ASHFORD HOSPITALITY TRUST INC Form 424B5 January 29, 2015

Table of Contents

The information in this prospectus supplement is not complete and may be changed. We may not sell these securities or accept any offer to buy these securities until we deliver this prospectus supplement to you in final form. We are not using this prospectus supplement to offer to sell these securities or to solicit offers to buy these securities in any jurisdiction where the offer or sale of the securities is not permitted.

Subject to Completion, Dated January 29, 2015

Filed Pursuant to Rule 424(b)(5) Registration No. 333-181499

PROSPECTUS Supplement (To Prospectus Dated May 17, 2012)

9,500,000 Shares

Common Stock

Ashford Hospitality Trust, Inc. is offering 9,500,000 shares of our common stock, \$0.01 par value per share, by this prospectus supplement and the accompanying prospectus.

Our common stock is subject to certain restrictions on ownership designed to preserve our qualification as a real estate investment trust for federal income tax purposes. See "Description of our Capital Stock" Restrictions on Ownership and Transfer" on page 4 of the accompanying prospectus.

Our common stock is listed on the New York Stock Exchange under the symbol "AHT." On January 28, 2015, the last reported sale price of our common stock was \$10.83 per share.

Investing in our common stock involves a high degree of risk. Before buying any shares, you should read the discussion of material risks of investing in our common stock in "Risk Factors" beginning on page S-9 of this prospectus supplement and page 11 of our Annual Report on Form 10-K for the year ended December 31, 2013, as updated in our subsequent Quarterly Reports on Form 10-Q.

| | Per Shar | re | Total ⁽¹⁾ |
|-----------------------|----------|----|----------------------|
| Public offering price | \$ | \$ | |
| Underwriting discount | \$ | \$ | |

| Proceeds, before expenses, to us | \$ | \$ | | |
|--|----------------------|---------------------|------------------------------------|-----------------------------|
| | | | | |
| (1) | | | | |
| Assumes no exercise of the | ne underwriter's op | otion to purchase a | additional shares. | |
| The underwriter may also exercise its underwriting discount, for 30 days after the | | | 25,000 shares from us, at the publ | ic offering price, less the |
| Neither the Securities and Exchang securities or passed upon the adequacy to the contrary is a criminal offense. | | • | | = = |
| The shares will be ready for delivery | on or about February | , 2015. | | |
| | | | | |
| | | Baird | | |

, 2015

The date of this prospectus supplement is January

TABLE OF CONTENTS

| <u>Prospectus Supplement</u> <u>Prospectus Supplement Summary</u> | <u>S-1</u> |
|---|-------------|
| | |
| Risk Factors | <u>S-9</u> |
| <u>Use of Proceeds</u> | <u>S-15</u> |
| Cautionary Statement Regarding Forward Looking Statements | <u>S-15</u> |
| Unaudited Pro Forma Condensed Consolidated Financial Information | <u>S-17</u> |
| Additional Information Regarding Material Provisions of Maryland Law and of Our Charter and Bylaws | <u>S-27</u> |
| Additional Federal Income Tax Consequences | <u>S-28</u> |
| <u>Underwriting</u> | <u>S-31</u> |
| Legal Matters | <u>S-35</u> |
| <u>Experts</u> | <u>S-35</u> |
| Incorporation of Information by Reference | <u>S-35</u> |
| <u>Prospectus</u> | |
| Our Company | <u>1</u> |
| Risk Factors | 2 |
| About This Prospectus | <u>2</u> |
| Forward-Looking Statements | 2 |
| Use of Proceeds | <u>3</u> |
| Ratio of Earnings to Fixed Charges and Earnings to Combined Fixed Charges and Preferred Stock Dividends | <u>3</u> |
| Description of Our Capital Stock | 4 |
| Description of Our Common Stock | 7 |
| Description of Our Preferred Stock | <u>8</u> |
| Description of Our Debt Securities | <u>15</u> |
| Description of Our Warrants | <u>20</u> |
| Description of Our Rights | <u>21</u> |
| Book-Entry Securities | <u>22</u> |
| Material Provisions of Maryland Law and of Our Charter and Bylaws | <u>23</u> |
| Partnership Agreement | <u>27</u> |

| Federal Income Tax Consequences of Our Status as a REIT | <u>32</u> |
|---|-----------|
| Plan of Distribution | <u>64</u> |
| <u>Experts</u> | <u>65</u> |
| <u>Legal Matters</u> | <u>66</u> |
| Where You Can Find More Information | <u>66</u> |
| Incorporation of Information by Reference | <u>66</u> |

| m | . 1 | | c | | | |
|----------|-----|---|----|----|-----|-----|
| Tal | hI | e | ot | on | ıte | nts |

You should rely only on the information contained or incorporated by reference in this prospectus supplement or the accompanying prospectus in making a decision about whether to invest in our common stock. We have not, and the underwriter has not, authorized anyone to provide you with different or additional information. We take no responsibility for, and can provide no assurance as to the reliability of, any different or inconsistent information. We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus and the documents and information incorporated by reference is only accurate as of the respective dates which are specified in those documents or that information. Our business, financial condition, results of operations and prospects may have changed since those dates.

All references to "we," "our," "us" and "Ashford Trust" in this prospectus supplement mean Ashford Hospitality Trust, Inc. and all entities owned or controlled by Ashford Hospitality Trust, Inc., except where it is made clear that the term means only the parent company. The term "you" refers to a prospective investor.

PROSPECTUS SUPPLEMENT SUMMARY

The following summary highlights information contained elsewhere or incorporated by reference in this prospectus supplement and the accompanying prospectus. It may not contain all of the information that is important to you. Before making a decision to invest in our common stock, you should read carefully this entire prospectus supplement and the accompanying prospectus, including the section entitled "Risk Factors" beginning on page S-9 of this prospectus supplement, as well as the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. This summary is qualified in its entirety by the more detailed information and financial statements, including the notes thereto, appearing elsewhere or incorporated by reference into this prospectus supplement and the accompanying prospectus.

The Company

General

We are a Maryland corporation that was formed in May 2003 and, together with our subsidiaries, are focused on investing in the hospitality industry in all methods including direct real estate, securities, equity and debt. We are externally advised by Ashford Inc. (NYSE MKT: AINC) and we own our lodging investments and conduct our business through Ashford Hospitality Limited Partnership, our operating partnership. As of September 30, 2014, we owned interests in the following hotel properties (all located in the United States) and a note receivable:

88 consolidated hotel properties ("legacy hotel properties"), including 86 directly owned and two owned through a majority-owned investment in a consolidated entity, which represent 17,291 total rooms (or 17,264 net rooms excluding those attributable to our partners);

28 hotel properties owned through a 71.74% common equity interest and a 50.0% preferred equity interest in an unconsolidated joint venture ("PIM Highland JV"), which represent 8,084 total rooms (or 5,799 net rooms excluding those attributable to our partner); however, as discussed in "Recent Developments PIM Highland JV Acquisition" below, we have agreed to purchase our joint venture partner's interest in these hotels with a portion of the net proceeds of this offering, resulting in our 100% ownership interests in these assets;

10 hotel properties owned through a 14.4% interest in Ashford Hospitality Prime Limited Partnership ("Ashford Prime OP");

88 hotel condominium units at WorldQuest Resort in Orlando, Florida; and

a mezzanine loan with a carrying value of \$3.5 million.

Our current key priorities and financial strategies include, among other things, acquisition of additional hospitality investments, which may include direct hotel acquisitions, joint venture investments, securities and debt investments, opportunistic disposition of hotel properties, implementing effective asset management strategies to minimize operating costs and increase revenues, pursuing capital market activities to enhance long-term stockholder value, implementing selective capital improvements designed to increase profitability, and financing or refinancing hotels on competitive terms. We believe that as supply, demand, and capital market cycles change, we will be able to shift our investment strategies to take advantage of new lodging-related investment opportunities as they may develop. As the business cycle changes and the hotel markets improve, we intend to continue to invest in a variety of lodging-related assets based upon our evaluation of diverse market conditions including our cost of capital and the expected returns from those investments.

