Overview

For decades, the Illinois Housing Development Authority (IHDA or Authority) financial data resided in multiple systems that were not integrated and often used different data structures, making comprehensive analysis time-consuming and difficult. IHDA's critical financial information, including multifamily servicing, single-family loan performance, and capital investment activity, was historically fragmented across multiple legacy systems, limiting transparency and efficiency. This environment lacked a single, authoritative source of truth, constraining timely decision-making and comprehensive portfolio oversight.

Over the past year, IHDA's Capital Markets team led a transformative initiative to address these challenges and modernize its data infrastructure. By leveraging Microsoft Azure as a centralized data repository and Power BI for dynamic visualization, IHDA successfully integrated four disconnected systems into a suite of interactive, monthly-updated Financial Dashboards. The dashboards deliver near real-time visibility into IHDA's financial performance, capital markets activity, and program pipeline. By integrating multiple previously disconnected data sources, including loan servicing systems and financial accounting platforms, the dashboards enable more timely decision-making and enhance transparency across the organization.

The Challenge: Overcoming Data Fragmentation

Like many housing finance agencies, IHDA manages a complex financial ecosystem that includes multiple bond indentures, loan programs, and funding sources across both single-family and multifamily housing programs. These activities are tracked in separate operational systems designed for specific functions rather than enterprise-level financial oversight:

- Benedict – Multifamily loan servicing
- MITAS – Single-family loan servicing
- Camra – Cash, investments, and liabilities
- Encompass – Single-family loan pipeline

These systems operated in isolation, with inconsistent data structures and no native integration. Consequently, synthesizing a comprehensive view of the Authority's financial health required manual data extraction and reconciliation, a process that was labor-intensive, prone to human error, and hindered real-time strategic decision-making. IHDA recognized an opportunity to modernize this process by leveraging cloud-based infrastructure and business intelligence tools to centralize financial data, automate reporting, and enable more timely, data-driven insights.

Strategic Impact: The Dashboard Suite

To address these challenges, IHDA designed and implemented a centralized Financial Dashboard system built on Microsoft Azure and Power BI. The project consisted of three major phases:

- *Creating a Centralized Data Repository* – The team established Microsoft Azure as a centralized data repository where information from each internal system could be stored and transformed. Data was extracted from Benedict, MITAS, and Camra and uploaded into Azure. As IHDA has operated multiple programs over several decades, data inconsistencies emerged across legacy systems. These discrepancies were identified and cleaned within Azure. In parallel, given differing coding structures across systems, the team developed a comprehensive data mapping framework to align and connect related data elements. This included establishing common identifiers and standardizing key data fields to ensure consistency and usability across platforms.

- *Data Transformation and Dataset Development* – Once the source data was integrated, the team created bespoke datasets tailored to each dashboard's analytical purpose. Data transformations were performed within Azure to standardize fields and create analytical variables. Each transformation step was carefully documented to ensure that the information could be reproduced consistently each month. By performing these transformations within Azure rather than in Power BI, IHDA eliminated the need to rebuild visualizations each time underlying data changed. This structured approach ensured:

- Data integrity across systems
- Consistent reporting standards
- Full traceability of data transformations

- *Dashboard Design and Quality Assurance* – Using Power BI, the team created a suite of interactive dashboards designed to support executive leadership and operational teams. Each dashboard includes drill-down capabilities to allow users to move seamlessly from high-level financial summaries to detailed data views. Before launch, the team implemented a three-month quality control period to validate the accuracy of the data. The dashboards were tested against existing reporting processes to confirm that outputs aligned with authoritative data sources. Following successful validation, the dashboards were deployed beginning with a monthly update cadence, ensuring consistent and reliable reporting, and have now been rolled out on daily and weekly cadences.

Dashboard Suite

The Capital Markets Dashboard initiative has delivered significant improvements in operational efficiency and decision-making. Previously, staff needed to gather information from multiple systems and compile reports manually. With the integrated dashboards, key financial information is accessible through a single platform with intuitive visualizations and drill-down functionality including:

- **Executive Dashboard** – Provides a high-level overview of IHDA's financial position, enabling leadership to quickly assess key indicators. Metrics include:
  - Volume Cap Management: Real-time availability and usage, segmented by multifamily and single-family allocations.
  - Debt & Risk Position: Monitoring variable rate debt exposure and Asset-to-Liability ratio.
  - Statutory Compliance: Tracking total debt outstanding against IHDA's authorized debt cap.

- **Capital Markets Dashboards** – These boards offer granular insights into the Authority's major funds and bond indentures:
  - Performance Monitoring: Detailed asset/liability profiles, bond issuance trends, and asset delinquency/performance monitoring.
  - Counterparty & Derivative Risk: Real-time monitoring of financial counterparties, Standby Bond Purchase Agreements (SBPA), and derivative management.
  - Investment Analytics: Delivers in-depth insights into portfolio performance, asset composition, and liquidity, supporting enhanced monitoring and investment decision-making.
  - Bond Indenture Financial Profile: Provides a consolidated view of each bond indenture's financial position, including assets, liabilities, cash flows, and issuance metrics.

- **Pipeline and Asset Management Monitoring Dashboards** – Moving beyond historical data, these tools enable predictive management:
  - Forecasting: Projecting single-family and multifamily pipelines to inform future bond issuances.
  - Risk Mitigation: A dedicated delinquency pipeline for Asset Management to identify and address potential portfolio stress early.

- Hedge Management: Real-time visualization of single-family mortgage origination pipeline to inform TBA Heding for future securitization.
- Single-Family: Mortgage origination tracking, down payment assistance reservation tracking as well as program funding monitoring, demographic and geographic performance.

Leadership can now evaluate IHDA's financial position in near real-time, significantly enhancing the Authority's ability to respond to changing market conditions, proactively monitor key credit rating drivers, manage bond issuance activity, and allocate resources more strategically. Integrated data allows IHDA to track asset-liability relationships and financial counterparties more effectively. This strengthens financial oversight and supports proactive risk management. Additionally, automated data integration and reporting have significantly reduced the manual effort required to prepare financial reports, enabling staff to shift their focus from data aggregation to higher-value analysis and strategic decision-making.

Cost Effectiveness and Efficient Use of Resources
One of the key strengths of this initiative is its cost-effective use of existing resources. Rather than purchasing an expensive enterprise financial management system, IHDA leveraged tools already available within its technology environment: Microsoft Azure for cloud-based data management and Power BI for data visualization and analytics. By using existing platforms and internal expertise, IHDA implemented a sophisticated data integration and analytics solution without significant new technology expenditures. The project was also delivered largely through internal collaboration, leveraging the expertise and creativity of staff across departments to maximize value and minimize reliance on external resources.

Replicability
By automating the data aggregation process, IHDA has eliminated hundreds of hours of manual effort each year. Processes that once required days of spreadsheet compilation are now refreshed monthly with the click of a button. The platform's drill-down capability, from high-level metrics to loan-level detail, enables management to identify emerging trends, such as shifts in delinquency patterns or volume cap constraints, well in advance of when they would have been detected previously.

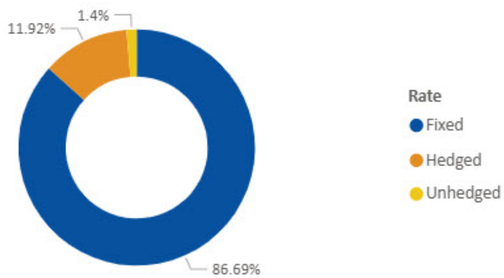
This project serves as a blueprint for HFAs navigating legacy systems. It demonstrates that achieving modern data transparency does not require replacing core platforms. By leveraging cloud-based middleware (Azure) and visualization tools (Power BI), agencies can integrate existing systems, streamline operations, and significantly enhance their financial management capabilities.

Conclusion
IHDA's Capital Markets Dashboard initiative represents a significant advancement in internal operations. By integrating previously disconnected financial systems into a centralized data platform, the Authority has transformed how it monitors, manages, and proactively plans its financial position. Through the creation of a comprehensive, enterprise-wide view of financial data, the dashboards strengthen IHDA's ability to responsibly manage resources, monitor program performance, support sustainable housing finance strategies, and respond quickly to evolving market and policy conditions. Ultimately, the platform enhances IHDA's ability to fulfill its mission of financing and preserving affordable housing throughout Illinois. This initiative demonstrates how targeted use of modern data infrastructure and business intelligence tools can solve complex operational challenges and strengthen decision-making. In doing so, IHDA has created a scalable, replicable model for financial data integration that can benefit housing finance agencies nationwide.

