

37 Stonewall Trail
Woolwich, Maine 04579
August 11, 2005

AUG 12 2005

Received

Chairman Anthony J. Principi and Members of the Defense Base Closure and
Realignment Commission
Office of the Defense Base Closure and Realignment Commission
2521 South Clark Street, Suite 600
Arlington, VA 22202

Dear Chairman Principi and Members of the Defense Base Closure and Realignment
Commission:

Enclosure: Portions of the 1998 Dual Use Analysis for Naval Air Station Brunswick
conducted by RKG Associates, Inc., Durham, NH

At yesterday's hearing for consideration of closure of Naval Air Station
Brunswick Commissioner Bilbray asked a question of the Brunswick panel on the
possibility of what types of uses could be attracted to the base if it was closed. I offer the
following excerpt from a 1998 Dual Use (public private partnership between Navy and
the community) study that the Mid Coast Council for Business Development
commissioned in response to the question. I am answering it not only as the Chairman of
the BNAS Task Force but also as the Executive Director of the Chamber of Commerce
and Vice President of the Business Development Council at the time when the report and
study was conducted.

As background information the study was done through a state grant and for the
purpose of making NAS Brunswick more cost efficient to the Department of the Navy
and to help insure its long term viability to the Nation, the State, and the Community.
We were assisted in this effort by Senator Olympia Snowe of Maine and the former
Governor, Angus King. I must also note that the study was conducted as a result of a
recommendation by the BNAS Task Force after the 1995 BRAC round. It is the same
task force that has represented the community through out this round.

The focus of my answer to you comes from the study done and from what I
believe to be the best use for an airfield, aviation. Anything else other than aviation
would completely negate the value of the existing infrastructure and assets. In that regard
the only thing to do was to determine the demand for airport dependent users such as air
cargo companies, commercial carriers and aircraft repair and remanufacturing concerns.
What was determined was very discouraging and it became quickly evident that those
options are limited at best. For example on page 25 of the report it states that, "Even if
FedEx or another carrier could be attracted to NASB, the number of flights would be
limited (1 or 2 per day at most) and they would require full airport services to operate."
To now put that in perspective on August 11, 2005 one of FedEx's Vice Presidents, Capt
Robert L. Rocher, USN (Ret.), former Commanding Officer, NAS Brunswick 1992

through 1994 confirmed to me just last week that NASB would still not meet the needs of the company.

In regard to passenger operations the picture is also bleak as noted on page 25 of the report saying that, NASB “would face substantial competition from not only Bangor but also other regional airports such as Pease and Westover. In addition, such a use would require expensive passenger terminal and Customs/Immigration facilities...for a relatively few number of flights.” It also stated that, “Portland Jetport serves the region’s needs well with its existing facilities and long term demand does not appear sufficient to acquire new facilities.”

It was noted in the report that several former military airports have been successful at attracting companies that conduct aircraft repair and maintenance but they are mainly in the south and south west. One successful use in a northern state (Wurtsmith AFB in Oscoda, MI) is making it but works mostly seasonally and the hangar space it uses is rented for very little. The final conclusion in this area was, “In New England alone there are six former military airfields that are attempting to attract these users, all with existing buildings and infrastructure.” And, “The ability of NASB to compete for this market is considered extremely limited, unless, a potential user has a need to be in close proximity to active Navy operations (e.g. a Lockheed Martin P-3 or C-130 overhaul facility).”

In conclusion, the options for use were not good in 1998 and are not better today. In order to give the entire picture of how the analysis was done and the actual final report I am enclosing a copy of those pages for your review. I must note that since your requirement to have all supporting material to the commission by tomorrow I can only send a copy which is on file with the Mid Coast Council but if a certified copy is required for your deliberations I am confident that the contractor who did the work can provide one.

Thank you for your questions and your service.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard H. Tetrev". The signature is fluid and cursive, with a large, stylized initial "R" and "T".

Cdr. Richard H. Tetrev, USN (Ret.)
Chairman, BNAS Task Force

FILE COPY

**DUAL USE ANALYSIS
Brunswick Naval Air Station**

**FINAL REPORT
March 1998**

prepared for

**Mid Coast Council for Business Development
8 Lincoln Street
Brunswick, ME**

prepared by

**RKG Associates, Inc.
277 Mast Road
Durham, NH 03824
Craig R. Seymour, Project Manager**

in conjunction with

**Hoyle Tanner Associates, Inc./Kimball Chase Company, Portsmouth, NH
Verrill & Dana, Portland, ME**

*Certified to Be
A True Copy*

**RICHARD H. TETREV
Notary Public, Maine
My Commission Expires April 13, 2009**

Richard H. Tetrev
8/11/2005

Pg 1 of 19

March 9, 1998

Mr. Gregory Mitchell
Executive Director
Md-Coast Council for Business Development
8 Lincoln Street
Brunswick, ME 04011

RE: NASB Dual Use Study

Dear Greg:

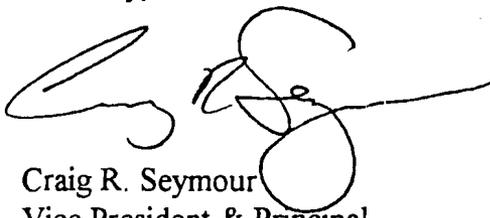
Please find enclosed the Final Report materials concerning the above-referenced project. Because a multi-phased study approach was utilized, our findings are presented in separate documents reflecting the delivery of interim findings to MCBBD, most of which are included here. Being forwarded to you under separate cover are collateral materials including reference information, market research data and other related documents.

