361	4.84%	10.848%	44,820,000	40,633,536	5,489,268	12.247%	(165,506)	(3.02%)	61
Series 2014A	Serial	7/1/2026	3,865,000	5.000%	7/1/2024	100.0%	2.627%	2.130%	2.130%	4,599,038	(131,614)		(59,479)	(14,384)	(0.372%)	127,246	3.29%	(11.304%)	48,685,000	44,517,235	5,474,884	11.246%	(297,120)	(5.43%)	62
Series 2014A	Serial	7/1/2028	4,260,000	5.000%	7/1/2024	100.0%	2.827%	2.130%	2.130%	5,069,056	(202,070)		(75,232)	(18,107)	(0.425%)	258,507	6.07%	(7.005%)	52,945,000	48,802,731	5,456,776	10.306%	(499,190)	(9.15%)	63
Series 2005 B-IV	Term 24	11/1/2017	310,000	5.125%	10/1/2017	100.0%	1.102%	0.710%	0.710%	316,433			(1,621)	(1,618)	(0.522%)	NC	0.0%	NC	53,255,000	49,119,655	5,455,158	10.243%	(499,190)	(9.15%)	64
Series 2005 A-IV	Term 19	11/1/2017	625,000	5.000%	10/1/2017	100.0%	1.102%	0.710%	0.710%	637,644			(3,331)	(3,325)	(0.532%)	NC	0.0%	NC	53,880,000	49,758,289	5,451,833	10.118%	(499,190)	(9.16%)	65
Series 2014A	Serial	7/1/2025	3,680,000	5.000%	7/1/2024	100.0%	2.465%	2.130%	2.130%	4,378,903	(85,010)		(81,152)	(37,520)	(1.020%)	55,219	1.50%	(67.948%)	57,560,000	53,474,137	5,414,313	9.406%	(584,200)	(10.79%)	66
Series 2014A	Serial	7/1/2029	4,475,000	5.000%	7/1/2024	100.0%	2.925%	2.130%	2.130%	5,324,889	(241,435)		(139,238)	(61,526)	(1.375%)	309,981	6.93%	(19.848%)	62,035,000	58,012,523	5,352,786	8.629%	(825,635)	(15.42%)	67
Series 2014A	Serial	7/1/2030	4,700,000	5.000%	7/1/2024	100.0%	3.013%	2.130%	2.130%	5,592,621	(280,908)		(207,182)	(105,224)	(2.239%)	357,003	7.60%	(29.474%)	66,735,000	62,813,839	5,247,562	7.863%	(1,106,543)	(21.09%)	68
Series 2014A	Serial	7/1/2031	4,935,000	5.000%	7/1/2024	100.0%	3.092%	2.130%	2.130%	5,872,252	(320,233)		(278,374)	(148,668)	(3.013%)	401,406	8.13%	(37.037%)	71,670,000	67,887,716	5,098,895	7.114%	(1,426,777)	(27.98%)	69
Series 2014A	Serial	7/1/2032	5,180,000	5.000%	7/1/2024	100.0%	3.162%	2.130%	2.130%	6,163,782	(359,728)		(353,355)	(192,207)	(3.711%)	443,934	8.57%	(43.296%)	76,850,000	73,244,127	4,906,687	6.385%	(1,786,505)	(36.41%)	70
Series 2014A	Serial	7/1/2033	5,440,000	5.000%	7/1/2024	100.0%	3.232%	2.130%	2.130%	6,473,161	(402,465)		(438,855)	(239,931)	(4.411%)	484,436	8.91%	(49.538%)	82,290,000	78,901,743	4,666,707	5.671%	(2,188,971)	(46.91%)	71
Series 2014A	Serial	7/1/2034	5,710,000	5.000%	7/1/2024	100.0%	3.300%	2.130%	2.130%	6,794,439	(447,609)		(533,939)	(291,013)	(5.097%)	522,123	9.14%	(55.736%)	88,000,000	84,873,459	4,375,694	4.972%	(2,636,580)	(60.26%)	72

(1) MMD AAA G.O. Scale plus 0.44 % as of 5/5/17.
(2) State and Local Government Series (SLGS) rates as of 5/5/17.
(3) Present Value Savings as of 9/1/17.
(4) PV Savings as a percentage of Refunded Par.
(5) Call date on refunding bonds is 11/01/2027.

