Mission Index Criteria Attribution (MICA) User Guide

January 2025



Introduction



Mission Index disclosures provide insights into mission-oriented lending activities underlying our Single-Family mortgage-backed securities (MBS)

- The Mission Index Criteria Attribution (MICA) disclosure supplement and accompanying Excel-based tool provides impact investors with enhanced insights into the estimated representation of specific populations of Mission borrowers in their portfolios.
 - Mission borrowers meet at least one of the Mission dimensions of income, borrower or property. The minority borrower Mission criterion will not be estimated in the Mission Index v1.0 MICA disclosures.
- The MICA disclosure supplement provides cohort-level information about Freddie Mac MBS pools issued between January 2010 and May 2024, which were scored under the original Mission Index version 1.0. MICA Version 1.0 only contains Freddie Mac MBS (Level 1 securities and MultiLenders).
- With this supplemental disclosure, investors can estimate how common each Mission criteria is in issued securities by leveraging the cohort level MICA disclosure based on issuance quarter, prefix, specified story, and MDS bucket.

Freddie Mac plans to launch the Mission Index v1.1 MICA disclosure supplement in Q1 2025 (for pools issued beginning June 2024, which were scored under Mission Index version 1.1) and will provide updates on a regular basis thereafter.

MICA Disclosure Supplement



The MICA resources empower investors to quantify the estimated impact of their portfolio investments on specific populations of Mission borrowers.

- The MICA methodology provides an estimate of portfolio impact without compromising borrower privacy.
- Its purpose is to facilitate the estimation of criteria-specific contribution to a portfolio's impact on Mission-oriented lending.
- A portfolio manager would be able to provide clients with estimates about the composition of portfolio.

Illustrative Example of Portfolio Impact

Based on MICA disclosure supplement, an investor can gain the following estimated impacts about their portfolio:

Low-Income Borrower Loan Count = 225 Low-Income
Area Loan
Count
= 150

Manufactured Housing Loan Count = 25

High-Needs Rural Loan Count

First Time
Homebuyer
Loan Count
= 100

Minority Census
Tract Loan
Count
= 25

Designated
Disaster Area
Loan Count
= 50

MICA Report Design



An investor can determine the average expected pool-level impact for each Mission criterion through the following steps:

- 1. Map each MBS security in the investor's portfolio to a cohort as determined by Issuance Quarter, Prefix, Specified Story and MDS bucket.
- 2. Calculate the number of Mission loans in each MBS pool (i.e., number of loans that qualify for any of the criteria) as pool MCS multiplied by pool loan count.
- 3. Determine the estimated representation of each criterion by multiplying the number of Mission loans in each MBS pool by the criteria shares for the pool's respective cohort as shown below.

	Cohort Disclosure Calculation Example: 2022-Q4 CL NONSPEC (3.00,3.50) ILLUSTRATIVE EXAMPLE											
	All Loans	Mission Loans	Low Income Borrower	First-Time Homebuyer	Low Income Area	High-Needs Rural	Minority Tract	Designated Disaster Area	Manufactured Housing			
Loan Count	100,000	32,850	6,274	8,541	3,975	1,018	4,862	5,979	1,971			
Loan Share		100.0%	19.1%	26.0%	12.1%	3.1%	14.8%	18.2%	6.0%			

- In this example, nearly 33,000 loans in the cohort met one or more of the Mission Index v1.0 criteria.
- The table illustrates the loan counts and Mission loan shares meeting each of the criteria in that cohort (not including Minority Borrower).

To facilitate portfolio-level analysis, we published an Excel-based tool where users can input their portfolio. The tool automatically maps CUSIPs to their respective cohort and calculates the representation of the individual criteria.