Although the final outcome of the NASB Dual Use analysis may not be known for several months, I believe the effort has been very useful in "pushing the envelope" of innovative economic development initiatives. By searching for opportunities for local job generation and business expansion/retention outside of the traditional public/private paradigm, MCBBD has demonstrated that the possibility for effective partnering between communities and the federal government does indeed exist and can lead to "win-win" conclusions.

Please express my gratitude to the Navy for its cooperation and assistance in analyzing this issue. As a taxpayer, it is good to know that the Department supports such "thinking outside the box" relative to improving its ability to focus on its core competencies. Also, many thanks to you and your Board members who contributed significantly to the project throughout the analysis.

Good luck with this project and MCBBD's other endeavors.

Sincerely,



Craig R. Seymour
Vice President & Principal

Dual Use Analysis

Brunswick Naval Air Station

FINAL REPORT Contents

- Report of Findings - January 5, 1998
- Project Presentation Slides - Nov/Dec Board Meetings
- Mixed Use Alternative - Development Cost Estimates
- Project Profile/Update - 23Jan & 12Feb
- Miscellaneous Correspondence

RKG Associates, Inc.
277 Mast Road
Durham, NH 03824
Craig R. Seymour, Project Manager

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and there is a shortage of available rooms throughout the market. In addition, the quality of the rooms at several local properties has fallen due to their advanced age and condition and are considered to be below Navy standards. Taking this into consideration indicates that there may be sufficient market demand for both Navy and non-Navy users to support a new property.

A more thorough analysis of demand and supply is warranted, along with an analysis of the expenditures made by the various Navy units who rent rooms on the market in order to further analyze the economic feasibility of a dual use opportunity.

Aviation-Related Technology/Business Park

In order to evaluate the development potential for the 63± acre parcel of land, a description of what the intended use of the property is required. Discussions with MCBF officials indicated that the preferred dual use concept for the land was one which met the following criteria:

- focused on the availability of the NASB airfield facilities as a unique competitive element,
- had the highest probability of providing a tangible benefit to the Navy, and
- for which there existed a realistic market demand.

The questions that seek to be answered by the research include: How many firms are there that fit this target description? Where are they located? Are they growing? Are they seeking new locations for facilities due to relocation or expansion? Do they consider the Navy or its primary suppliers as customers? Do they require or desire an airport at or near their facilities? Would they consider Maine as a potential site for new facilities? Are they interested in opportunity to develop facilities at NASB?

The research was confined to aviation-related or aviation-dependent industries. Aviation-related firms are defined as companies that provide products or services to the aviation market, but which may or may not require direct access to an airfield. These could include such industries as electronics, avionics, communications, and software where the end product is sold to firms that actually build or repair aircraft. It could also include firms that utilize aircraft in the manufacture or delivery of their products. In theory, any company that uses corporate aviation to fly personnel (as opposed to commercial flights) could also be included.

Aviation-dependent firms are those that build, repair or fly airplanes and which must be located at an airport. This includes air cargo carriers, firms that overhaul or repair airplanes and their components, as well as companies that build products that must be installed in planes at the factory or which need to be flight tested.

Also considered in the analysis and research were firms that were considered as potential suppliers to the Navy in support of its activities at NASB as well as to Bath Iron Works (BIW). The rationale is that the presence of large customers nearby would be an advantage in marketing the site. The inclusion of BIW is based on the similarities between modern high-tech warships and aircraft - both utilize state-of-the-art propulsion, electronic

guidance and armament systems, much of which is shared technology produced by the same companies. Thus, BIW itself or one of its suppliers might be interested in locating a facility at NASB in order to be near a major customer as well as benefit from the presence of an airfield.

Excluded from the analysis were industries that are not aviation-related. Many of these potential companies might be attracted to a location such as NASB for reasons other than the airport. However, these firms could presumably find suitable non-airport locations elsewhere in the mid-coast area of Maine.

The restrictions placed on the universe of potential users of the property at NASB result in a relatively narrow market of industries and companies that could be considered suitable. The size and composition of this market, as well as the prospects for attracting firms to Brunswick, is discussed below, following an analysis of the aviation market in general.

