

TRAVELCENTERS OF AMERICA LLC
Form 424B5
December 09, 2013

Use these links to rapidly review the document

[TABLE OF CONTENTS](#)
[TABLE OF CONTENTS](#)

[Table of Contents](#)

The information contained in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities has been declared effective by the Securities and Exchange Commission. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell and they are not soliciting an offer to buy these securities in any state or other jurisdiction where the offer or sale is not permitted.

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-181182

SUBJECT TO COMPLETION, DATED DECEMBER 9, 2013

PROSPECTUS SUPPLEMENT

(To Prospectus dated July 11, 2012)

5,000,000 Shares

TravelCenters of America LLC

Common Shares

This is an offering of 5,000,000 of our common shares. Our common shares are traded on the New York Stock Exchange, or NYSE, under the symbol "TA." On December 6, 2013, the last reported sale price of our common shares on the NYSE was \$10.41 per share. Our former parent company, Hospitality Properties Trust, or HPT, has indicated that it intends to purchase 730,000 common shares in this offering from the underwriters at the public offering price.

Although we are a limited liability company, our common shares have voting, dividend and liquidation rights that are generally associated with common stock, and we are taxable as a corporation for U.S. federal income tax purposes. Our limited liability company agreement, or our LLC agreement, generally limits ownership of our common shares by any person or group to not more than 9.8% of our outstanding common shares. In addition, our bylaws include provisions intended to preserve our ability to use our net operating losses to offset future taxable income we may generate and generally limit ownership of our common shares by any person or group to less than 5% of our outstanding common shares.

We granted the underwriters an option to purchase up to an additional 750,000 of our common shares at the public offering price, less the underwriting discounts and commissions, within 30 days from the date of this prospectus supplement.

Investment in our shares involves a high degree of risk. You should read carefully the sections entitled "Risk Factors" and "Warning Concerning Forward Looking Statements" beginning on pages S-5 and S-28, respectively, of this prospectus supplement, in our Annual Report on Form 10-K for the year ended December 31, 2012, and our Quarterly Reports on Form 10-Q for the quarters

ended March 31, June 30 and September 30, 2013, which reports are incorporated herein by reference, and under the heading "Forward Looking Statements" in the accompanying prospectus.

Neither the Securities and Exchange Commission, or SEC, nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful and complete. Any representation to the contrary is a criminal offense.

| | Per share | Total |
|---|-----------|-------|
| Public offering price | \$ | \$ |
| Underwriting discounts and commissions ⁽¹⁾ | \$ | \$ |
| Proceeds, before expenses, to us | \$ | \$ |

(1) The table above includes 730,000 common shares that HPT has indicated that it intends to purchase in this offering from the underwriters at the public offering price. The underwriters will not receive any underwriting discounts or commissions relating to any common shares sold to HPT in this offering. The underwriting discounts and commissions per share for shares in this offering not sold by the underwriters to HPT are \$.

The underwriters are offering our shares as described in "Underwriting." Delivery of the shares will be made on or about December , 2013.

Joint Book-Running Managers

Citigroup

RBC Capital Markets

UBS Investment Bank

Co-Managers

BB&T Securities
Janney Montgomery Scott

Craig-Hallum Capital Group
Oppenheimer & Co.

The date of this prospectus supplement is December , 2013.

Table of Contents

TABLE OF CONTENTS

| | |
|---|-------------|
| PROSPECTUS SUPPLEMENT | |
| <u>ABOUT THIS PROSPECTUS SUPPLEMENT</u> | <u>S-ii</u> |
| <u>PROSPECTUS SUPPLEMENT SUMMARY</u> | <u>S-1</u> |
| <u>RISK FACTORS</u> | <u>S-5</u> |
| <u>OUR COMPETITIVE STRENGTHS</u> | <u>S-10</u> |
| <u>OUR GROWTH OPPORTUNITY</u> | <u>S-12</u> |
| <u>CAPITALIZATION</u> | <u>S-13</u> |
| <u>USE OF PROCEEDS</u> | <u>S-13</u> |
| <u>PRICE RANGE OF OUR COMMON SHARES</u> | <u>S-14</u> |
| <u>DESCRIPTION OF OUR COMMON SHARES</u> | <u>S-15</u> |
| <u>CERTAIN U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS</u> | <u>S-15</u> |
| <u>UNDERWRITING</u> | <u>S-20</u> |
| <u>LEGAL MATTERS</u> | <u>S-25</u> |
| <u>EXPERTS</u> | <u>S-25</u> |
| <u>WHERE YOU CAN FIND MORE INFORMATION</u> | <u>S-26</u> |
| <u>WARNING CONCERNING FORWARD LOOKING STATEMENTS</u> | <u>S-28</u> |
| PROSPECTUS | |
| <u>ABOUT THIS PROSPECTUS</u> | <u>1</u> |
| <u>PROSPECTUS SUMMARY</u> | <u>1</u> |
| <u>RISK FACTORS</u> | <u>2</u> |
| <u>FORWARD LOOKING STATEMENTS</u> | <u>2</u> |
| <u>RATIO OF EARNINGS TO FIXED CHARGES AND RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED SHARE DIVIDENDS</u> | <u>6</u> |
| <u>USE OF PROCEEDS</u> | <u>6</u> |
| <u>DILUTION</u> | <u>6</u> |
| <u>DESCRIPTION OF THE COMMON SHARES AND PREFERRED SHARES WE MAY OFFER</u> | <u>7</u> |
| <u>DESCRIPTION OF THE DEBT SECURITIES WE MAY OFFER</u> | <u>18</u> |
| <u>DESCRIPTION OF THE WARRANTS WE MAY OFFER</u> | <u>23</u> |
| <u>PLAN OF DISTRIBUTION</u> | <u>24</u> |
| <u>VALIDITY OF SECURITIES</u> | <u>26</u> |
| <u>EXPERTS</u> | <u>26</u> |
| <u>WHERE YOU CAN FIND MORE INFORMATION</u> | <u>26</u> |
| <u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u> | <u>27</u> |

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

References in this prospectus to "we," "us," "our," the "Company" or "TravelCenters of America" mean TravelCenters of America LLC and its consolidated subsidiaries, unless otherwise expressly stated or the context indicates otherwise. Unless otherwise stated, we have assumed throughout this prospectus supplement that the underwriters' option to purchase additional shares is not exercised.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and risks related to an investment in our common shares. The second part, the accompanying prospectus, gives more general information about us and the securities we may offer from time to time referenced in that prospectus. If the information contained or incorporated by reference in this prospectus supplement varies from that in the accompanying prospectus, you should rely only on the information contained or incorporated by reference in this prospectus supplement.

Any statements made in this prospectus supplement or in a document incorporated or deemed to be incorporated by reference into this prospectus supplement will be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement or in any other subsequently filed document which is incorporated or deemed to be incorporated into this prospectus supplement modifies or supersedes the prior statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement. The information relating to us contained in this prospectus supplement and the accompanying prospectus should be read together with the information in the documents incorporated by reference.

You should assume that the information appearing in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference is accurate only as of the respective dates of those documents or such other dates as may be specified therein. Our business, financial condition, results of operations, liquidity and prospects may have changed since any of those respective dates. You should read this entire prospectus supplement, as well as the accompanying prospectus and the documents incorporated by reference that are described under "Where You Can Find More Information" in this prospectus supplement and the accompanying prospectus before making your investment decision.

You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and any free writing prospectus prepared by or on behalf of us. We have not, and the underwriters have not, authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

The information below is only a summary of more detailed information included elsewhere in this prospectus supplement, the accompanying prospectus and the documents incorporated herein and therein by reference. This summary does not contain all of the information that is important to you or that you should consider before investing in our common shares. As a result, you should read carefully this entire prospectus supplement and the accompanying prospectus, as well as the information incorporated herein and therein by reference. See "Where You Can Find More Information."

The Company

We are a leading operator and franchisor of travel centers primarily located along the U.S. Interstate Highway System. Our customers include trucking fleets, independent truck drivers and motorists. As of September 30, 2013, our business included 247 travel centers in 42 U.S. states and in Canada, operated primarily under the "Travel Centers of America," "TA" and "Petro" brand names. Of these travel centers, we operated 214 and franchisees operated 33, including six that they subleased from us. As of September 30, 2013, we owned 30 of these travel centers in fee, leased or managed 190 from or for others, including 184 that we leased from HPT, and franchisees owned or leased from others 27. Our typical travel center includes:

about 25 acres of land with parking for 189 tractor trailers and 100 cars;

a full service restaurant operated under one of our proprietary brands and one or more quick service restaurants operated under nationally franchised brand names;

a large truck repair and service facility and parts store;

multiple diesel and gasoline fueling points; and

a large convenience store, game room, laundry and other amenities.

Our Competitive Strengths

We believe we possess a number of competitive strengths that enable us to be a leader in our industry and may enable us to enhance this leadership position in the future. We believe these competitive strengths include our broad geographic footprint, our large typical travel center size, the wide array of customer services and amenities we offer, our truck repair service business, which offers a wide variety of repair and maintenance services at substantially all of our travel centers, and our large variety of restaurant choices.

Our Approach to Managing Growth and Capital

We believe that, historically, improvements in the U.S. economy have led to increased truck freight and motorist travel. We believe that the U.S. economy is in a period of slow and uneven recovery and expansion. The following table sets forth our historical retail fuel sales and our non-fuel revenue for the periods indicated (in millions):

| | 2010 | 2011 | 2012 | 12 months ended September 30, 2013 |
|------------------------------|-------|-------|-------|---------------------------------------|
| Diesel fuel (gallons) | 1,725 | 1,729 | 1,698 | 1,714 |
| Gasoline (gallons) | 233 | 256 | 259 | 271 |
| Total (gallons) | 1,958 | 1,985 | 1,957 | 1,985 |

Edgar Filing: TRAVELCENTERS OF AMERICA LLC - Form 424B5

Non-fuel revenue (\$) \$ 1,158 \$ 1,271 \$ 1,345 \$ 1,425

S-1

Table of Contents

To take advantage of what may be a period of recovery and growth in the U.S. economy, we have identified a number of growth strategies, including acquisition opportunities and improvements to our existing travel centers that we believe will make them more attractive to customers and help increase our share of the interstate highway market for fuel and non-fuel products and services. We intend to use the net proceeds from this offering to fund our business and growth strategies and for general business purposes. Some of the net proceeds may be used to fund a portion of the purchase price of our pending convenience store acquisition and other expansion activities. See "Use of Proceeds."

Recent Developments

Pending and recent travel center acquisitions.

During the first nine months of 2013, we acquired six travel centers for an aggregate purchase price of approximately \$28 million. As of September 30, 2013, we had entered agreements to acquire four additional travel centers for an aggregate purchase price of approximately \$20 million. In October 2013, we completed the acquisition of two of these travel centers for an aggregate purchase price of approximately \$10.1 million. We currently expect to complete the other two acquisitions by the end of 2013, but these purchases are subject to conditions and may not occur, may be delayed or the terms may change. We expect to invest a total of approximately \$43 million to improve these 10 travel centers, with most of these expenditures to be made after 2013. Our travel center acquisitions are subject to a number of risks and uncertainties, including as to when, whether and to what extent the anticipated benefits and cost savings of a particular acquisition will be realized. See "Risk Factors Acquisition risks."

Since the beginning of 2011 through September 30, 2013, we have invested approximately \$216.9 million to acquire and improve 26 travel centers. The improvements to these travel centers are often substantial and require a long period of time to plan, design, permit and complete, and once completed then require a period of time to produce stabilized financial results. Based on our historical experience, we estimate that the travel centers we acquire generally will reach stabilized financial results in approximately the third year after acquisition, but the actual results may vary widely from this estimate due to many factors, some of which are outside our control. From the time of their acquisition by TA, during the three, nine and twelve month periods ended September 30, 2013, these 26 travel centers generated gross revenues in excess of cost of goods sold and site level operating expenses of approximately \$7.6 million, \$17.7 million and \$19.3 million, respectively, compared to approximately \$1.6 million, \$4.0 million and \$5.2 million for the three, nine and twelve month periods ended September 30, 2012, respectively. Our current plan is to continue to improve the operations at these travel centers such that they may average financial results similar to the average financial results of the group of travel centers we have operated since before 2011.

Pending convenience store acquisition.

On November 14, 2013, we announced that we had agreed to acquire for approximately \$67 million (before closing costs and customary working capital adjustments) a privately held company that operates 31 "Minit Mart" branded gasoline/convenience stores, or C-stores, 28 of which are located in Kentucky and three of which are located in Tennessee. The 31 C-stores we have agreed to acquire are high volume fuel locations with larger interior space for merchandise and food offerings than typical C-stores and appear to have limited need for near term capital investment. In addition, we do not expect these C-stores to require a lengthy period to achieve stabilized financial results. We also currently expect we may be able to realize synergies in purchasing and merchandising customer offerings at these C-stores which may make the financial results, relative to the acquisition cost, similar to that expected for travel center acquisitions. Nearly all of our existing travel centers currently offer gasoline for motorists, and most of these C-stores' customer offerings are similar to the products and food services available at our highway travel centers. The completion of this acquisition is subject to

Table of Contents

customary closing conditions. We expect to complete this acquisition by the end of 2013. However, we cannot assure you that this acquisition will be completed on the terms described herein or at all. This acquisition is subject to a number of risks and uncertainties, including as to synergies, if any, that we may realize. See "Risk Factors Acquisition risks." This offering is not contingent upon completion of this acquisition.

Investment in existing travel centers.

Our business of operating high sales volume travel centers that are open 24 hours every day requires us to make regular capital investments to our travel centers to maintain their competitive attractiveness to our customers. During the nine months ended September 30, 2013, we spent approximately \$125.7 million on improvements to our existing travel centers, including approximately \$39 million to improve the travel centers we acquired in 2011 through September 30, 2013. We believe that the U.S. economy is in a period of slow and uneven recovery and expansion; accordingly, we expect to continue our capital investment program, and we expect to continue programs designed to enhance our future operating results.

Risk Factors

An investment in our shares involves a high degree of risk. For a discussion of these risks, please see the sections entitled "Risk Factors" and "Warning Concerning Forward Looking Statements" beginning on pages S-5 and S-28, respectively, of this prospectus supplement, in our Annual Report on Form 10-K for the year ended December 31, 2012, in our Quarterly Reports on Form 10-Q for the quarters ended March 31, June 30 and September 30, 2013. Our Annual Report on Form 10-K for the year ended December 31, 2012 and our subsequent Quarterly Reports on Form 10-Q are incorporated by reference into this prospectus supplement and the accompanying prospectus. See "Where You Can Find More Information."

Corporate Information

We are a Delaware limited liability company. Our principal place of business is 24601 Center Ridge Road, Suite 200, Westlake, OH 44145-5639, and our telephone number is (440) 808-9100.

Table of Contents

The Offering

The following summary information about this offering and the terms and provisions of our common shares is not intended to be complete. For more information, please refer to the "Description of Our Common Shares" in this prospectus supplement, "Description of the Common Shares and Preferred Shares We May Offer" in the accompanying prospectus and our LLC agreement and bylaws, copies of which are available at <http://www.sec.gov> and which we will provide to you upon request.

| | |
|---|---|
| Issuer | TravelCenters of America LLC |
| Common shares we are offering | 5,000,000 shares |
| Common shares to be outstanding after this offering | 35,151,356 shares |
| Voting rights | Common shareholders are entitled to one vote for each share held of record on our books for all matters submitted to a vote of shareholders. |
| Use of proceeds | We estimate that the net proceeds to us from this offering will be \$ million, or \$ million if the underwriters exercise in full their option to purchase additional shares. We intend to use these net proceeds to fund our business and growth strategies and for general business purposes. Some of the net proceeds may be used to fund a portion of the purchase price of our pending convenience store acquisition and other expansion activities. See "Use of Proceeds" for more information. |
| NYSE symbol | TA |
| Risk factors | You should carefully consider the information set forth in the sections of this prospectus supplement and the accompanying prospectus entitled "Risk Factors," as well as the other information included in or incorporated by reference in this prospectus supplement and the accompanying prospectus before deciding to invest in our common shares. |

The number of our common shares to be outstanding after the offering is based on 30,151,356 common shares outstanding on December 6, 2013. If the underwriters exercise in full their option to purchase additional shares, we will issue an additional 750,000 common shares. Unless otherwise stated, all information contained in this prospectus supplement assumes no exercise of the underwriters' option to purchase additional shares.

Table of Contents

RISK FACTORS

Investing in our common shares involves a high degree of risk that may result in a loss of all or part of your investment. You should carefully review the risk factors set forth below and those contained under the heading "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2012 and in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, which risk factors are incorporated by reference in this prospectus supplement. You should also carefully review the information contained under the heading "Warning Concerning Forward Looking Statements" in this prospectus supplement, in our Annual Report on Form 10-K for the year ended December 31, 2012, in our Quarterly Reports on Form 10-Q for the quarters ended March 31, June 30 and September 30, 2013, and under the heading "Forward Looking Statements" in the accompanying prospectus. If any such risks occur, our business, financial condition, results of operations, liquidity or prospects could be materially harmed and you could lose all or part of your investment.

Risks Related to our Common Shares

Our shares have experienced significant price and trading volume volatility and may continue to do so.

Since we became a publicly traded company in January 2007, our shares have experienced significant share price and trading volatility, which may continue. The market price of our common shares has fluctuated and could fluctuate and decline significantly in the future in response to various factors and events, including, but not limited to, the risks set out in this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein, as well as:

the liquidity of the market for our common shares;

changes in our operating results;

changes in analysts' expectations; and

general economic and industry trends and conditions.

In addition, in the past, following periods of volatility in the overall market and the market price of a company's securities, securities class action litigation has often been instituted against some of the companies affected by this volatility. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

The amount of shares offered in this offering may significantly impact our share price and volatility.

The common shares offered hereby represent a significant percentage of our currently outstanding common shares. Assuming the underwriters do not exercise their option to purchase additional shares, we are selling 5,000,000 of our common shares in this offering, which equals approximately 16.6% of our shares outstanding prior to the offering, and if the underwriters exercise in full their option to purchase additional shares, we will sell 5,750,000 of our common shares in this offering, which equals approximately 19% of our shares outstanding prior to the offering. We cannot predict what effect this offering may have on the price of our common shares or the volume of transactions involving our shares in the market. Sales of a substantial amount of our common shares or the perception that such sales could occur could adversely affect the liquidity of the market for our common shares or their price. Large price changes or low volume may preclude you from buying or selling our shares at all, or at any particular price or during a time frame that satisfies your investment objectives.

Because we do not pay dividends, shareholders will benefit from an investment in our common shares only if our common shares appreciate in value.

We have never declared or paid any cash dividends on our common shares. For the foreseeable future, it is expected that any earnings generated from our operations will be used to finance the growth of our business, and that no dividends will be paid to holders of our common shares. In

Table of Contents

addition, our credit facility and rent deferral agreement with HPT generally restrict our ability to declare or pay dividends. Our lease agreements and our credit facility also generally restrict or prohibit us from repurchasing our shares. As a result, the success of an investment in our common shares will depend upon a future increase in the trading value of our common shares. There is no guarantee that our common shares will appreciate in value.

