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Al Lyons; David Powell; Transportation Research Board

ACRP SYNTHESIS 20

Airport Terminal Facility Activation Techniques

A Synthesis of Airport Practice

CONSULTANTS
AL LYONS
and
DAVID POWELL
Arup
New York, N.Y.

TRANSPORTATION RESEARCH BOARD

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AIRPORT COOPERATIVE RESEARCH PROGRAM

Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the airport industry. The Airport Cooperative Research Program (ACRP) serves as one of the principal means by which the airport industry can develop innovative near-term solutions to meet demands placed on it.

The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the Federal Aviation Administration (FAA). The ACRP carries out applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing federal research programs. It is modeled after the successful National Cooperative Highway Research Program and Transit Cooperative Research Program. The ACRP undertakes research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration. The ACRP provides a forum where airport operators can cooperatively address common operational problems.

The ACRP was authorized in December 2003 as part of the Vision 100-Century of Aviation Reauthorization Act. The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), and the Air Transport Association (ATA) as vital links to the airport community; (2) the TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. In October 2005, the FAA executed a contract with the National Academies formally initiating the program.

The ACRP benefits from the cooperation and participation of airport professionals, air carriers, shippers, state and local government officials, equipment and service suppliers, other airport users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort.

Research problem statements for the ACRP are solicited periodically but may be submitted to the TRB by anyone at any time. It is the responsibility of the AOC to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

Once selected, each ACRP project is assigned to an expert panel, appointed by the TRB. Panels include experienced practitioners and research specialists; heavy emphasis is placed on including airport professionals, the intended users of the research products. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, ACRP project panels serve voluntarily without compensation.

Primary emphasis is placed on disseminating ACRP results to the intended end-users of the research: airport operating agencies, service providers, and suppliers. The ACRP produces a series of research reports for use by airport operators, local agencies, the FAA, and other interested parties, and industry associations may arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by airport-industry practitioners.

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Advisers to the Nation on Science, Engineering, and Medicine

The **National Academy of Sciences** is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. On the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Ralph J. Cicerone is president of the National Academy of Sciences.

The **National Academy of Engineering** was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. Charles M. Vest is president of the National Academy of Engineering.

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Airport administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the airport industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire airport community, the Airport Cooperative Research Program authorized the Transportation Research Board to undertake a continuing project. This project, ACRP Project 11-03, "Synthesis of Information Related to Airport Practices," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute an ACRP report series, *Synthesis of Airport Practice.*

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

This synthesis study is intended to inform airport terminal operators and those involved in the facility activation process about lessons learned during recent airport facilities openings so that effective airport terminal facility activation practices can be identified and shared across the industry.

Information was largely gathered from individuals involved with one or more terminal activations at 13 domestic and international airports.

Al Lyons and David Powell, Arup, New York, N.Y., collected and synthesized the information and wrote the report. The members of the topic panel are acknowledged on the preceding page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

CONTENTS

AIRPORT TERMINAL FACILITY ACTIVATION TECHNIQUES

SUMMARY

The overall objective of this synthesis is to capture information about and lessons learned from airport terminal facility openings so that the practices currently used to successfully activate airport terminal facilities can be shared. The goal is to help make sure that the billions of federal, state, local, and private dollars that flow into the planning, design, and construction of new and reconditioned airport terminal facilities result in facilities that successfully achieve airport and stakeholder goals by opening without the delays, diversions, cancellations, and surprises that can result in unplanned costs and embarrassment.

This synthesis is based on information gathered from interviews with individuals who have been involved with one or more airport terminal activations. It reviews the processes that have been used in the past and are still being used to activate new and rejuvenated airport terminal facilities. The synthesis explains and summarizes underlying principals for successful airport terminal facilities activation and includes an overview of Current Effective Industry Practices that have resulted in successful airport activations and openings.

The participants in the survey led or participated in successful airport facility activations at 13 domestic and international airports (see Table 1 in chapter three). In addition to detailed discussions of the activation of new and rejuvenated airport terminal facilities at these airports, participants shared experiences they had activating new and rejuvenated facilities at other airports.

An example of successful airport terminal facility activation is the new jetBlue terminal at JFK in New York, which recently opened without much media attention and now ranks highest in passenger satisfaction in all of the areas measured by the Port Authority of New York and New Jersey. This feat was achieved by rigorous implementation of an exhaustive activation program that provided jetBlue staff, airport authority staff, the TSA, and other stakeholders with the familiarity, training, tools, and confidence necessary to make opening day appear as if jetBlue had been operating out of the new terminal for years. Additionally, to facilitate management of politics and publicity, the ribbon cutting was held before the opening.

There is a limited amount of public information regarding successful airport terminal facility activations. However, there is much in the public record about the airport terminal facilities and airports that did not open well and the procedures that did not work well including:

- United Kingdom House of Commons Transportation Committee, *The Opening of Heathrow Terminal 5,* Twelfth Report of Session 2007–08, HC 543, Published 3 November 2008 by authority of the House of Commons London, The Stationery Office Limited.
- Report on findings of the two Commissioners appointed on 21 July 1998 by the Chief Executive in Council under the Commissions of Inquiry Ordinance, Chapter 86 of the Laws of Hong Kong to inquire into the Operation of *The New Chep Lap Kok Airport and the Problems Encountered Since it Opened,* updated January 1999.
- Dempsey et al., *Denver International Airport Lessons Learned,* McGraw–Hill Professional, March 1997.

The goal of this synthesis is to document current airport terminal facility activation processes and procedures that led to successful openings so that they can be shared and those responsible for activating airport terminal facilities can start from current industry practices as opposed to inventing or reinventing them.

Airport terminal activation is the process used to mitigate surprises on opening day. This can be achieved by:

- Confirming that the contractor has delivered on all contractual obligations and that the new facility is fully commissioned in accord with contract requirements, and fit for purpose.
- Tracking progress to make sure that the construction team, the activation team, the airport authority, the airline(s), and all stakeholders are ready and have the processes, staff, skills, training, and tools necessary to effectively operate the new facility.
- Developing and executing recruiting, training, and familiarization programs necessary to help the airport authority, airline(s), and all stakeholders prepare to operate the new facility.
- Preparing Plans of Operation that address normal, irregular, and emergency conditions.
- Managing media and public relations so that expectations are controlled and accurate timely information is shared as appropriate.

One interesting observation is that the same or similar practices were used to activate airport terminal facilities that opened successfully as those that experienced problems. Determinants of success appear to be how closely the practices were followed, whether decisions were made based on the reality of how complete the facilities were, whether airport operations and maintenance staff and other stakeholders were ready, and when the opening date was set. Ideally, it is fixed when there is certainty that facilities will be 100% complete and commissioned and when airport authority, airlines, and other stakeholders are all familiar with the new facility and trained on normal, irregular, and emergency operations.

Unfortunately, on many projects the opening date is assigned as a fixed date early in the planning, design, or construction process. When construction or design schedules slip, the activation period is often treated as floating and the activation team, airport operator, airline, and other stakeholders are forced to compress the activation schedule. Because this may result in insufficient time for familiarization, training, and trials, this approach potentially introduces unacceptable risks and costs owing to delays, diversions, and cancellations. A better approach is to continuously track progress of design, construction, commissioning, and readiness, and reconfirm opening day by when there is certainty about when the facilities are or will be fully completed and commissioned and the airport authority, airlines, and other stakeholders have or will have the staff, familiarity, training, tools, and confidence necessary to seamlessly operate the new facility so that it appears opening day is just another day.

If it is necessary to fix an opening date early in the process, one way to mitigate the potential impact of construction delays on the activation period is to include sufficient float in the schedule and funds in the budget so that if dates are missed construction can be accelerated as necessary to get back on schedule and allow for an adequate activation period.

Media, public relations, and expectations are also managed. Airports that have received bad press at an opening have learned that instead of advising how well projects are going and what a great job is being done, it is often more effective to convey how challenging and complex opening a new airport terminal facility is. This way, when an opening goes smoothly, expectations are exceeded and good or no press is received. If an opening has minor challenges it is expected and not really news. If there are major issues, the press will understand the challenges and hopefully be less critical in the coverage.

In addition to providing an inventory of practices that have been used to successfully activate new airport terminal facilities, the synthesis concludes that there is a need for further research to:

- Examine how airport terminal facilities are delivered and identify ways to make the process more transparent.
- Explore ways of keeping airport operations staff engaged throughout the entire delivery process (planning, design, construction, commissioning, and activation).
- Develop and formalize industry best practices for activating new airport terminal facilities.
- Better publicize and promote success stories.

CHAPTER ONE

INTRODUCTION

BACKGROUND

This synthesis is based on information gathered from the Synthesis Topic Panel, a search of relevant literature, and interviews with those involved with airport terminal facilities openings and activations. Valuable information was also collected from and lessons were learned during interviews with those involved with both airports that opened successfully and those that opened with problems. Many of the latter requested anonymity. Hence, in the survey responses the respondents are identified by number.

SYNTHESIS TOPIC PANEL

The Synthesis Topic Panel included industry experts who generously shared their time and expertise to develop the scope for this study, provided insight into the challenges of airport terminal facility activation, and assisted in developing consistent terminology and Current Industry Practices. Many of the issues identified and comments made by the Synthesis Topic Panel are consistent with and reinforce the conclusions of the synthesis.

Working with the Topic Panel it was agreed that Airport Terminal Facilities Activation encompasses the process used to transition a new or reconditioned airport terminal from a state of contractual completion to full operations. It includes:

1. Confirmation and verification that the facility is fit for its intended use within the terms of the contract and in association with the ultimate occupiers or users.
2. Review of new or reconditioned facilities to confirm that they are fit for the intended purpose.
3. Identification of any issues and determination of whether it is appropriate to address them before or after the opening.
4. Development of operating plans for new or reconditioned facilities, systems, equipment, and business processes.
5. Recruiting, familiarization, and training of staff and stakeholders.
6. Trials to confirm that the new facilities, operational plans, staff, etc., function and work together as planned.
7. Relocation of staff, tenants, and equipment.

Some of the members of the Topic Panel as well as some of the survey participants advised that on some projects acti-

vation also includes the commissioning of a new system and facilities and approvals from authorities having jurisdiction. Although both commissioning and approvals are part of most terminal facilities projects, they are generally the responsibility of the architect engineer construction (AEC) team. Typically, activation includes verifying and confirming that these tasks are complete, but that the actual commissioning and approvals are the responsibility of the AEC team. This effort is included in the confirmation activities referenced in item 1 of the previous list.

AIRPORT TERMINAL FACILITIES ACTIVATION

Airport terminal facilities activation is the process used to bring a new or rejuvenated facility from the state of static completion to normal ongoing operations. Ideally, this happens before and culminates on airport terminal facility opening day (AOD). Unfortunately, some facilities open before the airport terminal activation process and/or even the construction is complete. This risks an increased potential for delays, diversions, cancellations, and other embarrassments that can lead to significant losses for airlines, airport authorities, and other stakeholders. Typically, small facilities with systems, equipment, and procedures everyone is familiar with open without incident and without publicity. The opening of larger more complex facilities with new systems, equipment, and procedures generally receive much more publicity, particularly when the openings are characterized by surprises and delays, diversions, and/or cancellations. Although it appears that the risk of an unsuccessful opening is directly proportional to the size, complexity, and duration of the project, even small poorly planned projects can experience the same problems.

The longer the project takes to complete, the larger the facility and the more operational changes needed to operate it effectively, the greater the likelihood that problems will occur, this happens because:

- Staff working in the facility at an opening may not be adequately familiar with it (they may get lost or have trouble getting to work).
- Staff may not be adequately trained on the new systems and operational procedures.
- New processes, systems, and procedures may not work as anticipated.
- Construction and systems may not be 100% complete and commissioned.

Opening a large new or rejuvenated airport terminal facility can be daunting. It is different from opening most other types of facilities and presents unique challenges.

- It is very public—if there are problems the world will know about them.
- It does not happen often—there is a limited pool of expertise and there are limited sources of information regarding how to do it.
- It often includes complex new systems, intricate new processes, and a wide variety of different and new individuals with diverse interests all smoothly working together—as if they have been doing it for years.
- It often involves integration of existing and new systems and processes.
- There is often a long period of time between the initiation and completion of airport terminal facility projects—staff, business processes, and technologies often change during this period.

DATA COLLECTION

After confirming a willingness to participate in this Synthesis, participants were e-mailed a copy of the survey. Some participants completed and returned the survey form, whereas others provided information by means of telephone interviews. Both those who returned the survey and those who did not participated in telephone interviews, as required, to obtain or clarify responses.

SYNTHESIS STRUCTURE

The Synthesis is composed of the following chapters structured to help the reader gain an understanding of the importance of the airport terminal facility activation process and current practices.

- Chapter two: New Airport Terminal Facilities—Where Activation Fits In—reviews synthesis findings regarding when and how the activation process is incorporated into the planning, design, and construction of facilities and the importance of keeping the activation and operations teams involved throughout the design and construction process.
- Chapter three: Phased versus Consolidated Openings—discusses synthesis findings of the risks and benefits of phased versus consolidated openings.
- Chapter four: Soft versus Hard Date and Schedule for Airport Terminal Facility Opening Day—explains Synthesis findings linking AOD to completion of construction, commissioning, and airport readiness as opposed to a fixed point in time, mitigates the risks of surprises on AOD.
- Chapter five: Terminal Activation Governance—highlights synthesis findings regarding the importance of transparency, communications, and timely decisions.
- Chapter six: Terminal Activation Policies, Processes, and Procedures—includes Synthesis findings regarding policies, processes, and procedures used to successfully activate large airport terminal facilities.
- Chapter seven: Airport Terminal Activation Tools and Services—discusses manual tools, electronic tools, web-based collaboration tools, and electronic document management systems (EDMS) used by one or more of the survey participants, which can play a critical role in facilitating the timely sharing of accurate real-time information across large activation teams.
- Chapter eight: Conclusions and Current Effective Practices—highlights key findings of the Synthesis and identifies a need for further research.

CHAPTER TWO

NEW AIRPORT TERMINAL FACILITIES—WHERE ACTIVATION FITS IN

Survey participants agreed that it is best for activation to be incorporated into the initial planning of a project and essential for airport operations, maintenance, and management staff to remain engaged throughout the delivery of the new facility. This generally happens on smaller projects with short durations—airport operational and maintenance staff are often responsible for the delivery of the entire project and remain fully engaged from initial planning through design and construction to opening. On larger projects with longer durations, airport operations, maintenance, and management is generally fully involved with the initial requirements capture, planning, and programming, but often less involved during the final design and construction processes. The reason for this is that large projects are often delivered using a dedicated capital projects team. The capital projects team is responsible for managing the delivery of the new facility (planning, design, construction, and workstream) and an activation team is often established to lead the activation workstream (see Figure 1).

New facilities have been created for millennia and the process used to plan, design, construct, commission, and occupy new facilities is well-established. Generally, the owners or occupiers of the new facility are involved with the initial planning process and work with the planners and designers to establish the functional criteria for the new facility. Once the functional criteria are established, one of several delivery processes is used to complete the design and construct the facility. These delivery mechanisms include:

- Bid–Design–Build: A fixed price is established *before* the design is complete. This process is more appropriate where functional criteria are well-defined and unlikely to change during the construction process.
- Design–Bid–Build: A fixed price is established *when* the design is complete. This process is more appropriate where functional criteria are not well-established and are likely to change during the construction process. Various scopes of work are bid and then built when the designs are completed.

Frequently, large airport projects incorporate combinations of these two processes. Scopes of work that can be accurately defined and contracted for at the end of the programming stage or early during the design stage are

awarded on a Bid–Design–Build basis and scopes of work that require more end-user input and design are awarded at the end of the design stage on a Design–Bid–Build basis.

Although the Bid–Design–Build approach appears to reduce financial risk (capital project team has "fixed price" early), it makes changes more difficult to manage and sacrifices control over what is delivered. The challenge is that design–build contracts do not typically include complete designs; therefore, issues are left open for interpretation. Additionally, large complex projects often have long durations during which functional criteria, technology, business processes, and staff change. The result is that new facilities are often received by staff that had little or no involvement in establishing the functional requirements, had little involvement during the design and construction, and may have adopted new technologies and business processes since the functional criteria were assembled.

One way these problems can be mitigated is by keeping the airport operations team involved throughout the delivery of the project. This can be achieved by completing designs before bidding, assigning airport operations staff to the project delivery team, establishing a robust activation program, and/or delaying procurement decisions until the *last responsible moment.*

This airport activation process has evolved to help organizations successfully open new airport facilities. Although opening airport terminal facilities is similar to opening other large complex facilities [i.e., hospitals (see http://assets1.csc.com/health_services/downloads/Facility_Activation_Planning.pdf), pharmaceutical plants, factories, etc.] it is unique because politicians and politics are often involved, it is very public, there are many stakeholders, and it is often very time constrained.

The Airport Activation Workstream typically occurs concurrently with the Planning, Design, Construction Workstream and incorporates the tasks that the airport operator must complete to successfully open and operate the new airport terminal facility (see Figure 2).

Ideally, the Airport Activation Workstream is organized before or concurrently with the planning phase of the Planning Design Construction Commissioning Workstream

FIGURE 1 Planning, design, construction, and commissioning workstream (*Source:* Arup 2009).

FIGURE 2 Airport terminal facility activation workstream (*Source:* Arup 2009).

and is finished following handover/static completion of the new airport terminal facility. Chapter six discusses terminal activation policies, processes, and procedures (see Figure 3).

Although the Design Construction Commissioning Workstream and the Airport Terminal Facility Activation Workstream are independent, they are closely related.

- During the organizing, planning, programming, and design stages, it is important that the AEC team capture requirements from the activation team and that the capital projects delivery schedule is coordinated with the airport terminal facility activation schedule. Progress against schedule is monitored throughout the project and the schedule updated as required.
- Concurrent with the preparation of plans of operation, preparing for trials, developing recruiting and training programs, etc., the airport terminal facility activation team reviews designs, proposals (bids), contractor submissions, and equipment submissions to confirm that

they reflect operational requirements and advises the AEC team of any issues.
- During construction, the airport terminal facility activation team regularly visits the site to observe construction and become familiar with the new facility.
- The activation team witnesses testing and commissioning of the new facility and works with the AEC team to finalize the training program.
- As construction approaches completion, the activation team commences trials of the new airport terminal facilities and the AEC team commences handover of the facility.
- Once handover is complete, the AEC team has generally achieved static completion of the new facility; all systems work but the facility is not yet operational.
- Concurrent with or following handover, the airport terminal facility activation team completes readiness and transition and achieves operational readiness.
- AOD follows successful facility completion and achievement of operational readiness.

These activities are discussed in more detail in chapter six.

Capital Projects Delivery Process
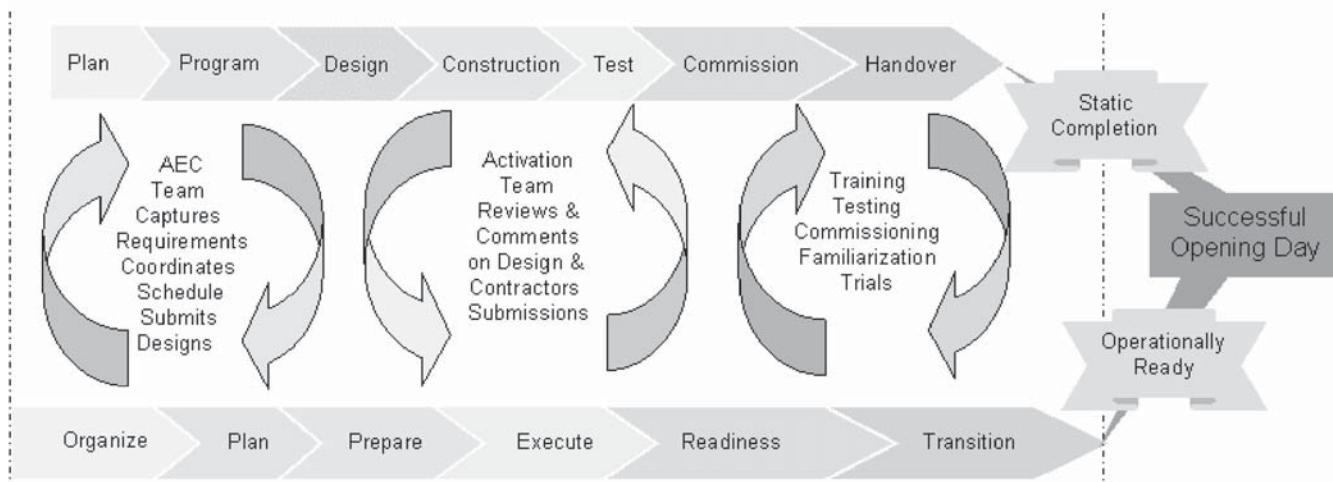
Airport Terminal Facility Activation Process

FIGURE 3 Relationships between workstreams (*Source:* Arup 2009).

CHAPTER THREE

PHASED VERSUS CONSOLIDATED OPENINGS

Interview responses revealed that phased openings are generally less risky than consolidated openings. The reason for this is that each phase of a phased opening is smaller, less public, and easier to rollback if problems arise than with a consolidated opening. When all phases are considered, phased openings are also more expensive than consolidated openings. They require operating two facilities simultaneously and often compromise the passenger transfer experience owing to extended travel times between old and new facilities.

Decisions regarding consolidated versus phased openings require collaborative input from the airport authority, airlines, and other stakeholders. Owing to logistics and an inability of the new and old airport facilities to operate simultaneously, it is sometimes necessary to move the entire operation to the new facility at one time (consolidated opening), which can be risky as evidenced by the opening of Chek Lap Kok in Hong Kong. However, consolidated openings can also be successful, as evidenced by the opening of Denver International Airport in Colorado, the new Athens International Airport in Greece and new terminal facilities at Southwest Florida International Airport, Dulles Airport, and the Seattle Tacoma International Airport (SeaTac). Although each of these airports had activation programs, in Hong Kong the time period allowed for activation was compressed as a result of construction delays and a fixed opening date. The result was that the activation program was not adequately executed and operations at the new airport were adversely affected owing to equipment that did not function as planned, a lack of staff familiarity with the new facility, and inadequate training. At the Denver, Athens, and Florida airports there was adequate time to complete the activation programs and the new airport facilities opened without surprises. Indeed, because the opening date for Denver was postponed several times as a result of problems with the baggage handling system, the airport, airport authority, and all stakeholders had much more time than originally planned to become familiar with and activate the new airport.

Today, the Hong Kong Airport Authority uses the same activation program as that used for Chek Lap Kok; however, there is more transparency regarding reporting on the status of construction and the readiness of stakeholders. In addition, opening day is not fixed until *the last responsible moment.* Before announcing a fixed date for opening, the authority makes sure that construction and commissioning is (or will be) complete, and that the airport authority, airlines, and other stakeholders are (or will be) familiar with new facilities and have (or will have) the training and tools needed to seamlessly operate the new facility. This approach helps to keep construction projects behind the scenes and mitigate surprises at an opening.

At other times, when risks were assessed, a decision was made that the risks outweighed the costs, and airport projects that were initially planned as consolidated openings were changed to phased openings.

- At London Heathrow Terminal 5, the initial plan was to open the entire 5-million-square-foot, 47-gate, 30-million-passenger facility at one time. However, approximately one year before the opening a decision was then made to open the terminal in two phases. When the opening day was less than successful, a decision was made to rollback some of the flights that were transitioned to the new terminal, increase the number of phases, and extend the durations between phases. It took approximately 2 months to complete the opening process.
- At Dubai T3/C2, the initial plan was to open the entire 10.5-million-square-foot, 26-gate, 23-million-passenger facility at one time. However, approximately one year before the opening a decision was made to quietly open the facility in phases by initially transferring several flights to the new facility and then opening in phases over a 6-week period. The initial opening went so well a decision was made to accelerate the process and the entire facility was opened in just 2 weeks.

Although phased openings are often adopted to mitigate risks, consolidated openings can also be successful.

- Detroit successfully opened 24 of the 26 gates of the 850,000-square-foot North Terminal at one time. The remaining two gates were successfully opened 12 months later.
- Indianapolis successfully opened the 1.2-million-square-foot, 40-gate terminal at one time.
- jetBlue successfully transferred the entire operation at JFK to a new 26-gate, 20-million-passenger, 700,000-square-foot facility at one time.

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- Greater Toronto Airport Authority successfully used a consolidated approach to open the 2-million-square-foot Phase 1 of Terminal 1 at Lester B. Pearson International Airport without surprises and 2½ years later repeated the feat with the opening of the 1.5-million-square-foot Phase 2.
- Metropolitan Washington Airports Authority used a consolidated approach to successfully open a concourse extension at Dulles.
- Sea-Tac Airport successfully opened the South Terminal Expansion Project by using a phased approach to open an operationally independent ticket counter first and then open the entire concourse and screening facilities for domestic airlines in a single consolidated phase.

Table 1 summarizes which of the airports discussed by survey participants used a phased approach and which a consolidated approach.

Determining whether to use a phased or consolidated approach to an opening is critical. The following decision matrix (Table 2) is based on a matrix provided by Danilo Simich from Parsons. It identifies some of the issues that could be considered when deciding whether to use a consolidated or a phased approach to opening new airport terminal facilities.

This matrix or another tool can be used to rigorously evaluate the unique characteristics of a project to determine whether a consolidated or a phased approach to opening is appropriate.

TABLE 1
PHASED VERSUS CONSOLIDATED OPENINGS

Airport	Consolidated or Phased	Comments
Athens International Airport in Greece	Consolidated	Due to airspace issues could not operate both old and new airport concurrently.
Dallas/Fort Worth International Airport	Phased	9 foreign flag carriers moved before BHS was fully tested and commissioned. Then, after BHS was fully tested and commissioned, hub carrier moved.
Detroit Metropolitan Wayne County International Airport	Consolidated	Phase 1—Consolidated opening of terminal and 24 gates Phase 2—Consolidated opening of two gates one year later
Dubai Airports Corporation Dubai	Phased	4 phases—40 flights (15%), then 99 flights (37%), then 168 flights (60%), then 268 flights (100%)
Hong Kong International Airport—Chek Lap Kok (CLK), Terminal 2, and other new facilities.	Both (CLK was consolidated subsequent projects were phased)	Issues with initial terminal opening were worked out in a couple of days. It took ~2 months to complete transition of cargo. Since opening of CLK, phased openings have been used whenever possible.
Indianapolis International Airport	Consolidated	Overnight move
jetBlue Airways Terminal 5 at JFK in New York	Consolidated	Overnight move
Larnaka International Airport in Cyprus	Phased	Phase 1—Two airlines (34%) Phase 2—One week later (100%)
London Heathrow Terminal 5	Phased	Original plan consolidated move over 3 days Actual was multiple moves over ~2 months
Pafos International Airport in Cyprus	Phased	Arrivals in Phase 1 Departures 4 days later in Phase 2
Port Authority Southwest Florida International Airport	Consolidated	Overnight move
San Francisco	Phased	Airlines transitioned to new terminal over a few days
Seattle Tacoma International Airport	Phased	Phase 1—International ticket counters Phase 2—14 gate concourse
Toronto Pearson International Airport	Consolidated	Phase 1—Overnight move to new 2-million-sq.-ft. terminal Phase 2—2 years later overnight move to another 1.5 million sq. ft.
Washington Metropolitan Airports (Dulles)	Consolidated	

BHS = baggage handling service.

TABLE 2
PHASED VERSUS CONSOLIDATED DECISION MATRIX

Factors:

- Political considerations
- Date debt service obligations begin
- Airline capacity—need for new facility
- Capital expenditures by tenants
- Concession revenues
- Processing capacity:
  - In-line bag system processing capacity
  - Passenger screening capacity
- Program soft costs (program manager daily burn rate x number of days extended)
- Construction overhead costs
- Insurance costs

Consolidated Opening		Phased Opening	
Pros	Cons	Pros	Cons
Commence revenue generation	Potential increased risk of delays, diversions, and cancellations.	Opportunity for staff to gradually initiate operations in portions of the new facility	Delays, stalls revenue generation
Reduces need to operate out of two facilities		Less public visibility of opening	Increase cost due to need to operate out of two facilities for prolonged period of time

Source: Danilo Simich, Parsons (2009).

CHAPTER FOUR

SOFT VERSUS HARD DATE AND SCHEDULE FOR AIRPORT TERMINAL FACILITY OPENING DAY

Data collected indicate that decisions regarding whether and when to plan for a soft or hard opening date are complex and involve many issues and stakeholders.

- Agreements used to finance airports are generally based on new assets being put into use at a fixed point in time. Failure to comply with these agreements exposes an airport to added financing costs and potentially to penalties.
- Airlines need to plan for schedule changes at least 6 months in advance of making a change so that they can be published in the Official Airline Guide Flight Schedule and the airline has sufficient time to start marketing new routes and flights.
- Lease and use agreements with concessions, airlines, and others generally start at a fixed point in time; delays can expose an airport to penalties.
- Politicians and other dignitaries often participate in ribbon cuttings that need to be scheduled months in advance.
- Contractors and developers may be exposed to liquidated damages if they fail to complete work and open the facility on time.

Those surveyed indicated that construction of airports is often delayed and that the opening day for new airport terminal facilities is often set too early in the planning stage of the facility. Additionally, the date can be concurrent with or just before an immovable date with little float. The result is that when construction is delayed, the amount of time available to activate the new facility is compressed and familiarization, training, trials programs, etc., forced to overlap with the final stages of construction, leading to inefficiencies and potentially a compromised activation program. Therefore, instead of discovering and resolving issues before the opening, problems may be publicly discovered and resolved during or post-opening. Examples of where hard links of AOD to fixed points in time resulted in problems include:

- Chek Lap Kok, where opening day was linked to the transfer of Hong Kong to China.
- Terminal 5 at London Heathrow, where the airport authority and airlines linked AOD to airline seasonal schedule changes.

In the these examples, a decision was made to proceed with an opening at a fixed date, although construction and commissioning were late and incomplete, staff had not been adequately trained and were not adequately familiar with new facilities, and/or plans of operation were not fully tested. One cause that was reported during interviews was a lack of transparent, accurate, and timely communications and reporting regarding the actual status of construction, commissioning, and the readiness of the airport authority, airlines, and other stakeholders to operate out of the new facilities.

Although it is often necessary to forecast an opening date relatively early in the process and firm it up about 6 months before the opening, it is critical that progress in achieving it be closely monitored throughout the entire planning, design, construction, commissioning, and activation processes. If slippage is discovered early, the schedule can often be recovered by committing additional resources to the tasks that have fallen behind schedule. If it is not possible to recover the schedule, informed decisions can be made about whether to adjust the schedule or implement a fallback/recovery plan.

The opening strategy of many of the airports included in the survey had characteristics of both fixed and soft opening dates (the opening date is always fixed before opening). An opening date is defined as fixed if the date is established relatively early in the project delivery process. It is defined as soft if it is established later in the project delivery process when state of construction completion and readiness are confirmed. Table 3 identifies whether a fixed date or soft date approach was taken when establishing opening dates for the projects discussed by participants in the survey.

A decision matrix similar to that included in Table 2 can be useful in determining whether a soft or fixed date should be established for an opening.

If a soft approach is used, a process similar to the 90/60/30-day issue resolution reporting mechanism used by the Dubai Airports Company can be used to predict construction completion and readiness for an airport opening day. Issues were tracked along with actual and predicted rates of resolution. As opening day approached, issues were resolved by authorizing overtime and shift work. Where issues could not be resolved as originally planned, workarounds were developed, tested, and implemented so that there were no surprises on opening day.

