

Minneapolis-Saint Paul Air Cargo Study

Contents	Page
Preface	3
Introduction	4
Section 1 – Executive Summary	5-8
Section 2 – Airfreight Industry Analysis	9-14
Section 3 – Review of Airfreight at Minneapolis-St.Paul Airport	15-19
Section 4 – Review of Key Issues	20-27
Section 5 - Conclusions, Prognosis & Recommendations	28-31
Section 6 - Appendices	32-53

Preface

The Minneapolis-Saint Paul Task Force commissioned this study. It was established to address the apparent decline in air cargo through MSP airport in recent years. Distribution services, especially international air cargo, are strategic components of a region's infrastructure. They are essential to future growth and development as well as the economic success of established business and industry. This is especially true at a time when globalisation of nearly all economic activities is fast becoming a reality. Ground and airfreight transport is a fundamental enabler of global trading. It is process, people and asset intensive. It is also a 'cost' of doing business and is increasingly becoming more price and time sensitive.

Airport growth is constrained by residential encroachment, community standards and increasing sensitivity to night jet operations while increased passenger air travel stresses current airport capacity. Further, increasingly congested interstates and highways encumber the ground transport system. Overall traffic on urban roadways increased by 32 percent between 1988 and 1998. Travel by large trucks increased 46 percent in the same period.¹

Given these realities and the pressures of global competition, planning future development of an area, airport, and distribution infrastructure, today requires a fresh approach and new thinking. Extrapolating past methodologies and duplicating current concepts is destined to lead to unsuccessful initiatives, at a lasting cost to the economic wellbeing of the region. This study has striven to identify the best way forward for the Twin Cities and the surrounding region and perhaps create a national model for regional freight transport planning encompassing all stakeholder needs including a secure operating environment.

Minneapolis-Saint Paul airport is not unique in its experiences. It is however unique in having senior state and congressional representatives who take an interest in its cargo affairs and has an insight into the global distribution industry that is not usually found elsewhere. We would particularly like to note the contribution made by Congressman Jim Oberstar whose interest and commitment enabled this study to happen.

We wish to acknowledge the active support, advice and encouragement of Michael Louis, Steve Andersen and Barry Koerner who formed the Steering Committee. They have been enthusiastic facilitators of the work of this study.

Our approach to the study included the involvement of as many of the key local stakeholders in the process as possible. A Working Group was established and it in turn established Study Groups to further examine particular issues. It is not practical to identify all those who participated but we do wish to acknowledge the broad spectrum of stakeholders who enthusiastically gave of their valuable time. This was particularly appreciated after the dreadful events of September 11th.

Hugh Doyle
Vice President SITA Logistics Solutions
Geneva, Switzerland
29 November, 2001

¹ Road Conditions in Metropolitan Areas and the Impact on Motorists, The Road Information Program, March 2000.

Introduction

SITA Logistics Solutions examined Minneapolis-Saint Paul's air cargo activities with a view to understanding the drivers that have recently shaped and will continue to shape, it's success as a key infrastructure asset of the State of Minnesota into the future. Minnesota is a trading State situated in the worlds most powerful and open economy. Availability of an efficient domestic and global distribution system is a requirement for economic success and growth.

Global distribution is one of the world' fastest growing industries. Airfreight, which is a critical part of global distribution and a fundamental enabler of e-commerce, is doubling in volumes every ten years. However it is not an industry free of problems. Although there is consistent global grown in terms of traffic, average ²yields have declined by 50% in twenty years.

The global airfreight market is growing at a rate of 7% per annum and traffic effectively doubles every 10 years. Yields for traditional airfreight products have decreased by 50% in 25 years and continue to decline by 2.3% per annum. This in part is a consequence of poor shipper rating of the product, which has changed little in 40 years. Average cycle times (door-to-door) are six and a half days and service is patchy. On the other hand international services provided by integrated operators are growing at a rate of 18% per annum and it is expected that they will have a 40% share of global airfreight by 2010. These services generate yields four time those of the traditional air freight industry. They are also monopolising the rapidly growing business-to-consumer and business-to-business markets, which are expected to be worth US\$108 Billion & US\$1.3 Trillion by 2003, respectively.

Although there is a major dependence on airfreight revenues for the economic viability of most international scheduled air routes the business is treated as a by-product and receives very little material attention from senior airline executives. There is no sign of this changing despite the underlying economic issue. In addition airlines are de-coupled from their customer base, and their channel which is now effectively operating as the shippers agent controls 90% of their business. The lack of focus on the business, the poor application of technology, the disregard for process and control fundamentals and the general resistance to change together with the high level of interdependencies between airlines and freight forwarders leaves us with a target customer base whose product is a price driven commodity and whose use of technology to date has produced disappointing results.

Airports now have two types of air cargo tenants, the traditional industry with its freight forwarders and airlines and the integrated operators. Both use MSP but in different ways. Both have strategies that will impact on MSP in different ways. The old stable world of air cargo no longer exists. Developing a strategy for MSP in a world of flux and blurring boundaries requires a solid understanding of the forces at play today and those likely to be in play in the future.

² Yield is a measure of revenue performance and is usually expressed as a \$ rate per kilo of revenue freight carried after all commissions are paid.

Section 1

Executive Summary

- 1.1** The structure of the global distribution industry has changed radically over the past decade. The traditional airfreight industry, consisting mainly of freight forwarders and combination carriers, is in rapid economic decline. Yet most airports continue to derive cargo development programmes based upon the expressed needs of this segment of the new global distribution industry. But this segment has hardly changed in the past forty years and by default created space for a new type of operator to enter the traditional airfreight market, the integrator. Integrated operators are acquiring an increasing share of the traditional industry's high value customers and absorbing almost all of the premium market growth. It would be unsafe for the MAC to derive a strategy for MSP and the community whose needs it must serve based upon an understanding of an industry that is no longer accurate.
- 1.2** Globalisation and liberalisation of world trade has lead to rapidly increasing air cargo volumes. Consumers are simultaneously demanding higher standards of service and variability at lower cost. Manufacturer's capabilities are being pushed to new limits by intense competition, customer sophistication and shorter product and lifecycles. Manufacturer responses including mobility of production and a tight focus on inventory costs are forcing distribution industry players to demonstrate flexibility, worldwide networking capabilities and responsiveness. In the distribution industry technology innovation as both an enabler and a force to satisfy shipper and consignee expectations and to control costs are being applied with different levels of success across today's industry segments.
- 1.3** There are now three strategic groups evident in the world of distribution - the integrators, the forwarders and the airlines. The industry is characterised by alliances, joint ventures and mergers, as key players' jockey to position themselves against a backdrop of blurring industry boundaries, declining yields, marginal profitability and the pursuit of global capability. Airports are a part of the global distribution system and need to understand all the dynamics at play in their environment. Airports need to assess the impact on their business of the two different industry segments that are now well established: the integrated operators and the traditional industry.
- 1.4** We identify factors that are critical to airports competing successfully in the global distribution industry. They include the need to provide rapid access to global markets in terms of range of international services provided, frequency and capacity mass. It must enjoy a flexible, cost effective operating environment based upon processes that are well aligned with the new needs of distribution and have an operating culture that is flexible, free of restrictive practices and responsive to change. Technology must be coupled with aligned processes providing opportunities for systematic use of information for control, cost, service and security purposes along the consignee/shipper cycle.
- 1.5** Our analysis of MSP produces a profile that shows some competitive strength but overall there are fundamental weaknesses. These weaknesses when set against what a significant role in global distribution requires allow no room for the traditional responses of today's airports or maintenance of a hopeful 'business as usual' approach.
- 1.6** Strengths that the airport of MSP enjoys include a well-developed economic hinterland that trades high value goods domestically and internationally. It is an well-organised and managed airport. There is willingness by the MAC to invest in facilities improvements. Fortunately it has at this time relatively little investment sunk in new developments for the traditional aircargo industry. MSP also enjoys an efficient regulatory environment. In particular we found customs to be very co-operative and progressive in their approach to the cargo business. Generally there is a clear willingness by all key stakeholders in the region to

co-operate in areas of mutual need. Transportation enjoys an unusually high level of support and interest by well-informed local, state and national political leaders.

- 1.7** However we have observed very fundamental weaknesses. Some are predictable and apply to 90% of the world's airports. For example: apart from integrated operators freight processing is by traditional industry methods and standards and therefore non-competitive. There is lack of ³process focus by forwarder and airline clients and overall conservative strategic thinking as regards cargo development. These characteristics are typical and can be addressed over time but more intractable weaknesses prevail and they effectively determine MSP's domain in air cargo today and into the future.
- 1.8** More problematic and beyond the control of the MAC are the twin problems of dominance of the traditional air freight industry by freight forwarders and the trend towards concentration in the global freight forwarding industry. As shipper demands become global so must the capabilities those who wish to provide them with distribution related services. Local forwarders have aggregated into regional forwarder enterprises and these now are concentrating into multi-national global players. The traditional airfreight industry is process inefficient and economies of scale are elusive. It is a low margin business so the search for input economies is constant. Forwarders are presently leveraging two devices to minimise costs: freight consolidation and the use of major hubs as gateways. Consolidation is a paradoxical arrangement between the carriers and the forwarders, which encourages the emasculation of the intrinsic value of airfreight (speed/time) over other modes for the sake of lower rates. Consolidation is obviously best served at airports where there are extensive international flight schedules and considerable lift available. Chicago is a perfect match for the forces driving the present traditional airfreight industry. The MSP situation on the other hand is the antithesis of this. It is easy to understand why today nearly 90% of airfreight of the MSP area is trucked to/from Chicago.
- 1.9** We identified other issues as having varying levels of negative impact. Again, these are not all peculiar to MSP. Most would be found on examining many other airports around the world whose circumstances are similar to those prevailing at MSP. The issues include; poor operational processes and controls, a lack of urgency and poor information management, weak systems supporting security and safety, space availability for processing deferred freight, under-investment by forwarders and airlines, road access and airport night jet operations, poor strategic focus and lack of planning coherence, too narrow a focus on MSP when considering development and an uncertain mandate for the Foreign Trade Zones.
- 1.10** We did observe an absence of shipper demand for better international services and we caution complacency. We believe lack of demand to be a function of two separate factors: the aggregate portfolio of services offered by integrated operators plus those of the traditional industry probably meets almost all their present perceived shipper needs. We believe this perception to be a function of environmental conditioning over time rather than derived from a coherent appreciation of or proactive response to the impact of distribution infrastructure upon the economic wealth of a region. One high quality employer advised the possibility of moving manufacturing because of the absence of over-night services to Asia. This could be a portent of difficulties ahead for the region.
- 1.11** For this reason it is not prudent to review air cargo at MSP unless we view it as part of the economic infrastructure of the State of Minnesota generally. MSP is key to the local and regional economy as effective global distribution is now recognised as an important competitive tool for a region. But we note that MSP's contribution to the State of Minnesota's distribution needs is declining. We see this to be a consequence of the structural changes taking place in the global transportation industry. It cannot be accounted for by a slowdown

³ See chart [Map of freight flows originating and terminating Minnesota](#) which complements this study

in economic activity. It is unlikely to radically improve even if there is substantial improvement in local and regional economic activity.

- 1.12** Our prognosis is that the traditional air cargo industry will continue to be heavily influenced by the passenger industry. The development of 'hub and spoke' operations will continue. Major hubs serve the forwarders needs as they provide an extensive mass of lift, by multiple carriers across all key global economic regions. They are bad for feeder airports such as MSP as they have little to offer the freight forwarder. The integrators will likely see MSP into the future as a regional hub that will feed into their main national hubs. It is very unlikely that they will develop long haul services into/out of MSP. Similarly it is unlikely that integrated operators, who are highly systemised already, will be willing to adapt their operations to fit-in with local or regional collective distribution activities. Integrators operate highly proprietary environments through which they seek competitive advantage.
- 1.13** We believe that the traditional airfreight industry will continue to decline. It will continue to tie-up real estate at airports but will be less able to afford the rents. The considerable interdependence among the airlines and forwarders will continue but so will the considerable imbalance in power relations. The carrier will remain the weaker partner. Airlines will remain hostage to their distribution channel and by default as far as cargo is concerned, airports will remain hostages to forwarder behaviour in the marketplace. Even the rapid decline in yields and the accelerating penetration of the global distribution market by integrators is unlikely to deliver the symbiosis so obviously needed between these markedly interdependent groups. It is unlikely that even the strongest will survive in present form beyond this decade other than as marginal commodity brokers.
- 1.14** Our overall conclusion is that the MAC faces formidable challenges as it addresses the issue of declining aircargo relevance of MSP. Therefore if a development strategy for MSP is to have a chance of succeeding it must take full account of the harsh reality of present industry circumstances. The strategy must be developed against a process-based ideal for moving freight so that the implications of different decisions can be determined and scoped. Against this model a programme for improving the overall performance of MSP must be methodically developed. It can include short-term initiatives however, it should avoid an over-dependence on approaches that do not fit the forces driving competitive performance.
- 1.15** The airports of the world, with few exceptions, have invested in failed initiatives for developing cargo. We conclude that it would be better for the MAC that MSP accept a declining role in global distribution than fund or depend upon failed 'status quo' approaches. It is a time for a radical approach.

1.16 Recommendations

- 1.16.1** We recommend that the MAC encourage the continuing development of services being operated by the integrated service providers.
- 1.16.2** We recommend that the MAC separates cargo and passenger operations and plan MSP from a future date, say 2002/3 to provide only for passenger and Integrator services handling on airport and move the traditional air cargo handling services off airport.
- 1.16.3** We recommend that the MAC be mandated with upgrading an existing regional airport to be a cargo 'twin' for MSP.
- 1.16.4** We recommend the creation of a next generation ⁴Regional Distribution Centre. It should be located between MSP and the appointed all-cargo airport. We recommend that an approach be made to a major Logistics provider proposing favourable terms for the operation of the domestic and international distribution center that could include the provision of additional air capacity if necessary. We believe that this can only be done if a major Logistics provider takes ownership of the complete programme including the management of the on-airport marshalling activities as well as the proposed belly-cargo facilities.
- 1.16.5** We recommend that an area surrounding the all-cargo airport be designated as an enterprise development zone. It should be given concessions sufficient to attract domestic and international exporting manufacturers to locate there. The present developments at Memphis could be used as a model.
- 1.16.6** The MSP airport initiative, the proposed all-cargo airport and the Regional Distribution Centre model initiative must be treated as all part of a common and integrated strategy.
- 1.16.7** We recommend that an approach be made by stakeholders to the USPS that they consider the routing of regional international mail through MSP.
- 1.16.8** We recommend that the conclusions and recommendations of the Roads & Road Access MSP Study Group be implemented.
- 1.16.9** We recommend the implementation of the Customs Clearance Study Group report and would further recommend the pre-entry of goods prior to arrival in the USA to enhance processing and security capabilities.
- 1.16.10** Finally, we recommend that a project be launched for planning the proposed Regional Distribution Centre, the all-cargo airport, the enterprise zone plus the migration of all traditional cargo handling activities away from MSP. We believe that a template of possible national importance particularly as regards presently evolving security needs could be derived from this phase.

⁴ See [Cargo Processing Model](#) chart which complements this report

Section 2

Airfreight Industry Analysis

2.1 Industry Overview

2.1.1 Introduction

The world of air cargo and distribution is fast evolving. Old rules no longer apply and the business structures of airlines, freight forwarders, shippers, consignees, brokers, customs authorities and ground handling agents are all collapsing into a more process based horizontal world. Consumers demanding lower prices, better value and more choice drive these changes. Manufacturers are confronted daily with the need for better, more flexible distribution capability so that they can cope with shorter product lifecycles, and lower inventory holdings. These and similar forces have encouraged the development of sophisticated and reliable global distribution services. The providers of these services are the integrated operators. Their culture and operating methodologies have little in common with the world of airlines and freight forwarders, the traditional freight industry, which has dominated airports up until now but change is happening and at an accelerating pace.

So it would be dangerous for MSP to derive a strategy for its enterprise and the community it wishes to serve based upon a view of an industry that is in rapid decline, the traditional air freight industry. A new form of entity that operates to different rules has different requirements and has little in common with the predictable and stable old way of doing business is encroaching traditional territories. Most airport cargo development programmes fail to understand the significance of what is happening and why, and it is likely that there will be an economic price to be paid by them for their myopia.

It is also important for MSP to understand the changing structure of the global distribution industry because of its positioning so close to Chicago, a major freight hub by any standard. Our report provides a reasonably thorough analysis of the industry so that we can share a common understanding of what the game is today. We can thereby derive and develop for MSP a strategy that has a basis and context set firmly in the reality of the global and rapidly growing business of distribution. Emulating what Chicago does or what most of the world's airports have done to grow their cargo business will lead to many disappointments for MSP.