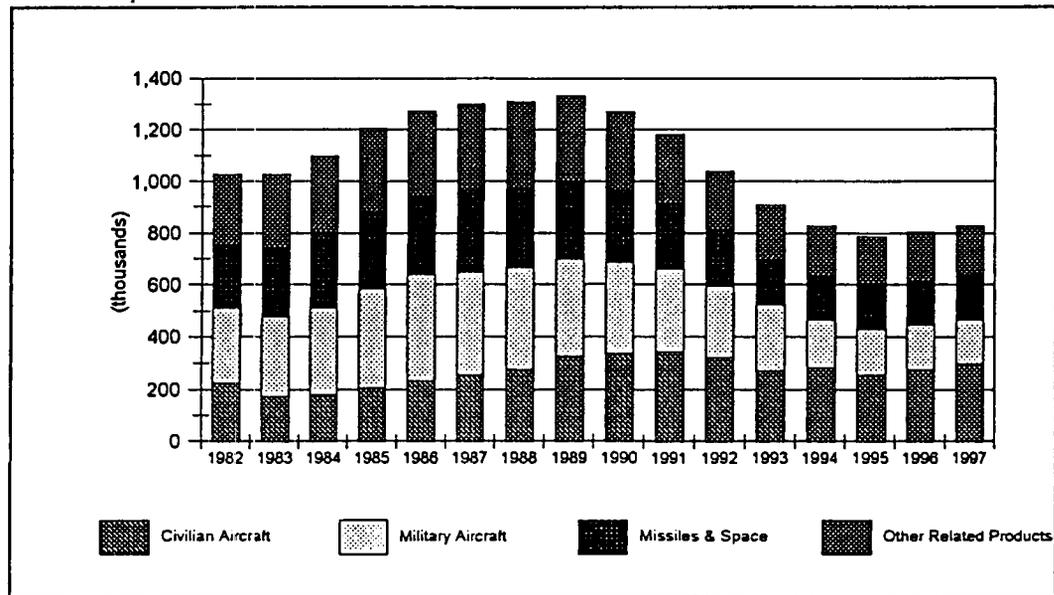
U.S. Aviation Market - General Findings

The development of a dual use aviation technology park at NASB is dependent on private companies that are willing to invest in new facilities in Brunswick. As discussed above, only aviation-related or aviation-dependent firms have been included in the market of potential firms.

The U.S. aerospace industry consists of over 2,500 key companies ranging from very small 1-2 person shops to some of the largest firms in the country. These private sector companies provide products and services related to things that fly. This includes commercial jetliners, small personal aircraft, ballistic missiles and spacecraft. It is a tightly linked, high-tech industry that spans a wide range of product categories, many of which are not typically considered to "aviation" related, such as metal and plastic fasteners, fabric manufacturing, computers and machine shops. Many companies produce goods or provide services for more than one category within the aerospace industry and for other industries as well. Thus it is often difficult to accurately identify specific companies within the industry.

From a sales and employment perspective, the aerospace industry bottomed out of a seven year slump in 1995, a period in which total employment dropped from a high of over 1.3 million workers to under 800,000. Figure 5 provides a 15 year trend analysis of employment in the overall industry along with a breakout of employment by sector within Aerospace. The aerospace industry include Civil Aircraft, Military Aircraft, Missiles and Space & Other Related Products as sub-markets. The growth within the industry since 1995, which included 19,000 new jobs in 1996 and an estimated 21,000 in 1997 (although more recent estimates push this number much higher to around 50,000 new jobs by the end of the second quarter), has come almost exclusively from the civil aircraft submarket. Both Military Aircraft and Missiles & Space have continued to decline in employment while Other Related Products has remained stable.

Figure 5
Aerospace Employment Trends: 1982 -1997
 Source: Aerospace Industries Association



The resurgence in civil aircraft is the result of the much-improved financial condition of most of the major commercial air carriers (many of which are showing the first profits in over 5 years) resulting in new aircraft orders as well as on the general good economic conditions and the rise in the stock market, leading to an increase in corporate aviation activity. In fact, Civil Aircraft accounts for approximately 32.5% of aerospace employment today versus only 14% in 1987. Similarly, Military Aircraft stands at 25% today versus nearly 40% ten years ago. Missiles & Space employment has shrunk from 29.5% in 1987 to 25.7% today, while Other Related Products has remained at about 16.7%.

In 1996, the Civil Aircraft submarket delivered an estimated 1,648 aircraft worth \$22 billion, with higher sales in all three civil segments - commercial transports, general aviation aircraft and civil helicopters. Department of Defense sales in 1996 were estimated at \$28.3 billion, down \$3 billion from 1995. Industry-wide profits are up, estimated at \$7.1 billion in 1996 versus \$4.6 billion in 1995.

The recent resurgence in aerospace growth has generally taken place within the existing company structures and primarily within the larger manufacturing firms. Table 1, below, provides a list of the largest expansions and new facilities among aerospace firms in 1996, as reported by Area Development Magazine in its September 1997 issue. While some are new, the majority of the activity is expansion of existing facilities - absorbing the excess capacity that resulted from the previous downsizing. This trend is common among most of the large companies in the field, although the empirical evidence suggests that some of the smaller firms that are growing will require new facilities. Appendix B contains pertinent background data on the U.S. Aerospace industry and aviation markets.

Another important factor reflected in the market data regarding the industry is where in the country new growth is taking place. Figure 6 below presents a map of the United States which identifies the top and bottom ten states in percentage employment growth in 1996. As can be seen, with the exception of New Hampshire and Indiana, most growth has occurred in the west and southwest. These areas are both home to existing firms and/or are more compatible with industry needs from a weather perspective.

