

ATLAS AIR WORLDWIDE HOLDINGS INC

Form 424B3

October 26, 2009

Table of Contents

The information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not offers to sell nor do they seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

**Filed Pursuant to Rule 424(b)(3)
Registration No. 333-159752**

**PROSPECTUS SUPPLEMENT (Subject to Completion, dated October 26, 2009)
(To Prospectus dated June 17, 2009)**

5,250,000 Shares

COMMON STOCK

We are offering 5,250,000 shares of our common stock by this prospectus supplement and the accompanying prospectus.

Our common stock is listed on The NASDAQ Global Select Market under the ticker symbol AAWW. On October 23, 2009, the closing price of our common stock on The NASDAQ Global Select Market was \$35.47 per share.

Investing in our securities involves significant risks. Please read **Risk Factors** on page S-3 of this prospectus supplement and on page 3 of the accompanying prospectus, as well as the other information included and incorporated by reference herein and therein for a discussion of the factors that you should carefully consider before deciding to purchase our securities.

| | Per Share | Total |
|----------------------------------|------------------|--------------|
| Initial price to the public | \$ | \$ |
| Underwriting discount | \$ | \$ |
| Proceeds, before expenses, to us | \$ | \$ |

We have granted the underwriters a 30-day option to purchase up to 787,500 additional shares of common stock at the initial price to the public, less the underwriting discount.

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 supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

Delivery of the shares will be made on or about , 2009.

Morgan Stanley

Goldman, Sachs & Co.

BB&T Capital Markets

Stephens Inc.

, 2009

TABLE OF CONTENTS

Prospectus Supplement

| | |
|--|------|
| <u>ABOUT THIS PROSPECTUS SUPPLEMENT AND THE ACCOMPANYING PROSPECTUS</u> | S-ii |
| <u>PROSPECTUS SUPPLEMENT SUMMARY</u> | S-1 |
| <u>RISK FACTORS</u> | S-3 |
| <u>USE OF PROCEEDS</u> | S-4 |
| <u>CAPITALIZATION</u> | S-5 |
| <u>PRICE RANGE OF COMMON STOCK AND DIVIDEND POLICY</u> | S-6 |
| <u>DESCRIPTION OF CAPITAL STOCK</u> | S-7 |
| <u>MATERIAL U.S. FEDERAL TAX CONSIDERATIONS FOR NON-U.S. HOLDERS OF COMMON STOCK</u> | S-11 |
| <u>UNDERWRITING</u> | S-14 |
| <u>LEGAL MATTERS</u> | S-18 |
| <u>EXPERTS</u> | S-18 |
| <u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u> | S-18 |
| <u>WHERE YOU CAN FIND MORE INFORMATION</u> | S-19 |

Prospectus

| | |
|--|----|
| ABOUT THIS PROSPECTUS | 1 |
| OUR COMPANY | 1 |
| RISK FACTORS | 3 |
| CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS | 3 |
| USE OF PROCEEDS | 4 |
| RATIO OF EARNINGS TO FIXED CHARGES | 4 |
| RATIO OF EARNINGS TO FIXED CHARGES AND PREFERRED STOCK DIVIDENDS | 4 |
| DESCRIPTION OF THE DEBT SECURITIES | 5 |
| DESCRIPTION OF CAPITAL STOCK | 12 |
| PLAN OF DISTRIBUTION | 16 |
| LEGAL MATTERS | 16 |
| EXPERTS | 16 |
| INCORPORATION OF CERTAIN INFORMATION BY REFERENCE | 16 |
| WHERE YOU CAN FIND MORE INFORMATION | 17 |

Table of Contents

**ABOUT THIS PROSPECTUS SUPPLEMENT
AND THE ACCOMPANYING PROSPECTUS**

This document consists of two parts. The first part is this prospectus supplement, which describes the specific terms of this offering of common stock. The second part is the accompanying prospectus or the base prospectus, which describes more general information, some of which may not apply to this offering. Generally, when we refer only to the prospectus, we are referring to both parts combined, and when we refer to the accompanying prospectus, we are referring to the base prospectus only. You should read both this prospectus supplement and the accompanying prospectus, together with the additional information described below under the heading **Where You Can Find More Information**.

If the description of this offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information in this prospectus supplement.

Any statement made in this prospectus supplement or in a document incorporated or deemed to be incorporated by reference in 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 that is also incorporated or deemed to be incorporated by reference in this prospectus supplement modifies or supersedes that 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. See **Where You Can Find More Information**.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not authorized anyone to provide you with different information. This prospectus supplement and the accompanying prospectus may only be used where it is legal to sell these securities. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus or the documents incorporated by reference into this prospectus supplement and the accompanying prospectus is accurate as of any date other than the respective dates of such documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

In this prospectus supplement, references to the company, AAWW, we, us and our are to Atlas Air Worldwide Holdings, Inc., a Delaware corporation, and its operating subsidiaries, unless the context requires otherwise.

S-ii

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information about us and this offering. This information is not complete and does not contain all the information you should consider before investing in our common stock. You should carefully read this entire prospectus supplement and the accompanying prospectus, including the Risk Factors section contained in this prospectus supplement and the financial statements and the other information incorporated by reference herein, before making an investment decision.

Our Company

We are the leading provider of leased wide-body freighter aircraft, furnishing outsourced aircraft operating services and solutions to the global air freight industry. We manage and operate the world's largest fleet of 747 freighters. We provide unique value to our customers by giving them access to highly reliable new production freighters that deliver the lowest unit cost in the marketplace combined with outsourced aircraft operating services that lead the industry in terms of quality and global scale. Our customers include airlines, express delivery providers, freight forwarders, the U.S. military and charter brokers. We provide global services with operations in Asia, the Middle East, Australia, Europe, South America, Africa and North America.

We believe that the scale, scope and quality of our outsourced services are unparalleled in our industry. The relative operating cost efficiency of our current 747-400F aircraft and anticipated future 747-8F aircraft, including their superior fuel efficiency, capacity and loading capabilities, create a compelling value proposition for our customers.

Atlas Air Worldwide Holdings, Inc. is a holding company with a principal, wholly-owned, operating subsidiary, Atlas Air, Inc. (Atlas Air). We also have a 51% economic interest and 75% voting interest in Polar Air Cargo Worldwide, Inc. (Polar), which, since October 27, 2008, is accounted for under the equity method. On June 28, 2007, Polar issued shares representing a 49% economic interest and a 25% voting interest to DHL Network Operations (USA), Inc. (DHL), a subsidiary of Deutsche Post AG (DP).

Our primary service offerings are:

Freighter aircraft leasing services, which encompass the following:

Wet leasing, whereby we provide outsourced operating solutions including furnishing the crew, maintenance and insurance for the aircraft under long-term commitments (hereinafter referred to as ACMI), while customers assume fuel, demand and yield risk. Our ACMI operations include providing outsourced airport-to-airport wide-body cargo aircraft solutions to Polar for the benefit of DHL and other customers, which we refer to as Express Network ACMI services. Through this arrangement, we provide dedicated 747-400 aircraft servicing the requirements of DHL's global express operations through Polar as well as the requirements of Polar's other customers. Certain of our wet leasing services are also provided through Global Supply Systems Limited (GSS), a private company in which we own a 49% interest;

Dry leasing, whereby we provide aircraft and engine leasing solutions to third parties for one or more dedicated aircraft through our wholly-owned leasing subsidiary, Titan Aviation Leasing Limited.

Charter services, which encompass the following:

Military charter services, whereby we provide air cargo services for the U.S. Air Mobility Command;

Commercial charters, whereby we provide aircraft charters to brokers, freight forwarders, direct shippers and airlines.

AAWW was incorporated in Delaware in 2000. Our principal executive offices are located at 2000 Westchester Avenue, Purchase, New York 10577, and our telephone number is (914) 701-8000.

Our website is www.atlasair.com. The information on our website is not a part of this prospectus supplement or the accompanying prospectus.

Atlas Air and Polar hold various trademark registrations and have applications for additional registrations pending in several foreign jurisdictions. This prospectus supplement and the documents incorporated herein by reference also include trademarks, trade names and service marks of other companies. Use or display by us of other parties trademarks, trade names or service marks is not intended to and does not imply a relationship with, or endorsement or sponsorship of us by, these other parties.

S-1

Table of Contents

THE OFFERING

| | |
|---|---|
| Common stock offered by us in this offering | 5,250,000 shares |
| Common stock to be outstanding after the offering | 26,348,054 shares (or 27,135,554 shares if the underwriters exercise their option to purchase additional shares in full) |
| Use of Proceeds | We estimate that the net proceeds from this offering will be approximately \$ (approximately \$ if the underwriters exercise their option to purchase additional shares in full), after deducting the underwriters discount (without regard to the other expenses of the offering payable by us). We intend to use the net proceeds from this offering for general corporate purposes, including the financing of capital expenditures or funding of potential acquisitions or other business transactions. See Use of Proceeds and Capitalization. |
| Risk Factors | An investment in our common stock involves risks. You should read the description of risks set forth in the Risk Factors section of this prospectus supplement as well as other information included in or incorporated by reference in this prospectus supplement and the accompanying prospectus before deciding to purchase shares of our common stock. |
| Dividends | We have never paid a cash dividend with respect to our common stock, nor do we anticipate paying a cash dividend in the foreseeable future. See Price Range of Common Stock and Dividend Policy. |
| NASDAQ Global Select Market symbol | AAWW |
| Transfer Agent and Registrar | BNY Mellon Shareowner Services |

The number of shares of our common stock to be outstanding after this offering is based on 21,098,054 shares of our common stock outstanding as of September 30, 2009, and excludes:

362,402 shares of our common stock issuable upon exercise of outstanding stock options at a weighted average exercise price of \$37.69 per share; and

an aggregate of 938,610 additional shares of our common stock reserved for future issuance under our stock-based compensation plans.

Except as otherwise noted, we have presented the information in this prospectus supplement assuming no exercise by the underwriters of their option to purchase up to 787,500 additional shares of our common stock.

Table of Contents

RISK FACTORS

Investing in our securities involves risk. You should carefully consider and evaluate all of the information included and incorporated by reference in this prospectus supplement and the accompanying prospectus, including the risk factors described below and other risk factors incorporated by reference from our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2008, filed with the SEC on February 26, 2009, as updated by our Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2009, filed with the SEC on May 5, 2009, June 30, 2009, filed with the SEC on August 5, 2009, and September 30, 2009, filed with the SEC on October 26, 2009, and our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act filed after such annual report. The risk factors we have described are not the only ones we face. Our operations could also be impaired by additional risks and uncertainties. If any of these risks and uncertainties develop into actual events, our business, financial condition and results of operations could be materially and adversely affected.

S-3

Table of Contents

USE OF PROCEEDS

We estimate that the net proceeds of this offering will be approximately \$ (approximately \$ if the underwriters option to purchase additional shares is exercised in full), after deducting the underwriters estimated discounts (without regard to the other expenses of the offering payable by us).

We intend to use the net proceeds from this offering for general corporate purposes, including the financing of capital expenditures or funding of potential acquisitions or other business transactions. See Capitalization.

S-4

Table of Contents**CAPITALIZATION**

The following table sets forth our cash and cash equivalents balance and our capitalization as of September 30, 2009:

on an actual basis; and

on an adjusted basis to reflect the issuance of 5,250,000 shares of our common stock in this offering and the resulting net proceeds.

The table assumes that the underwriters' option to purchase additional shares in this offering is not exercised.