Appendix

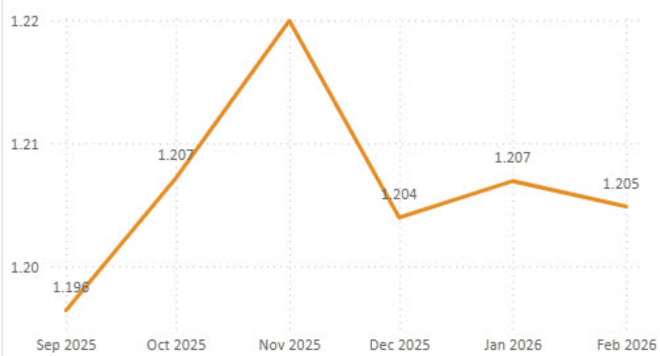
Executive Dashboard Screenshots (with some redactions)

Variable Rate Debt Profile



*The total outstanding variable rate debt will be limited to 15% of the total bonds outstanding under the related indenture at the time of execution and will not exceed 20% on an ongoing basis.

IHDA Asset to Liability Ratio



Calendar Year Volume Cap Data

Single Family

Available Volume Cap

$[redacted]

Calendar Year Usage

$136M

Volume Cap Remaining

$[redacted]

Multifamily

Available Volume Cap

$[redacted]

Calendar Year Usage

$20M

Volume Cap Remaining

$[redacted]

Debt Outstanding

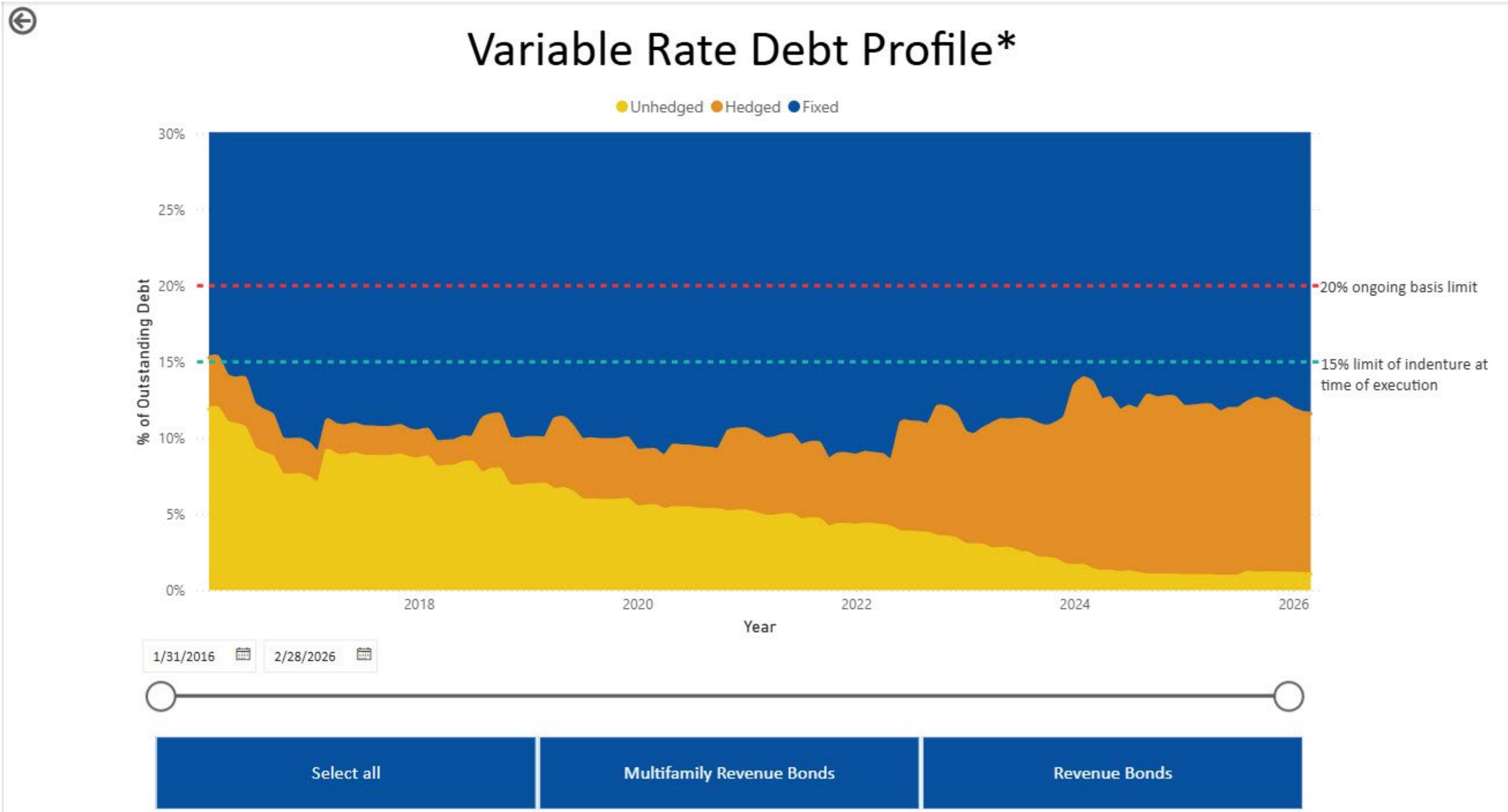
7.83bn/$11.5bn*

Data listed is as of 02/28/26

ILLINOIS HOUSING DEVELOPMENT AUTHORITY

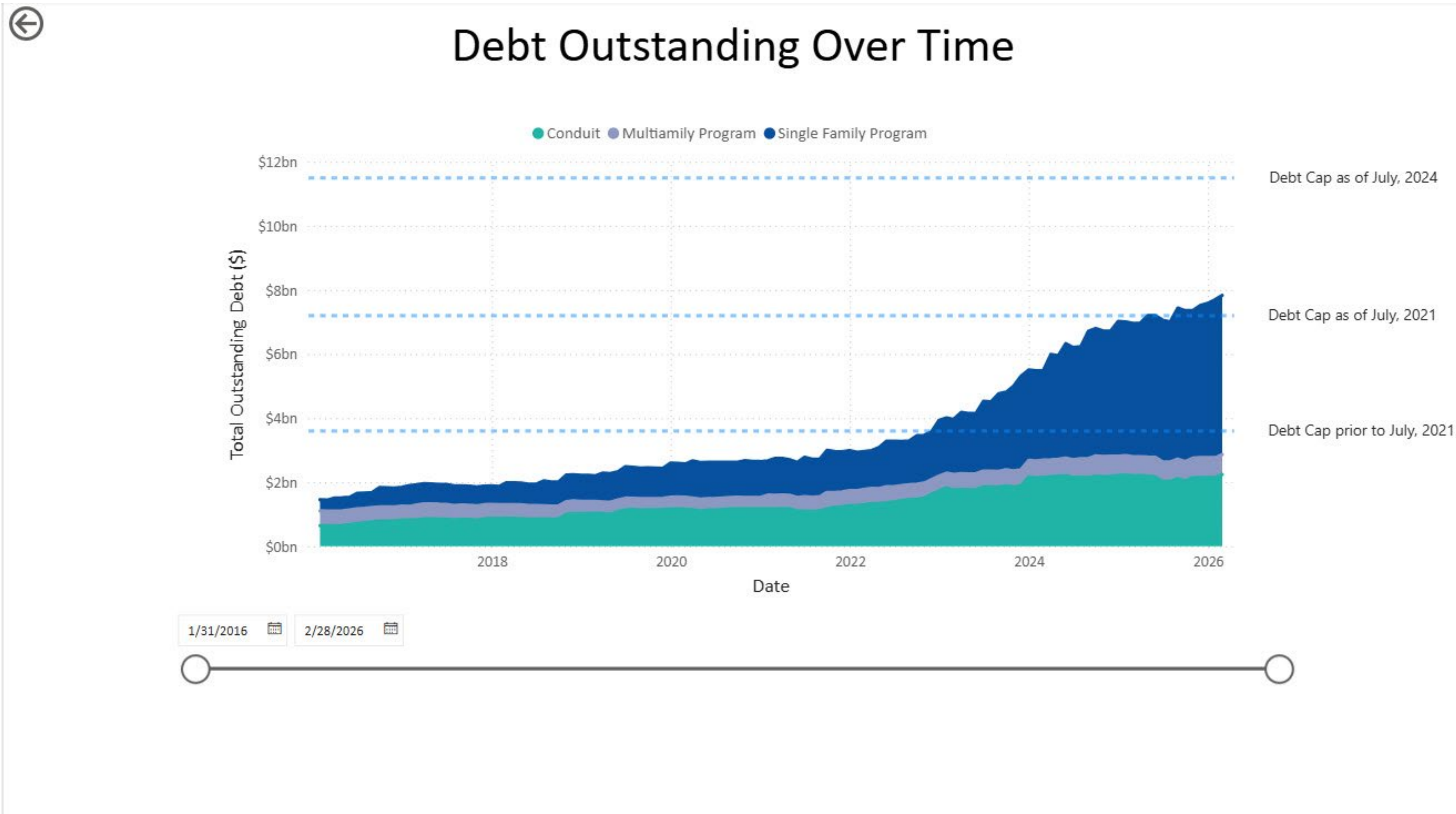
*The Authority has the power under the IHDA Act to have up to $11.5 billion of general and specific limited obligation bonds and notes outstanding, excluding those issued to refund outstanding bonds and notes.