Although the air cargo industry accounts for less than ⁵1% of international freight transport by weight, it nevertheless can account for up to 40% by value of goods transported. Air cargo is a part of a 'distribution pipeline' that enables global commerce. It is a ⁶complicated assembly of integrated processes including completion of export documentation, collection from consignor, customs clearance, processing through a local depot or airport transit shed and finally loading onto the outbound aircraft. This process is reversed on arrival of the aircraft at destination with the goods ultimately delivered to the consignee. How well these processes are aligned, synthesised and managed determine how successful your participation in the overall system of world trading will be.

2.1.2 Industry Players

The air cargo industry has a number of discrete players. These include:

- Traditional Airlines, who carry both passengers and cargo and are known in the industry as combination carriers. They carry cargo in the bellyhold of passenger aircraft or by the use of dedicated freighter aircraft.
- Dedicated Cargo Airlines, who carry only cargo using dedicated freighter aircraft.
- Service Integrators, who combine transport modes in the air and on the ground to provide a complete door-to-door service plus sophisticated logistics services.

⁵ Airline Business, November 2001

⁶ See chart [Map of freight flows originating and terminating Minnesota](#) which complements this report

- Freight Forwarders. They are a key player and have a very great influence on the traditional airfreight industry. Initially they were the sales agent of the carriers but has evolved to be the shipper's agent providing them with a broad range of distribution services including logistics.

2.1.3 Industry Segments

The industry has two distinct segments:

1. Premium generating global time-definite door-to-door services including express
2. Deferred freight at commodity prices.

The integrated operators dominate the first segment; the traditional industry dominates the second. Both of them need airports but both of them use airports like MSP in entirely different ways. Integrators see airports as part of a global conduit through which shipments flow, the traditional industry see them as another staging post where inbound and outbound freight, often including low value commodities, can be stored for considerable periods of time.

2.1.4 Industry Characteristics

Industry characteristics, driven by consumer demand, are being fashioned by the following: -

- Speed of distribution
- Global service
- Provision of 'value added' dimension
- Reliability and predictability of service
- Expertise in international customs procedures to speed clearance through customs
- Door-to-door service with one service provider
- Sophisticated logistics services

These conclusions are supported by worldwide shipper surveys to determine customer needs and relevant service aspects. There is a consistent message across all surveys. Shippers want:

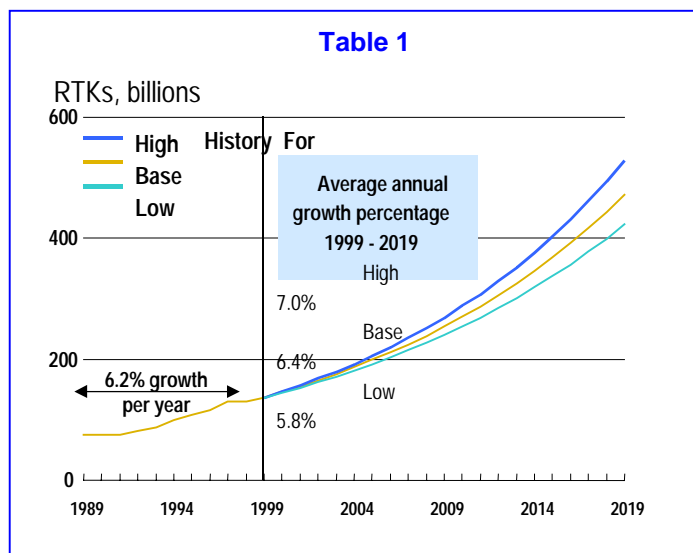
- Reliable, consistent time-definite door-to-door services
- Range of services and service levels, globally
- Competitively priced services
- Secure and safe transportation of goods

2.1.5 Market Size

According to ICAO⁷, international scheduled airfreight reached 17.2 million tonnes in 1999. Airfreight achieved an annual average growth rate of 7.4% for the period 1980-1999.⁸ Boeing forecasts strong growth to continue, averaging 6.4% through to 2019. **See Table 1.**

2.1.6 World Air Cargo Growth and GDP Growth

Demand for air cargo services is almost entirely derived from economic activity and therefore the fate of the industry as a whole is closely linked to the state of the world economy. Cargo volumes grow at more than twice the rate of GDP growth.



⁷ The International Civil Aviation Organization (ICAO) provisional figures

⁸ Boeing World Air Cargo Forecast 2000-2001

2.1.7 Yield and Air Cargo

Although air cargo volume has grown steadily in recent years, this growth has been accompanied by a significant decline in yield. Over the three years to 1992, Airline Business⁹ reported average rates to have fallen by about 50%. This was seen then to be a result of both over capacity in the market and intense competition between carriers to secure revenues to offset losses in the passenger business at almost any cost. In retrospect it more likely reflected a fundamental change taking place in the market where increasingly the Integrators were starting to dominate the high-end of the market and the low end, deferred freight, was being left to the traditional industry as it was being perceived as low service-level and a price-driven commodity. This trend has continued up to the present and is unlikely to change.

2.1.8 US freight Airports

Table 2

Table 2 lists the top ten central air cargo airports in the US in 1999, and the changes in volumes versus 1998, and their respective world rankings. MSP is unlikely to maintain its ranking considering the low growth rate. Interestingly MSP was ranked 14th in the world's top 100 passenger airports last year versus ORD, which was ranked 2nd.

WORLD RANKING	AIRPORT	TONNAGE	PERCENT CHANGE
1	Memphis (FedEx)	2,412,905	1.9
10	Chicago O'Hare	1,531,809	6.2
12	Louisville (UPS)	1,486,205	6.5
16	Indianapolis (FedEx, USPS)	1,107,985	36.1
19	Dayton (Emery)	894,389	0.8
23	Dallas/Ft. Worth	844,075	5.3
31(EST)	Wilmington, Ohio (Airborne)	492,165	1.4
33	Toledo, (Ohio (BAX)	490,352	-8.7
43	Cincinnati (DHL)	384,486	2.3
45	Minneapolis/St. Paul	366,356	0.2 (EST)

2.2 Business System Analysis

2.2.1 Introduction

It is important to review the air cargo business system to identify the chain of activities that are necessary to deliver a fully integrated service. MSP, like all airports is part of the global distribution system. This business system has evolved over time and now there are effectively 'two systems' at the operating level – that of the traditional industry and that of the integrated operator. Although they have the same business components they are managed differently.

The pre-1980's system identified two main strategic groups: airlines who provided an airport-to-airport service and forwarders who addressed the rest of the transport arrangements, either directly or on an agency basis. Airlines moved cargo very fast while in the air (currently 8% of total cargo door-to-door transit time) but were very slow on the ground. There are multiple parties involved each making a 'business' from their own bit of the cycle. Each seeks to optimize this bit at the expense of the product, which is now the door-to-door cycle. This was and remains a major weakness in the traditional air freight system.

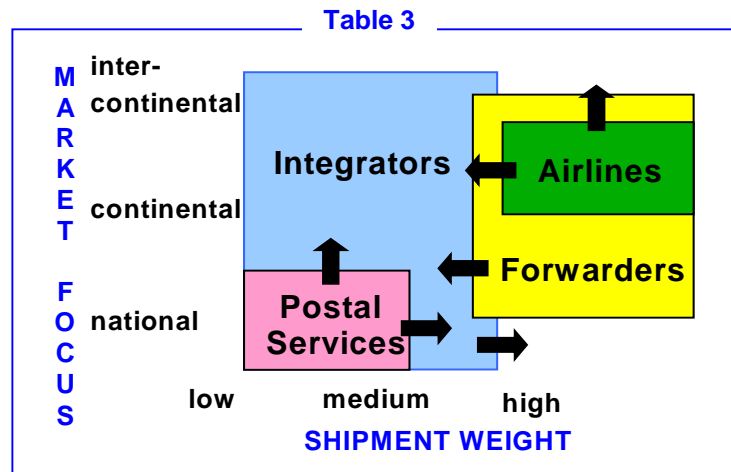
In response to this weakness, the 1980's saw the emergence of another strategic group, the integrators. Integrators were quick to identify the weakness of the forwarder-airline-forwarder system. They improved service quality by achieving significant savings in time and expense through integrating the different kinds of transportation modes into one rational global distribution process i.e.

⁹ AIRLINE BUSINESS, August, 1993

addressing the entire distribution pipeline in a harmonized way rather than providing fragmented individual elements or focussing vertically on local functions or interests.

2.2.2 Industry Dynamics

While the strategic groups in the industry have been clearly segregated, in reality there has been a blurring of the boundaries between them particularly at the commercial level. Alliances have taken place between airlines and integrators, freight forwarders and post offices. Entities are moving out of current product portfolios and entering new product segments and geographic markets. The result is that the services



being offered by the different strategic groups are beginning to overlap. Customer demand for a more comprehensive and efficient service and the need for the operators in the industry to reduce costs are driving this. **See table 3.** A heavy investment in computer technology is required to provide the improved core services and address the more comprehensive support demanded by customers, as well as to facilitate the operational efficiency and control capability of the carriers themselves. Unlike passengers who will move themselves across multiple transit points it take considerable automation to move boxes particularly when there are multiple parties and locations involved. Customers expect secure and reliable transportation for their goods. They need to know how, when and where the shipment is moving and when it will or has arrived. In response to these demands carriers, particularly integrators have invested heavily in technology and process alignment. Integrators have leveraged the power of technology far more successfully than the traditional industry primarily because they focussed on first sorting out the operating processes.

2.2.3 Strategic Group Analysis

In this section we analyse in detail the key strategic groups identified from the business system analysis.

Integrators

Integrators are traditional air express operators (DHL, TNT, Fed Ex and UPS) and traditional forwarders (Danzas/AEI, Emery worldwide) who expanded into worldwide networks during the economic growth period of the early 1980's. Integrators compete throughout the business system offering complete door-to-door service. These factors have resulted in a two-stream segmentation of the integrator sector. Integrators are either global players who compete in all aspects of the time-definite door-to-door services sector or niche players specialising by route or product type. Global players include UPS, FedEx, DHL, and TNT.

Freight Forwarders

Forwarders are stand alone brokers/operators who interface with shippers and who co-ordinate and manage the distribution of freight worldwide. This group controls over 85% of the air cargo tonnage of traditional airlines. Forwarders have been consistently losing business to the integrators. This has led to the following competitive and strategic responses:

- Partnerships and co-operation at industry level between airlines and forwarders such as the CARGO2000 initiative. This development, they hope, will enable both to improve competitiveness by assisting in providing the fully integrated service that the customer desires.

The traditional rivalry between these two groups is being eroded in defence of traditional business dominance.

- Consolidation of the industry through mergers and acquisitions continues but with no evidence of integration at the operational or process levels
- The development of logistics management is a key ingredient in driving the forwarder to become more and more end user focused and less dependent upon space brokerage alone that is declining into a low-yield commodity.

Air cargo Carriers

This operating group within the air cargo industry has a number of sub-segments: -

- Scheduled passenger airlines – Low Value
- Scheduled passenger airlines – Value Added
- Dedicated cargo airlines

Low Value

These are airlines that either choose not to compete in the air cargo business, who urgently need cash or who are strategically seeking rapid market share growth. They often sell-off bellyhold capacity to wholesalers at contract rates which are substantially below market rates and sometimes below cost. This eventually dilutes yield generally available for all operators, irrespective of the service provided.

Value-Adders:

These airlines pay more attention to the cargo product and would expect to achieve a commercial return from an appropriate degree of investment. The value-adders are characterised by: -

- The objective of maximising the carriage of freight in the bellyholds of passenger aircraft.
- Growth through the selective use of freighter aircraft to achieve passenger/cargo synergies. (Northwest/KLM and British Airways).
- The development of freighter fleets to complement their core activity and thereby ensure product integrity. (Lufthansa, Air France and Singapore Airlines)
- Investment in automation including booking, tracking and information services.
- Offering of a complete range of wholesale, express and traditional consolidated services.

The core business of the value-adders is being eroded with the integrators challenging and commanding a greater market share. This has been due largely to inattention on the part of the value-adders in failing to read and respond to market signals within their traditional business thereby paving the way for potential predators. In order to redress this strategic 'oversight', airlines, either alone or in partnership with forwarders, have attempted to develop their own door-to-door express service to compete effectively with the integrators. Large value-adders such as Lufthansa and Air France are attempting to increase their market share of air cargo by intensifying facilities for trucking through the strategic location of hubs from which trucking activity can penetrate key geographic locations.

As integrators have stretched the market to new dimensions by offering high quality service with overnight delivery and unparalleled reliability, value-adders have been forced to follow into a spiral of high investment, extensive networking and technological support of an infrastructure to meet the basic consumer demands. In summary, it has become impossible for value-adders to compete without forming alliances with forwarders or, indeed, with integrators, e.g. Lufthansa and Japan Airlines linkages with DHL. Value-adders are linking to survive particularly in the door-to-door segment that is being fashioned largely by consumer demands. They are slowly beginning to realise that it is only a question of time before the integrators move further up in weight product and perhaps higher risk product to usurp more of the value-adder's core business, i.e. customer will demand time-definite type service for non express styled product.

Dedicated Cargo Airlines

A number of dedicated all cargo airlines operate worldwide providing services to Forwarders and to integrated service providers. Cargolux, Polar Air Cargo, Nippon Cargo Airlines and Air Hong Kong are examples. A new breed of all cargo airline is emerging such as Lufthansa Cargo AG, Singapore Airlines Cargo Plc and LanChile Cargo, which are standalone separate legal entities. Originally they

were divisions or departments of passenger airlines. The difficulties these new companies face includes their dependence on two hostile customer bases, freight forwarders and integrators. The freight forwarder as the agent of the shipper and for their own vested interest pursues a policy of driving down carrier rates. As they have no aircraft ownership risks they can and do go below the economic thresholds of operating freighters in pursuit of their own interests. Integrators on the other hand will use this expensive lift tactically; primarily to develop critical mass on selected routes. As soon as there is sufficient traffic they introduce their own aircraft onto the routes taking the market with them and at the expense of their former host.

2.3 Key Success Factors

Based on our review of the air cargo industry to date, we briefly outline the factors that are critical to airports such as MSP for competing successfully in the global distribution industry.

2.3.1 Provide rapid access to global markets

To achieve and maintain market relevance, it is necessary to provide 48/72 hour door-to-door access to all key global marketplaces.

2.3.2 Cost effective operating environment

Freight is price sensitive. Success requires processes that are well aligned and an operating environment that is flexible, free of restrictive practices and responsive to change.

2.3.3 Strategic Use of Technology

The combination of customer demands for time specific capability and security require all participants along the distribution cycle to invest in enabling technologies in a systematic and collective way. Integrators fully leverage the power of information technology and see it as a strategic issue. The traditional industry is unable to use such basic technology as bar coding effectively.

2.3.4 Critical Mass

To be a recognised utility in global distribution it is necessary to have available a certain scale of operation in terms of breadth of client networks, lift capacity and frequency of services.

2.3.5 Market Skills and Focus

Marketing skills and focus are not synonymous with airports serving the traditional air cargo industry. It is a production lead industry where the skills and focus are derived from playing a supply and demand game at the expense of developing market lead products. Airports tend to derive their cargo strategy from the stated needs of their airline or forwarder clients. As this industry declines so will, in time, the airports cargo business.

2.3.6 Added Value Capability

Meeting customer needs is an underlying fundamental in an industry where speed, reliability and efficiency are paramount. Customer demands coupled with competitive pressures require the distribution industry to serve customers with cost effective services and to augment their new logistic concepts with strategies that will increase their efficiency (e.g. JIT). Customers needs are becoming more difficult to satisfy and are putting constant pressure on distribution systems to provide better and better core and value-added services at lower prices. Flexibility and responsiveness are also key ingredients with reliable and time-definite pick-up and delivery services. In many cases the boundary between the core and value added services has become blurred with a clear demand from major international business customers for 'one-stop-shopping'. Customers generally do not want their freight stored at airports including MSP.

2.3.7 Customer Interface

Integrators have set the benchmark for meeting high customer demands and have enjoyed premium yields in establishing that position. The forwarders, who see themselves in direct competition with the integrators, have put pressure on the airlines to greatly improve their service delivery through

investment in improved systems distribution technology. However, the nature of the relationship between the shipper, forwarder and airline is such that the airline has been unable to achieve a premium from being a traditional added value provider. Integrators and forwarders have a competitive advantage over airlines by cultivating and maintaining direct customer relationships. Effectively the absence of customer interface has led to the commoditisation of the carrier. Airlines are the key customers of MSP and this structural power disadvantage passes through to the MAC itself.