You should read this table together with our financial statements and notes thereto and other financial and operating data included or incorporated by reference in this prospectus supplement and the accompanying prospectus.

| | September 30, 2009 | |
|---|---|--------------------|
| | Actual | As Adjusted |
| | (in thousands, except shares and par values) | |
| Cash and cash equivalents | \$ 480,144 | \$ |
| Current and long-term debt | \$ 637,313 | \$ |
| Equity | | |
| Stockholders' equity | | |
| Preferred stock, \$1 par value; 10,000,000 shares authorized; no shares issued | \$ | \$ |
| Common stock, \$0.01 par value; 50,000,000 shares authorized; 21,989,246 shares issued, 21,098,054 shares outstanding (net of treasury stock), respectively | 220 | |
| Additional paid-in-capital | 363,629 | |
| Treasury stock, at cost; 891,192 shares | (26,351) | |
| Accumulated other comprehensive income/(loss) | 493 | |
| Retained earnings | 402,517 | |
| Total stockholders' equity | 740,508 | |
| Noncontrolling interest | 2,677 | |
| Total equity | 743,185 | |
| Total capitalization | \$ 1,380,498 | \$ |

Table of Contents**PRICE RANGE OF COMMON STOCK AND DIVIDEND POLICY**

Since May 31, 2006, our common stock has been traded on The NASDAQ Global Select Market under the symbol AAWW. The following table sets forth the closing high and low prices per share for our common stock for the periods indicated.

| | High | Low |
|--|-------------|------------|
| 2009 Quarter Ended | | |
| December 31 (through October 23, 2009) | \$ 37.50 | \$ 29.25 |
| September 30 | 33.89 | 20.62 |
| June 30 | 32.68 | 17.54 |
| March 31 | 24.05 | 10.03 |
| 2008 Quarter Ended | | |
| December 31 | 38.09 | 9.05 |
| September 30 | 57.74 | 37.94 |
| June 30 | 64.92 | 49.46 |
| March 31 | 55.00 | 47.13 |
| 2007 Quarter Ended | | |
| December 31 | 58.59 | 52.02 |
| September 30 | 60.83 | 48.94 |
| June 30 | 59.82 | 53.69 |
| March 31 | 54.29 | 44.00 |

The last reported sale price of our common stock on The NASDAQ Global Select Market on October 23, 2009 was \$35.47 per share. As of September 30, 2009, there were 21,098,054 shares of our common stock issued and outstanding, excluding 891,192 shares held in treasury. There were 131 stockholders of record of our common stock on such date.

We have never paid a cash dividend with respect to our common stock, nor do we anticipate paying a cash dividend in the foreseeable future. Moreover, certain of our financing arrangements contain financial covenants that could limit our ability to pay cash dividends.

Table of Contents

DESCRIPTION OF CAPITAL STOCK

The following description summarizes important terms of our capital stock. Because it is only a summary, it does not contain all the information that may be important to you. This description is in all respects subject to and qualified in its entirety by reference to: (i) our certificate of incorporation and our amended and restated bylaws, which are filed as exhibits to our Current Reports on Form 8-K dated February 16, 2001 (filed with the SEC on February 21, 2001) and June 27, 2006 (filed with the SEC on July 3, 2006), respectively, (ii) the certificate of designation relating to each series of preferred stock, which will be filed with the SEC in connection with an offering of such series of preferred stock, (iii) the rights agreement with Mellon Investor Services LLC relating to our stockholder rights plan, which is filed as an exhibit to our Current Report on Form 8-K dated May 26, 2009 (filed with the SEC on May 27, 2009) and (iv) the relevant portions of the Delaware General Corporation Law.

Our authorized capital stock consists of 50,000,000 shares of common stock, \$0.01 par value, and 10,000,000 shares of preferred stock, \$1.00 par value.

Common Stock

General. As of September 30, 2009, there were 21,098,054 shares of common stock outstanding, excluding 891,192 shares held in treasury. There were 131 stockholders of record of our common stock on such date.

Voting Rights. The holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and they do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they so choose. Foreign Ownership Restrictions below contains a description of certain restrictions on voting by stockholders who are not U.S. citizens, as defined by applicable laws and regulations. Foreign Ownership Restrictions below contains a description of certain restrictions on voting by stockholders who are not U.S. citizens, as defined by applicable laws and regulations.

Dividends. Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive ratably those dividends, if any, as may be declared by the board of directors out of legally available funds.

Liquidation, Dissolution and Winding Up. Upon our liquidation, dissolution or winding up, the holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the prior rights of any preferred stock then outstanding.

Preemptive Rights. Holders of our common stock have no preemptive or conversion rights or other subscription rights (other than in respect of each holder's stock purchase right attached to each share of our common stock as described in Stockholder Rights Plan below) and there are no redemption or sinking fund provisions applicable to our common stock.

Assessment. All outstanding shares of our common stock are fully paid and nonassessable.

Preferred Stock

As of the date of this prospectus supplement, 10,000,000 shares of undesignated preferred stock are authorized, none of which are outstanding. The board of directors has the authority, without further action by the stockholders, to issue

from time to time the undesignated preferred stock in one or more series and to fix the number of shares, designations, preferences, powers, and relative, participating, optional, or other special rights and the qualifications or restrictions thereof. The preferences, powers, rights, and restrictions of different series of preferred stock may differ with respect to dividend rates, amounts payable on liquidation, voting rights, conversion rights, redemption provisions, sinking fund provisions, purchase funds, and other matters. The issuance of preferred stock could decrease the amount of earnings and assets available for distribution to holders of our common stock or adversely affect the rights and powers, including voting rights, of the holders of our common stock and may have the effect of delaying, deferring or preventing a change in control of our company.

S-7

Table of Contents

Termination of Registration Rights

In early 2007, the Company entered into a registration rights agreement with HMC Atlas Air, L.L.C. and Harbinger Capital Partners Special Situations Fund, L.P. (together, the Harbinger Entities), the Company's largest stockholders at that time. As required by the terms of the registration rights agreement, the Company filed a shelf registration statement with the SEC in April 2007, registering the resale of approximately 7.9 million shares of the Company's common stock that were covered by the registration rights agreement and naming the Harbinger Entities as the selling security holders. Based on information recently filed by the Harbinger Entities with the SEC, the Harbinger Entities no longer beneficially own five percent or more of the Company's common stock. Except for certain indemnification obligations of the Company that may be continuing, the Company has notified the Harbinger Entities that it deems the registration rights agreement terminated, including the Company's obligation to keep the shelf registration statement effective. Accordingly, on October 9, 2009, the Company filed a post-effective amendment to the shelf registration statement with the SEC to remove from registration, as of the effective date of the post-effective amendment, all of the previously registered shares of the Company's common stock remaining unsold under the shelf registration statement.

Certain Anti-Takeover Provisions of our Certificate of Incorporation and By-Laws and Delaware Law

Some provisions of Delaware law and our certificate of incorporation and by-laws contain provisions that could make the following transactions more difficult: (i) acquisition of us by means of a tender offer; (ii) acquisition of us by means of a proxy contest or otherwise; or (iii) removal of our incumbent officers and directors. These provisions, summarized below, are intended to encourage persons seeking to acquire control of us to first negotiate with our board of directors. These provisions also serve to discourage hostile takeover practices and inadequate takeover bids.

Issuance of Preferred Stock. As noted above, our board of directors, without stockholder approval, has the authority under our certificate of incorporation to issue preferred stock with rights superior to the rights of the holders of common stock. As a result, preferred stock could be issued quickly and easily, could adversely affect the rights of holders of common stock and could be issued with terms calculated to delay or prevent a change in control or make removal of management more difficult.

Stockholder Meetings. A majority of our board of directors, the chairman of the board or the chief executive officer may call special meetings of stockholders.

Requirements for Advance Notification of Stockholder Nominations and Proposals. Our by-laws contain advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee thereof.

Delaware Anti-Takeover Statute. We are subject to Section 203 of the Delaware General Corporation Law, which, subject to certain exceptions, prohibits persons deemed interested stockholders from engaging in a business combination with a Delaware corporation for three years following the date these persons become interested stockholders, unless the business combination is approved in a prescribed manner. Generally, an interested stockholder is an entity or person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

The provisions of Delaware law and our certificate of incorporation and by-laws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. Such provisions

may also have the effect of preventing changes in our management. It is possible that these provisions could make accomplishing transactions that stockholders may otherwise deem to be in their best interests more difficult.

S-8

Table of Contents

Stockholder Rights Plan

On May 22, 2009, our board of directors adopted a stockholder rights plan and declared a dividend distribution of one stock purchase right for each outstanding share of our common stock to stockholders of record as of the close of business on June 5, 2009. After such date and until the plan distribution date, the rights will automatically attach to each share of our common stock issued. Accordingly, we will issue one stock purchase right with each common share issued while the rights plan remains in effect, including shares issued under this prospectus. The rights are transferable with our common stock until they become exercisable, but are not exercisable until the plan distribution date (as described below). The rights will expire at the close of business on May 25, 2012, unless we redeem them at an earlier date. Each right entitles the registered holder to purchase from the company one share of common stock at a cash exercise price of \$55.00 per share, subject to adjustment in certain circumstances.

The plan distribution date is (a) the earlier of: (i) the close of business on the tenth business day following the earlier of (1) the first public announcement that a person, entity or group of affiliated or associated persons (an Acquiring Person) has acquired beneficial ownership of 15% or more of our outstanding shares of common stock, other than as a result of any stock repurchases by us or certain inadvertent actions by a stockholder and (2) the date on which a majority of our board of directors has actual knowledge that an Acquiring Person has acquired beneficial ownership of 15% or more of our outstanding shares of common stock (the date of said announcement being referred to as the Stock Acquisition Date), or (ii) the close of business on the tenth business day following the commencement of a tender offer or exchange offer that could result upon its consummation in a person or group becoming the beneficial owner of 15% or more of our outstanding shares of common stock or (b) such later date as our board of directors may determine. A person who would otherwise be an Acquiring Person upon the adoption of the rights agreement will not be considered an Acquiring Person unless and until such person, or any affiliate of such person, acquires beneficial ownership of additional shares of our common stock after the adoption of the rights agreement (other than pursuant to a stock dividend or stock split), in which case such person shall be an Acquiring Person.

In event that a Stock Acquisition Date occurs, each holder of a right (other than an Acquiring Person or its associates or affiliates, whose rights shall become null and void) will thereafter have the right to receive upon exercise, that number of shares of our common stock (or, in certain circumstances, including if there are insufficient shares of our common stock to permit the exercise in full of the rights, shares or units of preferred stock, other securities, cash or property, or any combination of the foregoing) having a market value of two times the exercise price of the right.

At any time after a person becomes an Acquiring Person, our board of directors may, at its option, exchange all or any part of the then outstanding and exercisable rights for our shares of common stock at an exchange ratio specified in the rights agreement.

The rights agreement is designed to protect our stockholders in the event of unsolicited offers to acquire us and other coercive takeover tactics, which in the opinion of our board of directors, could impair its ability to represent our stockholders' interests. The provisions of the rights agreement may render an unsolicited takeover more difficult or less likely to occur or may prevent a takeover, even though it may offer our stockholders the opportunity to sell their stock at a price above the prevailing market rate and may be favored by a majority of our stockholders.

Limitations on Liability and Indemnification of Officers and Directors

Our certificate of incorporation limits the liability of our directors to the fullest extent permitted by the Delaware General Corporation Law and our by-laws provide that we will indemnify our directors and officers to the fullest extent permitted by that law.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is BNY Mellon Shareowner Services.