For federal income tax purposes, we have elected to be treated as a real estate investment trust ("REIT"), which imposes limitations related to operating hotels. As of September 30, 2014, our 88 legacy hotel properties were leased or owned by our wholly owned subsidiaries that are

treated as taxable REIT subsidiaries for federal income tax purposes (collectively, these subsidiaries are referred to as "Ashford TRS"). Ashford TRS then engages hotel management

Table of Contents

companies that qualify as "eligible independent contractors" to operate the hotels under management contracts. Hotel operating results related to these properties are included in the consolidated statements of operations. As of September 30, 2014, the 28 hotel properties owned by our unconsolidated joint venture, PIM Highland JV, are leased to its wholly owned subsidiary that is treated as a taxable REIT subsidiary for federal income tax purposes.

As of September 30, 2014, Remington Lodging & Hospitality, LLC, (together with its affiliates, "Remington"), which is beneficially wholly owned by Mr. Monty J. Bennett, our Chairman and Chief Executive Officer, and Mr. Archie Bennett, Jr., our Chairman Emeritus, managed 55 of our 88 legacy hotel properties, 21 of the 28 PIM Highland JV hotel properties, one of the 10 Ashford Prime OP hotel properties and the WorldQuest Resort. Third-party management companies managed the remaining hotel properties.

Our principal executive offices are located at 14185 Dallas Parkway, Suite 1100, Dallas, Texas 75254. Our telephone number is (972) 490-9600. Our website is www.ahtreit.com. The contents of our website are not a part of this prospectus supplement or the accompanying prospectus. Shares of our common stock are traded on the New York Stock Exchange (the "NYSE") under the symbol "AHT."

RECENT DEVELOPMENTS

Development of a Select-Service Hotel Platform

We have formed Ashford Hospitality Select, Inc. ("Ashford Select"), a new privately-held company dedicated to investing primarily in existing premium branded, upscale and upper-midscale, select-service hotels, including extended stay hotels, in the United States. Ashford Select is expected to launch in the first half of 2015. Upon launch, we intend to contribute to Ashford Select a high-quality, geographically diverse portfolio of 16 hotels, located in ten states, comprised of 2,560 total guestrooms and operated under upscale premium brands affiliated with Marriott International, Inc. (the "Initial Ashford Select Properties"). We expect that Ashford Select will be externally advised by our advisor, Ashford Inc.

We intend to contribute (the "Contribution") the Initial Ashford Select Properties to Ashford Select pursuant to a contribution agreement. The estimated valuation of the Initial Ashford Select Properties, based solely on preliminary broker opinions of value from two nationally recognized hotel brokerage firms, is approximately \$331 million. This estimated valuation is subject to change. We expect the consideration for our contribution of the Initial Ashford Select Properties to be determined based on two or more final broker opinions of value and other factors deemed relevant by a special committee of our independent directors, which will negotiate and approve the final transaction terms and contribution consideration. We expect the consideration to be payable through Ashford Select's assumption of approximately \$232.6 million of aggregate non-recourse property level debt related to the Initial Ashford Select Properties (net of the balance attributable to the 15% ownership in two properties by our joint venture partner), with the balance of the consideration payable in a combination of cash and/or equity interests in Ashford Select. We do not intend to make any cash contributions to Ashford Select, although in the future we may contribute additional select-service hotels, as described below, in exchange for cash, equity interests in Ashford Select, assumption of debt or a combination of such consideration. We cannot assure you that the Contribution will occur because it is subject to the negotiation of definitive agreements (including the contribution agreement), Ashford Select's ability to obtain adequate debt or equity financing the receipt of all necessary third-party consents (including lender consents), the final approval of the special committee of our independent directors and other customary closing conditions.

The Initial Ashford Select Properties that we intend to contribute to Ashford Select are as follows:

| | | | Number | |
|-------------------|--------------------------|------------|--------|----------|
| | | | of | % |
| Hotel | Location | Manager | Rooms | Owned |
| Courtyard | Palm Desert, CA | Remington | 151 | 100% |
| Residence Inn | Palm Desert, CA | Remington | 130 | 100% |
| Residence Inn | Manchester, CT | Interstate | 96 | 85% |
| Courtyard | Manchester, CT | Interstate | 90 | 85% |
| Residence Inn | Jacksonville, FL | Remington | 120 | 100% |
| Residence Inn | Lake Buena Vista, FL | Remington | 210 | 100% |
| Courtyard | Ft. Lauderdale, FL | Marriott | 174 | 100% |
| Residence Inn | Orlando (Sea World), FL | Marriott | 350 | 100% |
| Courtyard | Columbus, IN | Remington | 90 | 100% |
| Courtyard | Overland Park, KS | Marriott | 168 | 100% |
| Courtyard | Louisville, KY | Remington | 150 | 100% |
| SpringHill Suites | Gaithersburg, MD | Marriott | 162 | 100% |
| | Linthicum (BWI Airport), | | | |
| SpringHill Suites | MD | Remington | 133 | 100% |
| Residence Inn | Las Vegas, NV | Marriott | 256 | 100% |
| Residence Inn | Salt Lake City, UT | Marriott | 144 | 100% |
| SpringHill Suites | Centreville, VA | Marriott | 136 | 100% |
| Total | | | 2,560 | |

Table of Contents

We also expect to enter into a right of first offer and option agreement with Ashford Select for the following 41 hotels currently owned by us:

| | | | Number | |
|---|----------|-----------|--------|----------|
| | | | of | % |
| Hotel | Location | Manager | Rooms | Owned |
| Alpharetta Courtyard Atlanta | GA | Marriott | 154 | 100% |
| Arlington Courtyard Crystal City Reagan Airport | VA | Marriott | 272 | 100% |
| Atlanta Residence Inn Buckhead Lenox Park | GA | Remington | 150 | 100% |
| Austin Hilton Garden Inn Downtown | TX | Remington | 254 | 72%* |
| Basking Ridge Courtyard | NJ | Marriott | 235 | 100% |
| Bloomington Courtyard | IN | Remington | 117 | 100% |
| Buford Hampton Inn I Mall of Georgia | GA | Remington | 92 | 100% |
| Buford SpringHill Suites II Mall of Georgia | GA | Remington | 96 | 100% |
| BWI Airport Hilton Garden Inn Linthicum | MD | Remington | 158 | 72%* |
| Charlotte SpringHill Suites Univ Research Pk | NC | Marriott | 136 | 100% |
| Denver Courtyard Airport | CO | Marriott | 202 | 72%* |
| Durham SpringHill Suites Raleigh Airport | NC | Marriott | 120 | 100% |
| Edison Courtyard Woodbridge | NJ | Remington | 146 | 100% |
| Evansville Hampton Inn I | IN | Remington | 141 | 100% |
| Evansville Residence Inn III East | IN | Remington | 78 | 100% |
| Falls Church Residence Inn Merrifield | VA | Marriott | 159 | 100% |
| Foothill Ranch Courtyard Irvine Spectrum | CA | Marriott | 156 | 100% |
| Gaithersburg Courtyard Washingtonian Center | MD | Marriott | 210 | 72%* |
| Glen Allen SpringHill Suites Richmond Virginia Center | VA | Remington | 136 | 100% |
| Hawthorne SpringHill Suites LAX Manhattan Beach | CA | Marriott | 164 | 100% |
| Hawthorne TownePlace Suites LAX Manhattan Beach | CA | Marriott | 144 | 100% |
| Jacksonville Hilton Garden Inn I Dearwood Park | FL | Remington | 119 | 100% |
| Jacksonville SpringHill Suites II | FL | Remington | 102 | 100% |
| Kennesaw Fairfield Inn I Atlanta | GA | Remington | 87 | 100% |
| Kennesaw SpringHill Suites II Atlanta | GA | Remington | 90 | 100% |
| Lawrenceville Hampton Inn | GA | Remington | 86 | 100% |
| Newark Courtyard Silicon Valley | CA | Remington | 181 | 100% |
| Newark Residence Inn Silicon Valley San Jose | CA | Remington | 168 | 100% |
| Oakland Courtyard Airport | CA | Remington | 156 | 100% |
| Orlando Courtyard Lake Buena Vista Marriott Village | FL | Marriott | 312 | 100% |
| Orlando Fairfield Inn Lake Buena Vista | FL | Marriott | 388 | 100% |
| Orlando SpringHill Suites Lake Buena Vista Marriott Village | FL | Marriott | 400 | 100% |
| Phoenix Residence Inn Airport | AZ | Remington | 200 | 100% |
| Plano Courtyard Legacy Park Dallas | TX | Marriott | 153 | 100% |
| Plano Residence Inn Dallas | TX | Marriott | 126 | 100% |
| Plymouth Meeting SpringHill Suites Philadelphia | PA | Marriott | 199 | 100% |
| San Diego Residence Inn Sorrento Mesa/Valley | CA | Marriott | 150 | 100% |
| Savannah Courtyard Downtown Historic District | GA | Remington | 156 | 72%* |
| Scottsdale Courtyard Old Town | AZ | Marriott | 180 | 100% |
| Tampa Residence Inn Downtown | FL | Remington | 109 | 72%* |
| Virginia Beach Hilton Garden Inn Town Center | VA | Remington | 176 | 72%* |

Total 6,858

*

These hotels are owned by the PIM Highland JV, but as discussed below under "PIM Highland JV Acquisition", we have agreed to purchase our joint venture partner's interest in these hotels with a portion of

the net proceeds of this offering. To the extent we do so or to the extent we otherwise control the right to sell these hotels, the right of first offer and option agreement between us and Ashford Select will extend to those properties.