In Figure 4, at 120 days out (4 months before AOD), a decision was made to accelerate the closeout of open issues by

TABLE 3
SOFT VERSUS FIXED OPENING DATES

Airport	Fixed or Soft Opening Date	Comments
Athens International Airport in Greece	Fixed	Airport management programmed a 6-month trial period following substantial completion. So, once airport was substantially complete, AOD was "fixed" at six months later.
Dallas/Fort Worth International Airport	Initially fixed then soft	1 month prior to opening major carrier postponed move by 3 months owing to concerns about insufficient time to test BHS.
Detroit Metropolitan Wayne County International Airport	Fixed	Date was fixed approximately 6 months prior to opening
Dubai Airports Corporation Dubai	Soft	Dates for four phase opening were fixed at 90 days out and confirmed at 60 and 30.
Hong Kong International Airport—Chek Lap Kok (CLK), Terminal 2 and other new facilities.	Fixed 12 months prior to opening of CLK	Since opening of CLK, opening dates are not fixed more than 2 months prior to opening.
Indianapolis International Airport	Fixed	Fixed 2 months prior to opening
jetBlue Airways Terminal 5 at JFK in New York	Soft	Opening was delayed by ~3 weeks owing to delay in completion of concessions.
Larnaka International Airport, Cyprus	Fixed	
London Heathrow Terminal 5	Fixed	Date was fixed 24 months prior to planned consolidated opening, 18 months out decision was made to open it in two phases separated by 3 days. On opening day the decision was made to open in six to eight steps with schedule determined by success of each step.
Pafos International Airport in Cyprus	Fixed	
Port Authority Southwest Florida International Airport, Lee County	Both	Initially fixed then became soft owing to concerns about the BHS
San Francisco International Airport	Soft	Official opening date was established following successful activation and testing of all facilities and systems.
Seattle–Tacoma International Airport	Soft	Following September 11, 2001, enormous changes to baggage system design and scope were required; so, decision was made to go with a soft opening.
Toronto Pearson International Airport	Fixed	
Washington Metropolitan Airports Authority (Dulles International)	Both	Initially fixed then became soft owing to airline concerns about opening during holidays.

BHS = baggage handling system.
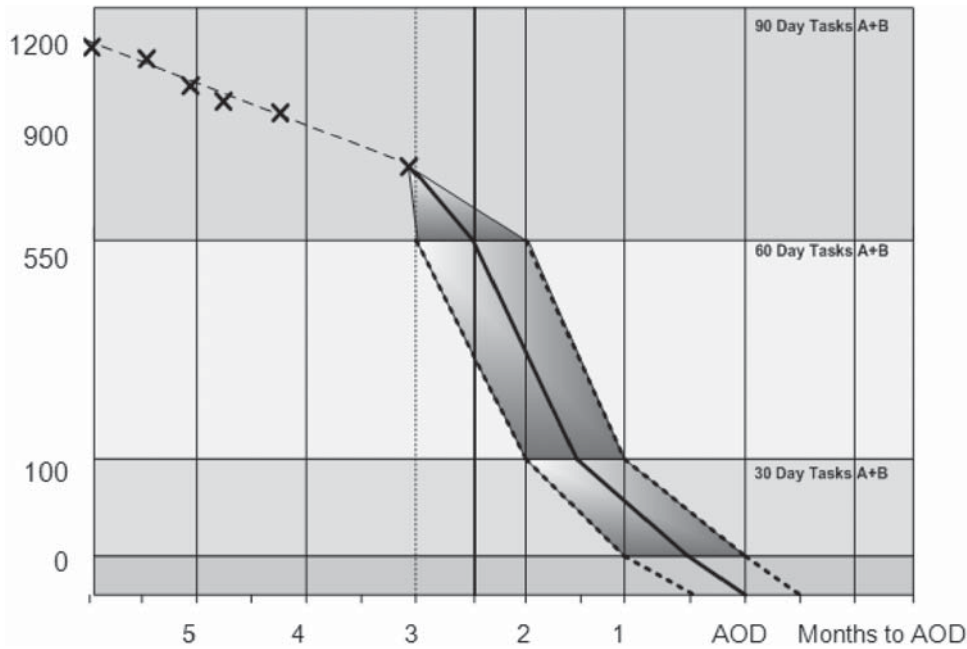
FIGURE 4 90/60/30-day issue resolution (*Source:* Arup 2009).

authorizing overtime and developing workarounds for anything that could not be completed as initially designed. This enabled the predicted rate of issue resolution to be increased from approximately 150 issues per month to approximately 450 issues per month between 60 and 30 days out. At 30 days out a more conservative approximately 100 issues per month was used to predict completion.

The shaded area around the solid line indicates the lack of certainty regarding the amount of time required to resolve issues. If issues are resolved more quickly than anticipated, opening day can be moved forward; if it takes longer than anticipated to resolve issues, opening day can be postponed. As time progresses, the range of possible opening dates will tighten. A typical sequence of activities that need to be completed is found in Figure 5.

It is critical that progress toward achieving the 90-day, 60-day, and 30-day milestones is closely monitored and reported on, as shown earlier in Figure 4. This enables one to predict when the facility and all stakeholders will be ready for the opening.

In the event that a date is missed and the facility or stakeholders have not completed all of the 90-, 60-, or 30-day tasks, it is necessary to stop and assess the situation. Sometimes additional resources can be deployed to recover the schedule. At other times it is necessary to develop workarounds—at

FIGURE 5 Monitoring progress through 90/60/30-day countdown
(*Source:* Arup 2009).
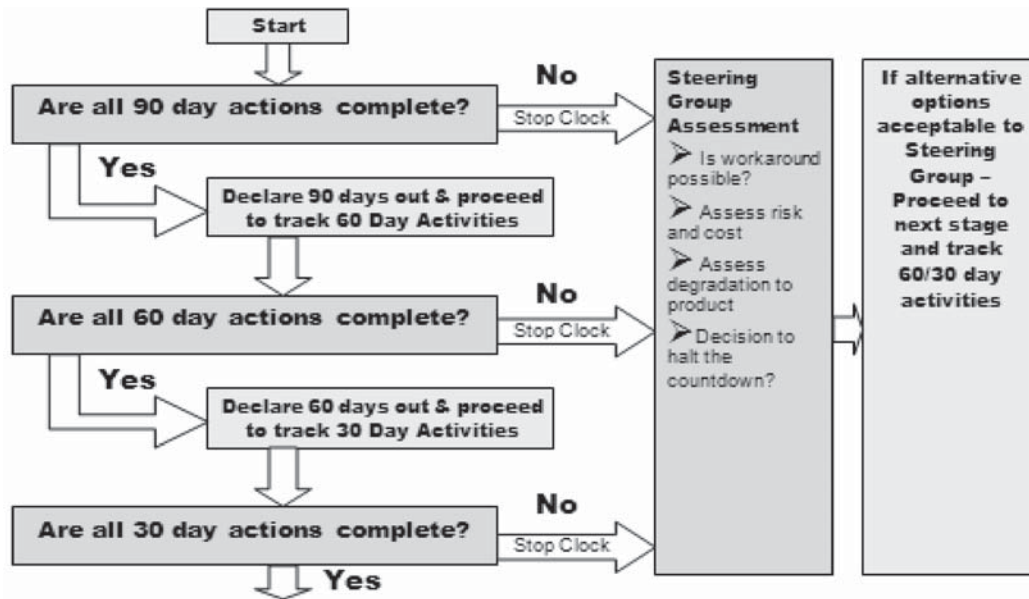
FIGURE 6 Managing issues through 90/60/30-day countdown process (*Source:* Arup 2009).

one airport that opened recently the new Airport Operational Database and Resource Management System was defective. The activation team noted this and implemented a manual planning and data entry procedure. New processes and procedures were developed and additional staff engaged so that it appeared to the public, airline staff, airport staff, and other parties that everything was working smoothly on the AOD. Subsequently, when not under close scrutiny, a more permanent and efficient workaround was implemented to eliminate the need for additional staff. The process used to confirm readiness at Dubai Airports Company is depicted in Figure 6.

CHAPTER FIVE

TERMINAL ACTIVATION GOVERNANCE

Discussions with synthesis participants indicated that the appropriate formality and complexity of terminal activation governance and the involvement of senior management is influenced by the size and complexity of the project—activations of small repetitive projects require less formal governance and little involvement of senior management; activation of larger more complex and unique projects requires a more formal and structured governance. This chapter reviews the governance used to activate relatively large and complex projects. Simpler more streamlined governance is appropriate for smaller, simpler projects.

It is not uncommon for airport operators to successfully plan, design, construct, and open new terminal facilities without surprises. The common characteristics of these projects are that they are generally small; planning, design, and construction have short durations; stakeholders and end users remain closely involved throughout the entire delivery process; and all project participants are familiar with each other and regularly work together as a team with a common culture and goals. This fosters accurate, timely, transparent communications and a team spirit. Therefore, there is less need for formal activation governance—the policies, processes, and procedures used to operate the airport on a day-to-day basis are generally adequate.

When projects are larger and more complex, more formal and more structured activation governance is appropriate, because large projects generally include multiple organizations with different cultures, goals, objectives, and governance. Unfortunately, this typically results in design, construction, operations, and other stakeholders operating in silos—as a league of competitive teams with different interests as opposed to a single team with a common goal. Information flows are sometimes controlled to avoid detection of problems resulting in decisions being made with less than perfect or even adequate information.

The objective of activation governance is to encourage (and where necessary force) all of these diverse project participants to operate as one team with common goals, as opposed to a league of teams (organizations) with different competing goals. To achieve this, an activation team, including representatives of all stakeholders and project participants, is generally established. Often, the first task of this committee is to adopt an Activation Mission Statement. The Activation

Mission Statements adopted by the airports included in this synthesis include:

- No surprises on opening day.
- Ensure the activation team works through, not in place of, the existing organizational structure.
- The activation team coordinates—existing organizations must continue to carry out their assigned responsibilities.
- Provide direct support to authority, airport users, and airport service providers.
- Act to resolve disputes, anticipate problems.
- Provide excellent customer service on opening day that is seamless with no surprises.
- Intent was to meet or exceed expectations of stakeholders. This remains the charter/mission for future projects and we have done a much better job of managing expectations and achieving this goal.
- Strive to ensure all facilities and systems were tested and ready for operation by the established deadline. All problems were to be elevated for resolution immediately.
- Achieve a safe and timely opening as perceived by the passengers, media, and the airport community and be prepared to cope with any contingencies.
- The mission is to ensure that all people, processes, technologies, and tools are aligned and prepared for operating at the new facility.
- Beyond commissioning, activation is the process of moving from the construction phase to full operation of a facility. The process requires the engagement and participation of the airport operations, business and facilities management, and staff (all the members of the organization that are accountable for the execution and continuation of facility management programs to new or expanded works). Activation is ultimately the responsibility of the owner–operator of the facility and is carried out by the existing organization. This includes complete familiarity with all elements of the construction project deliverables and electronic systems that will be added or introduced into a facility. Activation includes:
  – Implementing comprehensive orientation and technical familiarity training with the project. This effort extends to all users of the facility including airlines, tenants, government agencies, and airport.
  – Completing staffing requirements and job training for new positions and enhancing skills of existing staff to operate and maintain new or upgraded equipment and systems.

– Concluding business arrangements with tenants, particularly defining and implementing those contractual responsibilities delegated between the tenant and airport.
– Revising and conducting simulations on operations and emergency plans.
– Preparing and conducting trials and simulations, which include actual loading of systems and equipment as would be experienced in full operations.

The activation team is led and directed by an activation steering committee or other group that includes senior representatives of all operational departments, the construction/capital project team, and sometimes one or more airlines. The group is chaired by the airport director or another individual who has the authority to make and enforce decisions. Typical structure of an activation executive steering committee is shown in Figure 7.

The first activity of the activation steering committee is to adopt an activation mission statement. An appropriate airport activation mission statement is: *open when ready without surprises and operate in a manner that makes it appear AOD is just another day.* The reason this is a good activation mission statement is that it encompasses the focus of the activation team, but is limited to the scope of what can be controlled by the activation team and processes.

In addition to the executive steering committee, the activation team may be further structured into a multi-tiered governance structure, as shown in Figure 8, consisting of:

- Activation steering committee—this is the senior management and policy making body for the activation project and includes senior representation from all of the major stakeholders. Key issues are discussed and agreed on and the steering committee has the ability to enforce agreements. This includes making decisions on changes to project time scales or deliverables to meet the overall objective of successful and timely opening.
- The activation core team facilitates communications and issue resolution and includes single points of contact (SPOCS) from all stakeholders, end users, and the design and construction team. The objective of this core team is to carry out the policies set by the activation steering committee and resolve any issues that have not been addressed by lower levels of management.
- Activation working group—The activation working group consists of the activation core team and end-user activation SPOCs. Each end user has their own representatives in the activation working group. The activation core team acts as an interface between the activation working group and the construction team. It is the last vehicle to resolve issues before escalation to the activation steering committee.
- Focus groups—Sub-groups of operational staff who review specific aspects of the activation. These focus groups generally include staff from the activation workstreams and stakeholder groups focused on issues such as familiarization with the new facility, review of design and construction submissions, witnessing of commissioning, training, recruitment, and operating procedure
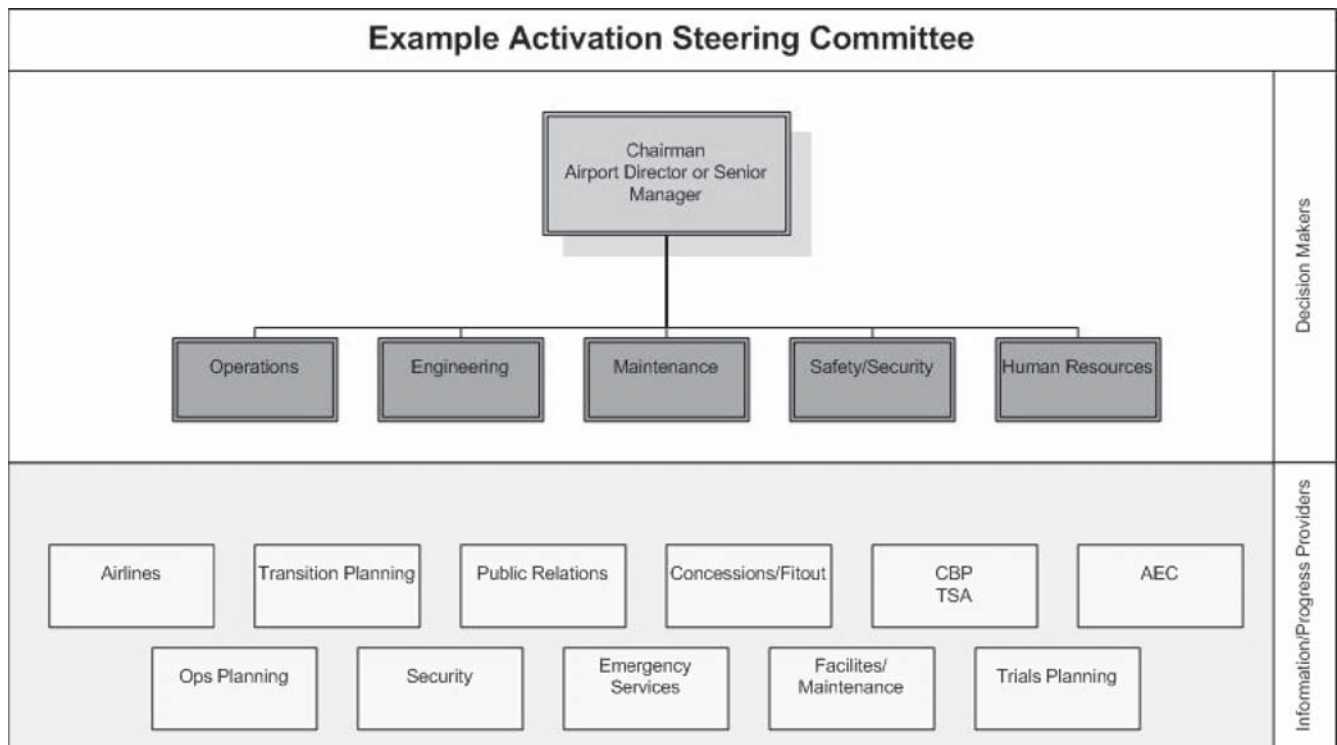
FIGURE 7 Typical activation executive steering committee organization structure (*Source:* Arup 2009).

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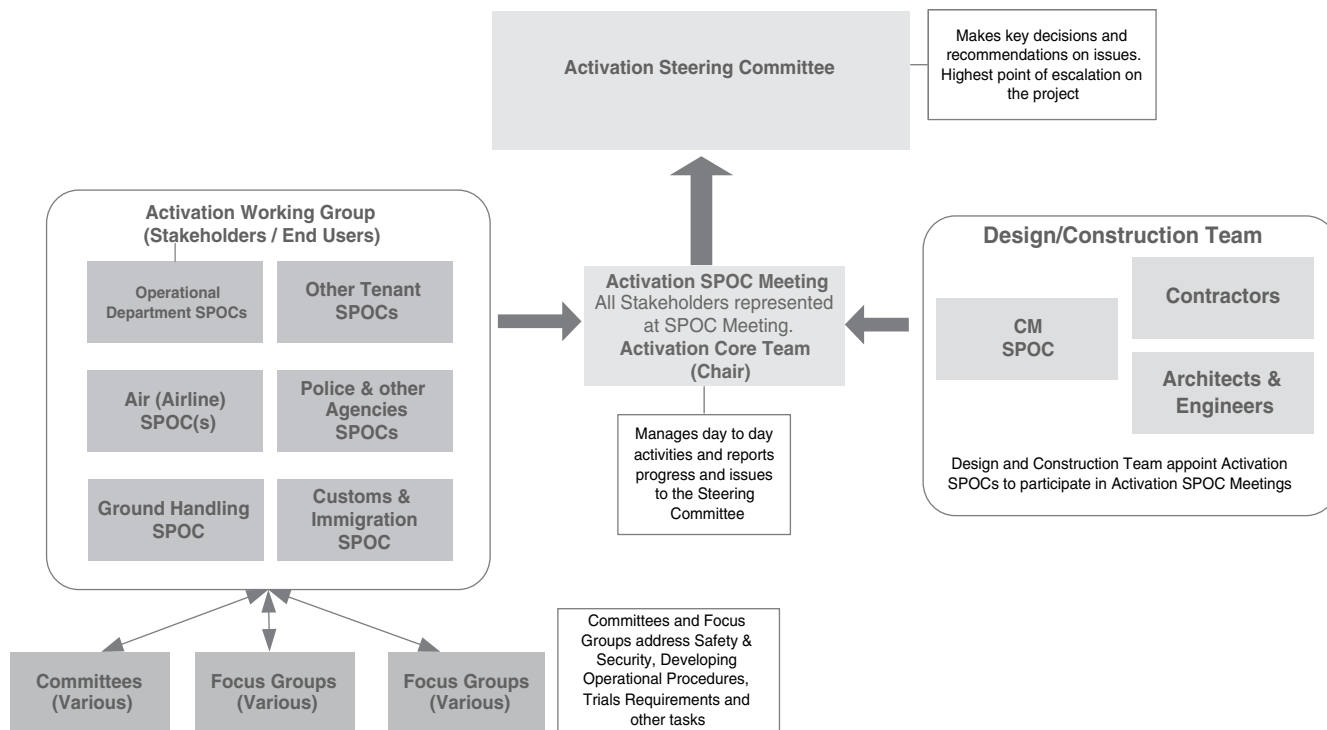
FIGURE 8 Typical activation governance structure (*Source:* Arup 2009).

development. Ideally, when issues are identified, they can be communicated to the construction team and resolved without escalation.

During the life of the activation project the focus groups will likely evolve, with additional groups being necessary to manage and monitor specific elements of the project and resolve issues closer to opening and transition times.

As indicated by the activation mission statements those surveyed provided, a key objective of the activation steering committee is to mitigate surprises on opening day. This is achieved by identifying and resolving issues before opening day. Ideally, most issues are resolved by the various airport authority departments, agencies, stakeholders, and the design/construction team before reaching the activation steering committee. One effective way of achieving this is to develop an issue resolution ladder (IRL) that defines the levels at which issues can be resolved and when escalation is appropriate. Ideally, issues are resolved between the various departments at an operational level and do not need to be escalated to the steering committee. Figure 9 shows a typical issue resolution ladder structure (refer to chapter six for information regarding airport terminal activation policies, processes, and procedures):

Level 1—When issues arise at the field or operational level it may be possible to resolve and close the issue at this time. An example of this could be a minor field change that does not involve time or money or a minor adjust-

ment to operational procedures that has no impact on passengers, airlines, or other stakeholders. Any party identified at the field or operational level can raise an issue and seek their counterparts to obtain resolution. If this is not possible in the prescribed timescale, or if issues are determined to need input from the next level of the IRL, the issues are escalated.

Level 2—Where issues raised involve contract interpretation, issuing of instructions or change orders, more significant operational changes, or intervention by the Level 2 personnel to resolve an issue not resolved at the field level, they are escalated to Level 2 for resolution.

Level 3—Where issues involve resolution between parties that cannot be addressed at Level 2 and involve input by the SPOCs, they are escalated to Level 3 for resolution.

Level 4—Only issues that involve the intervention of senior managers are escalated to Level 4. Typically, these involve major impasses between parties or subject matter that involves a higher level of approval to implement. This is the highest level of resolution, reserved for issues that cannot be resolved at Level 3 or involve executive decisions to implement.

To achieve the goal of *opening without surprises,* transparent accurate information about the real-time status of con-
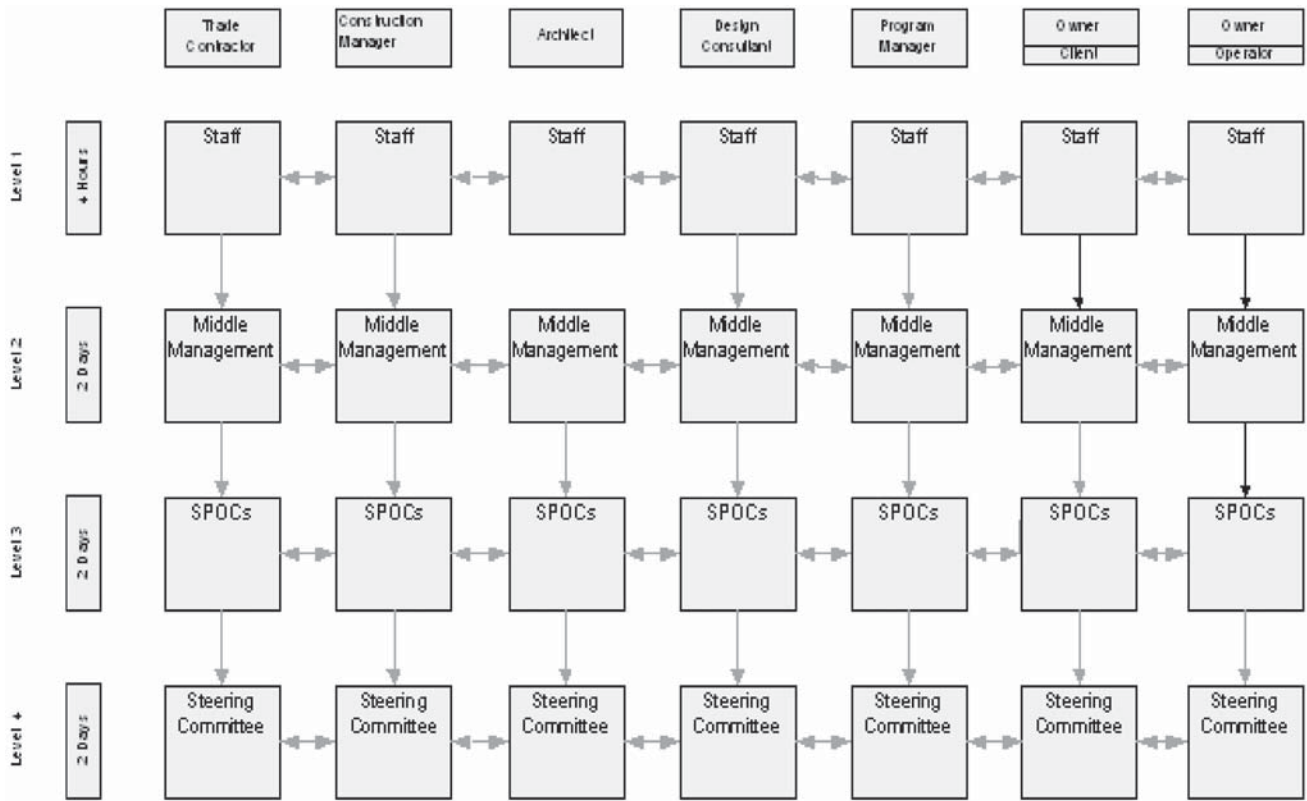
FIGURE 9 Typical issue resolution ladder structure (*Source:* Arup 2009).

struction and preparedness of all stakeholders is necessary. Issues that are raised need to be acknowledged and dealt with in an objective manner. If issues are ignored or resolutions not explained, constituents lose confidence in the process and suspect that the systems, processes, procedures, and opening will go as planned.

Depending on the size and complexity of the project, it may be appropriate to use EDMS, web-based collaboration tools, and other automated services to facilitate sharing of accurate transparent information and managing timely resolution of issues. See chapter seven for an overview of some of the tools that are used to support airport terminal facility activation.

CHAPTER SIX

TERMINAL ACTIVATION POLICIES, PROCESSES, AND PROCEDURES

This chapter describes some of the practices that were employed by survey participants to complete activation programs from initial organizing and planning through AOD. The approach is based on information from the 14 individuals interviewed and discussions with Synthesis Topic Panel members. Most of these individuals have led or participated in several airport terminal facility activations. The approach described in this chapter is based on a large project and can be scaled as appropriate for smaller activation efforts. The reason for this is that it is easier to scale down from a large project to a requirement for a small project than to scale up from a small project to a large project.

Because airports are constantly changing and growing, new airport terminal facilities are regularly created. Figure 10 shows how an airport terminal facility activation program can be organized, planned, executed, and accepted (opened). Lessons learned during activation of an airport terminal facility can inform activation of future facilities. (See chapter two for information regarding the relationship between the AEC process used to deliver new facilities and the activation process required to successfully open them.)

AIRPORT TERMINAL ACTIVATION PROCESS MANAGEMENT

An activation team is established to manage activation activities and interfaces with all project stakeholders. The activation team sets out:

1. The roles and responsibilities for all members of the activation team and the roles and responsibilities of the respective stakeholders and stakeholder groups.
2. The organizational structure for the activation team, subject matter experts participating in the project, and the stakeholders and stakeholder groups.
3. An issue resolution process that clearly defines the methodology for raising issues and clearing issues. A clear escalation process is vital to communicating and resolving issues in a timely manner.
4. A contact database/list for all project participants providing a single source and resource for all activation participants.
5. Focus groups and workstreams for the various activation tasks and activities. This is a key function in which the activation team, subject matter experts, and stakeholders participate to generate the materi-

als necessary to power the terminal facility activation process.
6. Statutory and regulatory criteria that need to be achieved to put an airport facility into operation. A key part of the success of any terminal activation process is early identification of these criteria, building the necessary relationships with the authorities and regulatory bodies involved and demonstrating to these bodies that their criteria have been met or exceeded.

A terminal facility activation plan is prepared at the start of this process, laying out these activities and determining the necessary timelines to complete each of these tasks. The terminal facility activation plan enhances the detail of the activation process to permit successful execution. The activation plan is closely coordinated with the design and construction schedule and reviewed and updated on a regular basis.

STAKEHOLDER MANAGEMENT

Stakeholders include all parties with an interest in the successful activation and operation of the new airport terminal facility. Stakeholder engagement (at the right level) is a key component to success. It is vital to make the stakeholders feel engaged and involved. To achieve this a systematic approach is used to identify who the stakeholders are, what their needs are, identify relationships to the project, and develop practical solutions that address stakeholder needs.

The activation team is structured so that:

- Stakeholders are engaged throughout the process and effectively managed to minimize the risk of surprises.
- Stakeholders are appropriately used to support and enhance the outcomes of the activation. This includes active participation in submission reviews, witnessing of testing and commissioning, and participation in familiarization and training.
- Stakeholders are engaged and communicated with at the right time, using the appropriate media so they all believe that they are involved in the activation and vested in its success.

Methods and techniques used to engage stakeholders and identify the different stakeholder desires include running focus groups, workshops, structured and semi-structured interview techniques, and consultation.
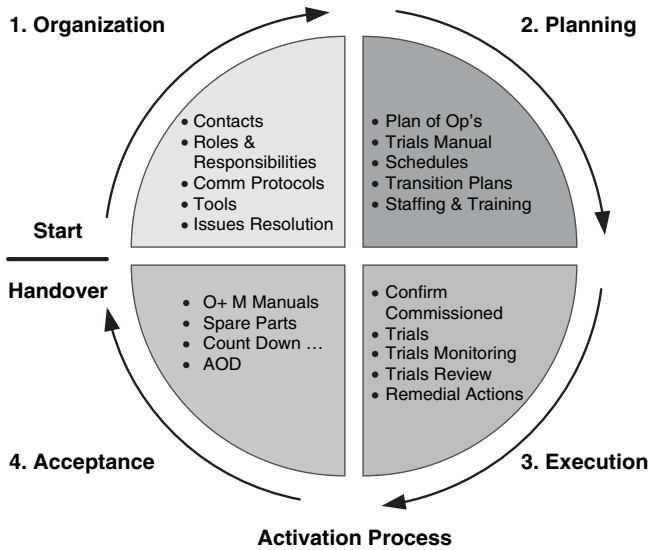
FIGURE 10 Typical airport terminal facility activation process (*Source:* David Powell, Arup 2009).

The activation team meets with each stakeholder independently to assess their impact and involvement in the project at the various stages of the activation program. The concept of terminal activation to the wider airport community is promoted to increase understanding and place emphasis on the importance of continued participation throughout the activation of the airport terminal facility, as shown in Figure 11.

In addition to representatives from the activation team, the larger activation community will extend to all airport and construction stakeholders. As the size of the project increases, the number of stakeholders increases, and information flows can become increasingly difficult to manage with meetings and forums becoming unnecessarily overcrowded and ineffectual. For smaller projects many stakeholders wear several hats, resulting in streamlined and simplified information flows.

On large projects, to facilitate the communications between various departments and government agencies, a SPOC plus a back-up deputy SPOC concept from each major stakeholder group is assigned to support the activation team, as shown in Figure 12.

To ensure a seamless transition into operations the SPOCs:

• Bring accountability to each of the various groups;
• Have the appropriate level of authority delegated to them to be responsible for making, or obtaining, any necessary

decisions for their respective group to be fully involved with activation to bring continuity to the process;
• Report on respective group progress toward readiness; and
• Participate in resolution of issues as they arise.

Each SPOC maintains a direct reporting structure within its home department or division; however, for the purposes of successfully activating the new facilities they functionally report to the terminal facility activation team. The SPOC concept is a method of maintaining a constant dialogue between each department and the terminal facility activation team.

STAKEHOLDER MEETINGS

Management, airport stakeholders, and construction stakeholders have various dedicated forums at which information is passed, project status tracked, and issues raised. Based on the governance structure described in chapter five, key meetings are established as shown in Table 4.

ACTIVATION COMMUNICATION MANAGEMENT AND REPORTING

Because of the complexities of large airport projects, and the number of different people directly and indirectly affected by the changes that the airport terminal project will bring, communications must be carefully managed, both internally and externally.

An airport terminal facilities activation communications management plan is developed in conjunction with the airport authority and other key stakeholders, and details how both internal and external communications are managed. The communications management plan ensures that communications with parties are two-way and that stakeholders and other organizations are both informed and consulted at agreed-on stages of the project. This facilitates consistent and timely release and receipt of information by all participants in the project.