Our management has broad discretion over the use of proceeds from this offering.

We intend to use the net proceeds of this offering to fund our business and growth strategies and for general business purposes. Some of the net proceeds may be used to fund a portion of the purchase price of our pending convenience store acquisition and other expansion activities. However, the net proceeds are not required to be allocated in any proportion to any specific investment or transaction. Moreover, this offering is not contingent upon the completion of the acquisition. We will have broad discretion to use the net proceeds of this offering for expansion activities and for general corporate purposes. The net proceeds of this offering may be used in a manner which does not generate a favorable return for us.

If securities or industry analysts do not publish research, or if they publish unfavorable research, about us, our share price and trading volume would likely decline.

The trading market for our common shares may be influenced by research and reports, or lack thereof, that industry or securities analysts publish about us, our business or our market. Currently, the number of analyst reports about us is limited. If no additional analysts publish research about us, the trading price and volume of our common shares could decline. If analysts publish research about us which is unfavorable or if analysts who publish research about us now or in the future cease to publish such research regularly our share price and trading volume may decline.

Additional future sales of a significant amount of our shares could cause our share price to decline.

Future sales of substantial amounts of our common shares by our shareholders in the public market, or the perception that these sales could occur, may cause the market price of our common shares to decline. As of September 30, 2013, HPT, our former parent company, owned 2,540,000 of our outstanding common shares, representing approximately 8.6% of our outstanding common shares at such date. HPT has also indicated that it intends to purchase 730,000 additional shares in this offering. Subject to HPT's agreement not to sell any of its common shares for a period of 90 days after the date of this prospectus supplement, as described below under "Underwriting," HPT is not prohibited from selling all or any portion of our shares that it holds. Additionally, we grant restricted share awards which vest over a period of years to our employees, officers, Directors and others under our share award plan. As those shares vest, the recipients of those restricted share awards may seek to sell those shares in the public market. Increased sales of our common shares by HPT, our employees, officers, Directors or others could cause our share price to decline or make it more difficult for us to sell equity or equity related securities in the future.

Additionally, from time to time without seeking shareholder approval, we may issue additional common shares, preferred shares and other securities. We may file future shelf registration statements with the SEC that we may use to sell common shares, preferred shares and other securities from time to time in connection with acquisitions or otherwise. Such securities could entitle their holders to greater voting rights or preferences to our common shares, including, without limitation, as to dividends and liquidation rights. To the extent that we are able to grow through acquisitions and are able to pay for such acquisitions with our common shares or other securities convertible into our common shares, the number of outstanding common shares that will be eligible for sale in the future is likely to increase substantially. Persons receiving our shares in connection with these acquisitions may be more likely to sell large quantities of their shares, which may influence the price of our common shares. In addition, the issuance or potential issuance of additional common shares could reduce demand for our

Table of Contents

common shares or adversely affect the market price for our common shares. To the extent we issue substantial additional common shares or other equity securities, the ownership of our existing shareholders would be diluted and our earnings per share could be reduced.

Acquisition risks

We may not complete our pending acquisitions within the time frame we anticipate, or at all, which could have a negative effect on us.

Our pending acquisitions are subject to satisfaction of closing conditions, which could delay or prevent completion, cause us to incur additional costs, or both. If we do not consummate one or more of our pending acquisitions within the expected time frame, or at all, it could have a negative effect on our ability to execute on our growth strategy or financial performance. Additionally, if we incur substantial expenses in connection with the due diligence, negotiation and completion of a particular transaction and it is not completed, we would have incurred these expenses without realizing the expected benefits of the transaction.

Acquisitions may be more difficult, costly or time consuming than expected and the anticipated benefits and cost savings of a particular transaction may not be realized fully or at all.

Travel centers that we acquire often require substantial improvements in order to be brought up to our standards. These improvements often require an extended period of time to plan, design, permit and complete. Improvement of a travel center is often followed by a period of time during which the center matures and becomes part of our customers' networks. We estimate that our travel center acquisitions generally will reach maturity in approximately the third year after acquisition, but actual results can vary widely from this estimate. If improvements are more difficult, costly or time consuming than expected or if reaching maturity takes longer than expected or does not occur at all, our business, financial condition or results of operations could be negatively affected.

Additionally, the success of any acquisition, including the realization of anticipated benefits and cost savings, will depend, in part, on our ability to successfully integrate the acquired business and ours. The integration may be more difficult, costly or time consuming than expected or result in the loss of key employees, business disruption to us, or our ability to maintain relationships with customers, suppliers and employees or to fully achieve the anticipated benefits and cost savings of the acquisition. If we experience difficulties with the integration process for a particular acquisition, the anticipated benefits of the transaction may not be realized fully or at all, or may take longer to realize than expected. Integration efforts may also divert management attention and resources. These matters could have an adverse effect on us for an undetermined period after completion of a transaction.

The obligations and liabilities with respect to an acquisition, some of which may be unanticipated, may be greater than we have anticipated, which may diminish the value of the acquisition to us.

We may acquire obligations and liabilities in connection with a particular acquisition, some of which may not have been disclosed to us, may not be reflected or reserved for in the acquiree's historical financial statements, or may be greater than we have anticipated. These obligations and liabilities could have a material adverse effect on our business, financial condition or results of operations.

Table of Contents

Risks arising from certain relationships of ours

Ownership limitations, anti-takeover and other provisions may prevent us from experiencing a change of control, our shareholders from effecting changes in our governance or related matters, and our shareholders from receiving a takeover premium.

Our LLC agreement and bylaws include various provisions which may make it difficult for anyone to cause a change of control of us by means of a tender offer, open market share purchases, a proxy contest or otherwise, without the approval of our Board of Directors. Among others, these provisions include the following:

separate prohibitions on the ownership of 5% or more of our outstanding common shares or in excess of 9.8% of any class or type of our equity securities, including outstanding common shares, by any person or group;

staggered terms for members of our Board of Directors;

qualifications to serve on our Board of Directors and a requirement that certain of our Directors be Managing Directors and Independent Directors;

the power of our Board of Directors, without shareholders' approval, to authorize and issue additional shares of any class or type on terms that it determines;

advance notice procedures for shareholder nominations and other proposals;

a requirement that an individual Director may only be removed for cause and then only by unanimous vote of the other Directors; and a 75% shareholders' vote and cause requirements for removal of our entire Board of Directors;

a 75% shareholders' vote requirement for shareholder nominations and other proposals which are not approved by our Board of Directors;

the authority of our Board of Directors, and not our shareholders, to adopt, amend or repeal our bylaws;

limitations on the ability of shareholders to cause a special meeting of shareholders to be held and a prohibition on shareholders acting by written consent unless the consent is a unanimous consent of all our shareholders entitled to vote on the matter;

because of our 12.5% ownership interest in Affiliates Insurance Company, or AIC (an insurance company that has designed and reinsures a portion of a property insurance program through which we have purchased substantially all of our property insurance), we are an insurance holding company under applicable state law; accordingly, anyone who intends to solicit proxies for a person to serve as one of our Directors or for another proposal of business not approved by our Board of Directors may be required to receive pre-clearance from the concerned insurance regulators;

a requirement that a shareholder who desires to nominate a person for election as Director or to propose other business not approved by our Board of Directors at a meeting of our shareholders that would cause a breach or default of any debt instrument or agreement or other material agreement of ours, to provide (i) evidence of the lender's or contracting party's willingness to waive the breach of covenant or default or (ii) a detailed plan for repayment of the applicable indebtedness or curing the contractual breach or default and satisfying any resulting damage, in each case, satisfactory to our Board of Directors; and

requirements that shareholders and Director nominees comply with regulatory requirements (including gambling and insurance licensing requirements) affecting us which could effectively limit share ownership of us, including to as low as 5% of our outstanding shares in light of

S-8

Table of Contents

Louisiana and Nevada gaming laws and 10% of our outstanding shares in light of Indiana insurance laws.

In addition, we have historical and continuing relationships with AIC and Reit Management & Research LLC, or RMR. Our leases with HPT, our shareholders agreement affecting AIC, our business management and shared services agreement with RMR (pursuant to which RMR provides management services to us) and our credit facility each provide that our rights and benefits under those agreements may be terminated in the event that anyone acquires more than 9.8% of our shares or we experience a change in control, as defined in those agreements, without the consent of HPT, RMR or the lenders under the credit facility, respectively. Additionally, AIC and the other shareholders of AIC may have rights to acquire our interests in AIC if such an acquisition occurs or if we experience a change of control. In addition, our obligation to repay deferred rent then outstanding under our amended leases with HPT may be accelerated if, among other things, a Director not nominated or appointed by the then members of our Board of Directors is elected to our Board of Directors or if our shareholders adopt a proposal (other than a precatory proposal) not recommended for adoption by the then members of our Board of Directors. For these reasons, among others, we may not experience a change of control, our shareholders may be unable to effect changes to our governance or related matters and our shareholders may be unable to realize a takeover premium for their shares.

Our rights and the rights of our shareholders to take action against our Directors, officers, HPT and RMR are limited.

Our LLC agreement eliminates the personal liability of each of our Directors to us and our shareholders for monetary damages for breach of fiduciary duty as our Director, except for a breach of the Director's duty of loyalty to us or our shareholders as modified by our LLC agreement, for acts or omissions not in good faith or which involved intentional misconduct or a knowing violation of law, or for any transaction from which the Director derived an improper personal benefit. Our LLC agreement also provides that our Directors and officers, HPT, RMR, and the respective directors and officers of HPT and RMR shall not be liable for monetary damages to us or our shareholders for losses sustained or liabilities incurred as a result of any act or omission by any of them unless there has been a final, nonappealable judgment entered by a court determining that such person or entity acted in bad faith or engaged in fraud, willful misconduct or, in the case of a criminal matter, acted with knowledge that his, her or its conduct was unlawful.

Our LLC agreement also generally requires us to indemnify, to the fullest extent permitted by law, our present and former Directors and officers, HPT, RMR, and the respective directors and officers of HPT and RMR for losses they may incur arising from claims or actions in which any of them may be involved in connection with any act or omission by such person or entity in good faith on behalf of or with respect to us. In addition, we may be obligated to pay or reimburse the expenses incurred by our present and former Directors and officers, HPT, RMR, and the respective directors and officers of HPT and RMR without requiring a preliminary determination of their ultimate entitlement to indemnification. As a result, we and our shareholders may have more limited rights against our present and former Directors and officers, HPT, RMR, and the respective directors and officers of HPT and RMR than might otherwise exist absent the provisions in our LLC agreement or that might exist with other companies, which could limit your recourse in the event of actions not in your best interest.

Disputes with HPT and RMR and shareholder litigation against us or our Directors and officers may be referred to arbitration proceedings.

Our contracts with HPT and RMR provide that any dispute arising under those contracts may be referred to binding arbitration proceedings. Similarly, our LLC agreement and bylaws provide that actions by our shareholders against us or against our Directors and officers, including derivative cases and class actions, may be referred to binding arbitration proceedings. As a result, we and our

Table of Contents

shareholders would not be able to pursue litigation for these disputes in courts against HPT, RMR or our Directors and officers if the disputes were referred to arbitration. In addition, the ability to collect attorney's fees or other damages may be limited in the arbitration proceedings, which may discourage attorneys from agreeing to represent parties wishing to commence such a proceeding.

We are involved in litigation which is expensive and may have adverse impacts upon our business.

We are currently involved in litigation which is expensive and which may have adverse consequences to us. If these litigation matters or new litigation matters continue for extended periods or if they result in judgments adverse to us, our profits may decline or we may experience losses. We are named as a defendant in one lawsuit brought under U.S. federal antitrust laws under which, if we were found liable, actual damages would be trebled and we would be subject to joint and several liability among the defendants, which could significantly magnify the effect of any adverse judgment. In addition, in our experience, the risk of litigation is greater in certain jurisdictions, such as the State of California. We have significant operations in the State of California and have in the past been, are currently and may in the future be, party to employee and other litigation in that state or elsewhere. Although to date our litigation matters in the State of California have not resulted in settlements or judgments against us which have had, or which we expect reasonably would be likely to have, a material adverse effect on our business, there can be no assurance that they will not have such an effect or that litigation elsewhere would not have such an effect on us. We have defended, and will continue to defend, vigorously against litigation challenges. However, we or our subsidiaries may enter into settlement discussions in particular cases if we believe it is in our best interests to do so. Settlement of, or failure to successfully defend, litigation could result in liability that could have a material adverse effect on our results of operations, financial condition and cash flows. For additional information about material pending legal proceedings see Note 8 to our condensed consolidated financial statements as of and for the three and nine months ended September 30, 2013, which are included in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2013 and incorporated by reference into this prospectus supplement.

OUR COMPETITIVE STRENGTHS

We believe we possess a number of competitive strengths that enable us to be a leader in our industry and may enable us to enhance this leadership position in the future:

Broad Geographic Footprint

As of September 30, 2013, we operated or franchised 247 travel centers in 42 U.S. states and in Canada. With few exceptions, our travel centers are located near U.S. Interstate Highway System exits and we believe many of these locations would be very difficult to effectively duplicate. We estimate that approximately 50% of our sites are in the 10 states with the highest concentration of interstate highway system truck traffic. We believe we are the second largest operator and franchisor of travel centers located near the interstate highway system in the U.S.

Large Facilities

Our typical travel center is located on approximately 25 acres, has 189 truck parking spaces, 100 car parking spaces, 10 truck fueling lanes and five car fueling positions. We believe that our average travel center is significantly larger than the average site operated by our competition. We also believe that this size advantage is a competitive advantage because it provides for easier vehicle maneuverability by our customers, which lowers the risk of vehicular collisions or other accidental damage and increases the likelihood that a customer will be able to locate a parking spot quickly during his or her nondriving hours. We believe that these factors may lead to a higher level of customer satisfaction.

Table of Contents

Full Service Offering

We believe that we offer the broadest combination of travel centers in the U.S. that are considered to be "full service." We believe our travel centers provide our customers with more driver amenities than any other chain of travel centers. Our full service offering includes what we believe is the industry's largest large truck repair and maintenance business, a food service offering that leads the industry in variety of brands and in number of table service restaurants, including well known quick service restaurant, or QSR, brands and proprietary table service brands, a large convenience store offering, driver lounges, wide screen theaters, fitness rooms, barber shops, medical clinics, video game rooms, laundry service, ATMs, scanning and faxing, check cashing, mailing services, CAT scales, WiFi services and other amenities. Our ReserveIt! program provides truck drivers the opportunity to reserve a parking space at our travel centers for a fee. We believe that our travel centers' full service characteristics are a key factor in our ability to attract our customers.

Industry Leading Truck Repair Service

We believe that we operate our industry's largest, nationwide, non-dealer network of large truck repair and maintenance services. Our 247 travel center locations include over 1,000 truck repair and service bays and we employ over 3,000 service technicians and mechanics who perform a wide variety of repair and maintenance services. We believe that our next closest travel center competitor operates fewer than 90 facilities which provide a smaller variety of services. In addition, we are the only non-dealer warranty service provider for Daimler Trucks North America in the U.S. We also operate RoadSquadConnect®, through which we provide emergency roadside services through a network of over 1,000 locations including our travel centers; we utilize over 400 heavy duty emergency vehicles from our company operated sites. We believe our call management and dispatch system centralized in our corporate headquarters enhances the efficiency of RoadSquadConnect®.

Large Variety of Food Services

We operate 219 table service restaurants under five different proprietary brands. Our Iron Skillet® brand (at our Petro travel centers) has been voted "Best Table Service Restaurant" in independent surveys of truck drivers 10 years in a row, including the most recently completed survey in 2013. In many locations, our table service restaurants have a strong local following in addition to interstate highway truckers and motorists. Additionally, our travel centers include 291 QSRs operated under 41 different brands, including McDonalds, Burger King, Subway, Starbucks, Popeye's, Dunkin' Donuts, Pizza Hut and Taco Bell. We believe that this broad offering of food service options is highly valued by our customers.

Natural Gas Refueling

Equilon Enterprises LLC doing business as Shell Oil Products US has agreed to construct a network of natural gas refueling lanes at up to 100 of our travel centers located along the U.S. Interstate Highway System, including travel centers we lease from HPT. The first 100 locations are expected to cover the most heavily used freight corridors. We expect to add locations as the market grows. We currently expect the first location to open in the first half of 2014. However, we cannot assure that these refueling lanes will be completed on schedule or at all, or that natural gas refueling will prove to be a successful business.

Table of Contents**OUR GROWTH OPPORTUNITY**

We believe that the U.S. economy is currently in a period of slow and uneven recovery and expansion. The following table sets forth our historical retail fuel sales and our non-fuel revenue for the periods indicated (in millions):

| | 2010 | 2011 | 2012 | 12 months ended September 30, 2013 |
|------------------------------|----------|----------|----------|---------------------------------------|
| Diesel fuel (gallons) | 1,725 | 1,729 | 1,698 | 1,714 |
| Gasoline (gallons) | 233 | 256 | 259 | 271 |
| Total (gallons) | 1,958 | 1,985 | 1,957 | 1,985 |
| Non-fuel revenue (\$) | \$ 1,158 | \$ 1,271 | \$ 1,345 | \$ 1,425 |

We believe that, historically, improvements in the U.S. economy have led to increased truck freight and motorist travel. We believe we have designed a business plan that may allow us to take advantage of what may be a prolonged period of economic recovery and expansion. As part of these plans, we have identified a number of improvements to our existing travel centers that we designed with a goal to make our travel centers attract additional customers and thereby increase our share of the interstate highway market for fuel and non-fuel products and services.

Table of Contents**CAPITALIZATION**

You should read the following table, which sets forth our cash and cash equivalents and capitalization as of September 30, 2013 on an actual and as adjusted basis, in conjunction with our historical financial statements and accompanying notes incorporated by reference in this prospectus supplement and the accompanying prospectus.

| | As of September 30, 2013 | |
|--|---------------------------------|----------------------------------|
| | Actual | As adjusted⁽¹⁾ |
| | (dollars in millions) | |
| Cash and cash equivalents | \$ 126.9 | \$ 175.6 |
| Revolving credit facility ⁽²⁾ | \$ | \$ |
| 8.25% Senior Notes due 2028 | 110.0 | 110.0 |
| Deferred rent obligation ⁽³⁾ | 150.0 | 150.0 |
| Shareholders' equity: | | |
| Common shares, no par value, 31,683,666 shares authorized; 29,569,781 actual shares issued and outstanding; and 34,569,781 shares issued and outstanding, as adjusted ⁽⁴⁾ | 607.3 | 656.1 |
| Accumulated other comprehensive income | 1.0 | 1.0 |
| Accumulated deficit | (233.3) | (233.3) |
| Total shareholders' equity | 375.0 | 423.8 |
| Total capitalization | \$ 635.0 | \$ 683.8 |

- (1) As adjusted to give effect to the sale of 5,000,000 shares in this offering at an assumed public offering price of \$10.41 per share (the last reported sale price of our common shares on the NYSE on December 6, 2013), after deducting the underwriting discounts and commissions and other estimated offering expenses payable by us. The as adjusted column further assumes that HPT acquires 730,000 common shares in the offering at the public offering price without payment of any underwriting discounts or commissions with respect to such shares purchased by HPT. No adjustments have been made for our pending convenience store acquisition or for recently acquired or to be acquired travel centers or for other growth initiatives.
- (2) At September 30, 2013, approximately \$167.0 million was available under this \$200 million facility that expires in October 2016, and we had outstanding approximately \$45.4 million of letters of credit issued under this facility.
- (3) This obligation is interest free and is payable \$107.1 million in 2022 and \$42.9 million in 2024.
- (4) As of September 30, 2013, we had 2,113,885 of our common shares available for grant under our share award plan, of which 581,575 were awarded under this plan on November 19, 2013. Those additional shares were not outstanding as of September 30, 2013, and are not reflected as outstanding in this table.

