

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 14A
(RULE 14A-101)

INFORMATION REQUIRED IN PROXY STATEMENT

SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the
Securities Exchange Act of 1934

Filed by the Registrant Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
 Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
 Definitive Proxy Statement
 Definitive Additional Materials
 Soliciting Material Pursuant to § 240.14a-12

WELLS REAL ESTATE INVESTMENT TRUST, INC.

(Name of Registrant as Specified in its Charter)

(Name of Person(s) Filing Proxy Statement, if other than Registrant)

Payment of Filing Fee (Check the appropriate box)

- No fee required
 Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

Common stock, par value \$0.01 per share of Wells Real Estate Investment Trust, Inc.

(2) Aggregate number of securities to which transaction applies:

19,568,641 shares of common stock of Wells Real Estate Investment Trust, Inc.

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

The filing fee is based on (i) \$8.9531, the negotiated per-share price for common stock of Wells Real Estate Investment Trust, Inc., multiplied by (ii) 19,568,641, the number of shares of common stock of Wells Real Estate Investment Trust, Inc. to be issued, multiplied by (iii) 0.000107, the merger consideration multiplier in accordance with Section 14(g) of the Securities Exchange Act of 1934, as amended.

(4) Proposed maximum aggregate value of transaction:

\$175,200,000

(5) Total fee paid:

\$18,746.40

Fee paid previously with preliminary materials.

Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

(2) Form, Schedule or Registration No.:

(3) Filing Party:

(4) Date Filed:

WELLS REAL ESTATE INVESTMENT TRUST, INC.
SUPPLEMENT NO. 4 DATED MARCH 12, 2007 TO THE PROSPECTUS
DATED AUGUST 10, 2004

This document supplements, and should be read in conjunction with, the Prospectus of Wells Real Estate Investment Trust, Inc. dated August 10, 2004, as supplemented and amended by that certain special disclosure to stockholders of Wells Real Estate Investment Trust, Inc. dated February 28, 2005 (Supplement No. 1), Supplement No. 2 dated May 20, 2005, and Supplement No. 3 dated November 18, 2005. When we refer to the "Prospectus" in this supplement, we are also referring to Supplement No. 1, Supplement No. 2, Supplement No. 3, and this Supplement No. 4 to the Prospectus. Unless otherwise defined in this supplement, capitalized terms used in this supplement shall have the same meanings as set forth in the Prospectus.

The purpose of this supplement is to describe the following:

- (1) The recent increase in the price of our Dividend Reinvestment Plan (DRP) shares to \$8.53 per share;
- (2) The status of the offering of common stock in Wells Real Estate Investment Trust, Inc. (Wells REIT) pursuant to our DRP;
- (3) The estimated share valuation recently determined by our board of directors;
- (4) The Internalization Transaction;
- (5) Participation in our DRP; and
- (6) Incorporation of Certain Information by Reference.

Current Price for DRP Shares

Our DRP, as amended on November 15, 2005, currently provides that the share price of our DRP shares is equal to 95.5% of the then-current estimated share valuation as may be determined by our board of directors from time to time. As a result of the determination by our board of directors of the estimated net asset value of our shares described below, the current share price for shares issued and sold pursuant to our DRP, effective beginning with dividends declared and paid in March 2007, will be \$8.53 per share (95.5% of \$8.93).

Our board of directors may change the share price at any time in its sole and absolute discretion based upon such factors as it may deem appropriate and, accordingly, the share price is subject to increase or decrease at any time in the future at our board's discretion. Our board of directors may amend or terminate the DRP for any reason upon 10 days' written notice to DRP participants.

Status of our Dividend Reinvestment Plan Offering

Pursuant to the prospectus, we commenced an offering of our common stock pursuant to our DRP on August 10, 2004. As of December 31, 2006, we had raised a total of \$400,091,208 in gross offering proceeds (14,208,350 shares at \$9.55 per share, 9,465,976 shares at \$8.00 per share, and 22,704,671 shares at \$8.31 per share) pursuant to this offering of our DRP. As of December 31, 2006, we owned interests in 83 properties either directly or through joint ventures comprising approximately 21.5 million square feet of commercial office and industrial space located in 23 states and the District of Columbia.

Estimated Share Valuation

On January 3, 2007, our board of directors determined that the estimated net asset value of our shares of common stock, based primarily on the net asset value of our real estate portfolio, was \$8.93 per share. The \$8.93 estimated net asset value per share was provided by an independent third party which based its estimate upon (1) the appraised value of our real estate assets as of September 30, 2006, and (2) consideration of the value of our other assets and liabilities as of September 30, 2006. This estimated net asset value per share is only an estimate, and is based upon a number of assumptions and estimates, which may not be accurate or complete. There were no liquidity discounts applied to this estimated valuation or discounts relating to the fact

that we are currently externally managed, and no attempt was made to value the company as an enterprise. Further, this should not be viewed as the amount a stockholder would receive in the event that we were to list our shares in the future or to liquidate our assets and distribute the proceeds from such transaction to our stockholders since, among other things, this valuation was not reduced by certain real estate commissions potentially payable to one of our external advisors in the event that it materially assists in the disposition or other costs of sale. An investment in shares of Wells REIT is illiquid because there is no current public market for the shares and, therefore, it can be difficult to sell the shares. In addition, the price received for any shares sold would likely be less than this estimated share value. Further, real estate markets fluctuate, and real estate values can decline in the future. For these reasons, our stockholders should not assume that they will be able to obtain this estimated share value for their shares, either currently or at any time in the future.