CUSIP Cohort Assignment



- MICA contains a cohort-level representation of individual Mission criteria based on the actual population of loans collateralizing pools in that cohort. The MICA disclosure assigns all MBS securities that were scored under Mission Index v1.0 to cohorts as determined by Issuance Quarter, Prefix, Specified Story and Mission Density Score (MDS) bucket.
- Cohorts containing less than five MBS pools will be merged with adjacent cohorts to protect borrower privacy.
- Freddie Mac published a CUSIP mapping file containing all Level 1 securities and MultiLenders scored under Mission Index v1.0 that can be used to map each MBS security to its MICA cohort.
- The CUSIP mapping file will provide the following attributes (illustrative example):

CUSIP	Issue Date	Issuance Investor Security UPB	Loan Count	Quarter	Prefix	Specified Story	Mission Density Score	Mission Criteria Share	Actual Prefix *
3132DWBE2	12/1/2020	17233306	50	2020-Q4	CL	NONSPEC	0.5	34	CL
3132DV5K7	2/1/2020	8460794114	23771	2020-Q1	CL	NONSPEC	0.51	36.73	CL
31326MQZ9	1/1/2018	7242673	26	2018-Q1	2B	NONSPEC	0.69	42.31	2B
3132HPCN2	11/1/2012	3239589	14	2012-Q4	CL	NONSPEC	1.07	64.29	Q1

^{*}Prior to the launch of the UMBS Single Security in June 2019, Freddie Mac issued all fixed-rate securities with a 45-day payment delay. Since that time, Freddie Mac has facilitated a process whereby investors could exchange their 45-day securities for 55-day mirror securities. In the MICA disclosure, the 45-day data (where applicable) will be leveraged but both the 45- and 55-day CUSIPs will be represented on the CUSIP mapping file. This will allow for investors to map either pool to a cohort. Additionally, for purposes of the MICA disclosure supplement, 45-day securities will leverage the Prefix for the associated 55-day mirror security (on the DSCL and CUSIP tabs). However, the actual prefix for the 45-day security is represented in the last column ("Actual Prefix") on the v1.0 CUSIP tab.

MICA Report Cohorting



- To protect borrower privacy, the MICA disclosure will not disclose any given cohort with fewer than five pools and will censor cohorts that have 100% representation in any of the Mission criteria.
 - Mission Density Score (MDS) bands will be defaulted to widths of 0.25 but may be expanded to allow for cohorts with fewer than five
 pools or have 100% representation in any of the criteria.
 - Censored cohorts may be rolled up to a higher-level aggregation, when possible. If that is not possible, the cohort will not be disclosed.
- This aggregation process may cause some cohorts or MDS ranges that are represented in the CUSIP mapping file to not appear in the MICA disclosure file.
 - Owners of pools that fall into a cohort that is not represented in the disclosure file can roll up to the next level of granularity for a reasonable estimate of impact.

Example: 2020-Q4 CL NONSPEC Cohort MICA Disclosure (illustrative example)

Quarter	Prefix	Specified Story	Cohort Mission Density Score Minimum (Incl)	Cohort Mission Density Score Maximum (Excl)	Cohort Mission Density Score	Cohort Mission Criteria Share	Low Income Borrower Share	First Time Homebuyer Share	Low Income Area Share	Minority Tract Share	Manufactured Housing Share	High Needs Rural Share	Designated Disaster Area Share
2020-Q4	CL	NONSPEC	0	1	0.21	20.93	5.56	21.11	3.33	8.89	0	3.33	11.11
2020-Q4	CL	NONSPEC	1	1.25	1.07	69.18	25.32	42.04	12.8	20.75	1.07	1.09	27.01
2020-Q4	CL	NONSPEC	1.25	1.5	1.37	80.67	41.9	42.03	17.54	24.63	6.69	0.67	20.21
2020-Q4	CL	NONSPEC	1.5	1.75	1.59	89.57	46.73	42.8	23.3	30.76	0.79	1.18	15.71
2020-Q4	CL	NONSPEC	1.75	2	1.88	94.98	73.98	60.16	23.17	33.33	1.22	1.22	23.98
2020-Q4	CL	NONSPEC	2	2.25	2.17	99.03	82.66	80.88	28.34	34.27	0.53	0.94	12.79
2020-Q4	CL	NONSPEC	2.25	2.75	2.5	100	95.09	77.83	37.8	49.55	2.23	2.83	41.37
2020-Q4	CL	NONSPEC	7.75 ¹	8 ¹	1.1	56.81	57.89	59.3	25.51	32.73	1.82	1	21.99
2020-Q4	CL	NONSPEC	ALL	ALL	0.78	51.32	29.35	41.08	15.22	21.71	0.82	0.86	19.21