Variable Rate Debt Profile



*Indenture level breakouts are only available for MFRB and RB, as these are the only indentures with active bond issuance

Debt Outstanding



Asset to Liability Ratios - Single-Family Revenue Bonds

Asset and Liability Data*

*Unaudited financial information

Indenture: REVENUE BONDS

Date	9/30/2025	10/31/2025	11/30/2025	12/31/2025	1/31/2026	2/28/2026
Cash:	$382,384,662	$76,754,767	$227,438,080	$310,986,247	$253,057,300	$244,895,569
Investments:	$28,905,844	$193,564,993	$200,550,282	$119,862,284	$335,370,542	$336,283,955
Loans/Prog MBS:	$4,518,356,037	$4,540,845,068	$4,608,194,648	$4,633,675,174	$4,665,338,701	$4,698,961,523
Reserves:	$42	$42	$42	$42	$42	$42
Total Assets:	$4,929,646,585	$4,811,164,870	$5,036,183,052	$5,064,523,747	$5,253,766,584	$5,280,141,088
Debt Outstanding:	$4,581,553,897	$4,478,497,459	$4,608,434,827	$4,678,349,993	$4,802,341,037	$4,847,274,402
Accrued Interest:	$99,181,631	$16,165,187	$33,580,484	$51,260,883	$70,376,107	$88,881,997
Total Liabilities:	$4,680,735,529	$4,494,662,646	$4,642,015,311	$4,729,610,876	$4,872,717,144	$4,936,156,400

3/31/2021 2/28/2026

Unaudited

Asset to Liability Ratios - Multifamily Revenue Bonds

Asset and Liability Data*

*Unaudited financial information

Indenture: MULTIFAMILY REVENUE BONDS

Date	9/30/2025	10/31/2025	11/30/2025	12/31/2025	1/31/2026	2/28/2026
Cash:	$10,677,745	$12,522,819	$14,999,361	$52,516,548	$39,747,471	$42,006,675
Investments:	$74,179,887	$74,317,755	$75,591,175	$39,674,706	$39,638,098	$39,641,125
Loans/Prog MBS:	$472,787,766	$472,273,896	$485,754,107	$485,241,813	$484,658,474	$484,131,594
Reserves:	$14,099,168	$14,143,168	$14,591,518	$14,900,028	$14,902,688	$14,679,253
Total Assets:	$571,744,566	$573,257,638	$590,936,162	$592,333,095	$578,946,729	$580,458,648
Debt Outstanding:	$498,724,627	$498,678,408	$514,241,979	$514,195,339	$509,483,487	$509,491,422
Accrued Interest:	$3,701,241	$4,934,429	$6,462,927	$7,754,665	$1,283,680	$2,567,075
Total Liabilities:	$502,425,868	$503,612,837	$520,704,906	$521,950,004	$510,767,167	$512,058,497

3/31/2021 2/28/2026

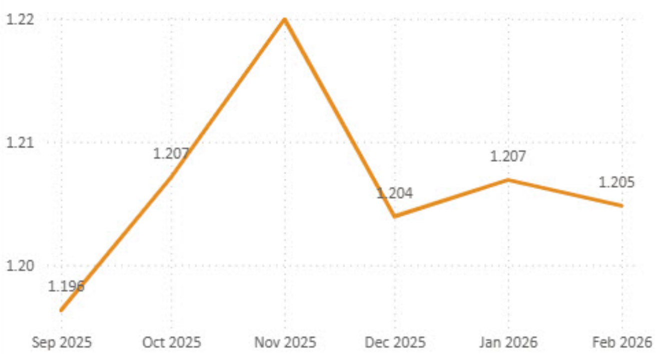
Unaudited

Capital Markets Dashboard

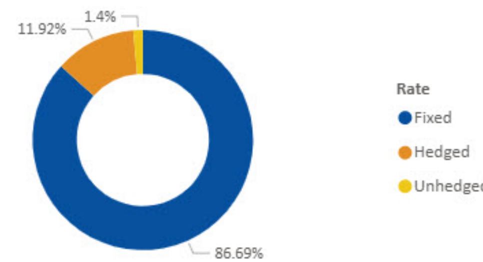
All

Cash:	$619,678,636
Investments:	$687,048,765
Loans/Prog MBS:	$5,609,359,989
Reserves:	$22,753,210
Total Assets:	$6,938,840,600
Debt Outstanding:	$5,666,748,759
Accrued Interest:	$92,543,345
Total Liabilities:	$5,759,292,104

Asset to Liability Ratio



Fixed vs Variable Rate



Hedge Counterparty	Cap	Swap	Total
Bank of America		$165,695,000	**$165,695,000**
Bank of New York Mellon		$142,040,000	**$142,040,000**
Barclays	$11,703,404		**$11,703,404**
Royal Bank of Canada		$215,150,000	**$215,150,000**
Wells Fargo		$131,430,000	**$131,430,000**

Issuance Data

CY Issuance:	$220,000,000
CY Cap:	[redacted]
FY Issuance:	$992,119,000
FY Cap:	[redacted]

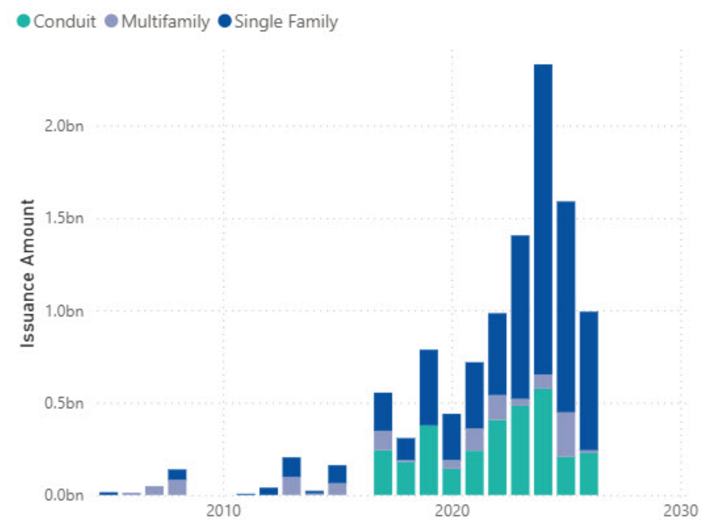
Data listed is as of 02/28/26

Issuance History

Issuance for FY 2026

Type	Series	Issuance Amount	Volume Cap Use	Tax Status
Conduit	400 N. Lake Shore Drive	$44,800,000	[redacted]	Tax-Exempt
Conduit	Bloomingdale Horizon	$8,070,000		Tax-Exempt
Conduit	Congressman Collins	$37,139,000		Tax-Exempt
Conduit	Corcoran Place	$22,000,000		Tax-Exempt
Conduit	Drexel Towers	$44,000,000		Tax-Exempt
Conduit	Hope Manor Village Joliet	$12,500,000		Tax-Exempt
Conduit	Island Terrace	$20,000,000		Tax-Exempt
Conduit	Lakeside Towers	$38,000,000		Tax-Exempt
Multifamily	MFRB 2025 Series C	$15,610,000		Tax-Exempt
Single Family	RB 2025 Series D	$150,000,000		Tax-Exempt
Single Family	RB 2025 Series E	$133,335,000		Taxable
Single Family	RB 2025 Series F	$66,665,000		Taxable
Single Family	RB 2025 Series G	$130,000,000		Tax-Exempt
Single Family	RB 2025 Series H	$70,000,000		Taxable
Single Family	RB 2026 Series A	$155,000,000		Tax-Exempt
Single Family	RB 2026 Series B	$45,000,000		Taxable
Total Issuance		**$992,119,000**		