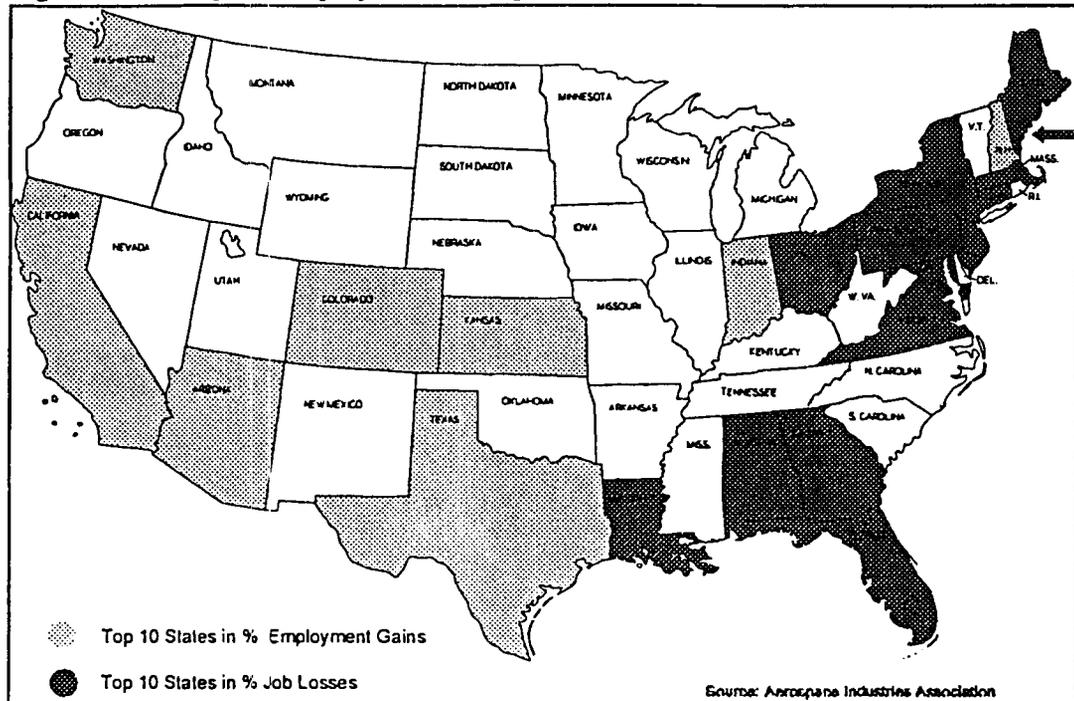
Table 1 - Growth in Selected Aerospace Industry Firms

Company	Location	State	Jobs	Type*
McDonnell Douglas Corp.	Melbourne	AR	100	E
McDonnell Douglas Corp.	Mesa	AZ	200	E
McDonnell Douglas Corp.	Hunstville	AI	200	E
Hughes Satellite Div.	Long Beach	CA	2,000	N
Allied Signal	Cheshire	CT	225	E
McDonnell Douglas Corp.	Macon	GA	150	E
Continental Airlines	Honolulu	HI	100	N
Allied Signal Aerospace	Olathe	KS	1,000	E
Northrop Grumman	Anne Arundel Cty.	MD	1,500	E
UNC Johnson Tech	Muskegon	MI	155	E
Northwest Airlines	Duluth	MN	350	N
Lucas Aerospace Cargo Systems	Jamestown	ND	130	E
Lockheed Martin	Onondaga	NY	200	E
CTL Aerospace	Butler Cty.	OH	110	E
Pro-Fab, Inc.	Oklahoma City	OK	150	E
Lancair Inc.	Bend	OR	250	E
Lockheed Martin	Montgomery Cty.	PA	500	E
Northrop Grumman	Dallas	TX	500	E
Sino-Sweringen	Martinsburg	WV	800	N
TOTAL			8,620	

* Note: E = expansion; N = New facility Source: Area Development Magazine, Sept. 97

In summary, although segments the U.S. aerospace industry appear to be well along in recovering from the cutbacks that took place in the early part of this decade, the growth is taking place within the existing capacity of the industry, that is, many of the larger firms are rehiring workers that were laid off and are reusing their existing plant capacity, vis-a-vis investing in new plant and equipment. On the other hand, the aviation and aerospace industry is so large that despite its poor performance in recent years, there are numerous small growth companies that are likely to require new facilities in the future. These firms, which serve as suppliers to the major manufacturers and who did not suffer from over-capacity, may be looking for new space if sales and employment growth continues. However, the majority of growth appears to be taking place in and around the existing larger manufactures who are located in the west and southwest.

Figure 6 - Aerospace Employment Changes 1996



Research Sources

In order to identify firms which met the criteria for inclusion described above, RKG Associates undertook a limited target industry analysis, utilizing a variety of sources including traditional government provided business and employment census (usually broken out by Standard Industrial Classification, or SIC, codes at the 2, 3 or 4 digit level) as well as proprietary databases such as Dun & Bradstreet and Corporate Technology Information Services, Inc. (CorpTech) These databases provide business information on thousands of companies, permitting rapid searches by industry, type of products, sales and employment. These sources permit much more accurate analysis of specific industries by identifying pertinent information about companies by more detailed SIC codes (down to the 6 to 8 digit level) as well as across several SIC codes. For example, many suppliers to the aerospace industry are not classified by government sources in this industry per se, but rather are included in their primary areas such as electronics, services or various manufacturing industries. The proprietary databases include detailed information on the markets served by companies, allowing for selective inclusion in marketing strategies.

Traditional data sources, such as the U.S. Census publications, do not deal at a level of specificity or on a timely enough basis to allow for accurate forecasting for marketing purposes. The most current government data available is from 1994 or 1995 and does not “catch” the more recent upturn in the industry. Also, using only 3 or 4 digit SIC codes as the basis for estimating the number of companies (and their growth trends) that constitute a target industry results that are too broad to be useful. The more specific information provided by industry sources such as the Aerospace Industries Association (quoted above) or proprietary databases provides for a more “rifle shot” approach to marketing.

Dun & Bradstreet is the country's leading collector and reseller of financial information and maintains data on nearly every business in the U.S., and increasingly, those around the globe. The CorpTech database contains data on over 45,000 high-technology firms around the country and is particularly useful due to the quality and accuracy of the data resulting from frequent updates. Both of these sources were utilized in the research conducted for NASB.

The consultants also contacted Lockheed Martin Aeronautical Systems Support Company, the firm that currently provides manufacturer's support to the C-130 and P-3 aircraft for the Navy at NASB, in order to assess their perspective (and potential interest) on the base as a business location. Also, the general manager of the Portland airport was interviewed regarding his views of NASB as a potential addition to the civil aviation infrastructure in the region.