NASDAQ Global Select Market

Our common stock is listed on The NASDAQ Global Select Market under the symbol AAWW.

S-9

Table of Contents

Foreign Ownership Restrictions

Under federal law and the Department of Transportation requirements, we must be owned and actually controlled by citizens of the United States as that term is defined in 49 U.S.C. § 40102 (a)(15). In this regard, our President and at least two-thirds of our Board and officers must be U.S. citizens, at least 75% of our outstanding voting common stock must be owned and controlled, directly or indirectly, by persons who are citizens of the United States, and not more than 25% of our outstanding voting common stock may be owned and controlled, directly or indirectly, by persons who are not citizens of the United States. We believe that on the date of this prospectus supplement we are in compliance with these requirements.

Under our charter documents, consistent with U.S. law, there is a separate stock record, designated the Foreign Stock Record, for the registration of Voting Stock that is Beneficially Owned by persons who are not citizens of the United States. Voting Stock means all outstanding shares of our capital stock that we may issue from time to time which, by their terms, may vote. Beneficially Owned refers to owners of our securities who, directly or indirectly, have or share voting power and/or investment power.

At no time will ownership of our shares of common stock representing more than the Maximum Percentage be registered in the Foreign Stock Record. Maximum Percentage, which currently is 25%, refers to the maximum percentage of voting power of Voting Stock which may be voted by, or at the direction of, non-U.S. citizens without violating applicable statutory, regulatory or interpretative restrictions or adversely affecting Atlas Air's or Polar's operating certificates or authorities. If we find that the combined voting power of Voting Stock then registered in the Foreign Stock Record exceeds the Maximum Percentage, the registration of such shares will be removed from the Foreign Stock Record, in reverse chronological order based on the date of registration, and the voting rights of such Voting Stock removed from the Foreign Stock Record will be automatically suspended, sufficient to reduce the combined voting power of the shares so registered to an amount not in excess of the Maximum Percentage. It is the duty of each stockholder who is not a citizen of the United States to register his, her or its equity securities on our Foreign Stock Record.

Table of Contents

**MATERIAL U.S. FEDERAL TAX CONSIDERATIONS
FOR NON-U.S. HOLDERS OF COMMON STOCK**

The following is a summary of certain material U.S. federal income and estate tax considerations relating to the purchase, ownership and disposition of our common stock by Non-U.S. Holders (defined below), but does not purport to be a complete analysis of all the potential tax considerations. This summary is based upon the Internal Revenue Code of 1986, as amended (the Code), the Treasury regulations promulgated or proposed thereunder and administrative and judicial interpretations thereof, all as of the date hereof and all of which are subject to change at any time, possibly on a retroactive basis. This summary is limited to the tax consequences to those persons who hold our common stock as capital assets within the meaning of Section 1221 of the Code. This summary does not purport to deal with all aspects of U.S. federal income and estate taxation that might be relevant to particular Non-U.S. Holders in light of their particular investment circumstances or status, nor does it address specific tax considerations that may be relevant to particular persons (including, for example, financial institutions, broker-dealers, insurance companies, partnerships or other pass-through entities, certain U.S. expatriates, tax-exempt organizations, controlled foreign corporations, passive foreign investment companies, corporations that accumulate earnings to avoid U.S. federal income tax, or persons in special situations, such as those who have elected to mark securities to market or those who hold common stock as part of a straddle, hedge, conversion transaction or other integrated investment). In addition, this summary does not address U.S. federal alternative minimum, certain estate and gift tax considerations or considerations under the tax laws of any state, local or foreign jurisdiction. We have not sought any ruling from the Internal Revenue Service (the IRS) with respect to the statements made and the conclusions reached in this summary. No assurance can be given that the statements and conclusions made herein will be respected by the IRS or, if challenged, by a court.

This summary is for general information only. Non-U.S. Holders are urged to consult their tax advisors concerning the U.S. federal income and estate taxation and other tax consequences to them of the purchase, ownership and disposition of our common stock, as well as the application of state, local and non-U.S. income and other tax laws.

For purposes of this summary, a Non-U.S. Holder means a beneficial owner of common stock that for U.S. federal income tax purposes is not: (1) an individual who is a citizen or resident of the United States, (2) a corporation (or other entity taxable as a corporation) created or organized under the laws of the United States, any state thereof, or the District of Columbia, (3) an estate the income of which is subject to U.S. federal income tax regardless of its source, or (4) a trust if (a) a court within the United States is able to exercise primary supervision over the administration of the trust, and one or more U.S. persons have the authority to control all substantial decisions of the trust, or (b) a valid election to be treated as a U.S. person is in effect with respect to such trust.

If a Non-U.S. Holder is a partner in a partnership or an entity or arrangement treated as a partnership for U.S. federal income tax purposes that holds common stock, the Non-U.S. Holder's tax treatment generally will depend upon the Non-U.S. Holder's tax status and upon the activities of the partnership. Accordingly, partnerships that hold our common stock and partners in such partnerships should consult their tax advisors.

Distributions on Our Common Stock

As discussed under Price Range of Common Stock and Dividend Policy above, we do not currently expect to pay dividends. In the event that we do make a distribution of cash or property with respect to our common stock, any such distributions will be treated as a dividend for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits (as determined under U.S. federal income tax principles). Any distribution not treated as a dividend will be treated first as a tax-free return of capital to the extent of the Non-U.S. Holder's tax basis

in our common stock and thereafter as capital gain from the sale or exchange of such stock. Dividends paid to a Non-U.S. Holder generally will be subject to a 30% U.S. federal withholding tax unless such Non-U.S. Holder provides us or our agent, as the case may be, with a properly executed:

1. IRS Form W-8BEN (or successor form) claiming, under penalties of perjury, a reduction in withholding under an applicable income tax treaty, or

S-11

Table of Contents

2. IRS Form W-8ECI (or successor form) stating that a dividend paid on common stock is not subject to withholding tax because it is effectively connected with a U.S. trade or business of the Non-U.S. Holder (in which case such dividend generally will be subject to regular graduated U.S. tax rates as described below).

The certification requirement described above also may require a Non-U.S. Holder that provides an IRS form or that claims treaty benefits to provide its U.S. taxpayer identification number.

Each Non-U.S. Holder is urged to consult its own tax advisor about the specific methods for satisfying these requirements. A claim for exemption will not be valid if the person receiving the applicable form has actual knowledge or reason to know that the statements on the form are false.

If dividends are effectively connected with a U.S. trade or business of the Non-U.S. Holder (and, if required by an applicable income tax treaty, attributable to a U.S. permanent establishment), the Non-U.S. Holder, although exempt from the withholding tax described above (provided that the certifications described above are satisfied), will be subject to U.S. federal income tax on such dividends on a net income basis in the same manner as if it were a resident of the United States. In addition, if such Non-U.S. Holder is a foreign corporation and dividends are effectively connected with its U.S. trade or business (and, if required by an applicable income tax treaty, attributable to a U.S. permanent establishment), such Non-U.S. Holder may be subject to an additional branch profits tax equal to 30% (unless reduced by an applicable income treaty) in respect of such effectively-connected income.

If a Non-U.S. Holder is eligible for a reduced rate of U.S. federal withholding tax pursuant to an income tax treaty, such holder may obtain a refund or credit of any excess amount withheld by timely filing an appropriate claim for refund with the IRS.

Disposition of Our Common Stock

A Non-U.S. Holder generally will not be subject to U.S. federal income tax on gain recognized on a sale, exchange or other taxable disposition of our common stock, unless:

the gain is effectively connected with a trade or business of the Non-U.S. Holder in the United States (and, if required by an applicable income tax treaty, attributable to a U.S. permanent establishment);

the Non-U.S. Holder is a nonresident alien who is present in the United States for 183 days or more in the taxable year of the disposition and meets certain other conditions; or

we are or have been a United States real property holding corporation, as defined in the Code (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 of our common stock.

We believe that we are not, and do not anticipate becoming, a USRPHC. However, because the determination of whether we are a USRPHC depends on the fair market value of our U.S. real property relative to the fair market value of other business assets, there can be no assurance that we will not become a USRPHC in the future. Even if we become a USRPHC, a Non-U.S. Holder would not be subject to U.S. federal income tax on a sale, exchange or other taxable disposition of our common stock so long as our common stock continues to be regularly traded on an established securities market and such Non-U.S. Holder does not own and is not deemed to own (directly, indirectly or constructively) more than 5% of our common stock at any time during the shorter of the five year period ending on the date of disposition or the holder's holding period.

If a Non-U.S. Holder is engaged in a trade or business in the United States and gain recognized by the Non-U.S. Holder on a sale or other disposition of our common stock is effectively connected with the conduct of such trade or business, the Non-U.S. Holder will generally be subject to regular U.S. income tax as if the Non-U.S. Holder were a U.S. person, subject to an applicable income tax treaty providing otherwise. Additionally, a foreign corporation may also, under certain circumstances, be subject to an additional branch profits tax imposed at a rate of 30% (or, if applicable, a lower income tax treaty rate). Non-U.S. Holders whose gain from dispositions of our common stock may be effectively connected with the conduct of a trade or business in the United States are urged to consult their own tax advisors with respect to the U.S. tax consequences of the ownership and disposition of our common stock.

S-12

Table of Contents

A nonresident alien who is subject to U.S. federal income tax because such individual was present in the United States for 183 days or more in the taxable year of disposition of our common stock will be subject to a flat 30% tax on the gain derived from such disposition, which may be offset by U.S. source capital loss.

Backup Withholding and Information Reporting

Generally, we must report annually to the IRS and to each Non-U.S. Holder certain information including the Non-U.S. Holder's name, address and taxpayer identification number, the aggregate amount of distributions on our common stock paid to that Non-U.S. Holder during the calendar year and the amount of tax withheld, if any.

Backup withholding tax is imposed on dividends and certain other types of payments to certain U.S. persons (currently at a rate of 28%). Backup withholding tax will not apply to payments of dividends on common stock or proceeds from the sale of common stock payable to a Non-U.S. Holder if the certification described above in

Distributions on Our Common Stock is duly provided by such Non-U.S. Holder or the Non-U.S. Holder otherwise establishes an exemption, provided that the payor does not have actual knowledge or reason to know that the Holder is a U.S. person or that the conditions of any claimed exemption are not satisfied. Certain information reporting may still apply to distributions even if an exemption from backup withholding is established. Copies of any information returns reporting the distributions to a Non-U.S. Holder and any withholding also may be made available to the tax authorities in the country in which a Non-U.S. Holder resides under the provisions of an applicable income tax treaty.

Backup withholding is not an additional tax and any amounts withheld under the backup withholding tax rules from a payment to a Non-U.S. Holder will be allowed as a refund or a credit against such Non-U.S. Holder's U.S. federal income tax liability, provided that the requisite procedures are followed.

Non-U.S. Holders are urged to consult their own tax advisors regarding their particular circumstances and the availability of and procedure for obtaining an exemption from backup withholding.

U.S. Federal Estate Tax

Common stock owned or treated as owned by an individual who is a Non-U.S. Holder at the time of death generally will be included in the individual's gross estate for U.S. federal estate tax purposes and may be subject to U.S. federal estate tax unless an applicable estate tax treaty provides otherwise.