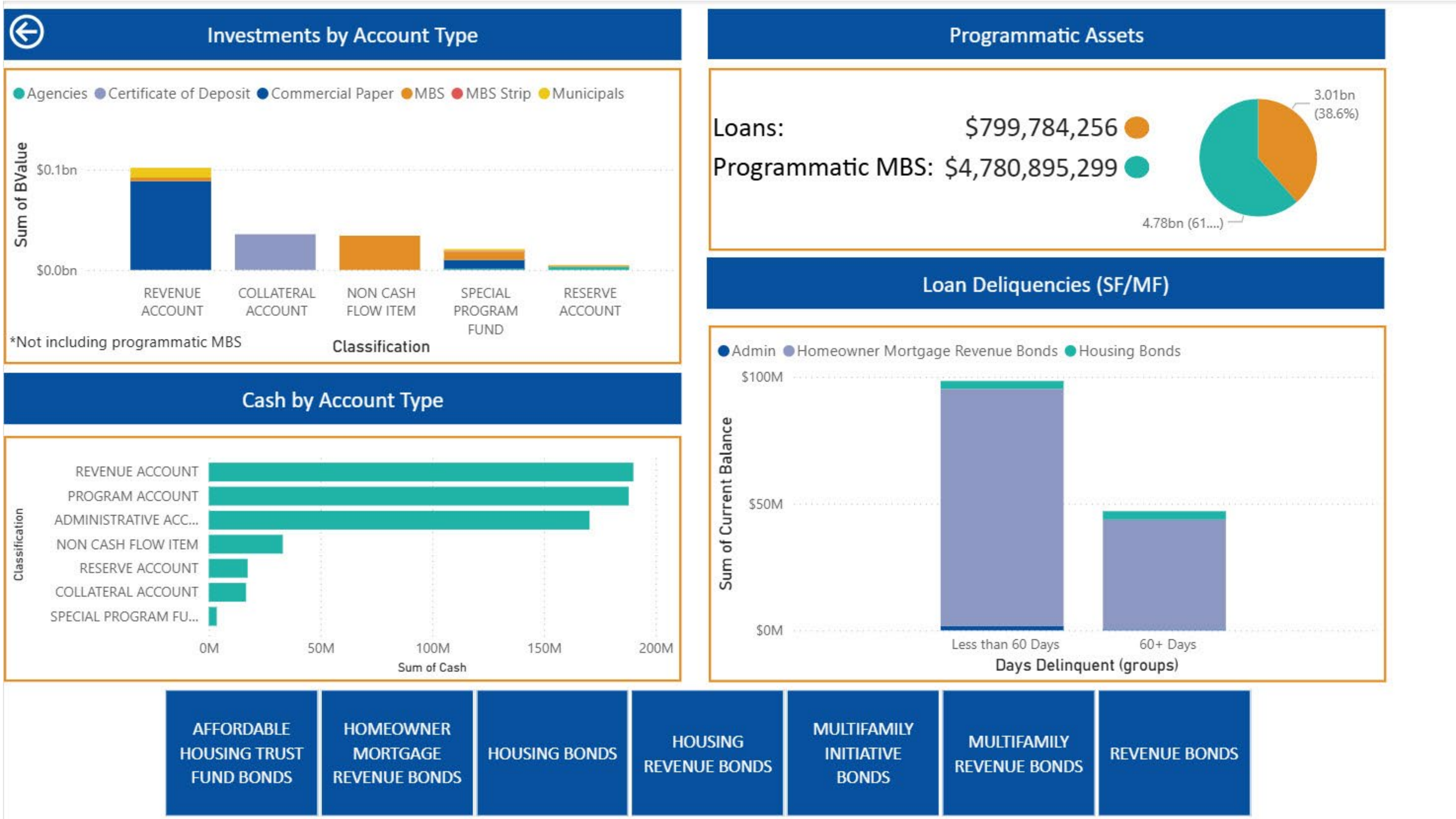
Issuance Over Time by FY



Fiscal Year

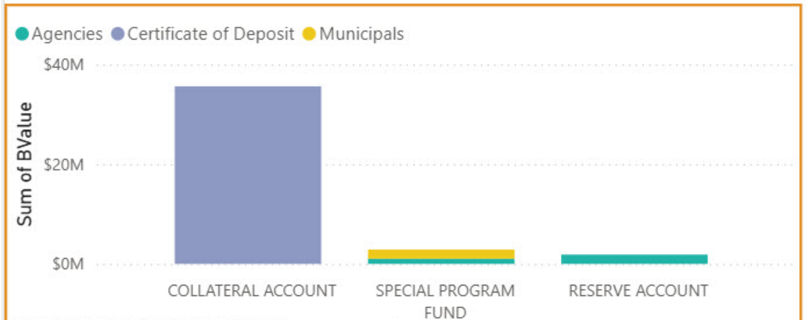
2017 2026

Asset Profile



Asset Profile: Multifamily Revenue Bonds

Investments by Account Type

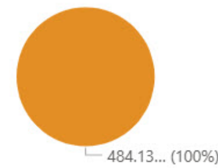


*Not including programmatic MBS

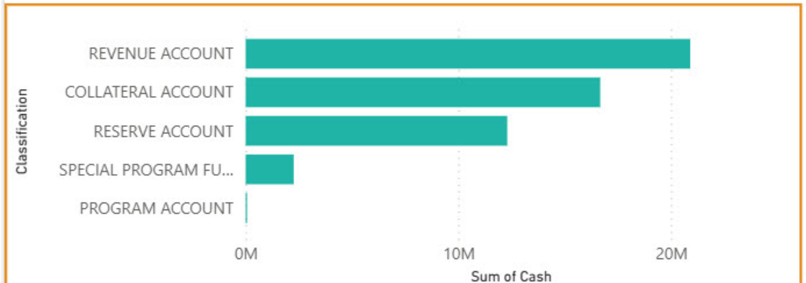
Programmatic Assets

Loans: $484,131,594

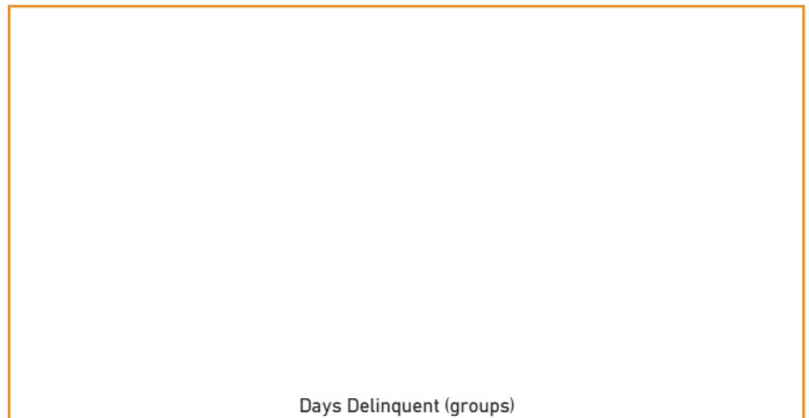
Programmatic MBS:



Cash by Account Type



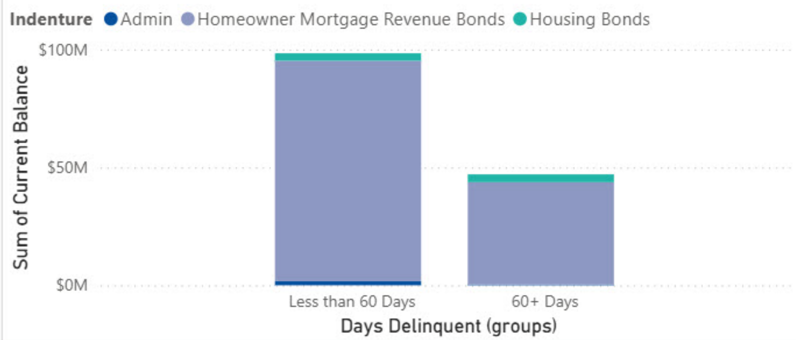
Loan Deliquencies (SF/MF)



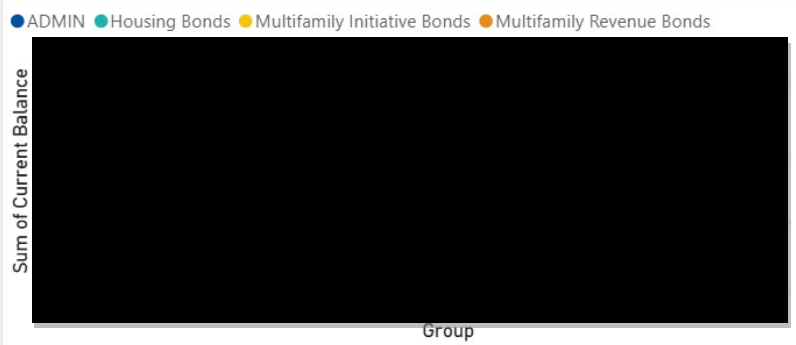
AFFORDABLE HOUSING TRUST FUND BONDS | HOMEOWNER MORTGAGE REVENUE BONDS | HOUSING BONDS | HOUSING REVENUE BONDS | MULTIFAMILY INITIATIVE BONDS | MULTIFAMILY REVENUE BONDS | REVENUE BONDS