Research Results

A keyword search was made of both sources using the terms aviation, aircraft or airport. The Dun & Bradstreet data provided counts of businesses at the 4-digit through 8-digit SIC code levels. The results included the following:

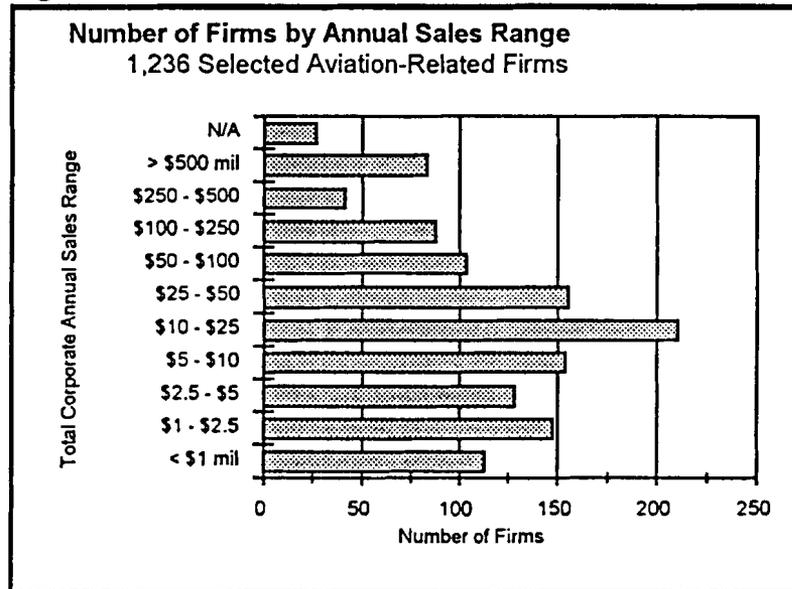
SIC Code	Description	# of firms
3721	Aircraft	810
3724	Aircraft engines and parts	737
3728	Aircraft parts & equipment, nec	2,158
381201	Aircraft, aerospace flight instruments & guidance systems	314
381202	Aircraft control instruments	129
458102	Aircraft maintenance & repair services	3,684

Another 338 firms were identified in several additional detailed SIC code categories such as Aircraft Painting (SIC 17210301) with 86 firms, Aircraft Seats (SIC 25310302) with 22 companies, and Aircraft Valves (SIC 35920101) with 13 firms. Another 3,794 firms were identified in the SIC code 508803 - Wholesale Trade: Aircraft Engines and Parts. The last category in the above table (Aircraft maintenance & repair services) includes virtually all Fixed Base Operators at airports in the U.S. who provide some level of services to aircraft, and are therefore not considered as a target industry. Appendix C contains the list of the SIC codes and company counts acquired from Dun & Bradstreet.

The CorpTech database includes detailed size and growth information on 45,000 U.S. high technology companies, as well as addresses, names of key contacts and information on the primary and secondary business lines that the firms are involved in. The information is collected through public disclosures, SEC filings, stock reports and through direct survey methods for privately-held companies. The data is verified and updated on a regular basis. Although used primarily as a direct marketing tool, the CorpTech data is invaluable as a research source to identify the locations and numbers of firms that meet specific criteria.

In this case, the objective was to identify companies in the aviation field, but excluding airports, flying clubs, and other non-appropriate firms. A keyword search⁶ was conducted using the technology phrases that are included in the database, including terms such as "aircraft", "airborne", "airfield", and "avionics". These were culled to exclude non-target industries or firms (such as airports themselves or FBO's). A total of 88 key word descriptor categories was settled on.

Figure 7



Based on this selection process, a total of 1,236 firms were identified and key information on each was acquired. The list of technology phrases and the company list is included in Appendix C along with an example of a listing for an included company. The 1,236 target firms range in size from very small (1 person) to very large firms employing up to 190,000. Figure 7 above indicates the size of the companies included in the list by range of annual sales. Most are small and medium-sized firms Table 2 below provides a list of the 10 largest companies represented in the selected CorpTech list. Total corporate employment of all companies included is nearly 3 million, while total sales are over \$541 billion. Figure 8 provides similar data by employment size.

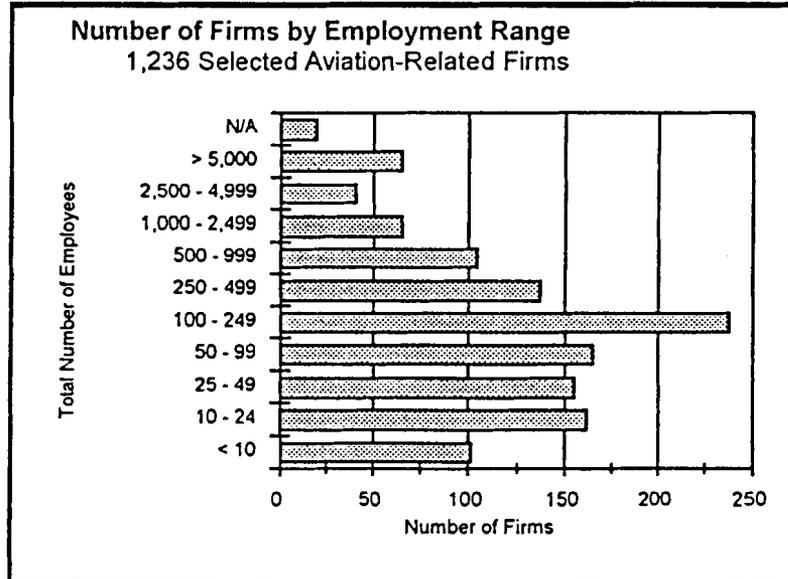
⁶

Both Dun & Bradstreet and CorpTech databases include narrative company descriptions that provide detailed information on a firm's products and the markets that it serves. This information can be searched using keywords. For example, a computer company that develops software for military reconnaissance aircraft would not be identified as an "aviation-related" firm solely through its SIC classification but would be through a description of its product lines.