Table of Contents

Pursuant to the right of first offer and option agreement, we expect to grant Ashford Select an option to acquire one or more of these hotels, subject to certain conditions, beginning nine months after the completion of the Contribution. Ashford Inc., in its capacity as our advisor and as advisor to Ashford Select, will identify the specific hotels recommended for Ashford Select to acquire pursuant to this option, subject to the approval of the independent members of our board of directors and the independent members of the board of directors of Ashford Select. The purchase price for any hotels that Ashford Select acquires from us pursuant to this option will be determined utilizing broker opinions of value ("BOV") from any two of the top five hotel brokerage firms selected by our board of directors and the board of directors of Ashford Select. If the values are within 5% of each other, the simple average of the two BOVs will be used. If there is greater than a 5% difference, a third broker will be hired and the average of the three BOVs will be used to determine the sales price, which will be adjusted for any property-level debt assumed by Ashford Select in connection with the option hotel.

In addition, we expect to grant Ashford Select a right of first offer to acquire any of those hotels or other select-service hotels that we may own and decide to sell in the future, subject to any prior rights of the managers of the hotels or other third parties.

Because of the creation of this new select-service platform, our board of directors has approved a change in our investment focus to be effective upon the successful launch of Ashford Select. Upon the successful launch of Ashford Select, we will focus on full-service, premium branded upscale and upper-upscale hotels primarily located in major markets with RevPAR less than twice the national average.

The contribution agreement, the right of first offer and option agreement and the launch of Ashford Select's select-service hotel platform are contingent upon, among other factors, the negotiation of definitive agreements (including the contribution agreement), the availability of acceptable financing, the receipt of all necessary third-party consents (including lender consents) and other customary closing conditions.

Acquisitions

On January 20, 2015, we announced that we had signed a definitive agreement to acquire the 232-room Memphis Marriott East hotel in Memphis, Tennessee for total consideration of \$43.5 million (\$187,500 per key). The acquisition is expected to close by late February, subject to certain closing conditions.

On January 12, 2015, we announced that we had signed a definitive agreement to acquire the 168-room Lakeway Resort & Spa in Austin, Texas for total consideration of \$33.5 million (\$199,000 per key). The acquisition is expected to close by mid-February 2015, subject to certain closing conditions.

We may use the net proceeds from this offering to fund a portion of the aggregate purchase price for these pending acquisitions, but we are currently exploring various other financing options. We cannot assure you, however, that we will acquire either hotel property because our acquisition of each hotel is subject to our completion of satisfactory due diligence and other customary closing conditions. See "Risk Factors."

Mortgage Refinancings

On January 5, 2015, we announced that we had successfully refinanced a \$211 million loan with a final maturity date in November 2017 and a \$143 million loan with a final maturity date in July 2015. The new loans total \$478 million and resulted in excess net proceeds of approximately \$107 million after closing costs and reserves. The two previous mortgage loans were refinanced with four new non-recourse mortgage loans, each secured by multiple hotel properties. The first mortgage loan has an initial principal balance of approximately \$377 million with a two-year initial term and three one-year extension options, with a floating interest rate of LIBOR plus 4.95%. The other three mortgage loans have initial principal balances of approximately \$55 million, \$25 million and \$21 million, respectively, each with a 10-year term and each with a fixed interest rate of 4.45%.

Table of Contents

Dividend Information

On December 15, 2014, our board of directors declared a regular quarterly dividend on our common stock of \$0.12 per diluted share, which was paid on January 15, 2014 to our stockholders of record on December 31, 2014.

PIM Highland JV Acquisition

We executed a letter agreement dated December 14, 2014, with PRISA III Investments, LLC, a Delaware limited liability company, as the seller. The letter agreement was approved by the investment committee of Prudential Real Estate Investors, the investment manager of the seller, and fully executed and delivered to us on December 15, 2014. Pursuant to the letter agreement, we have agreed to purchase, and the seller has agreed to sell, all of its right, title and interest in and to the approximately 28.26% equity interest in PIM Highland JV that we do not currently own, for approximately \$250.1 million. Following the consummation of this acquisition, we will own and consolidate 100% of PIM Highland JV. The transaction is expected to close no later than March 30, 2015. We may terminate the letter agreement by written notice to the seller if we are unable to refinance the existing indebtedness of PIM Highland JV and its subsidiaries. We are currently exploring various financing options. We also may use a portion of the net proceeds from this offering to fund a portion of the purchase price for this pending acquisition.

Investment Management Agreement

On December 10, 2014, AHT SMA, LP, a Delaware limited partnership and our wholly owned subsidiary, entered into an investment management agreement with Ashford Investment Management LLC ("AIM"), a Delaware limited liability company and an indirect subsidiary of Ashford Inc., a Delaware corporation and our external advisor. Pursuant to the management agreement, our subsidiary retained and appointed AIM to serve as investment manager of our securities portfolio. The management agreement governs the relationship between our subsidiary and AIM and grants AIM certain rights, powers and duties to act on behalf of our subsidiary.

Completion of Ashford Inc. Spin-off and Advisory Agreement

On November 12, 2014, we completed the previously announced spin-off of Ashford Inc. On November 13, 2014, Ashford Inc. began trading, regular way, on the NYSE MKT LLC under the ticker symbol "AINC." Ashford Inc. is now an independent publicly traded corporation that provides asset management and advisory services to other entities, initially within the hospitality industry. Ashford Inc. conducts its business and owns substantially all of its assets through an operating entity, Ashford Hospitality Advisors LLC (together, our "advisor").

In connection with the spin-off, we entered into, among other definitive agreements, an advisory agreement with our advisor and our operating partnership, which, among other things, provides for the day-to-day management of us by our advisor. Our advisory agreement requires our advisor to manage our, and our affiliates', day-to-day operations in conformity with our investment guidelines, which may be modified or supplemented by our board of directors from time to time, except that our investment guidelines cannot be revised in a manner that is directly competitive with Ashford Hospitality Prime, Inc., a Maryland corporation and another client of Ashford Inc. ("Ashford Prime").

Our advisor may not act as an external advisor for an entity with investment guidelines substantially similar to ours, as initially set forth in our advisory agreement. However, our advisor will be permitted to have other advisory clients, which may include other REITs operating in the real estate industry. Our advisory agreement has an initial 20-year term and will be automatically renewed for one-year terms thereafter unless terminated either by us or our advisor.

We are required to pay our advisor, quarterly, a base fee equal to 0.70% per annum of our "total market capitalization" (as defined in our advisory agreement), subject to a minimum quarterly base fee, as payment for managing our day-to-day operations in conformity with our investment guidelines. The minimum base fee (on an annual basis) through December 31, 2015 will be equal to the greater of 0.70% or the "G&A ratio," multiplied by our total market capitalization as of November 13, 2014 (the first day of trading immediately following the effective date of our

Table of Contents

advisory agreement). The minimum base management fee for each quarter beginning on or after January 1, 2016, will be equal to the greater of (i) 90% of the base fee paid for the same quarter in the prior year, and (ii) the "G&A ratio" multiplied by our total market capitalization for such quarter. The "G&A ratio" will be calculated as the simple average of the ratios of total general and administrative expenses paid in the applicable quarter by each member of a select peer group, divided by the total market capitalization of such peer group member. We are also required to pay our advisor an incentive fee that is based on our performance as compared to our peer group. In addition, we are obligated to pay directly or reimburse our advisor, on a monthly basis, for all expenses our advisor or its affiliates pay or incur on our behalf or in connection with the services provided to us by our advisor pursuant to our advisory agreement, exclusive of certain costs, including wages, salaries, cash bonus payments and benefits related to certain employees of the advisor.