2.3.8 Systemised Security Capability

Security is now a major industry issue and there is a growing need for security at all levels to be systemised and transparent along the complete transportation cycle. The span of the security systems capability will need to range from functions such as piece level identification and control through to sophisticated data mining capability for shipment/shipper profiling and trend analysis. Global trading will not be able maintain the rates of growth anticipated and simultaneously meet basic security requirements unless there is fundamental process alignment and applications of basic enabling technologies along the shipper/consignee cycle.

Section 3

Review of Airfreight at Minneapolis-Saint Paul

3.1 Introduction

Airports are a part of the global system of distribution and we need to understand all the forces at play in their environment. We looked at the MSP and its setting and have compared what we found with the key success factors for the industry, which we identified, in the previous chapter. We have drawn conclusions as to the strengths and weaknesses of MSP and comment on its capacity to develop successfully as a regional distribution hub and grow its cargo business into the future.

3.2 Overview of Cargo at Minneapolis-Saint Paul Airport

Minneapolis-Saint Paul airport by international standards is a comparatively large airport operation in passenger terms but relatively small as regards the volumes of ¹⁰cargo processed through it. The rankings of both reveal an apparent contradiction, which underlines that fundamental differences between the passenger and cargo businesses.

3.2.1 Flight Schedules & Destinations

MSP has a very comprehensive range and frequency of domestic air services but a surprisingly small international operation. Its schedules include only four international destinations excluding Iceland and Canada. Integrators and trucking dominate the US domestic market; very little freight is carried on domestic passenger operations. In terms of market requirements therefore, MSP has a weak relevant schedule for air cargo distribution.

3.2.2 Cargo Operations

MSP is very typical of a long established airport except in one respect; there is no neutral, non-airline cargo-handling agent.

3.2.3 Cargo Infrastructure & Development Strategy

We find at MSP a cargo focus and development strategy that is derived from a client base behaviour that views their cargo business as a by-product of their passengers business.

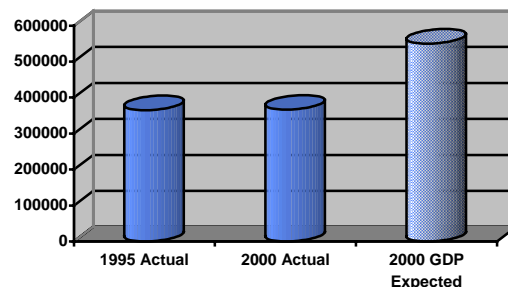
There is a typical lack of appreciation of the discrete nature of cargo and the separate dynamics of its served markets. As a consequence the cargo operation at MSP, apart from those of the integrated operators, is process, asset, labour and time intensive. The present cargo investment programs for traditional freight is in line with industry thinking. Like all similar investment programmes prevailing at airports around the world, they are unlikely to improve the economic performance of the respective stakeholders. However it should be noted that MSP is actively pursuing the development of cargo within the constraints of the industry that it serves and it shows a commendable level of interest in the cargo business.

3.2.4 Cargo Traffic through MSP

In the period 1995-2000 cargo through MSP airport has been static in absolute terms and in significant decline in relative terms. **See Table 4.** In the same period freight was growing globally at a rate of about 8% per annum or approximately 50% compound for the period. In the period 1995-1999 Gross

¹⁰ In 1999 MSP was ranked 14th in the world for Passenger traffic

Table 4



Source: MAC/ACI

Domestic Product for Minnesota State grew 31.29%. There is a well-established correlation between freight volume growth and GDP growth. Freight traffic grows at a rate more than double the rate of GDP growth. We could therefore reasonably have expected 50% growth at MSP. The figures would indicate a major decline in the role of MSP airport as a key part of the regional distribution system. Moreover, the fact that integrators have grown their business substantially through MSP in the same period would indicate that there are fundamental changes taking place in the local air cargo market.

3.3 Strategic Group Analysis

The MSP airport area business system is typical consisting as it does of shippers/consignees, forwarders, brokers, airlines, integrators, truckers and ground handling agents and regulatory bodies such as customs. The inter-relationships between the entities along the transportation cycle reflect those found in the industry generally. The following is an overview of our observations based on in-depth interviews and some fieldwork in the MSP area.

3.3.1 Shippers/Consignees

Despite the very limited international services available from MSP, shippers appear generally satisfied with the range of services available to them. This is easily explained considering that ninety per cent of all international freight in the region bypasses MSP and moves through Chicago O'Hare airport. In fact shipper needs appear to be quite well served. For urgent or time-sensitive shipments there are the services of the integrated operators and for deferred freight there is the limited range of international services available from MSP plus the comprehensive services from Chicago.

Our fieldwork did identify some concern at the absence of over-night services to Asia. It was suggested that this would lead in time to moving manufacturing to a more advantageous distribution location. The raising of the issue is timely as general shipper acceptance of the available distribution services can easily be a function of conditioning over time rather than a clear view of distribution needs or competitive opportunities that can be derived from effective distribution systems. For instance, there is a pattern developing of manufacturers relocating to major distribution hubs such as ¹¹Memphis and Louisville. It is likely that in time a pattern will emerge that will directly link local distribution infrastructure and the volume and quality of employment in the region. Marginal wealth generating slow-moving commodities are more delay tolerant than high-value goods especially those produced by capital intensive industries.

3.3.2 Freight Forwarders

There is evidence that freight forwarder behaviour at MSP is being influenced by the concentration that is taking place in the traditional airfreight industry. Global ¹²gateway strategies are now being developed by major international forwarding companies. Local freight forwarders who are part of these major companies seem to be losing local commercial autonomy. The routing of freight into and out of the MSP area is being affected by the systemic directing of freight via Chicago for ¹³consolidation and related price/service considerations. These two forces, consolidations and gateways, are major determinants of the future flows of freight, volumes and value through MSP particularly as freight forwarders control almost ninety per cent of the freight carried by the traditional industry.

3.3.3 Airlines

There are surprisingly few airlines operating internationally from MSP. The few international services that exist are dominated by the Northwest-KLM alliance. Northwest is one of the very few combination carriers still willing to operate freighter services. It does not operate them from MSP although it is its main passenger hub. Again, this apparent anomaly can be explained by the different

¹¹ See Appendix 1, The Memphis Report

¹² See Section 4.2.3

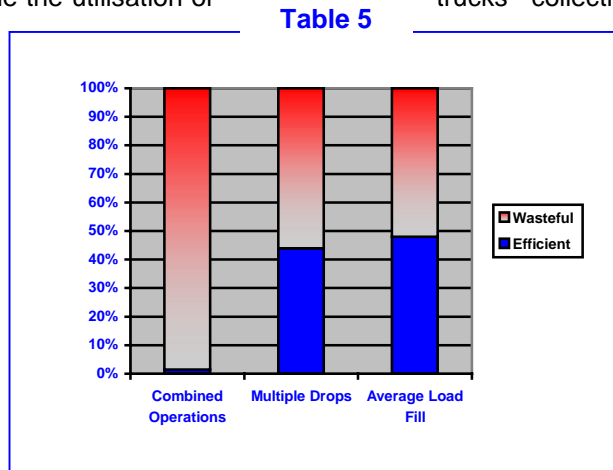
¹³ See Section 4.2.2

natures of the passenger and freight businesses. At the best of times freighters are notoriously difficult to operate ¹⁴economically at the commodity end of the market.

It is difficult to explain the almost total absence of foreign carriers at MSP considering the regions long established manufacturing and exporting tradition. MSP's future requires the development of comprehensive domestic and international services by air and truck and integrated with those of regional airports such as Saint Cloud, Duluth, Rochester and Willmar.

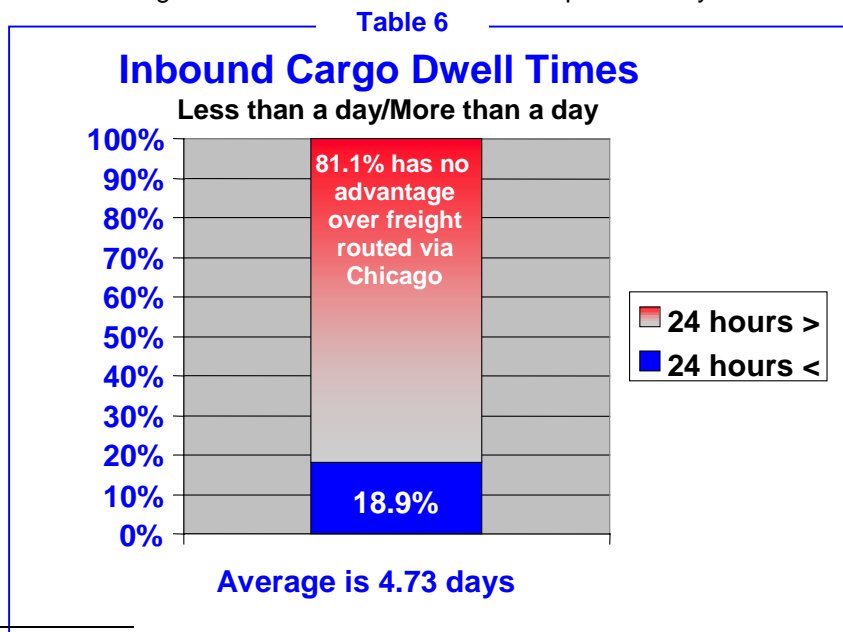
3.3.4 Truckers

During the year 2000 in excess of 400 million tonnes of freight moved within or through the State of Minnesota. Thirty percent of this moved within the State and 10% was in transit. Airfreight represents less than 1% of total freight transported in volume terms. Approximately 140 million tonnes of freight, about one third of total volumes, was moved by truck. All the airfreight that transits Chicago inbound and outbound for MSP is trucked. This represents 80% of the total international freight for the Minneapolis area. We were unable in the time available to examine the vehicle utilisation in the movement of cargo, so we cannot comment on the space/truck utilisation in the movement of this freight. We did examine the utilisation of trucks collecting and delivering cargo to and from MSP. See **Table 5**. We found their utilisation by forwarders and truckers to be low while integrated carrier utilisation was much higher. Only 1.5% of all forwarder/trucker vehicle movements has a combined operation. Only 44% of all vehicles did multiple drops at MSP. The average load fill doing single collections/deliveries is 48%. This level of utilisation is low, inefficient and negatively impacts on roads, parking areas and on loading and unloading docks.



3.3.5 Ground Handlers

Ground handling services for cargo at MSP are provided by the airlines or by specialist ground handling companies. Freight processing methods are typical for the traditional freight industry, as are the absence of basic enabling technologies such as scanning. Speed is the inherent differentiator for air transportation versus all other modes of transport. Yet our fieldwork shows that freight



¹⁴ See Appendix 2, Freight Economics

arriving into MSP can spend a long time in airport freight sheds. Less than twenty per cent of international loose freight is collected on the day of entry. **See Table 6.** Average dwell times for inbound international freight is 4.73 days. This is comparable with previous ¹⁵studies for air cargo where cycle times were recorded to be on average between 6-8 days door-to-door and 8-12 days for the complete shipper to consignee cycle.

A profiling of collection/delivery vehicles revealed that only 1.5% of vehicle movements have a combined operation at MSP. 44% of all vehicles are involved in multiple drops at MSP freight sheds while average load-fill of vehicles doing single collections or deliveries is 48%. In system terms this indicates considerable waste and duplication of assets, time and labour.

3.3.6 Brokers, Customs Processing

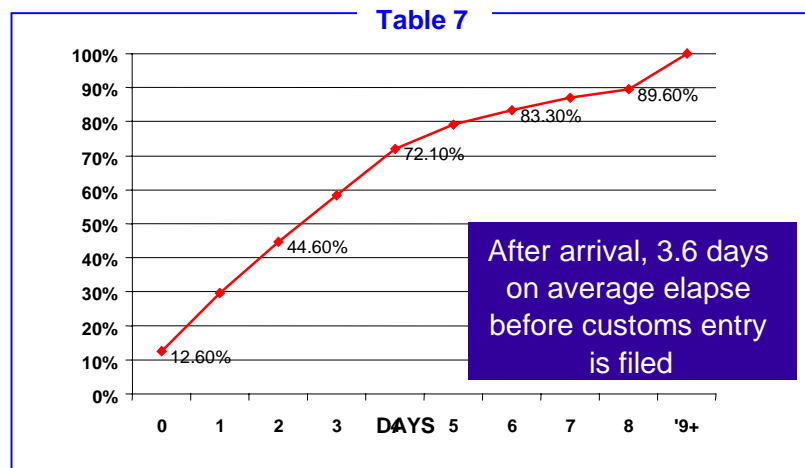
The world's Customs authorities are long used to being blamed for delays in moving goods across international borders. Customs procedures in fact cause almost no delay to goods along the transportation cycle and this is validated by all the recent industry studies of freight cycle times plus ¹⁶data provided as part of this study.

A study group was established to make recommendations on how improvements can be made to reduce dwell times of inbound cargo at MSP. The evidence from this ¹⁷study shows that customs services at MSP appear to be particularly efficient and forward looking. Our study shows that on average 3.6 days elapse before a customs entry is filed. **See Table 7.** We are not implying that Brokers are deliberately delaying freight or that they are inefficient. It is far more likely that the processing of freight moving through MSP has evolved in a way that means time alone is not the only pertinent criteria for selection. Delay is often caused by a lack of information relating to the inbound goods.

However, there is evidence that shippers take advantage of the loose system either to defer payment of duties or to avail of other non-remunerated services such as free, secure interim storage for their goods.

Whatever the reasons, this behaviour has a negative effect upon the traditional freight

product and is hostile to the long term good of the value of MSP airport as a part of the regional distribution infrastructure.



3.3.7 Integrators

There is considerable concentration in the US domestic freight industry with approximately 85% percent of the market controlled by integrated operators. They are expanding their operations very rapidly at MSP. Ninety-one per cent of distribution infrastructure development at the airport is being done for integrated operators. There is an increasing level of integrator involvement in satellite operations in the Minnesota catchment area: Rochester, Duluth, Sioux Falls (SD) and Grand Forks (ND). Integrators are bringing services to customers creating economic clusters near hubs such as ¹⁸Memphis and Louisville.

¹⁵ IATA CART Report 1973, UNISYS Study 1996, CARGO2000 Study 1999, SITA Study 2001

¹⁶ IATA CART Report 1973, Unisys Study of 2,000 Shipments 1996

¹⁷ See Appendix 4, MSP Customs Study Group Report

¹⁸ See Appendix 1, The Memphis Report

3.4 MSP Diagnosis

Based on our analysis to date, we can develop a profile of MSP, which reflects its competitive strengths and weaknesses. Our analysis suggests that MSP enjoys the following strengths:

- Well developed economic hinterland that trades high value goods domestically and internationally
- A well organised and managed airport
- A willingness by the MAC to invest in infrastructure
- Proximity to major economic and distribution centre, Chicago Illinois.
- Ample scope to radically improve its local/regional distribution 'system'
- Considerable political focus and willingness to break-out of the status quo
- No sunk costs in infrastructure that prevent a new beginning
- Apparent willingness for collective, mutual action to improve
- Efficient regulatory environment and services e.g., Customs

However, we have identified a number of significant weaknesses within MSP. These are:

- Freight processing is to traditional industry methods and standards and therefore non-competitive
- Negligible international flight schedules
- Lack of process focus by traditional industry especially forwarder and airline clients
- Vertical, low-value adding empires along the supply chain
- Conservative strategic thinking as regards cargo development
- Proximity of Chicago
- Impact of Consolidation
- Impact of industry concentration and forwarder gateway policies
- Too narrow a focus on MSP when Saint Cloud, Rochester, Duluth and Willmar should all be included in a holistic view of the State's distribution infrastructure needs.

3.5 MSP Analysis – Conclusions

There is little evidence that MSP, in terms of its present strategy, has many strategic options available to it, which can secure for it a viable domain in the world of global distribution. Continuing with the existing state of affairs is not one of those options. Therefore our assessment is that the overall position of MSP, compared with the key success factors needed to participate successfully in the worldwide distribution industry, is weak. We have concluded that a significant shortfall exists. Furthermore, there is little if any scope and capability for MSP to close this gap using traditional approaches. Unless a more radical and collective approach involving other stakeholders is adopted, MSP is likely to see further decline in its traditional air cargo traffic. This has implications for all local and regional stakeholders from shippers to consignees. It has even more far-reaching, if less perceptible at this time, implications for industrial development and job retention/creation in the State of Minnesota. In the next section we address specific issues confronting MSP, in more detail.