Table 2 - Ten Largest Firms in Selected CorpTech List

Allied Signal Aerospace / Aircraft Landing Systems
 Lucent Technologies, Inc.
 Motorola, Inc. / Communications Division
 Pratt & Whitney / Commercial Engine Business
 Boeing Commercial Airplane Group
 The Boeing Co. / North American Aircraft Division
 The Boeing Co. / Military Airplanes Division
 McDonnell Douglas Aerospace
 Lockheed Martin Western Development Labs
 Sanders, Inc. / Countermeasures Division

Figure 8



The CorpTech database includes information on the historic and forecasted growth of employment for each firm. For the 1,236 selected companies, 332 increased the number of employees over the past 12 months (1995 - 1996) averaging 27.8% growth, 687 had stable employment and 151 had negative growth which average 20.3% (66 firms did not have data to calculate historic growth). Looking ahead for the next 12 months, 321 firms were forecast to have employment growth at an average of 24.3%, 554 were forecast as stable while only 5 companies were forecasted to decline in employment at an average of 28.8%.

Table 3 below provides a breakout of the growth data for the selected firms. The results of this analysis strongly confirm with more recent and company-specific data, as well as the market information derived from more generalized studies. That is, the types of companies that have been targeted for an aviation-related technology park at NASB are indeed rebounding from the previous downturn and that it is the smaller companies that are projected to grow the most over the next 12 months.

The location of these growing firms is also an important variable regarding the capture potential for the proposed business park. An analysis of the firms in the selected data base that are forecast to grow indicates that most of them are located in the west and southwest United States. California led the group with 91 firms expected to increase employment by 23.8%. Next was Texas with 22 firms (70.5%). Somewhat surprisingly, however, a several Northeastern states appear to be growing as well with Connecticut showing 19 firms (18.2% average growth), Massachusetts 16 (16.1%), New York 15 (24.3%) and Pennsylvania 14 (20.9%). Of local interest, Maine showed 4 companies in the selected database anticipated to grow employment at an average of 9.5% next year. Other states with the highest anticipated employment growth were Kansas (12 firms @ 41.9%), Arizona (11 @ 28.9%) and Florida (18 @ 24.9%).

Table 3 - Size Range and Projected Growth of 1,236 Selected Firms

Employee Range	# of firms	positive growth		negative growth		stable # of firms
		# of firms	avg. growth	# of firms	avg. growth	
< 10	100	27	86.50%	0		63
10 - 24	160	54	27.70%	1	-46%	71
25 - 49	153	35	28.10%	0		61
50 - 99	164	44	24.10%	1	-22%	73
100 - 249	236	72	14.20%	1	-43%	88
250 - 499	135	41	11.70%	1	-30%	73
500 - 999	103	20	8.40%	0		48
1,000-2,499	64	15	14.70%	0		36
2,500-4,999	39	8	6.10%	0		17
> 5,000	64	5	4.40%	1	-3%	24
N/A	18					
Total	1,236	321		5		554

The results of this analysis indicates that while there are firms within the target industries that are indeed growing, and thus would be targeted in a marketing strategy for a development at NASB, the relative number of firms is small. This would likely result in a prolonged marketing period, assuming that the positive national economic trends that are driving the growth in this sector continue. Of interest is the number of firms in other relatively high-cost states (particularly those in the northeast and Middle Atlantic states) that are growing. Many of these firms are probably former defense-related companies that have diversified into civil aviation lines.

Survey of Targeted Firms

In order to gain further insights into the potential of an aviation-related business and technology park at NASB, a random sample of 100 firms was selected from the target list of 1,236 firms and a simple survey form was mailed and/or faxed to the President or CEO of each firm. The survey, a copy of which is included in Appendix D along with the cover letter sent, asked for information regarding the firm's markets, growth projections and interest in airport locations.

A total of 19 responses were received. Sixteen of the responses (84%) indicated that they were in the aviation-related technology business while only 2 were also involved in shipbuilding. A large percentage (58%) indicated that they provided goods or services

directly to the U.S. Navy, while 68% did so on a subcontract basis. 74% indicated that they were involved with other Defense-related industries. The responding companies ranged in size from 5 to 515 employees at the location queried (average employment = 164). Five firms indicated employment at other locations totaling 837. The firms were widely diversified geographically, with 15 states represented, including California (3 firms), Georgia (2), Kansas (2), Florida, Iowa, Massachusetts, Maryland, New York, Ohio, New Jersey, Oklahoma, Texas, Pennsylvania and Virginia.

A total of 13 respondents (68%) indicated that their sales trend had been growing while only 6 (32%) indicated stable sales. No firms indicated decreasing sales. Interestingly, 15 (79%) indicated that employment levels would rise over the next 5 years. Of these, three were firms whose previous sales trend had been classified as "stable" while only one firm whose sales had been growing indicated stable employment projections. This response indicates a relatively high degree of optimism on the part of the respondents.

Only 4 respondents (21%) indicated that they were located at an airport but none had "through the fence" access (meaning direct access to the runways from their property). Three firms, but none of those at airports, indicated that direct access would be beneficial. Four firms owned their own airplane(s) and one used charter aircraft. Fifteen (79%) used commercial carriers to move both people and products. These responses indicate a relatively low demand for direct airport access on the part of these high tech, aviation-related companies.

