SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Audit of Investment Management

Project #23-13

Prepared by
Office of the Inspector General

J. Timothy Beirnes, CPA, Inspector General
Jo Polinisse, CPA, Lead Consulting Auditor

sfwmd.gov

April 10, 2025

Governing Board Members

Re: Audit of Investment Management
Project No. 23-13

This audit was performed pursuant to the Inspector General's authority set forth in Chapter 20.055, F.S. Our audit objective primarily focused on determining whether adequate internal controls related to investment management are in place and functioning properly to ensure that investment purchases are made in accordance with the Investment and Banking Policy and properly recorded in District's financial records. Josenie Polinisse and I prepared this report.

Sincerely,

J. Timothy Beirnes, CPA
Inspector General

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BACKGROUND

Investment Policy

In accordance with our Audit Plan, our Office conducted an *Audit of Investment Management*. In the normal course of business operations, the District receives, disburses, and invests cash. A significant portion of the District's annual revenues comes from seasonally collected Ad Valorem taxes, which results in cash inflows generally exceeding outflows from November through February. The positive timing difference between revenue collections and cash disbursements creates an opportunity to invest excess cash and earn interest income until it is needed to cover the negative cash flows that occur during the remainder of the year.

The District has established investment parameters through an Investment and Banking Policy (Investment Policy) that emphasizes safety of principal, consistency with Florida Statutes and prudent management of public funds. The Investment Policy authorizes investments only in high-grade instruments, such as, United States Government and Agencies Securities, Cash and Cash Equivalents, Corporate and Municipal Bonds, and Specialized Investment Pools and Accounts, as defined in the Investment Policy. The Investment Policy also establishes asset allocation parameters and investment portfolio maturity and liquidity requirements.

In prior years, the District maintained a strong cash position, allowing investments in higher-yielding options with minimal risk. To optimize investment strategies, the District engaged PFM Asset Management LLC (PFM) in December 2016 to provide advisory services, including cash flow analysis, investment policy reviews, and staff training. Based on PFM's recommendations, the District updated its Investment Policy and implemented a strategy to invest a greater percentage of excess funds in mortgage-backed securities (MBS) issued by government-sponsored enterprises (GSEs) such as Fannie Mae (FNMA), Federal Farm Credit Banks (FFCB), and Federal Home Loan Mortgage Corporation (FHLMC), as well as government-owned corporations like Ginnie Mae (GNMA).

District's Treasury Unit

The District's Accounting, Cash Management, and Treasury Unit is primarily responsible for buying and selling securities to earn interest income, providing cash management services to ensure liquidity, and issuing and refinancing bonds. The Accounting, Cash Management, and Treasury Unit consists of a Treasurer, Assistant Treasurer, Senior Accounting Systems Analyst, Senior Accountant, and a Senior Financial Technician who report directly to the Accounting, Cash Management and Treasury Unit Section Leader. The Investment Policy also requires that the Treasurer invest public funds in accordance with the "Prudent Person" standard. This standard requires that a fiduciary with responsibility for managing an investment program for others to act with prudence, discretion, intelligence, and regard for the safety of capital as well as income and not for speculation. The Treasurer oversees all investment activities, which includes buying and selling securities, conducting monthly reconciliation of the SunTrust/TRUIST Custodial account and preparing a quarterly report of investment activities.

The District's portfolio primarily consisted of U.S. Agency Obligations/Securities, Investments in Agency Mortgage-Backed Securities (MBS) and Money Market Funds which are authorized by the Investment Policy. As of September 30, 2024, the District's cash and investments balance was $353.1 million, of which, 33% was in highly liquid cash deposits and money market funds, with 37% invested in U.S. Agency securities and Mortgage-Backed Securities (based on market value). In FY 2024 the District's investments earned $12.0 million, which resulted in an average yield of approximately 2.75%. The following table displays the District's Cash and Investments portfolio as of September 30, 2024.

Cash and Investments **as of September 30, 2024**						
(Millions)	**Par Value**	**%**	**Market Value**	**%**	**Book Value**	**%**
Cash Deposits						
Truist Operating Account	$4.4	1.1%	$4.4	1.2%	$4.4	1.1%
Money Market Funds	$110.8	28.6%	$110.8	31.4%	$110.8	28.6%
Total Cash Deposits	**$115.2**	**29.7%**	**$115.2**	**32.6%**	**$115.2**	**29.7%**
Investments (1)						
US Gov't Agencies Securities	$98.5	25.4%	$94.3	26.7%	$98.4	25.4%
Mortgage-Backed Securities	$174.1	44.9%	$143.7	40.7%	$173.8	44.9%
Total Investments	**$272.6**	**70.3%**	**$238.0**	**67.4%**	**$272.2**	**70.3%**
Total Cash and Investments	**$387.8**	**100.0%**	**$353.2**	**100.0%**	**$387.4**	**100.0%**
Discounts to Market						
US Gov't Agencies Securities	($4.2)	-4.3%			($4.1)	-4.2%
Mortgage-Backed Securities	($30.4)	-17.5%			($30.1)	-17.3%
Total Discount to Market	**($34.6)**	**-8.9%**			**($34.2)**	**-8.8%**

(1) Securities with Credit & Market Exposure

The Treasurer is limited to purchasing securities in accordance with Section 218.40 Florida Statutes and Section 110.86 of the Investment Policy, which prohibits speculative investment with public funds. As such, the District's investment strategy is one of conservatism. The foremost investment priority is safety of principal. The second highest priority is liquidity of funds and the third return on investment.