Appendix C: PFM's Response to Rating Agency Requests for Comment

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June 27, 2016

John A. Sugden
Robin L. Prunty
Sussan S. Corson
Liz E. Sweeney
Laura J. Feinland Katz
Russell J. Bryce
Standard & Poor's Ratings Services
Via E-Mail criteriacomments@standardandpoors.com

RE: Standard & Poor's Request for Comment on "U.S. State Ratings Methodology", dated May 25, 2016

Public Financial Management, Inc. ("PFM") is submitting the following in response to the above referenced Standard & Poor's ("S&P") Request for Comment.

We appreciate the opportunity to comment on S&P's proposed Methodology and Assumptions. Below you will find our feedback on the proposed methodology.

Holistic Analysis: According to the methodology, once the indicative credit level is calculated and the relevant overriding factors are applied, S&P's holistic analysis can result in improving or worsening a rating by one notch, subject to any applicable rating caps. While the methodology broadly mentions that S&P's holistic view recognizes sustained, predictable operating and financial underperformance or outperformance, this component of S&P's analytic framework for rating U.S. states could be improved through the provision of additional detail regarding the specifics of this analysis, which will increase the transparency of the methodology. The methodology states that S&P's holistic analysis "may be informed by peer analysis" without explaining how peer issuers are determined. For example, what is the basis of the determination of peers (e.g., geography, rating category, or other factors)? Furthermore, which issuer metrics are utilized in the peer comparison and what levels for these metrics constitute the categorization of outliers and other comparative levels?

Willingness to Support Debt: The methodology states that if S&P believes that there is a change in a state's willingness to support its debt, S&P will assign a rating below the indicative credit level, with the possible reduction of several rating categories. According to the proposed methodology, one factor S&P considers in its measurement of a state's willingness to support its debt is whether "state officials who are charged with funding debt…suggest an unwillingness to fund debt in accordance with the priority payment status." This measure, as proposed, is problematic in that it does not provide direct clarity regarding how S&P will determine which state officials fall into the category of being "charged with funding debt" as well as how S&P will make a determination surrounding the constitution of such a suggestion. For example, does this suggested unwillingness need to be reflected and formally communicated in official budget documents issued by a government official, or are unofficial media communications sufficient to warrant this determination? These categorizations suggest the incorporation of day-to-day politics and political gamesmanship into the rating determination process, which could be difficult to interpret and, at the very least, challenging to judge what constitutes an actual unwillingness to pay debt versus empty threats or political tactics.

The methodology also adds an additional cap if S&P determines that a lack of willingness to fund debt likely threatens a pending debt payment. The need for this additional cap is also unclear, as the majority of states pay debt service on an ongoing basis and regularly face a pending debt payment. As such, it can be assumed that any stance that suggests an unwillingness to pay debt will likely have the potential to impact a pending debt payment.

PFM suggests that S&P withdraws the proposed incorporation of what could be a highly subjective and/or political component of its criteria, or more clearly defines who it considers to be state officials responsible for debt service and what type of statements and in what context can be taken to indicate an unwillingness to support debt.

Budget Management Framework: The proposed methodology includes an assessment of a state's framework for managing the budget. While some of these indicators are quantified (e.g., "frequent (two or more times) updates during the fiscal year"), others are more subjective and nebulous (e.g., "the executive branch/budget office has what [S&P] consider[s] to be broad powers to adjust appropriations"). PFM recommends that S&P avoids adding additional methods of determining political standing and environment that do not have quantified metrics—as it stands in the proposed methodology, these qualified determinations require assumptions and interpretations that are highly subjective and undermine S&P's efforts to be more transparent. Instead, consider including clear, unambiguous indicators—for example, "the executive branch/budget office has what [S&P] consider[s] to be broad powers to adjust appropriations" becomes "the executive branch/budget office has the ability to adjust appropriations without voter approval."