Asset Profile: Program Loans

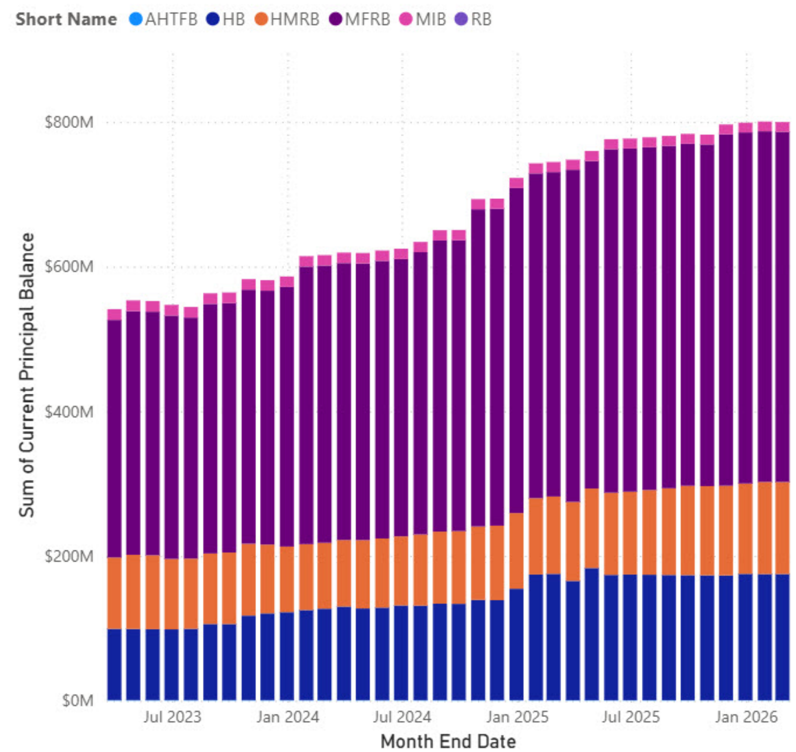
Loan Delinquencies (SF/MF)



Loan Loss Reserve

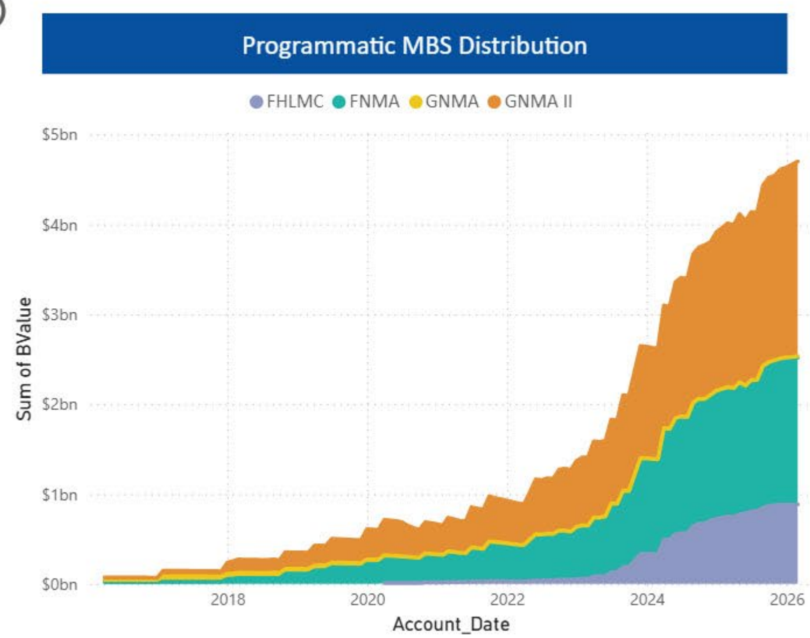


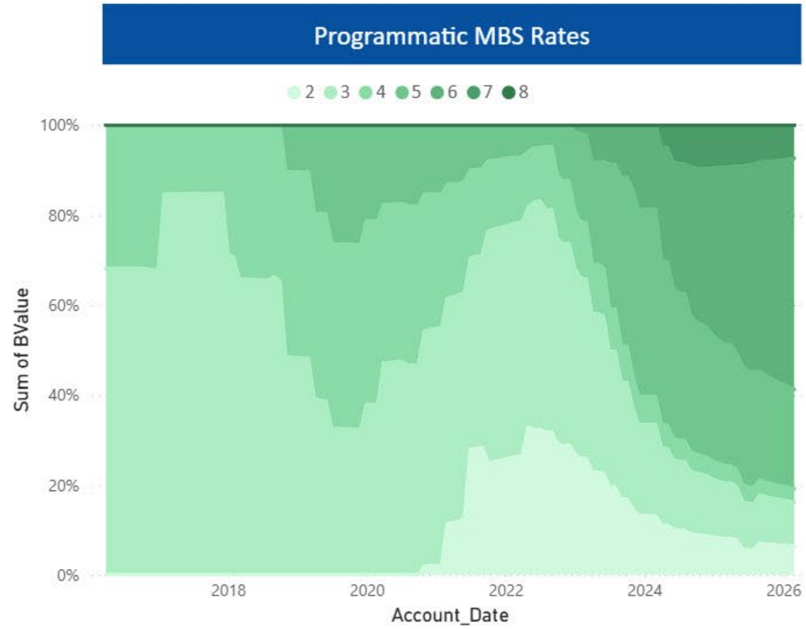
Principal Outstanding Over Time



AFFORDABLE HOUSING TRUST FUND BONDS	HOMEOWNER MORTGAGE REVENUE BONDS	HOUSING BONDS	HOUSING REVENUE BONDS	MULTIFAMILY INITIATIVE BONDS	MULTIFAMILY REVENUE BONDS	REVENUE BONDS

Asset Profile: Program Mortgage Backed Securities (MBS)