Upon termination of our advisory agreement without cause (including termination for unsatisfactory performance of our advisor or unfair fees or upon a change in control of our company), our advisor is entitled to receive a termination fee from us equal to (a) 1.1 multiplied by the greater of (i) 12 times our advisor's net earnings attributable to the advisory agreement for the 12 months preceding the termination of our advisory agreement; (ii) the earnings multiple (based on net earnings after taxes) for Ashford Inc.'s common stock for the 12 months preceding the termination of our advisory agreement multiplied by our advisor's net earnings after taxes) for Ashford Inc.'s common stock for each of the three fiscal years preceding the termination of our advisory agreement, multiplied by our advisor's net earnings attributable to our advisory agreement for the 12 months preceding the termination of our advisory agreement; plus (b) a gross-up amount for assumed federal and state tax liability, based on an assumed tax rate of 40%. The termination fee will not be subject to any maximum amount or other limitation.

Our advisor's personnel will continue to advise Ashford Prime and may also advise other businesses in the future, and will not be required to present us with investment opportunities that our advisor determines are outside of our initial investment guidelines and within the investment guidelines of another business advised by our advisor. To the extent our advisor deems an investment opportunity suitable for recommendation, it must present us with any such investment opportunity that satisfies our initial investment guidelines, but will have discretion to determine which investment opportunities satisfy our initial investment guidelines. Any new individual investment opportunities that satisfy our investment guidelines will be presented to our board, which will have up to 10 business days to accept any such opportunity prior to it being available to Ashford Prime or any other business advised by our advisor. However, if our board materially changes our investment guidelines without the written consent of our advisor, our advisor will not have an obligation to present investment opportunities to us at any time thereafter, regardless of any subsequent modifications by us to our investment guidelines. Instead, our advisor will be obligated to use its best judgment to allocate investment opportunities to us and other entities it advises, taking into account such factors as our advisor deem relevant, in its discretion, subject to any then-existing obligations of our advisor to such other entities.

In connection with the creation of Ashford Select, our advisor has consented to the change in our investment guidelines to focus on full-service, premium branded upscale and upper-upscale hotels primarily located in major markets, with RevPAR less than twice the national average. We expect that Ashford Inc. will also serve as the external advisor to Ashford Select.

THE OFFERING

Common stock offered 9,500,000 shares⁽¹⁾

Common stock to be outstanding after the

offering 98,9

98,939,624 shares⁽²⁾

Use of proceeds We estimate that the net proceeds from this offering will be approximately \$ million (or

\$ million if the underwriter exercises its option to purchase additional shares of our common stock in full), after deducting the underwriting discount and the estimated expenses of this offering. We intend to use the net proceeds of this offering to fund a portion of the cost of our pending acquisitions of the Memphis Marriott East hotel, the Lakeway Resort & Spa and our joint venture partner's interest in the PIM Highland JV, and any remaining funds, for general corporate purposes, including, without limitation, hotel-related investments, capital

expenditures, working capital and repayment of debt or other obligations.

Risk factors Investing in our common stock involves risks, including those described under the heading

"Risk Factors" beginning on page S-9 of this prospectus supplement and on page 11 of our

Annual Report on Form 10-K, as updated by our subsequent Quarterly Reports on Form 10-Q.

NYSE symbol "AHT"

(1) Excludes up to 1,425,000 shares of our common stock that we may issue and sell upon the exercise of the underwriter's option to purchase additional shares.

Based on 89,439,624 shares outstanding on January 28, 2015. Excludes up to 1,425,000 shares of our common stock that we may issue and sell upon the exercise of the underwriter's option to purchase additional shares. Also excludes 19,835,909 shares of common stock potentially issuable, at our option, upon the redemption of outstanding units of limited partnership interest in our operating partnership, some of which remain subject to further vesting or earn-up requirements.

S-8

RISK FACTORS

An investment in our common stock involves various risks, including those described below and those disclosed beginning on page 11 of our Annual Report on Form 10-K for the year ended December 31, 2013, as updated in our subsequent Quarterly Reports on Form 10-Q. Prospective investors should carefully consider such risk factors, together with all of the information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus, in determining whether to purchase the common stock offered hereby. The risks and uncertainties we discuss in this prospectus supplement and in the documents incorporated by reference in this prospectus supplement are those that we currently believe may materially affect our company. Additional risks not currently known to us or that we currently deem to be immaterial to us also could have a material adverse effect on our operations, financial condition, results of operations, cash flows and prospects. In addition to the risks identified in our Annual Report on Form 10-K, as updated in our subsequent Quarterly Reports on Form 10-Q, each as referred to above, we are also subject to the risks discussed below.

Risks Related to our Management and our Relationships with our Advisor

Because we depend upon our advisor and its affiliates to conduct our operations, any adverse changes in the financial condition of our advisor or its affiliates or our relationship with them could hinder our operating performance.

We depend on our advisor to manage our assets and operations. Any adverse changes in the financial condition of our advisor or its affiliates or our relationship with our advisor could hinder its ability to manage us successfully.

We depend on our advisor's key personnel and their long-standing business relationships. The loss of our advisor's key personnel could threaten our ability to operate our business successfully.

Our future success depends, to a significant extent, upon the continued services of our advisor's management team and the extent and nature of the relationships they have developed with hotel franchisors, operators, and owners and hotel lending and other financial institutions. The loss of services of one or more members of our advisor's management team could harm our business and our prospects.

Our board of directors has approved very broad investment guidelines for our advisor and will not review and approve each investment and financing decision made by our advisor unless required by our investment guidelines.

Our advisor is authorized to follow very broad investment guidelines established by our board of directors. Our board of directors will periodically review our investment guidelines and our portfolio of assets but will not, and will not be required to, review all of our proposed investments, except in limited circumstances as set forth in our investment policies. In addition, in conducting periodic reviews, our board of directors may rely primarily on information provided to them by our advisor. Furthermore, transactions entered into by our advisor may be costly, difficult or impossible to unwind by the time they are reviewed by our board of directors. Our advisor has great latitude within the broad parameters of our investment guidelines in determining the types and amounts of assets in which to invest on our behalf, including making investments that may result in returns that are substantially below expectations or result in losses, which would materially and adversely affect our business and results of operations, or may otherwise not be in the best interests of our stockholders.

Our advisor may not be successful in identifying and consummating suitable investment opportunities.

Our investment strategy requires us, through our advisor, to identify suitable investment opportunities compatible with our investment criteria. Our advisor may not be successful in identifying suitable opportunities that meet our criteria or in consummating investments, including those identified as part of our investment guidelines, on satisfactory terms or at all. Our ability to make investments on favorable terms may be constrained by several factors including, but not

Table of Contents

limited to, competition from other investors with significant capital, including other publicly-traded REITs and institutional investment funds, which may significantly increase investment costs, and/or the inability to finance an investment on favorable terms or at all. The failure to identify or consummate investments on satisfactory terms, or at all, may impede our growth and negatively affect our cash available for distribution to our stockholders.

Our advisor may direct attractive investment opportunities to Ashford Prime or Ashford Select and away from us.

Each of our executive officers and one of our directors also serve as key employees and as officers of our advisor and Ashford Prime, and will continue to do so. We also expect each of our executive officers and one or more of our directors to serve as key employees and as officers of Ashford Select. Furthermore, Mr. Monty J. Bennett, our chief executive officer and chairman, is also the chief executive officer and chairman of our advisor and Ashford Prime and is expected to serve as the chief executive officer and chairman of the board of directors of Ashford Select. Our advisory agreement requires our advisor to present investments that satisfy our investment guidelines to us before presenting them to any client of our advisor, except that our advisor is required to give Ashford Prime the initial opportunity to acquire hotels that satisfy both our and Ashford Prime's investment guidelines. Additionally, in the future our advisor may advise other clients, some of which may have investment guidelines substantially similar to ours.