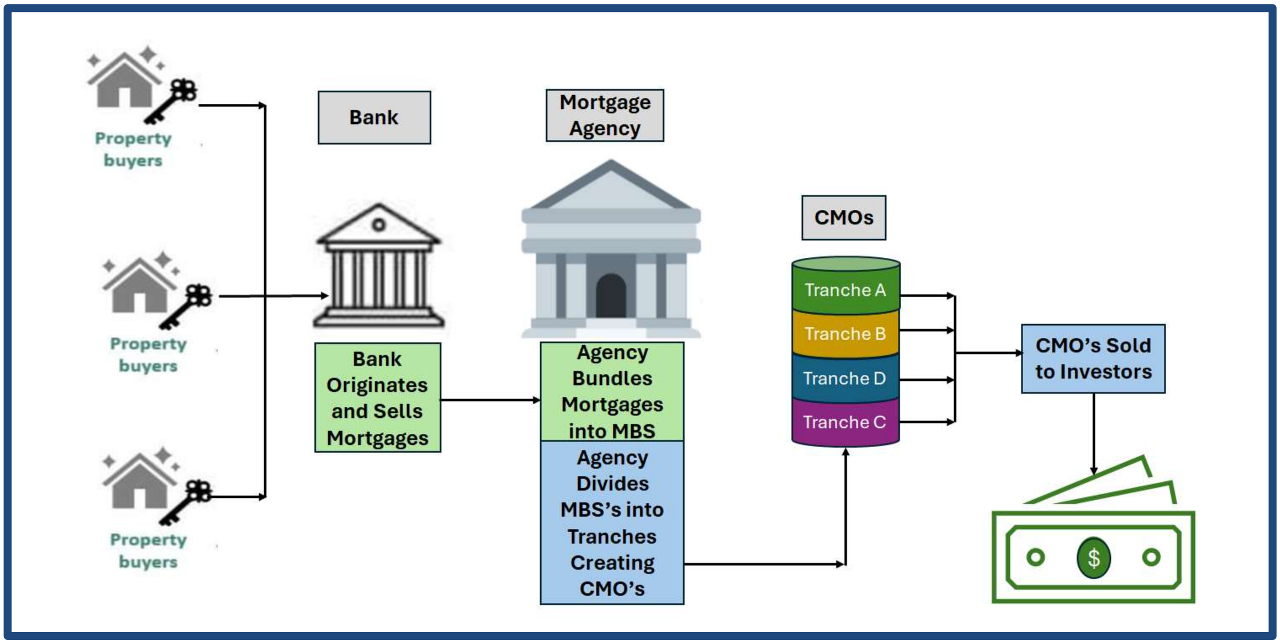
The Accounting, Cash Management, and Treasury unit is in the process of updating district-wide policy and procedure documents to reflect the current processes in place and also to cross-train members of the team. The primary reference document used to evaluate controls and is the Board approved Investment Policy.

Mortgage-Backed Securities

The Investment Policy authorizes investments in Agency Mortgage-Backed Securities (MBS) backed by residential, multi-family or commercial mortgages, that are issued or fully guaranteed as to principal and interest by a U.S. Federal agency or government sponsored enterprise, including but not limited to pass-throughs, collateralized mortgage obligations (CMOs) and REMICs. The most common types of mortgage securities are those issued by one of the government-sponsored enterprises (Ginnie Mae, Fannie Mae, or Freddie Mac), Payments of interest and principal from securities issued by Ginnie Mae are guaranteed by the U.S. government; however, this guarantee applies only to the face amount and not any premium paid, nor does it protect an investor from price fluctuations. Payments of principal and interest from securities issued by Fannie Mae or Freddie Mac are guaranteed by these government-sponsored enterprises themselves and do not carry any additional guarantee by the U.S. government. Fannie Mae and Freddie Mac are public companies currently under conservatorship of the Federal Housing Finance Agency (FHFA).

The Investment Policy maturity limit for MBS and ABS is based on the expected average life at time of settlement, measured using Bloomberg or other industry standard methods. The Investment Policy limits the maximum exposure per issuer to 40%, with a sector maximum of 50% of the total investment portfolio. As of September 24, 2024, The District had a par principal balance of $ 174,057,843 invested in MBS securities, representing 45% of the total portfolio.

The process of creating a CMO begins by an individual or organization initiating a loan collateralized by property, typically a mortgage on real estate. If the loan is a conforming fixed rate mortgage, the banks usually sell them to one of the government-sponsored enterprises mentioned above. The U.S. Mortgage Agency then groups like-kind mortgages together into bundles to create an MBS. The MBS is then often divided into various types of CMO's classes (commonly referred to by financial professions as *tranches,* a French word meaning "slice or portion"). Most mortgages have long-term amortization periods, typically 15 to 30 years, which is much longer than the maturity restrictions for the District's Investment Policy. Thus, the District's funds are invested in CMOs with estimated short-term durations. The following diagram illustrates the CMO process.



The CMO financial instruments were designed in 1983 to meet investor demand for more structured cash flows. The Tax Reform Act of 1986 created real estate mortgage investment conduits (REMICs) designed for collecting mortgage loans and/or pools of mortgages together for issuance into CMO bonds. Since most CMOs are now issued in REMIC form, the terms REMIC and CMO are now used interchangeably. CMO's may be backed by a group of mortgages, by pools of existing pass-through securities, or some combination of both. The principal and interest payments from these mortgages, both scheduled and prepaid, are directed to the CMO classes in a predetermined order according to terms outlined in the prospectus.

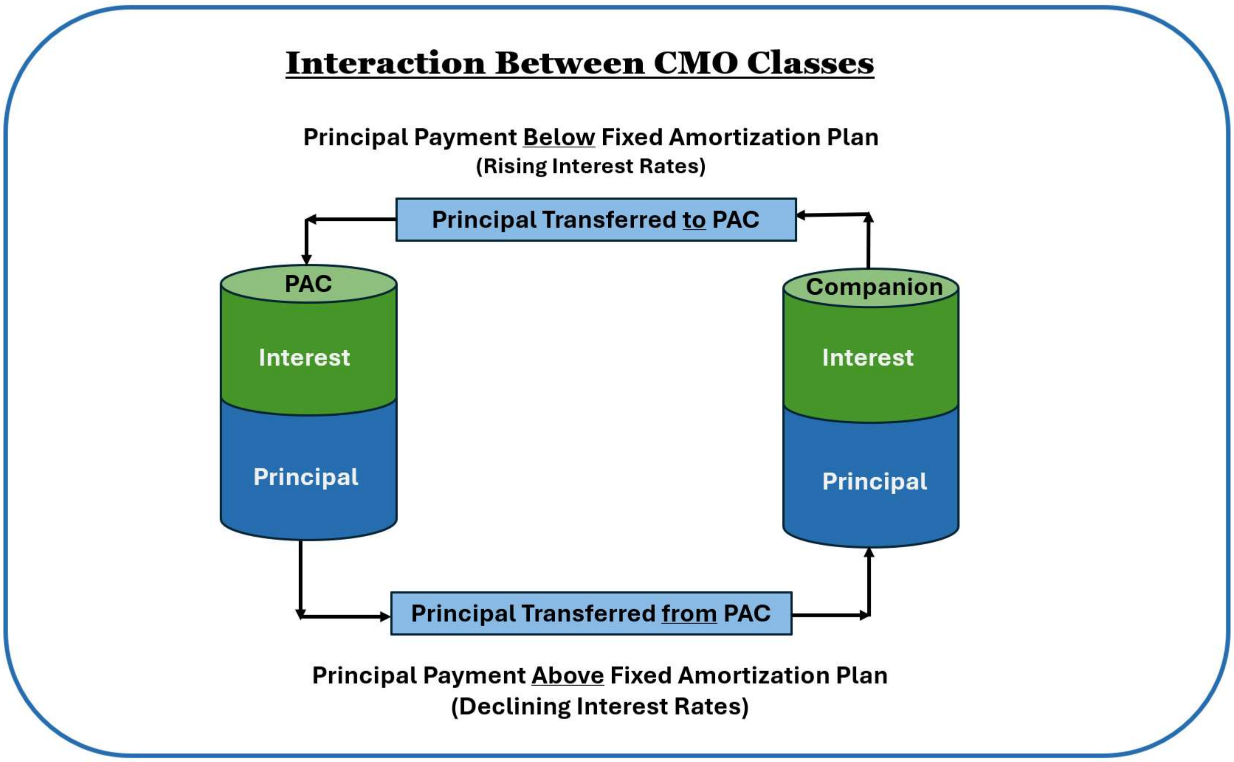
Groups of pass-through securities are combined together to form a CMO. These CMO's are then divided into different classes (commonly referred to by financial professions as *tranches,* a French word meaning "slice or portion"). Certain classes are designated to receive principal payments more rapidly with other receiving more of the interest payments. The class receiving principal repayment is referred to as the "active" or "current paying" class. The "window" is the period in which principal repayments are expected to occur, also known as the Weighted Average Life (WAL). The period when investors receive only interest payments is known as the "lockout period." These different CMO classes provide the ability to purchase a CMO class with characteristics that more closely match investors specific investment objectives. These characteristics can include, but are not limited to, classes with short, intermediate or longer average lives, classes with quick return of principal (tight principal window) vs. classes with longer periods of principal payback (wide principal window), and classes with more predictable cash flows vs. classes with less predictable cash flows.