USE OF PROCEEDS

We estimate that we will receive net proceeds of approximately \$48.8 million from the sale of 5,000,000 shares in this offering or approximately \$56.3 million if the underwriters exercise in full their option to purchase additional shares, after deducting underwriting discounts and commissions and other estimated offering expenses payable by us. The foregoing estimates assume that HPT purchases 730,000 shares in this offering at the public offering price, which we assumed to be equal to the last reported sale price of our common shares on the NYSE on December 6, 2013 of \$10.41 per share, with no underwriting discounts or commissions being paid with respect to any such shares purchased by HPT.

Table of Contents

We intend to use the net proceeds from this offering to fund our business and growth strategies and for general business purposes. Some of the net proceeds may be used to fund a portion of the purchase price of our pending convenience store acquisition and other expansion activities. For information on our pending convenience store acquisition, please see "Prospectus Supplement Summary Recent Developments."

We expect that the net proceeds of this offering will be invested in short term, interest bearing securities pending use as described above.

PRICE RANGE OF OUR COMMON SHARES

Since April 1, 2013, our common shares have been traded on the NYSE under the symbol "TA." Prior to that, our common shares traded on what is now known as the NYSE MKT since 2007. Set forth below, for the periods indicated, are the high and low sales prices for our common shares as reported on the NYSE and the NYSE MKT, as applicable:

| | High | Low |
|--|----------|---------|
| For the year ending December 31, 2013 | | |
| Fourth Quarter through December 6 | \$ 11.71 | \$ 7.01 |
| Third Quarter | \$ 12.25 | \$ 7.35 |
| Second Quarter | \$ 12.50 | \$ 9.35 |
| First Quarter | \$ 9.82 | \$ 4.75 |
| For the year ended December 31, 2012 | | |
| Fourth Quarter | \$ 5.47 | \$ 4.18 |
| Third Quarter | \$ 5.84 | \$ 4.67 |
| Second Quarter | \$ 6.74 | \$ 4.21 |
| First Quarter | \$ 6.84 | \$ 4.29 |
| For the year ended December 31, 2011 | | |
| Fourth Quarter | \$ 5.55 | \$ 2.79 |
| Third Quarter | \$ 5.84 | \$ 3.46 |
| Second Quarter | \$ 8.43 | \$ 4.39 |
| First Quarter | \$ 12.63 | \$ 3.65 |

On December 6, 2013, the last reported sale price of our common shares on the NYSE was \$10.41 per share. As of December 6, 2013, there were approximately 825 holders of record of our common shares.

We have never paid or declared any cash dividends on our common shares. At present, we intend to retain our future earnings, if any, to fund the operations and growth of our business. Our future decisions concerning the payment of dividends on our common shares will depend upon our results of operations, financial condition and capital expenditure plans, as well as other factors as our Board of Directors, in its discretion, may consider relevant, and the extent to which the declaration or payment of dividends may be limited by agreements we have entered into or which would cause us to lose the benefits of certain of our agreements. Currently, our revolving credit agreement restricts us from paying dividends, and our \$150 million deferred rent obligation would become due and interest would begin to accrue on that amount, pursuant to our lease arrangements with HPT, if we were to declare any dividends.

Under the Delaware Limited Liability Company Act, we generally cannot make a distribution that would cause our liabilities to exceed the fair value of our assets.

Table of Contents

DESCRIPTION OF OUR COMMON SHARES

Descriptions of our common shares, LLC agreement and bylaws are provided in the accompanying prospectus. Our LLC agreement and bylaws were amended subsequent to the date of the accompanying prospectus. A summary of those amendments appears below. The summaries in this prospectus supplement and the descriptions in the accompanying prospectus of our common shares, LLC agreement and bylaws are not complete and are qualified in their entirety by reference to our LLC agreement and bylaws, each of which is incorporated by reference herein. See "Where You Can Find More Information."

On February 21, 2013, our LLC agreement was amended to clarify (i) certain advance notice provisions requiring that a shareholder making a nomination of an individual for election to the Board or a proposal of other business to be considered by shareholders at a meeting of shareholders satisfy certain share certificate and record ownership requirements and (ii) the Board's authority to adopt and amend bylaws.

Also on February 21, 2013, our bylaws were amended to:

change the advance notice procedures to require that any one or more shareholders seeking to nominate an individual for election to the Board of Directors at an applicable meeting of shareholders must, individually or in the aggregate, hold at least 3% of our common shares entitled to vote at the meeting on such election and must have held such shares continuously for at least three years at the date such shareholder or shareholders give the advance notice required by the bylaws;

change the time period for which information regarding certain transactions in our securities by shareholders making a nomination of an individual for election to the Board of Directors or proposing other business, as well as by the proposed nominee and certain other persons, must be provided in the shareholder's notice from 24 months to 36 months; and

add a provision requiring a shareholder making such a nomination to include with its notice a signed and notarized statement certifying the truth and completeness of all information contained in the notice, the notice's compliance with the advance notice procedures and that such shareholder will continue to hold all of its common shares of the Company through and including the time of the applicable meeting and requiring a signed and notarized certificate of each proposed nominee certifying that the information in such notice regarding the proposed nominee and certain associated persons are true and complete and comply with the advance notice procedures.

On May 20, 2013, our LLC agreement was amended to change the vote required to elect directors in uncontested elections from a majority of the votes cast to a plurality of the votes cast.

CERTAIN U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following discussion is a summary of certain material U.S. federal income tax consequences to non-U.S. Holders (defined below) arising from and relating to the acquisition, ownership and disposition of our common shares purchased in the offering, but it does not purport to be a complete analysis of all the potential tax considerations relating thereto. This summary is based upon the provisions of the Internal Revenue Code of 1986, as amended, or the Code, Treasury regulations promulgated thereunder, administrative rulings and judicial decisions, all as in effect on the date hereof and all of which are subject to change (possibly on a retroactive basis) and to different interpretations. We have not sought any ruling from the U.S. Internal Revenue Service, or the IRS, with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS would not assert, or that a court would not sustain, a position contrary to such statements and conclusions.

Edgar Filing: TRAVELCENTERS OF AMERICA LLC - Form 424B5

Table of Contents

This summary does not address any aspect of taxation other than U.S. federal income taxation. In addition, this discussion does not address all aspects of U.S. federal income taxation that may be relevant to a non-U.S. Holder's particular circumstances or to non-U.S. Holders that may be subject to special tax rules, including, without limitation:

banks, insurance companies or other financial institutions;

persons subject to the alternative minimum tax;

tax-exempt organizations;

controlled foreign corporations, passive foreign investment companies and corporations that accumulate earnings to avoid U.S. federal income tax;

partnerships or other entities treated as pass-through entities for U.S. federal income tax purposes;

brokers or dealers in securities or currencies;

traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;

persons that own, or are deemed to own, more than five percent of our common shares, except to the extent specifically set forth below;

real estate investment trusts or regulated investment companies;

certain former citizens or long-term residents of the U.S.;

persons who hold our common shares as part of a straddle, hedge, conversion, constructive sale, or other integrated security transaction; or

persons who do not hold our common shares as a capital asset (within the meaning of section 1221 of the Code).

If a partnership or entity classified as a partnership for U.S. federal income tax purposes holds our common shares, the tax treatment of a partner in such partnership generally will depend on the status of the partner and upon the activities of the partnership. Accordingly, partnerships that hold our common shares, and partners in such partnerships, should consult their tax advisors.

You are urged to consult your tax advisor regarding the U.S. federal, state, local and foreign tax consequences arising from and relating to the acquisition, ownership and disposition of our common shares.

Non-U.S. Holder Defined

For purposes of this discussion, a non-U.S. Holder is a beneficial owner of our common shares purchased in the offering, other than an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes, that is not a U.S. Holder. A U.S. Holder is a beneficial owner of our common shares purchased in the offering that is, for U.S. federal income tax purposes, (1) an individual citizen or resident of the U.S., (2) a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of

Edgar Filing: TRAVELCENTERS OF AMERICA LLC - Form 424B5

the U.S., any state or political subdivision thereof, or the District of Columbia, (3) an estate, the income of which is subject to U.S. federal income taxation regardless of its source; or (4) a trust, (i) the administration of which is subject to the primary supervision of a court within the U.S. and for which one or more U.S. persons have the authority to control all substantial decisions, or (ii) that has a valid election in effect under applicable Treasury regulations to be treated as a U.S. person.

S-16

Table of Contents

Distributions

If we make a distribution of cash or other property (other than certain pro rata distributions of our common shares) in respect of our common shares, the distribution will be treated as a dividend to the extent it is paid from our current or accumulated earnings and profits (as determined under U.S. federal income tax principles). If the amount of a distribution exceeds our current and accumulated earnings and profits, such excess first will be treated as a tax-free return of capital to the extent of the non-U.S. Holder's adjusted tax basis in our common shares, and thereafter will be treated as capital gain from the sale or exchange of such shares, the treatment of which is described below under the section entitled "Gain on Disposition of Our Common Shares." Distributions treated as dividends on our common shares held by a non-U.S. Holder generally will be subject to U.S. federal withholding tax at a rate of 30%, or at a lower rate if provided by an applicable income tax treaty and the non-U.S. Holder has provided the documentation required to claim benefits under such treaty. Generally, to claim the benefits of an income tax treaty, a non-U.S. Holder will be required to provide a properly executed IRS Form W-8BEN.

If, however, a dividend is effectively connected with the conduct of a trade or business in the U.S. by the non-U.S. Holder (and, if an applicable income tax treaty so provides, is attributable to a permanent establishment maintained by the non-U.S. Holder in the U.S.), the dividend will not be subject to the 30% U.S. federal withholding tax (provided the non-U.S. Holder has provided the appropriate documentation, generally an IRS Form W-8ECI), but the non-U.S. Holder generally will be subject to U.S. federal income tax in respect of the dividend on a net income basis, and at graduated rates, in substantially the same manner as U.S. persons. A non-U.S. Holder that is a corporation for U.S. federal income tax purposes may, under certain circumstances, also be subject to an additional branch profits tax equal to 30%, or such lower rate as may be specified by an applicable income tax treaty, on a portion of its effectively connected earnings and profits.

A non-U.S. Holder that is eligible for a reduced rate of U.S. federal withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for a refund with the IRS.

Gain on Disposition of Our Common Shares

Subject to the discussion below of FATCA (defined below) and backup withholding, a non-U.S. Holder generally will not be subject to U.S. federal income or withholding tax on any gain realized on the sale or other disposition of our common shares unless:

such non-U.S. Holder is an individual who is present in the U.S. for 183 days or more in the taxable year of such sale or disposition, and certain other conditions are met;

such gain is effectively connected with the conduct by the non-U.S. Holder of a trade or business in the U.S. (and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed base maintained by the non-U.S. Holder in the U.S.); or

our common shares constitute a U.S. real property interest by reason of our status as a "United States real property holding corporation" for U.S. federal income tax purposes, or a USRPHC, at any time within the shorter of the five-year period preceding the disposition or the non-U.S. Holder's holding period for our common shares.

A non-U.S. Holder that is an individual and who is present in the U.S. for 183 days or more in the taxable year of such sale or disposition, if certain other conditions are met, will be subject to tax at a gross rate of 30% on the amount by which such non-U.S. Holder's taxable capital gains allocable to U.S. sources, including gain from the sale or other disposition of our common shares, exceed capital losses allocable to U.S. sources, except as otherwise provided in an applicable income tax treaty.

Table of Contents

Gain realized by a non-U.S. Holder that is effectively connected with such non-U.S. Holder's conduct of a trade or business in the U.S. generally will be subject to U.S. federal income tax on a net income basis, and at graduated rates, in substantially the same manner as a U.S. person (except as provided by an applicable income tax treaty). In addition, if such non-U.S. Holder is a corporation for U.S. federal income tax purposes, it may also be subject to a branch profits tax at the rate of 30%, or such lower rate as may be specified by an applicable income tax treaty, on a portion of its effectively connected earnings and profits.

Generally, a corporation is a USRPHC if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests and its other assets used or held for use in a trade or business (all as determined for U.S. federal income tax purposes). There can be no assurances that we have not been, are not or will not become a USRPHC. If, however, we are a USRPHC at any time during the applicable testing period, as long as our common shares are regularly traded on an established securities market (such as the NYSE), our common shares will be treated as U.S. real property interests only for a non-U.S. Holder who actually or constructively holds (at any time within the shorter of the five-year period preceding the disposition or the non-U.S. Holder's holding period) more than 5% of such regularly traded shares. Although we believe that our common shares are currently "regularly traded" on a domestic "established securities market" within the meaning of applicable Treasury regulations, we cannot provide any assurance that our common shares will continue to be "regularly traded" on a domestic "established securities market" in the future.

Taxation of Our Common Shares Held By or Through Foreign Entities

The Foreign Account Tax Compliance Act, or FATCA, potentially imposes a withholding tax of 30% on payments of (i) dividends after June 30, 2014, and (ii) gross proceeds from the sale or other disposition of our common shares after December 31, 2016, in each case made to (a) a foreign financial institution (as a beneficial owner or as an intermediary), unless such institution enters into an agreement with the U.S. government (or is required by applicable local law) to collect and provide to the U.S. or other relevant tax authorities certain information regarding U.S. account holders of such institution, or (b) a foreign entity (as a beneficial owner) that is not a financial institution unless such entity provides the withholding agent with a certification that it does not have any substantial U.S. owners or that identifies its substantial U.S. owners, which generally includes any specified U.S. person that directly or indirectly owns more than a specified percentage of such entity. If you hold our common shares through a non-U.S. intermediary or if you are a non-U.S. Holder, we urge you to consult your own tax advisor regarding foreign account tax compliance.

Backup Withholding and Information Reporting

Generally, we must report annually to the IRS the amount of dividends paid to a non-U.S. Holder, the non-U.S. Holder's name and address, and the amount of tax withheld, if any. A similar report is sent to the non-U.S. Holder. Pursuant to applicable income tax treaties or other agreements, the IRS may make these reports available to tax authorities in the non-U.S. Holder's country of residence.

Payments of dividends on, or gross proceeds on the sale or other disposition of, our common shares made to a non-U.S. Holder may be subject to information reporting and backup withholding (currently at a rate of 28%) unless the non-U.S. Holder establishes an exemption, for example, by properly certifying the non-U.S. Holder's status on a Form W-8BEN or another appropriate version of IRS Form W-8. Notwithstanding the foregoing, backup withholding and information reporting may apply if either we or our paying agent has actual knowledge, or reason to know, that the non-U.S. Holder is a U.S. person.

Table of Contents

Backup withholding is not an additional tax; rather, the U.S. income tax liability of persons subject to backup withholding will be reduced by the amount of tax withheld. If withholding results in an overpayment of taxes, a refund or credit may generally be obtained from the IRS, provided that the required information is furnished to the IRS in a timely manner.

THE ABOVE SUMMARY IS NOT INTENDED TO CONSTITUTE A COMPLETE ANALYSIS OF ALL TAX CONSEQUENCES RELATING TO THE ACQUISITION, OWNERSHIP AND DISPOSITION OF OUR COMMON SHARES. PROSPECTIVE INVESTORS ARE ENCOURAGED TO CONSULT THEIR OWN TAX ADVISORS AS TO THE TAX CONSEQUENCES APPLICABLE TO THEM IN THEIR PARTICULAR CIRCUMSTANCES.

S-19

Table of Contents**UNDERWRITING**

Citigroup Global Markets Inc., RBC Capital Markets, LLC and UBS Securities LLC are acting as joint book-running managers of the offering and as representatives of the underwriters named below. Subject to the terms and conditions stated in the underwriting agreement dated the date of this prospectus supplement, each underwriter named below has severally agreed to purchase, and we have agreed to sell to that underwriter, the number of shares set forth opposite the underwriter's name.

| Underwriter | Number of Initial Shares |
|--|-------------------------------------|
| Citigroup Global Markets Inc. | |
| RBC Capital Markets, LLC | |
| UBS Securities LLC | |
| BB&T Capital Markets, a division of BB&T Securities, LLC | |
| Craig-Hallum Capital Group LLC | |
| Janney Montgomery Scott LLC | |
| Oppenheimer & Co. Inc. | |
| Total | 5,000,000 |

The table above includes 730,000 common shares that HPT has indicated that it intends to purchase in this offering from the underwriters at the public offering price. The underwriters will not receive any underwriting discounts or commissions relating to any common shares sold to HPT in this offering.

The underwriters are offering the common shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of certain legal matters by their counsel, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officers' certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part. The underwriters are obligated to purchase all the shares (other than those covered by the option to purchase additional shares described below) if they purchase any of the shares.

Shares sold by the underwriters to the public will initially be offered at the public offering price set forth on the cover of this prospectus supplement. Any shares sold by the underwriters to securities dealers may be sold at a discount from the initial public offering price not to exceed \$ per share. If all the shares are not sold at the initial offering price, the underwriters may change the offering price and the other selling terms.

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus supplement, to purchase up to 750,000 additional shares at the public offering price less the underwriting discount. To the extent the option to purchase additional shares is exercised, each underwriter must purchase a number of additional shares approximately proportionate to that underwriter's initial purchase commitment. Any shares issued or sold under the option will be issued and sold on the same terms and conditions as the other shares that are the subject of this offering.

In connection with the offering, we, our officers and directors and HPT each entered into lock-up agreements with Citigroup Global Markets Inc., RBC Capital Markets, LLC and UBS Securities LLC, as representatives of the underwriters. The agreements provide for certain restrictions with respect to dispositions or hedging of our common shares or any securities convertible into or exchangeable or exercisable for our common shares for a period of 90 days after the date of the underwriting agreement, subject to limited exceptions for transfers as bona fide gifts, by intestate succession or operation of law or to immediate family members. Citigroup Global Markets Inc., RBC Capital Markets, LLC and UBS Securities LLC in their sole discretion may release any of the securities subject to these lock-up agreements at any time without notice. Notwithstanding the foregoing, if (i) during the

Edgar Filing: TRAVELCENTERS OF AMERICA LLC - Form 424B5

Table of Contents

last 17 days of the 90-day restricted period, we issue an earnings release or material news or a material event relating to us occurs; or (ii) prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day restricted period, the restrictions described above shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event, as applicable.