Some portfolio investment opportunities may include hotels that satisfy our investment objectives as well as hotels that satisfy the investment objectives of Ashford Prime or Ashford Select or other entities advised by our advisor. If the portfolio cannot be equitably divided, our advisor will necessarily have to make a determination as to which entity will be presented with the opportunity. In such a circumstance, our advisory agreement requires our advisor to allocate portfolio investment opportunities between us, Ashford Prime or other entities advised by our advisor (including Ashford Select) in a fair and equitable manner, consistent with each such entity's investment objectives. In making this determination, our advisor, using substantial discretion, will consider the investment strategy and guidelines of each entity with respect to acquisition of properties, portfolio concentrations, tax consequences, regulatory restrictions, liquidity requirements and other factors deemed appropriate. In making the allocation determination, our advisor has no obligation to make any such investment opportunity available to us. Further, our advisor has agreed that any new investment opportunities that satisfy our investment guidelines will be presented to our board of directors; however, our board will have only 10 business days to make a determination with respect to such opportunity prior to it being available to other entities advised by our advisor. The above mentioned dual responsibilities may create conflicts of interest for our officers which could result in decisions or allocations of investments that may benefit one entity more than others.

Our advisor and its key employees, who are our executive officers, face competing demands relating to their time and this may adversely affect our operations.

We rely on our advisor and its employees for the day-to-day operation of our business. Each of the key employees of our advisor are our executive officers and Ashford Prime's executive officers. Because our advisor's key employees have duties to us, our advisor and Ashford Prime, we do not have their undivided attention and they face conflicts in allocating their time and resources. Our advisor may also manage other entities in the future, including Ashford Select. During turbulent market conditions or other times when we need focused support and assistance from our advisor, other entities for which our advisor also acts as an external advisor may likewise require greater focus and attention, placing competing high levels of demand on the limited time and resources of our advisor's key employees. We may not receive the necessary support and assistance we require or would otherwise receive if we were internally managed by persons working exclusively for us.

The aggregate amount of fees and expense reimbursements paid to our advisor will exceed the average of internalized expenses of our industry peers (as identified in our advisory agreement), as a percentage of total market capitalization.

Pursuant to the advisory agreement between us and our advisor, we will pay our advisor a quarterly base fee (subject to a minimum fee described below), an annual incentive fee that will be based on our achievement of certain

Table of Contents

minimum performance thresholds and certain expense reimbursements. The minimum base management fee is currently equal to the greater of 0.70% or the G&A Ratio, multiplied by our total market capitalization as of the first trading day immediately following the effective day of the advisory agreement. The minimum base management fee for each quarter beginning after November 12, 2015 (one year from the effective date of our advisory agreement) will be equal to the greater of (i) 90% of the base fee paid for the same quarter in the prior year and (ii) the G&A Ratio multiplied by our total market capitalization for such quarter. The "G&A Ratio" will be calculated as the simple average of the ratios of total general and administrative expenses paid in the applicable quarter by each member of a select peer group, divided by the total market capitalization of such peer group member. Since the base management fee is subject to this minimum amount and because a portion of such fees are contingent on our performance, the fees we pay to our advisor may fluctuate over time. However, regardless of our advisor's performance, the total amount of fees and reimbursements paid to our advisor as a percentage of total market capitalization will never be less than the average of internalized expenses of our industry peers (as identified in our advisory agreement), and there may be times when the total amount of fees and incentives paid to our advisor greatly exceeds the average of internalized expenses of our industry peers.

Our advisor's entitlement to nonperformance-based compensation, including the minimum base management fee, might reduce its incentive to devote its time and effort to seeking investments that provide attractive risk-adjusted returns for our portfolio. Further, our incentive fee structure may induce our advisor to encourage us to acquire certain assets, including speculative or high risk assets, or to acquire assets with increased leverage, which could increase the risk to our portfolio.

Termination by us of our advisory agreement with our advisor without cause is difficult and costly.

The initial term of our advisory agreement with our advisor is 20 years from the effective date of the advisory agreement, with automatic one-year renewal terms on each anniversary date thereafter unless previously terminated.

Upon termination of our advisory agreement without cause (including termination for unsatisfactory performance of our advisor or unfair fees or upon a change in control of our company), our advisor is entitled to receive a termination fee from us equal to (a) 1.1 multiplied by the greater of (i) 12 times our advisor's net earnings attributable to the advisory agreement for the 12 months preceding the termination of our advisory agreement; (ii) the earnings multiple (based on net earnings after taxes) for Ashford Inc.'s common stock for the 12 months preceding the termination of our advisory agreement multiplied by our advisor's net earnings attributable to our advisory agreement for the same 12 month period; or (iii) the simple average of the earnings multiples (based on net earnings after taxes) for Ashford Inc.'s common stock for each of the three fiscal years preceding the termination of our advisory agreement, multiplied by our advisor's net earnings attributable to our advisory agreement for the 12 months preceding the termination of our advisory agreement; plus (b) a gross-up amount for assumed federal and state tax liability, based on an assumed tax rate of 40%. The termination fee will not be subject to any maximum amount or other limitation. See "Recent Developments" Completion of Ashford Inc. Spin-off and Advisory Agreement."

Any such termination fee will be payable on or before the termination date. The termination fee makes it more difficult for us to terminate our advisory agreement even if our board determines that there has been unsatisfactory performance or unfair fees. These provisions significantly increase the cost to us of terminating our advisory agreement, thereby effectively eliminating our ability to terminate our advisor without cause.

Table of Contents

Risks Related to Conflicts of Interest

Our advisory agreement, the investment management agreement and other contractual arrangements including those between us and our affiliates were not negotiated on an arm's-length basis, and the contribution agreement that will govern the pending Contribution to Ashford Select will also not be negotiated on an arm's-length basis. As a result, we may pursue less vigorous enforcement of the terms of such agreements because of conflicts of interest with certain of our executive officers and directors and key employees of our advisor.

We may enter into contractual arrangements, including the contribution agreement that will govern the pending Contribution to Ashford Select, with any of our affiliates. The agreements, contracts or arrangements between us, on the one hand, and any of our affiliates, on the other hand, have not been, and may not be in the future, the result of arm's-length negotiations of the type normally conducted with an unaffiliated third party. As a result, the terms, including fees and other amounts payable, may not be as favorable to us as an arm's-length agreement. Furthermore, we may choose not to enforce, or to enforce less vigorously, our rights under these agreements because of our desire to maintain our ongoing relationship with our advisor and our affiliates.

Under the terms of our mutual exclusivity agreement with Remington, Remington may be able to pursue lodging investment opportunities that compete with us.

Pursuant to the terms of our mutual exclusivity agreement with Remington, if investment opportunities that satisfy our investment criteria are identified by Remington or its affiliates, Remington will give us a written notice and description of the investment opportunity. We will have 10 business days to either accept or reject the investment opportunity. If we reject the opportunity, Remington may then pursue such investment opportunity, subject to a right of first refusal in favor of Ashford Prime or Ashford Inc., pursuant to existing agreements between Remington and such entities. We expect that Ashford Select will have similar rights of first refusal from Remington. As a result of these agreements with Remington, if we were to reject an investment opportunity presented by Remington, Ashford Prime, Ashford Select, Ashford Inc. or Remington could pursue the opportunity and compete with us. In such a case, Mr. Monty J. Bennett, our chief executive officer and chairman, in his capacity as chairman and chief executive officer of Ashford Prime, Ashford Select, Ashford Inc. or Remington could be in a position of directly competing with us.

Risks Related to this Offering and Our Business Combinations

This offering may be dilutive, and there may be future dilution of our shares of common stock.

After giving effect to the issuance of shares of common stock in this offering, the receipt of the expected net proceeds and the use of those proceeds as described under "Use of Proceeds," this offering may have a dilutive effect on our estimated earnings per share and funds from operations per share. The actual amount of dilution cannot be determined at this time and will be based on numerous factors. Additionally, subject to the 60-day lock-up restrictions described in "Underwriting No Sales of Similar Securities," we are not restricted from issuing additional shares of common or preferred stock, including securities that are convertible into or exchangeable or exercisable for, or that represent the right to receive, shares of common or preferred stock or any substantially similar securities in the future. The market price of our common stock could decline as a result of sales of a large number of shares of common stock in the market after this offering or the perception that such sales could occur.

Table of Contents

Any business combinations, including the Contribution and the pending acquisitions of the Memphis Marriott East hotel, the Lakeway Resort & Spa and the pending acquisition of our joint venture partner's interest in the PIM Highland JV, are subject to substantial risks that could adversely affect our financial condition and results of operations and reduce our ability to make distributions to our stockholders.