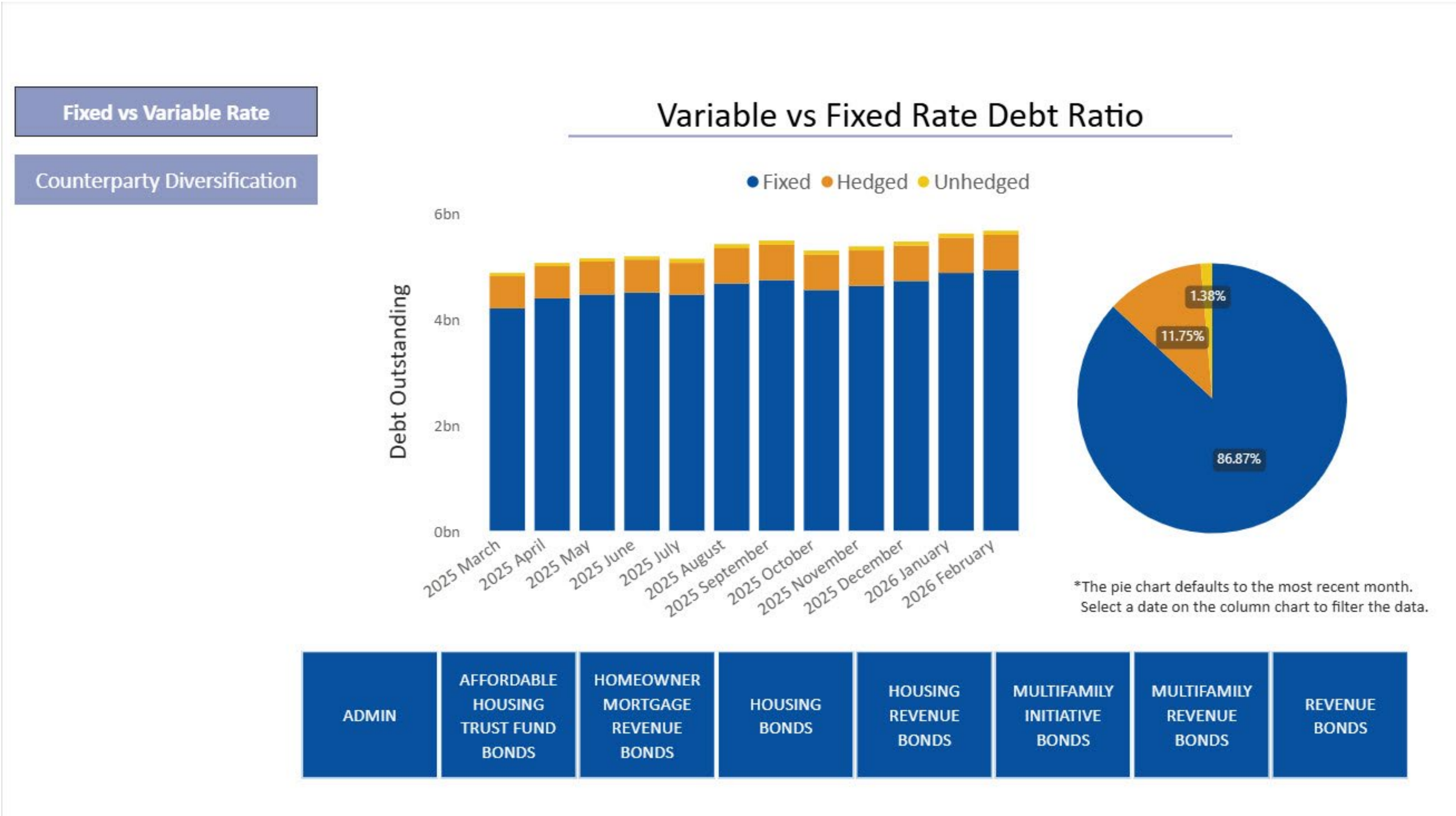


1/31/2016 2/28/2026

HOMEOWNER MORTGAGE REVENUE BONDS

REVENUE BONDS

Fixed vs. Variable Rate Debt



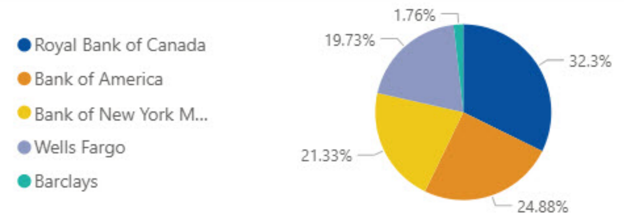
Counterparty Exposure

Fixed vs Variable Rate

Counterparty Diversification

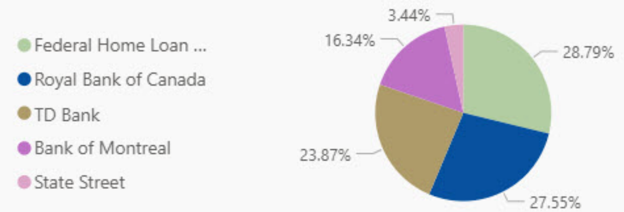
Hedging Counterparties by Exposure

Hedge Counterparty	Cap	Swap	Total
Bank of America		165,695,000.00	**165,695,000.00**
Bank of New York Mellon		142,040,000.00	**142,040,000.00**
Barclays	11,703,404.15		**11,703,404.15**
Royal Bank of Canada		215,150,000.00	**215,150,000.00**
Wells Fargo		131,430,000.00	**131,430,000.00**



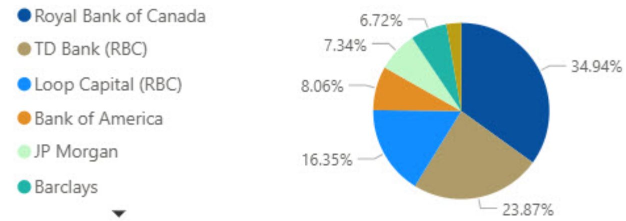
Liquidity Providers by Exposure

Liquidity Provider	Sum of Outstanding
Bank of Montreal	121,590,000.00
Federal Home Loan Bank of Chicago	214,183,404.15
Royal Bank of Canada	205,000,000.00
State Street	25,630,000.00
TD Bank	177,640,000.00



Remarketing Agents by Exposure

Remarketing Agent	Sum of Outstanding
Bank of America	60,000,000.00
Barclays	50,000,000.00
JP Morgan	54,603,404.15
Loop Capital (RBC)	121,675,000.00
Morgan Stanley	20,155,000.00
Royal Bank of Canada	259,970,000.00
TD Bank (RBC)	177,640,000.00



ADMIN	AFFORDABLE HOUSING TRUST FUND BONDS	HOMEOWNER MORTGAGE REVENUE BONDS	HOUSING BONDS	HOUSING REVENUE BONDS	MULTIFAMILY INITIATIVE BONDS	MULTIFAMILY REVENUE BONDS	REVENUE BONDS

Standby Bond Purchase Agreement Exposure

Expected Payments

Series Name	Liquidity Provider	Liquidity Fee	Sum of Quarterly Payment
RB 2024 G	Royal Bank of Canada	0.26%	46,644.50
RB 2022 D	Bank of Montreal	0.24%	38,112.29
RB 2023 P	TD Bank	0.22%	37,798.98
RB 2020 C	Federal Home Loan Bank of Chicago	0.33%	35,017.97
RB 2022 F	Bank of Montreal	0.24%	31,834.52
HB 2017 A2	Federal Home Loan Bank of Chicago	0.33%	26,995.81
RB 2023 J	Royal Bank of Canada	0.26%	26,822.42
RB 2019 B	Federal Home Loan Bank of Chicago	0.33%	26,263.48
HMRB 2018 A2	Federal Home Loan Bank of Chicago	0.32%	25,625.42
RB 2023 F	TD Bank	0.22%	25,265.47
RB 2024 H	Royal Bank of Canada	0.26%	22,992.75
RB 2023 C	TD Bank	0.22%	21,886.23
MFRB 2024 A	Federal Home Loan Bank of Chicago	0.33%	21,409.11
RB 2023 M	TD Bank	0.22%	18,995.64
MFRB 2022 C	Federal Home Loan Bank of Chicago	0.33%	17,644.68

Total Quarterly Expense by Counterparty

Liquidity Provider	Average of Liquidity Fee	Sum of Quarterly Payment
Bank of Montreal	0.24%	77,415.19
Federal Home Loan Bank of Chicago	0.28%	186,918.52
Royal Bank of Canada	0.20%	96,459.67
State Street	0.26%	17,460.08
TD Bank	0.22%	103,946.32
Total	**0.25%**	**482,199.78**

Upcoming SBPA Expirations

Series Name	Liquidity Provider	SBPA Expiration
HB 2017 A2	Federal Home Loan Bank of Chicago	Tuesday, November 03, 2026
MFRB 2022 C	Federal Home Loan Bank of Chicago	Wednesday, May 12, 2027
RB 2022 D	Bank of Montreal	Tuesday, May 18, 2027
RB 2022 F	Bank of Montreal	Tuesday, September 21, 2027
MFRB 2023 C	Bank of Montreal	Wednesday, February 09, 2028
RB 2023 C	TD Bank	Wednesday, March 29, 2028
RB 2023 F	TD Bank	Thursday, June 01, 2028
HMRB 2018 A2	Federal Home Loan Bank of Chicago	Tuesday, July 11, 2028
RB 2023 J	Royal Bank of Canada	Wednesday, August 02, 2028
MFRB 2024 E	State Street	Tuesday, August 08, 2028
RB 2023 M	TD Bank	Wednesday, October 25, 2028
RB 2023 P	TD Bank	Thursday, November 30, 2028
MFRB 2024 A	Federal Home Loan Bank of Chicago	Thursday, January 25, 2029
MFRB 2025 B	State Street	Monday, May 21, 2029
HB 2008 A	Federal Home Loan Bank of Chicago	Wednesday, May 23, 2029
HB 2008 B	Federal Home Loan Bank of Chicago	Wednesday, May 23, 2029
HB 2008 C	Federal Home Loan Bank of Chicago	Wednesday, May 23, 2029
RB 2019 B	Federal Home Loan Bank of Chicago	Wednesday, May 23, 2029
RB 2024 G	Royal Bank of Canada	Monday, August 13, 2029
RB 2024 H	Royal Bank of Canada	Monday, August 13, 2029
HB 2015 A3	Federal Home Loan Bank of Chicago	Friday, December 28, 2029
HMRB 2004 C3	Federal Home Loan Bank of Chicago	Sunday, June 30, 2030
RB 2025 F	Royal Bank of Canada	Monday, August 12, 2030
RB 2020 C	Federal Home Loan Bank of Chicago	Wednesday, October 30, 2030