Table of Contents**UNDERWRITING**

Subject to the terms and conditions of an underwriting agreement, dated as of the date of this prospectus supplement, the underwriters named below, for whom Morgan Stanley & Co. Incorporated and Goldman, Sachs & Co. are acting as representatives (the Representatives), have severally agreed with us to purchase, and we have agreed to sell to them, the number of shares of common stock set forth opposite their names below:

| Underwriter | Number of Shares |
|---|-------------------------|
| Morgan Stanley & Co. Incorporated | |
| Goldman, Sachs & Co. | |
| BB&T Capital Markets, a division of Scott & Stringfellow, LLC | |
| Stephens Inc. | |
| Total | 5,250,000 |

The underwriting agreement provides that the obligations of the underwriters to pay for and accept delivery of the shares of common stock offered by this prospectus supplement are subject to the approval of certain legal matters by their counsel and certain other conditions. The underwriters are committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the option described below unless and until this option is exercised.

We have granted an option to the underwriters to purchase up to 787,500 additional shares at the initial price to the public, less the underwriting discount. The underwriters may exercise this option for 30 days from the date of this prospectus supplement.

The following table shows the per share and total underwriting discounts and commissions that we are to pay to the underwriters. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase 787,500 additional shares.

| | No Exercise | Full Exercise |
|-----------|--------------------|----------------------|
| Per Share | \$ | \$ |
| Total | \$ | \$ |

Shares sold by the underwriters to the public will initially be offered at the initial 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 of up to \$ per share from the initial public offering price. If all the shares are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. The offering of the shares by any underwriter is subject to receipt and acceptance and subject to such underwriter's right to reject any order in whole or in part.

We expect to incur expenses of approximately \$ in connection with this offering.

We and each of our directors and executive officers have agreed with the underwriters that, without the prior written consent of the Representatives, we and they will not, during the period commencing on the date hereof and ending 90 days after the date hereof:

offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock; or

enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our common stock,

whether any such transaction is to be settled by delivery of our common stock or such other securities, in cash or otherwise.

S-14

Table of Contents

In addition:

we have agreed with the underwriters that, without the prior written consent of the Representatives, we will not, during the 90 day restricted period, file any registration statement with the SEC relating to the offering of any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock other than a shelf registration statement pursuant to Rule 415 under the Securities Act of 1933, as amended; and

each director and executive officer has agreed with the underwriters that, without the prior written consent of the Representatives, they will not, during the 90 day restricted period, make any demand for or exercise any right with respect to, the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock.

Subject to certain limitations, the restrictions applicable to us do not apply to:

the shares to be sold under this prospectus supplement;

actions in connection with the implementation of a shareholder rights plan;

the issuance by us of shares of our common stock upon the exercise of an option or warrant or the conversion of a security or upon the vesting of a compensatory award, in each case outstanding on the date hereof;

grants of awards under our incentive plans or the sale of shares of our common stock pursuant to Rule 10b5-1 trading plans, each as in existence on the date hereof; or

the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of our common stock, provided that such plan does not provide for the transfer of our common stock during the 90 day restricted period.

Subject to certain limitations, the restrictions applicable to our directors and executive officers do not apply to:

transactions relating to shares of our common stock or other securities acquired in open market transactions after the completion of this offering, provided that no filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made in connection with subsequent sales of our common stock or other securities acquired in such open market transactions;

transfers of shares of our common stock or any security convertible into our common stock as a bona fide gift or distributions of shares of our common stock or any security convertible into our common stock (in each case being shares or securities existing at the time of this offering and described in this prospectus) to limited partners, members or stockholders of the locked-up party, provided that (i) each donee, distributee or transferee agrees to become bound by the same restrictions that are applicable to such donor, distributor or transferor and (ii) no filing under Section 16(a) of the Exchange Act, reporting a reduction in beneficial ownership of shares of our common stock, shall be required or shall be voluntarily made during the 90 day restricted period referred to in the foregoing sentence;

the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of our common stock, provided that the establishment of such plan is then permitted by us and such plan does not provide for the transfer of our common stock during the 90 day restricted period; or

in the case of restricted common stock that vests or common stock distributed in respect of restricted stock units or performance-based restricted share units, the sale of such common stock for the purposes of satisfying minimum obligations as may be imposed on the locked-up party by us or our agents (or otherwise applicable) in connection with tax-withholding obligations that may arise by virtue of such vesting or distribution, as applicable.

The Representatives, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time with or without notice. When determining whether or not to release the common stock and other securities from lock-up agreements, the Representatives have informed us that they will consider, among other factors, the holder's reasons for requesting the release, the number of shares or other securities for which the release is being requested and market conditions at the time.

S-15

Table of Contents

In connection with the offering, the underwriters may purchase and sell shares of common stock 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 shares 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 shares from us in the offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out 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 additional shares pursuant to the option granted to them. Naked short sales are any sales in excess of such option. The underwriters must close out any naked short position by purchasing shares 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 common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the underwriters have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions, as well as other purchases by the underwriters for their own account, may have the effect of preventing or retarding a decline in the market price of the common stock, and together with the imposition of the penalty bid, may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued at any time. These transactions may be effected on The NASDAQ Global Select Market, in the over-the-counter market or otherwise.

Neither we nor the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the common stock. In addition, neither we nor the underwriters make any representation that the underwriters will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

This prospectus supplement and the accompanying prospectus do not constitute an offer to sell or a solicitation of an offer to buy any security other than our shares offered hereby, and do not constitute an offer to sell or a solicitation of an offer to buy any shares to any person in any jurisdiction in which it is unlawful to make any such offer or solicitation to such person. Neither the delivery of this prospectus supplement and the accompanying prospectus nor any sale made hereby shall, under any circumstances, imply that there has been no change in our affairs or those of our subsidiaries or that the information contained herein is correct as of any date subsequent to the earlier of the date hereof and any earlier specified date with respect to such information. Any delivery of this prospectus supplement at any subsequent date does not imply that the information herein is correct at such subsequent date.

Shares of our common stock are listed on The NASDAQ Global Select Market under the ticker symbol AAWW.

A prospectus in electronic format may be made available on websites or through other online services maintained by the underwriters of this offering, or by their affiliates. Other than the prospectus in electronic format, the information on the underwriters' websites and any information contained in any other website maintained by the underwriters or their affiliates is not part of this prospectus supplement and accompanying prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the underwriters in their capacity as underwriters and should not be relied upon by investors.

We have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or if indemnification is not allowed, to contribute to payments the underwriters may be required to make because of those liabilities.

S-16

Table of Contents

From time to time, the underwriters and certain of their affiliates have engaged, and may in the future engage, in transactions with, and perform investment banking and/or commercial banking services for, us and our affiliates in the ordinary course of business.

Selling Restrictions

European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a relevant member state), with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state (the relevant implementation date), an offer of securities described in this prospectus supplement and the accompanying prospectus may not be made to the public in that relevant member state other than:

to any legal entity that is authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;

to any legal entity that has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than 43,000,000 and (3) an annual net turnover of more than 50,000,000, as shown in its last annual or consolidated accounts;

to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the underwriters; or

in any other circumstances that do not require the publication of a prospectus pursuant to Article 3 of the Prospectus Directive,

provided that no such offer of securities shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an offer of securities to the public 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 securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, and the expression Prospectus Directive means Directive 2003/71/EC and includes any relevant implementing measure in each relevant member state.

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

United Kingdom

This prospectus supplement and the accompanying prospectus are only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive (Qualified Investors) that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order) or (ii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such

persons together being referred to as relevant persons). This prospectus supplement and the accompanying prospectus and their contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

S-17

Table of Contents

LEGAL MATTERS

The legality of our common stock offered hereby will be passed upon for us by Ropes & Gray LLP, Boston, Massachusetts, and certain legal matters will be passed upon for the underwriters by Skadden, Arps, Slate, Meagher & Flom LLP, New York, New York.

EXPERTS

The financial statements as of December 31, 2008 and 2007 and for each of the two years in the period ended December 31, 2008 and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) as of December 31, 2008, incorporated in this prospectus supplement by reference to our Annual Report on Form 10-K for the year ended December 31, 2008, have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements and schedule for the year ended December 31, 2006 included in our Annual Report on Form 10-K for the year ended December 31, 2008, as set forth in their report, which is incorporated by reference in this prospectus supplement. Our financial statements and schedule are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

In this prospectus supplement, we incorporate by reference the information we file with the SEC, which means that we can disclose important business, financial and other information to you in this prospectus supplement by referring you to the documents containing this information. The information incorporated by reference is considered to be part of this prospectus supplement, and information that we file with the SEC after the date of this prospectus supplement will automatically update and supersede this information. However, any information contained herein shall modify or supersede information contained in documents we filed with the SEC before the date of this prospectus supplement.

We incorporate by reference in this prospectus supplement the documents listed below and any other documents we file with the SEC in the future (other than, in all cases, the portions of those documents deemed to be furnished to, and not filed with, the SEC) under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until the offering of all the securities that may be offered by this prospectus supplement is completed:

our Annual Report on Form 10-K for the year ended December 31, 2008 filed with the SEC on February 26, 2009 (including the portions of our definitive Proxy Statement on Schedule 14A incorporated therein by reference);

our Quarterly Report on Form 10-Q for the quarter ended March 31, 2009 filed with the SEC on May 5, 2009;

our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009 filed with the SEC on August 5, 2009;

our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009 filed with the SEC on October 26, 2009;

our Current Reports on Form 8-K, filed with the SEC on February 6, 2009 (only with respect to Item 2.06 thereto) and May 13, 2009;

the description of our common stock which is contained in our registration statement on Form 8-A filed with the SEC on June 19, 2001 pursuant to Section 12 of the Exchange Act, including any subsequent amendments or reports filed for the purpose of updating that description; and

S-18

Table of Contents

the description of our stockholder rights plan that is contained in our Current Report on Form 8-K, filed with the SEC on May 27, 2009, including any amendments or reports filed for the purpose of updating such description.

THE INFORMATION CONTAINED ON OUR WEBSITE DOES NOT CONSTITUTE A PART OF, AND IS NOT INCORPORATED BY REFERENCE INTO, THIS PROSPECTUS SUPPLEMENT.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available over the Internet at the SEC's web site at <http://www.sec.gov>. You may also read and copy any document we file with the SEC at its public reference facility:

Public Reference Room
100 F Street, N.E.
Room 1580
Washington, DC 20549

You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Room of the SEC at the above address. Please call 1-800-SEC-0330 for further information on the operations of the Public Reference Room and copying charges.

We will furnish without charge to each person to whom a copy of this prospectus supplement is delivered, upon written or oral request, a copy of the information that has been incorporated into this prospectus supplement by reference but not delivered with the prospectus supplement (except exhibits, unless they are specifically incorporated into this prospectus supplement by reference). You should direct any requests for copies to:

Atlas Air Worldwide Holdings, Inc.
2000 Westchester Avenue
Purchase, New York 10577
Ph: (914) 701-8000
Attention: Adam R. Kokas, Senior Vice President, General Counsel & Secretary

S-19

Table of Contents

PROSPECTUS

\$500,000,000

**Debt Securities
Preferred Stock
Common Stock**

Atlas Air Worldwide Holdings, Inc. may, from time to time, offer and sell in one or more offerings:

Unsecured debt securities consisting of senior or subordinated notes and debentures and/or other unsecured evidences of indebtedness in one or more series, which may be convertible or exchangeable for our common stock or preferred stock;

Shares of preferred stock, in one or more series, which may be convertible or exchangeable for our common stock or debt securities; and

Shares of our common stock;

together or separately, in amounts, at prices and on terms that we will determine at the time of such offering. The specific terms of any of the securities we offer will be provided in one or more supplements to this prospectus.