The cash flow from mortgage-backed securities (MBS) can be somewhat irregular because the speed and the timing of repayments can vary. Generally, homeowners will prepay or refinance their mortgage loans early if market interest rates decline. If interest rates remain stable or increase, homeowners may put off prepayments until rates decline or other circumstances arise. A mortgage borrower may also prepay the loan regardless of interest rates, due to personal reasons, such as job relocation, death, divorce or default. The homeowner can also voluntarily reduce their mortgage faster by making larger monthly payments.

Over the years, many mathematical models have been developed to help predict how fast mortgage loans will be prepaid under different scenarios. These prepayment rates are represented as the Prepayment Speed Assumption (PSA). The higher the PSA number, the faster the principal is being returned to the investor. Prepayment assumptions may be based on historic prepayment rates for each type of mortgage loan, various economic conditions, and geographic locations of specific properties, among other factors. MBS market prices and yields depend on prepayment assumptions made by these models; however, because the cash flow on mortgage securities is irregular, if actual prepayment rates are faster or slower than anticipated, the realized yield may be different than estimated. While the final outcome is somewhat unpredictable, it is possible to use both historical and consensus prepayment numbers to analyze potential returns on an individual CMO investment.

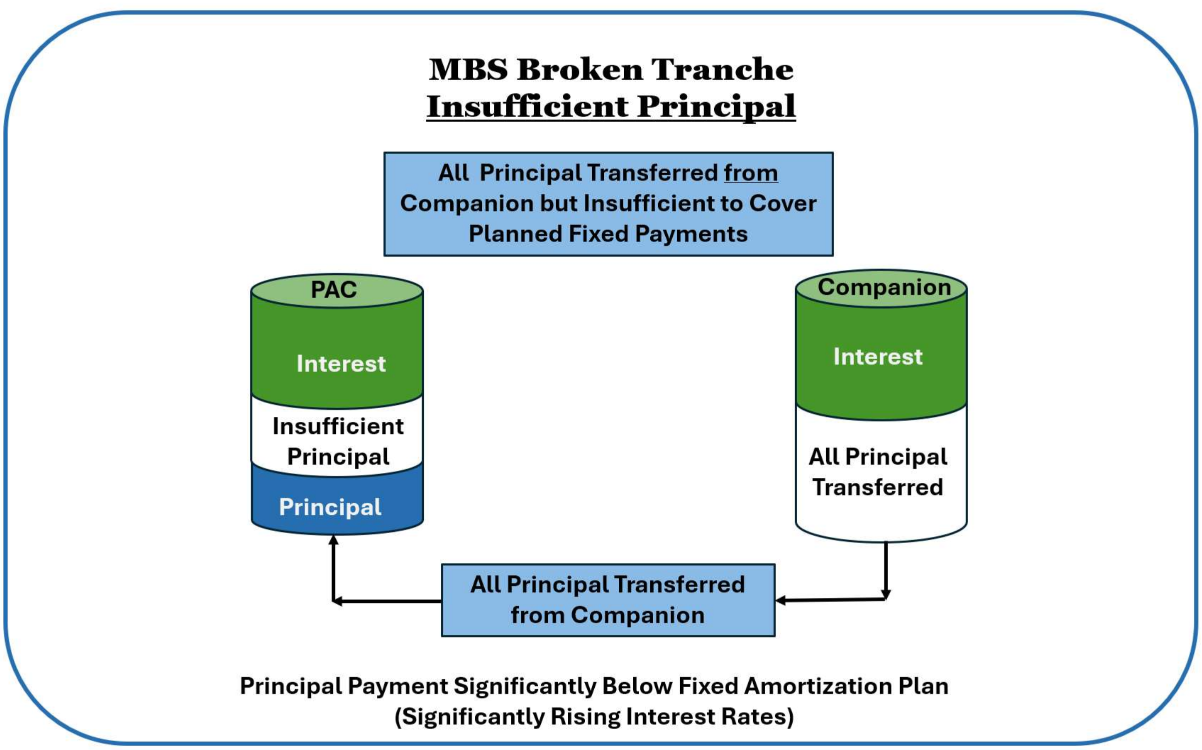
Two primary types of CMO classes are Planned Amortization Class (PAC) and Support (or Companion) Class. The PAC and Companion Class are active at the same time and are tied to each other. The PAC provides for a fixed principal payment schedule, whereas the Companion Class principal payments are irregular since they are designed to absorb any deviation from prepayment assumptions to support the PAC's fixed principal payment schedule. The PAC's fixed principal payment schedule is accomplished by addressing cash flow irregularities through transferring faster-than-expected principal repayments away from the PAC class towards the Companion Class to minimize reinvestment risk; conversely, if principal repayments are slower-than-expected, the principal payments are redirected away from the Companion Class into the PAC to reduce extension risk. Stated otherwise, when repayment of principal is less than scheduled, principal is paid to the PAC while principal to the Companion Class is reduced or suspended. Since PAC classes generally offer the highest degree of stability, they offer lower yields than other classes, whereas the Companion Class offers higher yields due to the inherent higher volatility and are typically suitable for investors who do not expect steady income payments and have a flexible time horizon.