¹ The (7.75,8.00) MDS bucket is comprised of pools with fewer than 10 loans that are not scored and disclosed as 7.77 MDS

MICA Report Cohorting (continued)



All pools are assigned to MICA cohorts based on a combination of 1) Issuance Quarter, 2) Prefix, 3) Specified Story, and 4) MDS bucket. To begin, pools should be grouped by MDS ranges that are 0.25 wide (inclusive at the bucket minimum and exclusive at the bucket maximum). The example below illustrates how pools are grouped to meet the five-pool minimum requirement.

Pool	Prefix	MDS	MCS	Issuance Quarter	Specified Story	Cohort MDS Minimum	Cohort MDS Maximum
1	CL	0.40	15	2020-Q1	NONSPEC	0.25	0.50
2	CL	1.00	35	2020-Q1	NONSPEC	1.00	1.25
3	CL	1.10	40	2020-Q1	NONSPEC	1.00	1.25
4	CL	1.25	45	2020-Q1	NONSPEC	1.25	1.50
5	CL	1.30	50	2020-Q1	NONSPEC	1.25	1.50
6	CL	1.50	55	2020-Q1	NONSPEC	1.50	1.75
7	CL	1.60	60	2020-Q1	NONSPEC	1.50	1.75
8	CL	1.70	65	2020-Q1	NONSPEC	1.50	1.75
9	CL	1.75	70	2020-Q1	NONSPEC	1.75	2.00
10	CL	1.80	75	2020-Q1	NONSPEC	1.75	2.00
11	CL	2.00	80	2020-Q1	NONSPEC	2.00	2.25
12	CL	2.05	85	2020-Q1	NONSPEC	2.00	2.25
13	CL	2.10	90	2020-Q1	NONSPEC	2.00	2.25
14	CL	2.25	95	2020-Q1	NONSPEC	2.25	2.50
15	CL	2.30	100	2020-Q1	NONSPEC	2.25	2.50

•	Cohort MDS Minimum	Cohort MDS Maximum	Pool Count
	0.25	0.50	1
	1.00	1.25	2
	1.25	1.50	2
	1.50	1.75	3
	1.75	2.00	2
	2.00	2.25	3
	2.25	2.50	2

Cohort MDS Minimum	Cohort MDS Maximum	Pool Count
0.25	1.50	5
1.50	2.00	5
2.00	2.50	5

In the example table above, no cohort has more than three pools. To protect borrower privacy, cohorts with fewer than five pools will be aggregated with others by expanding MDS bucket widths until the pool minimum is met.

To meet the five-pool minimum requirement, the illustrated pools are ultimately grouped into three Cohort MDS ranges.

Finally, the presentation should also include an "ALL" cohort for each level of the cohort dimensions. This means that our sample set of pools would generate four cohort lines.