Any business combinations, including the Contribution, the pending acquisitions of the Memphis Marriott East hotel, the Lakeway Resort & Spa and the pending acquisition of our joint venture partner's interest in the PIM Highland JV, involve potential risks, including, among other things:

the validity of our assumptions about revenues, capital expenditures and operating costs of the acquired or contributed business or assets, as well as assumptions about achieving synergies with our existing business;

the validity of our assessment of environmental and other liabilities;

the costs associated with additional debt or equity capital, which may result in a significant increase in our interest expense and financial leverage resulting from any additional debt incurred to finance the business combination, or the issuance of additional shares on which we will make distributions, either of which could exacerbated by volatility in the equity or debt capital markets;

a failure to realize anticipated benefits, such as enhanced competitive position, revised investment guidelines or new customer relationships;

a decrease in our liquidity as a result of financing the business combination; and

the incurrence of other significant charges, such as impairment of goodwill or other intangible assets, asset devaluation or restructuring charges.

The launch of the Ashford Select platform and the Contribution may not be completed on anticipated terms or consummated at all, which could have an adverse impact on our ability to make distributions to our stockholders.

The launch of the Ashford Select platform and the Contribution are subject to a number of closing conditions that, if not satisfied or waived, would result in the pending Contribution being completed on terms not initially anticipated by us or failing to be consummated at all. These conditions include, but are not limited to, the negotiation of definitive agreements (including the contribution agreement), the accuracy of each party's representations and warranties expected to be contained in the contribution agreement, the performance by each party of its respective obligations under the contribution agreement, the ability to obtain adequate financing to pay the cash portion of the consideration due to us and the receipt of all necessary third-party consents, including lender consents.

Satisfaction of many of these closing conditions is beyond our control and, as a result, we cannot assure you that all of the closing conditions will be satisfied or that the pending Contribution will be consummated. Our failure to complete the pending Contribution or any delays in completing the pending Contribution could have an adverse impact on our operations, prospects and ability to make distributions to our stockholders and could negatively impact the price of our shares. If you decide to purchase our shares, you should be willing to do so whether or not we complete the pending Contribution.

We may not acquire any of our acquisition properties or our joint venture partner's interest in the PIM Highland JV.

We currently intend to use a portion of the net proceeds from this offering to acquire the Memphis Marriott East hotel, the Lakeway Resort & Spa and our joint venture partner's interest in the PIM Highland JV. We cannot assure you

Table of Contents

that we will acquire either of the properties or the joint venture interest because the acquisition of each hotel property and joint venture interest may be subject to:

our ability to negotiate and execute a new management agreement or assume the existing agreement for the hotel property;

our completion of satisfactory due diligence with respect to the hotel property;

satisfaction of customary closing conditions, including the receipt of third-party consents and approvals; and

our ability to obtain financing or refinance existing indebtedness.

There can be no assurance that we will be able to negotiate and execute new management agreements (or assume the existing agreements), that our due diligence will be satisfactory, that the conditions to closing will be satisfied or that we will be able to obtain appropriate financing.

S-14

USE OF PROCEEDS

CAUTIONARY STATEMENT REGARDING FORWARD LOOKING STATEMENTS

This prospectus supplement and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus contain certain forward looking statements that are subject to various risks and uncertainties. These forward looking statements include information about possible, estimated or assumed future results of our business, financial condition and liquidity, results of operations, plans and objectives. Forward looking statements are generally identifiable by use of forward looking terminology such as "may," "will," "should," "potential," "intend," "expect," "outlook," "seek," "anticipate," "estimate," "approximately," "believe," "could," "project," "predict," or other similar words or expressions. Additionally, statements regarding the following subjects are forward-looking by their nature:

| our ability to complete, on the terms we anticipate, or at all, business combinations described in this prospectus supplement including the Contribution to Ashford Select and the acquisition of our joint venture partner's interest in the PIM Highland JV; |
|--|
| the expected benefits of proposed business combinations to our company and our stockholders; |
| our business and investment strategy; |
| anticipated or expected purchases or sales of assets; |
| our projected operating results, including cash available for distribution, and distribution rates; |
| completion of any pending transactions; |
| our ability to obtain future financing arrangements; |
| our understanding of our competition; |
| market trends; |
| projected capital expenditures; and |
| the impact of technology on our operations and business. |

Forward looking statements are based on certain assumptions, discuss future expectations, describe future plans and strategies, contain financial and operating projections or state other forward looking information. Our ability to predict results or the actual effect of future events, actions, plans or strategies is inherently uncertain. Although we believe that the expectations reflected in our forward looking statements are based on reasonable assumptions, taking into account all information currently available to us, our actual results and performance could differ materially from those set forth in our forward looking statements. Factors that could have a material adverse effect on our forward looking statements include, but are not limited to:

the factors referenced in this prospectus supplement, including those set forth under the section captioned "Risk Factors," and the factors set forth under the sections titled "Business," "Risk Factors," "Properties," and

S-15

Table of Contents

"Management's Discussion and Analysis of Financial Conditions and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2013, as updated in our subsequent Quarterly Reports on Form 10-Q; general and economic business conditions affecting the lodging and travel industry; general volatility of the capital markets and the market price of our common stock; changes in our business or investment strategy; availability, terms and deployment of capital; availability of qualified personnel to our advisor; changes in our industry and the market in which we operate, interest rates, or general or local economic conditions; the degree and nature of our competition; actual and potential conflicts of interest with our advisor, Remington Lodging & Hospitality, LLC, our executive officers and our non-independent directors; changes in governmental regulations, accounting rules, tax rates and similar matters; legislative and regulatory changes, including changes to the Internal Revenue Code of 1986, as amended (the "Code"), and related rules, regulations and interpretations governing the taxation of REITs; and

limitations imposed on our business and our ability to satisfy complex rules in order for us to qualify as a REIT for federal income tax purposes.

When considering forward looking statements, you should keep in mind the risk factors and other cautionary statements in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The matters summarized under "Risk Factors" and elsewhere in this prospectus supplement and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus could cause our actual results and performance to differ significantly from those contained in our forward looking statements. Accordingly, we cannot guarantee future results or performance. Readers are cautioned not to place undue reliance on any of these forward looking statements, which reflect our views as of the date of this prospectus supplement. Furthermore, we do not intend to update any of our forward looking statements after the date of this prospectus supplement to conform these statements to actual results and performance, except as may be required by applicable law.

UNAUDITED PRO FORMA CONDENSED CONSOLIDATED FINANCIAL INFORMATION

The following unaudited pro forma condensed consolidated financial information as of and for the nine months ended September 30, 2014 and for the year ended December 31, 2013 have been derived from (i) our historical consolidated financial statements, (ii) the combined consolidated financial statements of the 16 initial hotels of Ashford Select, known as The Ashford Hospitality Select Hotels (the "Ashford Select Portfolio"), and (iii) the consolidated financial statements of PIM Highland Holding LLC and subsidiaries ("PIM Highland JV Portfolio"). These unaudited pro forma condensed consolidated financial statements should be read in conjunction with the other information contained in or incorporated by reference into this prospectus supplement or the accompanying prospectus, the related notes to these financial statements and with (i) our historical consolidated financial statements and the related notes included in our previous filings with the SEC that are incorporated by reference into this prospectus supplement and the accompanying prospectus, (ii) the Ashford Select Portfolio historical combined consolidated financial statements as of September 30, 2014 and December 31, 2013, and for the nine months ended September 30, 2013 and 2014 and the years ended December 31, 2013 and 2012 that are incorporated by reference into this prospectus supplement, and (iii) the PIM Highland JV Portfolio historical consolidated financial statements as of September 30, 2014 and December 31, 2013, and for the nine months ended September 30, 2014 and 2013 and the years ended December 31, 2013 and 2012 that are incorporated by reference into this prospectus supplement.

