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Airforwarders Association

SAFEGUARDING THE FUTURE OF AIR CARGO: ITS ECONOMIC IMPORTANCE AND CRITICAL NEED FOR INVESTMENT

WHITEPAPER

An Initative of: The Airforwarders Association and the National Customs Brokers and Forwarders Association of America

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INTRODUCTION

Over the past decade, one of the primary financial mainstays of the aviation industry, has been air cargo: this has never been more-clear than in the face of the COVID pandemic. Particularly hard hit, airports and airlines, have suffered enormous losses. During this time, it has been air cargo that sustained the aviation industry, and in large measure, regional economies and the morale of the population. The economic importance of air cargo is in large measure directly tied to the intrinsic value of the shipments.

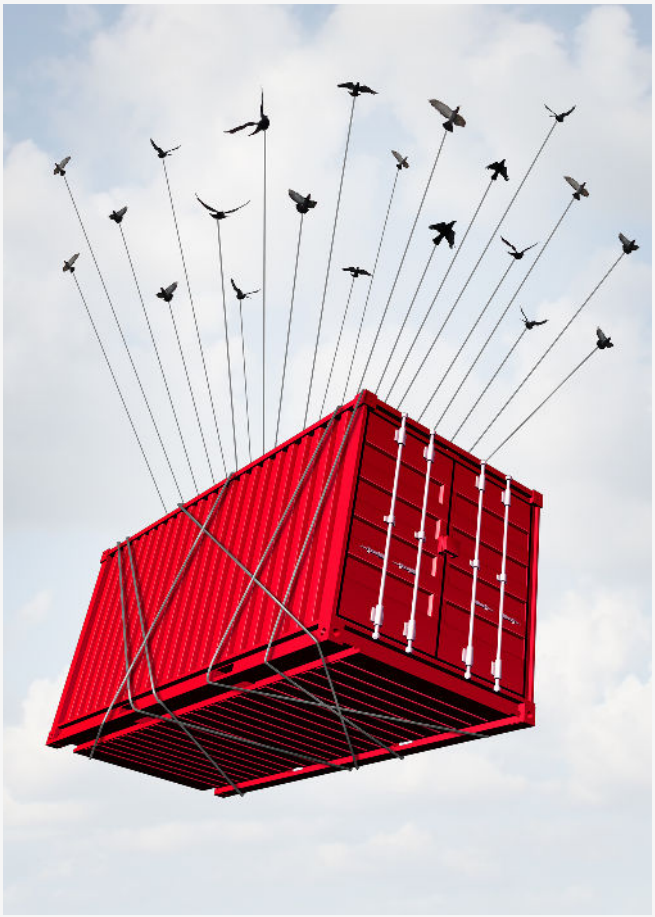
According to IATA (International Air Transport Association), airlines transport over 52 million metric tons of goods a year, representing more than 35% of global trade by value but less than 1% of world trade by volume. **That is equivalent to $6.8 trillion worth of goods annually, or $18.6 billion worth of goods every day.** This translates to thousands of jobs throughout the logistics chain. However, as we look to the future, the viability of this essential element of the logistics chain is struggling to cope with the changes it faces.

> *Airlines transport over 52 million metric tons of goods a year.*
>
> **INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)**

INTRODUCTION

The Airports Council International – North America (ACI-NA) estimates that U.S. airports, in spite of recovering passenger levels, face at least $40 billion in losses as a result of the pandemic. The Canadian Airports Council (CAC) estimated a revenue loss of $5.5 billion by the end of 2021. At the same time, the ACI-NA total estimate of U.S. airports' infrastructure needs through 2026, adjusted for inflation, is approximately $115 billion or more than $20 billion annualized. Despite the funding for various airport functions in the recent Infrastructure Investment and Jobs Act, the reality is, that given the revenue shortfalls of the past two years, the priorities of the $25 billion resource allocation will be on passenger accommodation, safety, and security. The losses have also hit the carriers very hard. The airline industry's main lobby (IATA) estimates that airline losses from the pandemic will surpass $200 billion which will eclipse close to nine years of industry earnings. The net result is a growing and essential industry with aging infrastructure, dated technology, and substantial revenue shortfalls.

Adverse conditions in the current economy have been exacerbated by higher inflation rates and the increasing costs of fuel. (The range of costs for shipping by air have increased as much as six-fold) over the past several years. Although these two factors to some extent represent anomalies, it is precisely these types of deviations from normal business for which the industry must be prepared.



OBJECTIVE

The Airforwarders Association and the National Customs Brokers and Forwarders Association of America working the full spectrum of industry stakeholders initiated this review of the issues adversely impacting air cargo throughput at airports, the impacts of those delays, and how the issues could be addressed. Surprisingly, air cargo spends a very large percentage of its shipment time on the ground, processing through airport facilities. This is the element of the logistics chain that forms the nexus of stakeholder participation and represents the broadest range of opportunities to increase efficiencies and lower costs for. It is therefore the area upon which this analytical effort is focused.

APPROACH

The organizations formed an expert committee which included broad stakeholder representation as a first step in an effort to identify the challenges and opportunities to improve the flow of goods to the benefit of the industry and the general population. As a first step the committee initiated an industry-wide survey to identify critical issues and airports where those issues had the greatest impact. It is significant to note that every segment of the air cargo industry supported the effort and recognized the importance of initiating appropriate changes to ensure future viability.

Five essential areas of focus were identified:

- Technology and Automation,
- Facilities and Infrastructure,
- Staffing,
- Levels of Service, and
- Policy and Regulation

Over the past 18 months, these areas have been reviewed and analyzed from every stakeholder perspective to identify what are potentially the most efficient and cost-effective solutions to maintain necessary industry service levels. The effort clearly showed that the areas are interconnected and that the recommendations MUST allow for future challenges to be addressed holistically! Operations cannot be efficient if the building and/or infrastructure do not meet demand requirements. What the study also indicated is that the financial burden necessary to sustain the industry cannot be totally absorbed by the private sector without substantial adverse impacts on regional economies, stakeholders in the logistics chain, and ultimately the national consumer base. With this as a consideration, the Committee developed a set of primary recommendations, using the following criteria:

01.

Urgency:

The importance of timely implementation to avoid severe operational issues, or adverse regional economic impacts.

02.

Cost to Implement:

The cost in monetary or other resources to implement the changes necessary for maintaining acceptable service levels.

03.

Cost Avoidance:

The potential savings for all stakeholders in the logistics chain to include product consumers.

04.

Time to Implement:

The length of time needed to implement the level of change necessary to preserve or achieve a targeted level of service.

05.

Ease of Implementation:

The complexity of implementing the change, to include political and legal issues, numbers of industry segments involved, and stakeholder commitment.

06.

Universal Applicability:

The range of stakeholders within the logistics chain that would benefit from implementation.

PRIMARY RECOMMENDATIONS

The primary recommendations are indicated below, and are supplemented by those included in the full report.

Provide Direct Public Sector Financial Support to Development Initiatives

There are several instances where negotiations for a cargo development project can be substantially accelerated and at the same time help both airports and developers achieve financial targets while containing costs to tenants and users of the facilities. This would involve the creation of a State or Federal "Air Cargo Support Fund" dedicated to air cargo facility and infrastructure development and modernization. It should also be noted that upgraded facilities would also create a working environment that would increase staff retention.

Develop And Introduce a Universal Digital Electronic Application:

This application would, in theory, become a technology overlay for an airport in which all stakeholders, to include federal and state agencies, (note that truckers and handling companies have been skeptical) would participate. The application should be sufficiently generic to be adapted to virtually every airport, and flexible enough to accommodate specific requirements for a given airport in real-time.

The operation should be managed by the airport and designed with stakeholder input. At the same time, the overlays for the different airports should be connected to ensure optimum functioning of a global network. This would provide a single window platform for all stakeholders to have cargo status visibility. It will be critical that the system ensures levels of security and data protection that will make stakeholders comfortable with participation.

There are several systems that are either in design, operating on a trial basis, or in place in Europe. The cost of the design and implementation should be covered in large measure through public funding, but the ongoing operation of the network which could be based on a number of factors, would be covered on a fee basis by stakeholders, and privately managed.

PRIMARY RECOMMENDATIONS

The primary recommendations are indicated below, and are supplemented by those included in the full report.

Review and Upgrade Compensation:

The air cargo industry must pay a sustainable wage and attractive benefits to recruit and retain knowledgeable and professional representatives who are needed to work outside the traditional Monday through Friday, nine to five, job. Virtually every category of worker, for every stakeholder in the logistics industry is impacted by compensation issues. These are complicated in many instances, by shift work, physically demanding work, security clearance mandates, lack of public access to the workplace, daily peak staffing requirements, and seasonal peaks and valleys.

An upgraded compensation package would have the additional benefits of improving retention and service levels, reducing turnover and training time, and minimizing processing and handling errors, which would help to offset a portion of the increased compensation costs. Salaries and benefits, of course vary from business to business, so adjustments will vary and, in some cases, may not be necessary. Nevertheless, upward adjustments to reflect modern wage standards will be a critical step in improving the service levels of the industry as a whole.

Institute an Industry-wide Training Program

One of the major breakdowns in service involves basic communications and a lack of understanding how the different links of the logistics chain must be integrated. It is essential that existing staff and new entrants be appropriately educated in the multiple elements of air cargo operations and the importance of the role that each employee plays in maintaining the overall efficiency of the system. The cost for the development of the universal program would be borne in large part by the industry, and supplemented by public funding. Past job-training programs should be explored for best practices and possibly replicated or expanded as appropriate to contain costs.

PRIMARY RECOMMENDATIONS

The primary recommendations are indicated below, and are supplemented by those included in the full report.

Modernize the SIDA Badging Process

Badging-related delays have been addressed by a number of airports: a comprehensive review should be conducted to document “best practices” that could be adapted throughout the industry. A major change would be universalizing and standardizing the Transportation Worker Identification Card program across all modalities of transport, at all international ports of entry and across all Federal agencies with security requirements. By creating a national database for all properly vetted air cargo stakeholders, workers could easily transfer from port-to-port mitigating at some level emergency staffing shortages. This national system would also reduce part of the workload on the federal processing system, freeing budget and staff for addressing operating rather than administrative issues.

Implement Consistent Policy Interpretation and Reinforcement

Although there may always be “exceptions to the rule”, it is essential that there be consistent interpretation and enforcement by TSA and CBP at every location over which they have jurisdictional oversight. This enables the airlines and other stakeholders to have consistent processes across their systems which also allows them to develop more effective training modules. CBP and TSA would have responsibility for the training of agents in the desired approaches to working with the stakeholders. This would include a focus on dealing with especially time sensitive cargo such as climate-controlled products or animals, or high-value or dangerous goods.

IMPLEMENTATION

The number of airports and the diversity of cargo operations, stakeholders, and regional economic importance among the states, make the creation of a single, rigid implementation policy unrealistic. However, there are certain critical elements that are both recommended and common to all.

1. Create state-based funding centers unique to air cargo to assist in funding infrastructure projects, technology and automation initiatives, equipment acquisition, operational and safety improvements, and sustainability enhancements.
2. Utilizing clear evaluation criteria, each state should create a prioritized list of cargo projects for which the fund should be utilized, and estimate the capital and timing requirements.
3. Determine the potential amount the state can contribute and the amount requested from a federal funding source. (Note: these estimates should be exclusive of anticipated private sector participation).
4. A combined panel of public and private sector stakeholders should determine specific state funding allocations based on clear and common evaluation criteria. Underruns, to include any offsets achieved through private sector contribution will be returned to the fund.
5. Each state and the federal agency should audit the allocations and project management to ensure budgets are on track.
6. States failing to meet allocation and project goals, may lose funding.

IMPACT OF NO ACTION

Understanding that the resources available to airports and many of their constituents have historically been limited and have suffered substantial adverse impacts over the past two years, the need for a broad program to address existing and growing deficiencies is essential. A failure to respond will result in the following.

1. **Further delays to shipping time-sensitive products by air and a potential shift to alternate modes**
2. **Escalating costs for modernization of airport facilities and infrastructure**
3. **Policy disincentives for the private sector to invest.**
4. **Inability to meet anomalous challenges (e.g. COVID 19 shipments)**
5. **Diversion of shipments from traditional cargo hubs with resulting:**
    a. **Loss of regional jobs**
    b. **Adverse impacts to regional tax bases**
    c. **Negative impact on federal staffing and budgets**
6. **Higher costs to all elements of the logistics chain from shipper to buyer**
7. **Industry consolidations and overall job loss**
8. **Potential stagnation of critical airports**
9. **Increasingly adverse environmental impacts**

“The downside of passivity is too great to ignore”.

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PART I: BACKGROUND

CURRENT CONTEXT

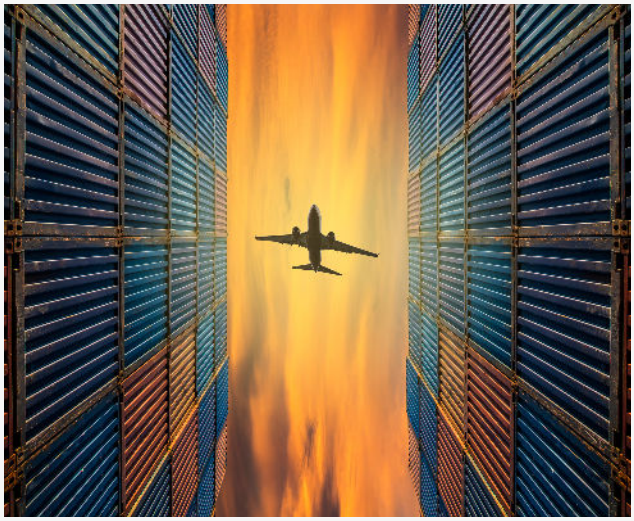
Air cargo is one of the major aviation elements – alongside passenger, maintenance, and general aviation operations. With only a few exceptions, however, the financial challenges that confront airports regarding resource allocation historically have required a prioritized focus on passenger activity. However, over the past decade, one of the primary financial mainstays of the aviation industry, has been air cargo. This has never been more-clear than in the face of the COVID pandemic which has adversely impacted the entire logistics chain.

Particularly hard hit, have been airports and airlines, but virtually every stakeholder in the logistics chain has suffered losses from either lost revenue or cost effectiveness attributable to staffing shortages and reduced technology and communications efficiencies. Nevertheless, it has been air cargo that sustained airports and airlines through this difficult period.

The importance of air cargo is in large measure directly tied to the intrinsic value of the shipments. According to the International Air Transport Association (IATA), airlines transport over 52 million metric tons of goods a year, representing more than 35% of global trade by value but less than 1% of world trade by volume. That is equivalent to $6.8 trillion worth of goods annually, or $18.6 billion worth of goods every day.

CURRENT CONTEXT

The Airports Council International – North America (ACI-NA) estimates that airports, in spite of recovering passenger levels, face at least $40 billion in losses as a result of the COVID-19 pandemic ($23 billion from March 2020-March 2021 and a projected additional $17 billion from April 2021-March 2022). Canadian airports face similar revenue loss due to the decline in commercial aviation traffic. The Canadian Airports Council (CAC) anticipates a revenue loss of $5.5 billion by the end of 2021, which is required to be funded by an additional debt of $3 billion. (These numbers are estimates, but are considered sufficiently valid to accurately represent the order of magnitude of the losses).