We may offer and sell the securities through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis. The prospectus supplement for each offering will describe in detail the plan of distribution for that offering and will set forth the names of any underwriters, dealers and agents involved in the offering and any applicable fees, commissions or discount arrangements.

Our common stock is listed on The NASDAQ Global Select Market under the ticker symbol AAWW. Each prospectus supplement will indicate if the securities offered thereby will be listed on any securities exchange.

You should read this entire prospectus, the documents that are incorporated by reference into this prospectus and any applicable prospectus supplement carefully before you invest in our securities. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement.

Investing in our securities involves certain risks. Please read **Risk Factors on page 3 and other information included and incorporated by reference in this prospectus for a discussion of the factors that you should carefully consider before deciding to purchase our securities.**

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 June 17, 2009.

TABLE OF CONTENTS

| | |
|---|----|
| <u>ABOUT THIS PROSPECTUS</u> | 1 |
| <u>OUR COMPANY</u> | 1 |
| <u>RISK FACTORS</u> | 3 |
| <u>CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS</u> | 3 |
| <u>USE OF PROCEEDS</u> | 4 |
| <u>RATIO OF EARNINGS TO FIXED CHARGES</u> | 4 |
| <u>RATIO OF EARNINGS TO FIXED CHARGES AND PREFERRED STOCK DIVIDENDS</u> | 4 |
| <u>DESCRIPTION OF THE DEBT SECURITIES</u> | 5 |
| <u>DESCRIPTION OF CAPITAL STOCK</u> | 12 |
| <u>PLAN OF DISTRIBUTION</u> | 16 |
| <u>LEGAL MATTERS</u> | 16 |
| <u>EXPERTS</u> | 16 |
| <u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u> | 16 |
| <u>WHERE YOU CAN FIND MORE INFORMATION</u> | 17 |

Table of Contents

ABOUT THIS PROSPECTUS

This prospectus is part of a Registration Statement that we filed with the Securities and Exchange Commission, or SEC, utilizing a shelf registration process. Under this shelf process, we may sell different types of securities described in this prospectus in one or more offerings. This prospectus provides you with a general description of the securities we may offer. Each time we offer securities, we will provide a prospectus supplement and attach it to this prospectus. The prospectus supplement will contain specific information about the nature of the persons offering securities and the terms of the securities being offered at that time. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement, together with additional information under the headings *Where You Can Find More Information* and *Incorporation of Certain Information By Reference* and any other information that you may need to make your investment decision.

This prospectus does not contain all of the information that is in the Registration Statement. We omitted certain parts of the Registration Statement from this prospectus as permitted by the SEC. We refer you to the Registration Statement and its exhibits for additional information about us and the securities that may be sold under this prospectus.

You should rely only on the information contained or incorporated by reference in this prospectus or any applicable prospectus supplement. We have not authorized anyone to provide you with different or additional information. This prospectus may only be used where it is legal to sell these securities. You should not assume that the information contained in this prospectus, any applicable prospectus supplement or the documents incorporated by reference into this prospectus is accurate as of any date other than their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates.

This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any security other than the securities covered by this prospectus, nor does it constitute an offer to or solicitation of any person in any jurisdiction in which such offer or solicitation may not lawfully be made.

In this prospectus, references to the company, AAWW, we, us and our are to Atlas Air Worldwide Holdings, Inc., a Delaware corporation, and its operating subsidiaries, unless the context requires otherwise.

OUR COMPANY

We are the leading provider of leased wide-body freighter aircraft, furnishing outsourced air cargo operating services and solutions to the global air freight industry. As such, we manage and operate the world's largest fleet of 747 freighters. We provide unique value to our customers by giving them access to highly reliable new production freighters that deliver the lowest unit cost in the marketplace combined with outsourced aircraft operating services that lead the industry in terms of quality and global scale. Our customers include airlines, express delivery providers, freight forwarders, the U.S. military and charter brokers. We provide global services with operations in Asia, the Middle East, Australia, Europe, South America, Africa and North America.

We believe that the scale, scope and quality of our outsourced services are unparalleled in our industry. The relative operating cost efficiency of our current 747-400F aircraft and future 747-8F aircraft, including their superior fuel efficiency, capacity and loading capabilities, create a compelling value proposition for our customers.

Atlas Air Worldwide Holdings, Inc. is a holding company with a principal, wholly-owned, operating subsidiary, Atlas Air, Inc. (Atlas Air). We also have a 51% economic interest and 75% voting interest in Polar Air Cargo Worldwide,

Inc. (Polar), which, since October 27, 2008, is accounted for under the equity method. On June 28, 2007, Polar issued shares representing a 49% economic interest and a 25% voting interest to DHL Network Operations (USA), Inc. (DHL), a subsidiary of Deutsche Post AG (DP). In February 2008, we formed Titan Aviation Leasing Limited (Titan) a wholly owned subsidiary based in Ireland, for the purpose of dry leasing aircraft and engines.

Table of Contents

Our primary service offerings are:

Freighter aircraft leasing services, which encompass the following:

We provide outsourced operating solutions including the provision of crew, maintenance and insurance for the aircraft (hereinafter referred to as ACMI), while customers assume fuel, demand and yield risk. ACMI contracts typically range from three to six year periods for 747-400s and shorter periods for 747-200s. Included in ACMI is the provision of outsourced airport-to-airport wide-body cargo aircraft solutions to Polar for the benefit of DHL and other customers, which we refer to as Express Network ACMI services. Through this arrangement, we provide dedicated 747-400 aircraft servicing the requirements of DHL 's global express operations through Polar as well as the requirements of Polar 's other customers;

Dry leasing, whereby we provide aircraft and engine leasing solutions to third parties for one or more dedicated aircraft. We provide dry leasing services primarily to Global Supply Systems, a private company in which we own a 49% interest. We have also provided dry leasing services to other third party customers through both Atlas Air and our newly formed leasing subsidiary, Titan.

Charter services, which encompass the following:

Military charter services, whereby we provide air cargo services for the U.S. Air Mobility Command;

Commercial charters, whereby we provide all-inclusive cargo aircraft charters to brokers, freight forwarders, direct shippers and airlines. In addition, we have been providing airport-to-airport air cargo services to freight forwarders and other shipping customers in limited markets since October 2008.

AAWW was incorporated in Delaware in 2000. Our principal executive offices are located at 2000 Westchester Avenue, Purchase, New York 10577, and our telephone number is (914) 701-8000.

Our website is www.atlasair.com. The information on our website is not a part of this prospectus.

Atlas and Polar hold various trademark registrations and have applications for additional registrations pending in several foreign jurisdictions. This prospectus and the documents incorporated herein by reference also include trademarks, trade names and service marks of other companies. Use or display by us of other parties ' trademarks, trade names or service marks is not intended to and does not imply a relationship with, or endorsement or sponsorship of us by, these other parties.

Table of Contents

RISK FACTORS

Investing in our securities involves risk. You should carefully consider and evaluate all of the information included and incorporated by reference in this prospectus and any applicable prospectus supplement, including the risk factors incorporated by reference from our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2008, filed with the SEC on February 26, 2009, as updated by our Quarterly Reports on Form 10-Q and our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act filed after such annual report. The risk factors we have described are not the only ones we face. Our operations could also be impaired by additional risks and uncertainties. If any of these risks and uncertainties develop into actual events, our business, financial condition and results of operations could be materially and adversely affected. Additional risks may be included in a prospectus supplement relating to a particular series or offering of securities.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

We make forward-looking statements in this prospectus that are subject to risks and uncertainties. These forward-looking statements include information about possible or assumed future results of our business, financial condition, liquidity, results of operations, plans and objectives. The words may, should, expect, anticipate, intend, plan, continue, believe, seek, project, estimate and similar expressions used in this prospectus or incorporated into this prospectus by reference that do not relate to historical facts are intended to identify forward-looking statements. These statements are only predictions. You should not place undue reliance on these forward-looking statements. By way of example, statements regarding the following subjects are forward-looking by their nature:

our business strategy;

our future operating results;

our ability to obtain external financing;

our understanding of our competition;

industry and market trends;

future capital expenditures; and

the impact of technology on our products, operations and business.

The forward-looking statements are based on management's beliefs, plans, expectations and assumptions and on information available to us as of the time such statements were made. These beliefs, plans, expectations and assumptions can change as a result of many possible events or factors, not all of which are known to us. Neither we nor any other person assumes responsibility for the accuracy or completeness of these statements. If a change occurs, our business, financial condition, liquidity and results of operations may vary materially from those expressed in our forward-looking statements.

The forward-looking statements in this prospectus or incorporated into this prospectus by reference are not representations or guarantees of future performance and involve certain risks, uncertainties and assumptions. Such risks, uncertainties and assumptions include, but are not limited to, any risk factors set forth in our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act or in any supplement to this prospectus.

Many of such factors are beyond our control and are difficult to predict. As a result, our future actions, financial position and results of operations could differ materially from those expressed in any forward-looking statements made by us. Readers are therefore cautioned not to place undue reliance on forward-looking statements. We also do not intend to publicly update any forward-looking statements that may be made from time to time by us or on our behalf, whether as a result of new information, future events or otherwise.

Table of Contents**USE OF PROCEEDS**

Unless otherwise set forth in an applicable prospectus supplement, we intend to use the net proceeds from any offering of securities by us for general corporate purposes. Any specific allocation of the net proceeds of an offering of securities to a specific purpose will be determined at the time of the offering and will be described in a prospectus supplement.

RATIO OF EARNINGS TO FIXED CHARGES

Our consolidated ratio of earnings to fixed charges for each of the periods indicated are as follows:

| | For the Quarter Ended | | For the Years Ended | | | For the Periods | |
|------------------------------------|------------------------------|--------------------------|----------------------------|--------------------------|--------------------------|---|---|
| | March 31, 2009 | December 31, 2008 | December 31, 2007 | December 31, 2006 | December 31, 2005 | July 28, 2004 to December 31, 2004 | January 1, 2004 to July 27, 2004 |
| Ratio of Earnings to Fixed Charges | 2.5 | 2.0 | 2.3 | 1.9 | 2.0 | 1.8 | 1.5 |

For purposes of the ratio of earnings to fixed charges, earnings consist of income before income taxes, interest and the portions of rentals representative of the interest factor. Fixed charges consist of interest expense, capitalized interest and the portions of rentals representative of the interest factor.

RATIO OF EARNINGS TO FIXED CHARGES AND PREFERRED STOCK DIVIDENDS

Our consolidated ratio of earnings to fixed charges and preferred stock dividends for each of the periods indicated are as follows:

| | For the Quarter Ended | | For the Years Ended | | | For the Periods | |
|--|------------------------------|--------------------------|----------------------------|--------------------------|--------------------------|---|---|
| | March 31, 2009 | December 31, 2008 | December 31, 2007 | December 31, 2006 | December 31, 2005 | July 28, 2004 to December 31, 2004 | January 1, 2004 to July 27, 2004 |
| Ratio of Earnings to Fixed Charges and Preferred Stock Dividends | 2.5 | 2.0 | 2.3 | 1.9 | 2.0 | 1.8 | 1.5 |

For purposes of the ratio of earnings to fixed charges and preferred stock dividends, earnings consist of income before income taxes, interest and the portions of rentals representative of the interest factor. Fixed charges consist of interest expense, capitalized interest and the portions of rentals representative of the interest factor.

We have the authority to issue up to 10,000,000 shares of preferred stock, par value \$1.00 per share; however, as of the dates for which information is presented in the above table, no shares were outstanding, and we did not have a preferred stock dividend obligation. Therefore, the ratio of earnings to fixed charges and preferred stock dividends is equal to the ratio of earnings to fixed charges.