With PACs, the yield, average life, principal window and principal return periods estimated at the time the deal is structured are more likely to remain stable over the life of the security. This is accomplished by offering a range of prepayment speeds (e.g., 75% to 300% PSA). **As long as principal prepayments fall within the PSA range, the average life and yield will remain constant.** The following diagram illustrates the interaction between the PAC and Companion Class tranches when the MBS's prepayment speed falls within the projected PSA range.



If prepayment speeds of the mortgage-backed security fall outside of the projected PSA range, the PCA and Companion Class tranches become broken. This can cause the PAC tranche's lifespan to be extended or shortened, which can impact the investor's return. When the principal prepayments exceed the projected PSA range during a period of falling interest rates, the PAC may receive more principal than the planned amortization; thus, causing reinvestment risk of having to reinvest that principal in lower interest rate securities. When the principal prepayments fall below the projected PSA range during periods of rising interest rates, there becomes insufficient principal in the Companion Class tranche to satisfy the shortfall in the PAC's planned amortization schedule. The possibility of such event is called Extension Risk. The PAC's underlying principal is still secure, it is just that the return of the principal will take longer than originally projected at the time of the security's origination.

The following diagram illustrates the interaction between the PAC and Companion Class tranches when the MBS's prepayment speed falls below projected PSA range, which is caused by a significant slowdown in the projected prepayment speed due to significant increases in mortgage interest rates.



ACH Payment Process

The District has been increasing the use of the ACH process to make vendor payments directly verses the traditional check writing process. Due to the risk level inherent in new business processes, and considering the increasing level of fraud exploiting ACH direct payment processes, we included a review of the District's process for onboarding new and existing vendors and other payees for ACH payments for goods and services provided to the District.

Phase 1 of the ACH disbursement process began in November 2019. Vendors that received payments within the last 18-month period, and in an active status, were identified and emailed about whether they would like to join the ACH disbursement process. The central master data management (CMDM) identified applicable vendors from a vendor master file extract. The CMDM team worked with the information technology team to develop a secure ACH portal to securely obtain vendor banking data for enrollment into the ACH program. Procurement obtained and validated vendor responses, including contact and banking information with data in the system, and made updates as needed. Once the ACH portal was established vendors that requested sign-up were sent credentials to log into the system to add banking information. During Phase 1, a phishing attempt was identified by the CMDM team, which resulted in the ACH portal being locked down, an investigation was launched, and authorities were contacted. The ACH portal has not been reinstated.

Phase 2 of the ACH disbursement process began in December 2022. During Phase 2 it was determined that ACH forms would be developed for vendor enrollment and vendors would be asked to mail in completed forms with required supporting documentation. The ACH forms were reviewed and approved by the Director of Administrative Services Division and legal counsel to ensure that the ACH forms follow industry best practices. It was decided that the approved ACH forms would be required to be delivered in person or via mail for vendors that elected to enroll in ACH. Since many of the vendors provided banking information during Phase 1, the CMDM validated data on the ACH forms with what was entered into the portal. Every week, an ACH pre-note file is automatically generated from SAP and sent to the bank. The pre-note file entries are zero-dollar ACH entries that allow the District to validate transaction data, including banking information prior to initiating the final ACH file. The CAR (cash account reconciliation) report is generated, that identifies any ACH pre-note file rejections received. Treasury reviews the CAR, and if there are rejects, Treasury will reach out to the vendor payment contact (email, phone) to restart the ACH set-up process. If no rejects are identified, the files are delivered to procurement for ACH activation in SAP by the CMDM team. All supporting documents are stored in the finance vault.

ACH enrollment or change requests are only accepted through USPS mail or through the ACH Payment email box. The Assistant Treasurer monitors incoming emails daily; the CMDM team, the Treasurer, the Section Leader, the Finance Bureau Chief and the Section Administrator also have access to monitor the ACH email if the Assistant Treasurer is out of office. All incoming ACH enrollment packages are received by the Accounts Payable Unit and delivered to the Section Leader or Assistant Treasurer.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objective was to determine whether adequate internal controls related to investment management are in place and functioning properly to ensure that investment purchases are made in accordance with the Investment Policy and properly recorded in District financial records. Our review period was October 1, 2019 through September 30, 2024. To accomplish our objectives, we performed the following:

- Reviewed the internal control procedures established to ensure compliance with the management and oversight of the investment portfolio.
- Selected a sample of investment monthly statements and performed detailed testing of select items to ensure that the type and maturities of individual investments are in accordance with the Investment Policy regarding security type, maturity length, and credit quality.
- Performed tests to ensure that the aggregate portfolio maturity is within the Investment Policy parameters at all times.
- Examined cash flow projections to determine that the investment portfolio provides for an adequate balance between investment performance and adequate liquidity.
- Assess whether internal controls provide adequate segregation of duties.
- Reviewed banking, brokerage, and financial advisory agreements(s) to determine whether terms and costs are fair and reasonable.

- Assessed whether deposit balances in commercial banks are adequately insured above the FDIC limit.
- Reviewed a sample of journal entries to determine that investments were properly recorded in the SAP financial system.
- Reviewed Pooled Cash investment income allocation system to ensure that income was properly allocated to the various accounting funds.

Additionally, our objectives included determining whether adequate internal controls related to the ACH onboarding and payment process are in place and functioning properly to ensure vendors and other payees are onboarded in accordance with the Procedures to Set-up Vendor ACH Payments. Our review period was October 1, 2019, through June 30, 2024. To accomplish our objectives, we performed the following:

- Reviewed the internal control procedures established to ensure compliance with the processes related to the ACH onboarding and payment system.
- Assessed whether internal controls provide adequate segregation of duties.
- Reviewed a sample of ACH transactions to ensure they align with the ACH procedure and comply with established internal control requirements.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT RESULTS

Executive Summary

Overall, we found that the funds were invested in accordance with the District's Investment Policy and that investments were properly recorded in the accounting system and internal controls were generally found to be adequate. We did identify 16 out of the 56 Mortgage-Backed Securities that had an estimated Weighted Average Life (WAL) that exceeded the maximum maturities permitted by the Investment Policy in effect on the date of purchase. The current Investment Policy states that "No security shall have a maximum maturity exceeding 5½ years." (Section 110-88(b). (The maximum was 5 years for the Prior Investment Policy.) Although, the effect of 16 out of 56 individual MBS security WAL's slightly exceeding the policy limits did not create a material risk to the overall portfolio, care should be taken to ensure that all securities are within the boundaries of the Investment Policy.