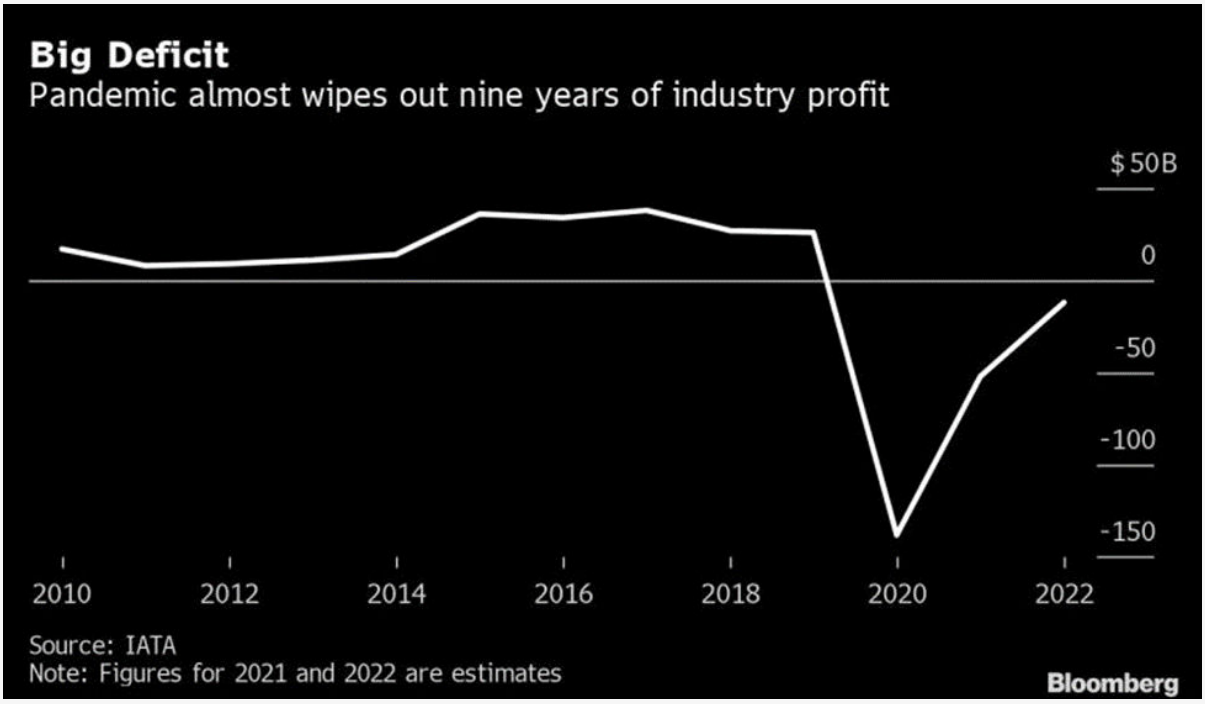


On the cost side of the equation, billions of dollars in capital improvements have been deferred. The limited dollars with which airports have some discretion, have been appropriately allocated to passenger health and safety, overall security, and critical maintenance issues. At the same time, the ACI-NA total estimate of U.S. airports' infrastructure needs through 2026, adjusted for inflation, is approximately **$115 billion or more than $20 billion annualized.** Theoretically, sixty-three percent of the development is intended to accommodate growth in passenger and cargo activity, and thirty percent is intended to rehabilitate existing infrastructure, maintain a state of good repair, and keep airports up to standards for the aircraft that use them. The reality is, that given the revenue shortfalls of the past two years, the priorities of resource allocation will shift heavily to passenger accommodation.

CURRENT CONTEXT

Airline losses from the coronavirus pandemic are set to surpass $200 billion as travel curbs weigh on corporate and long-haul demand well into 2022, according to the industry's main lobby (IATA) Carriers are poised to post a collective deficit of $11.6 billion in 2022. The trade body also increased its loss estimate for 2021, and revised upward the shortfall for 2020.

The combined $201 billion in net losses over the pandemic-blighted period eclipses close to nine years of industry earnings, based on IATA figures. While domestic and regional travel have begun to rebound, there's been little recovery in the globe-spanning business routes so crucial to many carriers.



Economic Impacts

The importance of air cargo extends well-beyond the basic logistics chain. The industry affects local and regional economies in many ways. The most common measures of "economic impact" are the jobs created, the total revenues brought to local businesses, and contributions to the gross domestic product ("GDP") of an area. Other measures may also be appropriate.

CURRENT CONTEXT

The economic effects of air cargo operations, whatever their form, can reach the community through four channels. The Direct impacts involve those activities which take place on the Airport. These could include the loading and unloading of cargo, work related to leasing and security, and cargo handling in the warehouse. Indirect activities occur off-airport. They can include a wide range of functions including the work of freight forwarders and customs brokers, trucking, and a number of other diverse supporting firms. The Induced effects arise from the expenditures by the recipients of direct and indirect wages and salaries. Wage earners spend a portion of their income on goods and services, thereby creating employment for additional persons. The process continues indefinitely, with each successive transacting individual spending part of his or her income. Since a portion of the income of each step goes to taxes, savings, or imports, the stimulus declines geometrically with each round.

The total stimulus can be represented as a multiple of the original earnings. The Catalytic benefits result from the structural changes that a facility such as an airport makes in the business environment of a region. An airport may lower the cost of doing business in a region, or increase the quality of life sufficiently to attract new firms. It may also change expectations or attitudes about a community. A firm that establishes a warehouse to benefit from the availability of air cargo services would generate a catalytic impact.

CURRENT CONTEXT

The theory and methods for measuring economic impact are well accepted and the processes are straightforward in principle. In practice, an economic impact study could encounter many complications, such as defining the area of interest, ambiguities about the various input-output coefficients (most models assume full employment), quantifying "leakages" to areas outside those of immediate interest, and the practical problem of non-respondents.

The nature of the cargo, as well as the complexity of connectivity and the need for consolidation, are also key elements in determining impact. The methodologies that different jurisdictions utilize may produce slightly different results, and in all candor, may sometimes take very aggressive positions in order to optimize the estimated impact. ***Nevertheless, throughout the aviation industry, a generally accepted estimate is that 1,000 tons of air cargo will generate ten to fifteen jobs system-wide.***

AIR CARGO SUCCESS FACTORS

As will be discussed, e-commerce is affecting the landscape of air cargo, and logistics in general. Nevertheless, as the industry undergoes change, the basic ingredients of successful air cargo operations have remained essentially intact. However, as operations mature, regional growth and evolving goods movement dynamics may negatively impact an airport's ability to meet the needs of the air cargo industry, and potentially force shifts in operations to alternate facilities. It is clear that as the industry addresses the growing challenges, the approach must be collaborative and holistic and consider how best to integrate progressive solutions with the foundations of a successful air cargo operation. These typically include, with varying levels of magnitude or concentration:

- **A substantial passenger market – both origin and destination, and/or transfers that generates lift and interlining capacity to serve diverse markets.**
- **Regional producing and consuming market segments that generate out bound cargo and appropriate levels of backhaul.**
- **Supporting business infrastructure of freight forwarders, customs brokers, and trucking.**
- **Timely and effective support from federal and regional government agencies for both inbound and outbound freight.**
- **Roadway infrastructure providing ready access and connectivity between logistics facilities, the airport, and an effective highway distribution system.**
- **The on-airport physical capacity to support current operations and accommodate forecast growth.**
- **Geographic positioning to serve a region effectively.**

AIR CARGO SUCCESS FACTORS

At the end of the 2019 holiday peak shipping season, the key partners in the logistics chain of air cargo, were facing growing challenges in maintaining the levels of throughput efficiency and service that air cargo customers have come to expect. (It should be noted that "throughput" is essentially the measure of time and volume for cargo to move through an airport. (This is particularly important in an industry in which margins are low and time translates into costs for both the elements of the logistics chain and ultimate consumers).

As the pandemic grew in severity throughout 2020, many of the issues became less urgent as volumes and modes shifted and freighters replaced belly capacity as the dominant element in air cargo. At the same time, as aviation in general suffered enormous financial setbacks, air cargo remained a bright spot for a struggling industry. In the Fall of 2022, as we see some light at the end of the tunnel, it is essential that the industry, begin to think strategically and collaboratively, as to how the workplace has changed, whether and to what extent the changes are permanent, and how best this critical element of the economy can move forward.

The growth of e-commerce is now the primary driver of the industry's ongoing evolution. The de-emphasis of brick-and-mortar retail and the convenience of direct home delivery will continue to be important factors that create increased emphasis on trucking and impact shipping volumes as well as the challenges of landside airport operating infrastructure including regional access. There remain very real questions as to how long it will take passenger activity and related belly capacity to return to 2019 levels. This could, in a number of instances, eventually result in the elimination or reduction of routes. If this does in fact occur, the financially stretched airlines and airports that are impacted will have their recovery time substantially extended. ***The changes to the operating landscape will impact all the industry stakeholders and exacerbate the issues that confronted the industry pre-pandemic.***

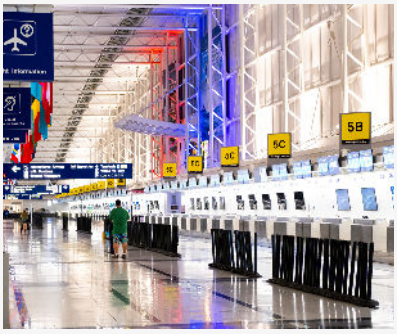
AIR CARGO STAKEHOLDERS

Successful air cargo operations are predicated upon the efficient interaction of a number of businesses with different operating requirements and facility needs. These firms have different levels of involvement based on the nature of the cargo and the markets through which it moves. In an ideal environment, many of these operations would be co-located on the airport, creating an efficient, integrated, air cargo community. Operating costs would be lower, economies of scale could be achieved, and international goods could be cleared faster and with fewer problems. The realities of limited on airport space and higher leasing costs have required stakeholders to situate operations that do not require aircraft ramp access, off airport.

While the cargo shipments are driven by shippers and consignees, the critical elements of the logistics chain are the businesses that facilitate the successful movement of the products from origin to destination. There is a unique co-dependency among these operations, that requires close cooperation to ensure cost effective and timely delivery. Profit margins are small on a per-pound basis, and competition, despite the occasional cooperation on specific shipments, is generally fierce.

Airlines

Airlines are the most obvious businesses that come to mind when discussing air cargo. Nevertheless, much of their cargo operation is generated by other links in the logistics chain. Regardless of whether freighters or passenger aircraft are used, it is essential that the carriers manage both the revenue and cost side of their business. This requires a constant sensitivity to the market and specialized needs that might evolve. This in turn, translates to flexibility in fleet mix, aircraft gauge, the mix of cargo that they carry, scheduling, and communications with their partners. Airlines also, in many instances, provide the under-wing and warehouse handling staff to process cargo.



Airports

Airports are the physical transfer points – air-to-air, air-to-land, land-to-air, and in many instances, land-to-land, for air cargo. Their role is primarily to provide the infrastructure – landside and airside – and facilities that enable and facilitate the cargo operations. (In some newer business models, airports are outsourcing facility development to private partners). For larger cargo operations, this may include the accommodation of specialized facilities as well as ancillary and supporting services that provide added value to goods movement. Airports also have a responsibility to coordinate with local, regional, and state authorities to optimize ground access and connectivity between off airport logistics operations and regional highway systems.

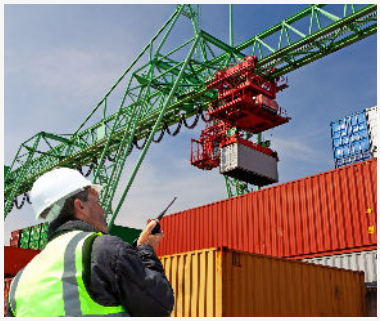
AIR CARGO STAKEHOLDERS

Cargo Handling Companies

Cargo Handling Companies, in instances where airlines do not handle their own cargo, operate on a contract basis providing service to carriers on the apron where they load and unload the aircraft and/or in the warehouse where they assemble or breakdown the freight. They are the connection between modes, the cargo facilities, and as appropriate, federal agencies. Their effectiveness is heavily impacted by lack of automation, levels of mechanization in the cargo facilities, availability of labor, the condition and configuration of the facilities, and communications with the relevant stakeholders.

Federal Agencies

Federal Agencies with their dual responsibility for interdiction and facilitation, are critical elements for all air movements, but particularly for international shipments. It is essential that their hours of operation fully support timely clearance at both the inbound and outbound airports. The agencies involved in goods movement, like most federal agencies, face budgetary and staffing challenges that in many instances, even with electronic clearance, can only be met by rigorous internal cross training. The location of federal offices, to include (at a number of locations) their proximity to the airport, can be a major factor in the timeliness of necessary responses.



Freight Forwarders

Freight Forwarders are intermediaries that serve as travel agents for a shipper's freight. Many also serve as **Customs Brokers** who facilitate the clearance of international cargo through local federal customs and coordinate delivery to the consignee. Although they process most of the non-express shipments, they rely on other links in the chain to help ensure timely delivery. Competition is strong and profit margins can be extremely thin, which often creates constraints on information sharing. Typically, these operations are located off-airport because of lower leasing costs or the ability to own the facility: however, from a physical operating perspective, proximity to, or actual presence on the airport, can provide cost and time savings.

Trucking Companies

Trucking Companies make up the ground component of air cargo operations. Their operations can vary from regional short-haul to extensive cross-country trips. They are contracted by forwarders, airlines, direct shippers, and 3PL's. While most trucks are run by private companies (or individuals), many are affiliated with carriers or large freight forwarders and/or customs brokers. Trucking operations are obviously labor dependent and are impacted by both driver shortages, staffing issues, and government regulation. The physical design of facilities and landside infrastructure as well as truck management systems, can have a substantial effect on trucking mobility and efficiency.

CRITICAL ISSUES AND TRENDS

Many of the trends impacting cargo today, began to surface in the early 1980's after airline deregulation: they became more evident in the 1990's, and were clearly manifest throughout the air cargo system at the turn of the century. The next decade brought a continuation and acceleration of the issues and challenges, and the terrorist attacks of 9/11 introduced major changes in security further stressing human and financial resources.

The air cargo industry has proven its resilience through its ability to respond to dramatic changes in the global economic structure. Factors such as economic upheaval, political conflicts, industry consolidations, massive fluctuations in fuel costs, changing distribution patterns, increased reliance on speed, e-commerce, and high-speed logistics have required stakeholders to re-examine their business goals, market priorities, physical and operating capacity, and the compatibility of the three in accommodating accelerating growth: the pandemic presented stakeholders with a new set of challenges.

Prior to the pandemic, the industry was confronted by a number of issues that were continuing to create operating constraints and adversely impact costs and air cargo throughput efficiency. Over the past year, although the immediacy of some of those issues has abated, new challenges have arisen which, in totality, create an increasing sense of urgency to find solutions: this urgency will increase as recovery continues.

Growth of eCommerce

We have experienced a decade of strong growth in E-Commerce. Over the past year, the many restrictions placed on society as a whole, have accelerated the historical demand dramatically. The replacement of retail purchasing by E-commerce businesses who predicate much of their marketing on time-definite delivery will continue affecting virtually every link in the logistics chain. The impacts are more than volumetric: the following is a list of some of the more visible and immediate considerations.

- The nature and emphasis on the logistics chain have shifted because the flow of goods is now heavily driven by the consumer rather than the shipper.
- ·Distribution has become more decentralized creating greater emphasis on short-haul and local land routes creating greater demand for trucking.
- The situation is exacerbated by the failure of brick-and-mortar retail operations.
- The shift in distribution and increased emphasis on trucking has created demand for airport-proximate commercial property for manufacturing, distribution, and storage.
- The volume of traffic and the reduced belly capacity have forced greater concentration of shipments on freighters.
- There are increasing amounts of temperature sensitive products, to include typical perishables and pharmaceuticals being shipped, that require special facilities and handling equipment.

CRITICAL ISSUES AND TRENDS

Pressure on Airport Capacity

- A number of major airports, including international gateways, are land-constrained.
- Prior to the pandemic, many airport facilities were already antiquated with constraining height, depth and configuration.
- Climate-controlled facilities and facilities for specialized cargo are only available on a limited basis.
- The increased use of freighters for integrators and E-Commerce traffic, has changed the demand for facilities and infrastructure at existing high-volume cargo airports, and is creating interest in the use of alternate airports.
- Aircraft apron for freighters is in high demand and there is a utilization imbalance at many airports between facilities with direct ramp access and belly cargo facilities accessible via restricted service road.
- Increased volumes have created a shortage of appropriate storage for Ground Service Equipment (GSE).
- At many mature airports, landside infrastructure to include roadway geometry was not designed for modern tractor-trailers. Undersized truck aprons, lack of queuing availability, constrained maneuvering space, limited truck bays and employee parking all contribute to landside congestion.