Expected Future Debt/Liabilities: The proposed methodology allows for S&P to notch the indicative rating downward based on the expectation of higher future debt and liabilities. One example provided in the methodology is when a state authorizes a large debt program that S&P expects to significantly alter its current debt position. PFM believes that notching an indicative rating based on the mere authorization of a large debt program can lead to volatility in the ratings process as many states take a considerable amount of time to act on authorized debt. In addition, authorized debt programs are subject to modification or cancellation based on political considerations such as a change in the state's gubernatorial administration or legislative make-up as well as subject to changes based on broad economic factors and conditions. PFM suggests that S&P avoid taking a long-term prospective stance in this area and instead focus on the nearer term and more concrete debt issuance programs and plans.

This overriding factor also applies negative notching to the indicative credit level based on whether the state's pension funded ratio is projected to fall below a certain percentage. The methodology does

PFM

not sufficiently explain what assumptions S&P uses in determining future pension funded levels, such as what discount rate is being used, nor does it provide a timeline that this measurement will examine. Changes to underlying assumptions and timeframes over which pension funding metrics are viewed can result in wide ranging changes to the observed results of these metrics, which could lead to volatility in this metric category as well as subjective interpretations of pension funding levels.

Pension Liabilities: This methodology's assessment of pension funding discipline would benefit from additional detail to improve transparency. One of the pension funding discipline indicators compares whether the state's pension contribution is actuarially based and that the full actuarially determined contribution is usually funded. In this case it would be beneficial to know the time frame that S&P uses to assess whether the contribution is usually funded. For the indicator that assesses whether the total plan contribution is usually greater than the service cost, interest cost, and amortization components, S&P should provide additional information on how those costs and the amortization component are calculated.

We appreciate the openness of your approach and the opportunity to submit comments on the proposed methodology. We would be happy to discuss our comments in more detail at any time.

Sincerely,

Public Financial Management, Inc.
Daniel H. Kozloff
Managing Director

Appendix D: PFM's Code of Ethics

EMPLOYEE
Code of Ethics

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Purpose

Public Financial Management, Inc. (the "Company") conducts all aspects of its business with the highest standards of integrity, honesty and fair dealing. This Code of Ethics is an expression of the Company's recognition of its responsibilities to the public, clients and professional associates. The Company also requires compliance with both the letter and the spirit of the laws and regulations of the United States and jurisdictions in which the Company operates. Compliance with the law means not only following the law, but conducting our business so that we will deserve and receive recognition as good and law-abiding citizens, alert to our responsibilities in all areas of good citizenship. The Company requires that all officers, employees, consultants and representatives avoid unauthorized activities that involve or might appear to involve a conflict of interest between personal and professional relationships.

PFM

The PFM Group

Public Financial Management, Inc.
PFM Asset Management LLC
PFM Advisors

Statetment of General Policy

This Code of Ethics ("Code") shall apply to the Company, its officers and employees. This Code is not intended to be all encompassing. Situations may arise that are not expressly covered or where the proper course of action is unclear. Any employee may bring problems to the attention of a Managing Director for review. The Company's Compliance Officer is also available to assist in resolving such matters.

The Company may modify or supplement this Code from time to time, as it deems appropriate. Accordingly, all employees must review this Code at least once every year.

Any employee of the Company having information or knowledge regarding a violation, or potential violation, of this Code shall immediately report the same either to such person's Managing Director or the Company's Compliance Officer. Retaliation or reprisal of any kind against an employee who reports a violation (or, in good faith, potential violation) of this Code is strictly prohibited.

The Company may regard any employee's acts in violation of this Code to be outside the course and scope of that employee's employment. Any employee who is found to have violated this Code may be subject to immediate disciplinary action, including reassignment, demotion or, when appropriate, dismissal. Legal proceedings may also be commenced against such individual to recover the amount of any improper expenditure, any other losses which the Company may have incurred or other appropriate relief. Violators may also be prosecuted by public officials under applicable criminal statutes.

In general, this Code requires that employees:

- Avoid even the appearance of misconduct or impropriety.
- Conduct all dealings with clients, professional associates and competitors with honesty and fairness, exercising good judgment and the highest ethical standards in business or personal interactions that may reflect upon the Company in any way.
- Avoid actual or apparent conflicts of interest between personal and professional relationships, including, but not limited to, any investment, interest or association that interferes, or potentially could interfere, with independent exercise of judgment in the best interest of the Company.
- Never improperly use the assets, information or relationships of the Company for personal gain.
- Know, understand and comply with all applicable U.S. and non-U.S. laws, regulations, rules, and policies governing the conduct of the Company's business, employment issues, marketing activities and insider trading restrictions.
- Assist the Company in complying with its obligations under the U.S. federal securities laws to provide full, fair, accurate, timely and understandable disclosure in each report or other document filed with or submitted to the

Securities and Exchange Commission ("SEC"), and in any other public communication made by or on behalf of the Company.

