#### STARWOOD REAL ESTATE INCOME TRUST, INC. SUPPLEMENT NO. 5 DATED DECEMBER 15, 2022 TO THE PROSPECTUS DATED AUGUST 10, 2022

This prospectus supplement ("Supplement") is part of and should be read in conjunction with the prospectus of Starwood Real Estate Income Trust, Inc., dated August 10, 2022 (as supplemented to date, the "Prospectus"). Unless otherwise defined herein, capitalized terms used in this Supplement shall have the same meanings as in the Prospectus. References herein to the "Company," "we," "us," or "our" refer to Starwood Real Estate Income Trust, Inc. and its subsidiaries unless the context specifically requires otherwise.

The purposes of this Supplement are as follows:

- to provide an update on our portfolio;
- to provide an update on the tax characterization of our 2022 distributions;
- to disclose the transaction price for each class of our common stock as of January 1, 2023;
- to disclose the calculation of our November 30, 2022 NAV per share for each class of our common stock;
- to provide an update on the status of our current public offering (the "Offering");
- to provide an update on our share repurchase requests; and
- to disclose an update to the compensation of our independent directors.

#### **Portfolio Update**

Our year-to-date performance has been strong due to our well-positioned real estate portfolio. As of November 2022, the Company's portfolio remained approximately 96% occupied and 91% allocated to asset classes that are well-positioned in the current environment, including: (i) 73% in short lease duration assets including rental residential, extended-stay hotel, and self-storage, (ii) 13% in industrial, and (iii) 5% in floating-rate, senior loans which benefit from rising benchmark interest rates. The portfolio's two largest segments, residential and industrial (83% of the real estate portfolio), continue to be two of the best performing asset classes across the United States.

#### Residential

The blended new and renewal rent growth across the Company's residential portfolio has been approximately 13% year-to-date through October 2022, which is a strong level of rent growth. In November 2022, rent growth slowed to approximately 9%, which still remains high – and in excess of the current inflation rate. This slowing can be partially attributed to seasonality. Historically there are lower levels of residential rent growth in the late fall and winter months. Rent growth tends to pick back up in the spring, which is typically the most robust period of demand for residential properties.

The U.S. has a significant nationwide housing deficit, and given the challenging economic conditions, new construction of residential has slowed materially. Therefore, we expect strong U.S. supply-demand fundamentals for residential over the long term. As a reminder, our residential properties are primarily located across affordable markets in the Southeast and Southwest U.S., with an average rent of approximately \$1,450 per month – nearly half of the median mortgage payment in the United States.

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### Industrial

The second largest segment of the Company's portfolio is industrial at approximately 13%. Like our residential assets, the majority of our industrial is located in high growth U.S. markets across the Southeast and Southwest. Our industrial portfolio has maintained greater than 99% occupancy during all of 2022 and as space has become available, the average rent increase has been 37%. Given industrial leases are typically around five years in duration, and market rent growth has been strong for a sustained period of time, the average in-place rent in our industrial portfolio is 21% less than today's market rents. We believe this dynamic has the potential to drive growth and value of our industrial properties as leases roll over the next several years.

# Financing

The Company's debt financing continues to provide strong value and has helped support our operating cash flow and monthly distributions. As of November 30, 2022, the Company is financed 49% LTV, and its blended fixed and floating rate debt, which is secured by "in the money" interest rate caps, has a current weighted average debt cost of 3.3% and more than 5 years of remaining term.

# Liquidity

As of the end of November 2022, SREIT had access to nearly \$2.7 billion of liquidity or 19% of NAV in the form of cash, marketable securities and unused lines of credit.

# Tax Characterization Estimate of 2022 Distributions

The updated preliminary result is currently similar to 2020 and 2021, which is that we expect 100% of our 2022 distributions will be categorized as return of capital, although there is no guarantee such result will be achieved.