Airport Revenue Shortfalls

The ability of airports to address the challenging infrastructure and facility issues with which they are now confronted has been substantially compromised by recent revenue shortfalls. The recently passed Infrastructure Investment and Jobs Act allocates $25 billion to airports. At the same time, the Airports Council International – North America has competed a review that indicates airport needs of $115 billion over the next five years. This dramatic shortfall is made substantially more significant by the enormous loss of revenue (estimated at $40 billion) that airports experienced over the past year. With whatever dollars are available, there are several potential directions that airports will probably take based on history.

- Initial allocation of funds will be dedicated (appropriately) to the security, safety, and health of passengers, tenants, and users.
- The secondary allocation of available funds will be focused on passenger facilities and amenities
- Delayed capital programs and essential major maintenance issues will be addressed as a next priority.
- Airports will look to identify opportunities to diversify revenue flow through expanded use of airport properties for both aviation and aviation-related activities.

CRITICAL ISSUES AND TRENDS

Handling

- As the on-airport transfer link for cargo, the efficiency of handling companies is dependent upon timely communications between multiple stakeholders.
- The changing dynamics of air cargo are shifting peaks and concentrations of volumes, altering staffing, and requiring equipment upgrades.
- Hiring and maintaining qualified staff continues to be a challenge in a high-volume, low margin competitive industry.
- Hiring issues are exacerbated by delays in security certification by federal agencies.
- Dependency on the availability of federal agencies for clearance, creates delays in the release of goods and warehouse congestion.
- Dated facility design and configuration slows throughput and increases handling staffing requirements.

Trucking

Virtually all air cargo arrives and departs an airport on a truck. For the past decade, this critical element of goods movement has been facing a number of challenges.

- There are fewer drivers expressing interest in a career that is seeing an increased need for qualified staff.
- Federal guidelines addressing driver health and safety have increased the staffing requirements for long-haul trucking shipments,
- Higher levels of trucking activity are creating coordination challenges for drop-off and pick up at airports where truck bays may be limited and timely communication is inconsistent.
- There are very few on-airport amenities that address the needs of this business segment.

Strained Federal Resources

- Federal resources – both financial and human – have been stretched by increased volumes and modern security protocols.
- The expanding number of international entry points for air traffic, have further impacted federal capacity to provide adequate and timely coverage.
- Inconsistent communications and incorrect paperwork submitted by stakeholders, create delays over which Customs has no control.

CRITICAL ISSUES AND TRENDS

Environmental Concerns

- Increased trucking activity continues to raise concerns regarding carbon emissions. The situation is exacerbated by the lack of appropriate on-airport queuing and staging areas for trucks.
- Additional emission guidelines and monitoring have increased the operating costs for trucking.
- Many mature airports have facilities and infrastructure that have been in place since before the more recent guidelines on environmental safeguards were enacted. As a result:
    - The implementation of required environmental studies to approve new development has added substantial costs (to include mitigation) to new on-airport development.
    - Environmental reviews can cause substantial delays (upon occasion – years) for new development.
- Local sustainability initiatives create additional operating and construction costs that have a flow-through impact on customers.

Airport Revenue Shortfalls

More recently, three additional factors, which dramatically impact shipping costs, have come into play. While these typically would not be considered trends since the conditions fluctuate, but they do reflect the variables with which the air cargo industry must deal. They are inflation, the price of gas, and congestion/backlogs of ocean borne shipping at major ports.

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PART II: NATIONAL SURVEY AND RESULTS

THE SURVEYS

The pandemic has reinforced the fact that the air cargo industry is a mainstay in the global economy and despite the horrific impacts of the past year and the effect on air service in general, shipments by air remain strong. The problems facing the industry may have changed slightly, but for the most part, they remain in place, and are only anticipated to increase as recovery proceeds and volumes climb. Recognizing the broad and long-term implications of growth, and the limited resources available to pursue remedies, the Airforwarders Association, the National Customs Brokers and Forwarders Association of America, and the Airports Council International-North America assembled a multi-disciplinary task force to construct two survey instruments designed to help identify, prioritize, and address the issues affecting congestion and throughput at airports in North America.

On February 12, 2021, the survey effort began. The primary survey was distributed to a broad range of industry stakeholders except government agencies and airports. The second survey was sent exclusively to airports, recognizing that their perspective on goods movement is different than those who are directly involved in the operations. In total, more than 3,000 surveys were distributed with a return date of March 31, 2021: the input, except to identify airports where throughput is more problematic, was anonymous.

Challenges come at a time when the industry in general, and airlines and airports in particular, are dealing with severe financial shortfalls which make investment in all but critical maintenance and capital programs focused on security and safety problematic. Nevertheless, there is a modest planning and implementation window that will probably last for 24 months in which industry stakeholders can put their collective heads together to develop and begin to develop the facility, infrastructure, and technology enhancements that can enable future growth and long-term success.

SURVEY AREAS OF FOCUS

Five primary focus areas were identified that covered the broad spectrum of issues to be considered by stakeholders as they responded to questions in five areas of focus.

Technology and Automation:

To what extent is the lack of local electronic data transmission contributing to air cargo congestion?

Service Standards:

To what extent are the levels of service provided by your air cargo handling warehouse facility an issue in meeting your requirements?

Airport Facilities and Infrastructure:

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

Staffing:

We recognize that COVID has created labor issues throughout the industry, but prior to the virus, to what extent were there staffing deficiencies that adversely impacted your operations (including hours of operation, handling personnel, government staff, driver shortages etc.)?

Policy and Regulation:

To what extent is the flow of international cargo impacted by the outbound inspection, bonding and/or clearance requirements of federal agencies, and/or routine administrative details?

SURVEY FEEDBACK

Respondents were asked to evaluate their perceived impact of each of the focus areas on air cargo throughput at airports, with a numerical ranking of one (1) indicating the least impact, and five (5) indicating the greatest impact. It is interesting to note that both the airport and stakeholder surveys produced very similar results specifically with regard to the overall assigned weights.

Area of Focus	Industry Survey	**Airport Survey**
Technology and Automation	3.33	3.31
Service Standards	2.85	3.13
Airport Facilities and Infrastructure	2.99	2.94
Staffing and Hours of Operation	2.83	2.88
Regulatory and Paperwork	3.00	2.76

The survey results are summarized below.

Airports with Challenges

Every airport is different, with different facilities, infrastructure, stakeholders, practices, and procedures. For practical reasons, and understanding that many issues are generic and only differentiated by scale, respondents were provided with a list of the top 50 U.S.A. airports by tonnage volume, and asked to identify which would be of a higher priority for implementing change. While there are typically modest issues at every airport, the 15 airports identified as facing the greatest challenges for air cargo operations are listed below in rank order based on respondent feedback.

	Airports with Challenges
1.	ORD Chicago O'Hare
2.	JFK Kennedy
3.	ATL Atlanta
4.	LAX Los Angeles
5.	BOS Boston
6.	SEA Seattle
7.	EWR Newark

	Airports with Challenges
8.	MIA Miami
9.	DFW Dallas
10.	IAD Dulles
11.	MEM Memphis
12.	BWI Baltimore
13.	SFO San Francisco
14.	BFI Seattle (Boeing Field)
15.	CVG Cincinnati

Similar to the results reflected in the numerical grades assigned to the focus areas by both surveys, the comments reflect similar issues and concerns. This section summarizes the hundreds of comments received from the stakeholders and are grouped by focus area. The results from the industry and airport surveys are listed separately for comparative purposes. Because of the nature of how comments were received, issues identified at a specific airport were not readily identified except in a limited number of instances.

For that reason, the comment summary reflects issues that are generically applicable in varying degrees at most airports and for which resolution would be similarly achieved. It should also be noted, that many comments overlapped the different focus areas. Where feasible, this was addressed in the summary. Based on the number of responses received for each survey, the comments from Airports are less extensive.

SPECIFIC FEEDBACK

Technology And Automation:

To what extent is the local level of knowledge of electronic data transmission contributing to air cargo congestion?

Airport Comments

- Airports have limited involvement in technology applications but can help provide a platform for implementation. This is very important since technology expedites cargo flow and impacts both the efficiency of facilities and infrastructure, as well as the overall perception of the airport's operations.
- Implementation of effective electronic communications is complicated by a lack of collaboration between local and corporate entities.
- Parochialism and a concern for confidentiality are major impediments to implementation of technology solutions.

Stakeholder Comments

- There is an over reliance on technology, yet at the same time the back up for system failure is typically an inefficient manual process.
- Communications between all elements of the cargo operation are poor and inconsistent.
- The application of technology is inconsistent.
- here should be greater reliance on automation rather than telephonic communication.
- Better electronic communications would increase the scheduling efficiency for drops and pick-ups.
- There are a number of issues that go directly to human error rather than the technology. Better training and communications would reduce this.
- Forwarders need to be more involved in helping design and expedite implementation of technology improvements.
- Incomplete or wrong information on airline websites causes delays in pick-ups which become worse when changes occur.
- Airlines do not communicate effectively with other stakeholders in the process.
- The addition of line-on-line tracing would be very helpful.
- Lack of efficient communications creates delays in getting deliveries ready.
- Facilities are not properly designed to accommodate sophisticated handling systems.

SPECIFIC FEEDBACK

Service Standards

To what extent are the levels of service provided by your air cargo handling warehouse facility an issue in meeting your requirements?

Airport Comments

- The growing volumes of cargo and the space constraints at the airport, make cargo handling challenging.
- Limited staffing and ineffective management create issues that reflect poorly on the airport, even though these roles are contracted to third parties.
- Staff do not seem to care on providing high levels of service. Training in both operations and customer relations would be helpful.
- Antiquated buildings and infrastructure create problems for efficient handling.

Stakeholder Comments

- Staffing levels are not adequate for timely processing of cargo.
- Communications are poor and exacerbated by untrained and rude staff throughout the system.
- Warehousing staff operate without a sense of urgency. This includes counter staff.
- Staff do not give priority to climate controlled/perishable products.
- There are long waiting times for pick-ups.
- There are no clear or consistent standards for handling performance for airlines or handling companies. Instances of lost cargo are increasing.
- Management of handling staff is problematic.
- Communications are poor between carriers, handling companies, forwarders/brokers and trucking. This includes timeliness, accuracy, and courtesy.
- Priority is sometimes given inappropriately to freighters because of volumes and staff availability.
- In buildings with multiple tenants, some receive preferential treatment.
- Certain truckers are given priority at the docks.
- When 3rd party handling is involved, airlines take no responsibility for the operations.
- Handling operations are disrupted by unscheduled freighter arrivals.
- Long delays in processing in-bound cargo are adding additional costs in storage fees, particularly over weekends.
- Contact information for relevant stakeholders, including e-mail addresses, are not available or incorrect.

SPECIFIC FEEDBACK

AIRPORT FACILITIES AND INFRASTRUCTURE:

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

Airport Comments

- Building configuration and size are incompatible with growing cargo volumes.
- The recent growth in freighter traffic has exceeded ramp capacity and forced relocation of some handling operations to different facilities.
- Building capacity is becoming a challenge and impacting throughput.
- There is limited staging capacity for trucks awaiting pick-up or drop off.
- Truck aprons are not sized to accommodate modern 53-foot tractor trailers
- There are insufficient dock doors to accommodate demand.
- Doors are often blocked by inefficient staging or equipment storage.

Stakeholder Comments

- Facility design is dated and inconsistent with modern throughput efficiency requirements.
- Buildings are undersized and extremely congested.
- The cargo buildings lack the truck doors necessary for efficient movement of the goods which causes delays and landside congestion.
- Building maintenance and repairs take too long.
- There is insufficient space for truck queuing particularly at peak hours.
- Lack of building capacity is requiring some cargo processing to be relocated to alternate facilities.
- Truck apron efficiency is severely impacted by the lack of dock doors.
- There are no marshalling yards or efficient queuing sites for trucks.
- Access to many buildings is poor, with limited depth to the truck apron, and lack of space for efficient maneuvering.
- Cargo facilities receive a low priority from airport management.
- Cargo facilities are not geared to accommodate vans and van staging.
- Roadway geometry at mature airports is not geared to handle 53-foot tractor trailers.
- Lack of communication with truckers causes unnecessary delays with regard to the timing of pickups.
- State and regional offices need to help address access roads to airports and cargo areas.
- There are no amenities for truckers.

SPECIFIC FEEDBACK

STAFFING AND HOURS OF OPERATION:

We recognize that COVID has created labor issues throughout the industry, but prior to the virus, to what extent were there staffing deficiencies that adversely impacted your operations (including hours of operation, handling personnel, government staff, driver shortages etc.)?

Airport Comments

- Staffing for almost all elements of the cargo operations is insufficient. Handlers and airlines are most severely impacted and this affects overall throughput efficiency.
- Low wages create very real challenges for recruiting and retaining qualified staff.
- Reduced staffing over weekends creates high levels of congestion on Monday mornings.

Stakeholder Comments

- Warehouses have closed their doors while trucks are still in line for pick-up resulting in overnight storage fees.
- Staffing levels are unacceptably low and performance is poor due in large part to low pay and lack of training.
- Administrative staff are rude and unhelpful.
- Forklift drivers are inexperienced and frequently block the truck bays with cargo.
- Airlines can’t or won’t expand their hours for pickup and delivery.
- There are too many carriers located in one building.
- Because of long delays in the breakdown of freight, waiting times at the docks can be as long as 10 hours for a pick-up.

SPECIFIC FEEDBACK

REGULATORY AGENCIES AND PAPERWORK:

To what extent is the flow of international cargo impacted by the outbound inspection, bonding and/or clearance requirements of federal agencies, and/or routine administrative details?

Airport Comments

- Limited hours and staffing constraints create delays and impact service levels.
- Customs and Border Protection (CBP) staff are not well-trained in the processing of specialized cargo such as HAZMAT and agricultural products.
- There is limited availability of on-airport space for CBP operations forcing the use of off airport bonded warehouses increasing clearance time.
- Delays in providing background checks for handling staff extend to six weeks resulting in loss of potential new staff.

Stakeholder Comments

- Paperwork for transfer of freight to a bonded facility is cumbersome and frequently delayed.
- There is a need for more efficient and standardized automation.
- Some of the required Customs paperwork could be eliminated to further expedite cargo processing.
- Regulatory agencies are understaffed and contribute to delays.
- Delays in CBP clearances result in added storage charges for unreleased cargo.
- Security checks for badging take excessive amounts of time resulting in the loss of potential new employees who opt for other jobs.
- Customs would benefit from greater education and training on basic processing and how their role impacts the flow of goods.

ANTICIPATED CHANGES

For this section, the feedback from both the Stakeholder and Airport surveys on what changes the next several years will bring, were combined.

- As the industry returns to pre-pandemic conditions, the number of passenger aircraft will increase reducing the reliance on freighters. This will alleviate some pressure on airside infrastructure for airports, and help with scheduling and workload balance as standardized schedules return.
- There will be a major recovery in shipments related to the entertainment and convention businesses.
- A large percentage of staff will continue to work remotely. Communications will need to adjust to this to ensure accurate and timely interface.
- A more digital environment will need to be introduced, and should not be delayed.
- Trucking, as a result of e-commerce will play a more prominent role requiring improvements in landside infrastructure.
- Without modifications to facilities and systems, extreme congestion will result.
- Government assistance will be needed to finance landside access improvements, and facility and airport infrastructure enhancements.

OBSERVATIONS ON THE SURVEY RESULTS

Based on the comments that were received, it is clear that there is no single issue that will provide a solution, and that preserving the cost effective and efficient interconnectivity of the logistics chain will be a partnership effort.