Section 4

Review of Key Issues for MSP

4.1 Introduction

We have identified the following issues as having a considerable impact on the ability of MSP to develop as a significant component of the regional distribution infrastructure. These issues are not all peculiar to MSP. Most would be found if we were to examine the many other airports around the world whose circumstances were similar to those prevailing at MSP. The issues are as follows:

- **MSP cargo traffic decline**
 - Availability of scheduled lift capacity for deferred freight
 - The impact of freight consolidation
 - Freight Forwarder Gateway policies
- **Poor processes, poor controls, lack of urgency and poor information management**
- **Weak systems supporting security & safety**
- **The Impact of Chicago**
- **MSP space availability for processing deferred freight**
- **Under-investment by Forwarders and Airlines**
- **Road Access and Airport Night Operations**
- **Poor strategic focus and lack of planning coherence**
 - Too narrow a focus on MSP when considering development
 - Impact of a weak distribution infrastructure on jobs in a region
 - Absence of shipper demand for better international services
 - Uncertain mandate for Foreign Trade Zones

4.2 Traffic Decline at MSP Airport

Cargo traffic through MSP has been static in the period ¹⁹1995-2000. This decline has occurred against a background of 31.29% GDP growth in the State of Minnesota. This level of GDP growth would suggest that airfreight traffic would increase in the same period by 50-60%. A working group was established to examine this issue and their report is contained in Appendix 5. The following are the major issues arising from the working group and our own study findings.

4.2.1 Availability of scheduled lift capacity for deferred freight.

In the year 2000 the major integrated service providers carried 50% of the freight flown in and out of MSP using their own aircraft. Integrators using their own freighter aircraft also service Duluth and Rochester on a daily basis. We estimate that of the total airfreight and mail lift in and out of the State of Minnesota today some 72% is flown by the integrated operators.

Northwest Airlines, is the only US combination carrier who operates freighter aircraft into and out of the USA. However it does not provide freighter services out of its Minneapolis hub. The reasons for this are complex but pivot on the freight forwarder's ownership of the sales channel for deferred freight. Forwarders are not selling on behalf of the carrier but is in fact buying on behalf of the shipper at best achievable market rates. The effect of this is the ²⁰economics of scheduled freighter aircraft on international routes is at best suspect and generally awful.

While the airlines operating at Minneapolis provide 1300 tonnes of capacity daily, in and out, ²¹most of this capacity is provided on aircraft serving the US domestic passenger market. Today the domestic freight market is totally dominated by the Integrators who control and

¹⁹ Figures provided by the MAC

²⁰ See Appendix 2, Freight Economics

²¹ We assess the figure to be between 80-90%

handle ²²78% of the total domestic air market. International lift on scheduled passenger services is restricted to services to/from Amsterdam, London Gatwick, and Tokyo, plus passenger services to Canada and Iceland. There is no indication that this capacity situation is going to change materially in the intermediate future. This means that other international freight capacity in/out of MSP will remain restricted to the capacity provided by the integrators over their respective hubs. This capacity will increase with market growth and their increasing share of it. Aircraft bellyhold capacity will be continue to be derived from passenger oriented market decisions.

4.2.2 The impact of freight consolidation

Over the past forty years forwarders have developed in conjunction with the airlines a capacity buying arrangement which enables the forwarder to reduce its air transportation costs by buying in bulk from the carriers, and then building consolidated loads under a common air way bill.

Consolidations are a collection of individual shipments from various shippers. They are often brought to local warehouse for processing and ultimately trucked to a consolidating warehouse. Eventually they are brought to the airport and moved on the carrier as a single shipment. The practice is similar to the ocean "groupage" service and the road ²³LTL services. The larger the consolidation or space guarantee the forwarder provided the lower the rate they expected to receive from the airline. It is industry practice that when the forwarder fails to make the weight-breaks or to make the consolidation the airlines do not apply any financial penalty.

The consolidation arrangement is a negation of the potential differentiation offered by air transportation. It is very damaging to the intrinsic value and overall economics of airfreight. It rewards the spoiling of the essential nature of air cargo over competing modes - great distances in relatively short times. It adds considerable operational complexity and encourages the tactical use of asymmetric information. This is on almost all occasions at the expense of the carrier. It is the greatest single inhibitor to the industry's ability to deliver high value service to shippers on a mutual, co-operative basis.

Consolidation of freight traffic usually leads to delays at the many steps throughout the consolidation process. Delays occur at departure where it can take days to move the shipment from the local office to the consolidation gateway. Further delays can occur at the consolidation point while the consolidation is assembled. We know from industry experience that the consolidating Forwarder will not be the Broker at destination for 60-70% of all shipments. This will entail the handing-over of the clearance process at destination to yet another party. The average transit times for shipments in consolidations on international routes is 6 to 8 days from pick-up to delivery, with supply chain cycle times recorded at 8 to 12 days. The traditional airfreight industry has approximately ²⁴40 fragmented processes compared with the 11 the integrators use.

The traditional cycle therefore is full of complexity, excessive storage, multiple handling and handovers but almost no systemic use of process managing technologies such as bar coding and scanning. Tolerating and encouraging operational complexity at the operational level but failing to address it at the service delivery level has led inexorably to the traditional airfreight product becoming regarded as little more than a price-driven, unreliable, deferred commodity. Meanwhile the more valuable and more urgent elements of that traffic have transferred and continue to move to the integrated service providers.

²² FAA statistics Sept 2001

²³ LTL means Less Than Truckload

²⁴ Appendix 3, Unisys Study of 2000 Shipments

Evidence exists that that no changes will come in this area in the near future due to the airline and forwarder relationships and the traditional lack of initiative to change pricing and service structures. The role of the carriers and the forwarders is laid out elsewhere in this report.

We expect this deferred traffic to continue to grow at 6-8% per annum over the next ten years despite the recent tragic occurrences and resulting economic impact. Increasingly carriers accepting flight-ready containers that are prepared at off-airport locations will move it. Similarly it will be processed far²⁵ less at airports over time, we expect a trend to handling it at off airport locations. The study at MSP airport shows that Forwarder/Brokers are taking up to three to four days to submit entries after the arrival. This is similar to the times recorded by studies in other countries.

4.2.3 Freight Forwarder Gateway Policies

The freight forwarding is a very low margin business. Moving freight internationally, as done to day, is complex and expensive to manage. Shipping is a burden on commerce and adds no value to the shipped product – therefore transportation is destined to be service sensitive and price driven. There is concentration taking place in the forwarding industry. This is a consequence of the need for global capability but also the never-ending pursuit of lower unit costs. The major Forwarders have now developed very extensive distribution systems including major airports as regional gateways for their traffic. This enables them to move shipments from outline collection/storage points to the consolidation centres at their gateways. They have rigid in-house procedures, which leave very little discretion to the local office on routing of shipments.

4.3 Poor processes, poor controls, lack of urgency and poor information management

In the past thirty years all²⁶ studies of international airfreight shipment door-to-door elapsed times give a stubborn average of 6.5 days. Yet in other studies in the same industry segment it was found that when the processes were managed in a controlled environment it was possible to move 90% of direct air shipments door-to-door worldwide within 72 hours. The study involved eliminating processes, plus harmonising and controlling remaining processes. It also required pre-entering for customs clearance at the destination airport. The message is clear. Airlines and forwarders can provide global time definite services if they so choose and act accordingly.

All industry studies, including this study, shows that Customs clearance, from time of submission of the entry to release, is only a matter of 1-2 hours. However our study also shows that Brokers submit entries only Monday to Friday. Therefore international air freight transportation, which operates H24 X 7 days per week globally is restricted in service delivery capability by a brokerage system that operates nine-to-five, exclusive of weekends.

Little seems to have changed in the past fifty years in this industry yet it wishes to serve the distribution needs of the most changed and constantly changing industries in the world.

Furthermore airlines and forwarders have failed to employ basic, ubiquitous, generic technology that enables the better management of poor processes, the reduction in the enormous volumes of paperwork and avoidance of multiple re-entry of data. As recent as May 2001 a study of the transportation component of supply chains by²⁷ SITA revealed a 'process' mess. It showed that there are many interdependencies, considerable duplication of effort and redundancy. Report highlights include:

²⁵ There are other reasons such as security, costs etc., which are addressed elsewhere in this report.

²⁶ IATA CART Report 1973, UNISYS Study 1996, CARGO2000 Study 1999, SITA Study 2001

²⁷ SITA Audit of Transportation Component of Supply Chains (May 2001)

- The average process cycle takes from eight to twelve days. The goods are in actual movement for less than 5-10% of the total cycle time.
- An average shipment generates at least forty documents/copies of or parts of documents/forms as it moves through the distribution cycle.
- 73% of the data recorded on all the documents can be viewed as a duplication of data initially recorded on two documents (shippers invoice, shippers letter of instruction and the way bill)
- 80% plus of the information necessary to clear the goods at destination is available at the point of origin.
- At least 31% of the people employed in the movement of goods are employed in generating, checking or filing documents.

At MSP the average time taken to submit a customs entry is three to four days. Ten percent of all consignments are not entered for customs clearance within ten days of arrival. Inbound international cargo arriving at MSP spends 4-5 days in storage at MSP resulting in poor utilisation of expensive assets and manpower and poor service to the customer. The traditional air freight industry will continue to be marginalised as long as expensive, time consuming processes are allowed to delay freight, and add costs, without adding value.

4.4 Weak systems supporting security & safety

At a general level a secure environment for the movement of good by all transportation modes but especially by air, is now essential. The level and intensity of security measures being developed, as this report is being finalised remains to be seen. It is fair to assume that the traditional systems and methods of security for the processing and carriage of airfreight and mail by air are inadequate and demands for new and more systemised methods are required.

At the particular consignment level safety and security of goods in transit has assumed a far greater priority for shippers and consignees as the value of goods increase, stock buffers decrease and the factory to next or end user methods of distribution are becoming more flexible, interdependent and dynamic. Such distribution methods demand a higher level of safety and security in handling and transportation to ensure the goods arrive as scheduled often ready for display or directly from plants to end users. Studies reveal that goods can be handled and stored over twenty times in the traditional transportation cycle and that 90% of the total transit time can involve handling and storage. Similar studies of the processes employed by integrated services providers show that the number of handling and storage processes are reduced by over 50% and that this element of the total cycle is often reduced to 10% of total transit time.

Goods are most at risk when subjected to multiple handling and/or long periods of storage. To reduce the risks it is necessary to reduce the amount of handling and the storage inherent in the traditional airfreight industry. The use of technology to provide visibility across the supply chain coupled with available enabling technology such as RFID tagging could greatly increase overall safety and security.

Common and easily shared data can help identify trends in lost stolen or damaged goods by location, time, and other key variables. Furthermore a common database could provide online shipper and other cycle participants' validation and provide comprehensive archive data from which security models could be derived.

New and improved security measures for dealing with a changed and improved security environment for all airfreight, express PO mail and APO mail may require some or all of the following measures for creating secure physical processing of freight:

- Industrial X Ray equipment
- Decompression Chambers
- Explosive detection methods
- Wave Camera Technology
- Piece level identification in loading of aircraft

- Licensed and independent security staff to meet Government and/or State requirements
- Secure transportation from secure area to loading on board aircraft

Such requirements can only be met to an adequate standard and in a cost-effective manner by a single independent facility specially designed to process freight in a new way and to new rules.

4.5 The Impact of Chicago

Chicago like most major airports, such as Los Angeles, London Heathrow, New York JFK, has developed over time as major international hubs. Major hub airport developments around the world have all been designed to meet and serve the needs of passengers. With the arrival of larger passenger aircraft in the 1960s greater freight capacity became available into and out of those major hub airports. As explained earlier the availability of this capacity became the driver for agreements between airlines and forwarders for bulk discount rates for cargo and the development of airfreight consolidations as they are to day. Chicago being the nearest major hub airport to MSP it is to be expected that due to the volume of capacity, the range of routes, and services that much of the Minnesota passenger and freight traffic would move over Chicago. This is common to many major hub airports around the world and is unlikely to change for either the passenger or cargo markets in the short to intermediate term.

Today 80% of the deferred international cargo originating and terminating in the Minneapolis area moves over Chicago for the reasons we have already outlined. We see no change in this diversion of traffic in the foreseeable future.

We do however see a growing demand for 24/72-hour door-to-door global distribution services. These will continue to be the domain of the integrated service providers as at present they are the only segment that can reliably and consistently deliver these services in a systematic way. Chicago will have little or no impact on this market segment. We see this segment growing indefinitely and the Integrators moving to serve the market in a now typical way - bringing services to the exporter rather than hauling the freight over long distances by surface to an airport that gives the forwarder the best margin usually at the expense of service. Examples of those services for exporters based in the State of Minnesota are the daily direct services out of airports such as Duluth, Rochester, Sioux Falls and Grand Forks. For many years shippers have come to identify the difference between forwarders and integrators. The forwarder service is price driven while the integrator is service driven.

4.6 MSP space availability for processing deferred freight

The value of airport property has grown greatly. Airports are often located on prime land sites close to cities with very high real estate values. Airports are becoming more commercial, having typically begun life as Government or community owned assets. Many must now operate to strict commercial criteria. They are today seeking to achieve a greater return on their existing investments especially as most are faced with demanding capital expenditure programmes that must be self-funding. For those and other reasons such as land availability there is an increasing debate as to what activities need to be on airport and what activities can be moved off airport to provide for better use of or more profitable return on the land available.

Traditional cargo services are very price sensitive and will not successfully compete with passenger terminals and retail outlets in terms of yield per square foot to airport owners. Airports are increasingly driving up returns from their assets in order to reward investors in terms of returns on their investment and on the assets. They are more and more facing a land shortage for the highest and best airport usage - that of supplying passenger handling facilities and high yield retail space.

Therefore authorities are endeavoring to reduce the amount of space used on airports for non location critical or low-yielding activities such as equipment storage, equipment maintenance, catering, and increasingly airfreight handling and storage. MSP is no different to other large city airports with increasing demand for passenger handling and retail outlets. MSP is short of land for further expansion and growth. The existing land bank will need to be carefully managed to provide the maximum level of passenger and aircraft capacity, while at the same time meeting the needs and demands of its customers the airlines and users of the Airport.

The only significant investors in airfreight infrastructure at the airport are the Integrators who account for over 80% of the current long-term airfreight investment. Furthermore they use facilities as conduits and do not allow storage at airports. We have seen from our current study that traditional

airfreight is currently being stored on the airport for four to six days on average. It is our assessment that storing airfreight on the airport is an uneconomic and unnecessary activity.

MSP has made adequate space for the on airport processing requirements of freight on passenger aircraft in its current plan. We believe that the handling/security/clearing and processing of traditional airfreight can be more efficiently and more economically handled at an off airport and specialised common facility.

4.7 Under-investment by Forwarders and Airlines

Traditionally freight forwarding has been a low asset based industry and despite much consolidation in the industry over the past two or three years the industry remains a low asset/ tight-margin business. This approach to investment has attracted many new entrants because of the relatively low entry and exit costs. This weak industry structure has also led to a low level of investment in technology, especially over recent decades. Technology has enabled logistics lead companies in the emerging world of sophisticated distribution capabilities, where information and funds management is often as important as the goods, to provide at a very high service level capability. On the other hand basic areas such as tracking, tracing and the use of simple enabling technologies such as bar code labeling and scanning have generally not been availed of by a large sector of the forwarding Industry.

Consequently attempts to compete with the major Integrators in the area of service and supporting technology have largely failed. While the integrated service providers have charged market prices for their services and invested heavily in assets to enable them to further improve the service levels, the forwarding industry generally has become increasingly commoditised as it offers lower prices in an attempt to compensate for lower service levels.

While a few major forwarders including some new entrants to the market have made some investment in technology and process management, the vast majority of the forwarding community remain in the low price - low service end of the business. A number of the major forwarders have also become Integrators while others have been acquired by major distribution organizations such as the German Postal Authority. Their future remains to be seen.

Airlines on the other hand have traditionally been asset-based companies owning large fleets of aircraft. They have invested in handling companies, engineering companies, catering, and hotels. From the mid 60s the Airlines invested heavily in computer technology and through the 70s and 80s built large market and product led distribution systems for their passenger products. On the Cargo side apart from a handful of exceptions investment in cargo services and the cargo product were minimal and remain so today.