When asked if their firm was considering the acquisition of new facilities, five of the nineteen respondents (26%) indicated in the positive. Of these, only two indicated an interest in New England or Maine. In addition, three of the five indicated a preference to lease space with two seeking to build-to-suit. Of importance to the analysis of NASB, two of the respondents added comments to the effect that they would not consider Maine as an expansion location because of weather, that is, they require year-round outdoor facilities/access for their business.

The results of this survey again reinforce the conclusions reached in a broad-scale analysis of the aerospace market and the more specific data obtained through the target industry analysis - that firms in general are growing, but that they are not seeking new facilities. In other words, they are growing within the limits of their existing capacity. Also, the growth trend towards the southwest and western area of the county is reinforced by the data obtained in the survey. What this means for a prospective aviation-related technology business park at NASB is that while there is some demand for new space, it will be a long and difficult marketing process to attract and land firms at such a facility. As the market continues to grow (assuming it does), at some point many firms may reach the limits of their ability to grow within their existing space and may seek new locations. If the property at NASB is developed and available at that time, then it may be able to attract a share of the market.

There is considerable empirical evidence to suggest that aviation-related growth will likely be slow at a prospective technology park at NASB. Currently in New England there are several airports that are actively marketing developed property for similar types of firms (and in general any other firm that might occupy a site or building). Chief among these are Pease International Tradeport in Portsmouth, NH, the former Westover air force base in

Chicopee, MA, as well as several smaller municipal airport industrial parks such as in Sanford, ME and Rochester, NH. None of these sites have succeeded in attracting an airport-dependent or airport-related high-tech user specifically because of the need for airport access. Discussions with the General Manager of the Portland International Airport (PWM) indicated that no firms (other than air carriers/FBO's) had directly approached the airport authority seeking a location to build a facility (even though PWM does not have available land for that purpose). Similarly, the Lewiston-Auburn Airport Industrial Park, while relatively successful in acquiring tenants over the past ten years, does not have a single aviation-related or dependent company located there. It is assumed that if an airport location was desirable and if aviation-related companies were indeed growing and seeking new locations in New England, then there would be evidence of such activities at the existing airports in the region. Since there is not, it is difficult to assume that a new facility at NASB would perform any differently. The demand for such land, may change over the next few years, however, if the current strong growth trend in aerospace industry continues and existing industry capacity is reached.

There is very little academic or industry literature regarding the relationships between economic development, corporate real estate decision-making and airport locations. An extensive Internet document search and inquiries to the major aviation associations (such as the American Association of Airport Executives and the Airport Consultants Council) turned up very little usable information. One study, done in 1988, surveyed 172 airports throughout the country and found little correlation between the availability of airport services (i.e. runway) and location decisions of industrial users. In its summary, the study concluded "*Results of the survey indicate that a viable industrial airport must be supported by a broad range of compatible industrial uses and cannot be limited to industrial aviation uses alone. Airparks concentrating in aviation related development tend not to be as successful as those airparks with more diverse industrial uses.*"⁷ The study also noted that the presence of an airport tended to help increase the absorption rate of adjacent or nearby industrial property, which in turn protected the airport from encroaching incompatible land uses.

Airport-Dependent Users

In addition to looking at aviation-related aerospace companies as potential tenants for an airside technology park at NASB, the consultants also considered the demand for airport-dependent users, such as air cargo companies, commercial carriers and aircraft repair and re-manufacturing concerns. The consultants based their findings on studies undertaken for other airport developments around the country and on discussions with individuals knowledgeable in airport marketing and operations. Discussions were also held with the manager of the Portland Jetport and the head of the State's Aviation Department regarding the potential role that NASB could play as a joint-use airport.

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The Relationship Between Airports and Contiguously Located Industrial Parks: The Basis for Developing Industrial Airports, PhD Dissertation, Kent Robert McLemore, Texas A&M University, August 1988, page iv (abstract).

Air Cargo

The potential use of NASB as an air cargo facility is driven primarily by two factors - its location relative to major cargo customers and the lack of expansion room available at Portland Jetport (hereinafter referred to by its identifier PWM). Federal Express currently utilizes PWM as its Maine hub averaging approximately two flights per day, with approximately 40%-60% of its load reportedly derived from L.L. Bean. Other shippers also utilize the airport, primarily utilizing existing commercial aircraft (belly cargo) through freight forwarders. FedEx's facility at the airport consists of a hangar building where packages are sorted and packed onto planes.

The number of passenger loadings at PWM has been relatively stable over the past few years, from a high of 600,915 in 1992 to 566,171 in 1996. Year-to-date figures for 1997 indicate that passenger traffic at PWM has grown substantially in recent months back to previous high levels. As a small regional hub airport for a few major airlines (primarily US Airways and Delta with additional feeder services by Continental, United and Northwest), PWM has benefitted from the capacity conditions at Boston and by more frequent jet service to major hubs. The potential expansion of Southwest Airlines to PWM will require additional terminal capacity. Expansion plans at PWM will put additional pressure on cargo operations and general aviation activity due to lack of physical space adjacent to the runways. When posed the question of whether NASB would help alleviate the potential physical constraints by providing an alternative location for cargo activities, Jeff Schultes, the Airport Manager, indicated that he did not believe that FedEx would move its operation because of their occasional need to utilize commercial flights for their packages.