Airport terminal facilities communications management covers:

• Internal communications including:
  – Activation working group
  – AEC and construction manager communications
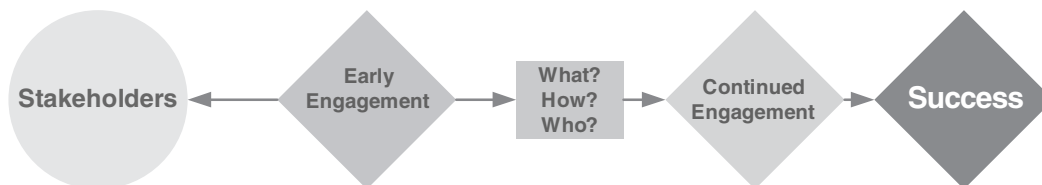
FIGURE 11 Engagement of stakeholders (*Source:* David Powell, Arup 2009).
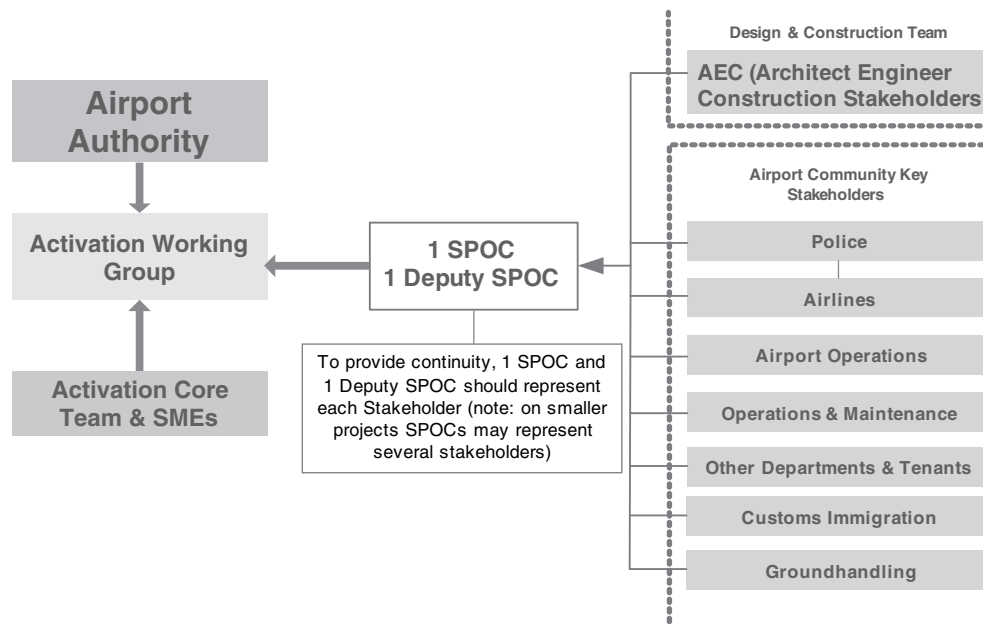
FIGURE 12 Activation communication structure. SME = subject matter expert. (*Source:* David Powell, Arup 2009).

– Stakeholder management
– Information for the workforce.
• External communications including:
– Information for the public
– Information for other bodies; for example, government departments.

One approach that could be taken to address these different criteria is outlined in the following sections.

INTERNAL COMMUNICATION

Supporting the airport terminal facilities activation governance structure the communications plan describes how SPOCS are used to facilitate construction progress reporting, stakeholder progress reporting, and reporting mechanisms for project risks and issues. This enables the project governance structure to make informed decisions and provides direction to the overall project. This includes developing report formats, agreeing on the frequency of reporting, and compiling the audience that reports are distributed to outside of the governance steering committee and relevant working groups.

Key elements of stakeholder communications include reporting on construction and stakeholder progress:

• Construction progress—Accurate information from the AEC and construction manager SPOCs on the progress of construction and project delivery is crucial to all aspects of planning the airport terminal facility activation process and a successful airport opening. The activation team works closely with the main contractor to develop progress reports, agreeing on metrics to measure

progress, and identifying key milestones in the construction and project schedules that can be reported. The reporting approach is developed so that progress can be assessed in an objective and unambiguous way and can be independently verified. This communication process includes the ability for contractors to raise risks and issues so that they can be mitigated and resolved in a timely manner and tracking of contractor documentation production and approvals.
• Communication plan—The main objective of this element of the communications plan is to provide confidence to the activation team so that they know the true progress of construction and project delivery and can make informed decisions accordingly.
• Airport operator/stakeholder/end-user progress—One of the biggest risks to successful AOD is making sure airport operator, end users, and all stakeholders are ready for the opening of the new airport terminal facilities. The activation working groups develop and agree on metrics for measuring progress and reporting methodologies covering stakeholders' key tasks and dependencies in achieving operational readiness. This includes looking at aspects of readiness; including recruitment, training, and the development of new processes and procedures to support operations in the new facilities.

The activation team collates reporting information from construction contractors and stakeholders and compiles this information into a monthly report to the steering committee covering:

• Schedule progress;
• Key milestones progress;
• Document production status;

TABLE 4
TYPICAL ACTIVATION MEETINGS

Committee Name	Attendees	Purpose	Frequency
Activation Steering Committee	Executive staff (strategic)	High level management forum to set policy, brief, discuss, and resolve issues among airport authority senior staff. The forum is where the AOD is scheduled.	Monthly
Activation Core Team	Activation working group Design/construction team	Detailed forum for all stakeholders to share necessary information on all aspects of terminal opening. At large briefing to review operational readiness, plans, procedures, trials, training, and transition management.	Monthly, then bi-weekly, then weekly, then semi-weekly, and even daily based on number of issues and time until AOD
Activation Working Group	SPOCs from: Airport authority Airlines Ground handler Tenants	Familiarization with new facilities, systems, operations, etc. Tracking and reporting on readiness of all departments.	Monthly, then bi-weekly, then weekly, then semi-weekly, and even daily based on number of issues and time until AOD
Safety and Security Steering Committee	Airport authority Security provider (police) Operations First responders (fire, EMS)	High level forum to discuss and resolve public safety issues	Monthly, then bi-weekly, then weekly, then semi-weekly, and even daily based on number of issues and time until AOD
Trials Focus Group	All stakeholders Construction	Detailed forum for discussing the criteria and development of trials	Variable (as agreed)
Focus Groups (various)	All stakeholders	Various meetings, planned or ad hoc, to brief and discuss specific topics associated with the opening and transition management plans	Variable (as agreed)
Information Technology Working Group	Senior IT staff Consultant	Information sharing forum on all IT-related issues	Monthly, then bi-weekly, then weekly, then semi-weekly, and even daily (as agreed)

- Issues and risks;
- Change requests to scope, schedule, and deliverables; and
- Defects and issues resolutions.

WORKFORCE COMMUNICATION

Potentially significant changes to the working environment may lead to concerns and questions from existing staff. To address these concerns and respond to these questions information directed at existing staff is carefully managed so that there are no distractions from the focus of all staff at key points in the airport terminal facility activation.

Techniques such as "town hall" meetings where all staff, no matter what grade, receive information from senior management on the progress of the project and learn how upcoming changes may affect their working lives have been used. This provides an opportunity for management to address specific questions of staff.

EXTERNAL COMMUNICATIONS

Communication of the changes that will occur to the airport as a result of the airport terminal facility activation need to be carefully managed so that the public is aware of changes affecting travelers or people meeting travelers to and from the airport.

An external communications plan carefully developed with other key stakeholders such as airlines and government agencies is used to maximize the effectiveness of communications to the public. The plan covers support for people who miss changes to the process and procedures. It includes provisions to make sure that adequate information is available to help passengers who get lost or find themselves at the wrong location.

COMMUNICATIONS TOOLS

Fortunately, there are many manual tools in use and automated tools that are being developed to support communications and collaboration—see chapter seven for an overview of some of these tools.

ACTIVATION SCHEDULE

The activation schedule details the timeline for the terminal facility activation process. It is developed early in the terminal facility activation process and is closely coordinated with the design and construction schedule. The activation schedule addresses three basic issues:

1. Alignment of the activation process with the ongoing design and construction activities facilitates proper engagement of the stakeholders in the review processes and allows proper transition and handover of the facilities and the systems within the facilities to the stakeholders and end users. Alignment with the construction schedule also permits regular updates and reviews of construction progress to be undertaken to confirm that construction and commissioning activities are proceeding in alignment with milestones that are coordinated with the activation program. This facilitates identification of any necessary adjustments to the activation program owing to construction issues or difficulties in achieving the program. This alignment includes links between the activation and construction schedule identifying coordinated milestones for delivery of operations and maintenance (O&M) manuals, training, testing, and commissioning. This includes a focus on the status of the baggage handling system and any other complex or new systems and processes.

2. Development of and reporting on the operational readiness countdown, including a reverse pass analysis of the steps necessary for the run up to operations and allowing for a reality check on the airport terminal facility activation program and the construction program to confirm that sufficient time is available to permit an orderly transition to AOD.

3. Definition of all airport terminal facility activation critical path activities and, once defined, monitoring, tracking, and reporting on progress.

The schedule, once developed, is circulated to all stakeholders including the construction team as a clear roadmap for the activation of the airport terminal facility.

PLAN(S) OF OPERATIONS

The cornerstone of the airport terminal facility activation program is the development of a clear and complete set of plans of operations for the facilities that will be transitioned to operations on AOD. These include standard, irregular, and emergency operating procedures for the new airport terminal facilities. Plans of operations are developed for each key aspect of the airport that is affected by the new airport terminal facilities and could feature as appropriate:

- Airside/apron/ramp
- Terminal facilities
- Landside facilities, roadways.

A review of current airport operating plans is undertaken to assess:

- Those that apply to the new facilities that can be implemented with no changes.
- Those that apply to the new facilities that can be implemented with either major or minor changes to part of the procedures.
- New procedures that need to be written to cover new processes and procedures for the new facilities.

Working groups are then established to review and develop the operating plans for the new facilities. Figure 13 describes the formation, work flow, and products of these working groups.

Those interviewed indicated that the type and level of airport terminal facility activation undertaken determine the types of facilities requiring new or modified operating plans. It is critical that these plans be informed by the operational and maintenance requirements of the new systems and equipment. It is essential that both the activation and the construction programs include milestones for delivery of training, O&M manuals for new systems and equipment, etc. Terminal facility operating plans address regular, irregular, and emergency operations and include:

- Roles and responsibilities of all stakeholders;
- General descriptions of systems, equipment, and standard operating procedures;
- Detailed diagrams of passenger flows and employee flows, as well as flows of goods and solid waste disposal;
- General passenger processing, including check-in, gate, and boarding processes;
- Customer service amenities;
- Irregular operations equipment, facilities, and processes;
- Terminal evacuation plan;
- Communication and coordination strategies—callouts, briefings, and emergency centers;
- Staffing and monitoring schedules;
- Terminal irregular operations—weather, air traffic, life safety, building flow, air carriers, uncleared baggage, building mechanical, and information technology (IT);
- Labor disruption plan;
- Default, bankruptcy, or termination of service plan;
- Overview of Emergency Management Program and Incident Management System;
- Definition of airport operational levels—normal, irregular operations, emergency, and disaster;
- Description of emergencies—aircraft-related, non-aircraft-related, and medical;
- Command and control flowcharts for each emergency type;
- Emergency checklists; and
- Emergency contact information for all stakeholders.

The activation working group described in Figure 7 assigns responsibility for developing aspects of the various plans of operation to focus groups. As the plans are developed and

Create Working Group	Working Group to be comprised of the Single Points of Contacts (SPOCs) for the operational stakeholders of the airport authority.
Identify Plans of Operations	What are the operational plans that are required to document and support fully integrated airport operations; e.g., terminal, BHS, IRROPS, emergencies, Identify plan content?
Identify Plan Owners	The departmental owner "owns" the majority of the processes, systems, and/or equipment detailed in the plan. The owner is responsible for keeping the document up to date and has final approval on content and publication.
Plan Development	Each plan is fully developed with input from and discussions with Working Group members and owners of processes, systems, and equipment to: • Document and confirm roles and responsibilities • Document and confirm processes, systems, and equipment • Identify and document requirements for subordinate (contingency/mitigation) plans to support operations during IRROPS or emergencies.
Development Review	Review of document to ensure accuracy of content. Edit document for grammar, style, consistency, and format.
Publish Plan	Upon thorough review by relevant Working Group members and Plan Owner approval, document will be finalized and published.
Develop Training Material	Training material, job aids, and/or guidebooks to be developed from plan contents.
Test Operational Plans	Trials program to test viability of processes, systems, equipment, and training in a simulated operational environment.
Revisions as Required	Plans of operations are living documents; amendments are to be made when necessary as a result of evolving operational requirements to the working environment and industry standards.

FIGURE 13 Working group work flows. BHS = baggage handling system; IRROPS = irregular operations (*Source:* Arup 2009).

finalized they are reviewed by affected stakeholders and, as appropriate, the entire activation working group.

Once this review is complete the same focus groups engage in re-working any procedures where editing/amending is agreed and creating the new procedures necessary for the new facilities. It is important that the stakeholders actively engage in this process because they ultimately are responsible for implementing the procedures set down.

This process is carried out for all operational procedures. Draft documents are generated for all appropriate departments to review and to ratify. The resulting complete set of operating plans and procedures is treated as a live document regularly updated to reflect changes and enhancements made during the life of the new airport terminal facility.

DEFINING TRIALS

Once the operating plans are defined and developed, trials can be defined and trial program development started. Trial dependencies are identified and fed into the activation schedule clearly identifying interface needs and dependencies that affect the running of operational trials. From the review, initial trial data can be fed into the activation schedule and an initial review of the trial effort can be held with the stakeholders; once agreement is reached on what will be put on trial, the trial program can be detailed.

TRIALS PROGRAM DEVELOPMENT AND EXECUTION

The trials program development and execution is an opportunity to confirm that existing procedures work well for the new facilities and an opportunity to test the operational procedures that have been modified or newly created.

The trials program details all of the trials that are to be developed, the focus groups involved in developing the trials, and the resources that are necessary to conduct the trials. A trial manual is produced that clearly defines the program that will be developed and followed.

Within the trial program development the following details were identified by those interviewed:

- Owners for each trial are identified. This is typically the party that will be responsible for the processes that are being tested. The trial owner is responsible for developing, executing, and evaluating the results from the trial.
- Depending on the size and complexity of the trial and trial program it may be appropriate to establish a trial review board to provide governance of the trial process, an overview of the trial process, and assess the results of the trial process. Alternatively, the activation steering committee could fill this role.

- Trial dependencies include project-based dependencies for facilities, systems, and equipment, as well as operational dependencies based on input from stakeholders and operational needs.
- Trial scripts that detail the participants in the trial, trial objectives, dependencies specific to the trial, and trial scripts necessary to execute the trial.
- Logistics plan(s) necessary to support the overall trial program and the needs for specific trials.
- Trial participant recruitment, number and qualification levels of participants for each trial, and strategy for managing the participants in each trial developed. On some of the larger airport terminal facilities included in the survey, several thousand volunteers participated. At others, participation was limited to airport staff.
- Trial coordination center from which the planning, execution, and post-trial reviews will be managed.

All trial plans, test scripts, participant recruitment, etc., need to be documented. Progress in developing the necessary trial data is tracked against the delivery program and regular progress reports generated to indicate the state of progress.

Those interviewed indicated that typical trials can include:

- Basic trials of operation of individual systems and processes (e.g., test fits of aircraft to gates, land side way finding, and check-in).
- Advanced trials of integrated and interoperable systems and airport operational processes—These trials can include comprehensive trials of departing passenger processing, arriving passenger processing, transfer passenger processing, inbound and outbound and transfer baggage. The intent is comprehensive simulated operations with all stakeholders fully engaged and, where appropriate, participation of the public and perhaps the media. The success of these trials is critical as they will provide the first opportunity to see a day of operation mode.
- Fall back trials of contingency programs to address failure of systems, equipment, or standard operational procedures. These fall back trials test contingency programs when one or more systems fail. For example, what happens if baggage sortation messages are lost, or if the flight information display system fails?
- Emergency trials to test emergency operating procedures as well as command, control, and communications procedures. Emergency trials often include a series of orientation and familiarization exercises for first responders and personnel involved in emergency operations and procedures in advance of AOD.

The objective of the trials program is to simulate actual facility operations so that before the opening all stakeholders have the opportunity to completely understand their responsibilities during normal operations, irregular operations, and in the event of emergencies.

Trials are executed in accordance with the trial manual and the agreed trial program and schedule. Trials commence with basic trials, which test a subset of the overall operations process and allow assessments to be made on a small scale to assess the effectiveness of the subset process and progress to advanced trials that will test complete processes; fall back trials, which assess fall back scenarios; and emergency trials, which assess emergency scenarios. Before each trial commencing assessments are made to:

- Establish that all dependencies for the trial have been met,
- Assess that suitable workarounds are in place if a dependency has not been met,
- Confirm that all necessary resources (people, equipment, etc.) for the trial are available, and
- Confirm that all logistics for the trial are in place.

Before executing any trial and based on these assessments a go/no go decision is made for the trial. If a go decision is made the trial will be executed in accordance with the agreed-on trial management scripts. All necessary forms to collect feedback from the trial volunteers and observers are prepared to facilitate gathering information during and after execution of the trial.

A post-trial review is conducted to review the information collected and assess the outcome of the trial. A trial report is compiled for review by the trial owner, trial review board, and/or activation working group. The report details the findings of the trial and any observations or opportunities for improvement resulting from the trial. The report identifies any proposed remedial work for consideration by the activation working group and/or steering committee. The report also documents whether a particular trial is complete and successful or re-running in part or in whole is necessary.

The results of a trial are reviewed and evaluated to determine whether:

- Any remedial works are necessary to deliver the operations for the facility,
- There need to be any changes in processes or new fall back procedures, and
- Whether or not a trial or portion of a trial needs to be re-run.

DEVELOP TRANSFER AND TRANSITION STRATEGY

Detailed transfer and transition strategies for all stakeholders need to be developed. Such strategies detail:

- Logistics for transfer and transition;
- Facilities for transfer and transition;
- If any early opportunities for transfer and transition exist;
- Dependencies, IT, systems, facilities, etc.;
- Timing sequence, details of timing before AOD and the night before AOD a complete move program is devel-

oped to detail hour by hour before AOD the moves in the transition; and
- Mechanisms for tracking and reporting on progress of activation so that any issues can be addressed early before they affect AOD schedule.

Each stakeholder develops plans as detailed earlier; focus groups and workshops are run to assist in producing these plans.

From these plans, a detailed comprehensive and consolidated countdown to operations checklist is developed and tracked. This checklist includes a comprehensive list of all issues that must be addressed to achieve a successful opening. It identifies the individual responsible for each issue, the status of the issues, and the scheduled date for the resolution of each issue. A red–amber–green traffic light or other color coding system is often used to highlight the status of each issue (see Table 7 in chapter seven or Appendix E). The checklists are based on the number of days to AOD and facilitate a detailed review of the status of readiness moving toward AOD. For example, 90/60/30-day checklists have been used to track the closing of issues as opening day approaches. If issues are not being closed in accordance with the plan, this is identified and can be addressed. Issues that arise as a result of the checklist review can be raised and managed to avoid affecting the schedule and allow for a "no surprises" road to a successful AOD.

TRANSFER AND TRANSITION COMMENCEMENT

The size and complexity of the project determines the amount of time required for the transfer and transition process. For example, for a larger relatively complex project, it could begin 90 days or more ahead of planned AOD in accordance with the transition plans developed and the 90/60/30-day checklist. For smaller, simpler, or repetitive projects less time is allocated, and for larger more complex projects more time would be allocated.

All stakeholders work through and report on their progress in completing the 90/60/30-day countdown checklists. Issues that arise during this process are monitored, reported, and escalated to fully complete the checklist.

Issues that arise that could have operational impacts for AOD are assessed to determine viable workarounds in the event that the issue does not get resolved before AOD. Again, the purpose here is to ensure a timely opening with no surprises on day 1. If workarounds are agreed to, they are thought through, tested, trialed, and incorporated into the operations process.

At the appropriate points during the countdown process, stakeholder groups carry out their transition to the new facilities; this process is managed and reported against the agreed on programs, checklists, and plans.

GO/NO GO FOR AIRPORT TRANSITION AND OPENING PROCESS

Vital to the success of the transition process and the final countdown to opening is a key point, go/no go decision on the airport opening date. Health checks on the proposed opening date are made progressively throughout the activation process with key milestones highlighted in the overall airport terminal facility activation program and scheduled to assess whether an adjustment in project scope, implementation of fallback procedures, or additional resources is appropriate to successfully achieve the proposed opening date.

Issues that may affect the opening day are:

- Construction progress, on schedule or not:
  – General constructions progress,
  – System installation progress,
  – Commissioning progress,
  – Handover progress (as-built documents, operations manuals, service/maintenance agreements, warranties, etc.), and
  – Training progress.
- Stakeholder readiness, prepared or not:
  – Recruitment progress.
  – Planning progress (plans of operations),
  – Training and familiarization progress, and
  – Acceptance of facilities and systems.
- Critical issues raised during trials resolved.
- Statutory certification achieved.

As the program advances, it is important that checks be made at regular and milestone intervals to confirm the feasibility of achieving the desired opening date. When issues are identified they are ranked in accordance with criticality and status; the individual responsible for managing issues to resolution is identified and a completion date assigned. Critical issues are addressed before AOD by fully resolving the issue or implementing a workaround. Potentially, less critical issues can be resolved post-opening. The status and criticality of each issue is tracked and reported on using a red–amber–green or other indicator to highlight its current status. At times separate columns are used to track criticality and status.

At a time or times to be determined during the activation, schedule development of the status of critical issues and AOD is reviewed. If issues are amber or red, risk mitigation strategies are developed. Such mitigation strategies could include:

- Authorizing shift or overtime work to remedy deficiencies and/or complete any construction work that has fallen behind schedule.
- Modifying the program to only open what has been completed.
- Developing workarounds for any systems or processes that fail to function as planned.

If none of the risk mitigation strategies are adequate, it may be necessary to postpone AOD. Owing to potential impacts on financing, debt service, airline schedules, capital expenditures by tenants, lease agreements, concession revenues, etc., a decision to postpone AOD is generally made after all other options have proved unsatisfactory.

COUNTDOWN TO AIRPORT TERMINAL FACILITY OPENING DAY

Within the final 30-day countdown window (and for some items before then) the following processes are executed:

- Handover of facilities and systems to system owners, operators, and maintainers for their care and custody.
- Establishment of the airport opening command center that will be the central reporting hub for the transition event before opening and during the first operating period of the new facilities.
- Establishment of external communications to all areas and/or bodies that will participate in the opening of the new facilities.

The final countdown to opening is the most critical period running up to AOD. It is the period with the most intense activities and involves the largest number of relocations and moves. Critical to the success of this run-up period is having a clear central command and control center that monitors and manages the moves and resolves any issues as they arise. All stakeholder groups are actively engaged in this process. The size and complexity of the airport terminal facility being activated dictates the required structure and formality. Figure 14 is an example AOD command center layout for a large complex project.

POST-AIRPORT TERMINAL FACILITY OPENING DAY ACTIVITIES

Once the facilities are successfully opened the activation team conducts a series of reviews to facilitate successful ongoing operations of the facilities. These reviews include:

- A final lessons learned report for the airport terminal facility activation;
- Review of warranties, maintenance agreements, and confirmation that spare parts are handed over;
- Coordination of any remedial works; and
- Handover of all activation documentation.

RECRUITMENT AND TRAINING

Stakeholder needs for recruitment and training are identified early in the terminal facility activation process. Properly trained and sufficiently staffed teams are fundamental not only to ensuring a successful AOD, but also for continuously providing an appropriate operational environment
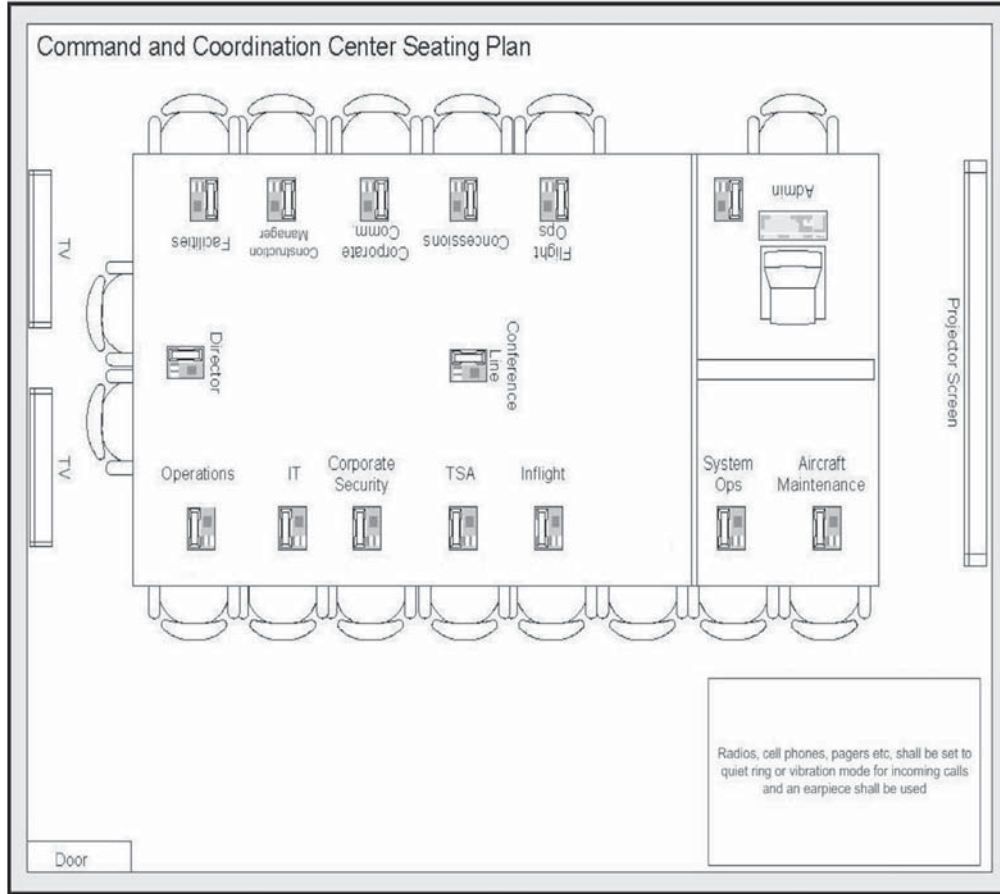
FIGURE 14 Command center layout (*Source:* Greater Toronto Airports Authority 2009).

once the facility is open. The overall training approach can be seen in Figure 15.

IDENTIFYING RESOURCES

The resources planned for the new facility need to be analyzed from early on in the project life cycle. A thorough review of each stakeholder's resource plans for the new facility needs to be conducted to ensure that the correct numbers of staff are available to deliver against the proposed organization structure and operational goals of the new facility.

Following from this, an emphasis on using existing resources wherever possible to ensure skills that already exist in house are identified and developed to their full potential. A process to produce profiles that categorize job roles and identify the competencies for these roles is conducted to confirm that the best opportunities to utilize existing staff are taken.

TRAINING MATRIX

A stakeholder training matrix is a tool that can be used to map stakeholder training needs to the multiple systems being installed. The training matrix provides all stakeholders with

a comprehensive list of the systems being installed and a snapshot of the types of training staff are nominated for on each system. The matrix identifies which stakeholders are operators, maintainers, and users of each system, and this information will influence the type of training each stakeholder will be assigned. Table 5 is an example matrix.
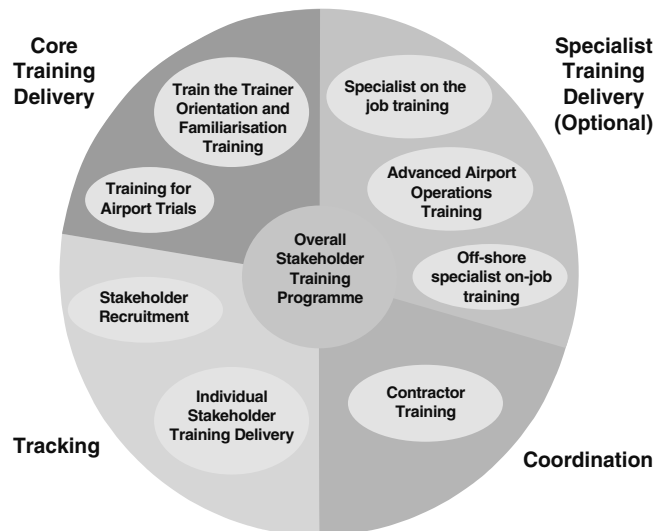
FIGURE 15 Training approach (*Source:* Arup 2009).

TABLE 5
OWNER, MAINTAINER, USER MATRIX

Airport System	(IT Dept)	(Engineering)	(Operations)	Ramp Operations	Airlines
Vertical Horizontal Transportation		M	F		
Voice Over IP System	O M				
HBS Security and Screening					
• Conventional X-ray		M	F	O EU	
• Inline Systems		M	F	O EU	
• Vehicle X-ray		M	F	O EU	
Public Address System		M	O EU		EU
Flight Information Display System		O M	EU		
Resource Management System		MO EU	O EU		O EU
Closed Circuit TV (CCTV)	M	M	EU	O EU	

Legend	O	Operator Training	M	Maintainer Training
	EU	End-User Training	F	Familiarisation Training

TRAINING PROGRAM DEVELOPMENT

Based on the stakeholder training matrix, the activation team commences a dialogue with the relevant stakeholders to review contractor training programs to assess the types and levels of training being offered to gauge suitability. As part of this stakeholder coordination a training gap analysis, as shown in Figure 16, can be used to gauge the level of training being provided under the terms of the contract against the needs of all stakeholders. If stakeholders are engaged early in the airport terminal facility activation these requirements can inform the design process, thereby making it possible to minimize the size of or possibly even eliminate any gap. However, owing to technology and staffing changes, on large complex projects it is likely that the training program may change and a gap develop.

Participation in the commissioning process provides an opportunity to facilitate familiarization and training of O&M staff. This is achieved by coordinating the commissioning schedule with the availability of appropriate O&M staff.

TRAINING SCHEDULE

Based on the findings of the previous analysis, the activation team produces training plans for each stakeholder that feed into an overall training schedule that encompasses all of the training to be delivered for the project.

This training schedule is coordinated with the contractors and the stakeholders so that it aligns with the overall activation program, taking into account the progress of construction and systems acceptance, stakeholder recruitment, and schedule of the trials. Training is sequenced so that all prerequisites are completed before the training begins.

TRAINING TRACKING

The activation team tracks training delivery, monitoring progress to help build confidence that sufficient training has been completed for AOD. The tracking element encompasses all key stakeholders to ensure that internal training programs are also progressing in line with activation targets.

The activation team coordinates the delivery of contractor training with the progress of recruitment to ensure that courses are only run once the right staff is in place to receive the training. The activation team also monitors the quality of training delivered, attending sessions to verify the extent and effectiveness of training.

CORE TRAINING DELIVERY—ORIENTATION AND FAMILIARIZATION PROGRAMS

The activation team designs and delivers orientation and familiarization courses that are both generic and stakeholder focused. A foundation of this process is engaging mainte-
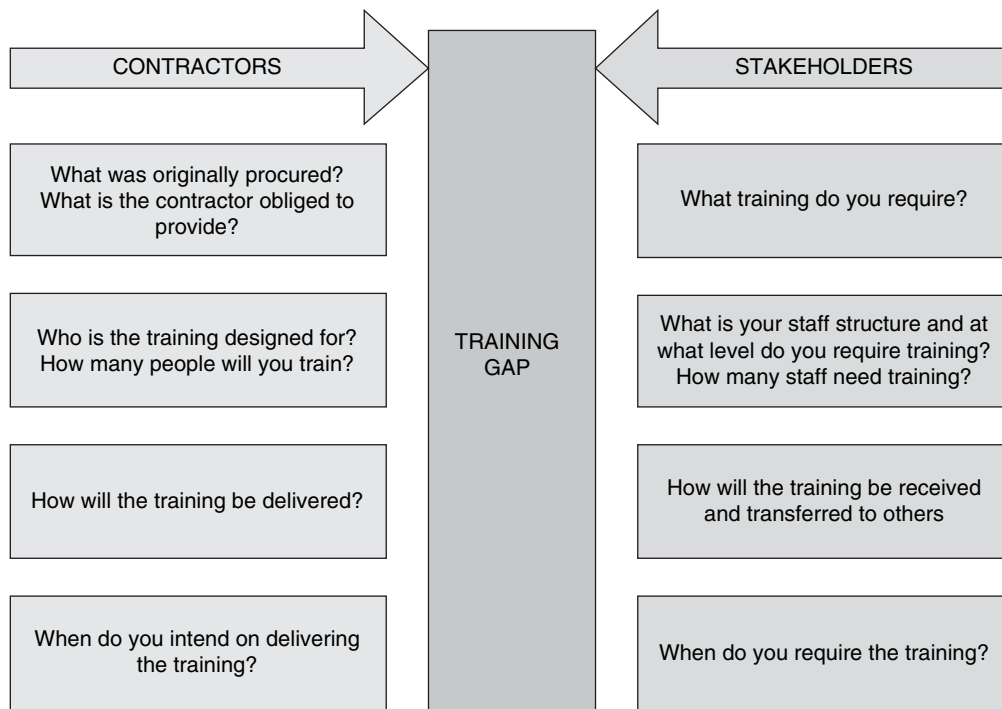
FIGURE 16 Training gap analysis (*Source:* Arup 2009).

nance, operations, security, and other airport staff to participate in and witness commissioning. This serves to help familiarize them with new equipment, systems, and facilities.

Orientation courses can be delivered on a train-the-trainer basis. Individuals are selected to receive intensive orientation and familiarization training from the activation team to a level that enables them to deliver internal training and familiarization courses to other members of their organization.