- **The single most common concern raised by the respondents was staffing. This included not only levels of staffing, but also management, administrative support, levels of compensation, recruitment and retention, training, and attitude. While the bulk of the comments focused on cargo handlers, the observations extended to other stakeholders as well.**
- **The second issue was communications. While most respondents were supportive of enhanced electronic communication, there was general recognition of the need for one-on-one interface. This connects back to the first observation where a willingness and ability to assist other stakeholders is key.**
- **The third issue was facilities and infrastructure. The comments focused on congestion caused by antiquated cargo facilities and in particular lack of dock doors and landside truck maneuvering and queuing capacity.**

In reading the comments in their entirety, and the summary in this report, some challenges are more easily addressed than others. However, systemic change will require the participation of all the stakeholders.

IMPEDIMENTS

As the industry considers and evaluates the results of the Survey, it is essential that the discussions are built on candor and objectivity. The interdependency of the stakeholders requires that the challenges and potential solutions be addressed holistically. However, in doing so, it is also important to recognize that there are underlying impediments which must be addressed as we pursue the way forward.

- Much of the existing airport infrastructure and facilities are dated or undersized - having been designed for smaller cargo volumes, lesser throughput, and a different landside operation. Upgrades and replacements will be expensive.
- The landside elements of the logistics chain are dependent upon both the regional and national roadway system. Assistance at the Federal and State level will be an ongoing requirement.
- Financial shortfalls within the industry will require new and continuing partnerships from outside the industry proper.
- Despite the pandemic, the air cargo industry growth has remained relatively robust. As the aviation industry and the global economy continue to recover, the increased volumes will, in a number of instances, severely strain existing facility capacity.
- Labor will continue to present major challenges from the perspectives of both pure availability and levels of compensation.
- While the industry is global, there are often strong relationships among the stakeholders. Nevertheless, there is also intense competition that engenders parochialism and can complicate the capacity to establish comprehensive and efficient communications.

MOVING FORWARD

As we consider the industry today, we must look to where the future will take us, and how we prioritize and address the issues confronting us. To do so, it is essential that we look at air cargo holistically recognizing that the critical elements in the logistics chain are so closely integrated that solutions to the challenges will require defining and prioritizing initiatives that will include:

- **Modernizing airport air cargo facilities and infrastructure to optimize the use of space, cost effectiveness, and operating efficiency.**
- **Improved physical inspection access and facilities that will enable federal and local agencies to execute their responsibilities for interdiction and facilitation**
- **Improving airport and facility access with infrastructure that will accommodate modern trucking**
- **Massive IT integration for all industry segments**
- **Diversifying revenue sources**
- **Increasing the scope and level of private investment**
- **Addressing service and staffing concerns (staffing level, pay, training, etc.)**

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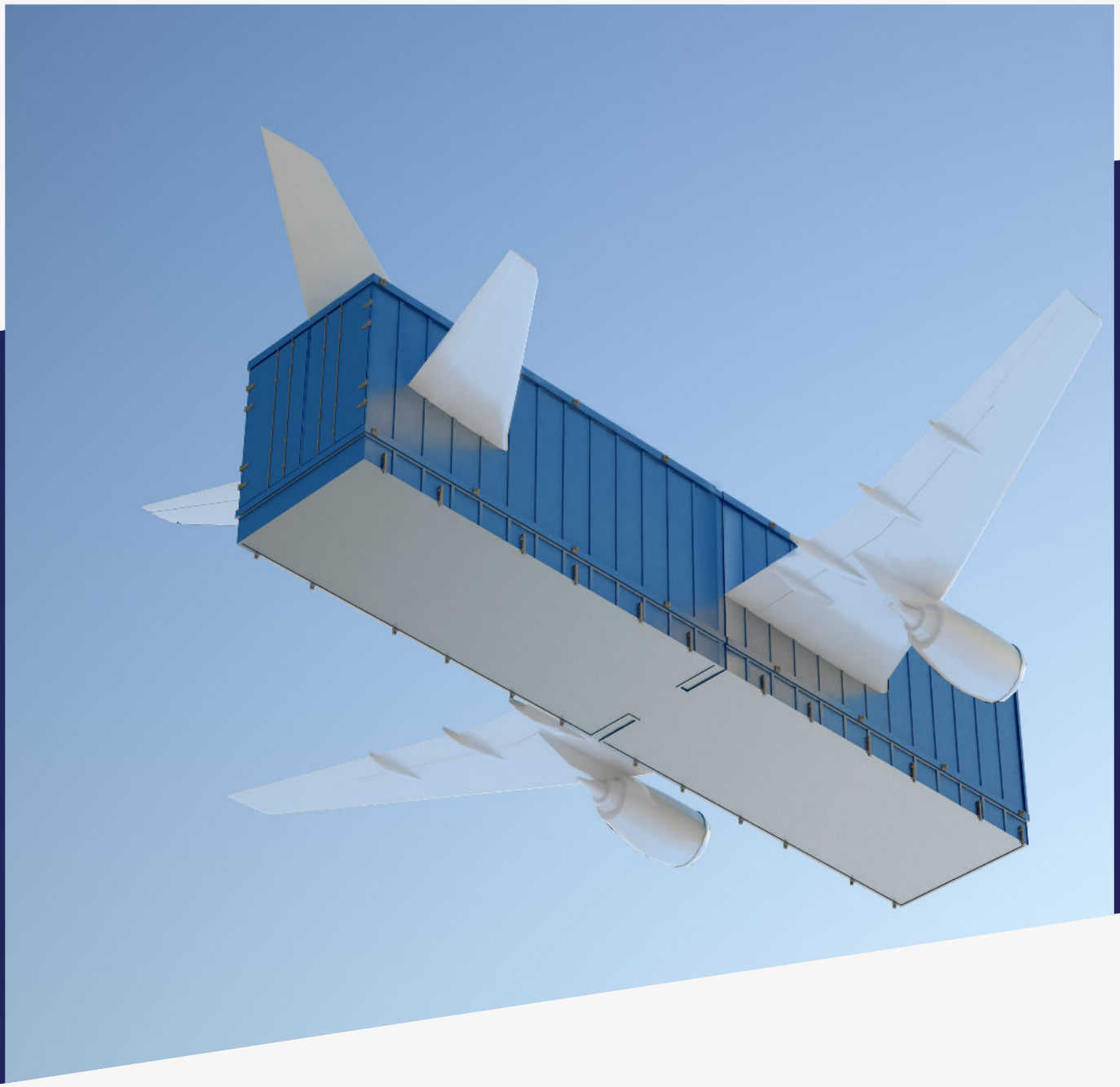
PART III: RECOMMENDATIONS



RECOMMENDATIONS

The importance of a time-sensitive, cost-effective, and efficient air element of the logistics chain, cannot be overestimated. It directly impacts regional tax bases, job development and retention, airport and aviation business financial viability, and the overall growth of regional and national economies. The element most essential to future success is flexibility to adapt to a rapidly evolving socio-economic global environment. This will require a deliberate and strategic allocation of scarce resources to ensure that operating costs, and subsequent costs passed on to the public, are contained. Given the limited revenues accruing to the industry over the past two years, it is unrealistic to believe that the investment needed to meet future challenges can be realized without external public and private participation. These future partnerships will depend on the creation of viable and reasonable policies and practices that both facilitate and encourage participation.

EVALUATION CRITERIA

The responses to the industry-wide survey clearly indicate that addressing the inevitable necessary improvements will require an integrated and holistic approach to the five pivotal focus areas. The feedback was reviewed and evaluated by the Working Committee using the following criteria.

1. **Urgency:** The importance of timely implementation to avoid severe operational issues, or adverse regional economic impacts.
2. **Cost to Implement:** The cost in monetary or other resources to implement the changes necessary for maintaining acceptable service levels.
3. **Cost Avoidance:** The potential savings for all stakeholders in the logistics chain to include product consumers.
4. **Time to Implement:** The length of time needed to implement the level of change necessary to preserve or achieve a targeted level of service.
5. **Ease of Implementation:** The complexity of implementing the change, to include political and legal issues, numbers of industry segments involved, and stakeholder commitment.
6. **Universal Applicability:** The range of stakeholders within the logistics chain that would benefit from implementation.

This section discusses in greater detail the five critical elements of the logistics chain identified by the industry, which need to be addressed to ensure the continuing viability of air cargo in North America. Each subject area details the most relevant issues, frames the impacts of those issues, and makes prioritized recommendations on how best they can be addressed.

TECHNOLOGY AND AUTOMATION

To what extent is the local level of knowledge of electronic data transmission contributing to air cargo congestion?

THE ISSUE: IMPROVING COMMUNICATIONS TECHNOLOGY

For decades, the air cargo industry has pursued the development and implementation of global systems that primarily address the tracking and clearance of international shipments. While progress has been made in the global arena, the industry still remains heavily paper-based and improvements have had only limited impact on the day-to-day cargo operations of individual airports. Part of this is concern over being the first to move in a new direction, and part is the misconception that implementation of new functionality /solutions always requires a major overhaul of existing systems or is a lengthy, complex process.

The most often mentioned area of concern among all respondents, was local communications. This included both fundamental interactions between stakeholders (discussed later) and the need for sophisticated cargo community systems and shared data bases which would facilitate the overall on-airport movement of goods between facilities, stakeholders, and modes. Historically there have been several challenges to implementation: the complexity of the integration, parochial stakeholder concerns over customer confidentiality, the assignment of responsibility, and funding.

Many of the issues exist because there are so many different sites to access all the data needed to efficiently move cargo by air. Both the private and the government stakeholders compound the issue by siloing their database platforms. This requires that cargo handlers have access to multiple individual airline systems. From a government perspective, CBP (Customs & Border Protection), DOC (Census), and BIS (Bureau of Industry and Security) required data are viewed and shared in ACE (Automated Commercial Environment). However, TSA required data has to be viewed and verified by TSA after the IAC (Indirect Air Carrier) and airline enter, what is in many cases the same data, into several other database platforms. Additionally, the TSA still requires a paper document, the Consignment Security Declaration (CSD), on all cargo shipments. This document contains information that has already been submitted electronically to CBP, DOC, and BIS.

IMPACT:

As discussed throughout this document, the impediments to more efficient throughput are both varied and integrated. The logistics chain, particularly the air elements, is built around cost and time. Ineffective personal communications, and lack of electronic transmission capability result in substantial delays. Without timely local information on shipments, (inbound more than outbound), facility operators cannot coordinate the availability of truck bays, trucks may be required to make multiple trips adding costs to the shipment and ultimately to the consumer. Because at most airports there is limited space for trucks to queue while awaiting inbound shipments, drivers must either park wherever they can find a spot, pull over to the side of the road, or circle until the shipment is available for pick-up, dramatically increasing carbon emissions. With the cost of trucking operations averaging between $100 - $150 per hour, the cost of doing business can increase substantially: ultimately these costs are passed on to the customer and consuming public. Generally, the most impacted stakeholder in an air cargo move is the ground handler. It is estimated that 85% of the time from the shipper's door to the consignee's door, a piece of air freight is on the ground.

TECHNOLOGY AND AUTOMATION

To what extent is the local level of knowledge of electronic data transmission contributing to air cargo congestion?

IMPACT:

Redundancy can generate mistakes, creating vulnerabilities in the supply chain, and slowing the movement of the cargo. Better comprehensive and focused automation would allow more efficient utilization of resources and move efficient movement of the cargo. Poor communications on pickups can impact cut off times for outbound goods, and for inbound goods, frequently result in overcrowded warehouses and added charges for storage which are typically passed on through the system to impact every stakeholder. It is not unusual for a trucker to be dispatched for an inbound shipment, but the cargo cannot be located in the warehouse or the cargo has not been released because (or sometimes in spite of) appropriate fees being paid which can waste an entire day of truckers' time. The lack of a visible timeline for shipments is a major deficiency.

An additional contributor to overcrowding is unanticipated airline traffic: without early notice, stakeholders may not be prepared to accommodate the added tonnage, contributing further to the congestion. It is anticipated that an efficient communications system will result in a substantial increase in service as well as a mechanism to help address staffing shortages.

Coordination with CBP is critical for air cargo shipments. Given staffing shortages at CBP, it is essential for inspectors to have proper notice on when shipments will be ready for clearance and where specifically they are located in the cargo facility. The lack of tight tracking for all inbound shipments, results in delays for inspection, delayed dispatch of trucks by the Customs Broker community, and breakdowns in coordination between the handling companies and the airlines.

RECOMMENDATIONS:

The most often mentioned challenge in all five areas of concern is communications -both traditional and electronic. The industry stakeholders are unanimous in emphasizing the importance of technological improvements that will enable stakeholders to increase efficiency in the overall handling of both outbound and inbound air cargo. As cargo volumes continue to increase, there is a clear and growing need for government and cargo industry business segments to communicate with one another quickly and accurately to optimize the use of staff, facilities, and infrastructure. While currently pursued global applications make connections at the macro level more efficient, operations at the local airport are clearly needed.

1. DEVELOP AND INTRODUCE A UNIVERSAL DIGITAL ELECTRONIC APPLICATION

This application would, in theory, become a technology overlay for an airport in which all stakeholders (note that truckers and handling companies have been skeptical) would participate. The application should be sufficiently generic to be adapted to virtually every airport, and flexible enough to accommodate specific requirements for a given airport in real-time. The operation should be managed by the airport and designed with stakeholder input. At the same time, the overlays for the different airports should be connected to ensure optimum functioning of a global network. This would provide a single window platform for all stakeholders to have cargo status visibility.

TECHNOLOGY AND AUTOMATION

To what extent is the local level of knowledge of electronic data transmission contributing to air cargo congestion?

It will be critical that the system ensures levels of security and data protection that will make stakeholders comfortable with participation. There are several systems that are either in design or operating on a trial basis. The cost of the design and implementation should be covered in large measure through public funding, but the ongoing operation of the network which could be based on a number of factors, could be covered on a fee basis by stakeholders.

The speed and ease of implementation will depend on the commercial model that is adopted and the interfacing abilities of the stakeholders. If the airport procures an automated clearance system and mandates its use, adoption is immediate. However, if each stakeholder is left to independently decide its level of involvement, then the disconnections and congestion the industry is currently experiencing, will continue. It will be important to explore integration with back-end systems to lower hurdles for implementation. It may also be necessary to create financial or operational incentives to help expedite participation.

The role of the government, whether for inbound or outbound goods is critical. CBP's Automated Commercial Environment (ACE) is the system through which the United States government has implemented the "single window," the primary system for processing trade-related import and export data required by government agencies. This transition away from paper-based procedures results in faster, more streamlined processes for both government and industry. The ACE Public Interface should include the ability for cargo handling companies, freight forwarders, truckers, customs brokers and other interested parties to provide at a minimum the entry and clearance status of international cargo. Conversely, ACE should integrate with software systems employed by cargo handling companies that would provide the status, location and availability of cargo for examination by CBP and Participating Government Agencies (PGAs). Software that communicates between all stakeholders and CBP/PGAs needs to be standardized.

All government agencies with regulatory enforcement authority on imported goods must be fully integrated into paperless ACE transactions. The TSA should become an ACE partner government agency so that industry data already used for the authorization of the cargo movement is accessible by TSA without the use of other external systems.

Implementation, at a bare minimum, should begin with entities that have regular shipments arriving and departing participating in a pilot program's that can immediately demonstrate operating efficiencies and cost effectiveness that can be achieved. One approach would be to implement these technologies commencing with Inbound (Imports) and then continue to expand into Outbound (Exports) so that the adoption can be managed efficiently. Most importantly, this approach would be most likely to obtain "buy in" from the entities that are included in this pilot.

TECHNOLOGY AND AUTOMATION

To what extent is the local level of knowledge of electronic data transmission contributing to air cargo congestion?

2. IMPLEMENT IT BASED RAMP MANAGEMENT TRAINING

For airports at which congestion on the aircraft apron is a challenge, the introduction of an IT based training program should be considered. This should address aircraft movements as well as managing a proliferation of (GSE) ground service equipment and loose containers. This would be an important element in integrating the work of operations and planning staff. The cost of implementation will fluctuate based on activity levels, physical planning constraints, and the complexity of the operations.