Through analysis of MBS paydowns from FY2020 to FY2024 (October 1, 2019 to September 30, 2024), we found the District's Investment Policy does not adequately address the potential for extension risk. Extension risk is the risk that the homeowners will not pay off their mortgage loans as soon as expected, resulting in lower prepayment speed assumption (PSA) estimates and extension of the MBS weighted average life. If this occurs, mortgage investors may end up holding bonds with maturities longer than expected. During Fiscal Year 2024, total principal repayments received from MBS were $13,875,141, on an MBS portfolio with a par value of $ 174,057,843 as of September 30, 2024. If the current run-rate of principal repayments were to continue at the current level, the remaining principal repayment period would extend out for an additional 12.5 years. Although the MBS investments fulfill the Districts highest investment objective of safety of principal, they have fallen short in achieving the District's second highest investment objective to maintain liquidity considering it will take well beyond the original projected 5.0 to 5.5 years for the return of principal. The current Investment Policy that authorizes a maximum 50% allocation to MBS does not appear to adequately protect the District against extension risk.

Key internal controls for ACH vendor set-up appear to be operating effectively to mitigate the identified risks. The business unit does have opportunities to enhance the vendor ACH set-up process as the department continues to onboard vendors, including the python removal program vendors. We identified several areas to enhance the internal controls over ACH payments and provided several recommendations that would enhance consistency and compliance with the ACH set-up procedure across all vendors, including those transitioning from the Python Removal Program.

Mortgage-Backed Securities Weighted Average Life

United States Agency Mortgage-Backed Securities (MBS) comprised 45% (at par value) of the District's total cash and investments as of September 30, 2024. We found that some MBS securities in the current portfolio exceeded the Investment Policy's weighted average life (WAL) maturity requirement, at the time of purchase. On May 11, 2017, approved amendments were implemented to the District's Investment Policy. The current policy includes a listing of authorized investments, including allocation limits on security types, issuers, and maturity limitations. Specifically, for MBS's, the policy states the maximum maturity for individual securities must have a WAL not to exceed 5.5 years.

We performed a review of the 35 securities that made up the MBS portfolio as of June 30, 2024, that were purchased on or after May 11, 2017 (effective date of the current Investment Policy). Trade tickets were obtained and inspected to determine the WAL of the individual security on the trade date. The District's investment broker, Raymond James, produced the trade tickets. We identified 6 of the 35 securities purchased on or after May 11, 2017, that had a WAL greater than 5.5 years on the trade date. These are shown in the following table.

CUSIP	WAL Per Trade Ticket	Trade Date	Invest #	Issuer	Purchase Date	Original Face
38379RRP0	6.894	6/29/2017	624	Ginne Mae	07/01/2017	$9,521,979.00
38380JNB0	5.562	2/14/2018	631	Ginne Mae	02/20/2018	$10,000,000.00
3136B02H8	5.771	2/14/2018	632	Federal Nat'l Mtg. Assoc.	02/28/2018	$10,000,000.00
3136B92LO	6.38	6/2/2020	676	Federal Nat'l Mtg. Assoc.	06/16/2020	$10,000,000.00
3136BAZE7	6.471	6/9/2020	685	Federal Home Loan Mortgage Co.	06/30/2020	$10,000,000.00
3132D9EEO	7.311	4/16/2021	687	Ginne Mae	04/29/2021	$9,917,230.50

The average WAL of the above 6 securities is 6.398 years, which exceeds the policy's 5.5-year limit by 0.898 years. The WAL for all 35 securities purchased prior to May 11, 2017, was 3.974 years.

Prior to the approved updates to the Investment Policy that was adopted on May 11, 2017, the maturity limit set for the purchase of MBS securities was 5.0 years. We performed a review of the 21 securities that made up the MBS portfolio as of June 30, 2024, that were purchased prior to May 11, 2017. Trade tickets were obtained and inspected to assess what the weighted average life of the individual security on the trade dates. The District's investment broker, Raymond James, produced the trade tickets. We identified 10 of the 21 securities purchased prior to May 11, 2017, that had a weighted average life (WAL) greater than 5.0 years on the trade date. These are shown in the following table.

CUSIP	WAL Per Trade Ticket	Trade Ticket Date	Invst #	Issuer	Purchase Date	Face
38378CRT6	5.158	2/7/2012	563	Ginne Mae	02/10/2012	$10,000,000.00
3136A4BV0	5.344	2/7/2012	568	Federal Nat'l Mtg. Assoc.	02/29/2012	$10,702,000.00
3137APCS7	5.808	6/5/2012	570	Federal Home Loan Mortgage Co.	06/08/2012	$9,919,310.70
3136ABQ55	6.327	5/31/2013	577	Federal Nat'l Mtg. Assoc.	06/05/2013	$10,000,000.00
3138M9WC1	6.094	5/31/2013	578	Federal Nat'l Mtg. Assoc.	06/18/2013	$10,000,000.00
3136AD6K0	6.174	6/20/2013	579	Federal Nat'l Mtg. Assoc.	06/25/2013	$10,000,000.00
3136ADXJ3	6.089	6/20/2013	580	Federal Nat'l Mtg. Assoc.	06/25/2013	$10,000,000.00
3137B2UN8	6.139	6/19/2013	582	Federal Home Loan Mortgage Co.	06/28/2013	$10,000,000.00
38378TSZ4	5.107	6/20/2013	583	Ginne Mae	06/28/2013	$10,000,000.00
83162CVS9	6.557	12/4/2013	584	SMALL BUSINESS ADMINISTRATION	12/09/2013	$10,000,000.00

The average WAL of the above 10 securities is 5.880 years, which exceeds the prior policy's 5-year limit by 0.880 years. The WAL for all 21 securities purchased prior to May 11, 2017, was 4.927 years.

In summary, 16 out of the 56 MBS had estimated WAL's that exceeded the maximum maturities permitted by the Investment Policy(s) in effect on the date of purchase. The current Investment Policy states that "No security shall have a maximum maturity exceeding 5½ years. (Section 110-88(b). (The maximum was 5.0 years for the Prior Investment Policy.) Although, the effect of 16 out of 56 individual MBS security WAL's slightly exceeding the policy limits did not create a material risk to the overall portfolio, care should be taken to ensure that all securities are within the boundaries of the Investment Policy.