Internalization Transaction

On February 2, 2007, we entered into an agreement and plan of merger (Merger Agreement) to internalize the functions of our external advisors and become self-advised. Our board of directors (with Messrs. Leo F. Wells, III and Douglas P. Williams, who have material financial interests in the transaction, abstaining from voting) approved the Merger Agreement after receiving the unanimous recommendation of a special committee comprised of four of our independent directors. The Merger Agreement is subject to, and cannot be consummated without, the approval of our stockholders.

Our board of directors is soliciting the vote of our stockholders to approve the Merger Agreement and other transactions contemplated thereby (the "Internalization transaction.") The proposal to approve the Internalization transaction was included as one of four proposals in a proxy statement filed with the Securities and Exchange Commission (SEC) pursuant to Section 14(a) of the Securities Exchange Act of 1934 on February 26, 2007. The Internalization transaction and other proposals are described in detail in this proxy statement, which is incorporated into this supplement and the prospectus by reference.

WE URGE OUR STOCKHOLDERS TO READ THE PROXY STATEMENT CAREFULLY AND IN ITS ENTIRETY BECAUSE IT CONTAINS IMPORTANT INFORMATION ABOUT THE INTERNALIZATION TRANSACTION. The proxy statement was mailed to our stockholders on or about March 2, 2007. In addition, stockholders are able to obtain the proxy statement and all other relevant documents we have filed with the SEC free of charge at the SEC's Web site www.sec.gov or from our Web site www.wellsreit.com. Our directors, executive officers, and other members of our management may, under the rules of the SEC, be deemed to be participants in the solicitation of proxies from our stockholders in favor of the Internalization transaction. In addition, certain of our directors and our executive officers will benefit financially from the Internalization transaction. Detailed information about Wells REIT, our directors and our executive officers, their ownership of our securities and their financial interests in the Internalization transaction is set forth in the proxy statement.

Participation in our Dividend Reinvestment Plan

If you are currently participating in our dividend reinvestment plan and would like to continue to participate in the plan and purchase shares of our common stock with your dividends at the price of 95.5% of the estimated share valuation determined by our board of directors from time to time (\$8.53 per share effective beginning with dividends declared and paid in March 2007), no action will be required for you to remain in our dividend reinvestment plan.

If you are currently participating in our dividend reinvestment plan and would like to discontinue your participation, please immediately contact our Client Services Department at Wells Real Estate Funds, 6200 The Corners Parkway, Norcross, Georgia 30092-3365, telephone: (800) 557-4830.

Incorporation of Certain Information by Reference

All documents filed by Wells REIT pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 from January 1, 2004 to the date of this supplement shall be deemed to be incorporated by reference into the prospectus, including but not limited to, the following recently filed documents:

- (a) Our Annual Report on Form 10-K for the year ended December 31, 2005, filed with the SEC on March 28, 2006;
- (b) Our Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 24, 2006;
- (c) Our Quarterly Report on Form 10-Q for the period ended March 31, 2006, filed with the SEC on May 11, 2006, as amended;
- (d) Our Quarterly Report on Form 10-Q for the period ended June 30, 2006, filed with the SEC on August 11, 2006;
- (e) Our Quarterly Report on Form 10-Q for the period ended September 30, 2006, filed with the SEC on November 8, 2006;
- (f) Our Current Report on Form 8-K, filed with the SEC on January 9, 2007;
- (g) Our Current Report on Form 8-K, filed with the SEC on February 5, 2007;
- (h) Our Current Report on Form 8-K, filed with the SEC on February 14, 2007; and
- (i) Our Definitive Proxy Statement on Schedule 14A, filed with the SEC on February 26, 2007.

In addition, all documents filed by Wells REIT pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 subsequent to the date of this supplement and prior to the termination of this offering of the securities made pursuant to the prospectus shall be deemed to be incorporated by reference into the prospectus.

We will provide without charge to each person, including any beneficial owner, to whom a prospectus is delivered, upon written or oral request of that person, a copy of any document incorporated herein by reference (or incorporated into the documents that this prospectus incorporates by reference). Requests for such documents should be directed to our Client Services Department, 6200 The Corners Parkway, Norcross, Georgia 30092-3365, telephone (800) 557-4830.