Table of Contents

DESCRIPTION OF THE DEBT SECURITIES

The following description sets forth certain material terms and provisions of the debt securities to which any prospectus supplement may relate. The specific terms applicable to a particular issuance of debt securities and any variations from the terms set forth below will be set forth in the applicable prospectus supplement. The debt securities will constitute either our senior debt securities or our subordinated debt securities.

Senior debt securities will be issued under an indenture (the "senior indenture") to be entered into between us and a trustee (the "senior trustee") to be designated prior to the issuance of any such senior debt securities, the form of which senior indenture is filed as an exhibit to the Registration Statement. Subordinated debt securities will be issued under a separate indenture (the "subordinated indenture") to be entered into between us and a trustee (the "subordinated trustee") to be designated prior to the issuance of any such subordinated debt securities, the form of which subordinated indenture is also filed as an exhibit to the Registration Statement. The senior indenture and the subordinated indenture are sometimes collectively referred to herein as the "indentures," the senior debt securities and the subordinated debt securities are sometimes collectively referred to herein as the "debt securities," and the senior trustee and the subordinated trustee sometimes collectively referred to herein as the "trustees" and individually as the "trustee." We and the respective trustee may enter into supplements to the indentures from time to time.

The following is a summary of the material terms and provisions of the indentures and the debt securities. You should refer to the respective indenture and the applicable prospectus supplement for complete information regarding the terms and provisions of the respective indenture and the debt securities.

General

Neither indenture limits the amount of debt securities that we may issue. The senior debt securities will be our senior unsecured obligations and will rank equal in right of payment to all of our other existing and future indebtedness and other liabilities that are not, by their terms, expressly subordinated in the right of payment to the senior debt securities. The subordinated debt securities will be unsecured obligations and subordinated in right of payment to all of our existing and future senior indebtedness, in the manner and to the extent described below under "Subordination of Subordinated Debt Securities."

The debt securities may be issued in one or more separate series of senior debt securities or subordinated debt securities. A prospectus supplement relating to any series of debt securities being offered will include specific terms relating to the offered debt securities. These terms will include some or all of the following:

the title and type of the debt securities;

any limit on the amount(s) that may be issued;

the person to whom any interest on the debt securities shall be payable if other than the registered holder;

the maturity date(s) or the method by which this date or these dates will be determined;

the interest rate, if any, or the method of computing the interest rate;

the date or dates from which interest will accrue, or how this date or these dates will be determined, and the interest payment date or dates, if any, and any related record dates;

the place(s) where payments, if any, will be made on the debt securities and the place(s) where debt securities may be presented for transfer or exchange;

the period or periods within which, the price or prices at which and the terms and conditions on which we may redeem, or be required to redeem, the debt securities;

any provisions relating to the convertibility or exchangeability of the debt securities for other debt securities or equity securities;

any mandatory or optional sinking fund or similar provisions;

Table of Contents

if other than denominations of \$1,000 and integral multiples thereof, the denominations in which any debt securities shall be issuable;

if other than the principal amount, the portion of the principal amount, or the method by which the portion will be determined, of the debt securities that will be payable upon declaration of acceleration of the maturity of the debt securities;

if other than United States dollars, the foreign currency or units of two or more foreign currencies in which payment of the principal of (and premium, if any) or interest on the debt securities shall be payable;

if the principal of (and premium, if any) or interest on the debt securities is payable, at our election or election of the holders, in a foreign currency or units of two or more foreign currencies other than that in which the debt securities are stated to be payable, the period or periods within which, and the terms and conditions, upon which, such election may be made;

any index used to determine the amount of payment of principal of (and premium, if any) or interest on the debt securities;

whether the debt securities will be subject to defeasance in advance of the date for redemption or the stated maturity date;

whether the debt securities will be issued in the form of one or more global securities and, if so, the identity of the depository for the global security or securities;

any additional or different events of default and any change in the right of the trustee or the holders to declare principal due and payable;

in the case of an issue of subordinated debt securities, the subordination provisions, if different from those described under [Subordination of Subordinated Debt Securities](#) below;

any additional or different covenants;

the form of debt securities; and

any other terms of the debt securities.

We will have the ability under the indentures to [reopen](#) a previously issued series of debt securities and issue additional debt securities of that series or establish additional terms of that series.

Unless otherwise indicated in the applicable prospectus supplement, the covenants contained in the indentures may not protect holders of the debt securities in the event of a highly leveraged or other transaction involving us or our subsidiaries that may adversely affect the holders of the debt securities.

Debt securities may be issued under the indentures as original issue discount securities. An original issue discount security is a security, including any zero-coupon 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.

If a series of debt securities is issued as original issue discount securities, the special U.S. federal income tax, accounting and other considerations applicable to original issue discount securities will be discussed in the applicable prospectus supplement.

Holding Company Status. The debt securities are obligations exclusively of Atlas Air Worldwide Holdings, Inc., which, as a holding company, has no material assets other than its ownership of the common stock of its subsidiaries. We will rely entirely upon distributions from our subsidiaries to meet the payment obligations under the debt securities. Our subsidiaries are separate and distinct legal entities and have no obligation, contingent or otherwise, to pay amounts due under the debt securities or otherwise to make any funds available to us including the payment of dividends or other distributions or the extension of loans or

Table of Contents

advances. Furthermore, the ability of our subsidiaries to make any payments to us would be dependent upon the terms of any credit facilities or other agreements of the subsidiaries and upon the subsidiaries' earnings, which are subject to various business risks. In a bankruptcy or insolvency proceeding, claims of holders of the debt securities would be satisfied solely from our equity interests in our subsidiaries remaining after the satisfaction of claims of creditors of the subsidiaries. Accordingly, the debt securities are effectively subordinated to existing and future liabilities of our subsidiaries to their respective creditors. The debt securities also are effectively subordinated to any secured debt that we incur to the extent of the value of the assets securing that indebtedness.

Form, Exchange and Transfer

The debt securities will be issuable as registered securities. The ownership or transfer of debt securities will be listed in the security register described in the applicable indenture.

The indentures provide that debt securities may be issuable in global form which will be deposited with, or on behalf of, a depository, identified in an applicable prospectus supplement. If debt securities are issued in global form, one certificate will represent a large number of outstanding debt securities which may be held by separate persons, rather than each debt security being represented by a separate certificate.

If the purchase price, or the principal of, or any premium or interest on any debt securities is payable in, or if any debt securities are denominated in, one or more foreign currencies, the restrictions, elections, U.S. federal income tax considerations, specific terms and other information will be set forth in the applicable prospectus supplement.

Unless otherwise specified in the applicable prospectus supplement, debt securities denominated in U.S. dollars will be issued only in denominations of \$1,000 and integral multiples thereof.

Debt securities may be presented for registration of transfer with the applicable form of transfer duly executed, at the office of the Security Registrar, as defined in the applicable indenture, without service charge and upon payments of any taxes and other governmental charges as described in the applicable indenture. This registration of transfer or exchange will be effected upon the Security Registrar being satisfied with the documents of title and identity of the person making the request.

A debt security in global form may not be transferred except as a whole by or between the depository for the debt security and any of its nominees or successors. If any debt security of a series is issuable in global form, the applicable prospectus supplement will describe:

any circumstances under which beneficial owners of interests in that global debt security may exchange their interests for definitive debt securities of that series of like tenor and principal amount in any authorized form and denomination,

the manner of payment of principal, premium and interest, if any, on that global debt security, and

the specific terms of the depository arrangement with respect to that global debt security.

Payment and Paying Agents

Unless otherwise specified in an applicable prospectus supplement, we will pay principal, any premium and interest on debt securities at the office of the paying agents we have designated, except that we may pay interest by check mailed to, or wire transfer to the account of, the holder. Unless otherwise specified in any applicable prospectus supplement, payment of any installment of interest on debt securities will be made to the person in whose name the

debt security is registered at the close of business on the record date for this interest payment.

The paying agents outside the United States initially appointed by us for a series of debt securities will be named in the applicable prospectus supplement. In addition, we will be required to maintain at least one paying agent in each place of payment for the series.

Table of Contents

Consolidation, Merger or Conveyance

We have the ability to merge or consolidate with, or convey, transfer or lease all or substantially all of our property, to another corporation, provided that:

in the case we consolidate with or merge into another corporation or convey, transfer or lease our properties and assets substantially as an entirety to any person, the corporation formed by such consolidation or into which we are merged or the person which acquires by conveyance or transfer, or which leases, our properties and assets substantially as an entirety is a corporation organized and existing under the laws of the United States of America, any State thereof or the District of Columbia and expressly assumes, by a supplemental indenture, executed and delivered to the trustee, in form reasonably satisfactory to the trustee, the due and punctual payment of the principal of (and premium, if any) and interest on all the securities and the performance and observance of every covenant in the indenture on the part of us to be performed or observed;

immediately after giving effect to such transaction and treating any indebtedness which becomes an obligation of ours or a subsidiary as a result of such transaction as having been incurred by us or such subsidiary at the time of such transaction, no event of default, and no event which, after notice or lapse of time or both, would become an event of default, has happened and is continuing; and

we have delivered to the applicable trustee an officers' certificate and an opinion of counsel, each stating that such consolidation, merger, conveyance, transfer or lease and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture complies with all requirements of the applicable indenture and that all conditions precedent to the transaction have been complied with.

Events of Default

The following are events of default with respect to any series of debt securities issued:

default in the payment of any interest upon any security of that series when it becomes due and payable, and continuance of such default for a period of 30 days;

default in the payment of the principal of (or premium, if any, on) any security of that series at its maturity;

default in the deposit of any sinking fund payment, when and as due by the terms of a security of that series;

default in the performance, or breach, of any covenant or warranty in the indenture (other than a covenant or warranty a default in whose performance or whose breach is elsewhere in the indenture specifically dealt with or which has expressly been included in the indenture solely for the benefit of a series of securities other than the series in respect of which the event of default is being determined), and continuance of such default or breach for a period of 60 days after there has been given a written notice, by registered or certified mail, to us by the trustee or to us and the trustee by the holders of at least 25% in principal amount of the outstanding securities of that series, specifying such default or breach and requiring it to be remedied;

a default under any bond, debenture, note or other evidence of or agreement for indebtedness by us (including a default with respect to securities of any series other than that series) or under any mortgage, indenture or instrument under which there may be issued or by which there may be secured or evidenced any indebtedness for money borrowed by us (including the indenture), whether such indebtedness exists now or is created in the future, which default results in such indebtedness in an aggregate principal amount of \$25,000,000 or more becoming or being declared due and payable prior to the date on which it would otherwise have become due

and payable, without such acceleration having been rescinded or annulled, within a period of 10 days after there has been given a written notice, by registered or certified mail, to us by the trustee or to us and the trustee by the holders of at

Table of Contents

least 25% in principal amount of the outstanding securities of that series, specifying such default and requiring us to cause such acceleration to be rescinded or annulled;

specified events of bankruptcy, insolvency or reorganization; or

any other events of default provided with respect to debt securities of that series.

If an event of default occurs and is continuing, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series may declare each debt security of that series due and payable immediately by a notice in writing to us, and to the applicable trustee if given by holders. If an event of default occurs because of specified events in bankruptcy, insolvency or reorganization, the principal amount of each series of debt securities will be automatically accelerated, without any action by the trustee or any holder thereof.