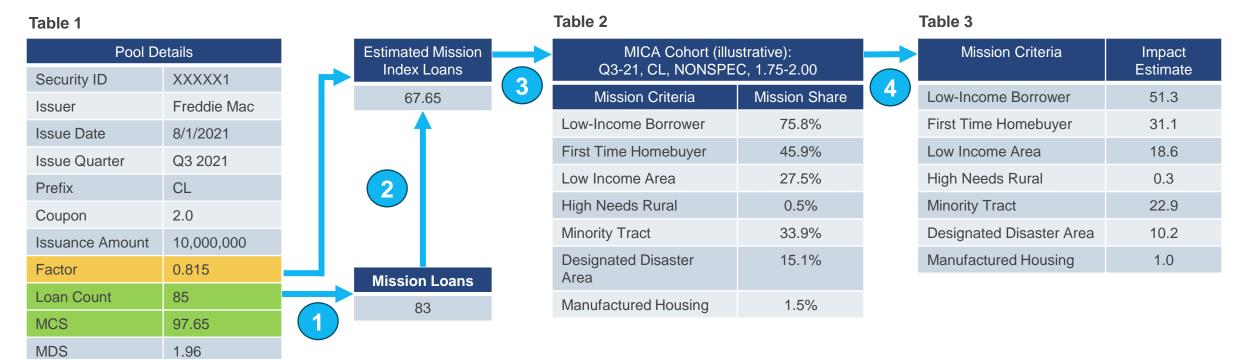
For dropped cohorts (i.e., censored cohorts that are completely excluded for not meeting the 5-pool minimum threshold or have 100% representation in any Mission criteria), investors can use the ALL cohort as a reasonable proxy when making impact assessments for the pools.

Issuance Quarter	Prefix	Specified Story	Cohort Mission Density Score Minimum	Cohort Mission Density Score Maximum
2020-Q1	CL	NONSPEC	0.25	1.50
2020-Q1	CL	NONSPEC	1.50	2.00
2020-Q1	CL	NONSPEC	2.00	2.50
2020-Q1	CL	NONSPEC	ALL	ALL
2020-Q1	CL	ALL	ALL	ALL
2020-Q1	ALL	ALL	ALL	ALL



Estimating Criteria Share for an Individual Pool





Pool Impact Estimation Process

- 1. The sample pool contained 85 loans at issuance. Multiplying the issuance loan count by the MCS (97.65%) yields 83 loans that met one or more of the Mission Index v1.0 criteria at issuance.
- 2. To estimate the current Mission loan count, the issuance Mission loan count (83) is multiplied by the security factor (0.815); this simplifying assumption amortizes the Mission loans at the same rate as the security's UPB.
- 3. This pool is mapped to the appropriate Issuance Quarter/Prefix/Specified Story/MDS Bucket cohort (Table 2). MICA provides the share of Mission loans in that cohort that met each criterion (Minority Borrower is excluded).
- 4. The current estimated Mission loan count (67.65) is multiplied by the criteria-specific shares in Table 2 to yield the estimated criteria-specific loan counts in Table 3.

Using the MICA Tool



Users can leverage the excel-based tool to automatically calculate the estimated Mission criteria-specific representation for any given pool.

CUSIP	Owned Original Face	Current Factor	2
3133AJ3F8	100,631,603.00	0.80632949	
3133AJ3M3	1,000,000.00	0.76011166	
← →	instructions	mmary portfo	lio v1.0DSCL

Update the "portfolio" tab:

- 1. Select the portfolio tab.
- 2. If applicable, delete the contents of the yellow cells (below row #1).
- For each security in the portfolio, paste the following attributes into the yellow cells: CUSIP, Owned Original Issuance Amount, Current Security Factor of the security (in decimals).
 - All attributes are required to estimate current criteria representation.
- 4. Confirm that the count provided in cell E1 equals the number of securities entered.

Please note:

- A maximum of 2,500 securities can be loaded into the spreadsheet.
- Criteria representation estimates will only be calculated for Freddie Mac pools.

The tool will be updated to support MICA V1.1 disclosures in early 2025.