Many airlines associated poor performance with their 1970s-based automation systems and thought they could improve their competitive performance by migrating to open platforms. A few choose this route. The initiatives all failed as the airlines resisted the fundamental need to first work with forwarders to reengineer their shared processes. This fundamental priority is recognised by Integrators who coincidentally successfully use technology as old or as 'legacy' as any used by carriers or forwarders today. Many of the handling units at or on airports are outmoded, inefficient and unsuitable for the handling of airfreight in today's environment. A combination of poor pricing policies in the industry, unwillingness to invest in process change coupled with the intelligent use of technology has led to the perception of a low price, poor service level industry.

4.8 Road Access and Airport Night Operations

Study Groups were established to examine road access for freight services at MSP and also to examine the implications of night jet freighter operations. These reports and conclusions of both groups are contained in Appendices 6 and 7. Although no night jet ban was reported it would not be prudent to ignore the international trend where communities at long established airports are

escalating the issue of night flying. Our recommendations on the road access issues are set out in section **5.3.7**.

4.9 Poor strategic focus and lack of planning coherence

4.9.1 Too narrow a focus on MSP when considering development

A study group established to examine roads and road access to MSP. It was also asked to consider the possibilities for developing other airports within the State such as St Cloud, Rochester, Duluth and Willmar as cargo distribution centres. The study group reported their unanimous conclusion that this was not a matter worth considering as the vast amount of all cargo comes from and goes to the Twin Cities, and the cost of transporting the cargo back and forth would be prohibitive.

We consider this conclusion to be too restrictive and failing to recognize the necessity to strengthen the State's infrastructure. Today integrators provide a daily lift in and out of Duluth and Rochester of 100 tonnes per day. We believe that MSP cannot provide all the lift and all the services necessary to meet manufacturing companies logistics and distribution needs especially for those companies located 75-100 miles distant from MSP. Increasingly those companies require 24-hour door-to-door distribution services in the US domestic market and 48/72 hours globally. While not part of the remit of this study we nevertheless strongly recommend that airports and domestic distribution centres, road and air need to be developed at locations such as Duluth, St Cloud, Rochester and Willmar and possibly others. Those centres are necessary to service local industries and to encourage development of other Industries. GDP in Minnesota in the four years 1995 to 1999 exceeded the national average by 4%, which indicates an aggressive industrial expansion policy. It is essential if this growth is to continue that the necessary logistics and distribution services/infrastructure are in place.

4.9.2 Impact of a weak distribution infrastructure on jobs in a region

As part of our study we surveyed a number of stakeholders including manufacturing companies in the State of Minnesota. We have found as others have in their studies that manufacturing industries are seeking to locate plants either close to the market or close to distribution hubs. In our worldwide studies in 1998 and 1999 we discerned a global demand for global 24-hour door-to-door domestic distribution and 48/72 hour door-to-door intercontinental distribution. This capability is becoming one of the operating criteria by which manufacturers are measured as meeting today's market needs.

We have found worldwide many examples of major companies moving their manufacturing facilities to meet distribution needs and our experience with manufacturing industries in the MSP area are no different.

This demand is also evident in the US domestic air distribution market, which has grown exponentially over the past ten years. It was served in the main by the traditional freight forwarders and the domestic scheduled airlines up to and including the 1980s. However the forwarders and scheduled airlines today have less than 20% of their former market, while relatively new entrants, the Integrators and the USPS now dominate the market and control over 80% of it. It is also interesting to note that the USPS has more and more moved the domestic airmail from the domestic airlines to the integrated airlines where they are guaranteed delivery times.

As we have identified in other parts of this report our study is centered on MSP but in our work we have identified a need for a structured approach to distribution into and out of the State both domestically and internationally in addition to the services offered over MSP. We believe that the services to and from MSP are inadequate to fulfil the distribution needs of all industries in the State especially those in the areas outside a 75/100 miles radius of MSP. Increasingly the required 24-hour door-to-door domestic and 48/72 hour International distribution requirements are not being met.

We identify considerable dangers in not providing an adequate regional distribution infrastructures as;

- 1) Existing companies may see strategic and competitive advantages in relocating productions with the resulting negative economic impact on the State.
- 2) The State will fail to be attractive to potential investors capable of attract new job/wealth creating industries to the State
- 3) Advanced information technology and rapid and flexible distribution services increasingly support high tech economies. Both help to minimise inventories allow global inputs sourcing and product distribution, nationally and internationally. A weak infrastructure has the opposite effect.

A loss of regional competitiveness can often be imperceptible until it becomes a structural issue requiring considerable focus. It is often difficult to reverse. We would encourage awareness of this risk for MSP and it's hinterland.

4.9.3 Absence of shipper demand for better international services

We did not find substantial shipper demand for better services from MSP. It could be concluded that shippers are satisfied with the range of transportation services and suppliers that are available to them. This needs to be further examined as environmental conditioning over time rather than a strategic review or careful examination of distribution and how it will impact on their business may condition shipper expectations and behaviour.

4.9.4 Uncertain mandate for Foreign Trade Zones

A Study Group was established to examine the role of the Foreign Trade Zones in the MSP area. A copy of their report and recommendations are contained in Appendix 8. It is evident from our investigations that the approach to the development and promotion of Foreign Trade Zones in Minneapolis lacks focus, clear mandate, direction and resources. It is unlikely that it can function effectively in this way.

Section 5

Conclusions, Prognosis & Recommendations

5.1 Conclusions

It is not prudent to review air cargo at MSP unless we view it as part of the economic infrastructure of Minneapolis-St. Paul, its hinterland and of the State of Minnesota generally. MSP is key to the local and regional economy as effective global distribution is now recognised as an important competitive tool. But we note that MSP's contribution to the State of Minnesota's distribution needs is declining. Traffic is moving elsewhere and schedules to and from MSP are now almost entirely domestic. We see this to be a consequence of the structural changes taking place in the global transportation industry. It cannot be accounted for by a slowdown in economic activity. It will not radically improve even if there is substantial improvement in local and regional economic activity.

Just as we noted in our review of the global distribution industry, traditional boundaries are becoming increasingly blurred. The conventional separation of industry participants into autonomous and self-contained businesses is no longer a safe foundation upon which to build a strategy for development. There is evidence that the traditional air cargo industry is in rapid decline primarily because the system for doing business employed by its dominant distribution channel, the freight forwarder, is hostile to the air cargo business. The system is based on two fundamental operating policies, maximum consolidation of freight and the use of nominated gateways. Paradoxically the consolidation system was developed in co-operation with the carriers and fully supported by most of the carriers to the present day. However, this system has introduced complexity and delay to the processing of freight to the extent that air transportation has become less than 10% of total cycle time. Airports are conduits for processing the inbound and outbound flows of passengers and cargo. Anything that causes delay to the flow adds costs, depletes the value of the mode of transportation over time and erodes the economic well-being of tenants and users of airport facilities.

So in our review of the global industry we now note the evolution of two different segments:

- Integrated time-definite, global door-to-door, consistent and reliable
- Deferred, low-service, low price and very patchy performance

Yet it is important to recognise that this segmentation is a consequence of behaviour by industry strategic groups rather than those groups being in different businesses. Both segments provide the same service components but to greatly different performance standards in terms of reliability and consistency. Put another way, the integrated operator is the natural evolution that the traditional air cargo industry failed to achieve.

The profile of cargo through MSP airport is a perfect fit with the global industry as it is today. The segmentation of the industry is having totally predictable effects upon MSP. Integrators are rapidly increasing their presence and using the airport as a sub-hub as part of their overall network. Meanwhile, deferred freight is bypassing MSP and designated for Chicago drawn by opportunities for consolidation, lower rates and a broader range of international services.

5.2 Prognosis

5.2.1 We have identified a major structural change in the global distribution industry driven by customer demands for predictable global distribution services. These demands require fundamental behavioural changes by parties within the traditional airfreight industry but this is not happening. The traditional air cargo industry is heavily influenced by the air passenger industry. We have seen the development, particularly in the USA, of major hub and spoke operations. Hubs are good for freight as they provide an extensive mass of lift across all key economic regions. In this scenario a feeder airport such as MSP has little direct value to offer the world of global distribution.

- 5.2.2** The integrators will likely see MSP into the future as a regional hub that will feed into their main national hubs. It is very unlikely that they will develop long haul services into/out of MSP. Similarly it is unlikely that integrated operators, who are highly systemised already, will be willing to adapt their operations to fit-in with local or regional collective distribution activities. Integrators operate highly proprietary environments through which they seek competitive advantage.
- 5.2.3** The traditional airfreight industry will continue to decline. It will continue to tie-up real estate at airports but will be less able to afford the rents. The considerable interdependence among the airlines and forwarders will continue but so will the considerable imbalance in power relations. The carrier will remain the weaker partner. The forwarder effectively controls their collective economic well being. The forwarder behaviour is driven by shippers pursuit for lower transportation costs. The shipper now generally buys integrator for service and traditional industry for price. The price paid to airlines is too low to sustain freighter operations on a long-term basis even on the most worthwhile routes.
- 5.2.4** Airlines will remain hostage to their distribution channel, the freight forwarders, and by default as far as cargo is concerned, airports will remain hostages to forwarder behaviour in the marketplace. Shippers appear from our interviews to be reasonably happy with the spread of distribution services available to them so there is no obvious market force that will change the behavioural patterns of forwarders or carriers. Even the rapid decline in yields and the accelerating penetration of the global distribution market by integrators is unlikely to deliver the symbiosis so obviously needed between these markedly interdependent groups. It is unlikely that they will survive beyond the end of this decade other than as pure commodity brokers.
- 5.2.5** A development strategy for MSP must take account of the reality of present industry circumstances if it is to have a chance of succeeding. A development strategy must be developed against a process-based ideal for moving freight so that the implications of different decisions can be determined and appreciated. Against this model a strategy for improving the overall performance of MSP must be developed which will include initiatives that can improve performance in the short-term. However, it should avoid an over-dependence on approaches that do not fit the forces driving competitive performance. The airports of the world, with few exceptions, have invested in failed initiatives for developing cargo. It would be better for MSP to accept a declining role in global distribution than fund or depend upon failed 'status quo' approaches.

It is a time for a radical approach. Forwarders, carriers and airports cannot buy themselves out of these structural industry problems. The less you do along the airfreight cycle the better you will do the job of moving boxes for shippers and the less it will cost you. The better the job you consistently do for shippers the more they will be willing to pay. The processes driven integrated operators successfully demonstrate this simple fact on a daily basis.

5.3 Recommendations

- 5.3.1** We recommend that the MAC encourage the continuing development of services being operated by the integrated service providers. They have invested heavily in developing market-lead, value-add services and in appropriate airport infrastructure developments. They can be expected to grow successfully into the future both domestically and internationally as global distribution increasingly depends upon time definite services.
- 5.3.2** We recommend that the MAC separates cargo and passenger operations and plans MSP from a future date, say 2002/3 to provide only for passenger and Integrator services handling

on airport and move the traditional air cargo handling services off airport. Today MSP is a predominantly domestic passenger airport with only a very small international air cargo operation. It is unlikely that this situation will or can be significantly changed. Traffic generated by traditional air freight operations does not have the economics to warrant freighter schedules long-term.

5.3.3 We recommend that an existing regional airport be upgraded to be a cargo 'twin' for MSP. There is a need for a regional all-cargo airport that complements operations at MSP. This airport could be for instance St. Cloud, Duluth, Rochester or Willmar. Choice of a suitable location is a matter requiring further evaluation. However, governance over these airports should be with one centralised authority to ensure the practical integration of the two operations and an operating environment that meets international requirements. The all-cargo airport should have unrestricted operations particularly as regards heavy freighters operating twenty-four hours everyday as necessary.

5.3.4 We recommend the creation of a next generation ²⁸Regional Distribution Centre. It should be located between MSP and the designated all-cargo airport. It should be mandated to create and operate a neutral, regional distribution capability that matches the service reliability of the integrated operators but maintains most of the product and operational flexibility of the traditional freight industry. Success of the concept would require the re-aligning and synthesising of many of today's common but fragmented processes. The RDC would provide all present industry players with generic services which must be performed efficiently and economically but which do not in themselves provide competitive advantages to any industry player along the distribution cycle.

Logistics experts with domestic and international expertise, who in time could provide comprehensive integrated services, should independently manage the RDC. Services to be included initially are local and inter-state trucking, export and inbound freight processing. In due course it may provide lift capacity. The RDC would operate in a fully electronic environment providing full inventory control. It would be certified as meeting the highest security requirements such as physical checking of goods, full trace-ability of all shipments processed, cycle participant profiles and histories and data-mining for security modelling as necessary.

We believe it is necessary that that appointed Logistics provider take ownership of the complete programme including the management of the on-airport marshalling activities including the proposed belly-cargo facilities.

5.3.5 We recommend that an area surrounding the all-cargo airport be designated as an enterprise development zone and includes the present Foreign Trade Zone areas and activities. Collectively they should be given concessions sufficient to attract domestic and international exporting manufacturers to locate there. The present developments at Memphis could be used as a model. The MSP airport initiative, the proposed all-cargo airport and the Regional Distribution Centre model initiative must be treated as all part of a common and integrated strategy. They cannot be treated or planned for separately. The proposed distribution infrastructure model will require a State mandate and appropriate financial incentives and operating resources to make it a success.

5.3.6 We recommend that the stakeholders develop a business case to present to the USPS for the carriage of regional international mail into and out of MSP, utilising the existing international airline services and if necessary connecting domestic/international services. International airmail is growing at an average of 6% per annum and is forecast to continue to grow at an average rate of 5/6% PA over the next 10 years. We believe a well-developed

²⁸ See [Cargo Process Model](#) which complements this report

business case to the USPS, which identifies the benefits of avoiding the mail handling congestion at Chicago, and the improved customer services benefits will increase the volume of international mail through MSP.

- 5.3.7** We recommend that the Executive Steering Committee support the recommendations made by the Road Access Task Force. Throughout the customer interview stage, a number of those companies interviewed raised the question of road access to the airport at peak arrival times (AM) and peak departure times (PM). The integrated carriers in particular reported experiencing congestion and delays on the approach roads to the airport, particularly on routes 494 and 694. The Road Access Task Force recommendations include alterations to the airport access point at HWY 62 and 77th. Street and an additional entry point to the interchange from HWY 77 North to Westbound 494. The task force also identified the peak period congestion on 494 and 694 and noted that whilst there is a long-term plan to relieve congestion by adding lanes, no funding has been allocated to enable this work. Adequate road and rail access to airports is a prerequisite to the successful development and expansion of the airport.
- 5.3.8** We recommend the implementation of the proposals contained in the Customs Clearance Study Group Report. Furthermore considering the increased need for security at all levels and the present availability of easily distributed data we believe that regulators should now consider legislating for a requirement that all the necessary information required by Customs be submitted electronically prior to the arrival of the goods in the USA. The more systematic and timely exchange and management of industry available information will provide many commercial and security related benefits.
- 5.3.9** Finally, we recommend that a project be launched for planning the proposed Regional Distribution Centre, the all-cargo airport, the enterprise zone plus the migration of all traditional cargo handling activities away from MSP. The project should also include a 'proof of concept' computer-based simulation exercise encompassing the scenario outlined above and with particular emphasis on paperless trading and the systematic use of information and data for providing a highly 'value-add' capability and secure distribution environment. We believe that a template of potential national importance particularly as regards evolving security needs could be derived from this phase.

Section 6 Appendices

Appendix 1	The Memphis Report
Appendix 2	Freighter Economics
Appendix 3	Unisys Study of 2,000 Shipments
Appendix 4	Customs Clearance Study
Appendix 5	MSP Cargo Throughput Study
Appendix 6	Roads & Road Access to MSP Study
Appendix 7	Night Jet Restrictions Study
Appendix 8	Foreign Trade Zones Study

Appendix 1

The Memphis Report

Airports offering time definite door to door delivery services attract and maintain new investment in manufacturing and logistics which benefits the local community by creating new jobs, and bringing new investment to the area.

As part of the study undertaken by SITA on behalf of the Minnesota Department of Transportation, we have chosen three airports in the United States which are used by manufacturing companies for manufacture and distribution both domestically and Internationally. In the following pages we look in some detail at Memphis and it's contribution to the local community.

Memphis is the largest cargo airport in the world handling 2,412,905 tonnes per annum, and is the home of FedEx. Louisville is the third largest cargo airport in the USA after Memphis and Chicago O' Hare, handling 1,486,205 tonnes per annum, the 12th largest in the World and it is the home of UPS. Rickenbacker Columbus, Ohio ranks 23rd in the USA handling 81,481 tonnes and is 117th in the world league of airports. All figures shown are based on published figures for 1999.

Memphis, Tennessee.