A holder of the debt securities of any series will only have the right to institute a proceeding under the applicable indenture or to seek other remedies if:

the holder has given written notice to the applicable trustee of a continuing event of default;

the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request;

these holders have offered indemnity reasonably satisfactory to the applicable trustee to institute proceedings as trustee;

the applicable trustee does not institute a proceeding within 60 days; and

the applicable trustee has not received written directions inconsistent with the request from the holders of a majority of the principal amount of the outstanding debt securities of that series during that 60 day period.

We will annually file statements with the applicable trustee regarding our compliance with the covenants in the applicable indenture. The applicable trustee will generally give the holders of debt securities notice within 90 days of the occurrence of an event of default known to such trustee.

Subordination of Subordinated Debt Securities

The indebtedness evidenced by the subordinated debt securities will be subordinated and junior in right of payment to the extent set forth in the subordinated indenture to the prior payment in full of amounts then due on all Senior Indebtedness (as defined below). No payment shall be made on the subordinated debt securities, including by way of redemption, purchase, or in any other manner, if the subordinated trustee shall have received notice from us or any Senior Lender (as defined below), that (i) there exists a default which shall be continuing in the payment of principal of, or premium, if any, or interest on any Senior Indebtedness, beyond any applicable grace period with respect thereto, or (ii) there exists a default (other than a default specified in clause (i) above) with respect to any Senior Indebtedness which shall be continuing; provided, however, that no notice given with respect to one or more defaults of the type specified in clause (ii) shall suspend for longer than 179 days from the date of such notice any payment on subordinated debt securities that has become due, and only one such notice may be given during any 360-day period.

Upon any distribution of our assets or any liquidation, dissolution or other winding-up of AAWW whether voluntary or involuntary, or in bankruptcy or insolvency, all principal of, premium, if any, and interest due upon all Senior Indebtedness must be paid in full before the holders of the subordinated debt securities or the subordinated trustee are

entitled to receive or retain any assets so distributed in respect of the subordinated debt securities. By reason of this provision, in the event of insolvency, holders of the subordinated debt securities may recover less, ratably, than our other creditors, including holders of Senior Indebtedness.

Subject to payment in full of all our Senior Indebtedness, the rights of holders of the subordinated debt securities will be subrogated to the rights of holders of Senior Indebtedness to receive payments or distributions of our cash, property or securities applicable to Senior Indebtedness.

Table of Contents

Senior Indebtedness means all of the Company's obligations, whether presently existing or from time to time hereafter incurred, created, assumed or existing, to pay principal, premium, interest, penalties, fees and any other payment in respect of any of the following: (a) all obligations of the Company for borrowed money, including without limitation, such obligations as are evidenced by credit agreements, notes, debentures, bonds or other securities or instruments, (b) all Capital Lease Obligations, Synthetic Lease Obligations and finance lease obligations of the Company, (c) all obligations of the Company for reimbursement on any letter of credit, banker's acceptance, security purchase facility or similar credit facility, (d) all obligations of the Company issued or assumed as the deferred purchase price of property or services, (e) all payment obligations of the Company under interest rate swap or similar agreements or foreign currency hedge, exchange or similar agreements at the time of determination, including any such obligations of the Company incurred solely to act as a hedge against increases in interest rates that may occur under the terms of other outstanding variable or floating rate indebtedness of the Company, (f) all obligations of the types referred to in paragraphs (a) through (e) above of another Person which the Company has assumed, endorsed, guaranteed, contingently agreed to purchase or provide funds for the payment of, or otherwise become liable for, under any agreement, and (g) all amendments, renewals, extensions, modifications, refinancings, replacements or refundings by the Company of any such Senior Indebtedness referred to in paragraphs (a) through (f) above (and of any such amended, renewed, extended, modified, refinanced, replaced or refunded Senior Indebtedness; provided, however, that the following shall not constitute Senior Indebtedness: any obligation, amendment, renewal, extension, modification, refinancing, replacement or refunding that by the terms of the instrument creating or evidencing it or the assumption or guarantee of it provides that (i) it is not superior in right of payment to the Securities or (ii) such obligation or indebtedness is subordinated to Senior Indebtedness to substantially the same extent as the Securities are subordinated to Senior Indebtedness.

Capitalized Lease Obligations means with respect to any Person any obligation which is required to be classified and accounted for as a capital lease on the face of a balance sheet of such Person prepared in accordance with generally accepted accounting principles; the amount of such obligation shall be the capitalized amount thereof, determined in accordance with generally accepted accounting principles; and the Stated Maturity thereof shall be the date of the last payment of rent or any other amount due under such lease prior to the first date upon which such lease may be terminated by the lessee without payment of a penalty.

Senior Lender means any holder of Senior Indebtedness.

Synthetic Lease Obligation means any synthetic lease, tax retention operating lease, off-balance sheet loan or similar off-balance sheet financing arrangement whereby the arrangement is considered borrowed money indebtedness for tax purposes but is classified as an operating lease or does not otherwise appear on a balance sheet under generally accepted accounting principles.

The subordinated indenture places no limitation on the amount of additional Senior Indebtedness that may be incurred by us. We expect from time to time to incur additional indebtedness constituting Senior Indebtedness. As of March 31, 2009, the amount of our Senior Indebtedness was approximately \$654.7 million, including the impact of unamortized discount.

Waiver, Modifications and Amendment

The holders of a majority of the principal amount of the outstanding debt securities of any particular series may, on behalf of the holders of all debt securities of the series, waive past defaults with respect to that particular series, except for:

the payment of the principal of (or premium, if any) or interest on any security of such series; or

defaults relating to any covenants of the applicable indenture which cannot be changed without the consent of each holder of a debt security affected by the change.

The holders of a majority in aggregate principal amount of the outstanding debt securities of each series affected may, on behalf of the holders of all debt securities of the series, waive our compliance with some of the restrictive provisions of the applicable indenture.

Table of Contents

We and each trustee may amend the applicable indenture with the consent of the holders of a majority of the principal amount of the outstanding debt securities of each series issued under such indenture that is affected. However, without the consent of each affected holder, such changes shall not include the following with respect to debt securities held by a non-consenting holder:

change the stated maturity of, the principal of, or any installment of principal of or interest on, any security, or reduce the principal amount, the rate of interest or any premium payable upon the redemption, or reduce the amount of the principal of an original issue discount security due and payable upon a declaration of acceleration of maturity, or change any place of payment where, or the coin or currency in which, any security or any premium or the interest is payable, or impair the right to institute suit for the enforcement of any payment on or after the stated maturity (or, in the case of redemption, on or after the redemption date);

reduce the percentage in principal amount of the outstanding securities of any series, the consent of whose holders is required for any such supplemental indenture, or the consent of whose holders is required for any waiver of compliance with certain provisions of the applicable indenture or certain defaults provided for in the indenture; or

modifying any of the above requirements or the ability to waive certain covenants, except to increase any percentage or to provide that certain other provisions of the applicable indenture cannot be modified or waived without the consent of the holder of each outstanding security affected.

For purposes of computing the required consents referred to above, the aggregate principal amount of any outstanding debt securities not payable in U.S. dollars is the amount of U.S. dollars that could be obtained for this principal amount based on the market rate of exchange for the applicable foreign currency or currency unit as determined by the applicable trustee.

Defeasance and Covenant Defeasance

Unless otherwise specified in the applicable prospectus supplement, subject to certain conditions, we may elect either:

defeasance, whereby we are discharged from any and all obligations with respect to the debt securities, except as may be otherwise provided in the applicable indenture; or

covenant defeasance, whereby we are released from our obligations with respect to certain covenants.

We may do so by depositing with the trustee money, and/or certain government securities which through the payment of principal and interest in accordance with their terms will provide money in an amount sufficient to pay the principal and any premium and interest on the debt securities, and any mandatory sinking fund or analogous payments on their scheduled due dates. This type of a trust may only be established if, among other things, we have delivered to the applicable trustee an opinion of counsel meeting the requirements set forth in the applicable indenture.

Governing Law

The indentures and the debt securities will be governed by, and construed in accordance with, the laws of the State of New York.

Information Concerning the Trustees

The indentures contain certain limitations on the right of the trustees, should they become a creditor of the Company, to obtain payment of claims in certain cases, or to realize for their own account on certain property received in respect of any such claim as security or otherwise. We may, from time to time, borrow from or maintain deposit accounts and conduct other banking transactions with the trustees or their respective affiliates in the ordinary course of business.

Table of Contents

DESCRIPTION OF CAPITAL STOCK

The following description sets forth certain general terms and provisions of the common stock and preferred stock to which any prospectus supplement may relate.

The following description summarizes important terms of our capital stock. Because it is only a summary, it does not contain all the information that may be important to you. This description is in all respects subject to and qualified in its entirety by reference to: (i) our certificate of incorporation and our amended and restated bylaws, which are filed as exhibits to our Current Reports on Form 8-K dated February 16, 2001 (filed with the SEC on February 21, 2001) and June 27, 2006 (filed with the SEC on July 3, 2006), respectively, (ii) the certificate of designation relating to each series of preferred stock, which will be filed with the SEC in connection with an offering of such series of preferred stock, (iii) the rights agreement with Mellon Investor Services LLC relating to our stockholder rights plan, which is filed as an exhibit to our Current Report on Form 8-K dated May 26, 2009 (filed with the SEC on May 27, 2009) and (iv) the relevant portions of the Delaware General Corporation Law.

Our authorized capital stock consists of 50,000,000 shares of common stock, \$0.01 par value, and 10,000,000 shares of preferred stock, \$1.00 par value.

Common Stock

General. As of March 31, 2009, there were 21,079,643 shares of common stock outstanding, excluding 886,436 shares held in treasury. There were 80 stockholders of record of our common stock on such date.

Voting Rights. The holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and they do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they so choose. Foreign Ownership Restrictions below contains a description of certain restrictions on voting by stockholders who are not U.S. citizens, as defined by applicable laws and regulations. Please see Foreign Ownership Restrictions for additional information on the foreign ownership restrictions applicable to the ownership of our shares by non-U.S. citizens.

Dividends. Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive ratably those dividends, if any, as may be declared by the board of directors out of legally available funds.

Liquidation, Dissolution and Winding Up. Upon our liquidation, dissolution or winding up, the holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the prior rights of any preferred stock then outstanding.

Preemptive Rights. Holders of our common stock have no preemptive or conversion rights or other subscription rights and there are no redemption or sinking fund provisions applicable to our common stock.

Assessment. All outstanding shares of our common stock are fully paid and nonassessable.

Preferred Stock

As of the date of this prospectus, 10,000,000 shares of undesignated preferred stock are authorized, none of which are outstanding. The board of directors has the authority, without further action by the stockholders, to issue from time to time the undesignated preferred stock in one or more series and to fix the number of shares, designations, preferences, powers, and relative, participating, optional, or other special rights and the qualifications or restrictions thereof. The preferences, powers, rights, and restrictions of different series of preferred stock may differ with respect to dividend rates, amounts payable on liquidation, voting rights, conversion rights, redemption provisions, sinking fund provisions, purchase funds, and other matters. The issuance of preferred stock could decrease the amount of earnings and assets available for distribution to holders of our common stock or adversely affect the rights and powers, including voting rights, of the holders

Table of Contents

of our common stock and may have the effect of delaying, deferring or preventing a change in control of our company.

Registration Rights

On February 13, 2007, we entered into a registration rights agreement (and an amendment thereto that was made on March 12, 2007) with our largest stockholder, HMC Atlas Air, L.L.C. and Harbinger Capital Partners Special Situation Fund, L.P. (together, the Harbinger Entities) as required by our Final Modified Second Amended Joint Plan of Reorganization. As of March 4, 2009, and based on information filed with the SEC, the Harbinger Entities beneficially owned 8,406,290 shares (or approximately 39.9%) of our outstanding common stock, substantially all of which are covered by the registration rights agreement.