# January 1, 2023 Transaction Price

The transaction price for each share class of our common stock for subscriptions accepted as of January 1, 2023 (and repurchases as of December 31, 2022) is as follows:

|         | Transaction<br>(per sha |       |
|---------|-------------------------|-------|
| Class S | \$                      | 27.23 |
| Class T | \$                      | 27.23 |
| Class D | \$                      | 26.79 |
| Class I | \$                      | 27.05 |

The January 1, 2023 transaction price for each of our share classes is equal to such class's NAV per share as of November 30, 2022. A detailed presentation of the NAV per share is set forth below. The purchase price of our common stock for each share class equals the transaction price of such class, plus applicable upfront selling commissions and dealer manager fees.

#### November 30, 2022 NAV Per Share

NAV per share is calculated in accordance with the valuation guidelines that have been approved by our board of directors. Our NAV per share, which is updated as of the last calendar day of each month, is posted on our website at *www.starwoodNAV.reit*. Please refer to "Net Asset Value Calculation and Valuation Guidelines" in the Prospectus for information on how our NAV is determined. The Advisor is ultimately responsible for determining our NAV. All of our property investments are appraised annually by third party appraisal firms in accordance with our valuation guidelines and such appraisals are reviewed by our independent valuation advisor. We have included a breakdown of the components of total NAV and NAV per share as of November 30, 2022 along with the immediately preceding month.

Our total NAV presented in the following tables includes the NAV of our Class S, Class T, Class D, and Class I common shares, as well as partnership interests of the Operating Partnership held by parties other than the Company. The following table provides a breakdown of the major components of our NAV as of November 30, 2022 (\$ and shares/units in thousands):

| Components of NAV  | No | November 30, 2022 |  |  |
|--|----|-------------------|--|--|
| Investments in real estate                               | \$ | 26,097,337        |  |  |
| Investments in real estate debt                          |    | 1,732,631         |  |  |
| Cash and cash equivalents                                |    | 569,392           |  |  |
| Restricted cash  |    | 430,763           |  |  |
| Other assets   |    | 1,112,046         |  |  |
| Debt obligations   |    | (14,212,632)      |  |  |
| Secured financings on investments in real estate debt    |    | (626,287)         |  |  |
| Subscriptions received in advance                        |    | (121,940)         |  |  |
| Other liabilities  |    | (451,797)         |  |  |
| Performance participation accrual                        |    | (147,768)         |  |  |
| Management fee payable                                   |    | (15,069)          |  |  |
| Accrued stockholder servicing fees <sup>(1)</sup>        |    | (4,635)           |  |  |
| Non-controlling interests in consolidated joint ventures |    | (113,095)         |  |  |
| Net asset value  | \$ | 14,248,946        |  |  |
| Number of outstanding shares/units                       |    | 525,492           |  |  |

(1) Stockholder servicing fees only apply to Class S, Class T and Class D shares. For purposes of NAV we recognize the stockholder servicing fee as a reduction of NAV on a monthly basis. Under accounting principles generally accepted in the United States of America ("GAAP"), we accrue the full cost of the stockholder servicing fee as an offering cost at the time we sell Class S, Class T and Class D shares. As of November 30, 2022, we have accrued under GAAP \$418.4 million of stockholder servicing fees payable to the Dealer Manager related to the Class S, Class T and Class D shares sold.

The following table provides a breakdown of our total NAV and NAV per share, by share class, as of November 30, 2022 (\$ and shares/units in thousands, except per share/unit data):

|  |        |               |                   |                   |      |                   | hird-party<br>)perating            |               |
|--|--------|---------------|-------------------|-------------------|------|-------------------|------------------------------------|---------------|
| NAV Per Share                              |        | ass S<br>ares | Class T<br>Shares | Class D<br>Shares |      | Class I<br>Shares | artnership<br>Units <sup>(1)</sup> | Total         |
| Net asset value                            | \$ 6,1 | 14,976        | \$<br>155,918     | \$<br>854,996     | \$ 6 | 5,684,341         | \$<br>438,715                      | \$ 14,248,946 |
| Number of outstanding shares/units         | 2      | 24,566        | <br>5,725         | <br>31,909        |      | 247,076           | <br>16,216                         | 525,492       |
| NAV Per Share/Unit as of November 30, 2022 | \$     | 27.23         | \$<br>27.23       | \$<br>26.79       | \$   | 27.05             | \$<br>27.05                        |               |