These courses are then used to train the bulk of the airport, airline, and stakeholder staff and can then be developed in-house and delivered to all new staff working at the airport in the future. Table 6 outlines various types of orientations and familiarization training to be considered.

TRAINING MATERIALS

Training materials for use during orientation and familiarization sessions include the plans of operation developed for the new airport terminal facility, O&M manuals, and other project-related documentation.

Some of the airports included in this survey developed staff guide books to aid in the familiarization process. The guide books proved to be a useful tool that was applied extensively by all key stakeholder staff for the delivery of orientation training. Figure 17 provides examples of some staff guide books created for projects that have participated in this ACRP study.

TRAINING FOR TRIALS

Depending on the construction program it may be necessary to conduct operational trials before formal contractor training is completed. Under such circumstances, the activation team coordinates with a specific contractor to achieve the familiarization training necessary to cover all of the systems and processes required to successfully deliver the trial.

TABLE 6
ORIENTATIONS AND FAMILIARIZATION TRAINING

Orientations	Description
Generic Orientation	Orientation training that is provided to all staff as an introduction to the airport facility and covers all of the generic aspects that staff is likely to encounter during their day to day roles. • Basic way—finding for employees, public/staff road access, bus and transit stops, parking, routes to and from stakeholder areas • General airport orientation, terminal/concourse layout, check-in, transfer, departure and arrival routes • Location of amenities—toilets, food halls, and cash point • Awareness of public and service areas, landside/airside, high and low security areas.
Emergency Orientation	Orientation in emergency procedures and life safety systems to adequately prepare staff for working in a safe environment and providing an effective response to members of the public in the event of an emergency. • Orientation of emergency exits, evacuation routes, assembly points, and access for medical staff • Nearest fire alarm, extinguisher, first-aid kit, security point, and emergency phone • Proper use of emergency equipment • Awareness of correct procedures for various emergencies.
Systems Familiarization	Where formal contractor training is not provided, the activation team can help coordinate familiarization training on common airport systems to ensure staff is aware of the correct methods and procedures for using installed systems. • Telephone system • FIDS/BIDS (flight information/baggage information) displays • SACS (Security Access Control Systems) • Life safety systems.
Operational Orientation	Stakeholder-specific training focused on the areas, functions, and systems relevant to the stakeholder/department being trained. • Develops generic orientation to enable staff to operate effectively in their specific roles • Introduces staff to operational systems and their distribution throughout the new facility (essential for maintenance teams such as engineering services and IT staff).

Staff Guide Book - Dubai International Airport Terminal 3

Staff Guide Book – JFK Terminal 5, Jet Blue

Staff Guide Book – Toronto Pearson T1
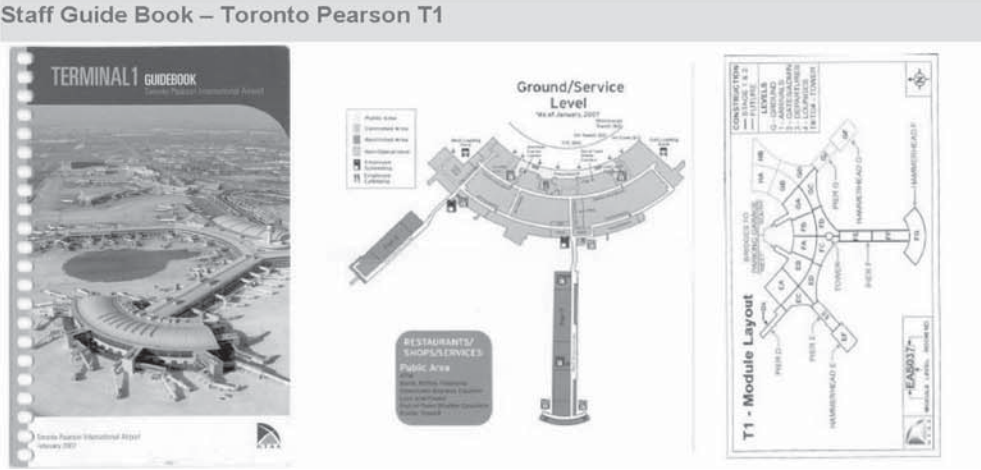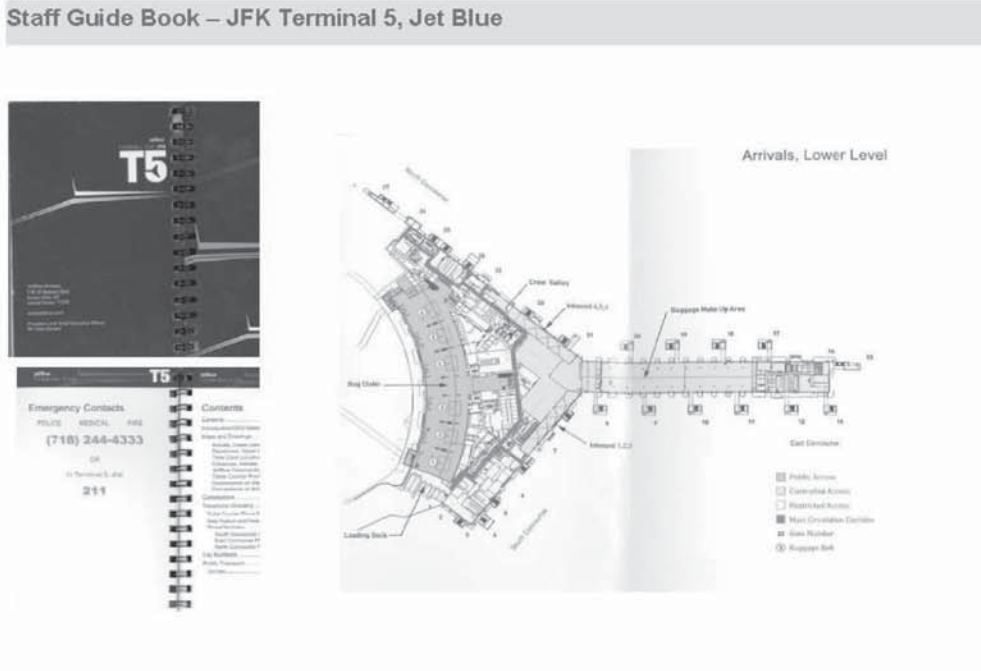
FIGURE 17 Staff guide books (Dubai, New York, and Toronto).

CHAPTER SEVEN

AIRPORT TERMINAL ACTIVATION TOOLS AND SERVICES

Many of the airport terminal activation policies, processes, and procedures discussed in chapter six depend on the timely and transparent gathering of data from and circulation of information to a large group of participants and stakeholders, all of whom have differing expectations for the timing and detail of the information presented. To date, most airport terminal facilities activation projects have depended on traditional, often manual, tools (e.g., checklists and reports), as well as office and project management software to collect and share information. As demonstrated by the successful activation of most of the airports surveyed in this synthesis, these conventional tools can be successful; however, the time delays inherent in collecting, entering, formatting, and distributing information by traditional means can lead to decisions being based on outdated information.

Survey participants indicated that the use of checklists or milestone matrices is particularly useful in tracking, reporting on, and communicating the status of activation activities. The following is extracted from the Milestone Matrix used at SeaTac (see Table 7):

- Identification of person responsible for each task (Team Lead).
- Name & ID for each task and activity. (Note that activity ID and dates can be linked with the project schedule to automate updating of dates and status.)
- Activity description with color code to facilitate focusing on critical issues.
- Comments to indicate which tasks are vital and other issues.

If the milestone matrix or checklist is on line, the dates in the checklist can be cross linked to dates in the project schedule so that they are automatically updated at the same time as the project schedule. Appendix C is an extensive checklist that was used for the South Terminal Expansion Project at SeaTac.

There is movement of owner organizations toward integrated platforms to contribute to collaboration and full, long-term management of a facility from pre-planning to O&M. The design, construction, and many other industries are adopting web-based collaboration tools and EDMS with the goal of significantly improving the flow of information between parties. If used appropriately, web-based tools can improve the timeliness, accuracy, and transparency of the information

being circulated so that decisions are informed by actual current conditions instead of outdated information.

Recognizing this trend, many owner organizations are adopting integrated platforms to contribute to collaboration and full, long-term management of a facility from pre-planning to operation and maintenance. Ideally, these tools are selected at the start of a project and the entire team uses the same tools. Standardizing of tools across the entire team facilitates access to information and resolution of any issues that arise during the activation process.

Activation projects incorporate input from multiple contributors to:

1. Track and report on the progress of construction/commissioning and operational readiness;
2. Produce documents such as operational procedures and trial plans; and
3. Identify and resolve issues and deficiencies.

Fortunately, web-based collaboration tools and EDMS can be configured to permit multiple users and contributors to documents and progress reports potentially improving the timeliness and accuracy of information shared between parties. In essence, these tools can facilitate an environment where all members of the activation team have access to the most current information in formats that are useful to them, which enables decisions to be made based on the best, most current, and most accurate information.

Web-based collaboration tools and EDMS also facilitate historical archiving of information so that, when desired, reviews of previous decisions and documentation can be undertaken, which may be key to better understanding and resolving a particular issue. Ready access to this historical information facilitates conducting lessons learned sessions at critical milestones so that the processes can be continuously improved.

Today, many of those involved with the design and construction of large projects use and are familiar with online collaboration tools and EDMS. This implies that much of the project data and information may already be archived in the system. Unfortunately, airport operations access to and familiarity with these systems is often limited. Additionally, the systems are generally tailored to the needs of a design and

TABLE 7
AIRPORT TERMINAL FACILITY CHECKLIST

Team Lead	Task	Activity ID	Activity Description	Current Start Date	Current Finish Date	Baseline Finish Date	Comments
Andy	C.06 Operational Readiness Trials	C0601010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C0601020	Develop Program Objectives	03-Mar-03*	15-Jul-03	15-Jul-03	
A G	F.01 Access Control System	F0101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	Vital
		F0101020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	31-Jul-03	31-Jul-03	
		F0102010	Define Badging Requirements	28-Mar-03	31-Jul-03*	31-Jul-03*	
		F0102020	Develop Badging Phasing Plan	28-Mar-03	31-Jul-03	31-Jul-03	
		F0102030	Identify Office Tower Elevation Access Requirements and Issue Memo	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102040	Review/Revise Access Control Policy	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102050	Develop Procedure—ID/Badge Office	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102060	Develop Procedure—Employee/User	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102070	Review/Revise Procedure—Senior Access Controller	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0103010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		F0103030	Review Specifications	26-May-03	31-Jul-03	31-Jul-03	
		F0103070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	

Danilo Simich, Parsons & John Christianson SeaTac (2003).
Note: Shading denotes activity status (in reference to current finish date)
 Pale grey = Complete (as of June 30, 2003); Clear = On schedule; Darker grey = Due within 2 weeks (due by July 31, 2003).

construction team, as opposed to the needs of an activation and operations team. Therefore, the systems in use by the design and construction team may need to be reconfigured or augmented with a new system tailored to the needs of the activation and operations team.

Before utilizing a collaboration tool or service to support airport terminal facility activation, a clear understanding of the complexity and rigor of the processes involved is necessary and it must be possible to translate these processes into the system either in use or being considered. For some individuals working on a project, an online collaboration tool or EDMS could be new, and training in the use and purpose of the system may be necessary. Many systems are content driven and to get the most and best out of the system it is crucial that users regularly enter and update the appropriate data. Regular reviews and updates are conducted to confirm that the system is used appropriately; sometimes, additional training and/or support staff for the system may be necessary to get the most out of the system. For some airport terminal facility activations the appropriate level of automation may be limited; for others (generally larger projects), a more automated approach may be appropriate.

When considering a collaboration tool, it is important that the following issues be considered:

1. Type and level of user (experience with EDMS and collaboration tools)
2. Type of information to be shared and exchanged
3. Level of information archiving necessary
4. Compatibility with other systems in use on the project; for example, the construction team may be using a similar system for document management
5. Processes for raising and resolving issues
6. Level of transparency within the system
7. Type of output; for example, graphical presentation of data
8. Level of version control
9. Consistency with project quality assurance processes and procedures
10. Security of the data being held in the tools
11. Potential use of information beyond the activation project; for example, O&M data, as-built drawings, and warranty and guarantee information.

CHAPTER EIGHT

CONCLUSIONS AND CURRENT EFFECTIVE PRACTICES

The projects included in this synthesis range in size from the approximately $100 million terminal and/or concourse expansion projects to a multi-billion dollar new terminal, new concourse, or entire new airport projects. Interestingly, the challenges faced by those responsible for the activation of all of these projects and the approaches taken to address them are remarkably similar:

- All of those interviewed indicated that the projects they were involved with incorporated an activation program of varying degrees of formality and comprehensiveness.
- All of those interviewed indicated that activation programs cannot start too early. Sometimes programs started during the later stages of construction resulting in a need to develop operational procedures based on what was built as opposed to creating new facilities that most effectively support operational requirements.

Although the industry has not yet established best practices for airport terminal facilities activation, those involved with opening new airport terminal facilities have independently arrived at processes and procedures that are very similar. This is likely because many individuals involved with airport operations regularly meet at industry conferences and are willing to share experiences and provide advice on what works well and what can be done better. This informal process has resulted in most airport terminal facilities activation programs adopting current practices, which include:

- Establishing an activation steering committee with executive level sponsorship and representatives of all airport departments, airline(s), the construction/capital projects team, and other stakeholders.
- Creating focus groups to work on specific aspects of the activation (e.g., development of plans of operation, training, trials, and planning the activation).
- Mechanisms to track and report on progress. The transparency, accuracy, and timeliness of progress tracking and reporting appear to be a key predictor of success. When focus groups and steering committees do not have accurate, timely information, decisions can be flawed.
- Training and familiarization programs to ensure that airport authority staff, airlines, and other stakeholders are familiar with the new facility and trained on new systems and procedures.
- Recruitment programs for additional staff necessary to operate new facilities (note that when the new facility is

a replacement, new/additional staff may only be needed during the transition).
- Trial programs to prove that new facility, new systems, new processes, new staff, etc., all function as planned so that there are no surprises on opening day.
- A transition program to manage, monitor, control, and report on progress of transition.
- A public relations or media management program to provide media with accurate, timely, unbiased information. Unfortunately, problems get much more media attention than successes. Therefore, ideally, new airport facilities open with little or no media attention.

Although these current practices have resulted in successful airport terminal facility activations, there is still room for improvement. The biggest challenge is generally open, transparent communications between the construction/commissioning team, the activation team, and all other stakeholders. The goal of the construction/commissioning team is to construct, commission, and handover the facility as soon as possible. Any extension in the construction and commissioning period results in added costs and delays in payments. Therefore, there is a motive for hiding delays in construction and commissioning. The result is that sometimes the opening date is not informed by actual completion and some facilities are activated before construction and commissioning is 100% complete.

As evidenced by the well-publicized, disconcerting, and expensive problems experienced at the opening of Chek Lap Kok in Hong Kong, Terminal 5 at London Heathrow in the United Kingdom, and other new airport facilities outside North America, it appears that lessons learned from troubled airport openings have not been universally learned. To mitigate the possible problems at future airport openings, further research is needed to:

1. Examine how airport terminal facilities are delivered and identify ways to make the process more transparent.
2. Explore ways of keeping airport operations staff engaged throughout the entire delivery process (planning, design, construction, commissioning, and activation).
3. Develop a comprehensive database of practices used to activate airport facilities and formalize industry best practices for activating new airport terminal facilities.
4. Develop an inventory of and better publicize and promote success stories highlighting the importance of airport terminal facilities activation programs and identifying the practices that lead to success.

GLOSSARY OF TERMS, ABBREVIATIONS, AND ACRONYMS

Airport Terminal Facility Activation: Process used to transition a new or reconditioned airport terminal from a state of contractual completion to full operations. Ideally, it starts in pre-planning and ends 90 days after opening and includes:

1. Confirmation/verification that facility is fit for its intended use within the terms of the contract and in association with the ultimate occupiers or users.
2. Review of new/reconditioned facilities to confirm that they are fit for purpose. Identification of any issues and determination of whether they will be addressed before or after opening.
3. Development of operating plans for new/reconditioned facilities.
4. Recruiting, familiarization, and training of staff and stakeholders.
5. Trials to confirm new facilities, operational plans, staff, etc., function as planned.
6. Relocating staff, tenants, and equipment.

AEC: Architect Engineer Contractor or Construction

AOD: Airport Terminal Facility Opening Day

AOD:—Hard/Fixed: Fixed date for AOD is established early in the planning, design, or construction process. It is often tied to an immovable date (e.g., handover of Hong Kong to China, the Olympics in Athens).

AOD—Soft: Date for AOD is not finalized until Construction Team demonstrates that construction and commissioning is or will be completed and Activation Team demonstrates that airport authority, airline(s), and other stakeholders have or will have the familiarity, confidence, training, and tools necessary to effectively operate the new facilities.

AODB: Airport Operational Database

Comm: Communications

Contractual Completion: Defined by the scope, terms, and conditions of the contract. In addition to describing the construction scope, it is best for contract to include clear criteria for:

1. Testing and commissioning
2. Reporting on progress
3. Handover of attic stock, warranties, licenses, training, service agreements, etc.
4. Allowing Activation Team to access the facility to train and familiarize airport authority staff, airline staff, and other stakeholders.
5. Allowing Activation Team to access the facility to conduct trials.

Current Effective Activation Industry Practices: Are the practices used to activate new and rejuvenated airport terminal facilities.

EDMS: Electronic Document Management System

Focus groups: Small groups set up to work through a particular function or work stream.

Handover: Encompasses the processes the contractor uses to deliver and the processes that the airport authority, airline(s), and other stakeholders use to receive facilities, materials, warranties, licenses, training, service agreements, and other information. These processes are coordinated and result in airport authority, airline(s), and other stakeholders having the training, skills, and tools necessary to operate the facility.

ID: Identification

IP: Internet Protocol

IRL: Issue Resolution Ladder

O&M: Operations and maintenance

OAG: Official Airline Guide

OMU: Owner, Maintainer, User

Openings—Consolidated: Entire facility opens at one time. This is generally riskier than a phased opening, but is generally less expensive and at times the only viable solution (e.g., relocation of an entire airport).

Openings—Phased: Facility is opened in phases as opposed to all at once. Although this approach presents operational challenges and is generally more expensive, it mitigates risks by enabling operations and staff to gradually transition to the new facility and fine tune operations without a lot of public/media attention.

Operational Plans/Plans of Operations: Plans developed to describe the processes necessary for effective operations for standard, irregular, and emergency situations.

OPS: Operations

SME: Subject matter expert

SPOC: Single point of contact

STEP: South Terminal Expansion Project

Stakeholders: Various groups involved in the activation process that ultimately occupy and use the new facility.

Steering Committee: Overall governance committee for the activation process.

Trials: Simulation of small or large part of facility operations to assess the effectiveness of the facility, operation processes and procedures, and staff awareness and training.

Transfer and Transition: Process of moving into a new facility either prior to opening or immediately before opening.

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APPENDIX A

Survey Instrument

A. **Did you have a formal Activation Team/Program?**

☐ Yes
☐ No

If "No," explain: _____
_____
_____
_____
_____

B. **Was there a Charter or Mission Statement for the Team/Program? If so, what was it?**

☐ Yes
☐ No

Charter/Mission Statement: _____
_____
_____
_____
_____

C. **Were there protocols for communications, issue identification/resolution, etc.? Could you share these with us?**

☐ Yes
☐ No

Protocols: _____
_____
_____
_____
_____

D. **Was there a formal issue resolution structure? What was it?**

☐ Yes
☐ No

Issue Resolution Structure: _____
_____
_____
_____
_____

E. **Was there a formal Activation/Terminal Opening Plan? Could you share this with us?**

☐ Yes
☐ No

Activation/Terminal Opening Plan: _____
_____
_____
_____
_____

F. How was progress managed and reported on?

_____
_____
_____
_____
_____

Were check lists or other reporting mechanisms used? Could you share them with us?

☐   Yes
☐   No

Reporting Mechanisms: _____

_____
_____
_____
_____

G. Who led activation?

_____
_____
_____
_____
_____

H. Who was involved airlines, agencies, public, media?

_____
_____
_____
_____
_____

What were their priorities?

_____
_____
_____
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_____

I. When was Activation Team established?

_____
_____
_____
_____
_____

1. Size & composition of team

_____
_____
_____
_____
_____

2. How often did team meet?

_____
_____
_____
_____
_____

J. When was activation plan established?

_____
_____
_____
_____
_____

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K. **Was opening at fixed date or soft?**

_____
_____
_____
_____
_____
_____

L. **If soft, how much time elapsed between first flight/passenger activity and fully operational terminal?**

_____
_____
_____
_____
_____
_____

    1.   What activities occurred between soft and final opening?

_____
_____
_____
_____
_____
_____

M. **Was opening phased—Yes**

☐   Yes
☐   No

If so, what was size of each phase: _____
_____
_____
_____
_____
_____

N. **How much time elapsed between first and final phase?**

_____
_____
_____
_____
_____
_____

O. **When was terminal operation plan developed?**

_____
_____
_____
_____
_____
_____

P. **Were there any changes to design during construction?**

☐   Yes
☐   No

If so, when were they identified and what was value of changes made during design, during construction, during activation post-opening? _____
_____
_____
_____
_____
_____

Q. Was activation program successful?

☐   Yes
☐   No

What metrics were used to measure success? What were the benefits?

_____
_____
_____
_____
_____
_____

R. What were the biggest challenges?

_____
_____
_____
_____
_____

S. What went particularly well?

_____
_____
_____
_____
_____

T. What would you do again?

_____
_____
_____
_____
_____

U. What would you do differently?

_____
_____
_____
_____
_____

V. With the benefit of hindsight are there any changes you would make or suggest making regarding?

_____
_____
_____
_____
_____

W. Are there any other lessons learned or caveats you can share with us?

_____
_____
_____
_____
_____

APPENDIX B

Airports Included in Study

Participants in the survey included those currently or recently involved with activations of new airport terminal facilities at the following airports:

1. Athens International Airport in Greece
2. Chek Lap Kok (Hong Kong International Airport) in Hong Kong
3. Dallas/Fort Worth International Airport
4. Detroit Metropolitan Wayne County International Airport
5. Dubai Airports Corporation Dubai
6. Indianapolis International Airport
7. JetBlue Airways Terminal 5 at JFK in New York
8. Larnaka International Airport in Cyprus
9. London Heathrow T5 in the United Kingdom
10. Pafos International Airport in Cyprus
11. Port Authority Southwest Florida International Airport
12. Seattle–Tacoma International Airport
13. Toronto Pearson International Airport
14. Washington Metropolitan Airports (Dulles)

Many of these individuals have led or participated in the activation of several other airport terminal facilities. Therefore, this synthesis is based on lessons learned and experience gained during the activation of more than 25 airport terminal facilities.

APPENDIX C

Representative Readiness Checklist/Milestone Matrix

Team Lead	Task	Activity ID	Activity Description	Current Start Date	Current Finish Date	Baseline Finish Date	Comments
Andy	C.06 Operational Readiness Trials	C0601010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C0601020	Develop Program Objectives	03-Mar-03*	15-Jul-03	15-Jul-03	
A G	F.01 Access Control System	F0101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	Vital
		F0101020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	31-Jul-03	31-Jul-03	
		F0102010	Define Badging Requirements	28-Mar-03	31-Jul-03*	31-Jul-03*	
		F0102020	Develop Badging Phasing Plan	28-Mar-03	31-Jul-03	31-Jul-03	
		F0102030	Identify Office Tower Elev. Access Requirements. and Issue Memo	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102040	Review/Revise Access Control Policy	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102050	Develop Procedure—ID/Badge Office	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102060	Develop Procedure—Employee/User	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0102070	Review/Revise Procedure—Senior Access Controller	9-Jun-03	29-Aug-03*	29-Aug-03*	
		F0103010	Determine Service/Support Contract Requirements.	03-Mar-03*	23-May-03	23-May-03	
		F0103030	Review Specifications	26-May-03	31-Jul-03	31-Jul-03	
		F0103070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		F0106010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	31-Jul-03	31-Jul-03	
	F.02 Security Compliance	F0201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	Vital
		F0201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	31-Jul-03	31-Jul-03	
		F0202010	Determine Need for Procedures	26-May-03*	15-Aug-03	15-Aug-03	
		F0206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
	F.04 Key Control	F0401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		F0401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		F0406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	

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Ar	C.22 Apron and Hydrant Fuel System Projects	C2201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C2203900	Apron Replacement Project (a concourse complete)	0-Jan-00	30-Sep-03*	30-Sep-03*	
		C2203910	Hydrant Fueling System Project Complete	0-Jan-00	30-Sep-03*	30-Sep-03*	
		C2206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	18-Jun-03	18-Jun-03	
	C.23 Custodial Services	C2301010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2301020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C2306010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	18-Jun-03	18-Jun-03	
	C.31 Lost and Found	C3101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C3101020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C3106010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	25-Aug-03	25-Aug-03	
Ca	G.02 FIDS/FIMS	G0201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	**Vital**
		G0201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		G0203010	Review Service/Support Contract Requirements	14-Jul-03	8-Aug-03	8-Aug-03	
		G0203030	Review Specifications	16-Jun-03	8-Aug-03	8-Aug-03	
		G0203040	Participate in Vendor Selection	28-Jul-03	08-Aug-03*	08-Aug-03*	
		G0206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Dan	C.09 Aircraft Parking Position/Gate Assignment	C0903005	Participate in Vendor Selection (Task G.02)	28-Jul-03	8-Aug-03	8-Aug-03	
		C0903010	Finalize Service/Support Contract Requirements	28-Jul-03	8-Aug-03	8-Aug-03	
		C0903030	Review Specifications	16-Jun-03	8-Aug-03	8-Aug-03	
		C0906010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Dan	B.04 Activation Coordination/ Facilitation	B0401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B0401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0402030	Develop Initial Activation Schedule	6-Mar-03	16-Apr-03*	16-Apr-03*	
		B0406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Dave	C.10 Safety Programs	C1001010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C1001020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	

		C1003010	Develop Safety Checklist for Walkthrough	9-May-03	31-Jul-03	31-Jul-03	
		C1003020	Conduct Familiarization Safety Walkthrough	01-Aug-03*	25-Sep-03	25-Sep-03	
		C1006010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Dave	C.25 Queue Management	C2501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2501020	Define Roles/Responsibilities of Other Entities	02-Jun-03*	30-Jun-03	30-Jun-03	
		C2502010	Develop Queue Plan and Coordinate with Users	2-Jun-03	28-Jul-03	28-Jul-03	
Doug	B.12 Warranties, Contractor and/or Manufacturer	B1201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Doug	B.19 Solid Waste Collection	B1901010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1901020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1903010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B1903030	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		B1903070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B1906010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
	B.20 Utility Meter Reading	B2001010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B2001020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B2006010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Doug	G.01 C.U.T.E./BSM	G0101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	Vital
		G0101020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		G0102020	Identify Need for Operating Procedures	01-May-03*	31-Jul-03	31-Jul-03	
		G0103010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		G0103020	Review Link Locations/Requirements	4-Aug-03	29-Aug-03*	29-Aug-03*	
		G0103030	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		G0103070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		G0106010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	

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	G.05 Telephone (public, courtesy, conventional)	G0501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	**Vital**
		G0501020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		G0503010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		G0506010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Heath	(blank)	N/A	No Milestones During This Time Frame	N/A	N/A	N/A	**E.01 Curbside/Roadways Vital**
IT Infra-struc-ture Super-visor	G.04 Other Information Technologies Systems	G0401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	**Vital**
		G0401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		G0402010	Develop Operations LAN Policy and Process	26-May-03	15-Aug-03	15-Aug-03	
		G0403010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		G0403020	Identify System Requirements	3-Mar-03	23-May-03	23-May-03	
		G0403030	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		G0403040	Participate in Vendor Selection	21-Jul-03	1-Aug-03	1-Aug-03	
		G0403070	Develop Equipment and Spare Parts Lists	4-Aug-03	26-Sep-03	26-Sep-03	
		G0406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
James	C.14 Relocation/ Move Coordination	C1401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C1401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C1406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
	C.05 Office Tower	C0501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C0501020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	31-Jul-03	31-Jul-03	
		C05C02010	Develop FF&E Procurement/Installa-tion Plan	01-Apr-03*	30-Jun-03	30-Jun-03	
		C05D03010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		C05D03030	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		C05D03040	Participate in Vendor Selection	03-Sep-03*	17-Sep-03	17-Sep-03	
		C05E03010	Submit RFP for Movers	0-Jan-00	29-Aug-03*	29-Aug-03*	

James	C.02 Fire Services	C0201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	**Vital**
		C0201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C0203020	Determine Key Control Requirements (lock boxes)	03-Mar-03*	23-May-03	23-May-03	
		C0203030	Review Specifications	03-Mar-03*	18-Jul-03	18-Jul-03	
		C0202010	Review/Update (as required) Mutual Aid Agreement for STEP	9-Jul-03	30-Sep-03*	30-Sep-03*	
		C0203070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		C0205010	Identify Training Requirements	9-Jun-03	20-Jun-03*	20-Jun-03*	
		C0205020	Develop Training Plan	26-May-03	20-Jun-03	20-Jun-03	
		C0206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Jeff	B.13 Radio	B1301010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1301020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1306010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Aug-03	4-Aug-03	
	B.26 Clocks	B2601010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B2601020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B2603030	Review Specifications	04-Aug-03*	25-Aug-03	25-Aug-03	
		B2603070	Develop Equipment and Spare Parts Lists	26-Aug-03	26-Sep-03	26-Sep-03	
		B2606010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Jeff	F.03 Transportation Security Agency (TSA)	F0301010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	**Vital**
		F0301020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		F0303110	Complete LOI and MOA for EDS Equipment Installation/ Maintenance	01-Apr-03*	13-Jun-03	13-Jun-03	
		F0303120	Develop Schedule A	16-Jun-03	25-Jul-03	25-Jul-03	
		F0306010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Jeff	B.17 Insurance Coverage	B1701010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1701020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1702010	Contact Project Team/ Contractor, Obtain Bill of Materials	4-Aug-03	29-Aug-03	29-Aug-03	
		B1702040	Review Lease Agreements Submitted by BD	5-May-03	30-May-03	30-May-03	

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Jeff	B.22 Door Systems	B2201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B2201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B2203010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B2203030	Review Specifications	26-May-03	30-Sep-03	30-Sep-03	
		B2203070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B2206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
	B.27 Fountain Service/Pool	B2701020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B2703010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B2703030	Review Specifications	26-May-03	30-Sep-03	30-Sep-03	
		B2703070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B2706010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
	B.29 Roof Systems	B2901010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B2901020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B2903010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B2903030	Review Specifications	26-May-03	30-Sep-03	30-Sep-03	
		B2903070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B2906010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
	B.30 Glazing Systems	B3001010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B3001020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B3003010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B3003030	Review Specifications	26-May-03	30-Sep-03	30-Sep-03	
		B3003070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B3006010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
	B.31 Architectural Finishes (interiors)	B3101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B3101020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B3103010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B3103030	Review Specifications	26-May-03	30-Sep-03	30-Sep-03	

		B3103070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B3106010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Jim	C.07 Passenger Loading Bridges	C0701010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C0701020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	13-Jun-03	13-Jun-03	
		C0703010	Determine Service/Support Contract Requirements	03-Mar-03*	13-Jun-03	13-Jun-03	
		C0703030	Review Specifications	26-May-03	30-Jun-03	30-Jun-03	
		C0703070	Develop Equipment and Spare Parts Lists	21-Jul-03*	12-Sep-03	12-Sep-03	
		C0706010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	13-Jun-03	13-Jun-03	
	C.16 Ground Power, 400 Hz	C1601010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C1601020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	13-Jun-03	13-Jun-03	
		C1603010	Determine Service/Support Contract Requirements	03-Mar-03*	13-Jun-03	13-Jun-03	
		C1603030	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		C1603070	Develop Equipment and Spare Parts Lists	16-Jun-03*	12-Sep-03	12-Sep-03	
		C1606010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	13-Jun-03	13-Jun-03	
	C.29 Preconditioned Air	C2901010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2901020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	13-Jun-03	13-Jun-03	
		C2902010	Develop New Administrative Policies/Procedures	26-May-03	29-Aug-03	29-Aug-03	
		C2903010	Determine Service/Support Contract Requirements	03-Mar-03*	13-Jun-03	13-Jun-03	
		C2903030	Review Specifications	26-May-03	1-Aug-03	1-Aug-03	
		C2903060	Identify Environmental/Other Issues/Impacts	21-Jul-03*	12-Sep-03	12-Sep-03	
		C2906010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	13-Jun-03	13-Jun-03	
Jim	B.25 As-Built Drawings	B2501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B2501020	Define Roles/Responsibilities of Other Entities	03-Mar03*	23-May-03	23-May-03	
		B2506010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	