The unaudited pro forma information set forth below reflects our historical information, as adjusted to give effect to the following transactions, which are described in more detail elsewhere in this prospectus supplement:

the consummation of the offering contemplated by this prospectus supplement and the receipt by us of net proceeds of million from the offering;

the contribution of the Ashford Select Portfolio to Ashford Select, based on the following assumptions: (i) an estimated valuation of the Ashford Select Portfolio of approximately \$331.0 million, net of the portion attributable to the 15% ownership in two properties owned by our joint venture partner, based on preliminary broker opinions of value from two nationally recognized hotel brokerage firms (see "Prospectus Supplement Summary-Recent Developments-Development of a Select-Service Hotel Platform"), and (ii) the consideration for the Ashford Select Portfolio is payable through Ashford Select's assumption of approximately \$232.6 million of aggregate property level debt related to the Ashford Select Portfolio, net of the balance attributable to the 15% ownership in two properties by our joint venture partner, with the balance of the consideration payable in cash (while we expect the balance to be payable in a combination of cash and equity interests in Ashford Select, the portion payable in cash as compared to equity interests in Ashford Select is not determinable at this time, so the consideration is shown in the pro forma information as cash); and

our acquisition of the remaining ownership in the PIM Highland JV Portfolio for approximately \$250.1 million in cash.

The unaudited pro forma condensed consolidated balance sheet as of September 30, 2014 is presented to reflect adjustments to our consolidated balance sheet as if the consummation of this offering, the contribution of the Ashford Select Portfolio to Ashford Select and our acquisition of the remaining ownership in the PIM Highland JV Portfolio were completed on September 30, 2014. The unaudited pro forma condensed consolidated statements of operations for the nine months ended September 30, 2014 and the year ended December 31, 2013 are presented to reflect adjustments to our consolidated statements of operations as if the contribution of the Ashford Select Portfolio to Ashford Select and our acquisition of the remaining ownership in the PIM Highland JV Portfolio had occurred on January 1, 2013.

Our historical statements of operations presented in the unaudited pro forma condensed consolidated financial information are for the nine months ended September 30, 2014 and the year ended December 31, 2013, and are derived from our Quarterly Report on Form 10-Q for the nine months ended September 30, 2014, filed on November 7, 2014, and our Annual Report on Form 10-K for the year ended December 31, 2013, filed on March 3, 2014, as amended by the Form 10-K/A filed on March 31, 2014, each of which is incorporated by reference into this prospectus supplement. Our historical balance sheet presented in the unaudited pro forma condensed consolidated financial

Table of Contents

information is as of September 30, 2014 as presented in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2014, which is incorporated by reference into this prospectus supplement.

The historical statements of operations of the Ashford Select Portfolio presented in the unaudited pro forma condensed consolidated financial information are for the nine months ended September 30, 2014, and the year ended December 31, 2013, and are derived from financial statements included in our Current Report on Form 8-K, filed on January 29, 2015, which is incorporated by reference into this prospectus supplement. The historical balance sheet presented in the unaudited pro forma condensed consolidated financial information is as of September 30, 2014 and is derived from financial statements included in our Current Report on Form 8-K, filed on January 29, 2015, which is incorporated by reference into this prospectus supplement.

The historical statements of operations of the PIM Highland JV Portfolio presented in the unaudited pro forma condensed consolidated financial information are for the nine months ended September 30, 2014 and the year ended December 31, 2013, and are derived from financial statements included in our Current Report on Form 8-K, filed on January 29, 2015 and our Form 10-K/A filed on March 31, 2014, each of which is incorporated by reference into this prospectus supplement. The historical balance sheet presented in the unaudited pro forma condensed consolidated financial information is as of September 30, 2014, and is derived from financial statements included in our Current Report on Form 8-K, filed on January 29, 2015, which is incorporated by reference into this prospectus supplement.

In the opinion of management, all adjustments necessary to reflect the effects of the potential transactions described in the notes to the unaudited pro forma condensed consolidated financial statements have been included and are based upon available information and assumptions that we believe are reasonable. Further, the historical financial information presented herein has been adjusted to give pro forma effect to events that we believe are factually supportable and which are expected to have a continuing impact on our results. However, such adjustments are estimates and may not prove to be accurate. Information regarding these adjustments is subject to risks and uncertainties that could cause actual results to differ materially from those anticipated. See "Risk Factors" and "Cautionary Statement Regarding Forward Looking Statements" in this prospectus supplement. In particular, the definitive terms for our contribution of the Ashford Select Portfolio have not been determined. We have assumed a valuation and consideration for our contribution of the Ashford Select Portfolio and the terms of the actual consideration may differ from the terms we assumed in preparing the unaudited pro forma condensed consolidated financial statements.

These unaudited pro forma condensed consolidated financial statements are provided for information purposes only. The unaudited pro forma condensed consolidated statements of operations and the unaudited pro forma condensed consolidated balance sheet do not purport to represent what our results of operations would have been had such transactions been consummated on the dates indicated, nor do they represent our financial position or results of operations for any future date or period.

ASHFORD HOSPITALITY TRUST, INC. AND SUBSIDIARIES

UNAUDITED PRO FORMA CONDENSED CONSOLIDATED BALANCE SHEETS

AS OF SEPTEMBER 30, 2014

(IN THOUSANDS, EXCEPT SHARE AMOUNTS)

| , | Coı | | Raise | PortfolioAdj | | | | .djustments | | Ashford Trust onsolidated Pro |
|--|-----|-----------|------------|-----------------|--------------|--------------|--------------|------------------|--------|--|
| | | (A) | (B) | (C) | (D) | Sub-total | (E) | (F) | | Forma |
| Assets | | | | | | | | | | |
| Cash and cash equivalents | \$ | 280,574 | \$ | \$ (4,767)\$ | 98,382(D)(i) | \$ 374,189 | \$ 27,980 | \$ (250,055)(F) | (i) \$ | 152,114 |
| Marketable securities | | 44,273 | | | | 44,273 | | | | 44,273 |
| Total cash, cash equivalents and marketable securities | | 324,847 | | (4,767) | 98,382 | 418,462 | 27,980 | (250,055) | | 196,387 |
| Investment in hotel | | | | | | | | | | |
| properties, net | | 2,143,642 | | (281,532) | | 1,862,110 | 1,201,756 | 533,244(F)(| ii) | 3,597,110 |
| Restricted cash | | 107,356 | | (19,425) | | 87,931 | 105,425 | | | 193,356 |
| Accounts receivable, net | | | | (2.400) | | a | 40.045 | | | 46070 |
| of allowance | | 29,153 | | (2,409) | | 26,744 | 19,315 | | | 46,059 |
| Inventories | | 2,118 | | (68) | | 2,050 | 1,959 | | | 4,009 |
| Notes receivable, net of | | 2 = 00 | | | | | | | | 2 700 |
| allowance | | 3,509 | | | | 3,509 | | | | 3,509 |
| Investment in | | 200.004 | | | | 200.004 | | (1.45.405)(5)(5) | | 55 500 |
| unconsolidated entities | | 200,994 | | (2.522) | | 200,994 | 1.001 | (145,405)(F)(| | 55,589 |
| Deferred costs, net | | 14,453 | | (2,722) | | 11,731 | 1,901 | (1,901)(F)(| IV) | 11,731 |
| Prepaid expenses | | 11,151 | | (1,212) | | 9,939 | 8,877 | | | 18,816 |
| Derivative assets, net | | 413 | | (40) | | 373 | 0.011 | | | 373 |
| Other assets | | 4,674 | | (110) | | 4,564 | 9,911 | | | 14,475 |
| Due from Ashford Prime | | 2017 | | | | | | | | 2 2 4 |
| OP, net | | 3,815 | | | | 3,815 | | | | 3,815 |
| Due from affiliates | | 1,748 | | | | 1,748 | | (1,748)(F)(| v) | |
| Due from related parties | | 1,200 | | | | 1,200 | | | | 1,200 |
| Due from third-party | | | | 4 =0.0 | | | | | | 2 < 20 = |
| hotel managers | | 14,635 | | (1,796) | | 12,839 | 23,560 | | | 36,399 |
| Total assets | \$ | 2,863,708 | \$ | \$ (314,081) \$ | 98,382 | \$ 2,648,009 | \$ 1,400,684 | \$ 134,135 | \$ | 4,182,828 |

| Liabilities | and | Equity | |
|-------------|-----|---------------|--|
| | | | |