THE ISSUE: REMAINING TECHNOLOGY CURRENT

The air cargo industry is one of the most dynamic in the world. It is global, it is increasingly technology oriented, and it embodies numerous subsets of industries that are constantly evolving to meet new challenges related to speed, cost effectiveness, and customer service. Automation for large operations, has become a necessary requirement. However, automation decisions should be made up front with regard to a) where the most benefits could be realized and b) these benefits need to be prioritized to optimize return on investment. Due diligence prior to implementation typically highlights the cost versus potential savings (and consequent ROI) when introducing automation which most often comes with a high price tag and must bring economies of scale for an initiative to be widely adopted.

There are numerous applications that either are in direct use, in trial, providing minor support to air cargo, on a drawing board, or in some cases, on a forward thinker's wish list. These include, but are not limited to:

- The utilization of drones for short range deliveries. This is being tested in a number of locations and has proven to be successful.
- Linking 3-D printing to a drone or integrator hub delivery system
- Development of new, affordable and more efficient and effective screening technologies.
- The creation and utilization of autonomous vehicles for the drayage process and operation.

IMPACT:

Like any industry, but particularly service industries with high operating costs, air cargo must be prepared to anticipate future industry needs and perform the due diligence and research necessary to identify the impacts of potential technological innovations on its operations, costs, staffing, and physical requirements. Failure to do identify and implement necessary improvements on a timely basis will result in longer delays in handling cargo and moving it throughout the logistics chain. Delays inevitably translate into higher costs.

RECOMMENDATION: CREATE A TECHNOLOGY AND AUTOMATION RESEARCH EFFORT

Creation of an industry-wide volunteer committee to monitor and identify potentially relevant industry "best practices" and technology applications, would be an initial first step. The Committee would include representation from the full spectrum of stakeholders in both the public and private sectors. Participants would be uncompensated. Industry organizations would be invited to nominate representatives. Airports, that have individual and sometimes unique challenges, should also pursue the establishment of innovation teams to help identify opportunities and enhancements to their cargo operations. It is important to recognize that increased automation will help address staffing shortages.

SERVICE STANDARDS

To what extent are the levels of service provided by your air cargo handling warehouse facility an issue in meeting your requirements?

THE ISSUE:
REVERSING DETERIORATING SERVICE LEVELS

Levels of service on airport - within, to, and from the cargo facility, have become increasingly problematic in terms of processing and clearing cargo. The ability of the cargo handing entity and facility operator to respond to increasing volumes has been compromised by a series of separate but related issues that include growing cargo volumes, dated facility design, insufficient infrastructure capacity on the landside and airside, poor communications, and staffing issues. The situation is exacerbated by the competitive nature of cargo handling and the low profit margins associated with cargo operations in general. The result is that decisions on how cargo handling is to be performed are typically made on a low-bid basis, which is reflected in low hourly wages. In virtually every business this is a formula for high turnover and diminished levels of service. The situation has been exacerbated by the pandemic, which has made staffing retention and replacement problematic. New staff are often placed in positions without typical training because of a) the urgency of operating requirements and b) a shortage of trainers.

The labor shortage has permeated much of the economy, placing entire industry segments in competition with others for provisionally “available” workers. While some airports have bought main deck loaders that went underutilized in the past, this value proposition has risen again with the exponential growth in unscheduled freighters challenging incumbent 3rd party ground handlers and self-handling carriers to position adequate capabilities where most needed.

Levels of service are also affected by the condition of the facility and overall utilization of the space. As cargo volumes and facility and ramp activity levels increase, the capacity of both facilities and infrastructure have been placed under tremendous pressure. As a consequence, there have been increasing instances in which basic housekeeping has deteriorated. This lack of attention can be detrimental to throughput and productivity, let alone basic safety and courtesy. There are very basic routines that must be maintained particularly when there is high density ramp activity:

- Ensuring that the aeronautical infrastructure is clear of foreign objects and debris (FOD),
- Keeping ground service equipment (GSE) (whether in use or on hold for repair) properly stored and away from sections of the ramp where aircraft movements occur
- Clean oil discharges or other spills on a timely basis.

There currently are no regulations on cargo services that are fully transparent to other stakeholders that are other parties in the transaction. Because they are private companies, Forwarders, Brokers, Airlines, Ground Handlers and Truckers all operate on their own time, with their own assets (people) and without a well-defined set of industry standards or metrics by which their comparative performance can be measured.

IMPACTS:

The pandemic has caused some airports to consider investments in equipment that could be used on a lease basis by handlers to accommodate overflow demand specifically resulting from unprecedented levels of unscheduled charter operations. While some such investments may prove justifiable, many airport operators lack a rudimentary understanding of cargo handling and certainly lack the qualifications to make informed judgments about main deck loaders purchasing decisions.

SERVICE STANDARDS

To what extent are the levels of service provided by your air cargo handling warehouse facility an issue in meeting your requirements?

IMPACTS:

Service levels are also a reflection of staffing challenges. High turnover and difficulty in recruiting result in a percentage of stakeholder staffing throughout the logistics chain that lacks historical perspective and an understanding of the diverse roles and challenges faced by partners in the goods movement effort. This often contributes substantially to delays whether through breakdowns in communications, lack of knowledge, and unfortunately at times, lack of courtesy. This exacerbates any competitive disadvantages that may exist for fragmented supply chains and smaller companies.

RECOMMENDATIONS:

1. CREATE AND IMPLEMENT PERFORMANCE MEASURES FOR CARGO OPERATIONS

To clearly define areas of performance management where benchmarking initiatives can be conducted, airports and stakeholders must identify their core competencies with regard to their business objectives. These typically include Security & Safety, Facilities, Airport Infrastructure, Cargo Throughput and Flight Activity, Service Levels, Financial Implications, Economical Implications, Business Development, and Marketing. Mutual discussions must lead to agreement between and among stakeholders and solutions to include monitoring and penalties embedded in formal documents. Each stakeholder would be able to establish the service levels and realistic metrics their business segment should target to complete their role in the goods movement effort satisfactorily. Additionally, where appropriate, airline tariffs pertaining to import handling and storage fees should be published. The targets may vary for different airports and operations, but the core metrics should be consistent.

An incentive program emphasizing priority service to companies that contractually agree to a defined window of processing (fast lane access), would encourage participation. Nevertheless, implementation will be challenging with stakeholders reluctant to have their performance publicly displayed.

2. COORDINATE CRITICAL ELEMENTS OF SERVICE LEVEL AGREEMENTS AMONG STAKEHOLDERS

Service Level Agreements (SLA) help to define performance requirements that impact multiple stakeholders. Typically, these documents impact general handling agents (GHA), carriers, and freight forwarders. When the specifics of the SLAs are not coordinated properly, operations can become problematic. For example, if a freight forwarder is promised a four-to-six-hour recovery time for inbound air cargo, but the handling agent is operating under the assumption that the target is within 24 hours after arrival, additional costs and delays occur. Each carrier must revisit these SLAs with their nominated GHA's so that the agreed upon targets can be shared with the Freight Forwarding community.

It should be noted that if the Freight Forwarder checks with the GHA to determine if inbound cargo is actually available regularly before dispatch, it can help reduce congestion. Historically, many failed attempts to recover cargo have been caused by dispatching trucks to the carrier before there is authorization, so at some level, this is an operational discipline issue and not so much a regulatory/paperwork concern.

SERVICE STANDARDS

To what extent are the levels of service provided by your air cargo handling warehouse facility an issue in meeting your requirements?

RECOMMENDATIONS:

3. ESTABLISH AND ENFORCE STANDARDS FOR LEASEHOLD MAINTENANCE

It is essential that facility and ramp maintenance be monitored and enforced to ensure optimum utilization as well as safety and security. If the ramp under control of the developer or airline, the ground lease should stipulate appropriate maintenance routines, performance measures, and an audit program to check on conformance. In instances where the aircraft ramp is designated as common use (open to multiple carriers at the airport's discretion), responsibility is less clear. Developers have taken the position that if they do not control the ramp, then maintenance obligations should lie with the airport.

4. INSTITUTE AN INDUSTRY-WIDE TRAINING PROGRAM

One of the major breakdowns in service involves basic communications and a lack of understanding how the different links of the logistics chain must be integrated. It is essential that new entrants be appropriately educated in the multiple elements of air cargo operations and the importance of the role that each employee plays in maintaining the overall efficiency of the system. The cost for the development of the universal program would be borne in large part by the industry, and supplemented by public funding. Past job-training programs should be explored for best practices and possibly replicated or expanded as appropriate to contain costs.

5. UPGRADE COMPENSATION LEVELS

This is tied directly to Staffing discussed in the next section. Service in large measure depends on training and having available the tools necessary to meet customer and tenant needs. However, the most basic element is qualified, incentivized staff. This requires an employer commitment to fair wages and benefits as may be appropriate for the position(s) in question.

6. STANDARDIZE PLATFORMS FOR GROUND HANDLERS

Ground handlers frequently handle several airlines each of which may have specific requirements for tracking its cargo. This requires ground handlers to be trained in and have familiarity with multiple systems. The creation of a standardized platform for ground handlers would allow perform more efficiently while avoiding the time and cost of employees having to be trained in multiple systems. Cargo IT companies are currently developing and providing this service.

STAFFING AND HOURS OF OPERATION

Recognizing that COVID has created labor issues throughout the industry, but prior to the virus, to what extent were there staffing deficiencies that adversely impacted your operations (including hours of operation, handling personnel, government staff, driver shortages etc.)?

THE ISSUE:
ADDRESSING STAFFING SHORTAGES

Staffing is a critical concern for every segment of the logistics chain. Pre-COVID the industry was already experiencing challenges: turnover is extremely high. This is driven by low wages, quality of the work environment, lack of a career path, and limited training. This is further complicated for staff working on-airport by the need to secure proper security clearance, and on a very practical level, the ability to physically get to the work site. (Most airport cargo facilities are only accessible by private vehicle). An additional issue is simply lack of regional knowledge regarding job opportunities on the airport and within the logistics chain as a whole.

The staffing challenges also impact positions at the supervisory level. The difficulties of working in the field that were exacerbated by COVID and the opportunities in multiple industries to work at home have helped to deplete the ranks of experienced stakeholder supervisors. Turnover among entry level staff has also reduced the pool of qualified successors creating challenges to management efficiency, and the need to provide additional training for middle management.

Most airlines and many of the cargo handlers have 24/7 operations, however, a substantial number of trucking companies and broker/forwarder firms are still working a typical Monday through Friday, 8-5 modes. As an international service industry, the air cargo supply chain stakeholders must consider the imbalance of hours and how best to achieve greater compatibility.

Staffing shortages have also been a long-standing challenge to Customs and Border Protection (CPB). The ability to process the increased volume of cargo activity, the growing diversity of ports of entry, and the shipment of more time-sensitive and climate-controlled products has become problematic for CBP. At many airports, CBP does not have a staff presence physically on the airport, nor do they run a regular 24 hour a day operation. In those instances, most maintain an on-call presence to process high-priority shipments to handle off-hours clearance requirements. CBP operations at major locations is 24/7, however, while CBP has at been on that schedule, other government agencies that are integral parts of the clearance process may not always be available.

As will be discussed in the Regulatory Section, employees who have access to air cargo must be vetted by CBP, TSA, and the local airport authorities to receive a SIDA badge. SIDA (Security Identification Display Area) Badge to access the Secured Areas surrounding the commercial passenger and cargo terminal. The badging process is lengthy and is only valid in a single port, unlike other certifications that are accepted nationally and in all ports.

STAFFING AND HOURS OF OPERATION

Recognizing that COVID has created labor issues throughout the industry, but prior to the virus, to what extent were there staffing deficiencies that adversely impacted your operations (including hours of operation, handling personnel, government staff, driver shortages etc.)?

IMPACTS:

Because of the global nature of air cargo, the hours of operation, as well as daily and seasonal peaking can vary and have a substantial effect on staffing requirements. As the use of e-commerce continues to accelerate cargo growth, expedited delivery requirements now result in more inbound cargo arriving at the cargo facility on Saturday and Sunday: however, due to scheduling inconsistencies among a number of stakeholders (most airlines and handlers run 24/7 operations, however many of the truckers and forwarders do not), the shipments are not picked up until Monday or Tuesday. This creates space restraints within the facility, greater congestion on the landside as the week begins, and storage and inventory control issues for the handler. For international traffic, federal agencies, particularly on border assignments, cannot always be available to provide support to remote operations on a 24/7 basis.

RECOMMENDATIONS:

1. REVIEW AND UPGRADE COMPENSATION:

The air cargo industry must pay a sustainable wage and attractive benefits to recruit and retain knowledgeable and professional customer service representatives who are needed to work outside the traditional Monday through Friday, nine to five, job. Virtually every category of worker, for every stakeholder in the logistics industry is impacted by compensation issues. These are complicated in many instances, by shift work, physically demanding work, security clearance mandates, lack of public access to the workplace, peak staffing requirements, and seasonal peaks and valleys.

An upgraded compensation package would have the additional benefit of improving retention and service levels. Reducing turnover and training time, and minimizing processing and handling errors, would help to offset a portion of the increased compensation costs. Salaries and benefits, of course vary from business to business, so adjustments will vary and, in some cases, may not be necessary. Nevertheless, upward adjustments to reflect modern wage standards will be a critical step in improving the service levels of the industry as a whole.

2. IMPROVE PUBLIC ACCESS TO ON-AIRPORT CARGO AREAS:

One of the major challenges to staffing on-airport cargo operations is the lack of public transit access for employees. There are two aspects two this problem. The first is that, while in some instances, there are rail or bus connections to the passenger terminals, there is little or no onward connection to the cargo areas of the airport, which can be five to ten miles away. The second issue is that cargo is a 24-hour operation. Few airports or cities have public transit systems that have schedules that can accommodate around-the-clock shift work. Even when operations permit, cargo complexes are often distant from the main intermodal terminals connecting public transit to airports. Airports have begun to add public transit access to requirements for proposed facilities but must produce plans for legacy facilities. While initial infrastructure investments are challenging, airports have the ability to create cooperatives from tenants - even competitors to one another - to pay for services, such as off-peak shuttles.

STAFFING AND HOURS OF OPERATION

Recognizing that COVID has created labor issues throughout the industry, but prior to the virus, to what extent were there staffing deficiencies that adversely impacted your operations (including hours of operation, handling personnel, government staff, driver shortages etc.)?

RECOMMENDATIONS:

3. REVIEW AND UPGRADE COMPENSATION:

New staff struggle with basic industry communications and a lack of understanding how the different links of the logistics chain must be integrated. It is essential that new entrants be appropriately educated in the multiple elements of air cargo operations and the importance of the role that each employee plays in maintaining the overall efficiency of the system. The training could be supplemented by the use of a "Smart App" to help reduce the learning period. The cost for the development of the universal program would be borne in large part by the industry, and supplemented by public funding. Past job-training programs should be explored for best practices and possibly replicated or expanded as appropriate to contain costs.

4. CONDUCT JOB FAIRS

As a means to enhance staffing options, airports, in partnership with their stakeholders, should organize and sponsor one or more annual job or business fairs for the local community. The relatively minimal costs should be borne by the airport and participating businesses. Emphasis can be placed on the diverse range of job opportunities, advancement potential, and as appropriate, salary and benefits. An important focus in any presentations should address quality of life issues in addition to basic benefits.

REGULATORY AGENCIES AND PAPERWORK

To what extent is the flow of international cargo impacted by the outbound inspection, bonding and/or clearance requirements of federal agencies, and/or routine administrative details?