Recommendation

1. Ensure that all securities purchased are within the boundaries of the District's Investment and Banking Policy.

   Management Response: Management Response: Management agrees with the recommendation and will confirm all securities purchased going forward are in compliance with the District's Investment and Banking Policy and are laddered between short-term and long-term investments. The Accounting, Cash Management, and Treasury team will continue investing daily to maximize liquidity and earnings in overnight Money Market Funds, which has been in practice since 2022. This strategy maintains liquidity and reduces the extension risk exposure for current cash available for investing. The Accounting, Cash Management, and Treasury team will continue to evaluate the appropriate time for restructuring existing Mortgage-Backed Securities (MBS) in order to shorten the maturity window and sell at a breakeven threshold. This will ultimately eliminate the extension risk exposure driven by the current high-interest rate environment. The existing MBS investments were purchased in a low-interest rate environment with maturity date ranges within the Investment Policy parameters at that time. Exposure risk scenarios did not include basis point fluctuations of 500 basis points at the time of investment which is what the District experienced.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Implemented the investment strategy to include confirmation that all investments made with new available cash will be invested within the boundaries of the District's Investment and Banking Policy.

Mortgage-Backed Securities Amortization Rate

Through analysis of Mortgage-Backed Securities (MBS) paydowns from FY2020 to FY2024 (October 1, 2019 to September 30, 2024), we found the District's Investment Policy does not adequately address the potential for extension risk. Extension risk is the risk that the homeowners will not pay off their mortgage loans as soon as expected, resulting in lower prepayment speed assumption (PSA) estimates and extension of the average life. If this occurs, mortgage investors may end up holding bonds with maturities longer than expected and the yield may or may not keep up with rising inflation or market interest rates.

The foremost objective of the District's Investment Policy is **safety of the principal**, which seeks to keep capital losses at a minimum, whether they are from security defaults or erosion of market value. To attain this objective, diversification is required in order that potential losses on individual securities do not exceed the income generated from the remainder of the portfolio. The second highest priority is **maintenance of liquidity** of funds. The portfolio is to be managed in such a manner that funds are available to meet reasonably anticipated cash flow requirements in an orderly manner. Periodic cash flow analyses are to be completed to ensure that the portfolio is positioned to provide sufficient liquidity. The third highest priority is the **return on investment** of funds. The portfolio is to be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, considering the investment risk constraints and liquidity needs. Return on investment is of least importance compared to the safety and liquidity objectives described above. The core of investments is limited to relatively low risk securities in anticipation of earning a fair return relative to the risk being assumed.

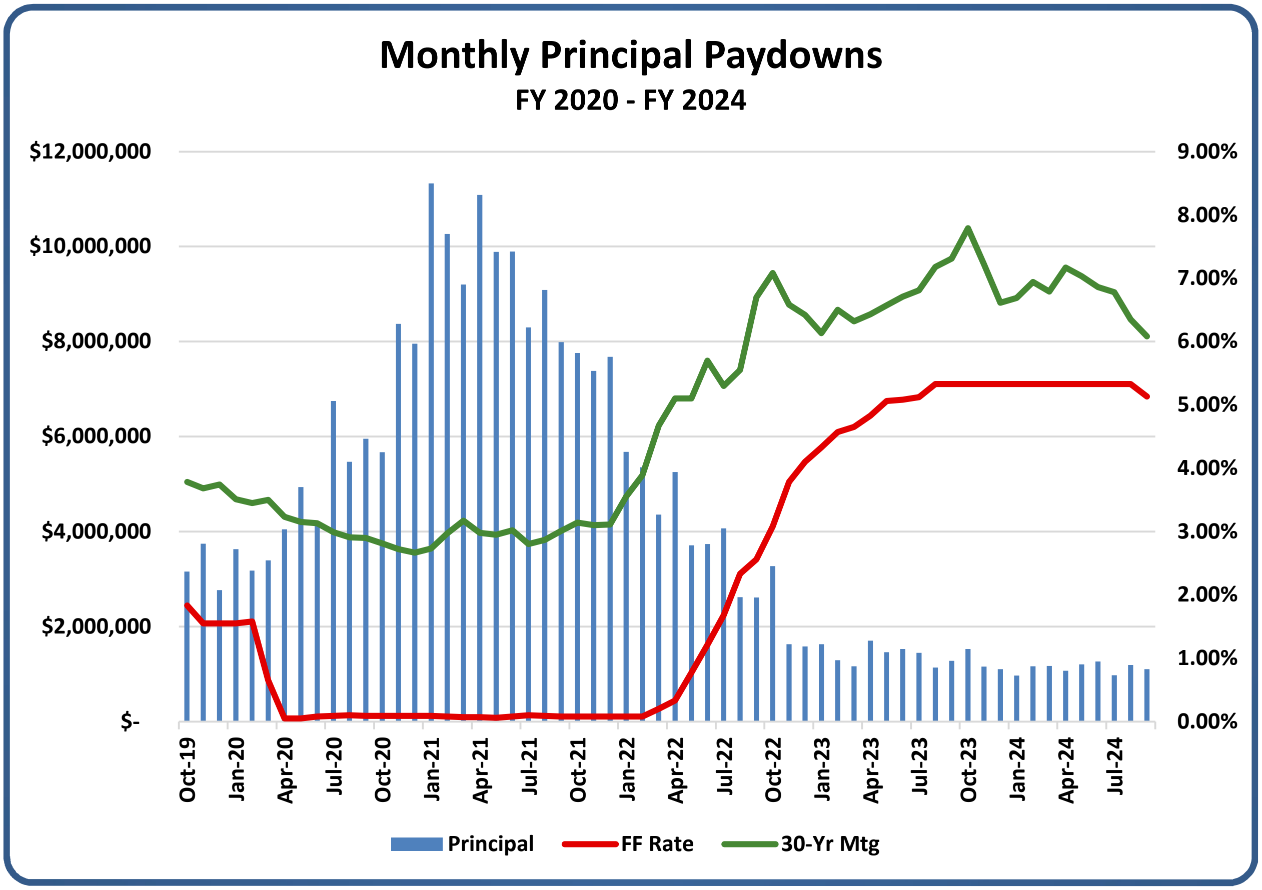
The District's Investment Policy authorizes a 50% sector maximum for U.S. Agency MBS (*Sec. 110-87. Authorized Investment and Portfolio Composition*). As of September 30, 2024, U.S. Agency MBS held by the District had a book value of $173.8 million and a fair market value of $143.7 million, comprising 45% of total cash and investments (based on book value). The significant rise in interest rates resulted in temporarily impairing the market value of the MBS by $30.1 million; however, market fluctuations do not impair the underlying principal for securities held until maturity.