<sup>(1)</sup> Includes the partnership interests of the Operating Partnership held by the Special Limited Partner and other third parties.

Set forth below are the weighted averages of the key assumptions in the discounted cash flow methodology used in the November 30, 2022 valuations, based on property types. Once we own more than one self-storage and one extended stay investment we will include the key assumptions for the property types.

|                      | Discount | Exit<br>Capitalization |
|----------------------|----------|------------------------|
| Property Type        | Rate     | Rate                   |
| Multifamily          | 6.4%     | 5.2%                   |
| Single-Family Rental | 6.1%     | 4.9%                   |
| Industrial           | 6.4%     | 5.2%                   |
| Office               | 7.4%     | 5.9%                   |
| Other                | 7.8%     | 6.4%                   |

These assumptions are determined by the Advisor (except for investments valued by a third party appraisal firm), and reviewed by our independent valuation advisor. A change in these assumptions would impact the calculation of the value of our property investments. For example, assuming all other factors remain unchanged, the changes listed below would result in the following effects on our investment values:

|                          | Hypothetical   | Multifamily<br>Investment | Single-Family<br>Rental Investment | Industrial<br>Investment | Office<br>Investment | Other<br>Investment |
|--------------------------|----------------|---------------------------|------------------------------------|--------------------------|----------------------|---------------------|
| Input                    | Change         | Values                    | Values                             | Values                   | Values               | Values              |
| Discount Rate            | 0.25% decrease | +2.0%                     | +2.0%                              | +2.0%                    | +1.9%                | +1.9%               |
| (weighted average)       | 0.25% increase | (1.9)%                    | (2.0)%                             | (1.9)%                   | (2.0)%               | (1.8)%              |
| Exit Capitalization Rate | 0.25% decrease | +3.2%                     | +3.5%                              | +3.5%                    | +2.9%                | +2.4%               |
| (weighted average)       | 0.25% increase | (2.9)%                    | (3.2)%                             | (3.1)%                   | (2.8)%               | (2.3)%              |

The following table provides a breakdown of the major components of our NAV as of October 31, 2022 (\$ and shares/units in thousands):

| Components of NAV  | <br>October 31, 2022 |
|--|----------------------|
| Investments in real estate                               | \$<br>26,150,135     |
| Investments in real estate debt                          | 1,674,651            |
| Cash and cash equivalents                                | 737,726              |
| Restricted cash  | 441,868              |
| Other assets   | 1,210,592            |
| Debt obligations   | (14,137,573)         |
| Secured financings on investments in real estate debt    | (599,422)            |
| Subscriptions received in advance                        | (128,634)            |
| Other liabilities  | (416,835)            |
| Performance participation accrual                        | (174,924)            |
| Management fee payable                                   | (15,488)             |
| Accrued stockholder servicing fees (1)                   | (4,827)              |
| Non-controlling interests in consolidated joint ventures | <br>(117,824)        |
| Net asset value  | \$<br>14,619,445     |
| Number of outstanding shares/units                       | 530,070              |

(1) Stockholder servicing fees only apply to Class S, Class T and Class D shares. For purposes of NAV we recognize the stockholder servicing fee as a reduction of NAV on a monthly basis. Under accounting principles generally accepted in the United States of America ("GAAP"), we accrue the full cost of the stockholder servicing fee as an offering cost at the time we sell Class S, Class T and Class D shares. As of October 31, 2022, we have accrued under GAAP \$423.6 million of stockholder servicing fees payable to the Dealer Manager related to the Class S, Class T and Class D shares sold.