THE ISSUE:
REDUCING PAPERWORK REDUNDANCY

President Obama issued the "Single Window" Executive Order 13659 on February 19, 2014 leading to the creation of the (BIEC) Border Interagency Executive Council and the ITDS (International Trade Data System) to eliminate redundant information requirements, efficiently regulate the flow of commerce and to effectively enforce laws and regulations relating to international trade. This was to be accomplished by the creation of a single portal system for the collection and distribution of standard electronic import and export data required by all participating federal agencies. The Executive Order states:

> *"By December 31, 2016, participating agencies shall have capabilities, agreements, and other requirements in place to utilize the ITDS (International Trade Data System) and supporting systems, such as the Automated Commercial Environment (ACE), as the primary means of receiving from users the standard set of data and other relevant documentation (exclusive of applications for permits, licenses, or certifications) required for the release of imported cargo and clearance of cargo for export; and by December 31, 2016, the Department of Homeland Security shall confirm to the Secretary of the Treasury and the ITDS Board of Directors (Board), which serves as the Interagency Steering Committee established under section 405 of the SAFE Port Act, that the ITDS has the operational capabilities to enable users to:*
>
> - *transmit a harmonized set of import and export data elements, to be collected, stored, and shared, via a secure single window, to fulfill U.S. Government requirements for the release and clearance of goods; and*
> - *transition from paper-based requirements and procedures to faster and more cost-effective electronic submissions to, and communications with, agencies;"*

IMPACT:

The industry as a whole has been working to eliminate paper-based requirements which cause delays in the transfer of information. These delays slow down cargo flows and, in many cases, create additional costs that include handler staffing, fuel burn for truckers, congestion in cargo terminals, landside congestion on airport service roads, and potentially eventual charges to both shippers and consumers.

Airport Community Systems that can house all the iterations of needed data for each stakeholder have been created but total industry participation is still challenging. The lack of the TSA participation in ACE results in redundancies which in turn, create opportunities for errors and unnecessary workloads. (Tracking paperwork, particularly for truckers, can be an issue.) The additional paperwork represents delays and extra staffing requirements for all stakeholders.

REGULATORY AGENCIES AND PAPERWORK

To what extent is the flow of international cargo impacted by the outbound inspection, bonding and/or clearance requirements of federal agencies, and/or routine administrative details?

RECOMMENDATION:

AGGRESSIVELY PURSUE STAKEHOLDER PARTICIPATION

The guidance and requirements for participation in the general tracking and clearance system for air cargo exists. With CBP currently reviewing and discussing the 21st Century Customs Framework, and because the Executive Order of 2014 directs all agencies to be in ACE and with ACE 2.0 coming soon, the timing is appropriate to enroll any agency or stakeholder who has hold or release authority in the single window. ACE funding is in place for the "single window" resulting in little or no additional cost to streamline these processes. Identifying current non-participating stakeholders that would and could be capable of converting to a paperless environment would be an initial step. Incentives for participation should be developed and applied that will demonstrate financial and operational advantages to the industry.

THE ISSUE:
TIMELY ISSUANCE OF SECURITY CLEARANCES

One of the most critical issues facing the industry today is ensuring that staff with access to the SIDA (Security Identification Display Area) are properly vetted and badged. There are two elements to this issue.

The first is the current delays in obtaining necessary clearances. The vetting process is two-phased: the first is local and executed by the airport and typically takes several days to a week. The second phase is federal and can take as long as four to six weeks. Time for the issuance of the badge is the problem. Airport, carrier, and handler staff who require clearance to perform their duties, are not permitted to work until the clearance is obtained.

IMPACTS:

In an environment of national economic and personal financial challenges, asking potential new hires to wait more than a month before starting, results in excessive declinations of job offers exacerbating the existing short staffing issues and levels of service. Ironically, CBP is also adversely impacted by staffing shortages which force all government agencies to prioritize personnel allocations to a number of functions critical to goods movement. Security clearance processing is not typically at the top of list of priorities.

The second element is that because of the badging delays, staffing imbalances exist among airports. While some are functioning at sufficient service levels, others are struggling to handle accelerating cargo levels. The industry has seen instances where handling companies have offered to temporarily redistribute staff to other airports that need assistance to handle peaking, but have been unable to do so because badging is unique to an airport and not to a function.

REGULATORY AGENCIES AND PAPERWORK

To what extent is the flow of international cargo impacted by the outbound inspection, bonding and/or clearance requirements of federal agencies, and/or routine administrative details?

RECOMMENDATIONS:

1. MODERNIZE THE SIDA BADGING PROCESS

Badging-related delays have been addressed by a number of airports: a comprehensive review should be conducted to document "best practices" that could be adapted throughout the industry. A major change would be universalizing and standardizing the Transportation Worker Identification Card program across all modalities of transport, at all international ports of entry and across all Federal agencies with security requirements. By creating a national database for all properly vetted air cargo stakeholders, workers could easily transfer from port-to-port mitigating at some level the staffing shortages. This national system would also reduce part of the workload on the federal processing system, freeing budget and staff for addressing operating rather than administrative issues.

THE ISSUE:
IMPROVING REGULATORY CLARITY AND INTERPRETATION

Regulations that are issued by the Federal Aviation Administration (FAA), Transportation Security Administration (TSA) and Customs and Border Protection (CBP) are standardized, but implementation is often based on the interpretation of the airport or the local agency. There are a number of required policies and practices the purpose for which are not clear to the industry and considered to contribute to delays in processing. Despite the efforts to move to a paperless system, stakeholders operating in different airport systems can vary greatly in their levels of technological sophistication and as a result, require paper to complete certain transactions.

IMPACT:

The interpretive differences can result in challenges for airlines and other stakeholders in normal processing and handling as well as addressing unusual shipping challenges resulting in delays, errors, and potentially unnecessary fines. Inconsistency can also impact a broad range of areas relevant to both operations and new development such as the Security Identification Display Area (SIDA), perimeter fencing etc. which can delay both the negotiations and new facility development adversely affecting near and long-term operations.

RECOMMENDATIONS:

1. IDENTIFY PRIMARY AREAS AND CAUSES OF REGULATORY CONFUSION

Part of the challenge is understanding what the primary areas of stakeholder concern are, and whether the entire goods movement system can in fact, be paperless. This will include determining whether requirements are locally based or government-mandated. If the former, it will be essential to understand the reasoning behind the policy or practice, and whether or not it is still appropriate based on evolving technology. If the latter, then the applicability of the policy to local operations should be clarified.

REGULATORY AGENCIES AND PAPERWORK

To what extent is the flow of international cargo impacted by the outbound inspection, bonding and/or clearance requirements of federal agencies, and/or routine administrative details?

RECOMMENDATIONS:

2. IMPLEMENT CONSISTENT INTERPRETATION AND REINFORCEMENT

Although there may always be "exceptions to the rule", it is essential that there be consistent interpretation and enforcement by TSA and CBP at every location over which they have jurisdictional oversight. This enables the airlines and other stakeholders to have consistent processes across their systems which also allows them to develop more effective training modules. CBP and TSA would have responsibility for the training of agents in the desired approaches to working with the stakeholders. This would include a focus on dealing with especially time sensitive cargo such as climate-controlled products or animals, or high-value or dangerous goods.

THE ISSUE:
OPTIMIZING FEDERAL STAFFING

Even with a shift to technology that optimizes electronic clearances, CBP must have availability, if not a physical presence, at most major cargo operations. Because of staffing limitations, the proliferation of airports requiring federal services, the evolving nature of some cargoes (climate-controlled, pharmaceuticals, etc), and the number of cargo facilities at a number of airports, federal staff are not always available on a timely basis for processing.

IMPACTS:

For international shipping, CBP clearance is the critical element: without it the shipment stops. Every element of delay adds to costs for stakeholders throughout the system.

RECOMMENDATION:

At airports where the ability of federal staff to provide timely support when needed, the concept of a Central Examining Station should be explored. This facility would provide for a single location at which cargo, not cleared electronically, can be inspected and released, reducing the staffing coverage that would typically be needed to provide targeted service levels.

AIRPORT FACILITIES AND INFRASTRUCTURE

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

THE ISSUE: FACILITATING BETTER UTILIZATION OF OFF AIRPORT PROPERTIES

Over the past decade, cargo growth, and the nature of the cargo operations, have created an increasing demand for modern facilities and infrastructures. For purposes of operating efficiency and revenue generation, airports will typically attempt to accommodate the physical and operating needs of prospective cargo tenants and stakeholders on vacant land or through re-development of sites that aren't being fully utilized. This is not always possible because of the need to balance property allocation to meet the near and long-term requirements of all aviation functions needing direct access to the aeronautical infrastructure (passenger, general aviation, and maintenance). Businesses focused on e-commerce are accelerating the need for on-airport or airport-proximate land with access to the cargo areas. The major advantage of an off-airport location is usually lower property costs, and as a subset to that, the property can be available for purchase while airport property is not, given the FAA restrictions and potential complications on property that may have been acquired utilizing federal grants.

As a result, release of on-airport property for a "commercial" purpose (warehousing, manufacturing, etc.) can be an exceptionally cumbersome and challenging exercise. Security and safety however, are critical concerns with both the storage of cargo off-airport, and its transport to and from the cargo facilities. Despite the potential availability of suitable property off-airport there are several challenges to capitalizing on it.

- Not all CBP Port Directors permit the use of "through the fence" (off airport) facilities for bonded air cargo.
- Local communities can have mixed reactions to the use of off-airport property for cargo purposes, citing trucking congestion, noise, and carbon emissions as key issues. Nevertheless, there are substantial economic tradeoffs in the form of jobs, economic stimulation of ancillary and supporting services, and enhancement of the tax base.
- Operating costs for the movement of cargo to and from the on-airport facility are higher.

Despite these challenges, the utilization of off -airport property can play a major role in the screening of outbound cargo and expanding both the capacity and life of on-airport facilities particularly in instances where the airport is physically constrained. In 2008. The TSA developed and began the roll out of the Certified Cargo Screening Program (CCSP), a voluntary initiative designed to shift some of the screening responsibilities to stakeholders other than government agencies. Participating companies could apply to operate Certified Cargo Screening Facilities (CCSFs), where cargo could be screened off-airport and then transported through a secure chain of custody, through the on-airport facility, directly to the aircraft. A key characteristic of the CCSP system is rigorous tracking including the use of tamper-evident technology to assure that after the cargo has been screened, the cargo remains secured in transit to the aircraft. Disappointingly, the CCSP currently has less than 450 active Indirect Air Carrier Certified Cargo Screening Facilities enrolled and only 72 Independent Certified Cargo Screening Facilities are in the program.

AIRPORT FACILITIES AND INFRASTRUCTURE

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

IMPACT:

The use of off airport property for cargo becomes extremely important if on-airport property rates become "excessive", a new operation requires unique property and infrastructure, or the trending demand outstrips available capacity. When the latter occurs, the handling and storage of cargo becomes problematic: cargo becomes difficult to locate and move within the building and, in a number of instances, must be stored on the aircraft ramp posing inherent safety and security issues.

Regardless, of how desirable a market may be for air cargo, if the airport and its environs cannot provide the capacity to accommodate growth in an expanding market, the shipments may move via a different mode, or through a different airport resulting in substantial loss of jobs and economic benefit to the region. It should be noted that development of commercial facilities on-airport can provide incremental revenue to the airport which in turn can, at least in part. Help contain operating costs for air cargo stakeholders.

The primary vision of CCSP was to encourage the shipper community to participate in the screening process. As the data indicate, shippers depend on their freight forwarders to handle the task, and most of those entities rely on the airline, which may be a significant reason for tendering delays; hence, airport cargo is more congested, especially now that all shipments on international freighter flights require screening.

RECOMMENDATIONS:

1. BROADEN STAKEHOLDER INVOLVEMENT IN OFF AIRPORT OPPORTUNITIES

An on-airport cargo operation is typically most desirable from an operating perspective. In the event on-airport property is not available, and the region still remains a viable option for the potential new entrant, it is essential that the stakeholders critical to the lease/sale and development of the property be included in the discussions. This would include those involved in landside access as well as policy restrictions on "through the fence" operations that are traditionally set by the airport and the local Customs Port Director. While recognizing that every situation is different, some basic directive (providing appropriate flexibility) should be promulgated by CBP headquarters to enable these operations when needed. The directive should specify the general requisite conditions, and enable the airport to receive a fee to help cover maintenance costs for on-airport facility and infrastructure utilization. These fees should be implemented and carefully monitored because overly permissive "through the fence" policies can have a debilitating effect on the on-airport environment.

Although the cost of off airport property is increasing, with regional support and federal facilitation, off-airport development (based on demand) will be more attractive to and encourage financing from the private sector.

AIRPORT FACILITIES AND INFRASTRUCTURE

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

RECOMMENDATIONS:

2. SIMPLIFY THE FAA's LAND REUSE GUIDELINES

There are a number of airports with literally thousands of acres that could be developed to grow and sustain normal cargo growth as well as e-commerce operations. Commercial airports within the national aviation system have a primary obligation to preserve the aeronautical capacity of the facilities, infrastructure, and property to accommodate long-term growth. Recognizing this imperative, many airports still have an abundance of property that could be available to accommodate the more commercial elements of e-commerce, provided such use is consistent with the Master Plan and ALP (Airport Layout Plan) which the FAA must approve. Once approved it requires a complex procedure to adapt to a use other than that designated in the plan.

Providing a more straightforward mechanism facilitating the development of logistics and relevant support facilities is essential, particularly when a potential new tenant wishes to select a site within a relatively brief time frame.

3. PROMOTE THE USE OF THE CERTIFIED SCREENING PROGRAM AND ITS FACILITIES

Expanded stakeholder participation in the Program will clearly reduce the dwell time and number of trucks delivering outbound shipments to the cargo facility and the resultant carbon emissions. The screening facilities themselves can be developed in participation with private sector partners. Operating parameters including security protocols, access issues, communications, and scheduling, would be tied into the broader technology overlay of the logistics program.

THE ISSUE:
REDUCING LANDSIDE TRUCKING CONGESTION

Many of the cargo facilities at mature airports have landside infrastructure that was designed primarily to handle trucks up to 40 feet. As the air cargo industry has matured, the use of trucks has increased dramatically, and to achieve greater economies of scale, the length of the trucks has increased to 70 feet including the tractor and trailer. The longer trucks often have severe operating challenges with airport roadway geometry, maneuvering to access truck bays, the separations between bays, and simple parking. An added complication at more mature airports is the proximity of the buildings to one another which also can be a severe constraint: many of these facilities were designed and built in a manner that did not anticipate today's infrastructure needs and industry advancements. On the opposite end of the spectrum, the proliferation of vans used for express mail and e-commerce, also have difficulty accessing truck bays designed for larger vehicles.The increased numbers of every size of truck create congestion on truck aprons and access roads to both cargo areas and cargo facilities. Since there are virtually no marshalling yards on airports, trucks become lined up along airport service roads or parked haphazardly, further exacerbating congestion, circulating through adjacent communities, and in many instances, idling, contributing to the carbon emissions issue.

AIRPORT FACILITIES AND INFRASTRUCTURE

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

IMPACTS:

The delays are only one of the impacts that are produced by inadequate landside infrastructure. Aside from unnecessary environmental damage, the inability to access appropriate cargo facilities and truck bays on a timely basis creates extra fuel burn and adds to the hourly costs of trucking operations, with an inevitable flow through to other stakeholders and consumers. Additionally, when trucks or vans arrive and there is not a door available to service them at the facility, they are forced to circulate or idle causing noise, congestion, and increased carbon emissions.

RECOMMENDATIONS:

1. CREATE AND/OR IDENTIFY TRUCK MARSHALLING YARDS

Truck congestion is due in part to the dated design of infrastructure which is unable to accommodate trucks waiting for a bay door for either pick up or delivery. Modern facility planning calls for an allocation of 10% of number of truck bays to truck staging. For smaller cargo operations these can be included in the site plan. However, when large numbers of trucks are involved, the creation of a central truck marshalling yard is more appropriate. It offers the advantages of providing otherwise unavailable amenities for truckers, centralizing a communication and dispatch system for vehicles, and reducing truck movements particularly when trucks are required to make multiple facility stops. The cost of developing such facilities would be relatively minor (assuming no substantial cut and fill, demolition, or environmental issues), and could be partially recovered through retail sales and rental fees.