In April 2020 the Federal Reserve reduced the Federal Funds rate to almost zero. Between April 2020 and February 2022, the Federal Funds rate fluctuated between .05% and .10%. At that range of interest rates, $1 million only earns between $500 and $1,000 of interest annually. During this same time period MBS rates of 1.5% to 2.0% appeared quite attractive, which would result in earning between $15,000 to $20,000 annually per $1 million invested. In March 2022 the Federal Reserve began rapidly raising the Federal Funds rate from .08% in February 2022 until the rate reached a peak of 5.33% in August 2023; an increase of 525 basis points over a period of only 18 months. (1 basis point = .01%.) During an even shorter time period, 30-year mortgage rates increased from approximately 3% in December 2021 to over 7% in October 2022, an increase of approximately 400 basis points in 10 months. This was the fastest pace of interest rate increases since the early 1980's; consequently, MBS planned prepayment speeds slowed down significantly. All currently held MBS securities were purchased prior to January 7, 2022.

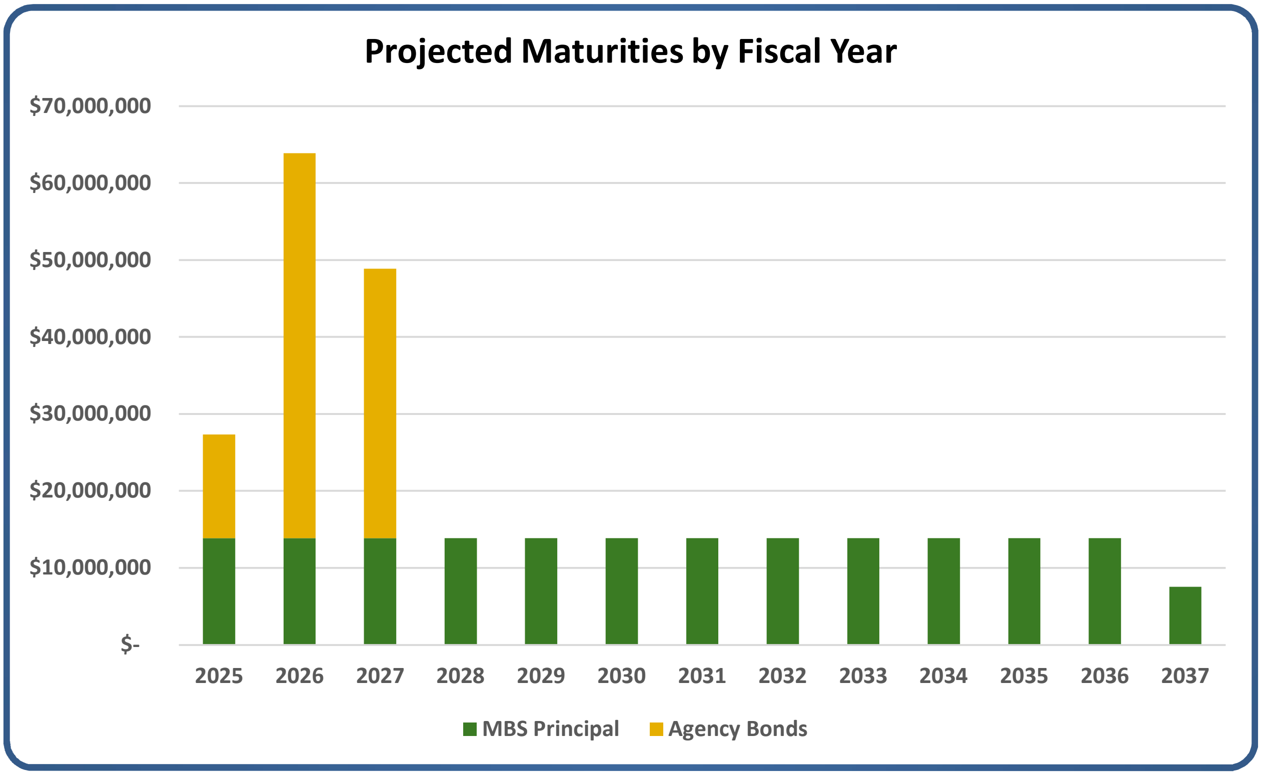
When the mortgage-backed securities prepayment speed slows down significantly below the projected Prepayment Speed Assumption (PSA) range (typically exceeding 200 basis points), the PCA and Companion Class tranches become broken. This can cause the PAC tranche's projected lifespan to be extended, which impacts the investor's return of principal timing. When the principal prepayment speed falls below the projected PSA range there becomes insufficient principal in the Companion Class tranche to satisfy the shortfall in the PAC's planned amortization schedule. This causes the return of principal to be extended beyond the original weighted-average -life (WAL) at the time of purchase. This is referred to as Extension Risk. The PAC's underlying principal is still secure, it's just that the return of the principal will take longer than originally projected at the time of the security's origination. The Background section contains a diagram illustrating the interaction between the CMO classes.

The 525 basis point rise in the Federal Funds rate and approximately 400 basis point rise in 30-year mortgage rates caused the PAC tranches of the District's MBS investment tranches to become broken; consequently, principal prepayment speeds of the District's MBS' have slowed significantly.

The following graph visually illustrates the monthly MBS principal repayments compared to the rise in the Federal Funds Rate (FF Rate) for Fiscal Years 2020 through 2024.



During Fiscal Year 2024, total principal repayments received from MBS were $13,875,141. The MBS par value was $ 174,057,843 as of September 30,2024. **If the current run-rate of principal repayments were to continue at the current level, the remaining principal repayment period would extend out for an additional 12.5 years.** It should be noted that no MBS securities have been purchased since January 7, 2022. The District's investment portfolio also contains $98,472,222 of United States Agency securities with fixed maturity dates. Assuming the MBS repayment speed remained similar to FY 2024, the principal cash flow of the total investment portfolio for future fiscal years (including the fixed date maturity securities), is illustrated in the following graph.