The shares are listed on the NYSE under the symbol "TA."

The following table shows the underwriting discounts and commissions that we are to pay to the underwriters in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

| | Paid by Company(1) | |
|-----------|---------------------------|----------------------|
| | No Exercise | Full Exercise |
| Per share | \$ | \$ |
| Total | \$ | \$ |

(1)

The underwriters will not receive any underwriting discounts or commissions relating to any of the 730,000 common shares expected to be sold to HPT in this offering. The underwriting discounts and commissions per share for any shares in this offering not sold by the underwriters to HPT is \$.

We estimate that our total expenses relating to this offering, excluding the underwriting discounts and commissions, will be approximately \$600,000.

In connection with the offering, the underwriters may purchase and sell shares in the open market. Purchases and sales in the open market may include short sales, purchases to cover short positions, which may include purchases pursuant to the option to purchase additional shares, and stabilizing purchases.

Short sales involve secondary market sales by the underwriters of a greater number of shares than they are required to purchase in the offering.

"Covered" short sales are sales of shares in an amount up to the number of shares represented by the underwriters' option to purchase additional shares.

"Naked" short sales are sales of shares in an amount in excess of the number of shares represented by the underwriters' option to purchase additional shares.

Covering transactions involve purchases of shares either pursuant to the option to purchase additional shares or in the open market after the distribution has been completed in order to cover short positions.

To close a naked short position, the underwriters must purchase shares in the open market after the distribution has been completed. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

To close a covered short position, the underwriters must purchase shares in the open market after the distribution has been completed or must exercise the option to purchase additional shares. In determining the source of shares to close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option.

Table of Contents

Stabilizing transactions involve bids to purchase shares so long as the stabilizing bids do not exceed a specified maximum.

The underwriters also may impose a penalty bid. Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the underwriters, in covering short positions or making stabilizing purchases, repurchase shares originally sold by that syndicate member.

Purchases to cover short positions and stabilizing purchases, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of the shares. They may also cause the price of the shares to be higher than the price that would otherwise exist in the open market in the absence of these transactions. The underwriters may conduct these transactions on the NYSE, in the over-the-counter market or otherwise. If the underwriters commence any of these transactions, they may discontinue them at any time.

The underwriters have performed commercial banking, investment banking and advisory services for us, HPT and RMR and their affiliates from time to time for which they have received customary fees and reimbursement of expenses. The underwriters may, from time to time, engage in transactions with and perform services for us and HPT and RMR and their affiliates in the ordinary course of their business for which they may receive customary fees and reimbursement of expenses. In addition, affiliates of some of the underwriters are lenders, and in some cases agents or managers for the lenders, under our credit facility.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or to contribute to payments the underwriters may be required to make because of any of those liabilities.

Notices to Non-U.S. Investors

Notice to Prospective Investors in the European Economic Area

This prospectus supplement is not a prospectus for the purposes of the Prospectus Directive as implemented in member states of the European Economic Area (each, a "relevant member state"). In relation to each relevant member state, with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state, an offer of shares described in this prospectus supplement may not be made to the public in that relevant member state other than:

to any legal entity that is a qualified investor as defined in the Prospectus Directive;

to fewer than 100 (or 150 if the relevant member state has implemented the Amendment Directive (Directive 2010/73/EU)) natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representatives for any such offer; or

in any other circumstances falling within Article 3(2) of the Prospectus Directive.

provided that no such offer of shares described in this prospectus supplement shall result in a requirement for the publication of a prospectus, by the Company or any of the underwriters, pursuant to Article 3 of the Prospectus Directive.

Each purchaser of shares described in this prospectus supplement located within a relevant member state will be deemed to have represented, acknowledged and agreed that it is a "qualified investor" within the meaning of Article 2(1)(e) of the Prospectus Directive.

For purposes of this provision, the expression an "offer to the public" in relation to the shares in any relevant member state means the communication in any form and by any means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase or subscribe to the shares, as the expression may be varied in that member state by any

Table of Contents

measure implementing the Prospectus Directive in that member state, and the expression "Prospectus Directive" (and amendments thereto, including the Amending Directive, to the extent implemented in the relevant member state) means Directive 2003/71/EC and includes any relevant implementing measure in each relevant member state and the expression "Amending Directive" means Directive 2010/73/EU.

The Company and the underwriters have not authorized and do not authorize the making of any offer of shares through any financial intermediary on their behalf, other than offers made by the underwriters with a view to the final placement of the shares as contemplated in this prospectus supplement. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of the shares on behalf of the Company or the underwriters.

Notice to Investors in the United Kingdom

This prospectus supplement is only being distributed to and is only directed at: (i) persons who are outside the United Kingdom; (ii) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"); and (iii) high net worth entities falling within Article 49(2)(a) to (d) of the Order, all such persons together being referred to as "relevant persons". Any investment or investment activity to which this prospectus supplement relates is available only to relevant persons and will be engaged in only with, relevant persons. Any person who is not a relevant person must not act or rely on this prospectus supplement or any of its content.

Notice to Prospective Investors in France

Neither this prospectus supplement nor any other offering material relating to the shares described in this prospectus supplement has been submitted to the clearance procedures of the *Autorité des Marchés Financiers* or of the competent authority of another member state of the European Economic Area and notified to the *Autorité des Marchés Financiers*. The shares have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus supplement nor any other offering material relating to the shares has been or will be:

released, issued, distributed or caused to be released, issued or distributed to the public in France; or

used in connection with any offer for subscription or sale of the shares to the public in France.

Such offers, sales and distributions will be made in France only:

to qualified investors (*investisseurs qualifiés*) and/or to a restricted circle of investors (*cercle restreint d'investisseurs*), in each case investing for their own account, all as defined in, and in accordance with articles L.411-2, D.411-1 to D.411-4, D.744-1, D.754-1 and D.764-1 of the French *Code monétaire et financier*;

to investment services providers authorized to engage in portfolio management on behalf of third parties; or

in a transaction that, in accordance with article L.411-2-II-1^o-or-2^o-or 3^o of the French *Code monétaire et financier* and article 211-2 of the General Regulations (*Règlement Général*) of the *Autorité des Marchés Financiers*, does not constitute a public offer (*appel public à l'épargne*).

The shares may be resold directly or indirectly in France, only in compliance with articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French *Code monétaire et financier* and applicable regulations thereunder.

Table of Contents

Notice to Prospective Investors in Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong) and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Notice to Prospective Investors in Singapore

This prospectus supplement has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus supplement and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with conditions set forth in the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

to an institutional investor (for corporations, under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than S\$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions specified in Section 275 of the SFA;

where no consideration is or will be given for the transfer; or

where the transfer is by operation of law.

Table of Contents

Notice to Prospective Investors in Switzerland

Our securities may not and will not be publicly offered, distributed or re-distributed on a professional basis in or from Switzerland, and neither this prospectus supplement and the accompanying prospectus nor any other solicitation for investments in our securities may be communicated or distributed in Switzerland in any way that could constitute a public offering within the meaning of articles 652a or 1156 of the Swiss Federal Code of Obligations or of Article 2 of the Federal Act on Investment Funds of March 18, 1994. This prospectus supplement and the accompanying prospectus may not be copied, reproduced, distributed or passed on to others without the underwriters' prior written consent. This prospectus supplement and the accompanying prospectus are not a prospectus within the meaning of Articles 1156 and 652a of the Swiss Code of Obligations or a listing prospectus according to article 32 of the Listing Rules of the Swiss exchange and may not comply with the information standards required thereunder. We will not apply for a listing of our securities on any Swiss stock exchange or other Swiss regulated market or trading facility and this prospectus supplement and the accompanying prospectus may not comply with the information required under the relevant listing rules. The securities have not been and will not be approved by any Swiss regulatory authority. This document will not be filed with the Swiss Financial Market Supervisory Authority. The securities have not been and will not be registered with or supervised by the Swiss Federal Banking Commission, and have not been and will not be authorized under the Federal Act on Investment Funds of March 18, 1994. The investor protection afforded to acquirers of investment fund certificates by the Federal Act on Investment Funds of March 18, 1994 does not extend to acquirers of our securities.

LEGAL MATTERS

The validity of the common shares offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Skadden, Arps, Slate, Meagher & Flom LLP. Selected legal matters in connection with this offering will be passed upon for us by Skadden, Arps, Slate, Meagher & Flom LLP and Sullivan & Worcester LLP. Skadden, Arps, Slate, Meagher & Flom LLP and Sullivan & Worcester LLP also represent HPT and RMR, which provides management services to us and to HPT, and certain of their respective affiliates on various matters. Sidley Austin LLP has acted as counsel to the underwriters.

EXPERTS

The consolidated financial statements of TravelCenters of America LLC appearing in TravelCenters of America LLC's Annual Report (Form 10-K) for the year ended December 31, 2012, and the effectiveness of TravelCenters of America LLC's internal control over financial reporting as of December 31, 2012, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

Table of Contents

WHERE YOU CAN FIND MORE INFORMATION

Available Information

We file annual, quarterly, and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement of which this prospectus supplement and the accompanying prospectus are a part, and its exhibits and schedules or other information on file at the SEC's Public Reference room at 100 F Street, NE, Washington, D.C. 20549. You can request copies of those documents upon payment of a duplicating fee to the SEC. Information filed by us with the SEC can be copied at the SEC's Public Reference Room. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference room. You can review our SEC filings and the registration statement by accessing the SEC's Internet site at <http://www.sec.gov>. The information contained on the SEC's website is expressly not incorporated by reference into this prospectus supplement.

Our SEC filings are also available on our website at www.tatavelcenters.com, although the information on our website is expressly not incorporated by reference into, and does not constitute a part of, this prospectus supplement.

This prospectus supplement contains summaries of provisions contained in some of the documents discussed in this prospectus supplement, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to in this prospectus supplement have been filed with the SEC and incorporated by reference as exhibits to the registration statement of which this prospectus supplement is a part. If any contract, agreement or other document is filed or incorporated by reference as an exhibit to the registration statement, you should read the exhibit for a more complete understanding of the document or matter involved.

Incorporation of Documents by Reference

The SEC allows us to incorporate by reference information into this prospectus supplement. This means we can disclose information to you by referring you to another document we filed with the SEC. We will make those documents available to you without charge upon your request. Requests for those documents should be directed to TravelCenters of America LLC, Two Newton Place, 255 Washington Street, Suite 300, Newton, MA 02458, Attention: Secretary. In addition, you may obtain copies of this information by calling (440) 808-9100. This prospectus supplement incorporates by reference the following documents:

our Annual Report on Form 10-K for the fiscal year ended December 31, 2012 filed with the SEC on March 18, 2013;

our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, filed with the SEC on May 7, 2013, our Quarterly Report on Form 10-Q for the quarter ended June 30, 2013, filed with the SEC on August 6, 2013, and our Quarterly Report on Form 10-Q for the quarter ended September 30, 2013, filed with the SEC on November 4, 2013;

our Current Reports on Form 8-K filed with the SEC on January 7, 2013, January 9, 2013, January 15, 2013, January 22, 2013, February 27, 2013, April 1, 2013, May 24, 2013 and November 20, 2013;

the information identified as incorporated by reference under Items 10, 11, 12, 13 and 14 of Part III of our Annual Report on Form 10-K for the fiscal year ended December 31, 2012 from our definitive Proxy Statement for our 2013 Annual Meeting of Shareholders filed with the SEC on March 18, 2013; and

Table of Contents

the description of our common shares contained in our Registration Statement on Form 8-A filed with the SEC on April 1, 2013, including any amendments or reports filed for the purpose of updating that description (File No. 001-33274).

We are also incorporating by reference additional documents we may file pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement until the offering of the particular securities covered by this prospectus supplement has been completed or terminated, other than any portion of the respective filings furnished, rather than filed, under the applicable SEC rules. This additional information is a part of this prospectus supplement from the date of filing of those documents.

Any statements made in this prospectus supplement or in a document incorporated or deemed to be incorporated by reference into this prospectus supplement will be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement or in any other subsequently filed document which is also incorporated or deemed to be incorporated into this prospectus supplement modifies or supersedes the prior statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement. The information specifically incorporated by reference in this prospectus supplement supersedes the information incorporated by reference in the prospectus.

The information relating to us contained in this prospectus supplement and the accompanying prospectus should be read together with the information in the documents incorporated by reference.

Table of Contents

WARNING CONCERNING FORWARD LOOKING STATEMENTS

THIS PROSPECTUS SUPPLEMENT, THE ACCOMPANYING PROSPECTUS, AND THE INFORMATION INCORPORATED BY REFERENCE HEREIN AND THEREIN CONTAIN STATEMENTS THAT CONSTITUTE FORWARD LOOKING STATEMENTS WITHIN THE MEANING OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995 AND OTHER FEDERAL SECURITIES LAWS. ALSO, WHENEVER WE USE WORDS SUCH AS "BELIEVE," "EXPECT," "ANTICIPATE," "INTEND," "PLAN," "ESTIMATE" OR SIMILAR EXPRESSIONS, WE ARE MAKING FORWARD LOOKING STATEMENTS. THESE FORWARD LOOKING STATEMENTS ARE BASED UPON OUR PRESENT INTENT, BELIEFS OR EXPECTATIONS, BUT FORWARD LOOKING STATEMENTS ARE NOT GUARANTEED TO OCCUR AND MAY NOT OCCUR. ACTUAL RESULTS MAY DIFFER MATERIALLY FROM THOSE CONTAINED IN OR IMPLIED BY OUR FORWARD LOOKING STATEMENTS AS A RESULT OF VARIOUS FACTORS. AMONG OTHERS, THE FORWARD LOOKING STATEMENTS WHICH APPEAR IN THIS PROSPECTUS SUPPLEMENT, THE ACCOMPANYING PROSPECTUS, AND THE INFORMATION INCORPORATED BY REFERENCE HEREIN AND THEREIN THAT MAY NOT OCCUR INCLUDE:

THIS PROSPECTUS SUPPLEMENT STATES THAT HPT HAS INDICATED THAT IT INTENDS TO PURCHASE 730,000 OF OUR COMMON SHARES IN THIS OFFERING. ALTHOUGH WE BELIEVE THAT HPT WILL PURCHASE THOSE SHARES, IT IS NOT UNDER ANY BINDING OBLIGATION TO US TO DO SO AND MAY IN FACT DETERMINE NOT TO PURCHASE THOSE OR ANY SHARES IN THIS OFFERING;

THIS PROSPECTUS SUPPLEMENT REFERENCES ACQUISITIONS WHICH HAVE BEEN AGREED BUT WHICH HAVE NOT BEEN COMPLETED AS OF THE DATE OF THIS PROSPECTUS SUPPLEMENT AND STATES THAT THE C-STORES WE EXPECT TO ACQUIRE ARE HIGH VOLUME FUEL LOCATIONS, THAT THESE C-STORES APPEAR TO NEED ONLY LIMITED NEAR TERM CAPITAL INVESTMENT, THAT THESE C-STORES WILL NOT REQUIRE A LENGTHY PERIOD TO ACHIEVE STABILIZED FINANCIAL RESULTS AND THAT WE EXPECT THAT WE MAY BE ABLE TO REALIZE SYNERGIES IN PURCHASING AND MERCHANDISING AT THESE C-STORES. THE IMPLICATION OF THESE STATEMENTS IS THAT THESE STORES MAY HAVE AN IMMEDIATE POSITIVE IMPACT ON OUR EARNINGS AFTER THE CLOSING, THAT THESE ACQUISITIONS WILL BE COMPLETED AND THAT THEY WILL IMPROVE OUR FUTURE PROFITS. HOWEVER, ACQUISITIONS AND OPERATIONAL TAKEOVERS CAN BE DIFFICULT TO CONDUCT, TIME CONSUMING AND/OR MORE EXPENSIVE THAN ANTICIPATED AND INVOLVE RISKS OF FINANCIAL LOSSES. CHANGES OF OWNERSHIP FREQUENTLY RESULT IN PERSONNEL CHANGES AND IN REQUIREMENTS FOR NEW SUPPLY AND SALES ARRANGEMENTS. THESE OR OTHER FACTORS MAY RESULT IN LOWER FINANCIAL PERFORMANCE THAN EXPECTED OR FINANCIAL LOSSES. ALSO, MARKET CONDITIONS AFFECTING THE C- STORES WE EXPECT TO ACQUIRE MAY CHANGE IN A WAY WHICH MATERIALLY AND ADVERSELY IMPACTS THE BUSINESS OF THESE C-STORES. ALSO, THESE ACQUISITIONS ARE SUBJECT TO CONDITIONS AND MAY NOT BE COMPLETED OR MAY BE DELAYED OR THEIR TERMS MAY CHANGE. FURTHER, WE MAY NOT OPERATE THESE ACQUIRED SITES AS PROFITABLY AS WE NOW EXPECT;

THIS PROSPECTUS SUPPLEMENT STATES THAT THE OPERATIONS AT MANY OF OUR SITES ACQUIRED IN 2011, 2012 AND 2013 HAVE NOT YET REACHED THE STABILIZED FINANCIAL RESULTS WE CURRENTLY EXPECTED AND THAT WE ESTIMATE THAT ACQUIRED SITES GENERALLY WILL REACH STABILIZATION IN

Table of Contents

THE THIRD YEAR AFTER ACQUISITION. THE IMPLICATIONS OF THESE STATEMENTS ARE THAT OPERATIONS AT RECENTLY ACQUIRED SITES WILL IMPROVE TO A LEVEL THAT WILL RESULT IN INCREASES IN OPERATING INCOME AND NET INCOME IN THE FUTURE. IN FACT, THERE ARE MANY FACTORS WHICH WILL IMPACT OUR FUTURE OPERATIONS THAT MAY CAUSE US TO OPERATE LESS PROFITABLY OR UNPROFITABLY IN ANNUAL AND/OR QUARTERLY PERIODS IN ADDITION TO THESE STATED ITEMS, INCLUDING SOME FACTORS WHICH ARE BEYOND TA'S CONTROL SUCH AS SEASONALITY, THE CONDITION OF THE U.S. ECONOMY GENERALLY, THE FUTURE DEMAND FOR TA'S GOODS AND SERVICES AND COMPETITION IN TA'S BUSINESS;

WE STATE IN THIS PROSPECTUS SUPPLEMENT OUR CURRENT OBSERVATIONS AS TO ECONOMIC AND INDUSTRY CONDITIONS. RECENT ECONOMIC DATA HAS BEEN MIXED AND IMPROVEMENTS, IF ANY, IN THE U.S. ECONOMY OR IN THE TRUCKING OR TRAVEL CENTER INDUSTRIES MAY NOT CONTINUE, AND OUR FUEL AND NONFUEL SALES VOLUME MAY DECLINE; AND

THE INFORMATION INCORPORATED HEREIN STATES THAT WE BELIEVE THAT OUR RELATIONSHIPS WITH HPT, RMR, AIC AND THEIR AFFILIATED AND RELATED PERSONS AND ENTITIES BENEFIT US AND PROVIDE US WITH ADVANTAGES IN OPERATING AND GROWING OUR BUSINESS. IN FACT, THE ADVANTAGES WE BELIEVE WE MAY REALIZE FROM THESE RELATIONSHIPS MAY NOT MATERIALIZE.