Using the MICA Tool (continued)

339.5





Estimated Loan Counts (Issuance, Full Ownership)	
Mission Loans	13,287.0
Income	
Income: Low Income Borrower (≤80 AMI)	6,570.6
Borrower	
Borrower: FTHB (≤120 AMI)	3,728.4
Property	
Property: Low Income Area (≤120 AMI)	2,619.6
Property: Minority Tract (≤120 AMI)	3,265.4
Property: Manufactured Housing (≤120 AMI)	112.6
Property: High Needs Rural (≤120 AMI)	227.2
Property: Designated Disaster Area (≤120 AMI)	3,155.3

Income		
Income: Low In	ncome Borrower (≤80 AMI)	212.2
Borrower		
Borrower: FTH	B (≤120 AMI)	85.0
Property		
Property: Low	Income Area (≤120 AMI)	75.8
Property: Mino	ority Tract (≤120 AMI)	85.9
Property: Man	ufactured Housing (≤120 AMI)	4.0
Property: High	Needs Rural (≤120 AMI)	8.0
	gnated Disaster Area (≤120 AMI)	82.0

Portfolio impact estimates are provided on the summary tab. The estimates provided are based on the entirety of eligible CUSIPs loaded into the Portfolio tab.

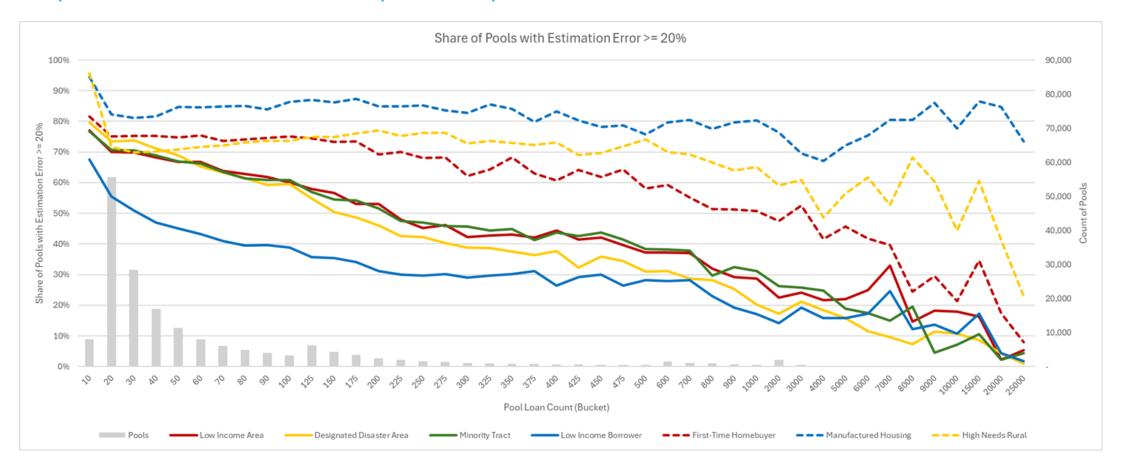
- 1. <u>Waterfall Validation:</u> Cell B2 will show PASS in green to confirm that each pool was mapped to one cohort and that the output is valid.
- 2. Scoring Analysis: Summary of the pools analyzed.
 - Total Pool Count total number of pools in the portfolio
 - Scored Pool Count total number of pools that were scored
 - Scored Percent (By Pool count) scored pools as a percentage of all portfolio pools
 - Total Current UPB (Owned) adjusted total current UPB for all portfolio pools
 - Scored Current UPB (Owned) total current UPB of scored portfolio pools adjusted for ownership percentage
 - Scored Percent (By Owned Current UPB) total current UPB of scored portfolio pools adjusted for ownership percentage as a percent of the current UPB of all portfolio pools adjusted for ownership percentage
 - Scored Issuance Loan Count total loan count at issuance of scored portfolio pools
 - Scored Current Holdings Loan Count (Estimated) total loan count of scored portfolio pools adjusted for current factor and ownership percentage
- 3. <u>Estimated Loan Counts (Issuance, Full Ownership):</u> a summary of the estimated representation of Mission criteria in the portfolio pools at issuance and assuming 100% ownership of the pool.
- 4. <u>Estimated Loan Counts (Current, Portfolio Ownership):</u> a summary of the current estimated representation of Mission criteria in the portfolio pools assuming actual portfolio ownership percentage of the pool.