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John	B.21 Maintenance Matrix, POS/Airline/ Concessions	B2101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B2106010	Identify Inter- and Intra- Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
	B.23 Loading Dock	B2302010	Include Loading Dock Procedures in Tenant Proc Manual	26-May-03*	15-Aug-03	15-Aug-03	
		B2303030	Review Specifications	26-May-03*	18-Jun-03	18-Jun-03	
		B2303070	Develop Equipment and Spare Parts Lists	26-May-03	18-Jun-03	18-Jun-03	
		B2306010	Identify Inter- and Intra- Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Jo	C.13 Employee Orientation	C1301010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C1301020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C1306010	Identify Inter- and Intra- Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Kathy	B.10 Environmen- tal	B1001010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1001020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	25-Jul-03	25-Jul-03	
		B1006010	Identify Inter- and Intra- Project Interfaces	03-Mar-03*	25-Jul-03	25-Jul-03	
Ken-dall	(blank)	N/A	No Milestones During This Time Frame	N/A	N/A	N/A	
Linda	D.02 Concession- aires	D0201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		D0201050	Complete Lease Documentation and Amendments	0-Jan-00	30-May-03*	30-May-03*	
		D0206010	Identify Inter- and Intra- Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Luis	D.01 Tenant Lease Administra- ion (airline and others	D0101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		D0101020	Define Roles/Responsibilities of Stakeholders	03-Mar-03*	23-May-03	23-May-03	
		D0101030	Execute Construction MOU With Airlines	0-Jan-00	30-Apr-03*	30-Apr-03*	
		D0101040	Prepare Cable TV Network Contract	2-Jun-03	30-Ssp-03*	30-Sep-03*	
		D0106010	Identify Inter- and Intra- Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Mark	C.08 Apron/Ramp Procedures	C0801010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C0801020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C0802020	Review Access Control Policy (under task F.01)	4-Aug-03	29-Aug-03	29-Aug-03	
		C0806010	Identify Inter- and Intra- Project Interfaces	03-Mar-03*	23-May-03	23-May-03	

	C.12 SeaTac Rules and Regulations/ Tariffs	C1201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C1201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C1202010	Review/Revise SeaTac Rules and Regs./Tariffs Document	30-Jul-03*	30-Sep-03	30-Sep-03	
		C1206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Michael	(blank)	N/A	No Milestones During This Time Frame	N/A	N/A	N/A	
Michael	(blank)	N/A	No Milestones During This Time Frame	N/A	N/A	N/A	C.01 Airline Coordination Vital
Michelle	C.35 Art Displays	C3501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C3501020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	31-Jul-03	31-Jul-03	
		C3502010	Develop Draft Plan for Relocating Existing Art	09-Jun-03*	29-Aug-03	29-Aug-03	
		C3506010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Mike	B.05 STEP Main Distribution Mechanical Room	B0501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B0501020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0503010	Determine Service/Support Contract Requirements	03-Mar-03*	30-Jun-03	30-Jun-03	
		B0503030	Review Specifications	26-May-03*	18-Jul-03	18-Jul-03	
		B0506010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	30-Jun-03	30-Jun-03	
	B.06 Heating, Ventilation, and Air Conditioning (HVAC)	B0601010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B0601020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0603010	Determine Service/Support Contract Requirements	03-Mar-03*	30-Jun-03	30-Jun-03	
		B0603030	Review Specifications	26-May-03*	18-Jul-03	18-Jul-03	
		B0606010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	30-Jun-03	30-Jun-03	
	B.07 Air Quality Testing and Management	B0701020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0702010	Determine Any Procedures Need Developed/Revised	26-May-03	30-Jun-03	30-Jun-03	
		B0706010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	30-Jun-03	30-Jun-03	

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	B.14 Plumbing Sanitary Waste	B1401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1403010	Determine Service/Support Contract Requirements	03-Mar-03*	30-Jun-03	30-Jun-03	
		B1403030	Review Specifications	26-May-03*	30-Jun-03	30-Jun-03	
		B1403070	Develop Equipment and Spare Parts Lists	1-Jul-03	25-Aug-03	25-Aug-03	
		B1406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
	B.15 Water Distribution	B1501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1501020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1506010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	30-Jun-03	30-Jun-03	
	B.28 Pre-Conditioned Air, Final Solution	B2801020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B2803010	Confirm Scope of Equipment Provided in Contract	03-Mar-03*	30-Jun-03	30-Jun-03	
		B2806010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
R	B.24 Electric and Door Shops	B2401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B2401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B2403020	Identify Additional FF&E Requirements Provided by POS	3-Mar-03	23-May-03	23-May-03	
		B2403030	Participate in Walkthrough w/RE and Consultant	12-May-03	23-May-03	23-May-03	
		B2406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Ron	B.01 Baggage Handling System (BHS)	B0101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	Vital
		B0101020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0101030	Review Airline Consortium Coordination Plan	14-Jul-03*	5-Sep-03	5-Sep-03	
		B0103005	Determine Service/Support Contract Requirements	01-May-03*	1-Aug-03	1-Aug-03	
		B0103006	Determine Contract Warranty Procedures	1-May-03	1-Aug-03	1-Aug-03	
		B0103010	Review TSA Contract (EDS maintenance program support)	02-Jun-03*	5-Sep-03	5-Sep-03	

		B0103020	Establish On-Site Contractor Support For Trials	4-Aug-03	29-Aug-03	29-Aug-03	
		B0103050	Review Specifications	03-Mar-03*	30-Jun-03	30-Jun-03	
		B0103060	Develop Equipment and Spare Parts Lists	03-Mar-03*	8-Aug-03	8-Aug-03	
		B0104010	Identify Training Requirements	01-Apr-03*	1-Aug-03	1-Aug-03	
		B0104020	Develop Training Plan	4-Aug-03	29-Aug-03	29-Aug-03	
		B0103080	Determine Monitoring and Maintenance Requirements	28-Jul-03	19-Sep-03	19-Sep-03	
		B0103094	Include Maintenance Scheduling in CMMS/MAXIMO	25-Aug-03	19-Sep-03	19-Sep-03	
		B0105010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	31-Jul-03	31-Jul-03	
	B.09 Escalator, Elevator, Moving Walk, and Wheel Chair	B0901010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B0901020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0903010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B0903020	Ensure Environmental Monitoring Requirements Including (hydraulic fluid)	3-Mar-03	31-Jul-03	31-Jul-03	
		B0906010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
S	C.03 Signs (Temporary and Permanent)	C0301010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	Vital
		C0301020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	7-Jul-03	7-Jul-03	
		C0303010	Determine Service/Support Contract Requirements	03-Mar-03*	1-Aug-03	1-Aug-03	
		C0306010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	7-Jul-03	7-Jul-03	
Steve	C.27 Pest and Rodent Control (Internal)	C2701010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2701020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C2703030	Ensure Tenant Contracts Include Pest Control Policy	26-May-03	15-Aug-03	15-Aug-03	
		C2703040	Participate in Walkthrough w/RE and Consultant	01-May-03*	28-May-03	28-May-03	
		C2703060	Design Bird Escapement Device	29-May-03	20-Aug-03	20-Aug-03	
		C2706010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	

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Sue	C.24 Way Finding Coordination	C2401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C2402010	Review Program Guidelines (revise as necessary)	02-Jun-03*	22-Aug-03	22-Aug-03	
		C2403010	Ensure Space Allocation Included for Break Rooms	4-Jul-03	31-Jul-03*	31-Jul-03*	
		C2406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Terri	C.21 Opening Event/Public Relations	C2101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2101020	Define Roles/Responsibilities of Other Entities	04-Aug-03*	29-Aug-03	29-Aug-03	
Tim	F.05 Police Services	F0501010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		F0501020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		F0506010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
T	C.17 Construction/ Operations Coordination	C1701010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C1701020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C1702010	Review STEP Closeout Plan (prep by a monks)	02-Jun-03*	31-Jul-03	31-Jul-03	
		C1702015	Develop Preliminary Coordination Plan	31-Mar-03	13-Jun-03	13-Jun-03	
		C1706010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	31-Jul-03	31-Jul-03	
	C.33 Casework/ Ticket Counter	C3301010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C3301020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C3303010	Determine Service/Support Contract Requirements	03-Mar-03*	30-Jun-03	30-Jun-03	
		C3303030	Review Specifications	1-Jul-03	25-Aug-03	25-Aug-03	
		C3303070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		C3306010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	31-Jul-03	31-Jul-03	
Todd	C.04 Public Address System	C0401010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	Vital
		C0401020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	25-Jul-03	25-Jul-03	
		C0402005	ALOB Define System Protocols	2-Apr-03	29-Aug-03*	29-Aug-03*	

	/////	C0403030	Review Specifications	27-Jun-03*	25-Jul-03	25-Jul-03	
		C0402008	Develop System Users Manual (airlines/tenant)	01-Jul-03*	30-Sep-03	30-Sep-03	
		C0403070	Develop Equipment and Spare Parts Lists	28-Jul-03*	19-Sep-03	19-Sep-03	
		C0406010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
	C.20 Closed Circuit Television (CCTV)	C2001010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C2001020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		C2003010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		C2003030	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		C2003070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		C2006010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
	C.19 Combined Communications Control Center (C4)	C1901010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		C1901020	Define Roles/Responsibilities of Other Entities	27-Jun-03*	25-Jul-03	25-Jul-03	
		C1902010	Identify Systems	03-Mar-03*	30-Jun-03	30-Jun-03	
		C1902020	Review New Sys/Equipment User Manuals	01-Sep-03*	30-Sep-03	30-Sep-03	
		C1902040	Review New Sys/Equipment Maintenance Manuals	01-Sep-03*	30-Sep-03	30-Sep-03	
		C1903010	Determine Maintenance Responsibility (ET/IT/service contract)	27-Jun-03*	25-Jul-03	25-Jul-03	
		C1906010	Identify Inter- and Intra-Project Interfaces	27-Jun-03*	25-Jul-03	25-Jul-03	
Tom	B.16 Industrial Waste Systems	B1601010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1601020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1603010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B1603030	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		B1603070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B1606010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
Trevor	B.18 Cables, Communications, and Wireless	B1801010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1801020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	

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		B1803040	Participate in START Committee Process	03-Mar-03*	15-Aug-03	15-Aug-03	
		B1803050	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B1803060	Review Specifications	26-May-03	18-Jul-03	18-Jul-03	
		B1803090	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B1806010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
Various Leads	B.02 Building Management/ Automation System (BMS)	B0201010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	**Vital**
		B0201020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0202010	Determine Need for Admin Policies/Procedures	26-May-03	15-Aug-03	15-Aug-03	
		B0203010	Determine Service/Support Contract Requirements (DDC)	03-Mar-03*	23-May-03	23-May-03	
		B0203020	Determine Requirements for Water Distribution System (DDC)	3-Mar-03	23-May-03	23-May-03	
		B0203030	Review Specifications (DDC—Smoke control panel)	26-May-03	18-Jul-03	18-Jul-03	
		B0203070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B0206010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	
	B.03 Airport-Wide Systems Integration Testing	B0301010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B0301020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0303010	Develop Coordinated Plan For Integrated Testing	03-Mar-03*	23-May-03	23-May-03	
		B0303020	Establish Contractual Support for System Operation	3-Mar-03	23-May-03	23-May-03	
		B0306020	Develop System Integration Matrix	03-Mar-03*	30-Apr-03	30-Apr-03	
		B0306010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	
	B.11 Maintenance Service Contracts	B1101010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B1101020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B1106010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	4-Jul-03	4-Jul-03	

	B.08 Generators Emergency Power						
Wend		B0801010	Develop Staffing and Budgeting Plan	02-Jun-03*	19-Sep-03	19-Sep-03	
		B0801020	Define Roles/Responsibilities of Other Entities	03-Mar-03*	23-May-03	23-May-03	
		B0803010	Determine Service/Support Contract Requirements	03-Mar-03*	23-May-03	23-May-03	
		B0803020	Review System Distribution System and Sequence of Ops	3-Mar-03	23-May-03	23-May-03	
		B0803030	Review Specifications	03-Mar-03*	18-Jul-03	18-Jul-03	
		B0803070	Develop Equipment and Spare Parts Lists	21-Jul-03	12-Sep-03	12-Sep-03	
		B0806010	Identify Inter- and Intra-Project Interfaces	03-Mar-03*	23-May-03	23-May-03	

Danilo Simich, Parsons, and John Christianson SeaTac (2003).
Note: Shading denotes activity status (in reference to current finish date)
  Pale grey = Complete (as of June 30, 2003)
  Clear = On schedule
  Darker grey = Due within 2 weeks (due by July 31, 2003)
  N/A = not available.

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APPENDIX D

Representative Readiness Checklist

(Danilo Simich, Parsons and John Christianson SeaTac 2003)

ACTIVATION CHECK LIST
SEA SOUTH TERMINAL EXPANSION PROJECT (STEP)

"Despite the scientific and technological advancement in recent years, human foresight is still very limited, so that not everything one handles will turn out the way that is foreseen. Good planning is therefore important in the development of a project, but good planning does not necessarily mean perfect planning, and problems that cannot be reasonably foreseen or contemplated by the human brain will often occur." (Commission of Inquiry, Chek Lop Kok International Airport)

Synopsis

This is a comprehensive list of tasks, related to a system or a process, that need to be accomplished for the opening of STEP. It is one of the tools used in facility activation for establishing clear and balanced expectations, setting schedules, and defining deliverables.

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BACKGROUND

Beyond commissioning, activation is the process of moving from the construction phase to full operation of a facility. The process requires the engagement and participation of the airport operations, business and facilities management, and staff. Activation is ultimately the responsibility of the owner–operator of the facility and is carried out by the existing organization.

The **Checklist** presents all of the tasks (related to a system or a process) to be planned and executed between now and on or about the opening of STEP. It is comprehensive and is intended to avoid overlooking actions necessary for managing, operating, and maintaining STEP.

The Checklist is dynamic. It is expected that tasks will be added, consolidated, or removed. Tasks are grouped within six Activation Sub-committees: Aviation Facilities Group, Aeronautical LOB, Business Development, Landside LOB, Security and Technology. The tasks are ranked in order of priority within each Sub-committee. Those tasks that are highlighted are characterized as vital to the opening of STEP. A system or process is vital if its function could not be achieved through a temporary solution and if it is complex requiring the coordination of numerous resources to activate.

The Checklist includes the person that is delegated authority for leading the task. In some instances key persons supporting the activity are also indicated on the Checklist and people responsible for an activity within a task are listed.

Representative Readiness Checklist Acronyms

ACS	Access Control System	IT	Information Technology
ALOB	Airport Line of Business	IWS	Storm Water Filtration System
AOA	Airport Operations Area	L&I	Labor & Industry
AODB	Airport Operation Database	LAN	Local Area Network
ATC	Air Traffic Control	LOB	Line of Business
ATO	Airport Ticket Office	MEFOG	Generator Cooling System
AV	Audio Visual	MSDS	Material Safety Data Sheets
BA	British Airways	Mtc.	Maintenance
BIDS	Baggage Information Display System	NOTAMS	Notices to Airmen
BITS (phone)	Baggage Information Telephone System	NW	Northwest
BMPs	Best Management Practices	O&M	Operations & Maintenance
BSM	Baggage Sortation Message	OSHA	Occupational Safety & Health Administration
C4	Combined Communications Control Center	PA	Public Address
CD	Compact Disc	PC Air	Pre-Conditioned Air
CIBS	Communications Interface Backbone System	PIO	Public Information Officer
CIP	Capital Improvement Program	PLC	Programmable Logic Controller
CM	Construction Manager	PM	Program/Project Manager
CMMS	Computerized Maintenance Management System	POS	Port of Seattle
		PPE	Personal Protection Equipment
CUS	Common Use Systems	RE	Resident Engineer
DDC	Direct Digital Control	RF	Radio Frequency
EDS	Explosive Detection System	RFP	Request for Proposal
E-stops	Emergency Stops	RIDS	Ramp Information Display System
EVA	An Airline	ROM	Read Only Memory
F&I	Facilities and Infrastructure	RON	Remain Over-Night
F&I	Finance & Insurance	SAS	Skandanavia Air Systems
FAC	Facilities	SDS	Storm Drain System
FF&E	Furniture Fixtures & Equipment	STEP	South Terminal Expansion Project
FIDS	Flight Information Display System	STS	Satellite Transportation System
FIMS	Flight Information Management System	SWPPP	Storm Water Pollution Prevention Program
FMS	Facility Monitoring System	TBD	To Be Determined
FOD	Foreign Object Damage/Debris	TDD	Telecommunications Device for Deaf
GT	Ground Transportation	VIP	Very Important Person
HAZMAT	Hazardous Materials	WISHA	Washington State Industrial Safety & Health Administration
HVAC	Heating Ventilating & Air Conditioning		
Hz	Hertz	WPCP	Water Pollution Control Plan
ID	Identification	Y2K	Year 2000

Checklist

All
Budget and Staffing
- ☐ Identification of Requirements
- ☐ Quantification and Justification
- ☐ Approval Process
- ☐ Recruiting
- ☐ Phasing of Hiring Process; ID badge, Training, Uniforms

Aviation Facilities Group
Sub-Committee Chair:

Baggage Handling System (BHS)
Team Leader: supported by **and other resources for integrated testing and commissioning.**

- ☐ **Airline Check-in/Ticket Counter Workstations.** New counter positions in STEP for airlines. The focus is on operational procedures for the new workstations. Are there any differences for the airline passenger service agents and airport maintenance staff?
  - o Scales operating procedures
  - o Displays intended for passenger service agents for BHS operation and those over the check-in counter positions and any back-wall displays.
  - o Controls for dispatching bags
- ☐ Existing Airline Check-in/Ticket Counter Work Stations for airlines. Determine if there are any tasks associated with the existing equipment used by airlines that will be injecting bags into the STEP BHS and are there any possible consequences related to the counter casework project.
- ☐ Baggage Tag Printers
  - o Verification that existing bag tag printers at existing counters produce tags of acceptable quality to be read in new BHS scanners.
  - o Paper quality, supplier, and stock
  - o Format, IATA or pier tag
  - o Southwest Airlines bag tag printer and tag format
  - o Frontier Airlines bag tag format
- ☐ **Bag Tag Readers.** Determining operating procedures and maintenance requirements for the readers.
- ☐ **Manual Encode Stations.** Determination who will be operating the encode stations, establishing the operating practices for that position, and staffing and training requirements (Note: Expectation that an Airline Consortium will be formed and a service provider will be selected by the Consortium to staff the manual encode stations)
- ☐ **Operating Procedures and Practices.** Written procedures manuals considering the following topics:
  - o Out-bound baggage make-up carousel and in-bound baggage claim carousel assignment and operational changes to assignments and determination of FIMS interfaces
  - o Airline check-in/ticket counter assignment procedures and practices for making changes
  - o Baggage System Office (BSO) staffing and operating procedures
  - o Code Share Association for Baggage Source Messages (BSM). Determine if there is an issue with code shares flight numbers being associate with tenant airline flight numbers
  - o Oversized bags handling procedures and system for supporting transporting bags
  - o Bag match/reconciliation. Airline requirements and practices
  - o Transfer, late and early bag handling procedures
- ☐ Airline Consortium Service Provider for Operating Portions of the BHS
  - o Formation and terms of reference for Airline Consortium
  - o Scope of services provided by Consortium's service provider
  - o Operating procedures for Consortium's service provider
- ☐ ALOB Position for system administration and monitoring. This function needs a position description
- ☐ **EDS/ETD.**
  - o Determination of interface requirements with other software components and TSA's security system
  - o TSA coordination
  - o TSA certification of EDS devices
  - o TSA approval of remote monitoring
  - o Suspect bag and positive detection of explosive procedures
- ☐ Security Technical Coordination
- ☐ Radio Communications, identification of any interference with handheld radios and the BHS
- ☐ Airline Communications in the Bagwell (baggage make-up area), BITS phone
- ☐ Airport resources requirements and timing
- ☐ FIMS (BIDS/FIDS) coordination, out-bound and inbound operational and public displays

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- ☐ **Interface with FMS through CIBS.** Future interface with Facilities Monitoring System (FMS) formerly Supervisory Control and Data Acquisition system (SCADA). FMS is intended to receive data from the BHS Programmable Logic Controllers (PLC) to monitor motor operation, photo eye status, alarms and power status.
- ☐ Baggage Sort Message System interface with BHS Server
- ☐ Determination of BHS monitoring and maintenance requirements
- ☐ Training on common use system. Establishing selective training prior to substantial completion and hand over to airport
- ☐ Operator and Maintenance Technician Training, Transition Plan from Old to New System
    - o Baggage tubs
        - ▪ Supplier
        - ▪ Procurement
        - ▪ Stock
        - ▪ Re-circulation
    - o E-stops
        - ▪ Location
        - ▪ Guards
        - ▪ Re-activation
    - o Weight and size limitations
- ☐ Airport-Wide Integrated Testing
- ☐ Manufacturer/Supplier Technical Support, On-Site and Remote
    - o Airport BHS equipment
    - o Other systems connected to BHS service programs
    - o TSA Technical Service program and on-site support. What is TSA's plan to conduct PM and repair maintenance for its equipment?
- ☐ Service Contract
- ☐ Spare Parts
- ☐ Contractor O&M Manuals

Building Management/Automation Systems
Team Leader: By System and Discipline

List of Systems:

1. DDC System using the Building Management software providing:
    - HVAC controls and monitoring with links to the fire detection smoke evacuation system and for monitoring the position of the fire damper position monitoring
    - Generator sets monitoring and integration to the generator engine cooling system
    - Monitoring fire pumps
    - Monitoring sanitary lift stations
    - Monitoring water systems: Steam, chilled water, potable water, hot heating water and monitoring natural gas consumption, data to be used to billing
    Team Leader: F&I supported by, F&I; Mtc.
2. Facilities Monitoring System (FMS), replacing SCADA:
    - Monitoring inbound BHS
    - Monitoring elevators, escalators and moving walks (Lift Net Software)
    F&I; supported by Mtc., and, Mtc.,
3. Power Monitoring and Data Gathering (PMDG) for monitoring including power centers, quality, output and metering: **F&I**
4. Water Distribution System, part of DDC Building Management System: **F&I, supported by, and**

Activities:
Program Administration
- ☐ Identify warranty scope and make provisions to supplement warranty as necessary with a service contract or in-house staff
- ☐ Revise as necessary service contract to include attending to the following:
    - o Smoke evacuation system
        - - Fire damper position monitoring
        - - Mode selection feature of smoke evacuation system
    - o Monitoring and possible control of the Gen Set cooling system
    - o All new mechanical equipment
Airport Procedures Manuals
- ☐ Revise procedures manuals as necessary:
    - o Operating procedures DDC controls monitoring use of Apogee software including interfaces to fire detection/enunciation/suppression system:
        - - Zone response on interface
        - - Links to local power distribution for shutdown in C4

- o Gen Set operating and maintenance procedures
- o Operating procedures for staff assigned to the FMS and PMDG work stations
- o Maintenance procedures
- o Operations and maintenance procedures for STEP fire pump and associated jockey pump and the inter-tie with the pump house

Equipment/Systems
- ☐ Determine system requirements for activation on Water Distribution System
- ☐ Participate and support Project Team RE on inspection and testing of systems
- ☐ Obtain contractor O&M manuals
- ☐ CMMS, STEP project team to deliver completed CMMS forms to airport Mtc.: **Mtc.**
- ☐ Manufacturer/Supplier Technical Support, On-Site and Remote
- ☐ Service Contract: By specific system/discipline, supported by **and or Accounting/Purchasing Department**
- ☐ Spare Parts: obtain list, acquire from contractor, acquire additional as may be required, catalog, store, and inventory

Training
- ☐ Identify training requirements and define contractor provided training program
- ☐ Develop and implement training plan

Airport Wide Systems Integration Testing
Leader: Leaders from each team responsible for a system

- ☐ DDC Building Management/Automation System for monitoring and control:
- ☐ Electrical Systems: **F&I; supported by: F&I; Mt; Mtc.**
- ☐ Lighting Control: **Wendell Umetsu, F&I; supported by: F&I; Mt; Mtc.**
- ☐ Water Distribution Systems: **F&I supported by F&I**
- ☐ CMMS: **Mtc.**
- ☐ Facility Monitoring System FMC: **F&I**
- ☐ Security Access Control System: **supported by; Mtc.; PMG**
- ☐ Power Monitoring and Data Gathering (PMDG) for monitoring including power centers, quality, output, and metering: **F&I supported by Utilities Manager and, Mtc.**
- ☐ Fire Detection, Suppression and Enunciation Systems: **supported by and**
- ☐ BHS: **supported by and**

Activation Coordination/Facilitation
Team Leader:

- ☐ Identification of Tasks in an Activation Checklist
- ☐ Development of STEP Activation Program Committee
- ☐ Creation of Activation Sub-Committees and Task Teams
- ☐ Preparation and Maintenance of an Activation Schedule
- ☐ Creation of a Milestones Matrix
- ☐ Preparation and Maintenance of an Activation Issues Log
- ☐ Airport Staff Reporting relationship meetings and issues coordination and resolution
- ☐ Contractor and Tenant Briefings and Information Exchange
- ☐ Coordination with PMs and CMs on related works
- ☐ PM Coordination with Management, Operations, and Maintenance Team on Issues on Deliverables
- ☐ Establishing Trials Programs
- ☐ Identification of Funding Requirements and Sources
- ☐ System Supplier Representatives and Technicians Deployment On-Site

STEP Main Distribution Mechanical Room
Team Leader: supported by

List of Systems Co-located in the Room
- ☐ Water Meter
- ☐ Gas Distribution and sub-meters
- ☐ Steam to water heat exchanger for heating and potable water systems
- ☐ Condensate return water
- ☐ Circulation pumps for hot potable water
- ☐ Chilled water circulation pumps
- ☐ Potable water circulation pumps

Activities
- ☐ Participate and support Project Team RE on inspection and testing of systems
- ☐ Obtain contractor O&M manuals
- ☐ CMMS, STEP project team to deliver completed CMMS forms to airport Mtc.: **Mtc**
- ☐ Manufacturer/Supplier Technical Support, On-Site and Remote
- ☐ Service Contract: By specific system/discipline, supported by **and or Accounting/Purchasing Department**

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☐ Spare Parts: obtain list, acquire from contractor, acquire additional as may be required, catalog, store, and inventory

HVAC
Team Leader: **F&I**

☐ System Interface: **F&I; supported by, Mtc.**
  o Chilled water
  o Steam to water converter
  o Heating hot water distribution
  o Condensate return
  o Smoke control and fire damper position monitoring
  o Gen Set room ventilation
  o Control sequences and expansion of DDC links
☐ Heat Load: **F&I; supported by, Mtc.**
☐ Airport operating procedures
☐ Participate and support Project Team RE on inspection and testing of systems
☐ Determine and implement "off-gassing" mitigation program
☐ Obtain contractor O&M manuals
☐ Develop training program
  o Identify training requirements and define contractor provided training program
  o Develop and implement training plan
☐ CMMS, STEP project team to deliver completed CMMS forms to airport Mtc.: **Mtc**
☐ Manufacturer/Supplier Technical Support, On-Site and Remote
☐ Service Contract: By specific system/discipline, supported by **and or Accounting/Purchasing Department**
☐ Spare Parts: obtain list, acquire from contractor, acquire additional as may be required, catalog, store, and inventory
☐ Demonstration of accessibility for equipment maintenance such as filter and component changes

STEP Project Team Responsibility:
☐ Balancing and Testing: STEP Project Team: **After Turnover -, F&I; supported by, Mtc.**
☐ Air for electronic components
☐ Testing Criteria

Air Quality Testing and Management
Team Leader: **F&I; supported by, F&I; and, Safety.**

☐ Using existing testing procedures, do air quality readings prior to opening
☐ Ventilation system initial operation to remove concentrations of "off-gassing" orders from new finishes

Generators Emergency Power
Team Leader: **F&I; supported by; F&I, Mtc.,**

☐ Review System distribution system and sequence of operation
☐ Review System protection settings and compare to generator setting to ensure coordination and protection.
☐ Review specifications for the generator room features:
  o Environmental controls for generator room
  o Fire detection, enunciation, and suppression system for the generator room
  o Exhaust system
☐ CMMS, PM: **Mtc. supported by, Mtc.**
☐ Airport operating procedures
  o Determine procedures for selection of emergency power distribution for passenger loading bridges
☐ Participate and support Project Team RE on inspection and testing of systems
☐ Obtain contractor O&M manuals
☐ Airport operating procedures, prepare and distribute
☐ Develop training program
  o Identify training requirements and define contractor provided training program
  o Develop and implement training plan
  o General operating requirements: engine, fuel system (tanks, pumps)
☐ Participate in trials for demonstration of emergency power systems and selection of power distribution to passenger loading bridges in cooperation with the airlines
☐ CMMS, STEP project team to deliver completed CMMS forms to airport Mtc.: **Mtc**
☐ Manufacturer/Supplier Technical Support, On-Site and Remote
☐ Service Contract: By specific system/discipline, supported by **and or Accounting/Purchasing Department**
☐ Spare Parts: obtain specified and manufacturer's recommended list, acquire from contractor, acquire additional as may be required, catalog, store, and inventory

Escalator, Elevator, Moving Walks, and Wheel Chair Lift
Team Leader: **F&I; supported by, Mtc**.

☐ Determine schedule for "handover" of devices and plan participation in testing and commissioning activities and review operating procedures related to:
  - o Alarm and Emergency Telephone/Intercom Monitoring Systems with connection to C4
  - o Confirm that firefighters keys are set for new elevators
  - o Confirm connection to fire detection/enunciation/suppression
  - o Establish the start of warranty program and determine the need for extending the warranty period
☐ Review Division 14 inspection and testing commissioning plan and determine if duration tests are required
☐ Revise service contract for elevator service provider (note: plan to rebid the contract in the 3rd quarter of 2004)
☐ Confirm service contractor technicians are familiar with the operation and maintenance requirements for new equipment
☐ Coordination for connection to Lift-Net Monitoring Systems, a subset of FMS
☐ Contingency plans, determine alternatives for each elevator
☐ Emergency response review procedures and modify as necessary
☐ Programming Elevator Operation, Interim and Final
☐ Manufacturer/Supplier Technical Support, On-Site and Remote
☐ Establish maintenance program for monitoring and reporting potential leaks for hydraulic fluid

Environmental
Team Leader: supported by and

☐ **Water Quality.**
  1. STEP area to be included in process/procedures for grease trap maintenance
     - o Coordinate with F&I to ensure procedures exist and this process is included
     - o Review and provide input into maintenance procedures
  2. Assure loading docks and maintenance facilities do not drain to SDS or procedure and funding in place to retrofit for that:
     - o Participate in walk-through
     - o Review as-built drawings
  3. Fuel hydrant system operations coordinated with rest of the airport (fueling procedures and system maintenance).
     - o Determine requirements for design and maintenance
     - o Coordinate with PM and F&I
     - o Review and provide input into maintenance procedures
  4. Assure that SDS manholes on the ramp side are covered with bolted lids with gaskets.
     - o Participate in walk-through
     - o Review as-built drawings
  5. Provide design information on SDS and IWS (pump size, flow rate, information on when they will operate, how they are operated, and where they discharge). Also provide O&M manual for these pumps.
     - o Coordinate with PM and F&I to obtain information
     - o Review vendor operating procedures manuals
     - o Review and provide input to maintenance procedures
     - o Review as-built drawings
     - o Confirm all permits include STEP scope
  6. Procedures for storm water and bioswale treatment BMPs inspection and O&M manuals.
     - o Review SWPPP and confirm STEP is included
     - o Coordinate with F&I
     - o Review inspection procedures
  7. Confirm roof drainage and B2OBF drainage interfaces
     - o Participate in walk-through
     - o Review as-built drawings
  8. Bird perch/roosting controls are in place (water quality issue—wildlife issue for as well)
     - o Participate in walk-through with contractor
☐ **Contaminated Site Management.**
  1. Process in place to facilitate replacement and maintenance of, and provide access to, groundwater monitoring wells that are being installed as part of STEP construction (?)
     - o Participate in walk-through
     - o Review as-built drawings
     - o Coordinate with airfield operations and airlines to ensure operating practices do not conflict
     - o Develop policy and process promote implementation
  2. Procedures (including policy and process document as noted above) to access and maintain permanent methane extraction system

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- ☐ **Hazardous Materials Management. Lead: and supported by**
  1. Need a Port-approved Water Pollution Control Plan from each tenant who is required to have one. Alternately have one airport-wide WPCP with tenant agreements in place for their procedures, resources to implement it.
     - o Review concession and airline contracts to ensure clause includes obligation to prepare and present a plan
     - o Coordinate with ALOB, legal, concessions
     - o Site/facility inspections for compliance with WPCP
  2. Assure escalator pits are in contained areas or a procedure is in place to retrofit for that.
     - o Coordinate with F&I
     - o Review and provide input to procedures
- ☐ **Training**
  1. On-going training/technical assistance
  2. Provide technical assistance and support for training for maintenance and airlines

Maintenance Service Contracts
Team Leader: By system or discipline supported by**, or Accounting/Purchasing Department**

- ☐ Scope of Work Revisions
- ☐ Operating Procedures
- ☐ Bid, Selection, Award, and Contract Revision/Renewal Process
- ☐ Employee Orientation
- ☐ Service Contractors:
  - o Elevator and escalator: **Mtc.**
  - o DDC building controls and building automation system: supported by**, Mtc.**
  - o Landside pavement sweeping and snow removal: **and**
  - o HVAC system:
  - o Scales:

Note: Small Works Contracts valued at $100K with an option to increase to $200K do not need revision to scope: On-Call General Construction, Floor Covering Maintenance, On-Call Electrical, Paint Striping, Glass Replacement, Landscaping, and Snow Removal

Warranties Contractor and or Manufacturer
Team Leader: **supported by Disciplines**

- ☐ Adapt procedures on conveyors format for administration of warranties to all warranties:
- ☐ Inputs to CMMS to be used to compile warranty data: **Mtc.**
- ☐ Develop data on warranties:
  - o Terms and Conditions: for example, layers of warranty coverage such as one year contractor warranty followed by individual manufacturer warranty
  - o Contacts: how do we administer the contacts between airport and contractor/manufacturer
  - o Requirements to Maintain the Warranty: Airport needs to review warranty requirements and decide to meet, exceed or develop alternative maintenance program
- ☐ Develop training program for discipline managers to promote consistent management filing of claims on the warranties:

Radio
Team Leader: supported by, Mtc.