On April 16, 2007, we filed a shelf registration statement registering the resale of approximately 7.9 million shares of our common stock that are covered by the agreement and naming the Harbinger Entities as the selling security holders. In addition, HMC Atlas Air, L.L.C. has the right to request that we file with the SEC up to two additional registration statements, registering the resale of registrable shares by the Harbinger Entities, subject to certain limitations, including certain black-out rights. We also granted the Harbinger Entities piggyback registration rights with respect to registration statements filed by us for public offerings. The Harbinger Entities have agreed to enter into customary lock-up agreements that may be requested by an underwriter in connection with any offerings of common stock by us.

We have agreed to pay for certain registration expenses incurred in connection with any registration statement filed in accordance with the terms of the registration rights agreement and to reimburse the Harbinger Entities for certain legal expenses. The Harbinger Entities may transfer their rights under the agreement to certain U.S. persons that acquire at least 5% of our issued and outstanding common stock, provided that HMC Atlas Air, L.L.C. will retain the right (i) to request that we file a registration statement with the SEC and (ii) to amend, terminate or waive any term set forth in the agreement.

Certain Anti-Takeover Provisions of our Certificate of Incorporation and By-Laws and Delaware Law

Some provisions of Delaware law and our certificate of incorporation and by-laws contain provisions that could make the following transactions more difficult: (i) acquisition of us by means of a tender offer; (ii) acquisition of us by means of a proxy contest or otherwise; or (iii) removal of our incumbent officers and directors. These provisions, summarized below, are intended to encourage persons seeking to acquire control of us to first negotiate with our board of directors. These provisions also serve to discourage hostile takeover practices and inadequate takeover bids.

Issuance of Preferred Stock. As noted above, our board of directors, without stockholder approval, has the authority under our certificate of incorporation to issue preferred stock with rights superior to the rights of the holders of common stock. As a result, preferred stock could be issued quickly and easily, could adversely affect the rights of holders of common stock and could be issued with terms calculated to delay or prevent a change in control or make removal of management more difficult.

Stockholder Meetings. A majority of our board of directors, the chairman of the board or the chief executive officer may call special meetings of stockholders.

Requirements for Advance Notification of Stockholder Nominations and Proposals. Our by-laws contain advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee thereof.

Delaware Anti-Takeover Statute. We are subject to Section 203 of the Delaware General Corporation Law, which, subject to certain exceptions, prohibits persons deemed interested stockholders from engaging in a business combination with a Delaware corporation for three years following the date these persons become interested stockholders, unless the business combination is approved in a prescribed manner. Generally, an interested stockholder is an entity or person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a

Table of Contents

corporation's voting stock. Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

The provisions of Delaware law and our certificate of incorporation and by-laws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. Such provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make accomplishing transactions that stockholders may otherwise deem to be in their best interests more difficult.

Stockholder Rights Plan

On May 22, 2009, our board of directors adopted a stockholder rights plan and declared a dividend distribution of one stock purchase right for each outstanding share of our common stock to stockholders of record as of the close of business on June 5, 2009. After such date and until the plan distribution date, the rights will automatically attach to each share of our common stock issued. Accordingly, we will issue one stock purchase right with each common share issued while the rights plan remains in effect, including shares issued under this prospectus. The rights are transferable with our common stock until they become exercisable, but are not exercisable until the plan distribution date (as described below). The rights will expire at the close of business on May 25, 2012, unless we redeem them at an earlier date. Each right entitles the registered holder to purchase one share of common stock at a cash exercise price of \$55.00 per share, subject to adjustment in certain circumstances.

The plan distribution date is (a) the earlier of: (i) the close of business on the tenth business day following the earlier of (1) the first public announcement that a person, entity or group of affiliated or associated persons (an Acquiring Person) has acquired beneficial ownership of 15% or more of our outstanding shares of common stock, other than as a result of any stock repurchases by us or certain inadvertent actions by a stockholder and (2) the date on which a majority of our board of directors has actual knowledge that an Acquiring Person has acquired beneficial ownership of 15% or more of our outstanding shares of common stock (the date of said announcement being referred to as the Stock Acquisition Date), or (ii) the close of business on the tenth business day following the commencement of a tender offer or exchange offer that could result upon its consummation in a person or group becoming the beneficial owner of 15% or more of our outstanding shares of common stock or (b) such later date as our board of directors may determine. A person who would otherwise be an Acquiring Person upon the adoption of the rights agreement will not be considered an Acquiring Person unless and until such person, or any affiliate of such person, acquires beneficial ownership of additional shares of our common stock after the adoption of the rights agreement (other than pursuant to a stock dividend or stock split), in which case such person shall be an Acquiring Person.

In event that a Stock Acquisition Date occurs, each holder of a right (other than an Acquiring Person or its associates or affiliates, whose rights shall become null and void) will thereafter have the right to receive upon exercise, that number of shares of our common stock (or, in certain circumstances, including if there are insufficient shares of our common stock to permit the exercise in full of the rights, shares or units of preferred stock, other securities, cash or property, or any combination of the foregoing) having a market value of two times the exercise price of the right.

At any time after a person becomes an Acquiring Person, our board of directors may, at its option, exchange all or any part of the then outstanding and exercisable rights for our shares of common stock at an exchange ratio specified in the rights agreement.

The rights agreement is designed to protect our stockholders in the event of unsolicited offers to acquire us and other coercive takeover tactics, which in the opinion of our board of directors, could impair its ability to represent our stockholders' interests. The provisions of the rights agreement may render an unsolicited takeover more difficult or less

likely to occur or may prevent a takeover, even though it may offer our

Table of Contents

stockholders the opportunity to sell their stock at a price above the prevailing market rate and may be favored by a majority of our stockholders.

Limitations on Liability and Indemnification of Officers and Directors

Our certificate of incorporation limits the liability of our directors to the fullest extent permitted by the Delaware General Corporation Law and our by-laws provide that we will indemnify our directors and officers to the fullest extent permitted by that law.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is BNY Mellon Shareowner Services.

NASDAQ Global Select Market

Our common stock is listed on The NASDAQ Global Select Market under the symbol AAWW.

Foreign Ownership Restrictions

Under federal law and the Department of Transportation requirements, we must be owned and actually controlled by citizens of the United States as that term is defined in 49 U.S.C. § 40102 (a)(15). In this regard, our President and at least two-thirds of our Board and officers must be U.S. citizens, at least 75% of our outstanding voting common stock must be owned and controlled, directly or indirectly, by persons who are citizens of the United States, and not more than 25% of our outstanding voting common stock may be owned and controlled, directly or indirectly, by persons who are not citizens of the United States. We believe that on the date of this prospectus we are in compliance with these requirements.

Under our charter documents, consistent with U.S. law, there is a separate stock record, designated the Foreign Stock Record, for the registration of Voting Stock that is Beneficially Owned by persons who are not citizens of the United States. Voting Stock means all outstanding shares of our capital stock that we may issue from time to time which, by their terms, may vote. Beneficially Owned refers to owners of our securities who, directly or indirectly, have or share voting power and/or investment power. Our certificate of incorporation and by-laws prohibit persons who are not citizens of the United States from voting their beneficially owned shares of common stock unless the shares are registered in the Foreign Stock Record.

At no time will ownership of our shares of common stock representing more than the Maximum Percentage be registered in the Foreign Stock Record. Maximum Percentage, which currently is 25%, refers to the maximum percentage of voting power of Voting Stock which may be voted by, or at the direction of, non-U.S. citizens without violating applicable statutory, regulatory or interpretative restrictions or adversely affecting Atlas's or Polar's operating certificates or authorities. If we find that the combined voting power of Voting Stock then registered in the Foreign Stock Record exceeds the Maximum Percentage, the registration of such shares will be removed from the Foreign Stock Record, in reverse chronological order based on the date of registration, and the voting rights of such Voting Stock removed from the Foreign Stock Record will be automatically suspended, sufficient to reduce the combined voting power of the shares so registered to an amount not in excess of the Maximum Percentage. It is the duty of each stockholder who is not a citizen of the United States to register his, her or its equity securities on our Foreign Stock Record.

Table of Contents

PLAN OF DISTRIBUTION

We will set forth in the applicable prospectus supplement a description of the plan of distribution of the securities that may be offered by us pursuant to this prospectus.

LEGAL MATTERS

In connection with particular offerings of our securities in the future, and unless otherwise indicated in the applicable prospectus supplement, the validity of those securities will be passed upon for us by Ropes & Gray LLP, Boston, Massachusetts. Additional legal matters may be passed on for us or any underwriters, dealers or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements as of and for the years ended December 31, 2008 and 2007, and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) as of December 31, 2008 incorporated in this Prospectus by reference to Atlas Air Worldwide Holdings, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2008, have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

The consolidated financial statements of Atlas Air Worldwide Holdings, Inc. for the year ended December 31, 2006 appearing in Atlas Air Worldwide Holdings, Inc. Annual Report (Form 10-K) for the year ended December 31, 2008 (including schedules appearing therein), have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

In this prospectus, we incorporate by reference the information we file with the SEC, which means that we can disclose important business, financial and other information to you in this prospectus by referring you to the documents containing this information. The information incorporated by reference is considered to be part of this prospectus, and information that we file with the SEC after the date of this prospectus will automatically update and supersede this information. However, any information contained herein shall modify or supersede information contained in documents we filed with the SEC before the date of this prospectus.

We incorporate by reference in this prospectus the documents listed below and any other documents we file with the SEC in the future (other than, in all cases, the portions of those documents deemed to be furnished to, and not filed with, the SEC) under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until the offering of all the securities that may be offered by this prospectus is completed:

our Annual Report on Form 10-K for the year ended December 31, 2008 filed with the SEC on February 26, 2009 (including the portions of our definitive Proxy Statement on Schedule 14A incorporated therein by reference);

our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2009 filed with the SEC on May 5, 2009;

our Current Report on Form 8-K, filed with the SEC on February 6, 2009 (only with respect to Item 2.06 thereto);

the description of our common stock which is contained in our registration statement on Form 8-A filed with the SEC on June 19, 2001 pursuant to Section 12 of the Exchange Act, including any subsequent amendments or reports filed for the purpose of updating that description; and

Table of Contents

the description of our stockholder rights plan that is contained in our Current Report on Form 8-K, filed with the SEC on May 27, 2009, including any amendments or reports filed for the purpose of updating such description.

THE INFORMATION CONTAINED ON OUR WEBSITE DOES NOT CONSTITUTE A PART OF, AND IS NOT INCORPORATED BY REFERENCE INTO, THIS PROSPECTUS.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available over the Internet at the SEC's web site at <http://www.sec.gov>. You may also read and copy any document we file with the SEC at its public reference facility:

Public Reference Room
100 F Street, N.E.
Room 1580
Washington, DC 20549

You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Room of the SEC at the above address. Please call 1-800-SEC-0330 for further information on the operations of the Public Reference Room and copying charges.

We will furnish without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of the information that has been incorporated into this prospectus by reference but not delivered with the prospectus (except exhibits, unless they are specifically incorporated into this prospectus by reference). You should direct any requests for copies to:

Atlas Air Worldwide Holdings, Inc.
2000 Westchester Avenue
Purchase, New York 10577
Ph: (914) 701-8000
Attention: Adam R. Kokas, Senior Vice President, General Counsel & Secretary

Table of Contents