THESE AND OTHER UNEXPECTED RESULTS MAY BE CAUSED BY VARIOUS FACTORS, SOME OF WHICH ARE BEYOND OUR CONTROL, INCLUDING:

THE IMPACT OF CHANGES IN THE ECONOMY AND THE CAPITAL MARKETS ON US, OUR CUSTOMERS AND OUR FRANCHISEES;

COMPLIANCE WITH, AND CHANGES TO, FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS, ACCOUNTING RULES, TAX RATES AND SIMILAR MATTERS;

COMPETITION WITHIN THE TRAVEL CENTER INDUSTRY AND CONVENIENCE STORE INDUSTRY;

FUTURE FUEL PRICE INCREASES, FUEL PRICE VOLATILITY OR OTHER FACTORS MAY CAUSE US TO NEED MORE WORKING CAPITAL TO MAINTAIN OUR INVENTORIES AND CARRY OUR ACCOUNTS RECEIVABLE THAN WE NOW EXPECT;

ACQUISITIONS MAY SUBJECT US TO ADDITIONAL OR GREATER RISKS THAN OUR CONTINUING OPERATIONS, INCLUDING THE ASSUMPTION OF UNKNOWN LIABILITIES;

THE TREND TOWARDS IMPROVED FUEL EFFICIENCY OF MOTOR VEHICLE ENGINES AND OTHER FUEL CONSERVATION PRACTICES EMPLOYED BY OUR CUSTOMERS MAY CONTINUE TO REDUCE THE DEMAND FOR DIESEL FUEL AND ADVERSELY AFFECT OUR BUSINESS. ADDITIONALLY, FUTURE INCREASES IN FUEL PRICES MAY REDUCE THE DEMAND FOR THE PRODUCTS AND SERVICES THAT WE SELL BECAUSE HIGH FUEL PRICES MAY ENCOURAGE FUEL CONSERVATION, DIRECT FREIGHT BUSINESS AWAY FROM TRUCKING OR OTHERWISE ADVERSELY AFFECT THE BUSINESS OF OUR CUSTOMERS. SOME OF THESE PAST CONSEQUENCES MAY CONTINUE, WHICH MAY ADVERSELY AFFECT OUR BUSINESS EVEN IF FUEL PRICES DO NOT INCREASE;

Table of Contents

OUR SUPPLIERS MAY BE UNWILLING OR UNABLE TO MAINTAIN THE CURRENT CREDIT TERMS FOR OUR PURCHASES. IF WE ARE UNABLE TO PURCHASE GOODS ON REASONABLE CREDIT TERMS, OUR REQUIRED WORKING CAPITAL MAY INCREASE AND WE MAY INCUR MATERIAL LOSSES. IN TIMES OF RISING FUEL AND NONFUEL PRICES OUR SUPPLIERS MAY BE UNWILLING OR UNABLE TO INCREASE THE CREDIT AMOUNTS THEY EXTEND TO US, WHICH MAY REQUIRE US TO INCREASE OUR WORKING CAPITAL INVESTMENT. ALSO, THE AVAILABILITY AND THE TERMS OF ANY CREDIT WE MAY BE ABLE TO OBTAIN ARE UNCERTAIN;

MOST OF OUR TRUCKING CUSTOMERS TRANSACT BUSINESS WITH US BY USE OF FUEL CARDS, WHICH ARE ISSUED BY THIRD PARTY FUEL CARD COMPANIES. THE FUEL CARD INDUSTRY HAS ONLY A FEW SIGNIFICANT PARTICIPANTS. FUEL CARD COMPANIES FACILITATE PAYMENTS TO US, AND CHARGE US FEES FOR THESE SERVICES. COMPETITION, OR LACK THEREOF, AMONG THE FUEL CARD COMPANIES MAY RESULT IN FUTURE INCREASES IN OUR TRANSACTION FEE EXPENSES OR WORKING CAPITAL REQUIREMENTS, OR BOTH;

WE ARE ROUTINELY INVOLVED IN LITIGATION AND OTHER LEGAL MATTERS INCIDENTAL TO THE ORDINARY COURSE OF OUR BUSINESS. DISCOVERY AND COURT DECISIONS DURING LITIGATION OFTEN HAVE UNANTICIPATED RESULTS. LITIGATION IS USUALLY EXPENSIVE AND DISTRACTING TO MANAGEMENT. WE CAN PROVIDE NO ASSURANCE AS TO THE OUTCOME OF ANY OF THE LITIGATION MATTERS IN WHICH WE ARE OR MAY BECOME INVOLVED;

ACTS OF TERRORISM, GEOPOLITICAL RISKS, WARS OR OTHER MANMADE OR NATURAL DISASTERS BEYOND OUR CONTROL MAY ADVERSELY AFFECT OUR OPERATING RESULTS;

ALTHOUGH WE BELIEVE THAT WE BENEFIT FROM OUR CONTINUING RELATIONSHIPS WITH HPT, RMR, AIC AND THEIR AFFILIATED AND RELATED PERSONS AND ENTITIES, ACTUAL AND POTENTIAL CONFLICTS OF INTEREST WITH HPT, RMR, AIC AND THEIR AFFILIATED AND RELATED PERSONS AND ENTITIES MAY PRESENT A CONTRARY PERCEPTION OR RESULT IN LITIGATION;

AS A RESULT OF CERTAIN TRADING IN OUR SHARES DURING 2007, WE EXPERIENCED AN OWNERSHIP CHANGE AS DEFINED BY SECTION 382 OF THE INTERNAL REVENUE CODE, OR THE CODE; CONSEQUENTLY, WE ARE UNABLE TO USE OUR NET OPERATING LOSS GENERATED IN 2007 TO OFFSET ANY FUTURE TAXABLE INCOME WE MAY GENERATE. IF WE EXPERIENCE ADDITIONAL OWNERSHIP CHANGES, AS DEFINED IN THE CODE, OUR NET OPERATING LOSSES GENERATED AFTER 2007 COULD ALSO BE SUBJECT TO USAGE LIMITATIONS; AND

OUR LIMITED LIABILITY COMPANY AGREEMENT AND BYLAWS AND CERTAIN OF OUR OTHER AGREEMENTS AND BUSINESS LICENSES INCLUDE VARIOUS PROVISIONS WHICH MAY DETER A CHANGE OF CONTROL OF US AND, AS A RESULT, OUR SHAREHOLDERS MAY BE UNABLE TO REALIZE A TAKE OVER PREMIUM FOR THEIR SHARES.

WE ACCUMULATED A SIGNIFICANT DEFICIT DURING THE YEARS 2007 THROUGH 2010. ALTHOUGH WE GENERATED NET INCOME FOR THE YEARS ENDED DECEMBER 31, 2011 AND 2012 AND THE NINE MONTHS ENDED SEPTEMBER 30, 2013,

Table of Contents

AND OUR PLANS ARE INTENDED TO GENERATE NET INCOME IN FUTURE PERIODS, THERE CAN BE NO ASSURANCE THAT THESE PLANS WILL SUCCEED.

RESULTS THAT DIFFER FROM THOSE STATED OR IMPLIED BY OUR FORWARD LOOKING STATEMENTS MAY ALSO BE CAUSED BY VARIOUS CHANGES IN OUR BUSINESS OR MARKET CONDITIONS AS DESCRIBED MORE FULLY IN THE SECTION ENTITLED "RISK FACTORS" BEGINNING ON PAGE S-5 OF THIS PROSPECTUS SUPPLEMENT, AND IN OUR ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2012, INCLUDING UNDER "WARNING CONCERNING FORWARD LOOKING STATEMENTS," AND OUR QUARTERLY REPORTS ON FORM 10-Q FOR THE QUARTERS ENDED MARCH 31, JUNE 30 AND SEPTEMBER 30, 2013, WHICH REPORTS ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS SUPPLEMENT.

YOU SHOULD NOT PLACE UNDUE RELIANCE UPON FORWARD LOOKING STATEMENTS. EXCEPT AS REQUIRED BY LAW, WE UNDERTAKE NO OBLIGATION TO UPDATE OR REVISE ANY FORWARD LOOKING STATEMENT AS A RESULT OF NEW INFORMATION, FUTURE EVENTS OR OTHERWISE.

Table of Contents

PROSPECTUS

TRAVELCENTERS OF AMERICA LLC

COMMON SHARES PREFERRED SHARES DEBT SECURITIES WARRANTS

\$500,000,000

This prospectus relates to common shares, preferred shares (including convertible preferred shares), debt securities (including convertible debt securities) and warrants for debt and equity securities which we may sell from time to time in one or more offerings up to an aggregate public offering price of \$500,000,000. We may sell these securities to or through underwriters, directly to investors or through agents. We will specify the terms of the securities, and the names of any underwriters or agents, in supplements to this prospectus. You should read this prospectus and each supplement carefully before you invest. This prospectus may not be used to offer and sell securities unless accompanied by a prospectus supplement.

Our common shares are listed on the NYSE MKT LLC, or NYSE MKT, under the symbol "TA." As of June 21, 2012, the aggregate market value of our outstanding common shares held by non-affiliates is approximately \$121.9 million, based on 28,809,871 outstanding common shares, of which 23,940,783 shares are held by non-affiliates, and a per share price of \$5.09, based on the closing sale price of our common shares on June 21, 2012.

Investing in our securities involves significant risks. Before buying our securities you should refer to the risk factors included in our periodic reports, in prospectus supplements relating to specific offerings of securities and in other documents that we file with the Securities and Exchange Commission. See "Risk Factors" beginning on page 2 of this prospectus.

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

The date of this Prospectus is July 11, 2012.

Table of Contents

TABLE OF CONTENTS

| | |
|---|-----------|
| <u>ABOUT THIS PROSPECTUS</u> | <u>1</u> |
| <u>PROSPECTUS SUMMARY</u> | <u>1</u> |
| <u>RISK FACTORS</u> | <u>2</u> |
| <u>FORWARD LOOKING STATEMENTS</u> | <u>2</u> |
| <u>RATIO OF EARNINGS TO FIXED CHARGES AND RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED SHARE DIVIDENDS</u> | <u>6</u> |
| <u>USE OF PROCEEDS</u> | <u>6</u> |
| <u>DILUTION</u> | <u>6</u> |
| <u>DESCRIPTION OF THE COMMON SHARES AND PREFERRED SHARES WE MAY OFFER</u> | <u>7</u> |
| <u>DESCRIPTION OF THE DEBT SECURITIES WE MAY OFFER</u> | <u>18</u> |
| <u>DESCRIPTION OF THE WARRANTS WE MAY OFFER</u> | <u>23</u> |
| <u>PLAN OF DISTRIBUTION</u> | <u>24</u> |
| <u>VALIDITY OF SECURITIES</u> | <u>26</u> |
| <u>EXPERTS</u> | <u>26</u> |
| <u>WHERE YOU CAN FIND MORE INFORMATION</u> | <u>26</u> |
| <u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u> | <u>27</u> |

Table of Contents

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, using the "shelf" registration process. Under this shelf registration process, we may sell common shares, preferred shares (including convertible preferred shares), debt securities (including convertible debt securities) and warrants for debt and equity securities from time to time in one or more offerings up to an aggregate public offering price of \$500,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell any securities under this prospectus, we will provide a prospectus supplement containing specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement, you should rely on the information in the prospectus supplement, provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in this prospectus or any prospectus supplement the statement in the later-dated document modifies or supersedes the earlier statement.

You should read both this prospectus and any prospectus supplement together with additional information described below under the headings "Where You Can Find More Information" and "Incorporation of Certain Information By Reference."

References in this prospectus to "TA", "TravelCenters", the "Company", "we", "us" and "our" include TravelCenters of America LLC and its consolidated subsidiaries unless otherwise expressly stated or the context indicates otherwise.

PROSPECTUS SUMMARY

You should read the following summary together with the more detailed information regarding our Company and the securities being registered appearing elsewhere in this prospectus.

TravelCenters of America LLC

We operate and franchise travel centers primarily along the U.S. interstate highway system. Our customers include trucking fleets and their drivers, independent truck drivers and motorists. Our business includes travel centers located in a large number of states in the U.S. and the province of Ontario, Canada, including travel centers operated by us or our franchisees under the "TravelCenters of America" or "TA" brand names, and travel centers operated by us or our franchisees under the "Petro" brand name.

Many of our travel centers were originally developed years ago when prime real estate locations along the interstate highway system were more readily available than they are today, which we believe would make it difficult to replicate our business. We believe that our nationwide locations provide an advantage to large trucking fleets, particularly long haul trucking fleets, by enabling them to reduce the number of their suppliers by routing their trucks through our locations from coast to coast.

We offer a broad range of products and services, including diesel fuel and gasoline, truck repair and maintenance services, full service restaurants, more than 20 different brands of quick serve restaurants, travel and convenience stores and various driver amenities.

The U.S. travel center and truck stop industry in which we operate consists of travel centers, truck stops, diesel fuel outlets and similar properties. We believe that although the travel center and truck stop industry is highly fragmented generally, with in excess of 6,000 travel centers and truck stops in the U.S., the largest trucking fleets tend to purchase the majority of their over the road fuel from us or from our largest competitors.

Table of Contents

An investment in TA is subject to a number of risks and significant uncertainty. Please see the risk factors under the heading "Risk Factors," beginning on page 2 of this prospectus for a discussion of these and other risks relating to our business and investment in our securities.

Corporate Information

We were formed on October 10, 2006, as a wholly owned subsidiary of Hospitality Properties Trust, or HPT. Our initial capitalization in a nominal amount was provided by HPT on our formation date. From that time through January 31, 2007, we conducted no business activities. On January 31, 2007, HPT acquired TravelCenters of America, Inc., our predecessor, restructured this acquired business and distributed all of our then outstanding common shares to the shareholders of HPT. As of March 31, 2012, our business included 238 travel centers in 41 states in the U.S. and the province of Ontario, Canada, 168 of which were operated under the "TravelCenters of America" or "TA" brand names and 70 that were operated under the "Petro" brand name. We operated 195 of these travel centers, which we refer to as Company operated sites, and our franchisees operated 43 of these travel centers including 10 travel centers which our franchisees sublease from us and 33 travel centers which our franchisees own or lease from other lessors. As of March 31, 2012, we leased 185 of our 238 travel centers pursuant to lease agreements with HPT, including 175 Company operated sites and 10 travel centers subleased to franchisees.

Our principal executive offices are located at 24601 Center Ridge Road, Suite 200, Westlake, OH 44145-5639, and our telephone number is (440) 808-9100. Our website is www.tatravelcenters.com. The information on our website does not constitute a part of this prospectus.

RISK FACTORS

Investing in our securities involves significant risks and uncertainties that may result in a loss of all or part of your investment. You should carefully review the risk factors contained under the heading "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2011, which risk factors are incorporated by reference in this prospectus, the information contained under the heading "Forward Looking Statements" and other information incorporated by reference in this prospectus before making an investment decision. If any of such risks occur, our business, financial condition or results of operations could be materially harmed, the market price of our securities could decline, and you could lose all or part of your investment.

In addition, each applicable prospectus supplement will contain a discussion of risks applicable to the particular type of securities that we are offering under that prospectus supplement. Prior to making a decision about investing in our securities, you should carefully consider the risk factors in this prospectus in addition to the specific risk factors discussed under the caption "Risk Factors" in the applicable prospectus supplement, together with all other information contained in the applicable prospectus supplement or appearing in, or incorporated by reference in, this prospectus.

FORWARD LOOKING STATEMENTS

This prospectus, any prospectus supplement and the documents we incorporate by reference in this prospectus include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, which we refer to as the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, which we refer to as the Exchange Act. We may identify these statements by the use of words such as believe, expect, anticipate, intend, potential, strategy, plan, and similar expressions. These forward-looking statements involve known and unknown risks and uncertainties. Our actual results may differ materially from those set forth in these forward-looking statements as a result of a number of different factors, including those described under the caption

Table of Contents

"Risk Factors" and elsewhere in this prospectus. Among others, the forward-looking statements which appear in this prospectus or may be incorporated by reference herein that may not occur include:

Our description of the rent reductions and deferrals which have been agreed between us and HPT, taken together with the fact that we were profitable in 2011, may imply that we will be able to operate profitably in the future. In fact, there are many factors which will impact the profitability of our future operations in addition to those stated items, including some factors which are beyond our control, such as the condition of the U.S. economy generally, the future demand for our goods and services and competition in our business. We have accumulated a significant deficit from several years of net losses prior to 2011 since we became a separate publicly owned company in 2007. There is no assurance that we will be able to produce future net income;

Certain statements may imply that our expense controls and other initiatives may cause improved financial results. In fact, current economic conditions in the United States may not improve and may decline, future market conditions in the trucking industry or otherwise may worsen and our initiatives may not be successfully sustained, each or all of which circumstances could result in our financial results not improving or our experiencing material and continuing losses;

Our environmental liability may be greater than we currently anticipate and legislation and regulation regarding climate change, including greenhouse gas emissions, and other environmental matters may be adopted, administered or enforced differently in the future, which could require us to expend significant amounts and cause our business to decline materially;

Our statements regarding completed acquisitions of travel center locations and negotiations to acquire other properties may imply that we will be able to operate our new locations profitably and complete all of our pending purchases. Many of the travel centers we have acquired produced operating results which may have caused the prior owners to exit these businesses and our ability to operate locations profitably depends upon many factors, including our ability to integrate new operations into our existing operations and some factors which are beyond our control such as the level of demand for our goods and services arising from the U.S. economy generally. We may not be able to successfully integrate travel center operations or operate these locations, or any of them, profitably in the future. We also may not successfully complete our negotiations for the properties for which we are negotiating;

Our business requires regular significant capital expenditures. The amount and timing of capital expenditures are often difficult to predict. Some capital projects cost more than anticipated. Currently unanticipated projects that we may be required to complete in the future, as a result of government programs or regulation, advances or changes made by our competition, demands of our customers, acquisitions or other matters, may arise and cause us to spend more than currently anticipated. Some capital projects take more time than anticipated. As a result of market conditions or capital constraints, we may defer certain capital projects and such deferral may harm our business or require us to make larger capital expenditures in the future;

Our statements regarding our cash and cash equivalents, amounts outstanding under our bank credit facility, our sales to HPT under our leases with HPT of qualifying improvements and our receipt of cash from such sales, our generation of cash flows from operating activities and our ownership of unencumbered real estate and other assets that may be additional sources of liquidity over time may imply that we have abundant working capital, cash liquidity and borrowing capacity. In fact, our regular operations require large amounts of working cash and at any point in time a significant portion of our bank credit facility typically is used to provide letters of credit to our suppliers, insurers, and taxing authorities. In addition, our business requires us to make significant capital expenditures to maintain our competitiveness, HPT is not

Table of Contents

obligated to purchase the improvements we may request and we do not know the extent to which we could monetize our existing unencumbered real estate. Accordingly, we may not have sufficient working capital or cash liquidity;

Our amended and restated credit facility that we entered into in October 2011 has a current maximum availability of \$200 million. The maximum amount available under the credit facility may be increased to \$300 million, subject to available collateral and lender participation. However, our borrowing and letter of credit availability under this facility is subject to our having qualified collateral, including eligible cash, accounts receivable and inventories that vary in amount from time to time. Accordingly, our borrowing and letter of credit availability at any time may be less than \$200 million, and if we do not have sufficient collateral or if we are unable to identify lenders willing to increase their commitments or join our credit facility, we may not be able to increase the credit facility if we would like to do so;

Our current observations as to economic and industry conditions may imply that economic conditions in the U.S. generally and the trucking and travel center industries in particular are improving and that our results of operations and cash flows from operations will improve in the future. However, any positive trend in fuel sales volumes may be the result of increased market share and not an improving market or may not continue. Also, improvements, if any, in the U.S. economy or in the trucking or travel center industries may not continue, and our fuel sales volumes may not continue to increase or our sales volumes may decline;

Statements of our beliefs with respect to various pending litigation may imply that we will prevail in our litigation. In fact, we may be unable to prevail in our pending litigation and any settlement or adverse ruling may have a material adverse effect on our business. Also, the legal and other expenses we may incur in connection with litigation will depend, in part, upon actions taken by other parties, which actions are not within our control, and these litigation costs may have a material adverse effect on our business;

We may not realize our expectation that we will benefit financially by participating in Affiliates Insurance Company, or AIC; and

We may not realize the advantages and the opportunities to expand our business in the future that we believe our continuing relationships with HPT, RMR, AIC and their affiliated and related persons and entities afford us.

