

PROSPECTUS SUPPLEMENT NO. 2
(To Prospectus dated September 16, 2013)

656,998 Shares



Common Stock

This Prospectus Supplement No. 2 (the "Prospectus Supplement") supplementing the prospectus dated September 16, 2013 (the "Prospectus"), relating to the possible resale of up to 656,998 shares of common stock of Wheeler Real Estate Investment Trust, Inc., that may be offered and sold from time to time by the selling stockholders named in the Prospectus. For information on the selling stockholders, please see the section entitled "Selling Stockholders" beginning on page 22 of the Prospectus. This Prospectus Supplement is part of, and should be read in conjunction, with the Prospectus.

On March 21, 2014, the company filed with the Securities in Exchange Commission ("SEC") its Annual Report on Form 10-K for the year ended December 31, 2013 (the "Annual Report"). In addition, the company filed with the SEC Current Reports on Form 8-K on March 18, 2014 and March 24, 2014 (collectively the "Current Reports"). This Prospectus Supplement is being filed to update and supplement the information included or incorporated by reference in the Prospectus with the information contained and incorporated by reference in the Annual Report and Current Reports. Accordingly, we have included the update to the documents we are incorporating by reference to in this Prospectus Supplement.

Our common stock trades on the Nasdaq Capital Market under the symbol "WHLR." On April 2, 2014, the last reported sale price of our common stock on the Nasdaq Capital Market was \$4.84 per share.

Wheeler Real Estate Investment Trust, Inc.
Riversedge North
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Virginia Beach, Virginia 23452
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Investing in our common stock involves significant risks. See "Risk Factors" on page 3 of the Prospectus.

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

The date of this Prospectus Supplement is April 3, 2014

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

We are incorporating certain information about us that we have filed with the SEC by reference in this Prospectus Supplement, which means that we are disclosing important information to you by referring you to those documents. We are also incorporating by reference in the Prospectus information that we file with the SEC after this date. The information we incorporate by reference is an important part of the Prospectus, and later information that we file with the SEC automatically will update and supersede the information we have included in or incorporated into the Prospectus.

We incorporate by reference the following documents we have filed, with the SEC:

- Annual Report on Form 10-K for the fiscal year ended December 31, 2013, filed on March 21, 2014; and
- Current Reports on Form 8-K filed on March 18, 2014 and March 24, 2014.

This Prospectus Supplement is part of a registration statement we have filed with the SEC on Form S-11 relating to our common stock. As permitted by SEC rules, this Prospectus Supplement does not contain all of the information included in the registration statement and the accompanying exhibits and schedules we file with the SEC. We have incorporated by reference certain legal documents that control the terms of our common stock offered by the Prospectus as exhibits to the registration statement. You may refer to the registration statement and the exhibits for more information about us and our common stock. The registration statement and exhibits are also available at the SEC's Public Reference Room or through its web site.

The section entitled "Where You Can Find More Information About Wheeler Real Estate Investment Trust, Inc." above describes how you can obtain or access any documents or information that we have incorporated by reference herein. The information relating to us contained in this Prospectus Supplement does not purport to be comprehensive and should be read together with the information contained in the documents incorporated or deemed to be incorporated by reference in this Prospectus Supplement.

Upon written or oral request, we will provide, free of charge, to each person, including any beneficial owner, to whom a Prospectus Supplement is delivered, a copy of any or all of the reports or documents that are incorporated by reference into this Prospectus Supplement. Such written or oral requests should be made to:

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In addition, such reports and documents may be found on our website at www.WHLR.us.