Increasingly companies competing in the US domestic and International markets are required to shorten their supply chains for a variety of reasons but primarily to meet customer distribution demands for 24 hour domestic and 48/72 hour international, and for cost reasons. For many companies this is not practical or economic, but for a growing number of companies in health care, electronics, and a wide variety of other industries moving their manufacturing or their distribution centres to hubs of distribution such as Memphis are increasing dramatically.

There are a number of incentives to moving to Memphis but the main attraction for a majority of companies is speed and guarantee of delivery for their inbound and outbound goods.

Locating Manufacturing and distribution facilities near airports is not a new idea, but changing business demands in recent years have made it a far more attractive option than before. The prevalence of just-in-time manufacturing systems, online retailing, and increasing demands for time definite delivery have made speed and reliability a top priority for many companies in recent years. The main providers of these services to day are Airborne, DHL, BAX Global, Emery, TNT, FedEx and UPS, all of whom operate air and ground distribution services providing national and global guaranteed time definite services. Those companies operate a series of hubs both nationally and internationally.

Looking specifically at FedEx and Memphis which is its major US hub and is supported by four regional hubs throughout the USA, we find that over the past twenty five years as FedEx built their Memphis hub an increasing number of manufacturing and distribution companies have moved their operations to Memphis to be close to the FedEx hub for national and International deliveries. This level of development has increased dramatically over the past five years as companies seek reliable time definite delivery of their goods, which they see as essential to their continued growth and success.

So successful has the Memphis development been that FedEx have now had to appoint a Managing Director and a support department to deal with and provide support to the many companies currently seeking to locate in Memphis. Firm enquiries for information to locate near to a FedEx hub are currently exceeding 60 enquiries per annum.

Memphis Airport is currently in the process of a major expansion and development programme which includes the completion of an 11,100 foot runway to facilitate the operation of fully laden FedEx

MD11 aircraft which can now fly direct to Japan from Memphis thereby reducing the time and cost of stopping in Anchorage to uplift fuel. The most significant advantage according to FedEx is the time saving for customer deliveries indicating again the increasing importance of time to the customer.

The States of Tennessee, Arkansas, and Mississippi, have jointly come together to develop the area that is approximately within a 75 mile radius of Memphis. They have set out the five key objectives of their plan that are:

- To fulfil the mission of linking the region to the continental grid.
- To strengthen the platform for global market access
- To build the resources necessary to compete in the new economy.
- To enhance the quality of life in the region.
- To build a positive mentality about the region.

Amongst the critical issues the area is concentrating on developing are the Regions Transportation and Logistics systems, to provide multi modal national and International Time definite distribution.

To day Memphis is considered by many as the distribution Capital of North America. 200 truck carriers, six Class 1 railroads, three foreign trade zones and 140 million square feet of warehouse distribution serve Memphis. The area employs a progressive and energetic Industrial Development Board that in addition to providing assistance in relocating, etc also negotiates tax incentives to ease relocation and start-up expenses for companies that enrich the local economy.

Amongst the latest to join the industrial community in Memphis is the General Motors Parts Distribution Centre occupying 660,000 square feet, employing 250 people and bringing a \$34 million investment to the area. Due to the efforts of the Industrial Development Board to attract GM to Memphis, GM expect to get a 14 year full tax assessment freeze on the projects real and personal property.

The following is a list of the top Company owned Distribution Centres located in Memphis.

Williams-Sonoma,
 Nike
 Sears Logistics Services,
 TBC Corp
 Fleming Corp
 Ingram Micro
 Brother International
 Thomas and Betts
 Baxter Healthcare.

Those companies alone employ over 6000 employees and occupy 18 million square feet of distribution warehouses. Other Companies with manufacturing or distribution centres in Memphis include;

Pfizer Pharmaceuticals	Hewlett Packard	Kroger
Cummins Engines	Glaxo Welcome	Johnson & Johnson
Reebok	Mazda	Disney
Smith and Nephew	Wright Medical	Medtronic Sofamor
Smith Kline Beecham	United Medical	Cole Division
United Medical	Eagle Vision	Baxter Healthcare
Pfizer	Glaxo	Shering Plough
Siemens	Boston Scientific	GE Medical

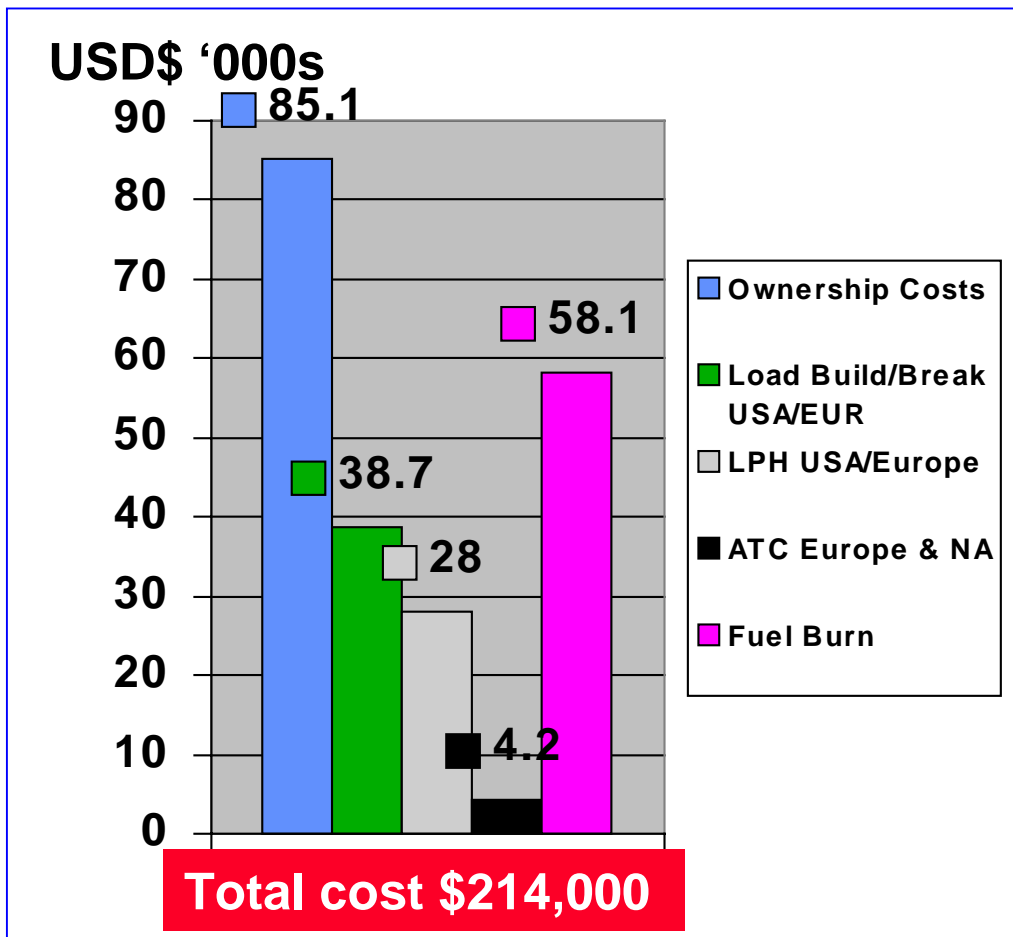
These and many hundreds of companies to day use Memphis. Memphis continues to aggressively market its services and its financial benefits to attract high quality employment and increasing benefits for its people and the environment.

Appendix 2

Freighter Economics

Below is a typical cost profile for operating a Boeing747-200 series freighter round-trip transatlantic. A constant net-net rate of US\$1.22 per kilo plus average load factor of 80% simply to break-even is not generally attainable. The costs included in the profile are the minimum that must be included so they effectively understate the true economic cost of the operation.

- Break-even requires a constant net-net rate of US\$1.22 per kilo
- Average load factor of 80% is used and this is optimistic
- Costs exclude share of overhead, sales costs, commissions and war risk insurance



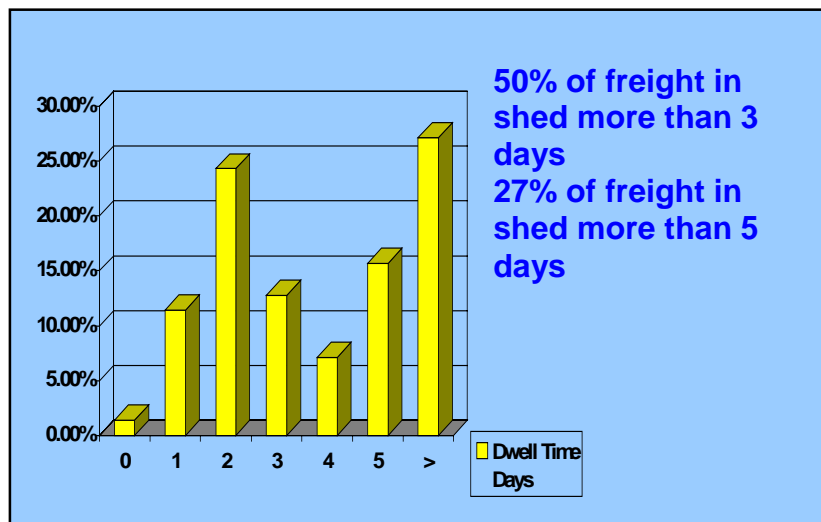
Appendix 3

Unisys Study of 2,000 Shipments

Unisys commissioned a study of 2,000 international freight shipments 1995/1996 which they presented to senior industry representatives at their Management Centre in Saint Paul de Vence, France. Initially the report was challenged by the industry but was subsequently validated by other studies. They found the average door-to-door cycle times to be more than six days. They found considerable delay at the airport of arrival with 50% of freight having dwell times in excess of 3 days.

The door-to-door cycle was found to be full of fragmented processes, excessive storage and process redundancy. However, the main conclusion was that the commercial relationships between forwarders and carriers (basically consolidations) could never deliver appropriate performance in an increasingly short cycle business.

- An average piece of freight is handled 36 times during the cycle
- An average piece of loose freight will be checked or counted on about 16 occasions
- An average piece of loose cargo will be stored in at least 8 different locations
- An average piece of cargo generates about 12 pieces of paper
- Some 15% of all consignments generate calls from the shipper to the agent.
- 1.5% of all AWB's are lost in the system



Fastest shipment time was 42.5 Hours

Slowest shipment time was 22 days

Average cycle time was more than 6 days

Appendix 4

Customs Clearance - Study Group Brief & Report

Brief

Studies carried out internationally in the mid and late 1990's has shown that poor communication and poor planning accounted for up to half the total transit time for goods moving internationally, by air freight. This lack of communication and planning has been identified in the transportation area usually referred to as customs clearance. Many studies in the past have found " Customs Clearance " to be a major delaying factor accounting for 3 – 5 days of the total transportation cycle. A study carried out at MSP in 1999/2000 indicated that customs services were less flexible at MSP than at Chicago causing some difficulties with international shipments.

The work carried out in the study to date indicates that customs clearance at MSP is taking up to 5 days on average. Information drawn from other studies on this issue have identified the processing of information and the filing of customs entries with the customs authority as being the major cause of the delay. In international studies this process has been shown to be accounting for up to 97% of the time from when goods arrive at the destination airport until delivery/collection from the customs bonded facility.

International studies have identified the time customs need to process and issue customs clearance and release of goods to be of the order of 3% of the time from arrival to collection. Those studies have also shown that in excess of 90% of all goods moving internationally are cleared without physical examination of the goods.

Our study to date shows that 90% of the customs entries filed for international air freight arrivals at MSP (by air and by surface in bond from Chicago) are filed via the US Customs Automated Brokers Interface System and will receive automated paperless clearance.

Our findings to date however indicate an average customs clearance time at MSP of 3 – 5 days. Whilst in line with international air freight standards, a delay in submission of customs entries where an automated brokerage interface system is in operation of 3 – 5 days seems excessive.

The working group is asked to produce a report by September 24th. 2001, which will address the following issues and make recommendations on how improvements can be obtained to reduce dwell time for inbound international airfreight at MSP.

1. Ascertain the average time from arrival of goods at MSP (by air or air/surface) until customs entry is filed.
2. Provide a breakdown of the factors that lead to the time element from arrival to collection from the bonded facility.
3. Provide a series of recommendations that could be implemented to reduce the time and cost associated with the delays occurring in the clearing process.

The report of the working group must be completed and submitted by e-mail to Mr. Hugh Doyle at Hugh.Doyle@sita.int to be received no later than Monday 24th. September 2001.

Report

During the month of July, 2001, U.S. Customs released 4493 cargo shipments arriving by air or air/surface at the Port of Minneapolis/St.Paul. Of those released, 72.5%(3256) were paperless (released via Automated Broker Interface (ABI) with no additional documents required to be presented to U.S. Customs). All of the shipments were entered via ABI. Only 1.5% were physically examined.

Seven non-consecutive days in July (one each of each day of the week) were randomly selected for additional analysis. The number of entry releases for this time period was 1132.

The average time from arrival until Customs release was 2.57 days after the day of arrival. The average time for transmittal of entry data via ABI was 2.19 days after the day of arrival.

Additional analysis shows the following (see chart titled Days for Release):

25.5 % of entries released on the day of arrival
26.2 % of entries released on the first day after arrival
15.1 % of entries released on the second day after arrival
10.9 % of entries released on the third day after arrival
6.3 % of entries release on the fourth day after arrival
4.2% of entries released on the fifth day after arrival
2.4% of entries released on the sixth day after arrival
9.3% of entries released seven or more days after arrival (7-43 days).

Two questions are raised by this data:

Why are only 25.5% of entries released on the day of arrival when 72.5% are eligible for paperless release?

What causes delays for 9.3% of entries for release times of 7 days or more?

Further review of the data reveals the following:

Almost no entries are created in the ABI system or released on Saturday or Sunday (see chart titled Entries by Day of Week).

Merchandise which is physically examined by U.S. Customs requires an average of 3.1 days for release (5.2 days for discrepant and 1.6 days for non-discrepant). And exams account for only 1.5% of releases.

During this time period 6.9% of shipments were entered by first time importers. Of the entries requiring 7 or more days for release 22.9% were first time importers.

The following were determined to be the steps in the basic process of handling imported shipments from arrival to pick-up.

1. Report of arrival of flight or in-bond arrival
2. Airlines break down paperwork for broker or forwarder
3. Notifies broker/forwarder of arrival (except on weekends)

4. Runners pick up paperwork from airlines and takes to broker or forwarder
 - a. Broker completes ABI entry—if information is incomplete contacts consignee

Or

 - b. Forwarder breaks down by house airwaybill or sub house bill, completes arrival notice, and notifies broker of charges due. Broker cuts check.

Runner takes paperwork to broker

Broker completes ABI entry-if information is incomplete contacts consignee

5. Runner takes paperwork to Customs if not paperless
6. Customs processes and releases—may be examined or have other agency requirements
7. Runner takes release to Carrier (release is available electronically if AMS carrier).
8. Broker sends delivery order to carrier
9. Broker arranges for pickup
10. Shipment is picked up and delivered.