In the event an appropriate location is identified off airport, airport staff should provide assistance to the stakeholder and the off-airport entity controlling the property to facilitate negotiations necessary to develop the site as an appropriate airport support facility. An essential element in the efficient utilization of marshalling areas will be linking the operation to the overall communications system to ensure timely dispatch and arrival of the trucks to the cargo building.

2. DEVELOP INTERIM SOLUTIONS TO ACCOMMODATE PEAKING

Despite the administrative and legislative constraints that many airports face with regard to property management for non-aeronautical functions, there are still options that can be pursued. The issuance of short-term, right-of-entry licenses to tenants, and identification of areas that are unused or undeveloped that, with some relatively minor clean-up, could serve as interim staging areas can provide essential short-term relief.

AIRPORT FACILITIES AND INFRASTRUCTURE

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RECOMMENDATIONS:

3. REVISIT LANDSIDE ROADWAY ACCESS AND FACILITY TRUCK APRON AREAS

Based on the maturity of the airport, the established geometry of access roads to the cargo areas and to the cargo facilities, should be evaluated for potential modification as may be appropriate to accommodate 70-foot tractor-trailers. Similarly, the depth of truck aprons should be reviewed to ensure that they provide sufficient maneuvering space for modern semis. The cost of modifying dated roadways and truck aprons is typically difficult to recover through charges to airport tenants and users and represents an ideal use of public funding.

A second element that contributes to congestion on the landside of an air cargo facility is the mixing of cars with cargo vehicles in the proximity of the bay doors. Access should be modified to ensure that car parking is away from the bay doors with access and egress that separates it from trucking operations. While this is a general rule, it is important to note that there may be some limited short-term parking needed directly adjacent to the building, but employee parking and other longer-term parking should be away from the building and truck court.

4. COORDINATE OFF AIRPORT ACCESS AND IMPROVEMENTS WITH REGIONAL DOT

As property develops proximate to an airport, local economic development initiatives and regional transportation planning must be coordinated with airport master planning to include land use for functions that support aeronautical operations. Historically, the focus has been on access to the passenger terminal, but as the importance of cargo has grown, a roadway system that provides ready and easy access to the regional highway system is essential for providing levels of service that will help contain operating costs and help maintain the airports position in the national air logistics chain.

AIRPORT FACILITIES AND INFRASTRUCTURE

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

ISSUE:
REDUCING AIRSIDE CONGESTION

The delays are only one of the impacts that are produced by inadequate landside infrastructure. Aside from unnecessary environmental damage, the inability to access appropriate cargo facilities and truck bays on a timely basis creates extra fAirport development is guided by comprehensive master planning efforts. The work however, is based on a review and analysis of then current industry trends and a forecast of demand and capacity requirements over an approximate 20-year period. The increased demand for freighter parking created by e-commerce was not anticipated in most planning efforts which predate COVID and the acceleration of home shopping. It is important to note that there is a major difference in the physical design and operating parameters between facilities and infrastructure geared for passenger operations and those planned for freighters. Those designed for freighters have adjacent aircraft ramp to facilitate loading and unloading of aircraft and the expeditious movement of large cargo volumes to and from the building. Facilities planned to handle belly cargo do not require adjacent ramp and are typically connected to the aeronautical area by a restricted service road which enables the cargo to move back and forth via a tug and cart system.

The COVID 19 pandemic continues to accelerate the already substantial growth rate of e-commerce. With the downturn in passenger activity, cargo became the primary business segment that was able to sustain airports and airlines over this financially challenging period. Because of the reduced number of passenger operations and belly cargo capacity, the industry shifted its emphasis to freighters to help meet demand. While carrier fleet capacity (supplemented by conversions of passenger aircraft) has been able to accommodate the greater volumes, the increased levels of freighter aircraft have created historic levels of congestion on aircraft aprons at multiple airports. Many of the ramps, while functional are not ideally suited to the size of modern aircraft or the operating requirements for specialized and time-sensitive cargo. While increasing passenger activity has helped to alleviate some of the demand for aircraft ramp, the current number of aircraft are pushing the limits of optimal operating, safety, and security standards.

To further complicate the situation, at a number of airports, the lack of capacity in the cargo facilities has required the temporary use of the apron for holding cargo and to accommodate equipment that would otherwise be stored in the building.

At large mature airports, the vehicle elements of airside infrastructure as they relate to cargo are challenged. The transport of belly cargo to and from the passenger terminals on restricted service roads is constrained and increasingly inefficient.

AIRPORT FACILITIES AND INFRASTRUCTURE

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

IMPACT:

Ramp congestion will remain an issue and become more acute as the shift to e-commerce continues. Reduced maneuverability and capacity on the ramp, including loading and unloading of aircraft and the operations of support vehicles and equipment, creates both safety and security issues. In a number of instances, the incompatibility between ramp utilization and capacity has created a need to relocate the cargo handling to a currently underutilized on-airport belly cargo facility.

Because airports have defined physical boundaries and operating constraints, there are limits to their ability to increase the capacity of aircraft apron. Where there is no available alternate capacity, there is pressure from stakeholders to bring trucks onto the cargo apron in order to move the shipments directly to an off-airport facility which creates operating challenges as well safety and security issues.

RECOMMENDATIONS:

There are two major concerns as to how the relief of airside congestion can be achieved. The first is very straightforward – is there the physical space to add the cargo apron and connecting service roads required to handle growth. The second is the cost of the aeronautical infrastructure and the difficulty in recovering the cost without a substantial adverse impact on cargo tenants and users of the cargo facility.

1. SUBSIDIZE THE COST OF NEW NON-REVENUE PRODUCING INFRASTRUCTURE.

In an expanded discussion on development of facilities and infrastructure that follows, the creation of separate and dedicated public funding for air cargo at the state or federal level is recommended. At airports with the physical capacity, monies for aeronautical infrastructure would be drawn from this. This would include the development of tunnels or more direct vehicle service roads (VSR) to avoid airport taxi and runway traffic (subject to physical and reasonable cost/benefit results).

2. DEVELOP MODERN CARGO CENTRIC AIRPORTS OR HUBS.

When there is no available capacity, the creation of what are essentially “all cargo” in strategic locations to accommodate dedicated freighter traffic is an alternative. These airports need not be new: there are a number of airports that are not ideally positioned for passenger operations, that are relatively close to city centers and that have substantial potential airside available for development. However, the lack of federal funding and the economies of scale linked to passenger operations, make the fiscal viability of an (all cargo airport) extremely challenging. The few exceptions to this are the major integrator hubs associated with express mail delivery.

AIRPORT FACILITIES AND INFRASTRUCTURE

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ISSUE:
MODERNIZING AIR CARGO FACILITIES AND INFRASTRUCTURE

Over the course of the past several decades, the nature and flow of aviation and air cargo have evolved dramatically. These changes have had a flow down effect on the optimal design and configuration for a modern air cargo facility. A few key highlights are as follows:

- Passenger aircraft have become larger and carriers have been utilizing more of the belly capacity for cargo to increase their revenue per flight.
- International markets have expanded creating opportunities for cargo growth and a much greater requirement for federal agency participation in the goods movement process.
- Supply Chain Integrators such as UPS and FedEx have developed unique operating requirements which include different building and infrastructure configurations.
- The rise of e-commerce has generated substantial increases in cargo tonnages and generated new facility (and infrastructure) requirements at traditional and non-traditional airports. An element that compounds congestion is that the typically lighter weight of e-commerce shipments often creates cubic volumes that will max out the utilization of equipment and facilities before the tonnage.
- The growth of climate-controlled shipping and hold requirements must be accommodated in new facilities for the global distribution of perishables such as food, flowers, and pharmaceuticals. The ability to handle specialized shipments (such as a COVID vaccine) must be considered for future planning.
- Increasing cargo tonnage at many airports has outgrown building capacity, and the nature of the cargo has added specialized requirements to storage and handling that are not available on older facilities.
- The changing nature of the cargo operations has altered the utilization of trucking to include the frequency and type of the vehicles. This in turn has changed the truck bay door requirements. Older buildings have fewer truck docks, and many of those docks are not sized to accommodate van traffic which is growing in proportion to e-commerce. As a result, in many instances, particularly when communications are inefficient, there are insufficient doors to accommodate demand.

Building configuration and size at many airports are now incompatible with industry operating requirements and growing cargo volumes. Traditional cargo operations call for a building which is more rectangular in shape and configured to emphasize throughput. Modern facilities that emphasize e-commerce and integrator traffic are best designed with greater depth to allow for sortation and with less of a focus on sensitive hold areas. The heights of older facilities can sometimes limit the ability to introduce more sophisticated racking and/or mechanized handling system and enhance efficiency.

AIRPORT FACILITIES AND INFRASTRUCTURE

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IMPACTS:

Because of the congestion, and in the absence of readily available accurate tracking technologies, shipments frequently cannot be located. The longer recovery times typically translate to higher costs, because of the additional staff time and administrative work that needs to occur prior to acceptance and turnover. Storage challenges inside the building often result in blocked truck docks. The shortage of doors, as well as available doors, creates trucking apron inefficiencies, adding delays and costs.

In frequently increasing instances, in addition to peak periods, air cargo must be stored outside the building where it is exposed to the elements which can cause damage to the shipment, create security concerns, lead to theft, and generate additional costs in the form of storage accruals and staff time. In instances where the building cannot be operationally adapted to meet demand, some cargo processing must be relocated to alternate facilities.

In some cases, terminals are too close to each other for the larger trucks to maneuver safely and effectively. This also creates congestion as the trucks have to wait for the area to open up before they can pull in to a dock.

FACILITY DEVELOPMENT: BACKGROUND

As a subset of this section on facilities and infrastructure, it is essential to address in greater detail, the issue of how modernization of facilities and infrastructure can be achieved. At most airports, and particularly international gateways, planning and construction of cargo facilities and infrastructure was incremental rather than strategic, allowing the airport to create a new revenue source and respond to an immediate tenant request. At present, as demand challenges physical capacity, the ability to meet the need for new development is becoming increasingly problematic. A new cargo facility, based on internal operating systems, special features (climate control, hazardous materials, animals, high value goods etc.) can cost from $150 to $300 million. The range can vary based on geographic location and typical challenges associated with any construction project. (Modern facilities can be as high as $400 per square foot). An on-airport project must also be sited, oriented, and built to meet the safety, security, and operating requirements of the FAA, the airport, and relevant state and local guidelines. To achieve forecast capacity requirements, demolition and extensive environmental mitigation add substantive additional costs to a project. Estimated costs for a recently planned cargo development at a gateway airport ranged between $300 million and $500 million dollars.

The single biggest cost element of the five areas is the development/redevelopment of the on-airport cargo buildings and the supporting landside and airside infrastructure that provides access to vehicles and aircraft. Over the past 20 years, the model for the development and ownership of air cargo facilities has changed dramatically, largely driven by fluctuating oil prices, general economic downturns, and airlines realizing the importance of managing both the revenue and cost side of their business.

AIRPORT FACILITIES AND INFRASTRUCTURE

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FACILITY DEVELOPMENT: BACKGROUND

In the early decades of air cargo growth (1950 -1970), broad physical improvements were initiated and were led predominantly by airports and authorities. (Many of these facilities are still operational at mature airports despite being either extremely inefficient or functionally obsolete). This approach evolved to airline-led development which continued to approximately 1990. At that time, both airlines and airports began to shift their approach to engaging with private developers for facility and infrastructure construction and management enabling them to focus on their core competencies – for airports providing platforms that facilitate the movement of people and goods; for airlines focusing on the aircraft and moving those people and goods from location to location. The responsibility for building and overseeing the logistics real estate has gradually shifted to third party developers. As with all private sector organizations, developers invest money with the expectation of earning a reasonable risk-adjusted return. At the same time, these partnerships enable airlines and airports to allocate their time and resources to their "core competencies" while minimizing their risk. These partnerships are most successful when there is a reasonable split of risk and reward without adversely impacting tenants and users of the facilities.

As the business models for development have evolved, so too have the design requirements for a modern cargo facility. The utilization of sophisticated material handling systems, larger cargo volumes, greater emphasis on time sensitive delivery, larger and more trucks, and larger aircraft, have caused industry operating requirements to outpace dated airport and airline physical capacity. It is essential to future growth, that these older facilities built to early industry standards, be expanded or, when possible, replaced to achieve optimal efficiency.

PUBLIC-PRIVATE PARTNERSHIPS

Cargo facilities and infrastructure have typically been developed by a) the airport, b) an airline, or c) a private developer (the increasingly prevalent entity). If the airport opts to undertake the development themselves, it immediately assumes 100% of both the cost and risk associated with the project. Because of revenue shortfalls, and resource allocation priorities, the recent trend is to engage the private sector. However, it is essential that the risk/reward elements be balanced to appropriately reflect the financial and management responsibilities that have shifted to the private sector. An unrealistic split may risk the project moving forward at all. It is important to recognize that certain enabling costs such as site connectivity, or risks involving historical environmental issues should remain with the airport, but precedent indicates that this is a very small percentage of the development and still reflects the successful transfer of most project cost and risk to the private sector. Theoretically, an airport can then determine both the investment it must make in the project and the income it expects to generate through ground rent, percentage rent, additional landing fees, etc.: it can then determine if that is a reasonable risk-adjusted return on their end as well.

AIRPORT FACILITIES AND INFRASTRUCTURE

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THE CHALLENGES OF THE SOLICITATION PROCESS

Partnerships with the private sector for the development of air cargo facilities and related infrastructure are typically initiated by the airport through the issuance of a Reguest for Proposal (RFP). The RFP process is frequently slow, cumbersome, and in many cases begun without a clear vision of how the process will evolve. Nevertheless, the need for a formal process (or something equivalent thereto) is understandable when considering the airport's fiduciary responsibilities as a public entity to maintain a transparent and level approach to major capital investments involving private partnerships. However, the airport must understand that a solicitation process for a substantial development, is both time consuming and costly for developers and builders to pursue, with costs that can often exceed more than $1,000,000. (It should be noted that developers understand the risk elements involved in pursuit).

ISSUE: OPTIMIZING DEVELOPMENT

Many airports do not understand the complexity of the response effort for a development RFP, and fail to prepare diligently on the front end of the process: better preparation would help ensure a successful and timely negotiation for development once a selection has been made. The key is realizing that there are actually four stakeholders involved in the negotiation – two principals, and two secondaries. The principals, of course, are the airport and the developer. These two parties conduct the formal negotiations, weighing risk and reward, and the attendant elements of development, operations, and marketing the facility. What must be considered, and is frequently overlooked or minimized, is the impact on the secondaries. The revenues from the new facility are split between the airport and the developer, but the feasibility of the financial targets for these parties is predicated upon the rentals and fees paid by the tenants and users of the cargo building. The cycle becomes complete when these monies eventually flow-through to consumers who must ultimately pay for the facility costs.

What has become increasingly problematic to creating successful public-private partnerships is airport credibility. There have been multiple occasions over recent years, when an RFP opportunity is canceled altogether, leaving developers with months of wasted work and hundreds of thousands of dollars in unrecoverable expenses. Four such instances occurred in 2021 alone. In certain cases, airports have taken the research and plans submitted under the RFP, canceled the solicitation, and subsequently built the facility themselves. Beyond the credibility issue, is a general concern over airport pre-solicitation preparation.

Management at many airports have historically prioritized passenger operations and facilities over air cargo. As a result, they are unfamiliar with some of the fundamental aspects of logistics strategies, operations, physical requirements, and business. One important element that is often lacking in the RFP is a clear and rational articulation of airport goals and objectives (particularly financial), which are targeted as outcomes. The solicitation documents often lack relevant supporting documentation regarding traffic levels, market due diligence, existing environmental status of a site, topography, off-airport concerns etc.

AIRPORT FACILITIES AND INFRASTRUCTURE

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ISSUE:
OPTIMIZING DEVELOPMENT

There have been numerous instances where projects have been awarded only to be delayed months, or in some instances, years because of necessary environmental studies which should have been initiated prior to commencement of the solicitation process. Many airports have less than complete information on cargo statistics, out of date forecasts, and a limited descriptive portfolio of air cargo properties, all of which, if available, can contribute to a more seamless response process. Empowering potential bidders with comprehensive information invariably results in more responsive bids.