Once the MICA v1.1 supplemental disclosure is available and input in the MICA tool, the portfolio and summary tabs can be leveraged for pools scored under Mission Index v1.1 as well.



Analyzing Pool-Level Estimation Error

At the pool level, estimation error¹ improves as pool loan count increases



¹ Estimation error is the difference between the actual and MICA-estimated criteria loan count divided by the MICA-estimated criteria loan count (e.g., 10 actual low-income borrowers in pool minus 8 MICA-estimated low-income borrowers in pool divided by 8 MICA-estimated low-income borrowers in pool.)

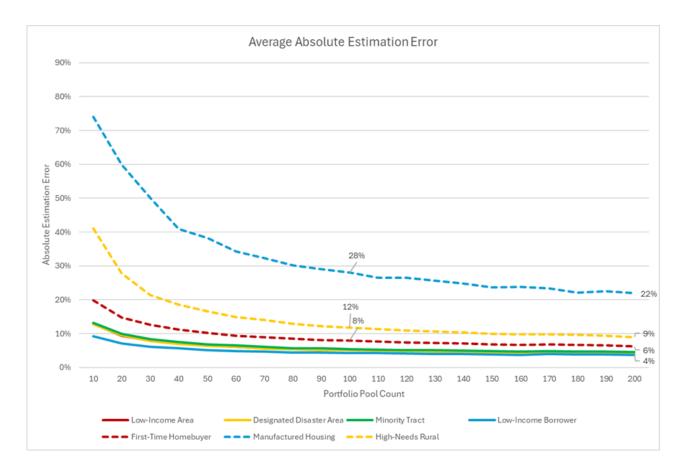
Population is limited to Freddie Mac v1.0 pools with at least 10 loans (MDS/MCS disclosures calculated).

Pools are bucketed by loan count at issuance in a quasi-logarithmic fashion to show additional detail for smaller pools.

Analyzing Portfolio-Level Estimation Error

The average estimate estimation error¹ of a portfolio improves as portfolio pool count increases

- A portfolio manager can estimate the impact of their portfolio holdings by aggregating the poollevel estimates for a given Mission Index criterion.
- Aggregating the estimates of individual pools up to the portfolio level significantly improves the accuracy of the estimate, as over- and underestimations of the criterion loan counts at the pool level offset each other.
- For this analysis, random portfolios of varying pool counts were generated from the universe of MBS pools with a minimum pool size of \$1MM issuance UPB. Portfolio construction assumes an equal ownership percentage of all pools in the portfolio.



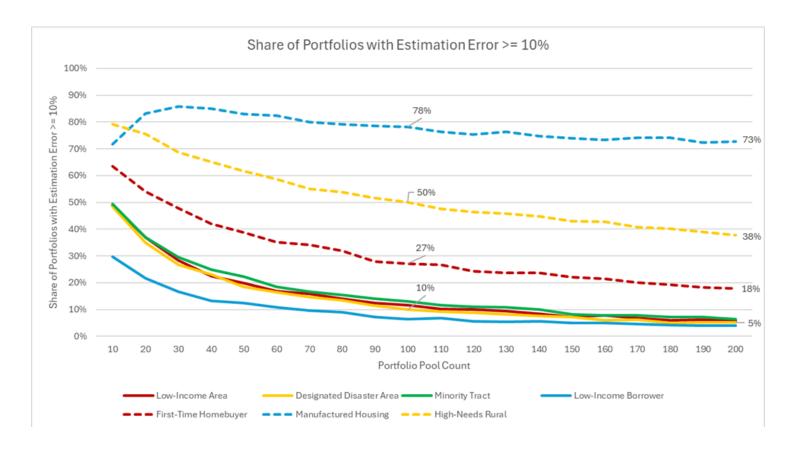
¹ Estimation error is the difference between the actual and MICA-estimated criteria loan count divided by the MICA-estimated criteria loan count (e.g., 10 actual low-income borrowers in portfolio minus 8 MICA-estimated low-income borrowers in portfolio divided by 8 MICA-estimated low-income borrowers in portfolio.)