Based on the data analysis and process analysis three factors which delay the process are:

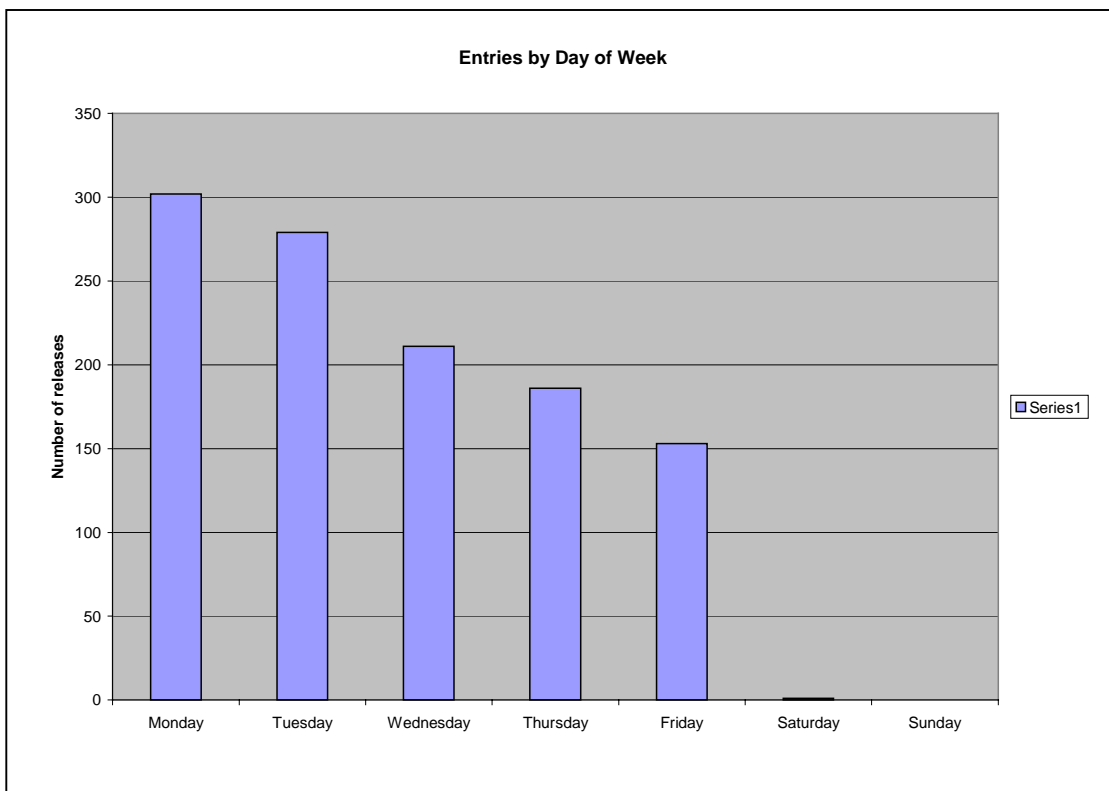
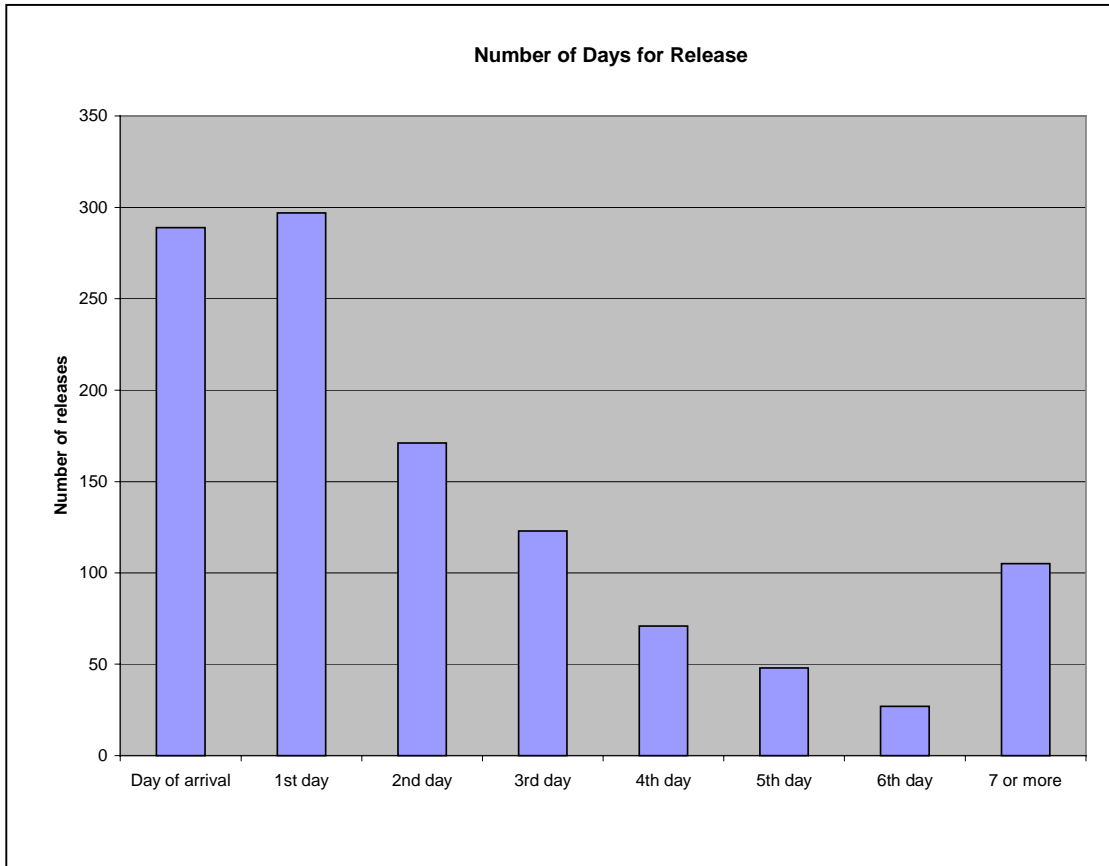
1. **Although entry can be made through ABI and be paperless, the documents containing the information arrive with the freight and the broker does not have the information needed to file the entry prior to arrival. It can easily be two days or more before the broker has the information depending on the circumstances.**
2. **Currently, the documentation, which arrives with the cargo, is not disseminated, received, or processed over the weekend.**
3. **All the information for release of the cargo may not be included with the shipment. This appears to happen more frequently with smaller or less experienced importers.**

Recommendations:

Find ways to get the information to the broker before the arrival of the freight.

Increase education of the importer so that all information is available to the broker/filer. This would include not only current importers whose needs are served by MITA, WTA, and other groups, but also providing information to new and inexperienced importers through other contacts who work with small businesses and economic development groups.

Explore expanding hours of service for all parties.



Appendix 5

MSP Cargo Throughput – Study Group Briefing & Report

Brief

Cargo and Mail traffic in and out of MSP by air has remained static since 1995. Throughput in metric tonnes in that period is as follows: -

Year	Freight & Express	Mail	Total
1995	241968	123235	365203
2000	255785	114103	369988

In this period freight worldwide will have increased by over 50%. Whilst traditional freight (freight handled by freight forwarders and scheduled airlines) has been showing decline in a number of international markets and very serious decline in major domestic markets such as the USA, freight moving on integrated services has been showing large growth with some markets showing up to 20% PA growth rates.

Freight Integrators throughput at MSP has been growing and continues to grow at a fast rate whilst traditional freight appears to be in decline.

Integrated carriers are driving plans for freight facility development and expansion at MSP almost exclusively. This is a strong indicator that MSP as an airfreight distribution centre for the integrated carriers will continue to play a major role in the airfreight market.

What is important to understand is the decline in the traditional airfreight market, in so far as MSP is concerned and if it is possible to reverse that trend and if yes what steps need to be taken to bring about a reversal of the decline?

The working group is asked to produce a report by 24th. September 2001, which will address the following issues and make recommendations on how best those issues can be addressed.

1. Why airfreight by air in and out of MSP has declined over the past 5 years?
2. What if any action can or should be taken to reverse this trend?
3. How do the shareholders at MSP see their future role in the provision of services to the growing and expanding industrial export output of the State?

The report of the working group must be completed and submitted by e-mail to Mr. Hugh Doyle at Hugh.Doyle@sita.int to be received no later than Monday September 24th. 2001.

Report

1.0 MSP Traffic Levels

The Working Group has been asked to explore why airfreight shipments ex-MSP have remained relatively flat over the last five years, while worldwide airfreight has increased 50% and local express shipments have increased greater than 20%.

1.1 Measurement

It is exceedingly difficult to accurately measure the amount of cargo that is moving in the airline industry. The current procedures are rife with double counting and missed traffic. Moreover, the statistics that are available often measure only throughput at the airport and not the indigenous traffic in the underlying markets. However, available evidence suggests slow growth in the underlying business.

MAC data shows that MN exports have been growing slowly over the last three years, driven by quarterly spikes in digital process equipment.

AEI reports that their cargo traffic has mirrored the growth in the local traffic levels i.e. slow growth. However, there is a threat in that as shippers become more sophisticated in their transportation management traffic for major MSP customers that is currently being consolidated in MSP by the shipper may move directly to destination and bypass MSP.

1.2 Segmentation

The air cargo traffic can be classified into four categories: integrated product, traditional international, traditional domestic, and mail. Below is a brief discussion of the infrastructure developments in each of these areas over the last 5 years.

Integrated Products

- Door to door shipments
- Integrators use MSP as a collection point for small markets in MN and the Dakotas, leading to over counting of integrated shipments.
 - More closely tied to service economy.
 - Integrators have been accepting heavier weight traffic.
 - Bundling time definite ground transportation options.

Traditional International:

- Forwarder/Carrier model requires an additional margin than integrated models
- Gateway economics lead to development of cargo hubs
- Development of time specific products at hubs allow for more shipper choice and lower price
- International flights characterised by more frequent use of smaller aircraft
- Direct flights only used for emergency shipments
- Shipment size is often the determining factor as to the use of secondary gateways. (Small shipments are sent to the gateway even if local options exist.)

Traditional Domestic:

- Forwarder/Carrier model
- Development of integrated systems
- Withdrawal of domestic widebody aircraft in favor of more frequent service on smaller aircraft
- Tight hub banks limit cargo transfers

Mail

- Loss of market share to electronic communication, integrators, etc...

- Development of co-operation by the USPS with integrated companies (EWW and FDX) divert mail onto those systems
- USPS has concentrated international mail at hubs (ORD for this part of the company) placing MSP carriers at a disadvantage.

1.3 Consolidation Model

To maximise buying leverage, forwarders have been consolidating shipments before tendering to the line carrier. This gives them the best margin, at the sake of some efficiency for the shipper (e.g. it takes longer, but usually not significantly). To facilitate these consolidations the forwarders have developed gateway facilities throughout the country, principally LAX, SFO, ORD, JFK, ATL, DFW, and MIA.

Gateways tend to be in large well served air markets with lots of competition. They are also geographically dispersed to provide a minimum of overlap although some serve particular missions. (E.g. the MIA gateway is primarily focused on Latin America traffic.) Efficient, often dedicated, RFS networks feed traffic to these hubs and deliver it back to spoke cities.

Additionally, carrier set volume thresholds often trigger refunds to the forwarder. However, these may not be reflected in the local managers P&L. This limits the ability to use common rating to allow more direct shipments over secondary gateways as decisions are driven by local gateway P&Ls.

- Consolidation typically adds one to two days to the transit time of a shipment, both inbound and outbound. Integrators are faster with only several hours' delay.
- Additional cost to the forwarders is minimal \$500-700 for trucking and generates substantial cost savings in reduced lift cost. A truck can hold more than 15000/lbs giving a cost of less than \$0.05/lbs.
- Trucking cost is seen as sunk by the forwarders as the gateways function as clearing house for shipments to many small shipments and unless shipment size is significant forwarders will route traffic via gateways for ease of handling.
- The forwarders consolidate more than 90% of traffic through gateways
- Integrators also move traffic to consolidation points before international dispatch. They simply move traffic to this point by air rather than surface.

2.0 Current Opportunities

- Develop MSP as providing faster throughput and better service
- Identify "niche" commodities and develop specific targeted services.
- Move traffic back from the gateway to get larger blocks of traffic for ex-MSP, would require discounting ex-ORD rates to cover trucking.
- Local customers to specify local shipping
- Lobby the USPS to move international mail dispatch back to secondary airports.
- Add flights to MSP to high demand destinations or adjust schedules to give forwarders later lockouts. May not be possible due to passenger demand. Late evening/mid AM departures would have the best chance but is this enough for forwarders.

3.0 Long Term Opportunities

- MAC actively participates with development authorities to attract airfreight industries to MN.
- Develop full freight facilities at MSP, agriculture station, customs etc....
- Survey the needs of the shippers in our region so they stay.
- Explore a common sort facility.
- Develop better market information to make flight and service decisions that would include the reporting of all weights and destinations to a neutral body (possibly the MAC). Each cargo tenant on the airport is contractually responsible for reporting activity under new lease agreements currently being signed. Maybe we could collect this information on a more timely and comprehensive basis.

- Develop an MSP Team approach that is more organised locally, that includes joint marketing of MSP at trade shows and that creates an airport image that is favourable to cargo.

Appendix 6

Roads & Road Access to MSP – Study Group Brief & Report.

Brief

In the work done in the study to date, vehicle access to and from MSP Airport has been raised by a majority of those interviewed as being a significant factor. In the year 2000 in excess of 400 million tons of freight moved in or through the State of Minnesota. An estimated 60% of the tonnage moved into or out of the State, 30% moved within the State and the remainder was transiting the State. Airfreight represents less than 1% of the total. Traditionally Cities and States plan infrastructure investment in a 10 to 20 year cycle, which invariably means that the provision of the necessary infrastructure, roads, railways, airports etc. etc. are always in a catch up situation. This has been especially an issue over the past 10/15 years due to the enormous economic growth and development in the USA and internationally that has produced enormous growth in travel, consumerism etc.

In this period of 10/15 years there has been enormous changes in the methods and the demand for the movement of goods, not only in the domestic market but also in the international markets. Consumer demand requires variety, availability and consistency of supply to a level unknown in the 1980's when the current road infrastructures were being planned and built. Travel also has grown at an annual rate of 6/7% PA in this period, producing more vehicles on the roads, expanded airport facilities, from passenger terminals to on and off airport parking facilities. Growth in the US and international economies has put more cars on the roads with the inevitable congestion especially at peak travel times, time of the day, days of the week etc.

Minneapolis/St. Paul is no different from other cities and the strong economic growth in the state has increased the congestion on the twin city's road infrastructure. One third of the freight moved in and through the state on Minnesota in 2000 was moved by road, and this figure continues to grow at a rapid rate adding to the increasing level of urban congestion.

In the work carried out to date on the study it is evident that congestion in the road infrastructure serving the airport is a significant issue that impacts on all parties, carriers, integrators, forwarders, truckers and shippers.

In particular the main arterial roads serving the airport, 694, 494 and 35W all carry heavy city and urban traffic and a very high level of the commercial traffic in and out of the airport. A further complicating issue relates to the peak demand for trucking services in and out of the airport, which corresponds with the peak traffic periods in the AM and PM.

Based on the assumption that airfreight will continue to grow at MSP at the same level as is forecast for airports around the world, throughput at MSP will grow from a current level of 350,000 tonnes PA to over 1000,000 tonnes PA by the year 2015.

The working group is asked to produce a report by September 24th. 2001, which will address the following issues and make recommendations on issues that can be addressed to help alleviate current and future congestion.

1. Developments considered necessary in the feeder roads serving MSP airport (694, 494, 35W etc.) to enable continued growth of air cargo services at MSP airport in a cost effective and operationally effective manner.

2. What actions/strategies could be developed to help ease road congestion for commercial vehicles (trucks) in the immediate area of MSP and the approach roads, for example, off airport consolidation / de-consolidation facilities, off airport container build and break stations.
- 3 Possible developments of other airports within the state as cargo/distribution centres, such as Duluth and Rochester.

The report of the working group must be completed and submitted by e-mail to Mr. Hugh Doyle at Hugh.Doyle@sita.int to be received no later than Monday September 24th. 2001.

Report

September 21, 2001

Please accept this letter as the summary report of the "Roads & Road Access" task force. Our group met to discuss the road situation. We exchanged data about various shipping patterns that lead to congestion. We also determined that road access needs to be considered from two perspectives, and finally this discussion led to a few recommendations.

There are various shipping patterns that all airlines, forwarders, integrators, and truckers face. These can be categorized as daily, weekly, monthly, quarterly and annual patterns. There's a daily pattern that exists in the sense that transportation activity in the early day is relegated to mostly deliveries or receiving goods. Those goods are high priority because they are to be received by end user or further producer. The afternoon hours activity is mainly shipping goods. These carry priority as shippers seek to fulfil promises made to their customers throughout the day. Today's shipping priority becomes tomorrow's receiving priority. There seems to be a strong weekly pattern with a heavy concentration of outbound shipping towards the end of the week. This may be driven by the production scheduling of manufacturers and order fulfilment of distributors. It seems most shippers seek to clear their shipping docks before the weekend. This reality means there's a heavy number of inbound deliveries on Mondays and Tuesdays cleaning up the goods shipped the previous week.

Not quite as obvious, but a pattern just the same, is a heavy amount of shipping at the ends of the month and the end of the quarters. We believe this is driven by shipping or financial deadlines imposed by consignees, bankers, or government regulations such as export licenses expiration. It seems to us that the deadlines create pressure on the transportation system because similar expectations are experienced by all modes. An example would be a shipment with terms on the 'Sight Draft' or Bank Letter of Credit expiring at the end of a month. Usually the terms will require a bill of lading be issued and the shipment underway in order to collect the funds.

And lastly the annual patterns which are probably most evident. An excellent example of annual patterns exists in the retail industry. Annually their seasons begin with Easter, spring fashions, summer fashions, mothers and fathers days. Fall fashions, back to school, Christmas and winter fashions. All department stores and retailers follow some or all of these patterns.