The principal repayment speed would be expected to accelerate if future mortgage rates fall by a meaningful amount. Although the MBS investments fulfill the Districts highest investment objective of safety of principal, they have fallen short in achieving the District's second highest investment objective to maintain liquidity considering it will take well beyond the original projected 5.0 to 5.5 years for the return of principal. The current policy of allowing a maximum 50% allocation to MBS does not appear to adequately protect the District against Extension Risk.

Recommendations

2. The District should reconsider revising the Investment and Banking Policy regarding Agency Mortgage-Backed Securities (MBS) to explicitly address extension risk associated with such securities. This may include:
   - Lower the 50% maximum portfolio limit that can be invested in MBS.
   - Establishing enhanced guidelines for managing the potential impact of rising interest rates and lower prepayment speeds on MBS investments.
   - Setting more stringent average life maturity limits for MBS investments to mitigate the risk of holding extended-duration bonds during adverse market conditions.

Management Response: Management agrees with the recommendation to revise the Investment and Banking Policy addressing investment options and portfolio diversification. By reducing the MBS proportion in support of a more conservative investment strategy, the District will protect against extension risk. Staff will evaluate current industry standards for the public sector. Additionally, the Accounting, Cash Management, and Treasury team will review quarterly scenario analysis on a bond-by-bond basis provided by brokers to determine changes to the impact of rising rates and lower prepayment speeds on cash flow for each MBS bond.

Responsible Division: Administrative Services Division / Finance Bureau

Estimated Completion: Prepare a strike through draft of recommended revisions to the Investment and Banking Policy for discussion and review by the Audit and Finance Committee for the June 2025 Meeting.

3. Consider using a laddered maturity strategy using fixed maturity U.S. Agency securities to reduce liquidity risk and provide for more predictable cash flows. The District should implement more robust liquidity stress testing to assess the portfolio's ability to meet cash flow needs under various market conditions. This analysis should include:
   - Scenario testing to evaluate the impact of rising interest rates on liquidity and market value.
   - A regular review of cash flow projections and their alignment with the duration of investments to ensure adequate liquidity.

   Management Response: Management agrees with the recommendation to revise the investment strategy to support lower liquidity risk and a more predictable cash flow performance. Management agrees with performing scenario testing to evaluate the impact of rising interest rates on liquidity and market value. Management agrees with a regular review of cash flow projections and their alignment with the duration of investments to ensure adequate liquidity. Moving forward, the Accounting, Cash Management, and Treasury team will continue to invest available current cash in short-term securities such as Money Market Funds, CD's, Commercial Paper, Inter-Governmental Pools and The Florida Prime (SBA). The Accounting, Cash Management, and Treasury team will not invest current available cash in long-term securities such as Agency MBS, which currently have cash flows that are less predictable than Callable Bonds (US Agency Bonds). Cash flows from US Agency Bonds are more predictable than MBS and have a definitive end date without the extension risk exposure which is directly impacted by lending rates and creates a changing maturity date.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Implementation of a revised investment strategy with lower liquidity risk and improved cash flow predictability is complete and in practice daily with money market investments and redemptions as needed to maintain a low cash balance in the operating account. Quarterly scenario testing beginning 2nd Qtr 2025 (June, 2025); Cash

Flow Projections reviewed quarterly for alignment with the duration of investments to ensure adequate liquidity.

ACH Payment Process

Based on the review procedures performed, ACH vendor set-up key internal controls appear to be operating effectively to mitigate the identified risks. The business unit does have opportunities to enhance the vendor ACH set-up process as the department continues to onboard vendors, including the python removal program vendors. We have identified several recommendations to enhance consistency and compliance with the ACH set-up procedure across all vendors, including those transitioning from the Python Removal Program.

Recommendations

4. Establish a standardized documentation requirement for all vendors, regardless of their program participation, to include either an original voided check or a signed bank letter.

   Management Response: Management agrees with the recommendation and implemented the revision to the procedure with the updated ACH Registration Form 1410 revised January, 2025.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Implemented January 2025.

5. Revise the vendor onboarding packet/form to clearly outline the documentation required for ACH set-up to allow for consistency in documentation.

   Management Response: Management agrees with the recommendation and implemented the revision to the procedure with the updated ACH Registration Form 1410 revised January 2025.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Implemented January 2025.

6. Work with project/program managers to notify all vendors that are part of the Python Removal Program about the updated requirements for ACH set-up documentation.

   Management Response: Management agrees with the recommendation and has been in contact with the District liaison to the Python vendors to acquire the master list of vendors and coordinate new/revised accounts directly with Python vendors utilizing the updated form.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Implemented January 2025

7. Offer detailed guidance and support to help vendors transition to the new requirements, including templates and examples of acceptable documentation.

   Management Response: Management agrees with the recommendation and has been working with individual vendors providing additional support to clarify the requirements including providing examples of acceptable documentation as needed.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Implemented February 2025, current and ongoing as needed.

8. Develop a timeline for converting all Python Removal Program vendors to the new ACH set-up procedure by a specific date.

   Management Response: Management agrees with the recommendation and has confirmed all Python Vendors currently in the ACH program have access to the new ACH form for any future changes to payment information.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Completed November 2024

9. Implement a process to review and verify all ACH documentation submitted by vendors to ensure it meets the standardized requirements.

   Management Response: Management agrees with the recommendation and has implemented updated procedures to include the latest Form 1410 Automated Clearinghouse (ACH) Direct Deposit revision and a "How To" for processing ACH packets. The updated Form 1410 provides clear instructions to the vendor of the documentation and information required. The updated procedures provide instructions to staff on how to verify the information on the form, verify the documentation provided (W-9, voided check, or bank letter) is consistent with the information on the form, proper signatures included, and the vetting of the ACH packets by the Finance Bureau and Procurement before approval and activation.

   Responsible Division: Administrative Services Division / Finance Bureau

   Estimated Completion: Completed January 2025.

10. Log in to the IRS e-Services platform, access the TIN Matching Program, and enter the vendor's Tax Identification Number (TIN) and name to receive immediate feedback on the match status.

    Management Response: Management agrees with the recommendation. CMDM team completes this step for every vendor activation, not only ACH payment applications.

    Responsible Division: Administrative Services Division / Finance

    Estimated Completion: Completed January 2025.

11. Ensure that all ACH documentation, including voided checks and bank letters, W-9 certifications, and Interactive Tax Identification Number (TIN) Matching results are stored in the vendor file within the Vault.

    Management Response: Management agrees with the recommendation. Finance Bureau has acquired a fire rated file cabinet for the storage of all ACH payment application packages within the vault which has limited security access.

    Responsible Division: Administrative Services Division / Finance Bureau

    Estimated Completion: Completed February 2025.