- Ensure that all transactions are handled honestly, comply with applicable accounting principles and are accurately reported.
- Respect the right of all employees to fair treatment and equal opportunity, free from discrimination, retaliation or harassment of any type.
- Safeguard information that belongs to the Company. Treat all such information as confidential and do not disclose it outside of the Company except when specifically authorized.
- Do not improperly solicit, obtain nor disclose any proprietary data concerning clients, professional associates or competitors.
- Avoid any conduct that could potentially obstruct a government proceeding or investigation, including falsifying or failing to maintain or produce records, documents and information.

Corporate Assets, Information and Public Disclosures

Employees of the Company are responsible and accountable for the proper expenditure of funds and use of Company assets under their control, including all funds and assets entrusted to the Company's management by clients and others. The Company's assets are to be used only for proper purposes both during and following employment with the Company. Examples of improper uses include unauthorized taking or use of corporate property or other resources, and the disbursement of corporate funds, directly or indirectly, for any form of payment that is illegal or otherwise not in accordance with Company policy. Unless authorized by appropriate Company management, the sale, loan or gift of Company assets to Company employees, clients or professional associates is prohibited.

The Company and its subsidiary file periodic reports and other documents with regulatory authorities, including the SEC. Employees involved in the preparation and submission of these reports and other public disclosures must ensure that the information presented is full, fair, accurate, timely and understandable.

No employee should discuss with or otherwise inform others of any actual or contemplated security transaction by a client or the Company except in the performance of employment duties or in an official capacity and then only for the benefit of the client or the Company, as appropriate, and in no event for personal benefit or for the benefit of others.

No person should release information to dealers or brokers or others (except to those concerned with the execution of the transaction) as to any investment portfolio changes, proposed or in process, except (i) upon the completion of such changes, or (ii) when the disclosure results from the publication of a Fund prospectus, or (iii) in conjunction with a regular report to clients or to any governmental authority resulting in such information becoming public knowledge or (iv) in connection with any report to which clients are entitled.

Conflicts of Interest

Although Company employees are generally free to engage in personal financial and business transactions, there are certain limitations. No employee or Managing Director or a member of his or her family should receive improper benefits as a result of his or her position with the Company. All employees have a duty to avoid situations where their loyalties may be divided between the Company's or client's interests and their own interests. Employees should avoid even the appearance of such a conflict of interest.

While it is impossible to outline every situation that may give rise to a conflict of interest or the appearance of impropriety, the following are some examples:

- No employee or closely related family member may have an unauthorized financial interest or an obligation to a competitor, client or professional associate of the Company, where the interest or obligation might cause divided loyalty or even the appearance of divided loyalty.
- No employee may perform services as an employee, independent contractor, advisor or consultant for any competitor of the Company. No employee may perform such services independently for a client of the Company without the written approval of the Company.
- No employee may serve as a director of any competitor of the Company. No employee may serve as a director, officer or manager of any client of the Company without the written approval of the Company.
- No employee may deprive the Company of a business opportunity, or divert a business opportunity to such employee's own benefit.

Any employee of the Company seeking permission to serve on an outside board of directors must submit his or her request for a waiver of the Conflicts of Interest policy to the Compliance Officer of the Company together with a description of the company, and his or her obligations as a board member. The Chief Executive Officer of the Company will review employee requests for permission to serve on outside boards, on a case-by-case basis. The determination whether to permit such service will be based on several factors, the most important of which will be whether the employee's service as a director will be detrimental to the employee's primary obligation to the Company. Other factors to be considered include the nature of the company's business whether the obligations of a board member can be performed without interfering with the individual's job performance.