IMPACTS:

Lack of thorough preparation, to include clarification and prioritization of goals, assembly of relevant data, and appropriate internal due diligence, can result in substantial delays, and upon occasion, cancellation of the solicitation process, by the issuer of the RFP. The eventual outcome of the delays, even assuming that the airport has allowed sufficient lead time for the new construction based on demand triggers, means that stakeholders will have inadequate capacity in which to conduct business. This results in delays in both inbound and outbound shipments with related escalation in the cost of doing business. If the delays become excessive, the airport and the region may be faced with a loss of business and regional jobs as industry stakeholders opt to shift the routing of particularly time-sensitive products.

1. IMPROVE THE RFP PROCESS:

Responsibilities related to air cargo are often split among different airport divisions to include planning, finance, real estate, and marketing. This creates different perspectives on cargo operations and, based on those perceptions, different and sometimes conflicting goals and priorities regarding new development. Prior to issuance of an RFP, the airport must first, eliminate potential ambiguity and be committed to the development and the execution of the process, and second, express goals and priorities that the development community can understand and translate into responses that address both near and long-term accommodation of air cargo growth.

Unless there is a clear understanding of what the future development will look like, the airport should conduct a site analysis to ensure that the proposed development will a) be physically and operationally compatible with the boundaries, and b) have no adverse impact on other aspects of airport infrastructure and operations. It should be noted that developers will have a broader understanding of industry best practices, and bring a more strategic and creative perspective to the proposed development. The airport's pre-planning should allow for this, and the RFP should encourage creativity.

AIRPORT FACILITIES AND INFRASTRUCTURE

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In advance of an RFP, the airport should perform some basic due diligence to ensure that relevant reference material and data are available for bidders. In the event there are significant information gaps, airports should initiate an appropriate study, either internally or through the use of external experts, to identify and provide the data to bidders that will result in better private sector submissions. This should include technology, security, safety, and sustainability enhancements that the airport needs to address with new air cargo developments. This will help establish consistency and a balanced competitive environment.

The final selection for the development typically challenges that include timing and quality of supporting information. From a timing perspective, facilitating faster decision making at the airport/government level for any required approvals would not only help these projects come to fruition faster, but also help incentivize greater private sector participation. Additionally, greater up-front transparency of information for an RFP process is beneficial.

2. UTILIZE ALTERNATE SELECTION MECHANISMS

Responsibilities related to air cargo are often split among different airport divisions to include planning, finance, real estate, The RFP process has historically been the preferred mechanism for new development initiatives. Beginning with the airport's due diligence and concluding with the final negotiations and board approval, it may take a year or more before construction can actually begin, and another twelve to eighteen months before the facility is operational. In a period of accelerating cargo growth, evolving operating requirements, and stretched facility and infrastructure capacity, identifying and enabling an approach outside the RFP process would facilitate greater speed to market for these projects and ultimately benefit the airport, the developer and the end user.

A frequently used alternative is a Request for Qualifications (RFQ) which is run in approximately the same way as an RFP, but is less cumbersome for the airport, but typically lacks thorough background information and detail which makes the potential project more ambiguous from a developer perspective. While the RFQ can save time on the front end of the solicitation, the potential lack of clarity, can lengthen the final planning and subsequently the negotiating process.

A less frequently used alternative involves a short-fused Request for Expressions of Interest (RFEI). Using this approach, the airport develops a short list of known private developers whose portfolios present the basic qualifications that the airport would require in a formal proposal. The strategy can initially produce a developer more quickly and reduce the overall time to development by an estimated three to six months, provided the "short list' is truly short.

A number of RFP's are issued to rebid an existing leasehold when the original term of the ground lease with the developer comes up for renewal. Unless there are mitigating circumstances, and provided an extension under the ground lease is not problematic, the airport can negotiate significant investment in the existing site via redevelopment or refurbishment. If the maintenance and operation of the facility has met airport requirements over the term, there is an opportunity for seamless extension that, if utilized, could help facilitate faster investment and minimum disruption to throughput.

AIRPORT FACILITIES AND INFRASTRUCTURE

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In the event that there is no clear superior bid, the airport could elect to conduct bi-lateral negotiations with a qualified party to identify the alternative that best meets the goals for the development.

The most controversial option is development without an RFP. When an airport begins a solicitation process for a cargo development, the project is typically both guided and confined by forecast traffic levels, existing facilities and infrastructure, anticipated budget and financial projections, and the vision of the airport. The private sector continually scans the airport sector of the air cargo industry and historically has submitted unsolicited proposals to construct cargo and/or cargo support facilities that they initiate individually or through industry stakeholders (airlines, cargo handlers). Because of existing policies, most of these are not, or cannot, be acted upon, despite the bona fides of the developer and the availability of private funds. Exceptions may sometimes occur if a case can be made that this is a sole source submittal, i.e. there is no viable option. However, the private sector has become increasingly skeptical of this practice because airports, limited by law and/or policy, are reluctant to pursue sole source and frequently take the submitted concept, and use it as the basis for an RFP, immediately undermining the ultimate productivity of a public-private partnership. This discourages such submittals and fails to take advantage of available private funding.

The other major downside is that a failure or inability to take advantage of a creative private proposal can have adverse long-term impacts. Because of cost constraints and a fairly predictable growth curve in the market, airport planning for cargo facilities was incremental rather than strategic. As a result, at a number of airports where cargo volumes are high, cargo buildings and complexes are now sited such that operating efficiencies and cost effectiveness are lost, and the addition of ancillary and supporting services that deal with systemic changes such as climate-controlled shipping and e-commerce, cannot be properly accommodated. As on-airport facilities and infrastructure continue to age and cargo volumes grow, large-scale, comprehensive, and integrated modernization must be, not only considered, but also encouraged. Redevelopment on this level, must inevitably tie into off airport redevelopment, regional transportation planning, and economic and job development initiatives. The complexity of managing such efforts through a series of multiple RFPs issued by multiple entities over a period of time makes the timely and cost-effective development of a modern air cargo complex virtually prohibitive.

While state and regional guidelines will inevitably vary, an individual jurisdiction can and should create and facilitate a mechanism that:

- enables a reputable and experienced private sector partner, with appropriate available capital, to submit a sole source proposal,
- recognizes the airport's fiduciary responsibilities,
- ensures preservation of the airport's aviation assets
- allows the airport, using legitimate evaluation criteria, to accept and assist in the implementation of the proposal.

AIRPORT FACILITIES AND INFRASTRUCTURE

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3. PROVIDE DIRECT PUBLIC SECTOR FINANCIAL SUPPORT TO DEVELOPMENT INITIATIVES

There are several instances where negotiations for a cargo development project can be substantially accelerated and at the same time help both airports and developers achieve financial targets while containing costs to tenants and users of the facilities. This would involve the creation of a State or Federal "Aviation Support Fund" dedicated to air cargo facility and infrastructure development and modernization. The fund would provide subsidies in part, or in total for:

Allocation of funds for development of non-revenue producing infrastructure.
An on-airport cargo development will typically involve the construction of substantial amounts of supporting infrastructure. On the land side this will include access to the facility for trucks as well as privately owned vehicles, maneuvering and queuing space, truck ramp proximate to the loading docks, and vehicle parking. The cost (which can vary between $10-$20 per square foot) of this infrastructure on the leasehold, is normally absorbed by the developer even though the ability to realize a return on the investment is limited. If the airport wishes the developer to extend roadway improvements for access and egress beyond the leasehold, there is no opportunity to recapture costs through some form of revenue generation. On the air side, aeronautical infrastructure can cost between $30-$50 per square foot. The construction may include restricted service roads, cargo staging areas, and, if the facility is designed to accommodate freighter traffic, parking apron for aircraft. When the development of a ramp is required, it almost always involves more square footage than the building at a ratio of roughly one to four. In instances where the construction of a taxi-lane outside the leasehold is needed, the allocation of the cost should typically fall to the airport, but often becomes a hurdle in successfully completing negotiations. The cost of the infrastructure, which generates virtually no return, is a major reason why many projects cannot work financially.

Similarly, if the airport requires that the aircraft apron be "common use", then the cost of development should not necessarily be borne by the developer, unless the airport agrees that parking fees can accrue to the facility operator. Supplementing the unrecoverable development costs of infrastructure will encourage private sector participation, expedite development, and contain costs accruing to tenants and users.

AIRPORT FACILITIES AND INFRASTRUCTURE

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Allocation of funds to offset a portion of the ground lease costs. While airports cannot operate "for profit", they are required by the FAA to be financially self-sustaining. Given this mandate, setting financial targets for a new cargo development can be challenging for the airport which is typically trading a potential reduction in leasing revenues (both vertical and horizontal) for a massive private capital investment in facilities and infrastructure. As a result, airports frequently resist compromising on the rates for the ground lease, and in some instances, seek an increase despite the developer absorbing virtually all construction costs and risks. From a developer perspective, in order to meet pre-project financial targets, any increase in ground rents, must be passed on to building tenants and users. Because a large portion of the total leasehold may be non-revenue producing, a $.50 per square foot increase in ground rent may create as much as $2.50 per square foot increase in the building rent that tenants are required to pay. For many firms which operate on very small profit margins, the flow-through increases may be prohibitive. Supplementing the reasonable differences in ground rent negotiations will enable both parties to meet financial targets development, contain costs accruing to tenants and users, and reduce long-term price increases to the consuming public.

Allocation of funds to offset costs incurred after development as a result of mandated operating, sustainability, safety, and/or security modifications. Historically, the development community has been broadly supportive of advancing the industry to meet more modern standards, and in fact has frequently introduced upgrades to anticipated development standards. However, the short-term nature of the ground leases results compounds the impact of the additional cost associated with increasing operational and development requirements. Some of these upgrades are simply the cost of doing business: however, there are instances where new requirements may have a substantial cost that is unanticipated in contingency budgeting for either development or operations. If the increases cannot be absorbed, then there will be a direct impact on tenants and users impacts (and eventually consumers).

A key element in the successful administration of a "Air Cargo Support Fund" will be a central control that reviews potential projects based on FAA approved Airport Layout Plans and airport activity forecasts and trend lines. Projects would be accepted and funds allocated based on a clear and well-promulgated set of evaluation criteria.

AIRPORT FACILITIES AND INFRASTRUCTURE

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ISSUE:
FACILITATING DIVERSITY AND INCLUSION

DBE/MBE/WBE/SDVOB/etc. requirements is an area which airports have appropriately recognized as sensitive and upon which they have increased their focus. These requirements can vary substantially based on funding sources for the project. As regional economic engines, it is essential that airports and their partners throughout the logistics chain, prioritize inclusion and engagement with surrounding communities and diverse groups that represent the local work force. One of the primary challenges is that airports have a wide range of differing certification requirements. It is understandable that the policy and practices of facilitating minority participation in public projects, can differ slightly, however, there are state certifications, municipal certifications, authority/airport certifications, and federal funding requirements that can make navigating this inclusion very complex and challenging not only for those overseeing a project, but also for local businesses to ensure they have signed up for all the appropriate certifications that enable access to the development projects.

IMPACTS:

The variations in the certification processes for minority participation affect stakeholders on both sides of the solicitation effort. From the developer perspective, percentage requirements that are considered unrealistically high, can discourage bidder participation. The relevant factors are whether the need to meet participation goals would require a) a realignment of the core development team or, b) the scarcity of a specific discipline would adversely affect the ability of the developer to create an optimum team. The final scenario is that the participation target, or specific elements related to it, are simply considered too high. As a result, airports may lose highly qualified bidders, particularly if there are multiple opportunities simultaneously available throughout the industry.

From the perspective of minority firms, complex and changing qualification and registration processes make it difficult to maintain their status and eligibility. Clarification of participation issues can often delay either the issuance of an RFP, or the administration and review of the process.

RECOMMENDATION:

Understanding that there will be variations dictated by regulatory, political, and demographic factors, airports and their governing bodies (as may be appropriate) should identify and apply further consistency to this process. This would include streamlining/enhancing accessibility of the application process for firms that want to obtain certifications, and ensuring that requirements in the solicitation documents are representative of both the region, and the involved disciplines.

AIRPORT FACILITIES AND INFRASTRUCTURE

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ISSUE:
ENVIRONMENTAL AND SUSTAINABILITY CHALLENGES

The air cargo areas of airports tend to be locations that have historically experienced greater exposure to environmental clean-up requirements. Many existing cargo buildings are more than 50 years old and have issues with asbestos. Aircraft aprons that have seen decades of freighter use, often have large oil lenses beneath the surface which can represent substantial clean-up challenges.

Sustainability has become a major focus of the industry at large. At the same time, airports have taken different approaches to implementing sustainability initiatives particularly across different types of products/use types at the airport. For example, passenger terminals are far more visible to the public, and are quite different in their usage than air cargo facilities. These differences in use then translate to differences in how to approach sustainability that impact water usage, electricity demands, mix of construction materials, noise and light mitigation etc.

IMPACT:

The combination of unknown above ground and in-ground mitigation can represent significant unrecoverable costs to a project. Historically, pre-existing contaminants have been considered the responsibility of the airport or the tenant.As such, if the former tenant is not known, and the airport seeks to push unknown historical obligations and responsibilities onto the private sector, it risks jeopardizing the project at hand. While the private sector is typically equipped to take responsibility for obligations as a result of its actions during its lease term, but not necessarily for unknown and unquantified historical conditions.

RECOMMENDATION:

BALANCE RISK AND REWARD FOR NEW DEVELOPMENT

By not pushing these risks/obligations onto the private sector without a negotiated approach, the airport would stand to benefit from greater interest in the project. Another possible solution here is funding from the federal government to specifically support the clean-up efforts at airports. This would be a win-win because the government could support a cleaner environment, and enable airports to preserve their funds while still presenting projects that would be of interest to the private sector.

AIRPORT FACILITIES AND INFRASTRUCTURE

Are the cargo buildings appropriately sized for the number of carriers being handled and volume of cargo of both ULD and loose freight passing through the facilities? Is there sufficient access from the highway system to the airport, access on the airport to the cargo facility, and appropriate trucking apron for truck queuing and maneuvering?

IMPLEMENTATION

The number of airports and the diversity of cargo operations, stakeholders, and regional economic importance among the states, make the creation of a single, rigid implementation policy unrealistic. However, there are certain critical elements that are both recommended and common to all.

1. Create state-based funding centers unique to air cargo to assist in funding infrastructure projects, technology and automation initiatives, equipment acquisition, operational and safety improvements, and sustainability enhancements.
2. Utilizing clear evaluation criteria, each state should create a prioritized list of cargo projects for which the fund should be utilized, and estimate the capital and timing requirements.
3. Determine the potential amount the state can contribute and the amount requested from a federal funding source. (Note: these estimates should be exclusive of anticipated private sector participation).
4. A combined panel of public and private sector stakeholders should determine specific state funding allocations based on clear and common evaluation criteria. Underruns, to include any offsets achieved through private sector contribution will be returned to the fund.
5. Each state and the federal agency should audit the allocations and project management to ensure budgets are on track.
6. States failing to meet allocation and project goals, may lose funding.

IMPACT OF NO ACTION

Understanding that the resources available to airports and many of their constituents have historically been limited and have suffered substantial adverse impacts over the past two years, the need for a broad program to address existing and growing deficiencies is essential. A failure to respond will result in the following.

- Further delays to shipping products by air and a potential shift to alternate modes.
- Escalating costs to improve airport facilities and infrastructure
- Disincentives for the private sector to invest
- Inability to meet anomalous challenges (e.g. COVID 19 shipments)
- Diversion of shipments from traditional cargo hubs with resulting:
  - Loss of regional jobs
  - Adverse impacts to regional tax bases
  - Negative impact on federal staffing and budgets
- Higher costs to all elements of the logistics chain from shipper to buyer
- Industry consolidations and overall job loss
- Potential stagnation of critical airports
- Increasingly adverse environmental impacts

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Airforwarders Association

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