- ☐ If necessary, include items on STEP in the airport procedures and/or training programs regarding mitigation of exposure to RF
- ☐ Antenna Installations and farm. Antenna Effectiveness and interference. **SeaTac Telecommunications Architecture Review Team (START)** for review and approval of all Airline, Tenant, Contractor, and airport radio system installations
- ☐ Safety Precautions and Placards

Plumbing Sanitary Waste
Team Leader: **F&I supported by, F&I;, Mtc.;**

- ☐ Engagement in the testing and commissioning through the project team
- ☐ Training and review of riser diagrams
- ☐ Spares, warranties, and manuals on all lift stations and O&M training on non-standard lift station equipment.

Water Distribution
Team Leader: **F&I; supported by, F&I**

- ☐ Need to install a water test station
- ☐ Support the Project Team RE in inspection and testing with emphasis on:
  - ○ Back flow prevention: obtain list of installations and test certificates
  - ○ Sterilization and pressure tests: witness testing, obtain test certificates, and confirm tagging of valves
- ☐ Identify location of isolation valves and advise staff
- ☐ Identify and include in CMMS preventive maintenance activities
- ☐ Review equipment specifications for any special procedures required for training
- ☐ Spares, warranties, and manuals on components that may be unique to existing airport equipment
- ☐ Identification and service of water meters
- ☐ Booster Pumps: identify locations, obtain description of operation, establish method of monitoring operation, obtain O&M manuals, warranty, spares, and training

Industrial Waste Systems
Team Leader: **Mtc. supported by, F&I**

- ☐ Review Pump Station operating procedures and develop airport operating and maintenance procedures and a training program as required
- ☐ Support Project Team RE on inspection and testing with emphasis on confirmation of a clear connection to the storm water treatment plant
- ☐ Spares, warranties, and manuals on components that may be unique to existing airport equipment

Insurance Coverage
Team Leader: **Port Corporate Risk Management**

Property Insurance Coverage-
- a. Insurance coverage procurement on a "replacement cost basis."
  - i. Need bill of materials of all assets from construction PMs.
    1. Shell/construction of building
    2. Furnishings
    3. Special systems
    4. Baggage handling systems
  - ii. Need values by July 15 in order to place coverage by 10/1/03.
- b. Specific areas for which accurate dollar numbers are needed for STEP Include:
  - i. FIMS
  - ii. CUTE
  - iii. ACSU
  - iv. C4
  - v. Office equipment

Fire and Life Safety Protection Coordination and Commissioning
- c. Commissioning of fire protection and life safety systems by property insurer (FMG-Factory Mutual Global)
- d. Punch list walk-throughs with Port Fire Department (currently taking place)
- e. Punch lists submitted to REs for specific items
- f. Communication of acceptable systems to Port Risk Manager by insurer
- g. Systems Include:
  - i. Automatic sprinkler systems
  - ii. Early warning detection systems
  - iii. Fire pump system for STEP tower
  - iv. Earthquake sway bracing on fire protection systems

Liability Insurance Coverage
- h. Ensure Leases Have Proper Wording—Check with Legal to include:
  - i. Hold harmless
  - ii. Indemnification clause to include any alleged acts and defense costs
  - iii. Waiver of subrogation clause—to be waived against port
  - iv. Requirement for Certificate of Insurance
    1. Port added as an Additional Insured
    2. Port provided with Endorsement showing Additional Insured status
    3. Minimum solvency rating of insurance company is A–
    4. Port provided with actual copy of certificate
  - v. Extends to:
    1. Property rentals
    2. Vendors
    3. Concessionaires
    4. Taxis
    5. Other use agreements

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  i. Identify Specific Areas of Liability Insurance Coverage Required
    i. General Liability for Premises Use/Occupancy
      1. Minimum limit of $3 million/occurrence
    ii. Auto Liability
      1. Minimum limit of $1/million per accident
      2. Coverage for any owned, rented, leased, or hired auto
    iii. Liquor Liability for those who serve alcohol
      1. $1 million minimum
    iv. Errors/omissions for professional agreements (check with risk management)

Cables, Communications, and Wireless
Team Leader: **F&I; supported by, Aviation IT Infrastructure Supervisor, to be determined**, and

General
☐ Cable management system entry, documentation of as-built drawings. Presently working with Contractor to establish a convention
☐ Wireless—Note: No program active for installation of wireless systems, RFP being prepared
☐ Preparation of management, operations, and maintenance procedures manual

Communications Infrastructure Backbone System (CIBS)
CIBS is a passive network of fiber and copper cabling consisting of rooms, equipment racks, terminations, and cable trays being developed outside of the scope of STEP, but supporting systems that will be operational in STEP.

List of Systems Linked to the CIBS Network:
 1. Access Control System interface
 2. Operational LAN
  a. FIMS
  b. Common Use Systems (CUS)
   i. Baggage Source Message (BSM)
   ii. Airline Check-in Counter and Boarding Lounge Podium Workstations
 3. Controller Network
  a. Facilities Monitoring System (FMS) formerly SCADA
  b. BHS monitoring of PLC
 4. Elevator, escalator, moving walks to replace existing systems
 5. Power Monitoring and Data Gathering (PMDG)
 6. CNN Broadband video POSSIBLE application
 7. Tenant Applications
 8. Radio 800 MHz System
 9. MDR3 connection at C4 (Project issue not activation, highlighting milestone)

Activities:
☐ Finish CIBS installation: CIBS project contractor
☐ Establish and manage allocation of fiber and copper
  o Review and update fiber allocation table
☐ Participate in Committee process for considering and acting on requests for communication pathway on CIBS
☐ Confirm use of system as planned and approved and support the users use of the system

Solid Waste Collection
Team Leader: **FAC**

☐ Determine space requirements for storage of collected recycling waste
☐ Establish procedures for segregation of construction debris of STEP contractor and tenant contractors and secure containers to avoid debris being mixed with airport waste
☐ Conveyance Within and Across Sterile Areas
☐ Compactor, installation, and power requirements
☐ Revise service contract, familiarization of contractor

Utility Meter Reading
Team Leader: **supported by and**

☐ Establish automated utility meter reading system
  o Operating and maintenance procedures
  o Natural gas meters linked to software, tied to DDC system
  o Electrical meters linked to the Power Monitoring System

Maintenance Matrix, Airport/Airline/Concessions
Team Leader: **supported by and**

☐ Briefing by Business Development (BD) to Maintenance on obligations
☐ Provision of STEP space allocation and type by BD to Maintenance
☐ BD to update maintenance responsibility table on tenant leases:
  ○ List of airport leases
  ○ Airport and tenant maintenance obligations covering maintenance and repair of premises
  ○ Drawings of spaces

Door Systems
Team Leader:

☐ Determine the type of door equipment being delivered on the project:
  o Door hardware, locksets, and closures
  o Automatic openers
  o High-speed roll-up vehicle doors and roll down fire doors: **Mtc**.
☐ Identify unique features or equipment that may require:
  o Operating procedures
  o Maintenance procedures
  o Security system integration
  o Spare parts
  o Special tools
  o Training
☐ Identify PM entries for CMMS:
☐ Door Numbering System Revisions: **ALOB**

Loading Dock
Team Leader: **supported by, and**

☐ Include loading dock procedures in Tenant Procedures Manual including:
  ○ Scheduling access, if required
  ○ Security
  ○ Dock levelers operation:
☐ Obtain Contractor O&M manuals on any equipment in the loading dock
☐ Spare Parts: obtain list, acquire from contractor, acquire additional as may be required, catalog, store, and inventory if any
☐ Establish warranty obligations

Electric and Door Shops
Team Leader: **and respectively**

☐ Determine scope of the Contractor's requirements for the spaces: to provide details
☐ Identify additional FF&E requirements to be provided by airport, obtain budget and procure
☐ Coordinate move of existing and new FF&E to the space

As-Built Drawings
Team Leader: **Construction Manager; supported by engineering**

☐ Copies of drawings associated with Construction Bulletins and Change Orders are sent to F&I by the project team:
☐ Copies of red line drawings are sent to at substantial completion
☐ Approval/acceptance of drawings: **STEP Project.** for contractual obligations and for technical review
☐ Filing within Port System (electronic):

Clocks
Team Leader: **Mtc.; supported by**

☐ Determine what is being provided in STEP and how it will be integrated with existing clock system
☐ Airport operating procedures manual
☐ Manufacturer/Supplier Technical Support, On-Site and Remote,
  o Service contract
  o Spare parts
  o Contractor O&M manuals

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Fountain Service/Pool
Team Leader: **Mtc.; supported by**

- ☐ Determine maintenance requirements:
  - o Pumps, pipes, and drains
  - o Manufacturer recommended requirements
- ☐ Waterproofing membrane, care and repair requirements
- ☐ Cleaning, schedule, and responsibility
- ☐ Coin Collection: **ALOB**

Pre-Conditioned Air, Final Solution
Team Leader: **F&I**

- ☐ Coordination of final solution with operational practices
- ☐ Distribution system testing to each gate for pressure, flow, sterilization
- ☐ Determine system related to heating water pumps and piping control system

Roof Systems
Team Leader: **Mtc**.

- ☐ Roof Access:
  - ○ Location
  - ○ Security
- ☐ Determine maintenance programs
  - ○ Walking pads—marking and illumination
  - ○ Penetration requirements
- ☐ Determine scope of warranty and any requirements to supplement warranty

Glazing Systems
Team Leader: Mtc.

- ☐ Determine glazing systems being delivered and establish any special or unique maintenance and repair procedures
- ☐ Establish service agreements for glazing repair
- ☐ Obtain spare materials and parts
- ☐ Determine scope of warranty and any requirements to supplement warranty

Architectural Finishes (*Interior*)
Team Leader: **Mtc. supported by**

- ☐ Determine the type of finishes being delivered
- ☐ Obtain spare/replacement materials and parts
- ☐ Determine the scope of the warranty

Aeronautical Line of Business
Sub-committee Chair:

Airline Coordination
Team Leader: **ALOB**

- ☐ Tenant move planning, scheduling, and coordination: **Aeronautical LOB, support**
- ☐ Cost of relocation of carriers: Approval of relocation, implementation
- ☐ IT coordination with FIMS, CUTE, and BSM interface/connection with airline host computer
- ☐ Training:
  - o Emergency procedures
  - o Flight crews
    - ▪ Apron familiarization
    - ▪ Docking systems
  - o Ground crews
    - ▪ Baggage system operation
    - ▪ Apron services
  - o Passenger service agents
    - ▪ CUS/CUTE:
    - ▪ Baggage handling system: **Maintenance?**
    - ▪ FIDS:
    - ▪ Public address:

- ☐ Phasing schedule for moving airlines (not planned to phase in operations)
- ☐ **Check-in Counter Reconfiguration:** New counters to be installed throughout the entire terminal planned to happen after STEP becomes operational.
- ☐ Lease Deal Points, lease requirement
- ☐ **Marketing Plan/Public Affairs and Events Coordination:** To be coordinated with airport concessions administration.
- ☐ Common Use Protocol
  - o How do we use CUS/CUTE workstation:
  - o How do we use the common use areas, operating practices, and procedures:
- ☐ Reservations Systems Upgrades: **ATR**
- ☐ Review of Standard Operating Procedures:
- ☐ Ramp Safety Procedures:
- ☐ FOD:
- ☐ Equipment Parking and Staging Positions:
- ☐ Push-Back procedures:
- ☐ Flight Operations Update/Bulletins:
- ☐ Access Control System: **Security**
- ☐ VIP Club Operations: **ATR**
- ☐ **Systems.** Technical and operational interface. Focus is establishing operating practices in using these systems and also any technical issues that surface as a result of using these systems
  - o CUS/CUTE:
  - o Flight Information Management System (FIMS):
  - o Loading bridge:
  - o Preferential gates:
  - o Gate Assignment and Decision Rule Protocol:
  - o PC Air (future):
  - o 400 Hz ground power:
  - o BHS
    - ▪ Oversized carry-on bags
    - ▪ Positive bag match/bag reconciliation
- ☐ Paging:
- ☐ Radio: **Maintenance**
  - o Antenna placement
  - o Relocation plan
- ☐ Information Technologies: **IT**
- ☐ Systems Coordination: **IT**
- ☐ Transition Signage Plan: **F&I**
- ☐ Table Top Drills:
- ☐ Operational Readiness Trials: **(support)**
  - o Bags for simulation (weighted)
  - o Staff
  - o Practice aircraft
  - o Bag tag compatibility (airport CUTE printed tag with airline network)

STEP Project Team Responsibilities:
- ☐ Coordination with Construction CM, Airline, and airport O&M on tenant improvements:
- ☐ Tenant Improvements:
  - o Scope
  - o Approval (in coordination with properties)
  - o Schedule
  - o Construction coordination
  - o Operational readiness
  - o Access
  - o ATO build-out
  - o Airline baggage office build-out

Fire Protection
Team Leader: **Fire in cooperation with STEP Project Team supported by**

- ☐ Life Safety Systems, Monitoring and Inspection of Construction and preparations for operations and maintenance
  - o Fire control panel
  - o Fire detection
    - ▪ Valve monitoring
    - ▪ Smoke detection
    - ▪ Beam detection
    - ▪ Duct detection

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- - - Pull stations
    - Flow switch
    - Ultraviolet/infrared detection
  - Fire suppression
    - Wet pipe
    - Dry pipe
    - Pre-action
    - Inert gas
    - Deluge
    - Portable fire extinguishers
  - Fire annunciation
    - Audible
    - Strobe
    - PA, common speaker
    - Firefighter PA
    - FIDS/FIMS integration
  - Smoke evacuation
    - Control
    - Flow
    - Dampers
    - Annunciation
  - Elevator automation and firefighter control
    - Fire phone
    - Door control
- ☐ Confirmation that state elevator and escalator inspection is successful
- ☐ Confirmation that state electrical inspection is successful
- ☐ Training and Orientation
- ☐ Coordination of familiarization of new premises and systems with Supporting Agencies
  - TSA
  - Police
  - Maintenance
  - Mutual aid organizations, drills and familiarization
- ☐ Facility Documentation
  - As-built drawings
  - Hard copy of specifications and manuals
- ☐ Fire Pump Generator and Fuel Oil Tank
  - Preventive maintenance program
- ☐ Coordination for striping for fire lanes
- ☐ Crowd Control:
  - Operational circumstances; i.e., security breach and evacuation of concourse
- ☐ Hydrant Plan
  - Signs for identifying locations of fire hydrants
  - Update inventory of fire hydrants
- ☐ Access, mark locations
- ☐ Update or prepare new procedures and plans
  - Site specific safety plan
  - HAZMAT plan update
  - Procedures and training on smoke control system
  - Procedures and maintenance requirements on boiler room panel
- ☐ Procurement and Installation of Automated External Defibrillators
  - Power requirements
  - Data link

Signs (Temporary and Permanent)
Team Leader: **F&I supported by, F&I; and, ALOB**

- ☐ Testing
- ☐ Materials, potential for obtaining materials used by fabricator.
- ☐ Airport signage program
  - Sky bridges
  - Garage
  - Curb
  - Terminal interior public areas
  - Terminal interior non-public areas
  - Apron
  - FIDS/BIDS/(RIDS?)
  - STS signs

- ☐ Identification
- ☐ Informational
- ☐ Directory Signs (you are here)
- ☐ Regulatory
- ☐ TSA Signs Coordination
- ☐ Commercial/Retail
- ☐ Advertising, Dynamic and Static
- ☐ Contingency for Alterations and Temporary Signs Plan
- ☐ Main Terminal Signs Modifications Plan
- ☐ Support of RE on Inspection and Testing
- ☐ Warranty, Contractor Support, Service Agreements

Public Address System
Team Leader:

- ☐ Coordination with Terminal Wide Voice Paging (TWVP) project for entire terminal
- ☐ Airport operating procedures
- ☐ Airline operating procedures and protocols
- ☐ Training, establishing room with mock-up
- ☐ Manufacturer/Supplier Technical Support, On-Site and Remote
- ☐ Contractor O&M Manuals
- ☐ Spare Parts: List, delivered and storage
- ☐ Contractor O&M Manuals
- ☐ As-Built Drawings

Office Tower
Team Leader:

- ☐ White Noise System: **STEP Project Team**
- ☐ IT Installation
    - o Telephones:
    - o Desk top computer LAN links:
- ☐ FF&E
    - o Office furniture:
        - • Refurbish existing office equipment:
    - o Outdoor furniture:
    - o Recreation and exercise equipment:
    - o Develop plan to surplus existing office FF&E
- ☐ AV Equipment for conference rooms:
    - o Procedures
    - o Training
    - o Maintenance
- ☐ **Phasing with Records Retention Program System.** Installation and startup of new system and timing of any superfluous files prior to move to office tower:
- ☐ Phasing and move planning, scheduling and implementation:
- ☐ Operational Procedures: **Office Manager To Be Determined/**
- ☐ Emergency Services Procedures:
- ☐ Develop new policies and procedures manual: and **Facility Manager (TBD)/**
- ☐ Develop photocopier standard and phased implementation for acquisition and installation (linked to Records Retention Program)
- ☐ Track vending contract services:
    - o Water
    - o Coffee
    - o Vending machine
    - o Relocation of equipment
- ☐ Public Access: **Office Manager TBD/**
    - o Visitors badges
    - o Conference rooms
    - o Signs
    - o Security
    - o Rest room facilities
- ☐ Employee Familiarization: **Office Manager TBD**
    - o Orientation—Departmental communications and site familiarization
    - o Access
    - o Emergency egress:
- ☐ Mail Delivery, Mail Boxes: **and**
- ☐ Mezzanine kitchen build-out, catering support:

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- ☐ Mezzanine glass security wall:
- ☐ Key Control for offices:
  - o Key hierarchy and distribution

Operational Readiness Trials
Team Leader: **ALOB supported by**

- ☐ Develop Operational Readiness Trials Plan
  - o Define what processes, spaces, and equipment need to be tried
    - ▪ Passenger processing
    - ▪ Baggage processing
    - ▪ Aircraft parking positions
    - ▪ Evacuation plans
    - ▪ Commission meeting room
  - o Identify responsible individuals
  - o Scenario development
- ☐ Table Top Testing/Exercises
- ☐ Participants
- ☐ Execution
- ☐ Debriefing

Passenger Loading Bridges
Team Leader:

- ☐ Operation, two issues operating procedures and establishing the association of the bridge to the range of aircraft for the gate position
  - o Limit switch settings:
  - o Aircraft compatibility
  - o Security access control: Security: Building to bridge and bridge to ramp:
  - o Emergency egress:
  - o Bridge control panel activation
  - o Interface to ground power
  - o Interface to potable water, being provided by the loading bridge vendor
  - o Bridge operator certification
- ☐ Maintenance (CMMS, spares, warranty)
  - o Manufacturer/supplier technical support, on-site and remote
  - o Contractor O&M manuals
  - o Spare parts
  - o Essential power distribution:
- ☐ Airport operating procedures, review and revise
- ☐ Possible link to docking system (docking system not programmed)
- ☐ Training, review and revise existing programs and incorporate contractor provided training
- ☐ IT Interface to Building Automation System
- ☐ Contingency Plan

Apron/Ramp Procedures
Team Leader:

- ☐ Markings:
  - o Paint consistency, type, color, application
- ☐ Revise Driver Training Programs:
- ☐ Ramp Equipment Parking Plan:
- ☐ Aircraft Parking Position Plan:
- ☐ Tower Ground Radio Procedures:
- ☐ Access Control: Security, ALOB
- ☐ FAA ATC Tower coordination:
- ☐ FOD Prevention Program:
  - o Initial apron clean up prior to operations
  - o Distribution and Installation of awareness signs
  - o FOD buckets

Aircraft Parking Positions/Gate Assignment
Team Leader: **ALOB supported by**

- ☐ Parking Position Configuration and Adjacency Restrictions
- ☐ Gate management procedures including: late arrival protocol, decision rules and rules base
- ☐ Procedures, Gate Assignment, use of cargo apron for RON and overflow parking, solution for 10 RON position displacement

☐ Activation of new gate management software associated with FIMS
  ○ Verify data connection with Airport Operation Database (AODB)
  ○ Develop contingency plan and procedures including alternative data transfer with FIMS/FIDS
  ○ Develop and implement training program for new gate management software

Safety Programs
Team Leader:

☐ Establishing designated safety bulletin boards
  o Posting OSHA 300 Log
  o L&I/OSHA required postings
☐ Material Safety Data Sheets (MSDS)
  o Collection and distribution of new product MSDS
  o Spaces for storing MSDS binders in new areas
☐ First Aid Stations, establishing locations and supplying with required equipment
☐ WISHA/OSHA Compliance, conduct safety site tours in preparation of operations, team with Maintenance Safety Manager and Fire Department
  o Lock-Out-Tag Out on new equipment
  o Confined space entry markings
  o Equipment guards
  o Signs and placards PPE and warnings
  o First-aid kits
☐ Develop site safety plan

Operating/Emergency Plans
Team Leader: By discipline

☐ General activities for all plans:
  ○ Review existing procedures and compare to the features and systems of STEP and determine if revisions are required
  ○ Review observations on items identified above with appropriate technical staff
  ○ Prepare and distribute draft revised procedures to stakeholders
  ○ Identify those procedures in the revised plans and develop scenarios which will need to be tested in the trials period
☐ FAR Part 139:
☐ Parts 1542/1544: **Security**
☐ Emergency Plan: **ALOB;**
  o Fire access familiarization and fire control room
  o EMS access familiarization
  o Earthquake response, cabinets
  o Floor plans
  o Space numbering system:
  o Incident command protocol change
  o Fire control room procedures
  o Signs including evacuation route signs
☐ Building Evacuation Plan: **(emergency planning)**
☐ Snow Removal/Deicing Plan: **and**
☐ Contingency Plan (adapting plans prepared for Y2K)
☐ Ramp Safety Procedures: **ALOB**
☐ Emergency Evacuation Drills
☐ STEP Office Tower Policies and Procedures:

SEATAC Rules and Regulations/Tariffs
Team Leader: **ALOB and supported by and summer intern**
☐ Review existing rules and regulations
☐ Benchmark with other airports
☐ Distribute initial draft for user review
☐ Issue final
  o Inter/Intra net update
  o CD ROM

Employee Orientation
Team Leader: ALOB

☐ Develop Orientation Tools
  o Orientation brochure
    ▪ Passenger processing
    ▪ Emergency services:

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- ▪ Amenities
- ▪ Safety programs
  - o Display signs
- ☐ Distribution
  - o Airline management
  - o Tenant and concessionaire management
  - o Badge and ID office (possible)
- ☐ Develop Implementation Schedule, coordinated with construction
- ☐ General Training Program, coordinated with other tasks (train the trainer)

STEP Relocation/Move Coordination and Deactivation of Space
Team Leader:

- ☐ Plan, schedule, implementation, and coordination
  - o Office tower:
  - o Airport spaces:
  - o Airlines:
  - o Concessionaires—No relocations
  - o Government agencies:
- ☐ Airport office clean before move (pitch and ditch): Office Manager TBD
- ☐ Deactivation of Existing Space After Move: support
  - o Surrender of possession
  - o Inspection of space
  - o Disconnecting IT network connections
  - o Making the space "safe"

ALOB Service Contracts
Team Leader: Various

- ☐ Scope of Work Revisions
- ☐ Operating Procedures
- ☐ Bid, Selection, Award, and Contract Revision/Renewal Process
- ☐ Employee Orientation
- ☐ Service Contractors**, ALOB**
  - o Custodial
    - ▪ Architectural exposed structural steel cleaning
    - ▪ Window washing systems and procedures
    - ▪ Window washing
  - o Bag tippers, removal of bags from carousels
  - o Lost and found
- ☐ Pest and Rodent Control:
- ☐ Solid Waste and Recycled Waste Collection: **Facilities**

Ground Power, 400 Hz
Team Leader: **supported by**

- ☐ Power Quality and Aircraft Compatibility
- ☐ Contingency Plan (aircraft APU, airline contractual obligations, environmental quality obligations)
- ☐ Airport operating procedures
  - - New system procedures for airlines and airport staff
- ☐ Maintenance Procedures:
- ☐ Manufacturer/Supplier Technical Support, On-Site and Remote
- ☐ Contractor O&M Manuals
- ☐ Spare Parts

Construction/Operations Coordination
This is coordinating continuing construction activities by the STEP Contractor and others after the facility is transferred to the airport

Team Leader: **supported by**

☐   STEP Closeout Plan:

☐   **Preliminary Coordination Plan.** Adaptation of existing construction improvement program procedures and maintain standard operating procedures for construction. Final plan prepared 90 days before turnover.

   o   Construction laborer access: in cooperation with **STEP Project Team**
   o   Material lay-down areas
   o   Debris collection and disposal
   o   Power and water cuts coordination: **Maintenance**
   o   Work area isolation
   o   Welding:
   o   Confined space entry and related safety procedures:

Advisories
Team Leader: By area

☐   NOTAMS: **ALOB** primary responsibility of the **ADM** group with oversight by
☐   Construction Advisory Form (CAF), notifications from contractor and operational advisories: **STEP Project Team**
☐   Airline, notifications to and from airlines on operational and construction related changes: **Respective Project Managers**
☐   Communications: Public, Media, Governmental Entities, Tenants, Employees, Internal Port: **PIO,**

Combined Communications Control Center (C4)
Team Leader for operations and emergency monitoring and communications: **ALOB**

☐   Identify and define the systems to be monitored and controlled in C4
☐   Establish operating requirements and develop operations and procedures manual
☐   Access for premise wiring (Equipment room MDR3; MERs)
☐   Coordinated Inspection and Testing**: STEP and Project Team**
☐   Maintenance requirements
☐   Training program and requirements

Closed Circuit Television (CCTV)
Team Leader: **ALOB; supported by, Mtc.**

☐   Type
   o   Police:
   o   Operational (gate assignment, terminal monitoring, ACC)
   o   Security/ID access for AOA doors:
   o   Maintenance: Baggage handling system monitoring:
☐   Expansion and upgrade of existing system requirements, new equipment requirements for control and recording
☐   Procedures
☐   Maintenance: Mtc.; supported by, Mtc.

Opening Event/Public Relations
Team Leader: in cooperation with STEP Project Team supported by

☐   Develop Public Relations Plan:
   o   Schedule
   o   Budget
   o   Staff event, associated with the move-in to the office tower
   o   Dignitary event
   o   Media event, associated with beginning of operations
   o   Possible participation with the readiness trials
☐   Public education programs, updating:
   o   Port and airline web pages
   o   Travel agents
   o   Tenants
   o   Service providers, ground transportation

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Apron and Hydrant Fuel System Projects
Leader: PM/Construction Issues and for Operational Issues

- ☐ Construction Coordination
  - o Civil works adjacent to STEP set for completion in September 2003. Includes removal of subterranean methane extraction pipes and installation of a permanent methane extraction system. Thereafter, electrical works, valve installation, and system flush and testing to occur beyond STEP opening. Coordination with gate assignment required.
  - o Apron reconstruction project adjacent to STEP target completion, September 2003
- ☐ Fuel truck procedures and practices, review and revise
  - o Coordination with air carrier fuel consortium, fuels
  - o Emissions/air quality coordination with airport environmental programs:
  - o Spill response plan review and revise, coordinate with fire department
- ☐ Hydrant Fuel/Into-Plane Fueling Procedures, Entire system set to become operation March 2005
  - o To be established after STEP operational
- ☐ Coordination with Airline Fuel Consortium Agreement
- ☐ Update Rules and Regulations to include fuel considerations on carts:

Custodial Services
Team Leader: **ALOB**

- ☐ Construction Cleaning: **STEP Project Team**
  - o Coordination with the STEP Project Team and with tenant contractors
  - o Definition of scope of contractor cleaning
  - o Scheduling for construction cleaning and establishing handoff of cleaning responsibilities
- ☐ Contract Administration, development of change order to custodial services contractor reflecting any revised definition of scope of work
- ☐ Phased labor hour plan for transition from construction clean to trials period to commencement of operations
- ☐ Janitor Closets and Storage Areas
- ☐ Access to Across Sterile Areas, ID Badge requirements, reissue
- ☐ Training/familiarization program with new terminal spaces and finishes
  - o Airport custodial contractor
  - o Other custodial contractors on procedures
- ☐ Solid Waste and Recycled Waste Collection and Removal
  - o Conveyance methods and routes to collection containers at the loading dock
  - o Collection containers in public areas and airport spaces, training on any new equipment
- ☐ Possible FIDS drop to custodial supervisor for monitoring terminal activity

Way Finding Coordination
Team Leader:

- ☐ Mobilization of supplemental employees and recruiting new employees and volunteers
- ☐ Orientation and Training of Pathfinders, Volunteers and supplemental employees
  - o Tours
  - o Getting familiarization for way finding staff
  - o Conducting tours for support of public affairs initiatives
- ☐ Information Counter—Placeholder if provided:
  - o Staffing requirements
  - o Equipment installation, operating procedures and training (FIDS, paging, telephones, and possible other articles)
- ☐ General equipment needs; i.e., radio cell phones
- ☐ Space Requirements, break rooms, lockers
- ☐ Coordination with Convention and Visitors Bureau:
- ☐ Staff Support to Public Affairs

Queue Management
Team Leader: **ALOB**

Scope: Develop plan for acquiring and installing stanchions for establishing customer queues
- ☐ Determine requirements:
  - o Ticket/check-in counters
  - o Security screening checkpoint
  - o Gate podiums
- ☐ Develop plan
  - o Airline coordination
- ☐ Procure and install stanchions

VIP Handling
Team Leader: **ALOB and PIO**

☐ Placeholder—continue existing practice with perhaps modifications to what spaces and other resources that may be available in STEP and the potential loss or reuse of spaces presently available for accommodating VIPs.