A. Dealing with Government Officials

Employees' dealings with government officials should conform to the following standards:

1. No payment should be made to, or for the benefit of, any public official in order to induce or entice such official to influence any official act; or to obtain any favorable action by a governmental agency or official on behalf of the Company.
2. Social amenities, entertainment and other courtesies may be extended to government officials or employees only to the extent appropriate and reasonable under applicable laws and customs. Gifts of greater than nominal value to public officials are prohibited. No gifts in the form of cash, stock or other similar consideration should be given, regardless of amount. Any gift about which an employee is uncertain should not be made without the written approval of the Company. Any expenses incurred by a Company employee in connection with the matters discussed herein should be accurately recorded on the Company's books and records.

B. Bribery and Kickbacks

No employee of the Company should directly or indirectly offer, give, solicit or accept any money, privilege, special benefit, gift or other item of value for the purpose of obtaining, retaining or directing business, or bestowing or receiving any kind of special or favored treatment for the Company. The Company does not permit or condone the use or receipt of bribes, kickbacks or any other illegal or improper payments in the transaction of its business.

Relationships with Competitors

Employees of the Company must be aware that there are laws protecting and promoting competition. Company employees, especially any persons having direct contact with competitors, have a clear responsibility to know and obey these laws.

Although the free enterprise system is based upon competition, rules have been imposed spelling out what can and what cannot be done in a competitive environment. The following practices can lead to liability for "unfair competition" and should be avoided:

1. Disparagement of competitors. It is not illegal to point out weaknesses in a competitor's services or operation. However, you may not spread false rumors about competitors or make misrepresentations about their businesses.
2. Disrupting a competitor's business. This includes bribing a competitor's employees, posing as prospective customers, or using deceptive practices such as enticing away another's employees in order to obtain trade secrets or destroy a competitor's organization.
3. Misrepresentation of price and product. Lies or misrepresentations about the nature, quality or character of a competitor's services are both illegal and contrary to Company policy.

The Company will compete fairly for business, respecting the rights of other parties. This includes respect for the legitimate business relationships of competitors with the Company's prospective clients.

Disclosure of Information

No employee or Managing Director of the Company should discuss with or otherwise inform others of any actual or contemplated security transaction by a client or the Company except in the performance of employment duties or in an official capacity and then only for the benefit of the client and in no event for personal benefit or for the benefit of others.

No employee or Managing Director of the Company should release information to dealers or brokers or others (except to those concerned with the execution of the transaction) as to any investment portfolio changes, proposed or in process, except (i) upon the completion of such changes, or (ii) when the disclosure results from the publication of a Fund prospectus, or (iii) in conjunction with a regular report to clients or to any governmental authority resulting in such information becoming public knowledge or (iv) in connection with any report to which clients are entitled.

Preferential Treatment, Gifts and Entertainment

treatment or any other benefit because of his or her association with a client or the Company, except those usual and normal benefits.

No person should accept any entertainment, gift or other personal benefit that may create or appear to create a conflict between the interests of such person and any client or the Company.

Inside Information

Securities laws and regulations prohibit the misuse of "inside" or "material non-public" information when trading or recommending securities. The concept of inside is broad. It includes officers, directors and employees of a company. In addition, a person can be a "temporary insider" if he or she enters into a special confidential relationship in the conduct of a client's affairs and as a result is given access to information solely for the client's purposes. A temporary insider can include, among others, a client's attorneys, accountants, consultants, financial advisors, bank lending officers, and the employees of such organizations. In addition, the Company may become a temporary insider of a client it advises or for which it performs other services. According to the Supreme Court, a client must expect the outsider to keep the disclosed nonpublic information confidential and the relationship must at least imply such a duty before the outsider will be considered an insider. Inside information may include, but is not limited to, knowledge of pending transactions or recommendations, prospective bond issuance, communications with rating agencies, and other material non-public information that could affect the price of a security. Finally, the Company because of its unique, government-oriented practice may be in possession of material non-public information with respect to pending governmental approvals, which is confidential. . All inside information should be kept secure, and access to files and computer files containing such information should be protected. Persons should not act upon or disclose material non-public or insider information except as may be necessary for legitimate business purposes on behalf of a client or the Company as appropriate. Questions and requests for assistance regarding insider information should be promptly directed to any Managing Director or the Company's Compliance Officer.