The following table provides a breakdown of our total NAV and NAV per share, by share class, as of October 31, 2022 (\$ and shares/units in thousands, except per share/unit data):

|   |        |                |                   |                   |         | Third-party<br>Operating |           |                          |         |              |  |  |  |
|---|--------|----------------|-------------------|-------------------|---------|--------------------------|-----------|--------------------------|---------|--------------|--|--|--|
| NAV Per Share                             | -      | ass S<br>nares | Class T<br>Shares | Class D<br>Shares |         | Class I<br>Shares        |           | Partnership<br>Units (1) |         | Total        |  |  |  |
| Net asset value                           | \$ 6,2 | 244,233        | \$<br>160,024     | \$                | 864,361 | \$                       | 6,904,573 | \$                       | 446,254 | \$14,619,445 |  |  |  |
| Number of outstanding shares/units        | 2      | 225,457        | 5,777             |                   | 31,715  |                          | 250,905   |                          | 16,216  | 530,070      |  |  |  |
| NAV Per Share/Unit as of October 31, 2022 | \$     | 27.70          | \$<br>27.70       | \$                | 27.25   | \$                       | 27.52     | \$                       | 27.52   |              |  |  |  |

<sup>(1)</sup> Includes the partnership interests of the Operating Partnership held by the Special Limited Partner and other third parties.

#### Status of our Current Public Offering

This Offering was declared effective by the SEC on August 10, 2022 and we are currently offering on a continuous basis up to \$18.0 billion in shares of common stock, consisting of up to \$16.0 billion in shares in our primary offering and up to \$2.0 billion in shares pursuant to our distribution reinvestment plan. As of the date hereof, we had issued and sold (i) 30,965,561 shares of our common stock (consisting of 10,773,075 Class S shares, 133,576 Class T shares, 2,290,290 Class D shares and 17,768,620 Class I shares) in the primary offering for total proceeds of approximately \$857.9 million and (ii) 2,959,365 shares of our common stock (consisting of 1,295,716 Class S shares, 43,791 Class T shares, 253,888 Class D shares and 1,365,970 Class I shares) pursuant to our distribution reinvestment plan for a total value of approximately \$81.7 million. As of November 30, 2022, our aggregate NAV was approximately \$14.2 billion. We intend to continue selling shares in the Offering on a monthly basis.

#### Share Repurchase Request Update

Pursuant to the terms of our share repurchase plan, the total amount of aggregate share repurchases is limited to no more than 2% of our aggregate NAV per month (measured using the aggregate NAV as of the end of the immediately preceding month) and no more than 5% of our aggregate NAV per calendar quarter (measured using the aggregate NAV as of the end of the immediately preceding quarter).

In October 2022, we received repurchase requests equal to 2.2% of our aggregate monthly NAV. Our board of directors, including all of our independent directors, authorized repurchases above our 2% monthly repurchase limitation for October 2022. As such, 100% of share repurchase requests were satisfied in October 2022.

In November 2022, we received repurchase requests equal to 3.2% of our aggregate monthly NAV. As per the terms of our share repurchase plan, we honored all repurchase requests for November 2022 on a pro rata basis up to the 2% monthly limitation. As such, 63% of each stockholder's repurchase request was satisfied in November 2022.

As a result of the October and November 2022 share repurchases, the quarterly limit of 5% of NAV will allow up to 0.8% of our total NAV to be available for repurchase in December 2022.

# **Compensation of Independent Directors**

# The disclosure appearing under the heading "Management—Compensation of Directors" in the Prospectus is supplemented with the following:

Effective January 1, 2023, the additional annual retainer paid to the chairperson of our audit committee will increase by \$5,000 and the lead independent director will receive an additional annual retainer of \$20,000.