Lastly, the overall size of the air cargo market in Maine is relatively small, and no major expansion in demand is foreseen. In fact, cargo companies such as UPS and FedEx are increasingly relying on trucking to move cargo from more distant markets to major air hubs, such as Manchester, NH or Boston, as opposed to developing smaller regional air centers. Even if FedEx or another carrier could be attracted to NASB, the number of flights would be limited (1 or 2 per day at most) and they would require full airport services to operate.

Passenger Operations

The potential to develop commercial carrier (passenger) operations at NASB is considered remote. Portland Jetport serves the region's needs well with its existing facilities and long-term demand does not appear sufficient to acquire new facilities. The concept of charter passenger service, possibly as a "service stop" for large European charter planes (that cannot land at PWM due to size restrictions), such as is occurring at Bangor, would face substantial competition from not only Bangor but also other regional airports such as Pease and Westover. In addition, such a use would require expensive passenger terminal and Customs/Immigration facilities to handle what is all likelihood would be a relatively few number of flights.

General Aviation

Due to the potential expansion of PWM's terminal operations, general aviation (GA) activities, which includes corporate aviation as well as recreational flying, may be impacted. The potential for GA activity to move to NASB is probably positive, provided that both landside (terminal, fuel services, etc.) and airfield facilities (lights, tower operations, ILS, etc.) were compatible and sufficient. These use could include air taxi

activity, pilot training, and corporate aircraft hangaring. However, this type of aviation use of NASB does not generate a large economic development impact in terms of jobs and is therefore not considered further.

Aircraft Repair and Manufacturing

Several former military airports have been successful at attracting companies that provide repair and maintenance services directly to aircraft. These services range from installation of electronics to interior refurbishment and conversion of passenger planes to cargo ships. Some are aircraft specific while others deal with a large number and types of planes. The overall market for these types of potential airpark tenants is relatively small - probably in the range of only 30 - 50 firms. The majority are located in warm southern or western locations where they have the advantage of working outdoors, thus saving dramatically on overhead costs. The few northern-tier firms that do exist (such as American International at the former Wurtsmith Air Force Base in Oscoda, MI) rely on very inexpensive space (former hangars that are leased for very little) and schedule their activities on a seasonal basis, often in conjunction with other company operations located elsewhere.

There is also substantial overcapacity in the supply of available airport facilities to suit this limited market demand. In New England alone there are six former military airfields that are attempting to attract these users, all with existing buildings and infrastructure. The ability of NASB to compete for this market is considered extremely limited, unless, a potential user has a need to be in close proximity to active Navy operations (e.g. a Lockheed Martin P-3 or C-130 overhaul facility) or Bath Iron Works.

Local Market Conditions

A prospective technology park at NASB would also compete (for non-aviation uses) with other similar business and industrial parks in the southern and mid-coast Maine market place. A recent (6/3/97) article in the business press indicated that there are 14 developed business/office parks in the greater Portland area (which extends from Scarborough to Falmouth) with some 40 sites currently available. While available building space for lease is relatively scarce (an overall 97% occupancy space within these parks), there is ample land available for new construction. A similar case holds for industrial land in the region. There are several developed industrial parks in the region, including in Brunswick and Topsham, along with several hundred acres of properly zoned but undeveloped land. Appendix E includes a copy of the above-referenced article along with pertinent data on the local and state economy.

Prices for developed sites vary, with business park sites in Portland and South Portland achieving rates of up to \$50,000 per acre. In the broader regional market, which would include Brunswick, typical full service industrial lots range from under \$20,000 to \$30,000 per acre. Raw land prices for industrially or commercially zoned property range from \$4,000 to \$25,000 per acre depending on location, access and development costs. There does not appear to be any strong upward price movement as a result of the relatively weak demand and abundant supply of property. Furthermore, inquiries to local and regional real estate professionals and airport managers indicate that there is no strong demand for, nor premiums being paid for, industrial or commercial sites located at or near airports.

Conclusion

The analysis of the demand for aviation-related land and the supply of similar and competitive property in the regional market place indicates that a potential aviation technology park at NASB would, at this time, be slow to develop and fill with tenant companies and that it would need to be competitive with the local market on a price per acre basis. It does not appear that any premium over and above the range of market prices for similarly functional development sites could be obtained under current market conditions. An aviation-related park, if restricted to the types of industries discussed above, would take at least 10 to 15 years to fill up (assuming competitive pricing) and would require an intensive and innovative marketing effort to succeed. However, the broader market indications support the need for additional land to be developed in the future to serve the long-term growth within the industry.

Based on the research undertaken for this study, there does not appear to be overwhelming current market support for an aviation-related or aviation-dependent technology park at NASB. However, the aerospace industry continues to strengthen and may result in the need to expand its facility capacity in the near future. In particular, several small and mid-size firms currently active in the northeastern states are growing in the targeted industry segments and could be attracted to NASB based on its location, local labor market skills and the general quality of life in the Mid-Coast region. The potential for civilian aviation activity that is generated by the development of an airpark is considered to be modest.

An opportunity may exist in 1998 for the project if Bath Iron Works, in partnership with General Dynamics, is successful in its bidding to build SC-21 class of warships. If the work is awarded to BIW, then it is highly probable that several hundred new engineering and systems planning jobs would be created, requiring state-of-the-art facilities in the area. BIW's facilities in Bath and Brunswick may not be capable of absorbing these jobs and a new facility may be required. Based on market standards of 250 square feet per employee, this would require a 50,000 to 75,000 square foot facility. The 63± acre NASB parcel would be a logical place for such a facility. This type of initial activity would also serve as an anchor to attract other technology-based companies which may or may not be involved with the BIW work.