Personal Security Transactions

No person should knowingly take advantage of an opportunity of the Company or client for personal benefit, or take action inconsistent with such person's obligations to the Company or Clients. All personal securities transactions must be consistent with this Code of Ethics and must avoid any actual or potential conflict of interest or any abuse of any person's position of trust and responsibility. The following rules apply to all accounts in which a person has a beneficial interest:

- No employee should purchase or sell any security which such person knows that the Company is considering for purchase or sale, for one or more clients.
- No employee should knowingly purchase or sell a security during any period when there is an open order for the purchase or sale of that security by a client.
- No security will be purchased for a client that was issued by another client of the Company within 60 days of issuance.

When an employee places a personal securities transaction in shares of an open-end investment company, the employee should not knowingly request, direct, or authorize the transaction to be placed or executed at any price that is not consistent with the laws and regulations governing pricing of such transactions. An employee should not place any transaction intended to benefit from short-term trading of any open-end investment company security if such transaction is not consistent with the publicly disclosed policies and practices announced by that investment company, and should never engage in such a practice in any fund with which the Company is associated.

In addition to the above, portfolio trading staff and Managing Directors must:

- Disclose in writing all personal securities holdings upon commencement of employment and thereafter on an annual basis.
- Must obtain approval from the Compliance Officer before investing in an initial public offering or private placement.
- Must report to the Compliance Officer in writing all purchases or sales of any security in which they have a beneficial interest within ten days after the close of the month in which the transaction was effected (excepting those transactions resulting from an automatic investment plan or money market funds).

Drug-Free Workplace

The Company has provided to all of its employees its policy against the possession or use of any controlled substances in the Employee Handbook. Employees are expected to report any suspected violations of our drug-free workplace policy. Self-referral by an employee for rehabilitation or counseling is encouraged and will be considered in any personnel action taken regarding a violation of the Company's drug-free workplace policy. Employees are required to notify Employee Services within five (5) days if they are convicted under a criminal drug statute for a violation occurring in the workplace.

Maintaining Accurate Records

A. Time reporting and charging of costs

Employees must be particularly careful to report hours worked or compensated absences in a complete, accurate and timely manner. Employees must be particularly careful to ensure that hours worked and costs are applied to the account for which they were in fact incurred. No cost may be charged or allocated to a client if the cost is unallowable by regulation or contract provision or is otherwise improper. Employees are required to sign their own timecards.

B. Financial Records

The records of the Company are maintained in a manner that provides for an accurate and auditable record of all financial transactions in conformity with generally accepted accounting principles. No false or deceptive entries may be made and all entries must contain an appropriate description of the underlying transaction. All Company funds must be retained in corporate bank accounts and no undisclosed or unrecorded fund or asset shall be established for any purpose. All reports, vouchers, bills, invoices, payroll and service records and other essential data must be prepared with care and honesty.

Employment Practices

Our Company recognizes that its continued success depends on the development and utilization of the full range of human resources. At the foundation of this precept is equal employment opportunity. It is the continuing policy of the Company to afford equal employment opportunity to qualified individuals regardless of their race, color, religion, sex, national origin, age, physical or mental handicap, and to conform to applicable laws and regulations. This policy of equal opportunity pertains to all aspects of the employment relationship, including application and initial employment, promotion and transfer, selection for training opportunity, wage and salary administration, and the application of service, retirement, seniority and employee benefit plan policies.

It is also the policy of our Company to provide employees a work place free from any form of sexual harassment. Sexual harassment in any manner of form is expressly prohibited.

Government Investigations

It is the Company's policy generally to cooperate with law enforcement and other federal and state agencies in their investigations. However, often such investigations involve the rights of third parties such as employees and clients. For this reason, whenever police officials, or other state, federal or local law enforcement authorities or agencies conducting investigations contact you requesting information, you should notify your Managing Director. In many cases the Company will insist on a subpoena describing the requested information or documents. Most government investigators will understand the Company's position in this matter.

Reporting Violations

Strict adherence to the Company Policy and Code of Business Ethics is vital. Managing Directors are responsible for ensuring that employees adhere to the provisions of the Code. For clarification or guidance on any point, please contact the Company's Compliance Officer.

