Prospectus Supplement No. 15
(To Prospectus dated September 11, 2026)

Filed pursuant to Rule 424(b)(3)
Registration No. 333-298634

Wheeler Real Estate Investment Trust, Inc.

This is Prospectus Supplement No. 15 (this "Prospectus Supplement") to our Prospectus, dated September 11, 2026 (the "Prospectus"), relating to the offer and sale of up to 710,466 shares of Series B Preferred Stock, without par value (the "Series B Preferred Stock"), of Wheeler Real Estate Investment Trust, Inc. by the selling stockholders identified in the Prospectus. Terms used but not defined in this Prospectus Supplement have the meanings ascribed to them in the Prospectus.

We have attached to this Prospectus Supplement our Current Report on Form 8-K filed on November 20, 2026. The attached information updates and supplements, and should be read together with, the Prospectus, as supplemented from time to time.

Investing in our Series B Preferred Stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "*Risk Factors*" beginning on page 6 of the Prospectus, and under similar headings in any amendments or supplements to the Prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the Prospectus. Any representation to the contrary is a criminal offense.

The date of this Prospectus Supplement is November 20, 2026.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

Date of report (date of earliest event reported): **November 20, 2026**

WHEELER REAL ESTATE INVESTMENT TRUST, INC.
(Exact name of registrant as specified in its charter)

Maryland	**001-35713**	**45-2681082**
(State or other jurisdiction of incorporation or organization)	(Commission File Number)	(IRS Employer Identification No.)

2529 Virginia Beach Blvd. Virginia Beach, VA	**23452**
(Address of principal executive offices)	(Zip code)

Registrant's telephone number, including area code: **(757) 627-9088**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligations of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).
Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, $0.01 par value per share	WHLR	Nasdaq Capital Market
Series B Preferred Stock	WHLRP	Nasdaq Capital Market
Series D Cumulative Convertible Preferred Stock	WHLRD	Nasdaq Capital Market
7.00% Subordinated Convertible Notes due 2031	WHLRL	Nasdaq Capital Market

Item 1.01 Entry into a Material Definitive Agreement.

Note Purchase Agreements

As previously disclosed in a Current Report on Form 8-K filed with the Securities and Exchange Commission (the "SEC") on October 13, 2026 (the "Prior Form 8-K") and in a Current Report on Form 8-K filed with the SEC on November 18, 2026, Wheeler Real Estate Investment Trust, Inc. (the "Company") entered into Note Purchase Agreements (the "Initial Purchase Agreements") with unaffiliated investors (the "Initial Note Investors"), pursuant to which the Company agreed to issue and sell to the Initial Note Investors promissory notes in the aggregate principal amount of $8,295,000 (the "Initial Notes").

On November 20, 2026, the Company entered into additional Note Purchase Agreements on the same terms as the Initial Purchase Agreements (the "Additional Purchase Agreements", and together with the Initial Purchase Agreements, the "Purchase Agreements") with other unaffiliated investors (the "Additional Note Investors") providing for the issuance and sale of additional promissory notes in the aggregate principal amount of $5,306,000 (the "Additional Notes", and together with the Initial Notes, the "Notes").

The Notes will be issued on a date that is no later than the 5th business day following the date on which all closing conditions (which include (i) the approval by the Company's stockholders of the issuance or potential issuance of more than 19.99% of outstanding shares of the Company's common stock, $0.01 par value per share ("Common Stock") pursuant to the Notes in accordance with Nasdaq Listing Rule 5635(d) (the "Stockholder Approval"), and (ii) the effectiveness of the registration statement covering the resale of all of the shares of Common Stock issuable pursuant to the Notes (the "Amortization Stock")) have been satisfied.

As of the date of this Current Report on Form 8-K, the Company has entered into Purchase Agreements for up to $13,601,000 in Notes.

Terms of the Additional Notes

The description of the terms of the Notes in Item 1.01 of the Prior Form 8-K is hereby incorporated herein by reference.

Terms of the Purchase Agreements

The description of the terms of the Purchase Agreements in Item 1.01 of the Prior Form 8-K is hereby incorporated herein by reference.

Registration Rights Agreements

In connection with the Initial Purchase Agreements, the Company entered into Registration Rights Agreements with the Initial Note Investors (the "Initial Registration Rights Agreements"). On November 20, 2026, the Company entered into Registration Rights Agreements with the Additional Note Investors on the same terms as the Initial Registration Rights Agreements (the "Additional Registration Rights Agreements", and together with the Initial Registration Rights Agreements, the "Registration Rights Agreements").

The description of the terms of the Registration Rights Agreements in Item 1.01 of the Prior Form 8-K is hereby incorporated herein by reference.

The foregoing descriptions of the Notes, the Purchase Agreements and the Registration Rights Agreements do not purport to be complete and are qualified by reference to the full text of the forms of those documents, which were attached as Exhibits 4.1, 10.1 and 10.2, respectively, to the Prior Form 8-K, and which are incorporated herein by reference.

Item 2.03 Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant.

The information set forth in Item 1.01 is incorporated by reference into this Item 2.03.

Item 3.02 Unregistered Sales of Equity Securities.

The disclosures set forth in Item 1.01 above related to the private placement are incorporated by reference into this Item 3.02. The offer, sale and issuance of the Notes have not been and will not be registered under the Securities Act of 1933, as amended (the "Securities Act"), in reliance upon the exemption from registration provided by Section 4(a)(2) of the Securities Act. This Current Report on Form 8-K does not constitute an offer to sell, or a solicitation of an offer to buy, any security.

Forward-Looking Statements.

This Current Report on Form 8-K includes forward-looking statements. These statements are made under the "safe harbor" provisions of the U.S. Private Securities Litigation Reform Act of 1995. These statements may be identified by words such as "will" or the negative of this term or other words of similar meaning, although not all forward-looking statements contain these identifying words, and include statements about the aggregate principal amount of the Notes ultimately issued, the Company's ability to obtain the Stockholder Approval, the filing and effectiveness of the registration statement, the timing and completion of the closings under the Purchase Agreements, and the issuance of Amortization Stock pursuant to the Notes. Forward-looking statements are statements that are not historical facts. Such forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties, which could cause actual results to differ materially from the forward-looking statements contained herein due to many factors. These forward-looking statements and such risks, uncertainties and other factors speak only as of the date of this Current Report on Form 8-K, and the Company expressly disclaims any obligation or undertaking to update or revise any forward-looking statement contained herein, or to reflect any change in our expectations with regard thereto or any other change in events, conditions or circumstances on which any such statement is based, except to the extent otherwise required by applicable law.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

WHEELER REAL ESTATE INVESTMENT TRUST, INC.

By: /s/ M. Andrew Franklin
Name: M. Andrew Franklin
Title: Chief Executive Officer and President

Dated: November 20, 2026