Pest and Rodent Control
Team Leader: **ALOB**

☐ Preventative measures during construction
    o Walk-throughs with project team
    o Animal pest monitoring, elimination and exclusion
    o Insect monitoring and breeding habitat surveillance/elimination
    o Design/install bird escapement device
☐ Initial actions prior to opening
    o Test Bird Escapement Device
☐ Routine maintenance
    o Pest control monitoring/control
    o Bird control as required

Wildlife Control
Team Leader: **ALOB**

☐ Preventative measures during construction
    o Walk-throughs with project team (done)
    o Plan/install bird exclusion/anti-perching devices ($85,000 estimate)
    o Identify/resolve landscaping-wildlife attractant conflicts (critical issue)
☐ Initial actions prior to opening
☐ Routine maintenance
    o Bird population monitoring and live-trapping

Preconditioned Air
Team Leader: **ALOB and**

☐ Interim Solution, airport supply air carts
☐ Contingency Plan (aircraft APU, airline contractual obligations, environmental quality obligations)
☐ Airport operating procedures
    o New system procedures for airlines and airport staff
☐ Maintenance Procedures:
☐ Manufacturer/Supplier Technical Support, On-Site and Remote
☐ Contractor O&M Manuals
☐ Spare Parts: obtain list, acquire from contractor, acquire additional as may be required, catalog, store, and inventory

Sky Cap Podiums
Team Leader:

Not in scope of STEP project.

Lost and Found
Team Leader:

☐ Orientation of new facilities for lost and found contract operator including a facility walk-through
☐ Review and revise the operating procedures as required
☐ Establish points of contact for the contract operator with tenants and agencies in the airport
☐ Determine service/support contract requirements
☐ Identity Space Requirements, determine if existing location is adequate or if new location is appropriate

Aircraft Docking Systems
Team Leader: **ALOB; supported by, ALOB**

Note: Presently not planned, general contractor installing supports

Casework/Ticket Counter
Team Leader: **supported by**

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- ☐ Design Review Committee approval of casework standard
- ☐ Maintenance Program, Mtc.:
  - ○ Establish maintenance responsibility of scales and determine the certification requirements for the scales
  - ○ Get set of shop drawings
  - ○ Obtain spare laminate, stainless, and other finishes for repairs
  - ○ Determine type of lock sets, drawers, and drawer slides

Satellite Transportation System (STS)
Team Leader: **Not an anticipated action item for STEP, Placeholder**

- ☐ Interfaces for operating practices and passenger flows for STS station and STEP
- ☐ South Station Build-out: STEP Project Team

Art Displays
Team Leader:
- ☐ Develop relocation, schedule, and maintenance plan
  - ○ Scope:
    - ▪ Existing art relocation, from terminal building to STEP (Maki Sculpture)
    - ▪ New art
    - ▪ Exhibition art, museum of flight aircraft displays, and exhibit cases relocation
    - ▪ Office art, relocation and possibly new
  - ○ Topics:
    - ▪ How and who will move art?
    - ▪ Where will it be placed?
    - ▪ When will it be moved/installed?
    - ▪ Who will maintain the art?
  - ○ Maintenance:
    - ▪ Revise scope of work for present art program handler contractor
    - ▪ Illumination for art, unique features
    - ▪ One mechanical art display requiring maintenance
    - ▪ Artist to provide maintenance program
    - ▪ Airport to maintain
- ☐ Coordination with Public Relations
- ☐ Airport to provide lift for access to suspended aircraft display

Noise Display Relocation (consider if required)
Team Leader: **Placeholder**

Business Development
Sub-committee Chair:

Tenant Lease Administration (airline and others)
Team Leader:

- ☐ Lease documentation execution: (airline lease and advertising)
  - - Exhibits
  - - Amendments
  - - Revised rents
  - - Facility space database (including apron)
  - - Revision of and acquisition of new tenant surety bonds
- ☐ Cable Television network contract:
  - ○ Cable service to hold-rooms, establish requirement and revise concession
  - ○ Cable TV service to tenant spaces
- ☐ Vacated Facility Plan Offices:
- ☐ Relocation Services:
- ☐ Establish business arrangements for advertising signs:

Concessionaires
Team Leader:

- ☐ Lease documentation execution: Concession Staff
  - - Exhibits
  - - Amendments
  - - Revised rents
- ☐ Coordination with Construction CM, Concessionaire, and airport O&M on tenant improvements/build-out:
- ☐ Concession hours of operation, operations coordination for support services:

☐ Operational Coordination/Preparation of Operations Manual:
- Deliveries
- Loading dock scheduling, coordination, security
- Waste collection

☐ Staffing: Concessionaires
- Employee familiarization and training
- Identification badges

☐ Retail Prime Coordination:
☐ Food and Beverage Prime Coordination:
☐ Direct Lease Coordination:
☐ Service Coordination, Amendments:
- Telephone
- Baggage cart
- Lockers
- Shoeshine
- Vending
- Newspapers
- Internet kiosk
- Currency exchange

☐ Storage Coordination:
☐ Security Coordination:
☐ Retail Signage:
☐ IT Coordination for telecom and special systems to install jumpers:
☐ Relocation Services (moving):
☐ **Future Space Development.** Some concession space in STEP will be available for future use and is not presently planned for development (areas to be walled off)

Landside Line of Business
Sub-Committee Chair:

Curbside/Roadways
Team Leader:

☐ Modify existing curbside signage: Expense
- Enforcement
- Police media
- Sidewalk ends

☐ Complete STEP Lower Drive Curbside: CIP 101250
- Lower drive activation/startup
- Courtesy van plaza activation/startup

☐ 100269 Roadway Signage:
- Ticketing drive airline signage
- Baggage claim drive airline signage

☐ Modify Airline Curbside Check-In:
☐ Modify Curbside Management Plan:

Ground Transportation
Team Leader:

☐ STEP: **CIP 001662**
- South GT lot activation/startup
- Cruise lobby activation/startup (two phases, first temporary facility followed by second phase permanent facility)
- Tour counter activation/startup
  o Includes procurement and installation of at first temporary facilities then later permanent facilities for these areas

☐ GT Phone Board Lower Drive: Small Job
☐ Modify Snow Removal Plan for South GT Lot:
☐ Hotel/Motel and GT Information Boards:
☐ Modify Custodial contracts for new facilities:

Public Parking
Team Leader:
☐ STEP Garage Plaza: New CIP
- Pedestrian plaza activation/startup
- POF machine activation/startup

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- ☐ Modify Airline Signage: Expense, to produce the signs
  - Garage entrances
  - Helices
  - Elevator lobbies
  - Sky bridge

Employee Parking
Team Leader:

- ☐ Adjust Employee Bus Routes/Hire Additional Drivers: Expense
  - Additional airline employees
  - Additional security employees
  - Additional concession employees

Security
Sub-committee Chair:

Access Control System
Team Leader:

- ☐ Issue new badges for staff to work at STEP
- ☐ Integration of existing badge system database with new ACS
- ☐ Re-issue badges for construction contractor employee identification system for remaining works after opening
- ☐ Vehicle permits for construction contractor and service vendors
- ☐ Contingency plan
- ☐ Maintenance procedures:

Security Compliance
Team Leader:

- ☐ Law Enforcement/Civil Aviation Entity Liaison
  - Orientation
  - Procedure revisions
  - Communications
- ☐ Perimeter Security, inspection for compliance with security regulations and approve
- ☐ Relocated AOA Access Gate
  - Booth design installation
  - Furniture
  - Equipment
  - Back-up power
  - Transfer
- ☐ TSA Certification of Airport Security Plan per 1542/1544
- ☐ Computer Systems Maintenance
  - ACS
  - Badge system

Transportation Security Agency (TSA)
Team Leader:

- ☐ Pax Screening
- ☐ Screening Check Point Layout, TSA Approval Pending
  - Equipment procurement
    - Baggage X-ray equipment
    - Magnetometers
    - Exit control equipment
  - Installation
  - Testing
  - Staffing
- ☐ Operational Coordination
- ☐ Communications
  - Radio
  - Telephone
  - Alarm
- ☐ TSA Video/CCTV Equipment Requirements
- ☐ Space Requirements
- ☐ Security Screeners Office Build-out

- ☐ TSA Employee Parking
- ☐ TSA Equipment Late Delivery Alternative Planning
- ☐ Police/TSA Interface
- ☐ Airlines/TSA Interface
- ☐ Terminal Operations/TSA Interface
- ☐ TSA Activation
- ☐ Concourse yellow light alert system

Key Control
Contractor provides locksets and cores

Team Leader: supported by

- ☐ AOA Access portals only
- ☐ Door Numbering System
- ☐ General Assignments
- ☐ Key Hierarchy, Great Grand Master Architecture
- ☐ Phasing of core installations

Police Services
Team Leader:

- ☐ Determine human resources requirements
    - ○ Coverage/staffing levels
    - ○ Recruiting
- ☐ Patrol and Public Safety Plan, review and adapt to STEP:
    - ○ Public safety
    - ○ Patrol response plans
    - ○ Crowd control protocol
    - ○ Traffic control
- ☐ Review and adapt existing procedures for responding to bombs:
    - ○ Unattended/suspicious bag procedures
    - ○ Bomb squad protocol
    - ○ Office tower and concourse evacuation protocol
- ☐ Develop search room protocol
- ☐ Police vehicle access, staging and parking
- ☐ General building and systems orientation
    - ○ Public address system
    - ○ FIMS
    - ○ Moving walks
    - ○ Security access control devices and requirements for reissuing badges
    - ○ Any new system or feature
- ☐ Relocation Plan
- ☐ Customs Interface Protocol
    - ○ Possible impact with international arrival baggage handling
- ☐ Identify Communications Systems Interface at C4
    - ○ Test handheld radio and other communications devices coverage
- ☐ FAA Interface
- ☐ TSA Interface
    - ○ National Security Protocol
- ☐ FBI Interface
- ☐ Opening Celebrations Security coordination with Public Affairs
- ☐ CCTV Systems Operations:
    - ○ CCTV drops
    - ○ Coordination with other entities within airport
    - ○ Coordination with external entities
- ☐ Access Control System

Technology
Sub-committee Chair:

Common Use Terminal Equipment (C.U.T.E.)/Baggage Source Message (BSM) Systems
Team Leader:

- ☐ Software interface with BHS server
- ☐ Software interface with BSM server
- ☐ Software interface with Airline Reservations Systems
- ☐ Hardware Communications Links
- ☐ Airline Employee/Operator Training

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- ☐ Airport Technician Training
- ☐ Update airport Operating procedures manuals
- ☐ Boarding Pass, Bag Tag, and document Printers
- ☐ Work Station for common use baggage service office
- ☐ Integrated Simulation Testing/Trials
  - Boarding pass
  - Bag tag
  - Ticket counter position dynamic sign
  - Out bound sort pier dynamic sign
  - BHS sortation
  - FIDS/BIDS
  - Gate assignment
  - Gate lounge and ticket lift podium equipment and sign
- ☐ Manufacturer/Supplier Technical Support, On-Site and Remote
- ☐ Service Contract
- ☐ Spare Parts
- ☐ Contractor O&M Manuals
- ☐ Division of Responsibilities for O&M

Flight Information Display System (FIDS)/Flight Information Management System (FIMS)
Team Leader:

- ☐ Integration
  - Workstation (CUTE, FIMS, plus capabilities to run other software systems)
  - ATC
  - BHS (none)
  - Gate assignment
  - Accounting (future)
- ☐ Public and Operational Displays
- ☐ Visual Paging, Interface between FIMS and Terminal-Wide Voice Paging
- ☐ Simulation
- ☐ Contingency
- ☐ Manufacturer/Supplier Technical Support, On-Site and Remote
  - Sign maintenance support
  - Provider support agreements
- ☐ Airport operating procedures manual
- ☐ Spare Parts
- ☐ Policy and Process
- ☐ Resource Assignment
- ☐ Consumable Management
- ☐ Training
- ☐ Airline Schedule
- ☐ Schedule Management
- ☐ System Team, Operations and Technology Coordination
- ☐ Asset Management
- ☐ Technology Migration/Transition Plan from existing to new systems
- ☐ C4 workstation
- ☐ Airline Coordination

Blank

Other Information Technologies Systems
Team Leader: **Aviation IT Infrastructure Supervisor, to be determined**

Background Note: Largely focused on implementation of a new Operations LAN and interfaces with other systems such as Enterprise LAN, and the CUTE/BSM interface to BHS Server via the Operations LAN. There are four separate IT projects with inter-relationships:
- Systems Construction, planned to be bid for the infrastructure to end devices for systems that will run on the Operations LAN
- CUTE/BSM, planned to be developed through seeking quotations from the current vendor
- FIMS, planned to be an RFP
- Operations LAN, planned to be a procurement led by the IT department

- ☐ Interface with existing system. Maintain functionality and connectivity with all systems
- ☐ Server and Network Switches
- ☐ Desktop Work Stations and printers
- ☐ Establish Network Operations Center

☐ Enterprise Local Area Network (LAN), office tower and other airport spaces IT connections; interface with Operations LAN:
- ○ Verify testing of all current airport systems
- ○ Conduct airport wide data and information systems integrated testing to confirm connectivity and functionality of application software connected to LAN

☐ Airport Move-In Support Requests, immediate response, set up service desk

☐ Airline Charge Administration

☐ Airport operating procedures

☐ Training on new systems

☐ Configuration Control

☐ Asset capture and inventory management of servers, workstations, and printers

☐ Operations LAN Maintenance
- ○ Manufacturer/supplier technical support, on-site and remote
- ○ Contractor O&M manuals
- ○ Spare Parts: obtain list, acquire from contractor, acquire additional as may be required, catalog, store, and inventory
- ○ Service Agreement

☐ Develop Operations LAN Policy and Process

Telephone (*Public, Courtesy, Conventional*)
Team Leader:

Note: Port provides service for airport offices. Tenants obtain their own provider. Airport maintains cross-connects and cable plant to STEP.

☐ **Directory Update.** In progress, airport numbers will not change except those associated with conference rooms

☐ Contingency, use existing plan with Avaya emergency telephone system providing basic analog service

☐ Airport Phones
- Office
- Loading Bridges. For Airport/common use bridges only.
  - o Need to confirm which bridges
  - o Airport to install jumpers, cross-connects but airline provide phones for their bridges
- Gate/Ticket Counters:
  - o Update common use environment policy document (C.U.T.E. and FIMS)
  - o Establish Airport position on location for phones
  - o Establish Airport position on mix of common use and airline phones
- Special Phones—C4
- Pre-wire cross-connects on existing phone switch

☐ Airline Telephone Requirements: Airline responsible for their leased areas, airport does cross connects only

☐ Telephone Company Interface, Coordination with QWest
- Service request
- Installations
- Liaison and coordination with Telco Divisions

☐ Pay Phones: **(QUEST representative)**
- Coordination with QWest for public telephones using airport cable and cross connects
- Public TDD phones

☐ Courtesy Phones, To Be Determined, Technology would install and ALOB would operate

☐ Documentation. Diagrams and Cable Tracking Record,
- Wire circuits coordination for assignment of wire circuits
- Line assignments
- Unit assignments

☐ Airline internal circuit assignments on airport cable

☐ Special Agency (TSA and FBI)

☐ Airport phone in Emergency Command Center

☐ Other agency phones treated as any other tenant, tenant to obtain provider and install tenant demarc. Port to provide backbone cabling and cross-connects.

☐ Tenant telecom infrastructure procedures

APPENDIX E

Survey Results

ACRP SYNTHESIS PROJECT 11-03/TOPIC S08-01

Following is a summary of information collected during interviews of those who led or participated in airport terminal facility activations at 14 airports. Participants were e-mailed the Survey Instrument included in Appendix A to prepare for a telephone interview. In some instances participants completed Survey Instrument and returned it for review during telephone interview. In other instances, Survey Instrument was completed during or following telephone interview.

Since many of the participants were only involved in some portions of the airport terminal facility activation, they did not recall or have access to all of the information solicited in the Survey Instrument but they were all happy to share valuable airport terminal facility activation knowledge, experiences, and practices. Following is an inventory of the information collected. Each Survey Instrument question is followed by the responses received from participants. In some cases the responses have been edited to standardize on US dollars, sq ft, etc. Additionally, it should be noted that in some cases $ figures were converted from foreign currencies and that none of the cost figures been escalated to reflect inflation. Also, where possible calendar dates have been converted to durations to facilitate comparisons.

Finally, due to requests to maintain confidentiality, airport names and other identifying information has been removed from the responses.

Airport Terminal Facility Activation Techniques

Airport Terminal Activation is defined as the process used to transition a new or reconditioned airport terminal from a state of contractual completion to full operations. It includes:

Confirmation/Verification that facility is fit for its intended use within the terms of the contract and in association with the ultimate occupiers or users.

Review of new/reconditioned facilities to confirm that they are fit for purpose. Identification of any issues and determination of whether they should be addressed before or after opening.

Development of Operating Plans for new/reconditioned facilities.

Recruiting, familiarization, and training of staff and stakeholders.

Trials to confirm new facilities, operational plans, staff, etc., function as planned.

Relocating staff, tenants, and equipment.

Please review above definition and provide suggested edits or indicate that you agree with it.

Respondent No. 1 ☒ Agrees ☐ Does not agree	Respondent No. 2 ☒ Agrees ☐ Does not agree	Respondent No. 3 ☒ Agrees ☐ Does not agree
If No, explain	If No, explain	If No, explain
Respondent No. 4 ☒ Agrees ☐ Does not agree	**Respondent No. 5** ☐ Agrees ☒ Does not agree	**Respondent No. 6** ☒ Agrees ☐ Does not agree
If No, explain	If No, explain Need to emphasize that trial must be realistic and stress people, processes and systems. Also, program should include development of "what-if" scenarios and contingencies for everything. It is as, if not more important to train staff in contingencies than normal operations.	Recommendations ➢ Also include the Fire Marshall and Building Inspection/Code Enforcement Certificate of Occupancy; suggest soft opening, Airline Terminal Systems integration, BHS In-Line EDS TSA certification, OSHA Moving Conveyance Certification. ➢ Include completion of Tenant Improvements, such as Concessions, Airline Operations Spaces, Airline Proprietary Systems, which are all required for full operation. ➢ Also; completion of punch lists, turnover of contract close-out documentation (manuals, as-builts, etc).
Respondent No. 7 ☒ Agrees ☐ Does not agree	**Respondent No. 8** ☐ Agrees ☒ Does not agree	**Respondent No. 9** ☒ Agrees ☐ Does not agree
If No, explain	If No, explain Item 1 is usually in the scope of work of the 'Project Manager' following up the airport construction from the beginning (usually the PM reports to the Airport Operator).	I agree with the above definition. Would it be beneficial to call out AOA security sweep specifically?
Respondent No. 10 ☒ Agrees ☐ Does not agree	**Respondent No. 11** ☒ Agrees ☐ Does not agree	**Respondent No. 12** ☒ Agrees ☐ Does not agree
If No, explain	If No, explain	If No, explain
Respondent No. 13 ☒ Agrees ☐ Does not agree	**Respondent No. 14** ☒ Agrees ☐ Does not agree	
If No, explain	If No, explain	

Project Information

Budget

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Planned		$140 Million	$4.2 Billion	$4.1 Billion	$5.8 Billion	$3.4 Billion	$386 million before events of 9/11/01 occurred.
Actual	$6 Billion	$140 Million	$4.1 Billion		$5.8 Billion		$436 million

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Planned	$593 Million	$1.1 Billion	$4 Billion	$1.8 Billion	$431 Million	$348 Million	$155 Million
Actual	$623 Million	$1.1 Billion	N/A	$1.8 Billion	$425 million	$577 Million	$161 Million

Schedule

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Design							
Planned		1 year	2 years		N/A		7 years
Actual	3 years	1 year	2.5 years		N/A		4 years
Construction							
Planned		27 months	5 years		Airport—6 years Terminal—3 years		5 years
Actual	7 years	27 months	5.5 years		Airport—6 years Terminal—3 years		3 years**
Commissioning							
Planned		Throughout Construction	18 months		3 months	Summer 2000	6 months
Actual	1 year		18 months		3 months	Summer 2000	6 months
Activation							
Planned		01/08	2 years	July 2005	5 years	Summer 2000	2010
Actual	2008	1 Month	2.5 years	9 Gates July 2005 19 Gates Oct 2005	5 years	Summer 2000	September 2005

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Design							
Planned		79 Million		End 1999	6/2001		
Actual		91 Million		End 1999	10/2004	102,511,000***	
Construction							
Planned	Completion (handover): 1 July 2009	780 Million		09/2000	4/2001		1 Sept. 2008
Actual	Completion (handover); 9 July 2009	836 Million		09/2000	6/2005	453,538,000	3 Sept. 2008

Commissioning								
Planned	Part of D&B Contract	12 Million			02/2001	Summer 2008		Part of D&B Contract
Actual		12 Million			02/2001	Summer 2008	*	
Activation								
Planned	20 Nov. 2009	Included in Commissioning			03/2001	9/17/08		20 Nov. 2008
Actual	10 Nov. 2009				03/2001	9/17/08	N/A****	13 Nov. 2008

*Design and construction were extended due to new post 9-11 requirements.

**Two key factors allowed our project to move forward rapidly: (1) Executive Director's ability to secure airline commitments early (on the first try); and
(2) Environmental Permits secured and "grandfathered" in under a previous DRI. I will describe these in more detail when we discuss the survey over the phone on Tuesday afternoon.

***Total soft costs associated with project including design and PM/CM.

****A full-time consultant was engaged for 22 months supported by a part-time scheduler. Approximately 3,500 hours of consultant time. The other costs of activation are the hours spent by airport staff to plan and prepare for opening day.

Number of Passengers

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Capacity Pre-Expansion	60 Million		32 Million	60 Million*	29 Million	41,040,995 (actual calendar year 2000)	3 Million
Percent O&D (%)		90%	60%	40%	80%	77.6%	100%
Percent Transfer (%)		10%	40%	60%	20%	22.4%	0
Capacity Post-Expansion	90 Million		45 Million	60 Million	48 Million	34,632,474 (actual calendar year 2001)	12 Million
Percent O&D (%)		90%	60%	40%	70%	76.6%	100%
Percent Transfer (%)		10%	40%	60%	30%	23.4%	0

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Capacity Pre-Expansion	5 million	8 Million	15 Million	N/A		N/A*	1.7 million
Percent O&D (%)	99%	100%	30%		90%		100%
Percent Transfer (%)	1%	0	70%		10%		0
Capacity Post-Expansion	7.5 Million	8 Million	30 Million	16 Million			2.7 Million
Percent O&D (%)	99%	100%	30%	85%	90%		100%
Percent Transfer (%)	1%	0	70%	15%	105		0

*Project was a replacement of existing facilities.

Project Size (sq. ft.)

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Size	27,986,167	**350,000** including: 100,000 Public 130,000 Back of House 120,000 APM Station	3.5 Million	2 Million	5 Million Terminal building on 1200 hectare airport island	2.5 Million	800,000

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Size	1.1 Million	1.2 Million	1,185,000	1,500,000	850,000	900,000	200,000

Size of New Concession Space (sq. ft.)

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Size (sq. ft.)	200,000					169,000	34,000
# of Concessionaires	150	11		67	Unknown	37	4
# of Concessionaires operational at opening		7 Additional 6 will open when APM starts		49	All	37	4 (31,000 sq. ft.)

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Size (sq. ft.)	194,000						86,000
# of Concessionaires	2	54	30	42	29		2
# of Concessionaires operational at opening	2 Master Concessionaires with various offerings	53	50%	36	25	~9	2 Master Concessionaires with various offerings

Number of Check-in Desks/Kiosks/Screening Positions

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Domestic		15 in hold rooms	80	99—All dual-function (Dom/Int)	N/A	168	110
International		N/A	142	—	288—T1 56—T2	168	7
Kiosks	232	N/A—concourse expansion	94	20	None	0—(35 added in 2005)	62
Common Use Kiosks		N/A—concourse expansion	94	20	None	See above.	36
Screening Positions		N/A—concourse expansion	5 locations with total of 43 lanes	3 locations with ~12 positions each	30 Departures 15 Transfer	13	12 (4 per Concourse)

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Domestic	N/A	~60	N/A	144 Domestic and International Common Use	79 Positions	0	
International	53	0	190 (including express check-in)	—	16 Positions	20+ (CUTE)	28
Kiosks	N/A		60 with and without baggage	18	24	0	
Common Use Kiosks	8	0	N/A	18	8	0	
Screening Positions	7			45	10	8+	4

Number of Gates

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Gates	47; 5A has 19, 5B has 14, 5C will have 14	15		28	49	24	28
Common Use Gates		15	100%	9 but all set up for common use	49	24	12

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Gates	22	40	26 (including 5 A380 Gates)	44	26	14	6
Common Use Gates	22		N/A	44	5	CUTE	0

Number of Airlines International Number of Immigration Positions
Transborder Number of Customs Positions

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
Airlines	British Airways	5 at opening - planning for 7	18	9	85	25	19
Immigration Positions		N/A	30	60	Departures—90 inclusive of 16 e-gates Arrivals—120	92	8
Customs Positions		N/A	16	N/A	N/A	20	0

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
Airlines	53	11 Passenger 2 Cargo	1	~93	9	At least 2 Domestic operated at gates, 5 International for check-in counter	22

						positions	
Immigration Positions	20		52+12 eGates	11 Arrs. / 14 Deps.	14	N/A	10
Customs Positions	N/A		N/A	2 with three positions each	4	N/A	

Did project involve transition from Dedicated to Common Use facilities?

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
	☐ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
If "No", explain		Airport was already common use.		Some check-in counters and gates are also provided with proprietary airline equipment	Already had common use but it was expanded		Partial "common use" was in place at the old terminal. The new terminal was intended to transition into more expanded use of CUTE and CUSS environments.

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
	☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☒ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
If "No", explain			Terminal 3 is a dedicated terminal for Emirates so no provision for Common Use Terminals				

What were training implications?

Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
	New Jet Bridges with different controls systems from rest of airport. Lots of burn in uses (particularly with ground power units) identified during trials 3 weeks prior to opening.	Staff and stakeholders were not familiar with facility and processes and procedures required for common use.	➢ Staff + Airlines needed training ➢ Major carrier (American) used train trainer approach ➢ Foreign flag carrier staff were all trained by Authority	Lots of new and different processes, procedures, systems, equipment meant that lots of training was required.	Yes, we provided training and certification of all employees on the use of common use systems prior to opening.	

Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
No implications apart from familiarization to the new concept and proactive consultation with the airlines		No training implications for Check-in facilities as same system used by Emirates previously. General familiarization and orientation training issues. New gate system required extensive training by airline staff.	Personnel unfamiliar with new facilities and equipment.	The only carriers that use common use positions at the new terminal are the two international carriers and the charters. Dedicated signatory carriers insisted on remaining at dedicated positions in the new facility, thus training necessities were very limited.	International airlines using new CUTE system for counter check in. Gate podiums on CUTE. Airlines needed to be trained. New BHS system, international and one domestic airline staff had to be trained on use of system. New biometric access control system implemented for access doors and BHS.	

How were they addressed?

Respondent No 1	Respondent No 2	Respondent No 3
	Activation Team identified issues that were then remedied by contractor/vendor.	Formal training syllabuses and courses were put together to familiarize staff with new building, new procedures, and new ways of working. Tailored courses were developed for: ➢ Air Carriers — ~ 2 day course (1 for terminal familiarization and 1 for use of CUTE) with addition ½ day for staff who would operate jet bridges. ➢ Airport Operations Staff—1 day for familiarization plus additional training ranging from 1 to several days depending upon roles and responsibilities. ➢ First Responders—1 day for familiarization ➢ Government/Support Agencies—1 day for familiarization and use of new screening equipment. More than 100 courses tailored to the needs of each organization were offered 7 days a week often for 2 shifts for ~3 ½ months prior to AOD. 88% to 89% of staff was trained prior to AOD.

Respondent No 4	Respondent No 5	Respondent No 6
Authority managed and tracked progress of training Worked with vendors to develop standard agendas and curriculums Gap analysis performed on regular basis to confirm all staff trained Soft trials (no public) for training	Training started 9 months out and became more intensive 3 months out. Train the trainer approach was used. Everyone working at airport participated in familiarization training with additional training tailored to specific jobs/roles. Training progress for all was managed, monitored, and reported on from central training center.	

Respondent No 7	Respondent No 8	Respondent No 9

Respondent No 10	Respondent No 11	Respondent No 12
Extensive training and familiarization programme for all stakeholder staff managed by the ORAT team. Specific trials were executed in advance of opening focusing on the systems and process training.	Extensive transfer program included a full train-the-trainer program followed by full testing period of all functions including ATC, ground handling, airport operations etc.	Common use equipment vendors provided training to project staff in a "train-the-trainer" position.

Respondent No 13	Respondent No 14
Organized training program with airlines and implemented operational readiness trials.	

Activation Information

Did you have a formal Activation Team/Program?

	Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
If "No", explain							

	Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
If "No", explain							

Was there a Charter or Mission Statement for the Team/Program? If so, what was it?

Respondent No 1	Respondent No 2	Respondent No 3
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
	Ensure the Activation Team works through, not in place of, the existing organizational structure The Activation Team coordinates—existing organizations must continue to carry out their assigned responsibilities Costs for this service will be isolated and separately accounted for Provide direct support to Authority, Airport Users, Airport Service Providers Act to resolve disputes, anticipate problems The Activation Team can include Authority staff, Program Manager staff, outside consultant, airport user group (e.g. airline), or airport service provider (e.g. TSA)	Yes, for Stage 2.

Respondent No 4	Respondent No 5	Respondent No 6
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
"Provide excellent customer service on opening day that is seamless with no surprises."	Intension was to meet or exceed expectations of stakeholders. This remains Charter/Mission for future projects and we have done a much better job of managing expectations and achieving this goal.	Strive to ensure all facilities and systems were tested and ready for operation by the established deadline. All problems were to be elevated for resolution immediately.

Respondent No 7	Respondent No 8	Respondent No 9
☐ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
While there was no "formal" charter or mission statement, there were "Guiding Principles," which the Transition Team formulated in the early months as the Activation process got underway.	Achieve a safe and timely opening as perceived by the passengers, media and the airport community and be prepared to cope with any contingencies.	The mission of the Midfield Transition Team is to ensure that all people, processes, technologies, and tools are aligned and prepared for operating at the new Midfield Terminal.

Respondent No 10	Respondent No 11	Respondent No 12
☒ Yes	☐ Yes	☐ Yes
☐ No	☐ No	☒ No
Yes—"No surprises on opening day."		

Respondent No 13	Respondent No 14
☒ Yes	☒ Yes
☐ No	☐ No
Beyond commissioning, activation is the process of moving from the construction phase to full operation of a facility. The process requires the engagement and participation of the airport operations, business and facilities management and staff (all the members of the organization that are accountable for the execution and continuation of facility management programs to new or expanded works). Activation is ultimately the responsibility of the owner-operator of the facility and is carried out by the existing organization. This includes complete familiarity with all elements of the construction project deliverables and electronic systems that will be added or introduced into a facility. Activation includes: ➢ Implementing comprehensive orientation and technical familiarity training with the project. This effort extends to all users of the facility including airlines, tenants, government agencies and POS ➢ Completing staffing requirements and job training for new positions and enhancing skills of existing staff to operate and maintain new or upgraded equipment and systems ➢ Concluding business arrangements with tenants particularly defining and implementing those contractual responsibilities delegated between the tenant and POS ➢ Revising and conducting simulations on operations/emergency plans ➢ Preparing and conducting trials and simulations, which include actual loading of systems and equipment as would be experienced in full operations.	Achieve a safe and timely opening as perceived by the passengers, media and the airport community and be prepared to cope with any contingencies.

Were there protocols for communications, issue identification/resolution, etc.?
Could you share these with us?

	Respondent No 1	Respondent No 2	Respondent No 3
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Protocols	Governance was led by a Steering Committee and included Stakeholder Engagement Meetings, where issues could be raised and recorded in Risk Registers. Unfortunately, each group of stakeholders had their own Risk Register; this made coordination and prioritization of issues challenging.	Activation Team developed and updated centralized Activation Log that was shared across project teams. This proved to be a good vehicle for sharing Activation concerns across the various teams working on the project.	The construction/design team used the system that they used throughout the project. The Activation Team used a database that allowed issues to be sorted and tracked in several ways. They could be sorted and tracked by: ➢ Importance/criticality to opening day ➢ SPOC/Division that raised issue ➢ Trial that identified issue

	Respondent No 4	Respondent No 5	Respondent No 6
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Protocols	Risk Registers 60 Day Count Down "Biggest value of Facilities Transition Program (FTP) was ability to bring issues and communications together. Construction team was not set up to do things that way"	Stakeholders (Users, Operators, Maintainer, etc) are involved from start and remain involved throughout project. This mitigates possibility of surprises at end of project. Since many Stakeholders are not familiar with design/construction documentation, we now review information with them to make sure they understand. We also prepare animations, simulations, mock ups, etc., to make sure stakeholders know what is being built. To keep stakeholders engaged throughout construction we conduct walk throughs to make sure they understand what they will be receiving.	All departments were to work towards completion of full turnover, training and activation of responsible systems. Problems were to be communicated to the Project Team and resolved. Where this was not possible problems were then elevated to the Activation Steering Committee, which was composed of a panel of Senior Management Staff.