These and other unexpected results may be caused by various factors, some of which are beyond our control, including:

The impact of changes in the economy and the capital markets on us and our customers and franchisees;

Compliance with, and changes to, federal, state and local laws and regulations, accounting rules, tax rates and similar matters;

Competition within the travel center industry;

Future fuel price increases, fuel price volatility, competition or other factors may cause us to need more working capital to maintain our inventories and carry our accounts receivable than we now expect;

In the past, increases in fuel prices have reduced the demand for the products and services that we sell because high fuel prices may have encouraged fuel conservation, directed freight business away from trucking or otherwise adversely affected the business of our customers. Future increases in fuel prices may have similar and other adverse effects on our business;

Table of Contents

Our suppliers may be unwilling or unable to maintain our current terms for our purchases on credit. If we are unable to purchase goods on reasonable credit terms, our required working capital may increase and we may incur material losses. In times of rising fuel and nonfuel prices our suppliers may be unwilling or unable to increase the credit amounts they extend to us, which may require us to increase our working capital investment. Also, in light of the recent credit market conditions and our historical operating losses, the availability and the terms of any credit we may be able to obtain are uncertain;

We are currently involved in several litigation matters and from time to time may be involved in additional litigation matters. Discovery and court decisions during litigation often result in unanticipated results. Litigation is usually expensive and distracting to management. We can provide no assurance as to the outcome of any of the litigation matters in which we are involved;

Acts of terrorism, outbreaks of so called pandemics or other manmade or natural disasters beyond our control may adversely affect our operating results;

Although we believe that we benefit from our continuing relationships with HPT, RMR, AIC and their affiliated and related persons and entities, actual and potential conflicts of interest with our managing directors, HPT, RMR and related persons and entities may present a contrary perception or result in litigation; and

As a result of certain trading in our shares during 2007, we experienced an ownership change as defined by section 382 of the Internal Revenue Code of 1986, as amended, or the Code. Consequently, we are unable to use our net operating loss generated in 2007. If we experience additional ownership changes, as defined in the Code, our net operating losses generated after 2007 could also be subject to limitations on usage.

We accumulated a significant deficit from several years of net losses since we became a publicly owned company on January 31, 2007. Although we generated net income for the year ended December 31, 2011, and our plans are intended to generate net income in future periods, there can be no assurance that these plans will succeed.

Results that differ from those stated or implied by our forward looking statements may also be caused by various changes in our business or market conditions as described more fully elsewhere in this prospectus or in our Annual Report on Form 10-K.

You should not place undue reliance upon forward looking statements.

Except as required by law, we undertake no obligation to update or revise any forward looking statement as a result of new information, future events or otherwise. All forward-looking statements included in this registration statement are made as of the date hereof.

Table of Contents

**RATIO OF EARNINGS TO FIXED CHARGES AND
RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED SHARE DIVIDENDS**

The following table sets forth our ratio of earnings to fixed charges for each of the periods indicated. As of the date of this prospectus, we have no preferred shares outstanding and we were not required to pay, and we have not declared or paid, any preferred share dividends for the periods set forth below. Accordingly, our ratio of earnings to combined fixed charges and preferred share dividends did not differ from the ratios presented below during any of these periods.

| | Three Months Ended March 31, 2012 ⁽²⁾ | Company Years Ended December 31, | | | | Eleven Months Ended December 31, 2007 ⁽²⁾⁽³⁾ | Predecessor One Month Ended January 31, 2007 ⁽²⁾ |
|--|--|-------------------------------------|---------------------|---------------------|---------------------|--|---|
| | | 2011 | 2010 ⁽²⁾ | 2009 ⁽²⁾ | 2008 ⁽²⁾ | | |
| Ratio of Earnings to Fixed Charges ⁽¹⁾ | N/A | 1.32 | N/A | N/A | N/A | N/A | N/A |

- (1) For purposes of calculating the ratio of earnings to fixed charges, fixed charges are calculated by adding (a) interest expensed and capitalized, (b) amortized premiums, discounts and capitalized expenses related to indebtedness and (c) an estimate of the interest within rental expense. Earnings are calculated by adding (i) pretax income or loss from continuing operations, (ii) income from equity investees, (iii) fixed charges, and (iv) amortization of capitalized interest, and subtracting interest capitalized.
- (2) For these periods, earnings were inadequate to cover fixed charges. The amount of the coverage deficiencies were \$13,741,000, \$66,560,000, \$94,363,000, \$43,261,000, \$105,609,000 and \$62,511,000 for the three months ended March 31, 2012, the years ended December 31, 2010, 2009, 2008, the eleven months ended December 31, 2007 and the one month ended January 31, 2007, respectively.
- (3) Includes the operating results of Petro Stopping Centers, L.P., which has since been merged with TA Operating LLC, since our acquisition of Petro Stopping Centers, L.P., which was completed on May 30, 2007.

USE OF PROCEEDS

Unless otherwise indicated in the applicable prospectus supplement, we anticipate that the net proceeds from the sale of the securities that we may offer under this prospectus and any accompanying prospectus supplement will be used for general corporate purposes. We will set forth in a prospectus supplement relating to a specific offering any intended use for the net proceeds received from the sale of securities in that offering. We will have significant discretion in the use of any net proceeds. Investors will be relying on the judgment of our management regarding the application of the proceeds of any sale of securities. We may invest the net proceeds temporarily until we use them for their stated purpose.

DILUTION

We will set forth in a prospectus supplement the following information, as required, regarding any dilution of the equity interests of investors purchasing securities in an offering under this prospectus:

the net tangible book value per share of our equity securities before and after the offering;

the amount of the change in such net tangible book value per share attributable to the cash payments made by purchasers in the offering; and

the amount of the immediate dilution from the public offering price which will be absorbed by such purchasers.

Table of Contents

DESCRIPTION OF THE COMMON SHARES AND PREFERRED SHARES WE MAY OFFER

The following description of our Amended and Restated Limited Liability Company Agreement, or our LLC agreement, and our Amended and Restated Bylaws, or our bylaws, together with the additional information included in any applicable prospectus supplements, summarize the material terms and provisions of our limited liability company interests (known as common shares) and any preferred shares that may be issued by us, but is not complete. Please refer to our LLC agreement and bylaws, each of which is incorporated by reference into the registration statement of which this prospectus is a part. We will describe in the applicable prospectus supplement relating to any offering of common shares or preferred shares the specific terms of the offering, including the number of shares offered, the initial offering price, and market price and distribution information.

Organization

We were formed in October 2006 under the Delaware Limited Liability Company Act, or the Delaware LLC Act, and will remain in existence until we are dissolved in accordance with our LLC agreement. Pursuant to our LLC agreement, our board of directors adopted bylaws on November 7, 2008, as amended and restated on January 25, 2010.

Purposes

Under our LLC agreement, we are permitted to engage in any business, purpose or activity that a limited liability company formed under Delaware law may lawfully conduct. Our board of directors is authorized to perform all acts it deems necessary or appropriate to conduct our business.

Fiduciary Duties

Our LLC agreement and bylaws provide that our business shall be managed under the direction of our board of directors, which shall have the power to appoint our officers. Our LLC agreement further provides that, except as otherwise specifically stated in our LLC agreement, our bylaws or in Delaware law, the authority, powers, functions and duties of our board of directors and officers generally shall be identical to the authority, powers, functions and duties of a board of directors and officers of a corporation organized for profit under the Delaware General Corporation Law, or DGCL.

Our LLC agreement provides that, except as provided therein, the fiduciary duties and obligations owed to our company and to our shareholders by our directors and officers shall be the same as the respective duties and obligations owed by directors and officers of a corporation organized under the DGCL to their corporation and stockholders, respectively. However, notwithstanding any duty (including any fiduciary duty) that might otherwise exist in law or in equity, our LLC agreement and bylaws specifically permit our directors and their affiliates to engage in other business interests and activities, including those that compete with us, provided that none of our confidential information may be used. Also, business opportunities that become available to our directors or their affiliates need not first be presented to us. In addition, our LLC agreement eliminates the personal liability of each member of our board of directors to us and our shareholders for monetary damages for breach of fiduciary duty as a director; provided, however, that the foregoing shall not eliminate the liability of a director (i) for any breach of such director's duty of loyalty to us or our shareholders as modified by our LLC agreement, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law or (iii) for any transaction from which such director derived an improper personal benefit.

In addition, our bylaws provide that, to the fullest extent permitted by law, our board of directors or our shareholders may ratify and make binding on us any past action or inaction by us or our officers to the extent that our board of directors or our shareholders could have originally authorized the matter. Moreover, under our bylaws, to the fullest extent permitted by law, any past action or inaction

Table of Contents

questioned in any shareholder's derivative proceeding or any other proceeding on the ground of lack of authority, defective or irregular execution, adverse interests of a director, officer or shareholder, non-disclosure, miscalculation, the application of improper principles or practices of accounting, or otherwise, may be ratified, before or after judgment, by our board of directors or by our shareholders and, if so ratified, shall have the same force and effect as if the questioned action or inaction had been originally duly authorized, and such ratification shall be binding upon us and our shareholders and shall bar any claim or execution of any judgment in respect of such questioned action or inaction.

Agreement to be bound by LLC agreement and bylaws and disputes by shareholders

By acquiring a common share in us, you will be admitted as a member of our company (which we call a "shareholder") and will be bound by the terms of our LLC agreement and bylaws. Pursuant to our LLC agreement, each shareholder and each person who acquires a share from a shareholder grants our Chief Executive Officer, President and Secretary (and, in the event of dissolution, any liquidator appointed pursuant to the LLC agreement) the power to execute and file documents necessary or appropriate for our engaging in any lawful business and exercising all powers and privileges permitted under the Delaware LLC Act, and the authority to execute any duly adopted amendments to our LLC agreement. Our LLC agreement and our bylaws provide for arbitration of certain disputes, claims and controversies, including that any action brought against us or any director, officer, manager (including RMR or its successor), agent or employee of ours, by a shareholder, including derivative and class actions, shall, on the demand of any party to such dispute, be resolved through binding arbitration in accordance with the procedures set forth in our bylaws.

Conduct of business

Our LLC agreement and bylaws provide that our day to day business shall be conducted by or under the direction of our board of directors and such officers with such titles and duties as our board of directors may from time to time appoint. Our board of directors is authorized to amend or modify our bylaws, which such bylaws contain provisions that govern our activities. Our board of directors is also authorized to appoint committees, each of which shall have at least one director.

Capital contributions

Shareholders are not obligated to make capital contributions to us.

Shareholder liability and agreements

Limited liability in jurisdictions in which we do business. Although limitations on the liability of shareholders for the obligations of a limited liability company have not been clearly established in some jurisdictions, we will operate in a manner that our board of directors considers reasonably appropriate to preserve the limited liability of our shareholders.

Liability for breach of the LLC agreement or bylaws. Under our LLC agreement and bylaws, each of our shareholders has agreed to indemnify us and any of our subsidiaries or affiliates, to the fullest extent permitted by law, against losses arising from such shareholder's breach of or failure to fully comply with any covenant, condition or provision of our LLC agreement or bylaws. Such indemnification includes, without limitation, to the fullest extent permitted by law, indemnification against losses arising from any action by or against us or our subsidiaries or affiliates in which the shareholder is not the prevailing party.

Actions requiring regulatory compliance implicating us. Under our bylaws, if any shareholder, whether acting individually or in concert with a group, as determined by our board of directors, by virtue of the shareholder's ownership interest in us or actions taken by the shareholder affecting us, triggers the application of any requirement or regulation of any federal, state, municipal or other

Table of Contents

governmental or regulatory body on us or any of our subsidiaries (as defined in our bylaws) or any of our or our subsidiaries' businesses, assets or operations, including, without limitation, any obligations to make or obtain any governmental actions, consents or approvals, then such shareholder is required to promptly take all actions necessary and fully cooperate with us to ensure that such requirements or regulations are satisfied without restricting, imposing additional obligations on or in any way limiting our or our subsidiaries' businesses, assets, operations or prospects. If the shareholder fails or is otherwise unable to promptly take such actions so as to cause satisfaction of such requirements or regulations, then under our bylaws, the shareholder shall promptly divest a sufficient number of our shares necessary to cause the application of such requirement or regulation to not apply to us or any of our subsidiaries. If the shareholder fails to cause such satisfaction or divest itself of such sufficient number of our shares by not later than the 10th day after triggering such requirement or regulation, then any of our shares beneficially owned by such shareholder at and in excess of the level triggering the application of such requirement or regulation shall, to the fullest extent permitted by law, be automatically transferred to a trust for the exclusive benefit of one or more charitable beneficiaries designated by us and any actions triggering the application of such a requirement or regulation may be deemed by us to be of no force or effect. Additionally, if a shareholder who triggers the application of any regulation or requirement fails to satisfy the requirements or regulations or to take curative actions within ten (10) days of triggering such requirements or regulations, our board of directors is authorized to take all actions which the board of directors deems appropriate to require compliance or to preserve the value of our assets; and we may charge the offending shareholder for our costs and expenses as well as any damages which we may incur.

As an example and not as a limitation, as of the date of this prospectus, we hold a controlling interest in gaming businesses in Louisiana. Louisiana law provides that any person who owns five percent or more of gaming businesses in Louisiana shall provide detailed personal history and financial information and be approved by the Louisiana Gaming Control Board. Accordingly, if a shareholder acquires five percent or more of our company and refuses to provide us with information required to be submitted to the Louisiana Gaming Control Board or if the Louisiana Gaming Control Board declines to approve such a shareholder's ownership of our company, then, in either event, shares owned by such a shareholder necessary to reduce its ownership to less than five percent of our company may be deemed shares in excess of our 9.8% ownership limitation (described below under the sub-heading "Restrictions on share ownership and transfers") and shall be subject to the ownership limitation provisions of our LLC Agreement.

As a further example and not as a limitation, as of the date of this prospectus, we hold a controlling ownership position in a company formed and licensed as an insurance company in the State of Indiana. The laws of the State of Indiana have certain regulatory requirements for any person who seeks to control (as defined under Indiana law) a company which itself controls an insurance company domiciled in the State of Indiana, including by exercising proxies representing 10% or more of the company's voting securities. Accordingly, if a shareholder seeks to exercise proxies for a matter to be voted upon at a meeting of our shareholders without having obtained any applicable approvals from the Indiana insurance regulatory authorities, such proxies representing 10% or more of our voting securities will, subject to certain provisions of our bylaws addressing quorum requirements, be void and of no further force or effect.

Compliance with law. Under our bylaws, shareholders are required to comply with all applicable requirements of federal and state laws, rules and regulations in connection with a shareholder's ownership interest in us, as well as all other laws which apply to us or any of our subsidiaries or any of our or our subsidiaries' businesses, assets or operations and which require action or inaction on the part of a shareholder.

Table of Contents

Representations, warranties and covenants made to governmental or regulatory bodies. Under our bylaws, to the fullest extent permitted by law, any representation, warranty or covenant made by a shareholder with any governmental or regulatory body in connection with the shareholder's interest in us or any of our subsidiaries is deemed to be simultaneously made to, for the benefit of and enforceable by, us and any of our subsidiaries, as applicable.

Unlawful distributions. We do not currently intend to make any distributions to our shareholders. However, a shareholder who knowingly receives a distribution made in violation of the Delaware LLC Act is liable to return such distribution for three years from the date of the distribution if an action to recover the distribution from the shareholder is commenced prior to the end of the three year period and an adjudication of liability against the shareholder is made. Under the Delaware LLC Act, we generally cannot make a distribution that would cause our liabilities to exceed the fair value of our assets.

Description of the rights of our common shares

Our common shareholders are entitled to one vote for each share held of record on our books for all matters submitted to a vote of shareholders. The holders of our common shares are entitled to receive distributions, if any, ratably when, as and if authorized by our board of directors out of assets legally available therefor, subject to any preferential distribution rights of any newly created class or series of shares. Upon our dissolution, liquidation or winding up, the holders of common shares are entitled to receive our net assets available after the satisfaction (whether by payment or reasonable provision for payment) of all debts and other liabilities, ratably subject to the preferential rights of any newly created class or series of shares. Holders of common shares have no preemptive, subscription, redemption or conversion rights.

Shareholder voting rights

Generally, our board of directors has broad powers to conduct our business and manage our affairs without shareholder approval or voting. Whenever shareholder approval is required for any action either by the terms of our LLC agreement or by applicable law, the general rule under our LLC agreement is that, unless otherwise required by law, the affirmative vote of 75% of each class and series of shares with voting power outstanding, voting as a single class, will be required; provided, however, if our board of directors approves in advance a particular action, only a majority of the votes cast shall be required. In an uncontested election, the election of directors requires a majority vote of the votes cast. In a contested election, the election of directors requires a majority vote of the then outstanding common shares. Our board has the power to revise these requirements as may be allowed by law, our LLC agreement or our bylaws.

Our board of directors may issue additional securities, including preferred shares

Our LLC agreement authorizes us to issue an unlimited number of additional securities and rights to buy securities for the consideration and on the terms and conditions determined by our board of directors without the approval of our shareholders, including the right to issue any number of common shares and preferred shares or class or series of common or preferred shares. Our board of directors is authorized to set the preferences, conversion and other rights, voting powers, restrictions, limitations as to dividends or other distributions, qualifications or terms or conditions of redemption for each such class or series. Whenever preferred shares are to be sold pursuant to this prospectus, we will file a prospectus supplement relating to that sale which will specify:

the number of shares in the series of preferred shares;

the designation for the series of preferred shares by number, letter or title that shall distinguish the series from any other series of preferred shares;

Table of Contents

the dividend rate, if any, and whether dividends on that series of preferred shares will be cumulative, noncumulative or partially cumulative;

the voting rights of that series of preferred shares, if any;

any conversion provisions applicable to that series of preferred shares;

any redemption or sinking fund provisions applicable to that series of preferred shares and any restrictions thereon;

the liquidation preference per share of that series of preferred shares, if any; and

the terms of any other preferences or rights, if any, applicable to that series of preferred shares.