Portfolios are constructed from Freddie Mac v1.0 pools containing at least 10 loans (MDS/MCS disclosures calculated) and have a minimum pool size of \$1MM issuance UPB.

Analyzing Portfolio-Level Estimation Error



For most Mission Index criteria, the share of portfolios with estimation error¹ \geq 10% falls to approximately 5% with as few as 200 pools



¹ Estimation error is the difference between the actual and MICA-estimated criteria loan count divided by the MICA-estimated criteria loan count (e.g., 10 actual low-income borrowers in portfolio minus 8 MICA-estimated low-income borrowers in portfolio divided by 8 MICA-estimated low-income borrowers in portfolio.)

Portfolios are constructed from Freddie Mac v1.0 pools containing at least 10 loans (MDS/MCS disclosures calculated) and have a minimum pool size of \$1MM issuance UPB.



MICA Notes



MBS pools are evaluated based on the version of the Mission Index that was active at the time of pool issuance (i.e., the version used to calculate that pool's Mission Index disclosures).

- Mission Index v1.0: Freddie Mac pools issued from January 2010 through May 2024.
- Mission Index v1.1: Freddie Mac pools issued beginning in June 2024.
- The Minority Borrower criterion will not be estimated for Mission Index v1.0. Users will be able to estimate the representation of the other seven criteria in their portfolio holdings.

For MICA version 1.0 only:

- Prior to the launch of UMBS Single Security in June 2019, Freddie Mac issued all fixed-rate securities with a 45-day payment delay.
 Since that time, Freddie Mac has facilitated a process whereby investors could exchange their 45-day securities for 55-day mirror securities. In the MICA disclosure, the 45-day data (where applicable) will be leveraged but both the 45 and 55-day CUSIPs will be represented on the CUSIP mapping file. This will allow investors to map either pool to a cohort.
- For purposes of MICA disclosure, 45-day securities will leverage the Prefix for the associated 55-day mirror security (on DSCL and CUSIP tabs). However, the actual prefix for the 45-day security is represented in the last column ("Actual Prefix") on the v1.0 CUSIP tab.

Example of 45-day security and associated 55-day mirror security:

CUSIP	Issue Date	Issuance Investor Security UPB	Loan Count	Quarter	Prefix	Specified Story	Mission Density Score	Mission Criteria Share	Actual Prefix *	
3132HPCN2	11/1/2012	3239589	14	2012-Q4	CL	NONSPEC	1.07	64.29	Q1	45-day security
3131XKS59	10/1/2018	3239589	14	2012-Q4	CL	NONSPEC	1.07	64.29	CL	← 55-day mirror
			-			-	-			security

Both CUSIPs leverage the same cohort data for MICA

MICA Resources



Resources for this supplemental disclosure:

MICA v1.0

- MICA v1.0 supplemental disclosure is available in <u>Security Lookup under Data Files and</u> <u>Reports</u> > Miscellaneous
- MICA tool is available on our <u>website</u> with the v1.0 DSCL and CUSIPs tab prepopulated.
- No updates or changes will be made to the v1.0 disclosure supplement and CUSIP mapping. Therefore, no changes need to be made to the v1.0 DSCL and v1.0 CUSIP tabs.

MICA v1.1

- MICA v1.1 supplemental disclosure is expected to be published in Q1 2025, and updated regularly thereafter.
- MICA tool is available on our <u>website</u> and can be updated with v1.1 disclosure supplement (in v1.1 DSCL tab) and v1.1 CUSIP mapping (in v1.1 CUSIPs tab) when available.

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