We discussed the possibilities of altering these patterns perhaps through financial incentives. We more or less concluded that these patterns are deeply ingrained and realistically not alterable to any meaningful extent, but as such they need to be considered when reviewing changes to the infra structure of our roadways.

We mentioned in our opening paragraph that road access needs to be considered from two perspectives. The perspectives are immediate access to the planned air cargo areas and general airport access from the community at large.

There are quite a few shippers and receivers that are concerned about the general congestion in the Twin Cities. Most frequently mentioned are 494 and 694. Our committee is reasonably convinced that there is a long-range plan to improve both of these highways by adding lanes. It appears that

there is no particular schedule set for the improvement because funding has not been allocated. We believe it's essential that we do whatever we can to encourage the state and federal governing bodies to allocate these funds and accelerate the completion of the highway improvement. We believe in light of recent terrorism and the projected decrease in flights expeditious movement to the airport will become even more critical.

Immediate access to the air cargo areas will change dramatically when the new facilities are opened. We reviewed drawings of the intended highway improvements. It appears that the improvements will do a reasonably good job. We would make two recommendations for consideration. The main entry to the new cargo area will be from the east Frontage Road of Hwy 77. Access to the Frontage Road will be from 66th St. on the north and 77th St. on the south. It seems to us a good percentage of traffic will leave the air cargo area and head north on 77 to 62 Crosstown Highway. There is already a significant backup on 77 to exit west on Hwy 62 at various times of the day. The added traffic, once the new area is open, will worsen the back up. We would suggest that more thought be given to the interchange at Hwy 62 and 77. Perhaps a traffic accumulation lane on north bound 77. Perhaps an entry like Hwy 77 north bound to Hwy 494 west (The long high-speed curve) Included please find a drawing of the area in question for your review.

Our second recommendation for consideration deals with exiting to 494. We noticed that there is a new 77th corridor planned. It occurred to us that there is a possibility to gain access to west bound 494 from the new 77th St. It would require an entry to be added to the interchange from Hwy 77 north to west bound 494. We don't know if this is achievable or not but we believe it merits investigation. We see the benefits to be that it would divert traffic from the 24th Ave. interchange. It would put entry traffic onto 494 at a place that offers long acceleration lanes for trucks.

We considered the question of whether consolidation / de-consolidation centers should be moved off airport. The truth is virtually all-conventional forwarders, brokers and truckers have moved off airport already. The integrators will be the tenants of the new cargo area because they need plane side access. We don't believe its practical at this time for the integrators to consider an additional off airport site. If congestion gets too bad in the future that would certainly be an alternative.

We also considered the question of whether it would be practical to consider other airports in St. Cloud, Rochester or Duluth. We were unanimous in our conclusion that this is not a matter worth considering. The vast majority of all cargo comes from or goes to the Twin Cities. The cost of transporting the cargo back and forth would be prohibitive.

We look forward to discussing this report October 9, 2001.

Respectfully submitted.

Road Access Task Force

Appendix 7

Night Jet Restrictions – Study Group Brief & Report

Brief

The increasing domestic and international demand for time guaranteed delivery within time periods of 24/72 hours for goods worldwide has brought about ever-increasing demand for night-time freighter operations. Due to increasing pressure on airports to reduce noise levels at all airports especially in urban or near urban areas and the continuing demand for night flight bans at many airports, it is important to consider and evaluate such a ban at MSP.

Whilst currently no ban exists at MSP there is a special approval requirement to operate aircraft between 11PM (2300 Hrs.) and 6AM (0600 Hrs.) Whilst the possibilities of a night flight ban on aircraft movements between 11PM (2300 Hrs.) and 6AM(0600 Hrs) at MSP exist the working group is asked to produce a report by September 24th. 2001, which will address the following issues and make recommendations on how best those issues can be addressed.

1. What is the likelihood of a night flight ban being imposed on MSP?
2. What if any would be the implications of a night flight ban at MSP on current and future operating plans.
3. What would be the impact on freight throughput at MSP?
4. What alternatives exist in the event of such a ban, e.g. development/use of other State airport facilities, such as Duluth or Rochester?

The report of the working group must be completed and submitted by e-mail to Mr. Hugh Doyle at Hugh.Doyle@sita.int to be received no later than Monday September 24th. 2001.

Report

The task of this Working Group was to address four primary issues concerning the possibility of Night Jet Restrictions. The issues and subsequent findings are attached. The working group appreciates the opportunity to participate in the study.

1. What is the likelihood of a night flight ban being imposed on MSP? In the event of a ban being imposed, what is the extent to which a ban may apply?

A recent report (see attachment) conducted by the Metropolitan Airports Commission stated that no ban on Night Flights has been considered. It goes on to say that the possibilities of a ban are very minimal and as a ban has not been suggested or discussed it is difficult to foresee the implications.

2. What, if any, would be the implications of a night flight ban at MSP on current and future operating plans?

ORD was used as a study city for this project due to the geographical proximity to MSP. Research of Asian and European Flight departures and Arrivals at Chicago's O'Hare field revealed that segments rarely operate between the hours of 2300 and 0600. Samplings of flights between Chicago and the following cities were studied: Hong Kong, Bangkok, Shanghai, Narita, Singapore, Milan, Frankfurt, Paris (CDG), London (LHR), and Amsterdam. Of the 13 All Cargo inbound weekly segments, 10 operate between the Hours of 0600 and 2300. Of the 5 weekly outbound All Cargo flights 2 operated between the hours of 0600 and 2300. As a side note China Air and Lufthansa operated all Flights that departed or arrived after the desirable hours between 0600 to 2300. Although Passenger Aircraft are not relevant to this project, it was found that 95% of the segments operated between the hours of 0600 to 2300. Based on these findings if a Night Flight ban were to be imposed at MSP we believe it would have a minimal impact on the market.

3. What would be the impact on freight throughput at MSP

Based on observations in questions #2, if a ban were to be imposed by the MAC, relatively little impact would be felt on Freight transferring in or out of MSP.

4. What alternatives exist in the event of such a ban, e.g. development/use of other state airport facilities, such as St. Cloud, Duluth, or Rochester?

If a relationship is established between the MSP Cargo market and a Global carrier, it would be expected that "Widebody" All Cargo Aircraft would be used for transport of goods. This type of Aircraft has minimal Take-off and Landing requirements that may exclude the consideration of some Airports.

Logistical requirements for Customs clearance, Forwarding capabilities, Perishable Facilities, and Highway infrastructure need to be met before consideration is made to other State Airports. As most major Shippers and Forwarders are located within the Minneapolis/St. Paul area it appears unlikely another Minnesota Airport could currently support the existing Cargo Market. The development of these Airports should be studied for reliever Cargo Markets, as small package and mail needs are growing exponentially.

The role of State Airports and their impact on Cargo needs to be reviewed as currently many Airports are being serviced by the Integrated Carriers "feeder" systems and their role the overall Cargo picture may be under used, and under valued.

and requiring earlier lockouts of the carriers would put our shipping community at a serious disadvantage. Although the State Airports would not be affected by a ban at MSP, we believe their value is crucial to the region, and they can play an important role in augmenting and enhancing the efforts at MSP. We would also encourage the Airlines, and MAC to work closely with Local Community leaders to ensure a positive environment is created between the groups. As Night Operations has met with some local resistance, we believe efforts should be made to educate the community on the benefits of additional lift, and address any concerns of night operations. From our findings it appears a ban on "Freighter" operations is extremely remote, and as majority of the "Freighter" segments fly between the hours of 0600 and 2300 this issue will not impact the MSP Market.

Regards,

Night Jet Restrictions Working Group

METROPOLITAN AIRPORTS COMMISSION

Minneapolis-Saint Paul International Airport

6040 - 28th Avenue South • Minneapolis, MN 55450-2799

Phone (612) 726-8100 • Fax (612) 726-5296



September 20, 2001

Mr. Barry Koener
USF Worldwide
3030 Lexington Ave
Suite 100
Eagan, MN 55121

Dear Mr. Koener:

RE: Night Jet Restrictions:

The Metropolitan Airports Commission (MAC) owns and operates the Minneapolis-St. Paul International Airport. The MAC is subject to Federal Aviation Regulations (FAR) concerning the implementation of any type of restrictions that could limit operations at the airport, including a nighttime jet ban.

By way of background, in 1990, the U.S. congress enacted the Airport Noise and Capacity Act (ANCA). FAR Part 161 implements portions of the provisions of ANCA by establishing analysis and notice requirements for airport operators proposing Stage 2 and Stage 3 aircraft noise and access restrictions after October 1, 1990. The document sets forth the “tests” that an airport must use when considering the imposition of noise abatement restrictions such as a nighttime jet ban.

When considering a restriction on aircraft operations, the FAA requires an airport to complete a FAR Part 161 analysis. Any proposed restriction cannot be unjustly discriminatory, cannot impose an undue burden on interstate and foreign commerce, cannot unduly interfere with FAA’s control of airspace/air traffic and does not violate any conditions in the Federal Grant Assurance Agreements. Furthermore, a Stage 3 restriction, including a nighttime jet ban, must be approved by the FAA. The airport must prove that the restriction is reasonable, non-arbitrary and non-discriminatory; it does not create an undue burden on interstate or foreign commerce; it maintains safe and efficient use of navigable airspace; it does not conflict with any existing federal stature or regulation; the airport has provided for adequate public comment and the restriction does not constitute an undue burden on the national aviation system.

Given the requirements defined above, the ability for MAC to impose a nighttime ban on jet aircraft becomes extremely difficult and improbable.

Finally, MAC has continuously sought to work cooperatively with both communities and airport operators to effectively use voluntary agreements and other noise abatement techniques to accomplish these types of goals rather than seeking mandatory restrictions.

Sincerely,

Roy Fuhrmann
MAC, Director of Environment

Appendix 8

Foreign Trade Zones – Study Group Brief & Report

Brief

The concept of Foreign Trade Zones or Duty Free Trade Zones is a well established and much used facility internationally, Singapore, Prestwick in Scotland and Shannon in Ireland are examples of duty free manufacturing/assembly zones which employ hundreds of thousands of people in the manufacturing, assembly and distribution industries. Currently in the Minneapolis-St. Paul area there are 3 activated foreign trade zones and 2 approved but not activated. The details are as follows.

Site 1: 3,221 acres in Hennepin County, that includes the 3,002 acres of the Minneapolis-St. Paul International Airport and a contiguous 219 acre in industrial park in the City of Bloomington. Signature Flight Support operates a fuel farm at the airport (activated).

Site 2: 960 acres Mid-City Industrial Park, includes Murphy Warehouse Complex, located at 701 24th. Avenue, Minneapolis (activated).

Site 3: 13 acres located at 3703 Kennebec Drive, Eagan, Minneapolis, within the Eagan Industrial Park (activated).

Sites approved but not activated.

Site 4: 20 acres in the City of Minneapolis at the Minneapolis Convention Center located at 1301 Second Avenue South (not activated).

Site 5: 9 acres located at the Eden Prairie Technology Park 6th. Addition, at South-eastern corner of 74th. St. West and Golden Triangle Drive, Eden Prairie (Not activated).

In the year 2000, 87 companies utilised the facilities in a storage distribution mode only. There was no manufacturing in the zones in the year 2000. 97% of the thru put went directly to the US Domestic market, the remainder was re-exported or transferred to other foreign trade zones. The value of merchandise moving through the zones in 2000 amounted to US \$420M. The main categories of goods transiting the zones in 2000 were Medical Instruments, Aircraft Fuel and Machinery parts.

The working group is asked to produce a report by September 24th. 2001, which will identify and make recommendations on the following points.

1. The utilisation and return on investment of the current facilities.
2. The advantages and opportunities of utilising the zones.
3. Development of the facilities to enhance the utilisation of MSP as a freight distribution centre.
4. Recommendation on the retention and development of foreign trade zones in the MSP area, in so far as they support and develop the handling and distribution of freight through MSP.

The report of the working group must be completed and submitted by e-mail to Mr. Hugh Doyle at Hugh.Doyle@sita.int to be received no later than Monday September 24th. 2001.

Report

Draft of Foreign Trade Zones Work Group

1. Development and utilization of the current facilities.

The Minneapolis-St. Paul customs port of entry has five general-purpose foreign trade zone sites that total 4,223 acres. The largest of these is Site One that includes the entire 3,002 acres of the Minneapolis-St. Paul International Airport and a contiguous 219-acre industrial park in the City of Bloomington. The only current FTZ activity at the airport site is the Signature Flight Support use of the fuel farm to store foreign and domestic aviation fuel. About \$5.8 million in foreign fuel and \$372 million in domestic aviation fuel was under FTZ status in 2000.

In addition to the airport site, there are two public warehouse sites with FTZ status that helped 87 companies last year. The current reporting period data (due in December) has not been assembled, but indications are that the state of the economy has caused the usage to decline.

The FTZ Commission started operations in 1988. Since that time it has approved six sub-zones, moved general-purpose boundaries five times and expanded the FTZ sites in 1992 from three sites of 300 acres to the existing five sites of 4,223 acres. The Commission has demonstrated that it will continue to move the boundaries of the FTZ sites to take advantage of any opportunity.

2. Advantages and opportunities of utilizing the zones

Foreign trade zones in the U.S. are sites considered outside the Customs Territory of the United States. An U.S. Department of Commerce program, FTZs are administered by local government entities granted the right from Commerce and monitored by U.S. Customs.

There are more than 245 approved general-purpose zones and 390 approved sub-zones in the U.S. Over 2,800 firms use FTZs in the U.S. employing over 340,000 people. When a company is unable to use the general sites provided in a customs port of entry it can make application to make its own facility a "sub-zone" of the nearest general-purpose zones program. The total value of merchandise moving through FTZs amounts to more than \$160 billion annually.

The benefits an importer gains by use of an FTZ include:

- Imports may be admitted and held in a foreign-trade zone without paying customs duties.
- FTZ users can pay the duty rate on component material or merchandise produced from component material, whichever is lower.
- Customs duties are not paid on merchandise exported from a zone.
- Duties are reduced or eliminated on materials subject to defect, damage, obsolescence, waste or scrap.
- Merchandise may be exported and returned to an FTZ without duty payment.
- Spare parts may be stored, returned, or destroyed with duty payment.
- Delays in Customs clearances and duty drawback are reduced or eliminated.
- Duties are not owed on labor, overhead, or profit attributed to FTZ production operations.
- Quality control inspections can identify sub-standard goods to be destroyed or returned without duty payment.
- No duty is owed on in-bond, zone-to-zone transfer of FTZ merchandise.
- Customs entries may be done on a weekly basis from and FTZ potentially lowering merchandise processing fee obligations.

3. Development of the facilities to enhance the utilization of MSP as a freight distribution center.

The work group reviewed the FTZ operation at the Rickenbacker Airport (LCK) in Columbus, Ohio because it was cited as an example of a successful airport FTZ. While a copy of Rickenbacker's annual FTZ report has yet to be received, discussions with LCK staff hinted that the FTZs in the Minneapolis-St. Paul port of entry have more usage. LCK does appear, however, to make better use of its airport FTZ.

Key differences between MSP and LCK:

- LCK has the advantage over MSP in having a large industrial park adjacent to the airport. The FTZ marketing effort of the airport is directed towards companies that do value-added activities within the park and who require airport access. By comparison, the MSP airport zone has no comparable industrial area and is only used by NWA to save on fuel costs. The remainder of the more than 80 companies to utilize the FTZ in the MSP area are located at public warehouses miles away from the airport.
- LCK devotes more resources towards promoting its foreign trade zone than does MSP. While MSP has a half-time staff person, LCK has one and a half people devoted to marketing the FTZ. The FTZ is featured prominently in all of LCK's promotional activities.
- Rickenbacker is a cargo airport and the FTZ supports its core activity.

Options discussed by the work group to enhance the utilization of the FTZ at MSP include:

- Developing an Airport Industrial Area with FTZ status possibly in the Eagan TIF area. This area has been identified by Eagan as a transportation center with easy access to I 494 and I 35E and HWY55 and 52. Most freight forwarders (domestic and international) already are located here, as are several exporters.
- The focus of FTZ activity in the Airport Industrial Area would be on value-added services. Importers engaged in packaging, marking, inspection, painting, testing, etc. would be natural tenants of the Area. Manufacturers were not considered as good a target as those companies doing value-added.
- The financing and the oversight of the current Greater Metropolitan Foreign Trade Zone Commission should be modified to include public bodies outside of Hennepin County. The State, Metropolitan Council and others should be encouraged to help fund the FTZ in order to help in the promotion of the program.
- Awareness of the foreign trade zone status at MSP needs to be raised.