Derivatives Tracking

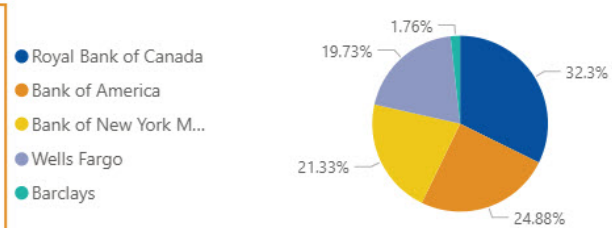
Hedging Instruments

Mark-to-Market

Bond Series	Counterparty	Hedging Instrument	Hedged Bonds Outstanding	Sum of Mark-to-Market
RB 2020 C	Royal Bank of Canada	Swap	40,000,000.00	6,122,021.00
RB 2022 D	Bank of America	Swap	59,860,000.00	3,320,797.00
MFRB 2024 A	Royal Bank of Canada	Swap	24,455,000.00	3,046,485.00
RB 2022 F	Royal Bank of Canada	Swap	50,000,000.00	2,209,174.00
RB 2023 F	Bank of New York Mellon	Swap	43,290,000.00	1,742,144.00
RB 2019 B	Bank of America	Swap	30,000,000.00	1,237,353.00
MFRB 2023 C	Royal Bank of Canada	Swap	11,730,000.00	672,006.00
MFRB 2024 E	Royal Bank of Canada	Swap	12,545,000.00	595,644.00
RB 2023 J	Bank of America	Swap	38,335,000.00	332,967.00
HB 2008 C	Barclays	Cap	3,645,472.17	16.00
HB 2008 A	Barclays	Cap	8,057,931.98	0.00
RB 2023 C	Bank of America	Swap	37,500,000.00	-43,260.00
RB 2024 H	Royal Bank of Canada	Swap	33,335,000.00	-168,260.00
MFRB 2025 B	Royal Bank of Canada	Swap	13,085,000.00	-421,243.00
RB 2024 G	Bank of New York Mellon	Swap	66,665,000.00	-501,849.00
RB 2023 P	Wells Fargo	Swap	64,765,000.00	-2,178,885.00
Total			**636,018,404.15**	**11,300,341.00**

Summarized Data by Counterparty

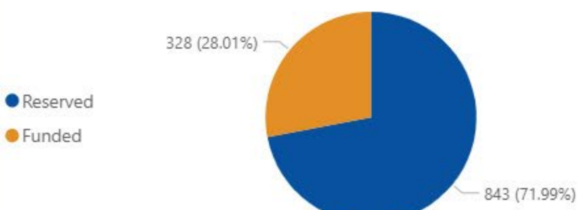
Hedge Counterparty	Sum of Mark-to-Market	Sum of Outstanding
Bank of America	4,847,857.00	165,695,000.00
Bank of New York Mellon	-1,034,120.00	142,040,000.00
Barclays	16.00	11,703,404.15
Royal Bank of Canada	12,055,827.00	215,150,000.00
Wells Fargo	-4,569,239.00	131,430,000.00
Total	**11,300,341.00**	**666,018,404.15**



Single-Family Loan Pipeline

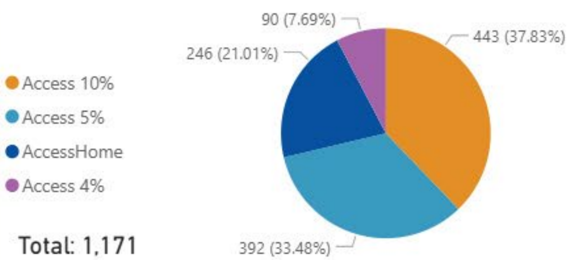
Loan Pipeline

Pipeline Status



Total: 1,171

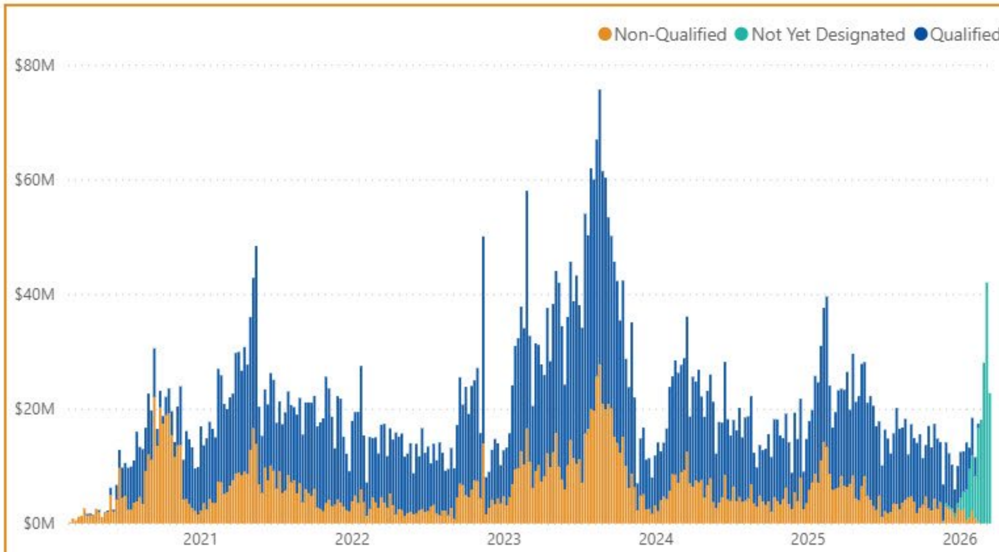
Program Makeup



Total: 1,171

Historic Weekly Loan Reservations

All



2/25/2020 3/18/2026

Average DPA:	$9,030
Average Purchase Price:	$216,544
Average Loan Amount:	$207,727
Average Borrower Income:	$77,259

Pipeline Loan Data

Pipeline Age

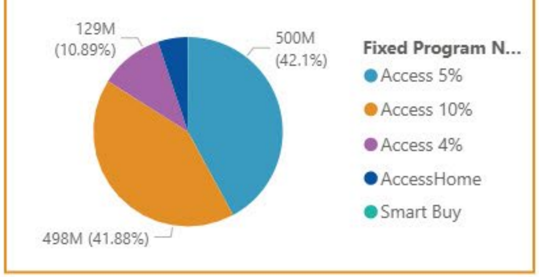
*Listed values are as of the 365 days through today.

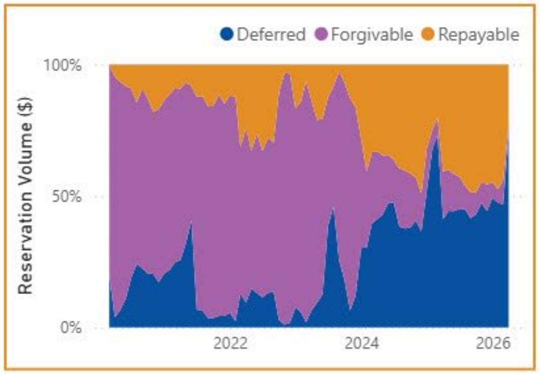
Single-Family Down Payment Assistance Pipeline

Program Name

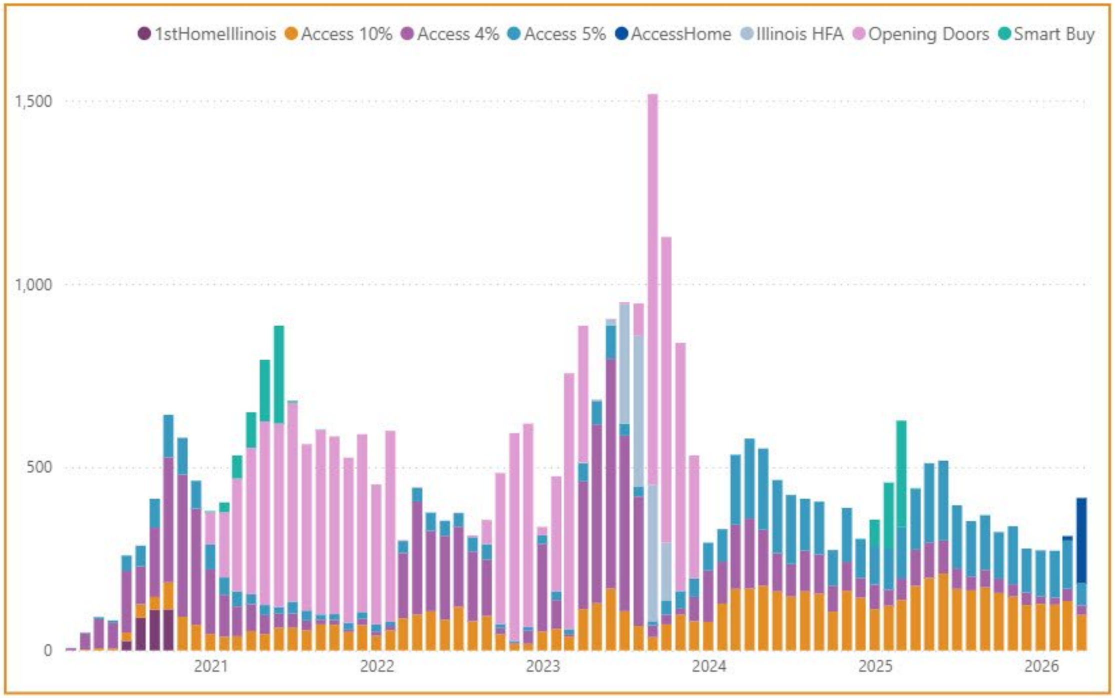
All

First Mortgage Reservations (Past 13 Months)