Employees are expected to report any suspected or actual violations of the Code or other irregularities to their Managing Director or the Company's Compliance Officer, either orally or in writing. No adverse action or retribution of any kind will be taken against an employee because he or she reports a suspected violation of this code or other irregularity. Such reports shall be treated confidentially to the maximum extent consistent with fair and rigorous enforcement of this Code of Business Ethics and Conduct.

Compliance and Disciplinary Action

You are responsible for understanding and complying with the legal standards in this Company Policy Code of Ethics. Your Managing Director is responsible for assisting you in understanding the legal standards discussed and being aware of the ethical quality of your business behavior. All employees to whom this Code of Ethics is distributed are required to certify from time to time that they have reviewed it, understand it, and are complying with it.

If you violate the Company's standards, the firm will take appropriate disciplinary action, up to and including termination and the referral of criminal charges. Employees who fail to disclose reportable matters, who falsify records, who knowingly make a false report, or who fail to comply with Company policy will be subject to disciplinary action.

Conclusion

The Company and its subsidiary are committed to honest and ethical conduct in all our business activities. Our Company Policy and Code of Ethics embodies the Company values. It is to be used as a tool to prevent or detect any potentially improper or ill-advised behavior, protect the Company's reputation and maintain public trust in our business. This Code of Ethics will be disseminated internally and externally as required by law.

In general, this Code of Ethics ensures that:

- There is a process for the receipt, retention and treatment of complaints received by the Company from an employee or anyone else concerning questionable action, including discipline and corrective action, if necessary.
- The process provides confidentiality and anonymity to complainants.
- Appropriate Company management is designated to oversee the ethics program, its operation and to ensure integrity and independence.
- Employees understand and must adhere to the Company's Code of Ethics and are encouraged to raise ethical issues or concerns.

Each of us has an obligation to behave at all times with honesty and propriety because such behavior is morally and legally right and because our business success and reputation for integrity depends upon the actions of each employee. This Code of Ethics outlines your major obligations, in addition to any other corporate policies currently in effort or issued hereafter. Be certain to read, understand, and adhere to this Code as you carry out your daily activities.

Acknowledgement

I have read and understand this Code of Ethics and will comply in all respects with such policies and procedures.

Name

Date

Appendix E: Evidence of Coverage Certificate

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 12/1/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Crystal & Company
Crystal IBC LLC
32 Old Slip
New York NY 10005

CONTACT NAME: Brian Rozynski
PHONE (A/C, No, Ext): 212-504-1882 FAX (A/C, No): 212-504-1899
E-MAIL ADDRESS: brian.rozynski@crystalco.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: Endurance American Specialty Insura	41718
INSURER B: XL Specialty Insurance Company	37885
INSURER C: Continental Casualty Company	20443
INSURER D: Starr Indemnity & Liability Co	38318
INSURER E: Everest National Insurance Company	10120
INSURER F:	

INSURED PUBLFI
PFM Financial Advisors LLC
1735 Market Street
43rd Floor
Philadelphia PA 19103

COVERAGES CERTIFICATE NUMBER: 1709006975 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / PRO-JECT / LOC OTHER:						EACH OCCURRENCE	$
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
							PRODUCTS - COMP/OP AGG	$
								$
	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS / SCHEDULED AUTOS HIRED AUTOS / NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident)	$
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
D E	UMBRELLA LIAB / OCCUR EXCESS LIAB / CLAIMS-MADE DED / RETENTION $			1000057499161 FL5ML00220161	11/30/2016 11/30/2016	11/30/2017 11/30/2017	EACH OCCURRENCE	$
							AGGREGATE	$
								$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A					PER STATUTE / OTH-ER	
							E.L. EACH ACCIDENT	$
							E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A B C	Professional Liability			FIP10008161701 ELU14750016 596398650	11/30/2016 11/30/2016 11/30/2016	11/30/2017 11/30/2017 11/30/2017	Limit of Liability	$30,000,000 Aggregate Limit

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Evidence of coverage only.

THE PROFESSIONAL LIABILITY POLICY IS NON-CANCELABLE BY THE INSURER EXCEPT FOR NON-PAYMENT OF PREMIUM.

CERTIFICATE HOLDER

PFM Financial Advisors LLC
1735 Market Street
43rd Floor
Philadelphia PA 19103

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Crystal & Company