| Liabilities: | | | | | | | | | |
|---------------------------|--------------------|---------|----------|-------------------|-----------|-------|---------|----------------------|-----------|
| Indebtedness | \$ 1,959,608 \$ | \$ (155 | ,336) \$ | (79,400)(D)(ii)\$ | 1,724,872 | \$ 1, | 117,895 | \$ 4,452(F)(vi)\$ | 2,847,219 |
| Accounts payable and | | | | | | | | | |
| accrued expenses | 93,536 | (5 | ,724) | | 87,812 | | 42,850 | | 130,662 |
| Dividends payable | 21,889 | | | | 21,889 | | | | 21,889 |
| Unfavorable management | | | | | | | | | |
| contract liabilities | 5,824 | | (297) | | 5,527 | | | | 5,527 |
| Due to related party, net | 1,461 | | (191) | | 1,270 | | 2,336 | (1,748)(F)(v) | 1,858 |
| Due to third-party hotel | | | | | | | | | |
| managers | 1,629 | | (51) | | 1,578 | | 217 | | 1,795 |
| | | | | | | | | | |

| Liabilities associated with | 4.000 | | | | | | | | | 4.000 |
|-----------------------------|--------------------|---------|-----------|----------|-----------------|----------|---------|----|--------|-----------|
| marketable securities | 4,302 | | | | 4,302 | | | | | 4,302 |
| Other liabilities | 5,103 | (2 | 2,036) | | 3,067 | 9 | ,338 | | | 12,405 |
| | | | | | | | | | | |
| Total liabilities | \$ 2,093,352 \$ | \$ (163 | 3,635) \$ | (79,400) | \$ 1,850,317 | \$ 1,172 | ,636 \$ | 2, | 704 \$ | 3,025,657 |
| Redeemable | | | | | | | | | | |
| noncontrolling interests in | | | | | | | | | | |
| operating partnership | 177,743 | | | | 177,743 | | | | | 177,743 |
| | | | | S-19 | | | | | | |
| | | | | | | | | | | |

ASHFORD HOSPITALITY TRUST, INC. AND SUBSIDIARIES

UNAUDITED PRO FORMA CONDENSED CONSOLIDATED BALANCE SHEETS

AS OF SEPTEMBER 30, 2014

(IN THOUSANDS, EXCEPT SHARE AMOUNTS)

| | | Ashford apital Select aisePortfolioAd (B) (C) | • | Sub-total | PIM Highland JV PortfolioAo (E) | | Ashford Trust Consolidated Pro Forma |
|--|-------------|--|-------------------------------|-------------|---|--|--|
| Equity: | ì | ` , , , , | · í | | ì | ì | |
| Preferred stock, \$0.01 par value, 50,000,000 shares authorized: Series A Cumulative | | | | | | | |
| Preferred Stock, 1,657,206 shares issued and outstanding at | | | | | | | |
| September 30, 2014 | 17 | | | 17 | | | 17 |
| Series D Cumulative Preferred Stock, 9,468,706 shares issued and outstanding at | Ó | | | | | | |
| September 30, 2014 | 95 | | | 95 | | | 95 |
| Series E Cumulative Preferred Stock, 4,630,000 shares issued and outstanding at |) | | | | | | |
| September 30, 2014 | 46 | | | 46 | | | 46 |
| Common stock, \$0.01 par value, 200,000,000 shares authorized, 124,896,765 shares issued, 89,449,342 shares outstanding at | | | | | | | |
| September 30, 2014 | 1,249 | | | 1,249 | | | 1,249 |
| Additional paid-in capital | 1,729,338 | (149,646) | 93,382(D)(i) 79,400(D)(ii) | 1,673,074 | 228,048 | 250,055(F)(i) 533,244(F)(ii) (145,405)(F)(iii (1,901)(F)(iv |) |
| | | | | | | (4,452)(F)(vi | |
| | | | | | | (364,590)(F)(vi | |
| Accumulated other | | | | | | | |
| comprehensive loss | (110) | | | (110) | | | (110) |
| Accumulated deficit | (1,013,529) | | | (1,013,529) | | 364,590(F)(vi | i) (648,939) |
| Treasury stock, at cost | | | | | | | |
| (35,447,423 shares at September 30, 2014) | (125,700) | | | (125,700) | | | (125,700) |
| 5-ptember 50, 201 4) | (123,700) | | | (123,700) | | | (123,700) |
| Total stockholders' equity | | | | | | | |
| of the Company | 591,406 | (149,646) | 172,782 | 535,142 | 228,048 | 131,431 | 877,725 |
| Noncontrolling interests in consolidated entities | 1,207 | (800) | | 407 | | | 407 |

| Edgar Filing: ASHFORD HOSPITALITY TRUST INC - Form 424B5 |
|--|
|--|

| Total equity | 592,613 | (150,446) | 172,782 | 535,549 228,048 | 131,431 | 878,132 |
|------------------------------|-----------------|----------------|---------|------------------------------|---------|--------------|
| Total liabilities and equity | \$ 2,863,708 \$ | \$ (314,081)\$ | 93,382 | \$ 2,563,609 \$ 1,400,684 \$ | 134,135 | \$ 4,081,532 |

See accompanying notes.

S-20

ASHFORD HOSPITALITY TRUST, INC. AND SUBSIDIARIES

NOTES TO UNAUDITED PRO FORMA CONDENSED CONSOLIDATED BALANCE SHEETS

- (A) Represents our historical consolidated balance sheet as of September 30, 2014 as reported in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2014.
- (B)

 Represents gross cash proceeds of \$ million less the % underwriter discount of approximately \$ million and approximately \$ million of estimated offering expenses with respect to the shares issued in this offering (assuming no exercise of the underwriter's option to purchase additional shares occurs), common stock issued and additional paid-in capital from the issuance of 9,500,000 shares of common stock at a price to the public of \$ per share in this offering.
- (C)

 Represents the historical combined consolidated financial position of the Ashford Select Portfolio as of September 30, 2014, included in our Current Report on Form 8-K filed on January 29, 2015.
- (D)

 Represents adjustments for our contribution of the Ashford Select Portfolio as of September 30, 2014, which includes; (i) cash consideration to be received and (ii) the assumption of approximately \$79.4 million of additional debt by Ashford Select not reflected in the Ashford Select Portfolio balance sheet at September 30, 2014.
- (E)

 Represents the historical consolidated financial position of the PIM Highland JV Portfolio as of September 30, 2014, included in our Current Report on Form 8-K filed on January 29, 2015.
- (F)

 Represents adjustments for our purchase of the remaining ownership interest in the PIM Highland JV Portfolio as of September 30, 2014, which includes; (i) the cash consideration to be paid; (ii) the remeasurement of investment in hotel properties, net to fair value upon acquiring a controlling interest; (iii) the elimination of investment in unconsolidated entities as a result of consolidating the PIM Highland JV Portfolio; (iv) the removal of deferred costs that would not have any fair value assigned upon acquisition; (v) the elimination of due to/from affiliates between us and the PIM Highland JV Portfolio upon consolidation; and (vi) the remeasurement of indebtedness to fair value upon acquiring a controlling interest.

S-21

ASHFORD HOSPITALITY TRUST, INC. AND SUBSIDIARIES

UNAUDITED PRO FORMA CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

NINE MONTHS ENDED SEPTEMBER 30, 2014

(IN THOUSANDS, EXCEPT SHARE AND PER SHARE AMOUNTS)

| | I | Ashford | As | shford | | | | | | | | Asł | nford Trust |
|-------------------|------------------------|------------|--------|-------------|--------|-----|----------|-----|------------|-----|--------------|-----|-------------|
| | Trust S | | Select | | | PIM | | | | | Consolidated | | |
| | Consolidated Portfolio | | | Highland JV | | | | | | Pro | | | |
| | His | torical (A |) | (B) Adjus | tments | iZ, |)b-total | Por | tfolio (P) | dju | stments (E) | | Forma |
| Revenue | | | | | | | | | | | | | |
| Rooms | \$ | 491,542 | \$ | (60,598) \$ | | \$ | 430,944 | \$ | 260,105 | \$ | | \$ | 691,049 |
| Food and beverage | e | 82,521 | | (1,916) | | | 80,605 | | 81,078 | | | | 161,683 |
| Other | | 20,088 | | (1,311) | | | 18,777 | | 12,063 | | | | 30,840 |
| | | | | | | | | | | | | | |
| Total hotel | | | | | | | | | | | | | |
| revenue | | 594,151 | | (63,825) | | | 530,326 | | 353,246 | | | | 883,572 |
| Advisory services | | | | | | | | | | | | | |
| revenue | | 9,266 | | | | | 9,266 | | | | | | 9,266 |
| Other | | 3,213 | | | | | 3,213 | | 316 | | (2,867)(E) | (i) | 662 |