Regardless of any rights of our common shareholders that are described in this section, the rights, preferences and privileges of our common shares and common shareholders are subject to, and may be adversely affected by, the rights of the holders of shares of any new class or series, whether common or preferred, that our board of directors may designate and issue in the future.

We believe that the ability of our board of directors to issue one or more classes or series of shares with specified preferences will provide us with flexibility in structuring possible future financings and acquisitions, and in meeting other business needs that may arise. All shares are available for issuance without action by our shareholders, unless such action is required by applicable law or the rules of the principal stock exchange on which our securities may be listed. Nonetheless, the unrestricted ability of our board to issue additional shares, classes and series of shares may have adverse consequences to existing shareholders. Please also see "Anti-takeover provisions".

Restrictions on share ownership and transfers

Our LLC agreement provides that no person or group of persons acting together may own, directly or indirectly, including through application of Section 318(a) of the Code, as modified by Section 856(d)(5) thereof, more than 9.8% of the number or value of any class or series of our outstanding shares. Any person who acquires or attempts to acquire ownership of our shares that will or may violate this 9.8% ownership limitation must give notice to us and provide us with any other information that we may request. The ownership limitations in our LLC agreement are effective against all of our shareholders. Our board of directors may grant an exemption from the ownership limitation if it is satisfied that the shareholder's ownership is in our best interests and would not cause a default under the terms of any contract to which we are a party or would reasonably expect to become a party, provided that any duties of our board of directors, including fiduciary duties, to the shareholder requesting the exemption shall not apply, to the fullest extent permitted by law, to such determination. In addition, our board of directors may from time to time increase or decrease our ownership limitations, provided that any decrease may be made only prospectively as to subsequent holders (other than a decrease as a result of a retroactive change in existing law, in which case such change shall be effective immediately).

If a person attempts a transfer of our shares in violation of our ownership limitations, then that number of shares which would cause the violation will be automatically deemed transferred to a trust for the exclusive benefit of one or more charitable beneficiaries designated by us. The prohibited owner will not acquire any rights in the shares held in trust, will not benefit economically from ownership of the shares held in trust, will have no rights to distributions and will not possess any rights to vote the shares held in trust. This automatic transfer will be deemed to be effective as of the close of business on the business day prior to the date of the violative transfer.

Table of Contents

Additionally, our bylaws impose certain restrictions on the transfer of our shares in order to help us preserve the tax treatment of our net operating losses and other tax benefits. These restrictions generally provide that transfers of our shares to a person, entity or group which is then, or would become as a result of such transfer, an owner of 5% or more of our outstanding shares (i) would be void in total, for transferees then already owning 5% or more of our shares and (ii) would be void to the extent the transfer would so result in such level of ownership by the proposed transferee, for other transferees. Furthermore, the restrictions generally provide that the shares sought to be transferred in violation of these provisions shall be automatically deemed transferred to a charitable trust in accordance with the provisions of our LLC agreement. The prohibited transfer threshold was set at 5% because transfers at or above that level could result in limitations on our ability to use our net operating losses and other tax benefits to reduce our future taxable income, as provided under the Code and related tax rules. Shareholders owning 5% or more of our outstanding shares as of November 9, 2009, would not have their shares owned at and above the 5% ownership threshold transferred to a charitable trust or otherwise divested solely as a result of the adoption of these restrictions. Additionally, these restrictions will not apply if the transferor or the transferee obtains the written approval of our board of directors, which such approval may be conditionally given.

Every owner of more than 5% of any class or series of our shares is required to give written notice to us within thirty (30) days after our request and after the end of each taxable year stating the name and address of the owner, the number of shares of each class and series of our shares which the owner beneficially owns, and a description of the manner in which those shares are held. In addition, upon our request, each owner of more than 5% of any class or series of our shares is required to provide us with any additional information that we may request in order to assist us in ensuring compliance with the foregoing share ownership limitations. Furthermore, as a condition to the registration of the transfer of any of our shares in our share register, any person who is a beneficial, legal or record holder of shares, and any proposed transferee, must provide such information as may be requested by us from time to time in order to determine compliance with the aforementioned restrictions or the status of our tax benefits.

The restrictions described above will not preclude the settlement of any transaction entered into through the facilities of any securities exchange through which our shares are traded. Our LLC agreement and our bylaws provide, however, that the fact that the settlement of any transaction occurs will not negate the effect of any of the foregoing limitations and any transferee in these kinds of transactions is subject to all of the provisions and limitations described above.

These ownership limitations could have the effect of delaying, deferring or preventing a takeover or other transaction in which our common shareholders might receive a premium for their shares over the then prevailing market price or which such holders might believe to be otherwise in their best interest. For more detail concerning these share ownership limitations, please see our LLC agreement and our bylaws, each of which is incorporated by reference into the registration statement of which this prospectus is a part.

Election and removal of members of our board of directors

As of the date of this prospectus, our board of directors consists of five members. Our LLC agreement and bylaws provide that our board of directors establishes the number of our directors. However, there may not be less than three nor more than seven directors, unless the directors then in office unanimously determine to change the permitted number of directors. In the event of a vacancy on our board, whether occurring due to an increase in size of our board of directors or by the death, resignation or removal of any director, a majority of the remaining directors will fill the vacancy and the director elected to fill the vacancy will serve for the remainder of the full term of the directorship in which the vacancy occurred or is created.

Table of Contents

Our LLC agreement divides our board of directors into three classes, or groups. The term of the directors in Group III will expire in 2013; the term of the directors in Group I will expire in 2014; and the term of the directors in Group II will expire in 2015. Shareholders elect directors of each group for three year terms upon the expiration of their current terms. Shareholders elect only one group of directors each year. There is no cumulative voting in the election of directors.

We believe that classification of the board of directors helps to ensure continuity of our business strategies and policies. However, the classified board provision could have the effect of making the replacement of incumbent directors more time consuming and difficult. At least two annual meetings of shareholders will generally be required to effect a change of a majority of our directors. Also, because our board of directors may increase the number of directors and set the classification of the expanded board, it may take more than two years to change a majority of our directors.

Our LLC agreement and bylaws provide that a director may be removed only for cause (as defined in our LLC agreement and bylaws) by the unanimous vote of the other directors then in office. In addition, our LLC agreement and bylaws provide that our entire board of directors (but not less than our entire board of directors) may be removed only for cause by the affirmative vote of at least 75% of the outstanding shares of each class and series of our shares with voting power, voting separately.

The provisions described in this section and any other provisions relating to the rights of a class or series of our shares may be subject to the rights of any class or series of shares that the board of directors may authorize from time to time.

Amendment of our LLC agreement

General. Amendments to our LLC agreement may be proposed only by or with the consent of our board of directors. In the event that applicable law requires that amendments may be proposed by our shareholders, the ownership percentage of shareholders required to propose an amendment shall be the ownership percentage specified by law, or, if shareholders are permitted by law to propose amendments but no required ownership percentage is set, then shareholders holding at least 25% of our outstanding shares shall be required. Amendments proposed by our board of directors which require a vote of our shareholders may be adopted by a plurality of shares voting, unless applicable law requires a greater number. Amendments proposed by shareholders, if any, which are not approved by our board of directors shall require the affirmative vote of 75% of each class and series of outstanding shares, unless applicable law requires a lesser vote.

No shareholder approval. Our board of directors generally may make amendments to our LLC agreement without the approval of our shareholders as follows:

to change our name, the location of our principal place of our business, our registered agent or our registered office;

to effect the admission, substitution or removal of shareholders in accordance with our LLC agreement and the Delaware LLC Act;

any change as to which our board of directors reasonably determines is customarily of the type contained in the bylaws of a corporation organized under the DGCL;

to create, dissolve, merge, consolidate or convert us or any of our subsidiaries, or to convey any or all of our assets, if the principal purpose of such action as determined by our board of directors is to effect a change in the legal form of our business, including, but not limited to, to change the form of our existence to a corporation, limited partnership, or trust or other legal entity or to change the jurisdiction under whose laws we are organized;

to make an amendment that our board of directors determines to be necessary or appropriate for the authorization or issuance of additional securities or rights to acquire securities;

Table of Contents

to change our fiscal year or taxable year and related changes; and

to make any amendment expressly permitted in our LLC agreement to be made by our board of directors acting without shareholder or member approval.

In addition, our board of directors may make amendments to our LLC agreement without the approval of our shareholders if our board of directors determines that those amendments:

do not adversely affect our shareholders (including any particular class or series of shares as compared to other classes or series of shares) in any material respect except that such limitation shall not apply to any change that our board of directors determines to be in the best interest of our shareholders as a whole and regardless of whether or not such provision is adverse to any class or series of our shares or particular shareholder or group of shareholders;

are necessary or appropriate to satisfy any requirements, conditions or guidelines contained in any opinion, directive, order, ruling or regulation of any federal or state agency or judicial authority or contained in any federal or state statute;

are necessary or appropriate to facilitate the trading of our shares or to comply with any rule, regulation, guideline or requirement of any securities exchange on which the shares are or will be listed for trading, compliance with any of which our board of directors deems to be in our and our shareholders' best interests;

are necessary or appropriate to implement a defensive shareholder rights plan, similar to a shareholder rights plan or "poison pill" for corporations;

are necessary or appropriate for any action taken by our board of directors relating to splits or combinations of shares; or

are required to effect the intent of the provisions of our LLC agreement, are otherwise contemplated by our LLC agreement or are required to correct any mistake or ambiguity in our LLC agreement, as determined by our board of directors.

Amendment to our bylaws

Our bylaws may be amended or repealed or new or additional bylaws may be adopted only with the vote or written consent of a majority of our board of directors.

Merger, sale or other disposition of assets

Except with respect to any transaction having as its principal purpose the changing of our legal form of existence and/or jurisdiction of organization (as described above), any merger, combination or consolidation of us into another entity may only be effected by an agreement approved by our board of directors and by our shareholders; provided, however, our board of directors without shareholder approval may mortgage, sell and leaseback, pledge, hypothecate or grant a security interest in some, all or substantially all of our assets and permit the sale upon foreclosure or other realization of such an encumbrance. If applicable law permits the foregoing action without board approval, the shareholder vote required shall be 75% of each class and series of outstanding shares voting separately, at the time of the vote, unless applicable law requires a lesser amount; but any such transaction which is approved by our board may be approved by shareholders holding a plurality of all classes and series of our shares, voting as a single class, unless applicable law requires a greater or different vote.

Our LLC agreement provides that our shareholders are not entitled to dissenters' rights of appraisal in the event of a merger, consolidation or conversion involving TA, a sale of all or substantially all of our assets, or any other transaction or event.

Table of Contents

Termination and dissolution

We were formed as a perpetual entity to continue in existence until dissolved pursuant to the terms of our LLC agreement. We will dissolve upon: (i) the election of our board of directors to dissolve us which is approved by our shareholders; (ii) the sale, exchange or other disposition of all or substantially all of our assets and properties unless otherwise determined by our board of directors; (iii) the entry of a decree of judicial dissolution of us; or (iv) the reduction of the number of our members to zero. The shareholder vote required to approve our board of directors' decision to dissolve our company shall be a majority of the votes cast of our voting shares, voting together as a single class, unless a greater amount or separate class voting is required by applicable law. Shareholders shall have no right to dissolve our company except as provided for in our LLC agreement.

Shareholder meetings, proxies and quorums

Any action required or permitted to be taken at a meeting of shareholders may be taken without a meeting only by a unanimous written consent of the shareholders entitled to vote on the matter.

Our LLC agreement and bylaws require that a meeting of shareholders, called by our board of directors, be held annually. The chairman of our board of directors, if any, or a majority of our entire board of directors may call a special meeting of our shareholders. Shareholders may cause a special meeting of the shareholders to be held only if applicable law or applicable rules of the principal exchange on which our common shares are listed so require, and then the percentage of shareholders required to cause a special meeting of shareholders shall be the maximum percentage specified by applicable law or stock exchange rule. If applicable law or stock exchange rule requires such an action but does not specify a maximum percentage, the percentage shall be specified from time to time by our board of directors, provided, however, that such percentage shall not be higher than 75%. If the shareholders have the right to call a special meeting, upon written request by the requisite number of shareholders in accordance with the procedures contained in our LLC agreement and bylaws, our secretary shall call such a meeting.

Shareholders may vote either in person or by proxy at meetings. Only shareholders of record may vote. The holders of a majority of the outstanding shares of the class or classes or series for which a meeting has been called represented in person or by proxy shall constitute a quorum unless any action by the shareholders requires approval by holders of a greater percentage of the shares, in which case the quorum for approval of that action shall be the greater percentage. If a quorum is not present at any meeting of shareholders, the chairperson of the meeting may adjourn the meeting from time to time without us being required to set a new record date or provide any additional notice of such meeting, other than by announcement at the meeting at which the adjournment is taken.

Anti-takeover provisions

The following provisions, among others, of our LLC agreement and bylaws may delay or prevent a change of control of us:

separate prohibitions on the ownership of 5% or more of our shares or in excess of 9.8% of any class or type of our equity securities by any person or group;

the regulatory compliance and disclosure requirements set forth in our bylaws, including provisions that require the divestment of our shares by a shareholder in the event that such shareholder, by virtue of such shareholder's ownership interest in us or actions taken by the shareholder affecting us, triggers the application of any requirement or regulation of any federal, state, municipal or other governmental or regulatory body on us or any of our subsidiaries or any of our or our subsidiaries' businesses, assets or operations and such shareholder fails or is otherwise unable to promptly take such actions so as to cause satisfaction of such requirements

Table of Contents

or regulations without imposing additional obligations on or in any way limiting our or our subsidiaries' businesses, assets, operations or prospects;

a provision in our LLC agreement to the effect that, with respect to any "Business Combination" (as such term is defined in Section 203 of the DGCL), the provisions of Section 203 of the DGCL shall be applied with respect to us as though we were a Delaware corporation, our shareholders were stockholders of such corporation and our board of directors was the board of directors of such corporation;

the ability of our board of directors, without a shareholders' vote, to issue additional common shares and other series or classes of shares with rights which may be established at the time of issuance;

the classification of our board of directors and the election of each class for three year staggered terms;

the qualifications required of any individual nominated for or elected to be a director that are set forth in our bylaws;

the requirement, given our ownership of AIC, which makes us an insurance holding company under applicable state law, that anyone who intends to solicit proxies for a person to serve as one of our directors or for another proposal of business not approved by our board of directors may be required to receive pre-clearance from the concerned insurance regulators;

requirements that any person nominated to be a director comply with clearance and pre-clearance requirements of state laws applicable to our business including clearance and pre-clearance by Nevada and Louisiana gambling authorities and Indiana insurance regulators;

the requirement that an individual director may only be removed for cause and then only by unanimous vote of the other directors, the requirement of a 75% shareholders' vote and cause requirements to remove our entire board of directors and the inability of shareholders to remove any single director without removing our entire board of directors;

the requirement of a 75% shareholders' vote to approve certain transactions, such as a merger or a sale of substantially all our assets, unless those transactions are approved by our board of directors;

the ability of our directors to expand our board and fill vacancies which may be created by the board of directors;

shareholder voting rights and standards which require larger majorities for approval of actions which are not approved by our directors than for actions which are approved by our directors;

the requirement that amendments to our LLC agreement may only be proposed by or with the consent of our board of directors;

the authority of our board of directors, and not our shareholders, to adopt, amend or repeal our bylaws;

the limitations on the ability of our shareholders to call a special meeting of shareholders, nominate directors or make shareholder proposals and the inability of our shareholders to act by written consent unless unanimous; and

Edgar Filing: TRAVELCENTERS OF AMERICA LLC - Form 424B5

the advance notice requirements for shareholder nominations for our directors and for shareholder proposals and restrictions which may prevent the presentation of such nominations or proposals in our proxy statements.

Table of Contents

These requirements may prevent you from realizing a takeover premium for any of our shares which you own.

In addition, our leases with HPT prevent the merger of us into another entity, the acquisition by any person or group of beneficial ownership of 9.8% or more of the voting shares or the power to direct the management and policies of us or any of our subsidiary tenants or guarantors; the sale of a material part of the assets of us or any such tenant or guarantor; or the cessation of certain continuing directors constituting a majority of the board of directors of us or any such tenant or guarantor; in each case without the consent of HPT. Our rent deferral agreement with HPT has change of control covenants so that amounts deferred will immediately be payable to HPT in the event we experience a change of control while deferred rent is unpaid. More specifically, events of default under our rent deferral agreement include any event of default under our leases with HPT, the election of any director to our board of directors who was not nominated or appointed by the then members of our board of directors or the adoption by our shareholders of any proposal (other than a precatory proposal) not recommended for adoption by the then members of the board of directors. Any default by us under our rent deferral agreement will also constitute an event of default under our existing lease agreements with HPT. Our shareholders agreement with respect to AIC, our business management and shared services agreement with RMR and our credit facility also contain change of control provisions, as described below.

Liability of shareholders for breach of restrictions on ownership

Our leases with HPT, our business management and shared services agreement with RMR, our credit facility and our shareholders agreement with respect to AIC each provide that our rights and benefits under those agreements may be terminated in the event that anyone acquires more than 9.8% of our shares or we experience some other change in control, as defined in those agreements, without the consent of HPT, RMR or the lenders under the credit facility, respectively, and that AIC and the other shareholders of AIC may have rights to acquire our interests in AIC if such an acquisition occurs or if we experience some other change of control. If a breach of the 9.8% ownership limitation results in a lease or credit facility default, a loss of the benefits of our management and shared services agreement or a loss of our ownership interests in AIC, the shareholder or shareholders causing the breach may be liable to us and may be liable to our other shareholders for damages. Additionally, any shareholder who knowingly violates the bylaw provisions pertaining to 5% ownership will be liable to us for damages suffered as a result of such violation, including but not limited to damages resulting from a reduction in, or elimination of, our ability or right to utilize our tax benefits. These damages may be in addition to the loss of beneficial ownership and voting rights of the shares owned by the breaching shareholder or shareholders, as described above, and these damages may be material.

Stock exchange listing; transfer agent and registrar

Our common shares are listed on the NYSE MKT under the symbol "TA." On June 21, 2012, the last reported sale price for our common shares on the NYSE MKT was \$5.09.

The transfer agent and registrar for our common shares is Wells Fargo Shareowner Services.

Table of Contents

DESCRIPTION OF THE DEBT SECURITIES WE MAY OFFER

The following description, together with the additional information we may include in any applicable prospectus supplements, describes the material terms and conditions of the debt securities that we may offer under this prospectus. This description is incomplete, and while the description below will apply generally to any future debt securities we may offer under this prospectus, we will describe the particular terms in more detail in the applicable prospectus supplement.