Loan Reservations by DPA Program (Count)

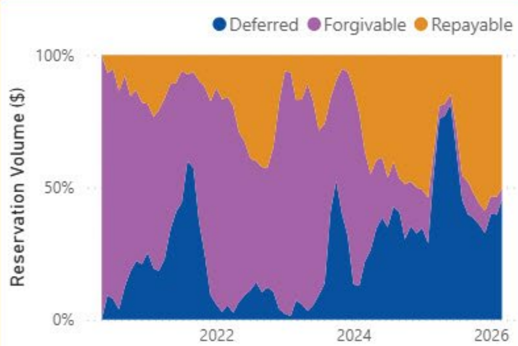


Single-Family Down Payment Assistance Funds Tracking

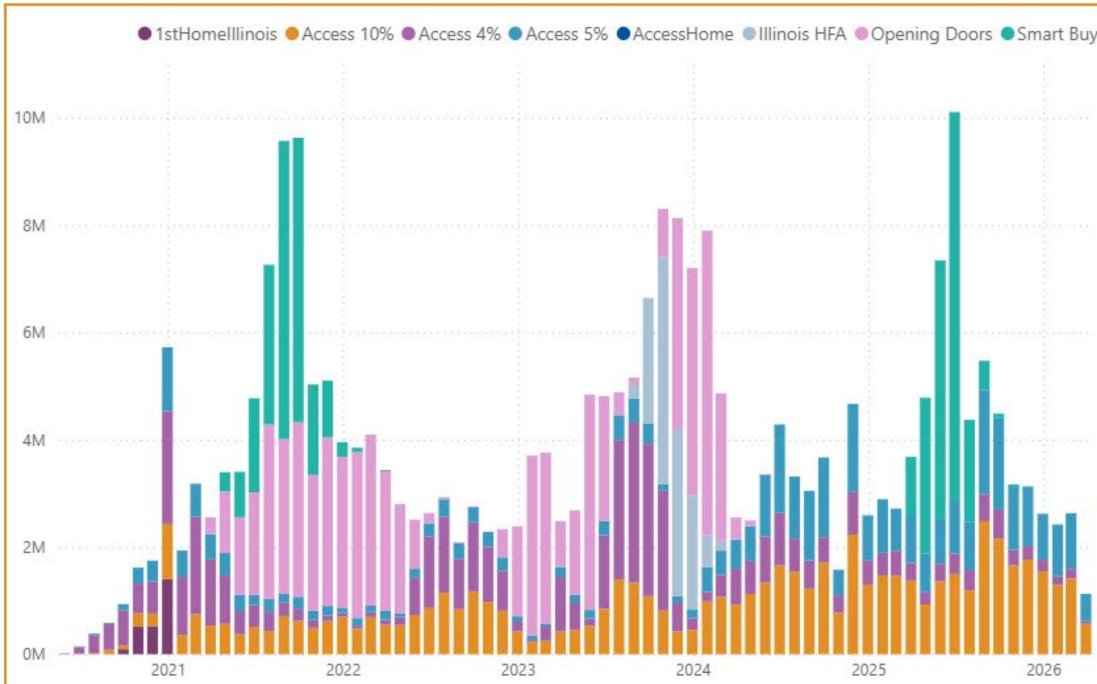
Estimated Fund Exhaustion

Program	Program Balance	Fund Exhaustion Date
Access 10%	$13,161,289.27	11/13/2026
Access 4%	$2,529,092.85	12/17/2026
Access 5%	$6,528,012.98	8/28/2026
AccessHome	$5,000,000.00	5/20/2026
Earliest Exhaustion Date		**5/20/2026**

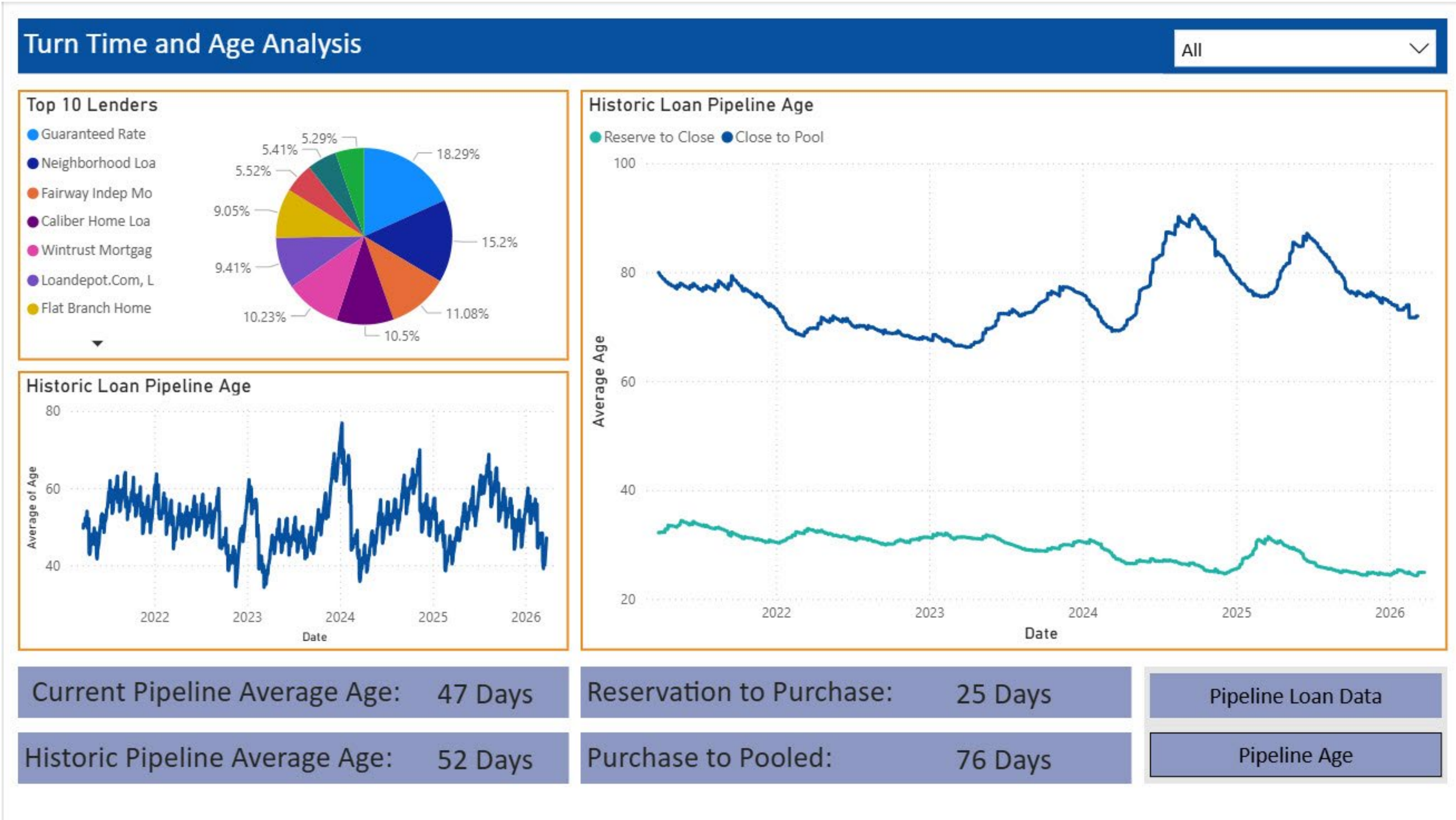
*Excluding Smart Buy and other inactive programs



DPA Funds



Single-Family Pipeline- Turn Time and Age Analysis



Single-Family Pipeline Geography