We may issue senior notes under one or more senior indentures, to be entered into with a trustee to be named in the senior indenture. We may issue subordinated notes under one or more subordinated indentures, to be entered into with a trustee to be named in the subordinated indenture. We have filed forms of these documents as exhibits to the registration statement, of which this prospectus forms a part. We use the term "indentures" to refer to both the senior indenture and the subordinated indenture. The indentures will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We use the term "trustee" to refer to either the senior trustee or the subordinated trustee, as applicable.

We will describe in a prospectus supplement the specific terms of any debt securities we may offer pursuant to this prospectus. If indicated in a prospectus supplement, the terms of such debt securities may differ from the terms described below. The following summary of the material provisions of the senior notes, subordinated notes and the indentures are subject to, and qualified in their entirety by reference to, all the provisions of the indenture applicable to a particular series of debt securities, including the definitions of certain terms. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

If we decide to issue any senior notes or subordinated notes pursuant to this prospectus, we will describe in a prospectus supplement the terms relating to each series of notes that we may issue, including the following:

the title;

whether the notes will be senior or subordinated;

any limit on the amount that may be issued;

whether or not we will issue the series of notes in global form and, if so, who the depository will be;

the maturity date;

the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

the place(s) where payments will be payable;

our right, if any, to defer payment of interest and the maximum length of any such deferral period;

the date, if any, after which, and the price at which, we may, at our option, redeem the series of notes pursuant to any optional redemption provisions;

the date, if any, on which, and the price(s) at which we are obligated to redeem, or at the holder's option to purchase, the series of notes pursuant to any mandatory sinking fund provisions or otherwise;

Table of Contents

the denominations in which we will issue the series of notes, if other than denominations of \$1,000 and any integral multiple thereof;

any addition to, or modification or deletion of, any event of default or any covenant of TravelCenters specified in the applicable indenture with respect to such series of notes;

a discussion of any material or special U.S. federal income tax considerations;

whether or not the notes will be secured or unsecured, and the terms of any secured debt; and

any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities.

The debt securities may be issued as original issue discount securities. An original issue discount security is a debt security, including any zero-coupon debt security, which:

is issued at a price lower than the amount payable upon its stated maturity; and

provides that upon redemption or acceleration of the maturity, an amount less than the amount payable upon the stated maturity, shall become due and payable.

Under the indentures, we will have the ability, in addition to the ability to issue debt securities with terms different from those of debt securities previously issued, without the consent of the holders, to reopen a previous issue of a series of debt securities and issue additional debt securities of that series, unless such reopening was restricted when the series was created, in an aggregate principal amount determined by us. All such debt securities including those issued pursuant to such reopening shall vote together as a single class.

Conversion or exchange rights

We will set forth in the applicable prospectus supplement the terms on which a series of notes may be convertible into or exchangeable for common shares or other securities of ours. Such terms will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of common shares or other securities of ours that the holders of such series of notes receive would be subject to adjustment.

Consolidation, merger or sale

Unless otherwise noted in a prospectus supplement, the indentures do not contain any covenant restricting our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets. Any successor or acquirer of such assets, however, must assume all of our obligations under the indentures or the notes, as appropriate.

Events of default under the indentures

The following are events of default under the indentures with respect to any series of notes that we may issue:

if we fail to pay interest when due and our failure continues for thirty (30) days and the time for payment has not been extended or deferred;

if we fail to pay the principal, or premium, if any, when due;

if we fail to observe or perform any other covenant contained in the notes or the indentures, other than a covenant specifically relating to another series of notes, and our failure continues for ninety (90) days after we receive notice from the trustee or holders of at least ten percent (10%) in aggregate principal amount of the outstanding notes of that series; and

Table of Contents

if we experience specified events of bankruptcy, insolvency or reorganization.

The supplemental indenture or the form of note for a particular series of notes may include additional events of default or changes to the events of default described above. For any additional or different events of default applicable to a particular series of notes, see the prospectus supplement relating to such series.

If an event of default with respect to notes of any series occurs and is continuing, the trustee or the holders of at least twenty-five percent (25%) in aggregate principal amount of the outstanding notes of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal of, premium, if any, and accrued interest, if any, on the notes due and payable immediately.

The holders of a majority in principal amount of the outstanding notes of an affected series may waive any default or event of default with respect to such series and its consequences, except (i) uncured defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture; and (ii) certain covenants or provisions which under the terms of the indenture cannot be modified or amended without the consent of the holder of each outstanding note affected. Any such waiver shall cure such default or event of default.

Subject to the terms of the indentures, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of notes, unless such holders have offered the trustee reasonable indemnity. The holders of a majority in principal amount of the outstanding notes of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the notes of that series, provided that:

the direction is not in conflict with any law or the applicable indenture;

the trustee may take any other action deemed proper by it which is not inconsistent with such direction; and

subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the notes of any series will only have the right to institute a proceeding under the indenture or to appoint a receiver or another trustee, or to seek other remedies if:

the holder has given written notice to the trustee of a continuing event of default with respect to that series;

the holders of at least twenty-five percent (25%) in aggregate principal amount of the outstanding notes of that series have made written request, and such holders have offered reasonable indemnity to the trustee to institute such proceedings as trustee; and

the trustee does not institute such proceeding within sixty (60) days after its receipt of such notice, request and offer of indemnity, and does not receive from the holders of a majority in aggregate principal amount of the outstanding notes of that series other conflicting directions within such sixty (60) day period.

These limitations do not apply to a suit instituted by a holder of notes if we default in the payment of the principal, premium, if any, or interest on, the notes.

Table of Contents

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indentures.

Modification of indentures; waiver

We and the trustee may change an indenture without the consent of any holders with respect to certain matters, including:

to cure any ambiguity, defect or inconsistency in such indenture;

to change anything that does not materially adversely affect the interests of any holder of notes of any series;

to provide for the assumption, by a successor or the acquirer of all or substantially all of our assets, of our obligations under such indenture;

to add to our covenants for the benefit of holders of notes of any series or to surrender any right or power conferred upon us; and

to comply with any requirement of the SEC in connection with the qualification of an indenture under the Trust Indenture Act.

In addition, under the indentures, the rights of holders of a series of notes may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding notes of each series that is affected. Certain changes, however, may only be made with the consent of each holder of any outstanding notes affected, including the following:

changing the fixed maturity of such series of notes;

reducing the principal amount, the rate of interest, or any premium payable upon the redemption of any notes; or

extending the time of payment of interest, or any premium payable upon the redemption of any such notes; or

reducing the percentage in principal amount of notes, the consent of whose holders is required for any such supplemental indenture, or the consent of whose holders is required for any waiver provided for in the indenture; or

changing our obligation to maintain an office or agency in the places and for the purposes specified in the indenture; or

modifying certain provisions of the indenture which require the consent of, or action by, a specified minimum percentage of holders, except to increase any such percentages or to provide that certain other provisions of the indenture cannot be modified or waived without the consent of each of the holders of the affected notes.

Form, exchange and transfer

We will issue the notes of any series only in fully registered form without coupons and, unless otherwise specified in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof. The indentures will provide that notes of a series may be issuable in temporary or permanent global form and may be issued as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company, New York, New York, or another depository named by us and identified in a prospectus supplement with respect to that series.

Edgar Filing: TRAVELCENTERS OF AMERICA LLC - Form 424B5

At the option of the holder, subject to the terms of the indentures and the limitations applicable to global securities described in the applicable prospectus supplement, notes of any series will be

Table of Contents

exchangeable for other notes of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders may present their notes, duly endorsed or with the form of transfer duly executed if so required, at the office of the security registrar or at the office of any transfer agent designated by us for such purpose. Unless otherwise provided in the notes to be transferred or exchanged, no service charge will be made for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges. The security registrar and any transfer agent, in addition to the security registrar, initially designated by us for any notes will be named in the applicable prospectus supplement. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the notes of each series.

If the notes of any series are to be redeemed, we will not be required to:

issue, register the transfer of, or exchange any notes of that series during a period beginning at the opening of business fifteen (15) days before the day of mailing of a notice of redemption of any such notes that may be selected for redemption and ending at the close of business on the day of such mailing; or

register the transfer of or exchange any notes so selected for redemption, in whole or in part, except the unredeemed portion of any such notes being redeemed in part.

Information concerning the trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only such duties as are specifically set forth in the indentures. Upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the trustee is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of notes unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur. The trustee is not required to spend or risk its own money or otherwise become financially liable while performing its duties unless it reasonably believes that it will be repaid or receive adequate indemnity.

Payment and paying agents

Unless otherwise indicated in the applicable prospectus supplement, we will make payment of the interest on any notes on any interest payment date to the person in whose name such notes, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest payment.

Principal of and any premium and interest on the notes of a particular series will be payable at the office of the paying agents designated by TravelCenters, except that unless otherwise indicated in the applicable prospectus supplement, interest payments may be made by check mailed to the holder. Unless otherwise indicated in such prospectus supplement, the corporate trust office of the trustee in The City of New York will be designated as our sole paying agent for payments with respect to notes of each series. We will name in the applicable prospectus supplement any other paying agents initially designated by us for the notes of a particular series. We will maintain a paying agent in each place of payment for the notes of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any notes which remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the security thereafter may look only to us for payment thereof.

Table of Contents

Governing law

The indentures and the notes will be governed by and construed in accordance with the laws of the State of New York, except to the extent the Trust Indenture Act is applicable.

Subordination of subordinated notes

Any subordinated notes will be unsecured and will be subordinate and junior in priority of payment to certain of our other indebtedness to the extent described in a prospectus supplement. The subordinated indenture does not limit the amount of subordinated notes that we may issue. The subordinated indenture also does not limit us from issuing any other secured or unsecured debt.

DESCRIPTION OF THE WARRANTS WE MAY OFFER

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. If we indicate in the prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms described below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement, of which this prospectus forms a part, or to an exhibit to a current report on Form 8-K or other document to be filed under the Exchange Act.

We may issue warrants, including warrants to purchase common shares, preferred shares, or debt securities in one or more series. We may issue warrants independently or together with common shares, preferred shares and debt securities, and the warrants may be attached to or separate from the securities.

We will evidence each series of warrants by warrant certificates that we will issue under warrant agreements. We may enter into a warrant agreement with a warrant agent as detailed in the prospectus supplement relating to warrants being offered. We will indicate the name and address and other information regarding the warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

If we decide to issue warrants pursuant to this prospectus, we will specify in a prospectus supplement the terms of the series of warrants, including, if applicable, the following:

the title of the warrants;

the aggregate number of warrants offered;

the price or prices at which the warrants will be issued;

the currencies in which the price or prices of the warrants may be payable;

the designation, amount, and terms of the offered securities purchasable upon exercise of the warrants;

the designation and terms of the other offered securities, if any, with which the warrants are issued and the number of the warrants issued with each security;

if applicable, the date on and after which the warrants and the offered securities purchasable upon exercise of the warrants will be separately transferable;

the price or prices at which and currency or currencies in which the offered securities purchasable upon exercise of the warrants may be purchased;

Table of Contents

the date on which the right to exercise the warrants shall commence and the date on which the right shall expire;

the minimum or maximum amount of the warrants which may be exercised at any one time;

information with respect to book-entry procedures, if any;

a discussion of any federal income tax considerations; and

any other material terms of the warrants, including terms, procedures, and limitations relating to the exchange and exercise of the warrants.

Before exercising their warrants, holders of warrants will not have voting rights or other rights as a shareholder of TravelCenters.

Exercise of warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants up to the close of business on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required amount in immediately available funds, as provided in the applicable prospectus supplement. We will describe in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

PLAN OF DISTRIBUTION

We may sell the securities being offered pursuant to this prospectus directly to purchasers, to or through underwriters, through dealers or agents, or through a combination of such methods. The prospectus supplement with respect to the securities being offered will set forth the terms of the offering, including the names of the underwriters, dealers or agents, if any, the purchase price, the net proceeds to TravelCenters, any underwriting discounts and other items constituting underwriters' compensation, and initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers and any securities exchanges on which such securities may be listed.

Underwriters

If we use underwriters in an offering, we will execute an underwriting agreement with such underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. If we use an underwriting syndicate, the managing underwriter(s) will be specified on the cover of the prospectus supplement. If we use underwriters for a sale of securities, the underwriters will acquire the securities for their own accounts. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time. Unless otherwise set forth in the prospectus supplement, the obligations of the underwriters to purchase the offered securities will be subject to conditions precedent and the underwriters will be obligated to purchase all of the offered securities if any are purchased.

Table of Contents

Dealers and agents

If dealers are used in an offering, we may sell the securities to the dealers as principals. The dealers then may resell the securities to the public at varying prices which they determine at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

If agents are used in an offering, the names of the agents and the terms of the agency will be specified in a prospectus supplement. Unless otherwise indicated in a prospectus supplement, the agents will act on a best-efforts basis for the period of their appointment.

Direct sales

We may sell securities directly to one or more purchasers without using underwriters or agents.

Dealers and agents named in a prospectus supplement may be underwriters as defined in the Securities Act and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify in the applicable prospectus supplement any underwriters, dealers or agents and will describe their compensation. We may have agreements with the underwriters, dealers and agents to indemnify them against specified civil liabilities, including liabilities under the Securities Act. The terms of any indemnification provisions will be set forth in a prospectus supplement. Certain underwriters, dealers or agents and their associates may engage in transactions with, and perform services for us in the ordinary course of business.

If so indicated in a prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by institutional investors to purchase securities pursuant to contracts providing for payment and delivery on a future date. We may enter contracts with commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutional investors. The obligations of any institutional investor will be subject to the condition that its purchase of the offered securities will not be illegal at the time of delivery. The underwriters and other agents will not be responsible for the validity or performance of contracts.

Trading markets and listing of securities

Unless otherwise specified in the applicable prospectus supplement, each class or series of securities will be a new issue with no established trading market, other than our common shares, which are listed on the NYSE MKT. We may elect to list any other class or series of securities on any exchange, but we are not obligated to do so. It is possible that one or more underwriters may make a market in a class or series of securities, but the underwriters will not be obligated to do so and may discontinue any market making at any time without notice. We cannot give any assurance as to the liquidity of the trading market for any of the securities.

Stabilization activities

In connection with an offering, an underwriter may purchase and sell securities in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of securities than they are required to purchase in the offering. "Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional securities, if any, from us in the offering. If the underwriters have an over-allotment option to purchase additional securities from us, the underwriters may close out any covered short position by either exercising their over-allotment option or purchasing securities in the open market. In determining the source of securities to close out the covered short position, the underwriters may consider, among other things, the price of securities

Table of Contents

available for purchase in the open market as compared to the price at which they may purchase securities through the over-allotment option. "Naked" short sales are any sales in excess of such option or where the underwriters do not have an over-allotment option. The underwriters must close out any naked short position by purchasing securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.

Accordingly, to cover these short sales positions or to otherwise stabilize or maintain the price of the securities, the underwriters may bid for or purchase securities in the open market and may impose penalty bids. If penalty bids are imposed, selling concessions allowed to syndicate members or other broker-dealers participating in the offering are reclaimed if securities previously distributed in the offering are repurchased, whether in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. The impositions of a penalty bid may also affect the price of the securities to the extent that it discourages resale of the securities. The magnitude or effect of any stabilization or other transactions is uncertain. These transactions may be effected on the NYSE MKT or otherwise and, if commenced, may be discontinued at any time.

VALIDITY OF SECURITIES

The validity of the common shares, preferred shares, debt securities and warrants to purchase debt or equity securities offered pursuant to this prospectus will be passed upon by Skadden, Arps, Slate, Meagher & Flom LLP, special counsel to TravelCenters of America LLC.

EXPERTS

The consolidated financial statements of TravelCenters of America LLC appearing in TravelCenters of America LLC's Annual Report (Form 10-K) for the year ended December 31, 2011, and the effectiveness of TravelCenters of America LLC's internal control over financial reporting as of December 31, 2011, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in its reports thereon, which conclude, among other things, that TravelCenters of America LLC did not maintain effective internal control over financial reporting as of December 31, 2011, based on Internal Control Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission, because of the effects of the material weaknesses described therein, included therein, and incorporated herein by reference. Such financial statements have been incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file periodic reports, proxy statements and other information with the SEC as required by the Exchange Act. You may read and copy any materials we file with the SEC at the SEC's Public Reference Room located at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information about the Public Reference Room by calling the SEC at 1-800-SEC-0330. You can review our electronically filed reports, proxy and information statements, and other information regarding us on the SEC's Internet site at <http://www.sec.gov>. The information contained on the SEC's website is expressly not incorporated by reference into this prospectus.

Our SEC filings are also available on our website, <http://www.tatravelcenters.com>. The information on this website is expressly not incorporated by reference into, and does not constitute a part of, this prospectus.

Table of Contents

This prospectus contains summaries of provisions contained in some of the documents discussed in this prospectus, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to in this prospectus have been filed or will be filed or incorporated by reference as exhibits to the registration statement of which this prospectus is a part. If any contract, agreement or other document is filed or incorporated by reference as an exhibit to the registration statement, you should read the exhibit for a more complete understanding of the document or matter involved.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus information we file with the SEC in other documents. This means that we can disclose important information to you by referring to another document we filed with the SEC. The information relating to us contained in this prospectus should be read together with the information in the documents incorporated by reference.

We incorporate by reference, as of their respective dates of filing, the documents listed below:

- (a) Our Annual Report on Form 10-K for the fiscal year ended December 31, 2011;
- (b) Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2012;
- (c) Our Current Report on Form 8-K filed May 11, 2012;
- (d) The information identified as incorporated by reference under Items 10, 11, 12, 13 and 14 of Part III of our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, from our definitive Proxy Statement for our 2012 Annual Meeting of Shareholders filed March 16, 2012; and
- (e) The description of our common shares contained in our Registration Statement on Form 8-A filed with the SEC on January 25, 2007, including any amendments or reports filed for the purpose of updating that description (File No. 001-33274).

We are also incorporating by reference additional documents we may file under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial registration statement and prior to effectiveness of the registration statement and (ii) after the date of this prospectus and prior to the termination of the offering, other than any portion of the respective filings furnished, rather than filed, under applicable SEC rules. This additional information is a part of this prospectus from the date of filing for those documents.

The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC and incorporate by reference in this prospectus will automatically update and supersede this previously-filed information, including information in previously filed documents or reports that have been incorporated by reference in this prospectus. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You may request copies, which will be provided to you at no charge, upon your oral or written request, of any or all of the information that has been incorporated by reference in the prospectus but not delivered with the prospectus. Requests should be directed to the following contact information:

TravelCenters of America LLC
24601 Center Ridge Road, Suite 200
Westlake, OH 44145-5639
Attention: Corporate Secretary
Telephone: (440) 808-9100.

Table of Contents

5,000,000 Shares
TravelCenters of America LLC
Common Shares

PROSPECTUS SUPPLEMENT

December , 2013

Citigroup

RBC Capital Markets

UBS Investment Bank

BB&T Securities

Craig-Hallum Capital Group

Janney Montgomery Scott

Oppenheimer & Co.