	Respondent No 7	Respondent No 8	Respondent No 9
	☐ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Protocols	Internally, issues raised by the various stakeholders were asked to be submitted to the Transition Manager, where they were put on a Master List. Externally, a similar process followed, where issues were captured during meetings between tenants, airlines, TSA, etc. and then these were transferred to the Master List.	Both internal and external official communication followed protocols to ensure (a) record keeping and access, (b) monitoring and follow-up of implementation, (c) prioritization and clarity	Working Groups were established around functional areas. These Working Groups addressed transition-related issues in their regular meetings. As issues arose, a Working Group member was given responsibility for resolution. A master list of issues by Working Group was kept in order to keep the project and the team members on track.

			Cross functional working groups (Director Level) were established to manage issues that could not be resolved between working group (on working group level) Working Group Chairs responsible for escalating issues

	Respondent No 10	Respondent No 11	Respondent No 12
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Protocols	There was a formal governance structure and issue resolution procedure where any stakeholder could raise issues that were not being addressed. Communications to Stakeholders were also managed through this steering committee with regular updates and bulletins.	Process was handled through the Operational Readiness Experts (OREX) program. Under leadership of the Airport Company all key stakeholders appointed OREXes that were in charge of preparing their internal SOPs and matching them to the airport procedures, including communication protocols. During testing phase the SOPs were tested and during test debriefing sessions communication issues were determined for correction. Follow-on testing determined that issues had been properly corrected.	A regularly scheduled "TAG" meeting was held to resolve/identify issues. Core tag team members were required to attend all meetings.

	Respondent No 13	Respondent No 14
	☒ Yes ☐ No	☒ Yes ☐ No
Protocols	An Activation Committee was established and led by a Deputy Managing Director reporting directly to the Managing Director. Sub-Committee chairs were established filled by senior managers. Team leaders responsible for specific tasks were established reporting to select sub-committee chairs. The Committee met regularly. The Activation Manager met with individual members to support activities and reported progress to the Committee.	Both internal and external official communication followed protocols to ensure (a) record keeping and access, (b) monitoring and follow-up of implementation, (c) prioritization and clarity

Was there a formal issue resolution structure? What was it?

	Respondent No 1	Respondent No 2	Respondent No 3
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Issue Resolution Structure	Issues were identified and resolved by individual work streams. Six months prior to opening, issues that could not be resolved by individual work streams were escalated to Steering Committee for resolution. However, since each group had their own registers, and there was no centralized/ consolidated register; prioritizing issues and issue resolution across departments was challenging.	Activation Committee met every 2 weeks. Activation Team participated in weekly construction meetings throughout the 9 month (March to December) Activation Period. During the Activation Period End Users inspected new facilities and bought any issues to the attention of the Activation Committee, which characterized issues as: ➢ Construction Defects ➢ Design Omissions ➢ Nice to Haves Construction Defects and Design Omissions were dealt with through the construction team. Nice to Haves were prioritized and paid for via Start-up Funds, which were allocated on the basis of 0.25% of construction cost ($5 million out of overall 5 year $2 billion construction program)	The construction/design team used the system that they used throughout the project. The Activation Team used a database that allowed issues to be sorted and tracked in several ways. They could be sorted and tracked by: ➢ Importance/criticality to opening day ➢ SPOC/Division that raised issue ➢ Trial that identified issue

	Respondent No 4	Respondent No 5	Respondent No 6
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Issue Resolution Structure		Hierarchal Structure consisting of: Technical Review Group (chaired by construction group and comprising all stakeholders) where most issues are resolved. If unresolved, escalated to Project Control Group. Then to client (Department sponsoring project). Then to Executive Director and finally to Board.	Yes, see above: Department-Project Team-Steering Committee.

	Respondent No 7	Respondent No 8	Respondent No 9
	☐ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Issue Resolution Structure	The Transition Team was afforded much flexibility to deal with issues as they arose. Generally, an issue was resolved by measuring it against three criteria— monetary impact (to the project); construction changes; or whether the issue was actually a "show stopper". However, the Transition Team was always aware that a more important "committee-of-one" (Executive Director) had the ability to override any decisions we had made previously.	Identify issue, record it, confirm action leader, set target date, monitor resolution and log progress.	Generally speaking, most transition issues were addressed within the hierarchy of each Working Group; however, issues that were cross-functional in nature or that required executive buy-in were escalated to the SWAT (Swift Action Team). This team was comprised of directors and project team executives.

	Respondent No 10	Respondent No 11	Respondent No 12
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Issue Resolution Structure	Online issue resolution system would capture issues and ORAT team would assign party to deal with resolution. Escalation to Steering Committee if resolution was not forthcoming or party could not be assigned.	Through EMORAT program, debriefing sessions to identify issues during testing and OREXes responsible to resolve issues.	An issue list was maintained with a responsible party/person identified. The running list was issued discussed at each tag core group meeting.

	Respondent No 13	Respondent No 14
	☒ Yes ☐ No	☒ Yes ☐ No
Issue Resolution Structure	A matrix was created that linked schedule data from Primavera Schedule that included project construction milestones. Progress was updated weekly on this matrix and reported to the Activation Committee. Any issues or anticipated issues were raised at the Committee level and resolved. (Excerpt Attached)	Identify issue, record it, confirm action leader, set target date, monitor resolution and log progress.

Was there a formal Activation/Terminal Opening Plan? Could you share this with us?

	Respondent No 1	Respondent No 2	Respondent No 3
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Activation/ Terminal Opening Plan	Plan was to integrate the independent Activation, Systems, Construction work streams with each other 6 months prior to opening and then transition to Operations via a familiarization, training, and trials process prior to opening. These work streams should have been transparently integrated with each other throughout the project. While operating in silos facilitated focus on the discrete deliverables of each work stream, it hid the big picture. Original Activation and Trial plans were based on entire facility being available 6 months prior to opening. Six months prior to opening, Construction Team acknowledged and Activation Team accepted that construction was not complete. Activation Team started meeting with Construction Team on a weekly basis to attempt to integrate trials into construction program. Unfortunately, sequencing of construction was not based upon how Activation Team needed to trial facility. This resulted in need to adjust construction sequences so that facilities incorporating new processes could be trialed first. This resulted in further construction delays. Activation program included 72 trials consisting of : ➢ 31 Unit Trials (equipment & facilities fit checks) ➢ 36 Basic Trials [individual process & sub processes (e.g. check-in, boarding, screening, etc)] ➢ 5 Big Trials (entire departures, arrivals, and/or transfer processes) Airport Authority rotated staff thru trials, Airline dedicated staff to trials. Result was that at opening day Airport staff was much more familiar with facilities and new processes than Airline staff.	Structured plan for fitting out concession and airline space in advance with the soft opening of concessions to employees and overnight move of airlines for opening to passengers.	Yes there was a formal and structured overnight transition plan, which included management scripts and called for several metrics to be monitored and tracked to provide early warning of any issues. SPOCs representing each stakeholders played active roles in the Command Center making sure that all involved were aware of current status.

	Respondent No 4	Respondent No 5	Respondent No 6
	☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No
Activation/ Terminal Opening Plan	Team Established 20 months prior to opening. Activation/Terminal Opening Plan was competed 10 months later (10 months prior to opening). The leadership of the Facilities Transition Program visited Toronto Pearson to learn about how they managed to successfully open new facilities. Information gained during these visits provided a good foundation.	~5 years prior to AOD ORAT team started to plan overnight move. Terminal Operations Plan was prepared during design but involvement of eventual operator should have been done earlier. Original design was based upon UK/North American standards. When Terminal Operations Plan was developed, several changes were required to address operational issues.	

	Respondent No 7	Respondent No 8	Respondent No 9
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Activation/ Terminal Opening Plan	It was as formal as the general construction progress would allow. There were five (5) components that guided the target date and plan: (1) Proper staffing (Maintenance had to be increased since we were moving to a bigger facility and would be responsible for more self-maintenance); (2) Training (PA system, FIDS equipment, loading bridges, etc.); (3) Tenant & vendor & employee access and familiarization with the new facility; (4) Public Information (media, PR, community events, etc.); (5) The Move—ours was planned to be an overnight expedition from old terminal to the new one.	Called: Transition / Opening Sequence (TOS) Plan	The plan incorporated many facets of activation, of course. In general, though, the activation of the new airport occurred by having all passenger flights terminate at the new terminal on the evening of November 11th, and then opening on November 12th with all departures and arrivals at the new facility. This eliminated the problem of having to transport aircraft overnight from the old terminal to the new. The plan also included a robust post-opening support plan, which included a fully-staffed Situation Room for the first 2 weeks of operation.

	Respondent No 10	Respondent No 11	Respondent No 12
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Activation/ Terminal Opening Plan	A four stage opening plan starting with 15% of flights covering local/regional flights first. Further stages added flights by geography of origin/destination. Total transition took 4 weeks and went very smoothly.	Program was called Evaluation & Monitoring of Operational Readiness & Airport Transfer (EMORAT). A dedicated project team was established to run EMORAT plan. The plan was prepared to identify key areas and testing plans.	A tag milestone schedule was developed and used as the basis for the opening plan.

Respondent No 13	Respondent No 14
☒ Yes ☐ No	☒ Yes ☐ No

Activation/ Terminal Opening Plan		

How was progress managed and reported on?

Respondent No 1	Respondent No 2	Respondent No 3
Dashboards were used to report on progress. Each work stream was responsible for populating their own dashboard resulting. There were not consistent objective metrics to measure progress. On AOD there was a lot of red on several dashboards.	Items requiring coordination were entered into appropriate section of Activation Log and distributed via e-mail to interested parties. Items were categorized as either Active (open) or Closed (resolved) or passed on to Construction Team Activation Team reported progress and reviewed Activation Log at Construction Meetings Activation Team led informal walk throughs with 4-5 member Integration Team including representatives from Engineering, Maintenance, Business Admin, Airline to identify and determine path to resolution of open items.	Yes, detailed check lists and schedules were used to monitor and track progress of all mission critical functions with critical milestones for "go"—"no go" decisions to be made. Functions tracked ranged from relocation of ground service equipment to uncovering and covering roadway signs.

Respondent No 4	Respondent No 5	Respondent No 6
Consolidated Integrated Activation Schedule was used to track progress of Activation (trials), move.	Construction Team 'loaned' a planner to the operations team to develop a detailed plan/ schedule that included many milestones/key dates. Progress was tracked against this plan and reported on a monthly then weekly and finally daily basis	Weekly meetings were held and Project Manager reviewed each facility, system, procedure, training, etc and tracked the status towards meeting the goal of activating and opening.

Respondent No 7	Respondent No 8	Respondent No 9
Lots of meetings. Some formal (e.g., with the airline properties and technical reps), and many informal meetings. Updates were provided, and milestones achieved were reported on. Feedback was sought on issues, which were pertinent to specific groups.	➢ Individual ORAT Stakeholder Meetings for the follow up of each domain ➢ General ORAT Coordination Meetings for critical issues and interfaces involving key Stakeholders and top management ➢ Steering Technical Meeting with Contractor All issues logged for follow up	

Respondent No 10	Respondent No 11	Respondent No 12
All stakeholders had to complete a bi-weekly readiness report in the form of a 90, 60, 30 day countdown format. The report outlined all items that needed to be complete (as minimum 90 days out from opening). The ORAT team tracked progress against each activity across all stakeholders [in total there were over a 1100 key tasks that had to be complete at the same time in order to commence the Airport Opening Day (AOD) countdown.] There were also Regular Senior Steering Committee meetings where progress reports from all stakeholders on recruitment, training, process definition and other activation activities were reported to management. Construction and project delivery progress was also reported by contractors. Frequent site visits and pre-trial inspections were also carried out by the ORAT team to verify construction and facility readiness.	Progress was managed as a project with identified goals and milestones up to full airport opening.	Progress was managed via the issue list mentioned in Item D; as items were resolved they were note as "complete."

Respondent No 13	Respondent No 14
Routine meetings were conducted with the Activation Committee starting twice monthly to daily. Activation was a regular agenda topic at weekly airport development program meetings that included the Airport Director, Occasional meetings with the Activation Committee Chairman and the Airport Director, and regular weekly project meetings that included the participation of the Activation Manager.	

Were check lists or other reporting mechanisms used? Could you share them with us?

	Respondent No 1	Respondent No 2	Respondent No 3
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Reporting Mechanism	Individual work streams used own metrics to measure progress. Dashboards were used to report but methods of measurement were not consistent. There was no independent 3rd party involved in verifying what was being reported.	Concerns were categorized as Facilities Maintenance, Tenant, Safety, Testing/ Commissioning, etc and logged in XL based spreadsheets that identified them as either 'Active' or 'Closed/ Construction' issues. These logs were circulated via e-mail to interested parties.	Yes, detailed check lists and schedules were used to monitor and track progress of all mission critical functions with critical milestones for "go"—"no go" decisions to be made. Functions tracked ranged from relocation of ground service equipment to uncovering and covering roadway signs.

Respondent No 4	Respondent No 5	Respondent No 6
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

Reporting Mechanism	"Construction schedule was full of BS". Personal relationships enabled Activation Team to go around formal construction hierarchy to find out what was really happening from subcontractors.	Detailed Construction and Operational Readiness plan was developed and progress was tracked using check lists and milestones.	Unable to locate.

Respondent No 7	Respondent No 8	Respondent No 9
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

Reporting Mechanism	Yes—a variety of check lists and spreadsheets and documents were created and used. Will share these with you electronically later.	ORAT Stakeholder Action Lists (SAL) ORAT Weekly Coordination Log Sheet ORAT Live Trial Reports ORAT Integrated Validation Tests (IVT) Reports Technical Steering Log	

Respondent No 10	Respondent No 11	Respondent No 12
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

Reporting Mechanism	➢ Key activity progress reports developed for each stakeholder with specific targets developed to measure progress and readiness for opening. ➢ Facility check lists were also produced broken down by geographic area (i.e., Landside, Terminal, Airside etc).	Regular meetings to monitor progress, identify open issues and prepare list of actions to be taken up.	See Items E and F above.

Respondent No 13	Respondent No 14
☒ Yes ☐ No	☒ Yes ☐ No

Reporting Mechanism		

Who led activation? Explain.

Respondent No 1	Respondent No 2	Respondent No 3
Airport Authority	Airport Operations & Maintenance with support from Airport Manager. When projects are small, Activation is often included in Design & Construction scope.	Activation was led by Operations department with input from airlines, construction/development team, government agencies, and other stakeholders.

Respondent No 4	Respondent No 5	Respondent No 6
Airport Operations & Facilities Management led FTP (Facilities Transition Program). It had to live with a construction program and construction schedule that did not incorporate activation requirements. The FTP should have been part of program from day 1.	Construction led construction of airport & terminal but as construction was completed Operations assumed leadership.	Program Manager and Individual Project Managers with the support of the department staff responsible for the facility or system (Operations, ITT, Security, Facilities, Custodial, etc).

Respondent No 7	Respondent No 8	Respondent No 9
Activation was led by Gary Duncan (Division Director of Aviation), under whom a Transition Team (comprised of Port Authority staff and DMJM project management staff) worked. I was the Transition Team Manager.	ORAT Integrated Team (Core Team + Stakeholders).	Activation was led by consultant engaged by the Capital Projects Group because airport operator was being kicked out.

Respondent No 10	Respondent No 11	Respondent No 12
The airport established an ORAT team, which was made up of key staff from the airport plus their anchor tenant (Emirates), the team was heavily supplemented by external resources (temporary staff gap during the transition period). The overall ORAT process was managed by SVP Operations.	The operator of the airport.	Activation was led by the airline liaison office (ALO) who was contracted to the authority and reported to the North Terminal Team as well as the airlines.

Respondent No 13	Respondent No 14
Deputy Managing Director for airport.	ORAT Integrated Team (Core Team + Stakeholders).

Who was involved airlines, agencies, public, media? What were their priorities? Explain.

Respondent No 1	Respondent No 2	Respondent No 3
Everyone was involved. Public were registered for trials with fixed dates. When construction delays meant required facilities would not be ready as scheduled, trials needed to be re-scripted to avoid potential negative publicity. The result was that many of the trials did not achieve what was planned.	Everyone was involved. Successful opening day.	Airport, Airline, Government Agency, Senior Municipal and Federal Government Officials, the Media and the public were all involved. #1 priority of all parties was a seamless opening day. However one suspects that the media would have appreciated an even more newsworthy event—we are glad they were disappointed!!! Trials and Gala helped control/manage media and public introduction to new terminal so focus

Successful/seamless transition of airline operations to new facility.		was on what went well.

Respondent No 4	Respondent No 5	Respondent No 6
All above-listed parties. Everyone bought into mission/vision to "Provide excellent customer service on opening day that is seamless with no surprises."	Everyone. Public was invited to see terminal prior to opening and a decision was made to host the Miss Hong Kong competition at airport. This resulted in lots of distractions for construction workers and perhaps led to some of the trials not adequately stressing systems, processes, people. Airport, stakeholders, and public all wanted success and anticipated perfection. Media perceived this as arrogance and looked for/focused on failures.	Airport decided to go with a Soft Opening and solicited a volunteer airline. SkyService USA was selected due to their limited flight schedule and mix of domestic and international flights. This allowed all systems to be checked from check-in through handling of the aircraft on departure. On arrival, FIS facilities and processing was fully tested to ensure optimal functionality and operation of system and processes.

Respondent No 7	Respondent No 8	Respondent No 9
The Transition Team Sub-teams or committees were created to deal with specific issues or focus (e.g. Media was handled by both our PR department as well as a local PR consulting firm). Senior staff sat with the airlines properties and facilities reps when they flew into town twice a year to review the project status.	Designated External ORAT Representatives from the airport community (Airlines, Ground Handlers, State Authorities & Tenants). ➢ Training & Familiarization ➢ Review & Assessment of the Operational Procedures & Planning ➢ Integrated / Validation Tests (Operations, Technical, IT&T) ➢ Live Trials & Push-back Trials ➢ Relocation Planning	Everyone listed above. Open days for community & press. Simulation/Trials ➢ Airlines—uneventful opening low cost (wanted to minimize what they paid for). Office space quality/quantity. Check-in counter assignments. ➢ TSA was great to work with.

Respondent No 10	Respondent No 11	Respondent No 12
All stakeholders had minimum two staff dedicated to the ORAT process including Airline, Airport Management Company, Ground Handler, Airport and Airline Communications/Marketing departments, IT Engineering Services, Duty Free, Police/Customs/Immigration. Each stakeholder had different priorities according to their role/function in the new terminal. This was managed through the 90/60/30 day process.	All of the above, and ground handlers.	Airport Authority, Airlines, Construction Manager, TSA, CBP. ➢ Meeting airlines requirements. ➢ Meeting airport authority requirements ➢ Meeting scheduled opening date

Respondent No 13	Respondent No 14
Airlines, Airport Action Manager supported airline move and activation preparations. Also supported by airline consultant. Agency involvement coordinated by assigned Team Leader. Media was managed by Airport staff in public affairs. Airlines and agencies (TSA) smooth opening.	

When was Activation Team established? Size & composition of team and how often did the team meet? Explain.

Respondent No 1	Respondent No 2	Respondent No 3
Core team of 5 people was established 4 years prior to opening. Team grew to 9 people and moved to site 24 months prior to opening. During activation and trials team grew to total of ~40 people. Team was told they would be demobilized at opening. Several members found new jobs and left prior to opening.	9 months before Opening Day	Activation Team was established ~ 2 ½ years before opening of phase 1.
Size/Composition and Team Meetings Migration—4 people Proving & Trials—3 to 15 people Processes—4 to 7 people People (recruiting/training)—5 to 17 people Stakeholder Management—3 people Steering Committee met Monthly Work streams met weekly	**Size/Composition and Team Meetings** 15 people. Core Team met daily and conducted daily walk-throughs. During last 2 weeks of construction and during the week prior to opening, all concerned parties (up to ~100 people) participated in ~30 minute walk-throughs to help the construction team focus and prioritize work.	**Size/Composition and Team Meetings** Phase 1—44 Airport Authority Staff and 15 Airline StaffActivation Team was established ~ 2 ½ years before opening of phase 1. Phase 2—11 to 13 Airport Authority Staff and 6 to 10 Airline Staff Team met weekly with anchor airline and bi-weekly with all other airlines and stakeholders that chose to participate. 2 weeks prior to each AOD, team met daily.

Respondent No 4	Respondent No 5	Respondent No 6
Core Team February 2004 (20 months prior to opening) Team grew with augmentation of staff from other working groups until July 2005 (4 months prior to opening) when it stabilized.	At start of project but should have been earlier. Design needs to be better informed by operational needs from the start.	
Size/Composition and Team Meetings Core Team consisted of 5 airport staff and 5 consultants The team met weekly.	**Size/Composition and Team Meetings** Team scales based upon size of project. The team for opening of CLK was large. Teams for expansion and renovation projects are smaller. Initially monthly. Then bi-weekly. Then weekly. Then daily.	**Size/Composition and Team Meetings** Program Manager; Project Managers, Operations, Aviation Security, Signage Manager, Facilities, Fire Marshall, BICE Staff, Custodial, Terminal Systems, Property Management (Concessions and Airline/Tenant) Initially weekly but more often as we moved closer to the deadline and often more than weekly to address specific problem areas.

Respondent No 7	Respondent No 8	Respondent No 9
January 2004	9 months before opening	Transition effort began 4 years prior to opening for assessment and planning purposes. Actual Activation Team was established approximately 10 months prior to opening.
Size/Composition and Team Meetings Transition Team initially composed of 1 individual (me). Then it became two people (DMJM project manager and myself). Then it grew to encompass other team players from both staff as well as the consulting and project management groups. Formally, once a week. Informally more frequently (to address a specific issue or planning concern, etc.).	**Size/Composition and Team Meetings** ORAT Core Team: 8 members: ORAT Manager (1), ITT Controller (1), Operations Controllers (2), Technical Systems & Maintenance (2), Project specialist (1), Personal Assistance (1) ORAT Stakeholders: 9 Managers The team met depending on the phase of the program	**Size/Composition and Team Meetings** Transition Team consisted of 6-8 consultants from Chrysalis from 4 years out. 10 months 6-8 consultants from Sebesta Blomberg & 3 consultants from Chrysalis, 20 or so Airport Authority, airline, TSA, and FAA staff formed Activation Team. Working Groups met ev ery2 weeks until close to opening, then often weekly. Daily last week and a half SWAT met twice weekly .

Respondent No 10	Respondent No 11	Respondent No 12
2 years before opening	Three years before airport opening.	The TAG Team was formed approximately 9 months prior to terminal activation.
Size/Composition and Team Meetings 15 Consultants 20 Stakeholder representatives The ORAT team monthly to start with and then 9 months out bi-weekly dropping down to weekly meetings 6 months out from opening.	**Size/Composition and Team Meetings** Project manager with a team of dedicated experts responsible for identified parts of the project. Also specific functions of the airport were participating in their own preparations for airport opening. Weekly and during testing twice per week.	**Size/Composition and Team Meetings** 16 members, airport ops, maintenance, bus development, public safety, planning, airlines, CM, CBP, TSA, airline consortium, all were represented. For the first 6 months, meetings were monthly, next 2 months, 2 times/month. Final month prior to opening, the meetings were weekly.

Respondent No 13	Respondent No 14
December 2002. Opening was June 2004	6 months before opening
Size/Composition and Team Meetings Approximately 45 sub-committee chairs, team leaders and support people Weekly and daily as opening day drew near.	**Size/Composition and Team Meetings** ORAT Core Team 5 members The team met depending on the phase of the program

When was activation plan established? Was opening at fixed date or soft?
If soft, how much time elapsed between first flight/passenger activity and fully
operational terminal and what activities occurred between soft and final opening?
Explain.

Respondent No 1	Respondent No 2	Respondent No 3
Activation Plan 24 Months prior to planned opening **Fixed/Soft Date** 24 Months prior to opening fixed date– all at once 18 Months prior to opening 2 stages separated by 3 days First opening day decision made to complete opening in 6–8 Steps with schedule to be determined based upon success. Original Plan was hard opening Revised Plan—3 days Actual ~2 months **Activities** Bad Press. Upset Public. Upset Airlines. Repairing defects, completing construction Familiarization, training	**Activation Plan** 9 months before opening **Fixed/Soft Date** Initial plan was for a fixed date but airlines did not want to open during holiday season so decision was made to go with a soft opening. One month elapsed between when facility was complete and airlines wanted to use it. The delay was due to airline hesitance to move to new facility during holiday season. **Activities** Airport, Airline, and other staff used concessions. This was a good vehicle for staff familiarization.	**Activation Plan** It is critical to get Ops input early in the design process and maintain this input throughout delivery of project. Activation plan informed design and delivery of project. **Fixed/Soft Date** Fixed **Activities** None.

Respondent No 4	Respondent No 5	Respondent No 6
Activation Plan Started development during Feb 2004 (20 months prior to opening) Completed July 2004 (12 months prior to planned opening) **Fixed/Soft Date** Fixed date was July 2005. During June American decided to move transition to new facility to October due to concerns about BHS. Completion of BHS was late; this did not allow sufficient time for American to test and prove system. 3 months (July to August) **Activities** BHS Commissioning and Testing	**Activation Plan** Terminal Activation Plan was established 1 year before AOD **Fixed/Soft Date** Date was fixed 12 months before AOD. It should have been kept soft for as long as possible. Ideally, it should not have been fixed more than 2 months prior to AOD, but this was not practical for the opening of the new airport where so many other interfaces existed (overnight move of business partners, opening of new rail link, etc). It happened over night. Old airport was closed to flight activity. **Activities** There was not a soft opening for passengers but old airport was used for ground processing of some cargo for first ~2 months (no flights were possible from the old airport once the new airport opened). Cargo was trucked from new airport to old airport for processing.	**Activation Plan** Discussions began at least 6 months out and became more formalized the further in we got and the more systems and components were completed. **Fixed/Soft Date** A Soft Opening was established with a general Opening Date Announced until it was clear that all aspects of the Activation were successful, and then an official opening date was announced with a formal ribbon cutting. **Activities** Additional and continuous testing of systems; training on the operation and maintenance of the facilities for airport staff and airline staff who would be operating the system.

Respondent No 7	Respondent No 8	Respondent No 9
Activation Plan October 2004 **Fixed/Soft Date** Both. Mostly it was a fixed date; which consistently became a moving target because of issues associated with the Baggage Handling System certification towards the tail end of the project. Strategically we wanted a fixed date so that the contractors would always know there was a deadline under which they were mandated to finish up their work. **Activities**	**Activation Plan** First draft within 2 months after establishment of the ORAT Team **Fixed/Soft Date** Fixed Dates **Activities** 7 days	**Activation Plan** Actual plan for the weeks immediately preceding and following activation was developed approximately 3 months prior. **Fixed/Soft Date** The opening was a fixed date of November 11, 2008. Fixed in September (2 months prior). **Activities** N/A

Respondent No 10	Respondent No 11	Respondent No 12
Activation Plan Outline plan established approx 12 months out. Date not fixed until 90 days out from opening. **Fixed/Soft Date** Date was fixed 3 months from opening, 4 x phase soft opening over 4 weeks. 4 weeks between first and last phases. **Activities** All staff was rotated through the new facility in the first week so ensure familiar with facility for later transition phases. Ongoing load tests and system checks were also conducted in advance of ramping up to the next phase	**Activation Plan** Two years before opening. **Fixed/Soft Date** Fixed date of 28/3/01. **Activities**	**Activation Plan** Approximately 6 months prior to activation. **Fixed/Soft Date** Fixed **Activities**

Respondent No 13	Respondent No 14
Activation Plan	**Activation Plan**
November 2002	First draft within 2 months after
Fixed/Soft Date	establishment of the ORAT Team
Soft. Terminal international counter first	**Fixed/Soft Date**
followed by gates.	Fixed Dates
Gates all opened at once. Entire	**Activities**
concourse opened with screening and	4 days
concessions at one time.	
Activities	
Operational readiness trials and moves for	
airlines and airport staff.	

Was opening phased? How much time elapsed between first and final phase? Explain.

Respondent No 1	Respondent No 2	Respondent No 3
☒ Yes	☐ Yes	☒ Yes
☐ No	☒ No	☐ No
Original plan 3 days Actual ~2 months		Phase 1 was ~2 million sq. ft. and Phase 2 was ~1.5 million sq. ft. 2 years (plan was always to construct and open the terminal in 2 phases)

Respondent No 4	Respondent No 5	Respondent No 6
☒ Yes	☐ Yes	☐ Yes
☐ No	☒ No	☒ No
If so, what was size of each phase: 9 foreign flag carriers were willing to move in before the complete BHS was fully tested and commissioned? So, they moved in accord with schedule. 3 months.	Terminal opened at once. Teething issues were worked out in a couple days. Cargo took about 2 months to fully transition to new facility.	Once activation resulted in a successful testing of all facilities and systems, the official opening date was established and the airlines began to move into the new facility with all being in the new facility by December 20, 2000.

Respondent No 7	Respondent No 8	Respondent No 9
☐ Yes	☒ Yes	☐ Yes
☒ No	☐ No	☒ No
Our plan was to have an overnight move. Operate at the old terminal until the last flight—then engage in a massive overnight move—then start activity at the new terminal the next morning.	34% in Phase 1 (only 2 airlines) & 100% (all) in Phase 2 Time Lapse Between Phases: 7 days	

Respondent No 10	Respondent No 11	Respondent No 12
☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No
Phase 1—15% flights transferred (40 flights), Phase 2 37% flights (99 flights), Phase 3—60% flights (168 flights, Phase 4 100% (268 flights) Time Lapse Between Phases: 4 weeks		Phase I—24 gates, entire terminal. Phase II—2 gates. Time Lapse Between Phases: 12 months

Respondent No 13	Respondent No 14
☒ Yes ☐ No	☐ Yes ☐ No
Two phases as stated above—international ticket counters then opening of entire 14 gate concourse. Time Lapse Between Phases: About 2 months.	Arrivals in Phase 1 and full (Arrivals and Departures) in Phase 2 Time Lapse Between Phases: 4 days

When was terminal operation plan developed? Explain.

Respondent No 1	Respondent No 2	Respondent No 3	Respondent No 4	Respondent No 5	Respondent No 6	Respondent No 7
12 months prior to opening.	Project consisted of expanding an existing International & Domestic concourse; the operating plan was same as before, only simpler because the expanded area was all for domestic flights. It was ready at start of design.	Plan was established 2 years prior to opening of Phase 1. It was updated ~2 months prior to opening to incorporate lessons learned during trials and republished ~90 days after AOD to incorporate lessons learned during initial operations.	During first quarter of 2005—4 months prior to planned opening. Minor revisions were required to incorporate lessons learned during trials and initial (soft) opening.	During construction. It would have been better if it was developed during design. Design had to be modified to address operational issues during late construction phase that was costly and led to construction delays, which in turn put pressure on the final stages of the operation readiness plan.		

Respondent No 8	Respondent No 9	Respondent No 10	Respondent No 11	Respondent No 12	Respondent No 13	Respondent No 14
First draft within 6 months after project establishment Finalized before Live Trials	Terminal operation plan (which included Security, Airline/Tenant operations, etc.) was developed in	12 months before opening—it was crucial to inform the Trials Program.	Two years before airport opening.		Adapted existing operations plans to the STEP.	First draft within 6 months after project establishment Finalized before Live Trials

Validated during the Trials	the 6 months preceding activation. Some documentation was completed post-activation.				Validated during the Trials

Were there any changes to design during construction? If so, when were they identified and what was value of changes made during design, during construction during activation post opening?

Respondent No 1	Respondent No 2	Respondent No 3
☒ Yes	☐ Yes	☐ Yes
☐ No	☒ No	☒ No
8 months prior to opening it was noted that there were an insufficient number of security screening positions. So a restaurant/bar was removed to accommodate additional screening positions. Following opening it was determined that there were an insufficient number of transfer positions. Spaces were reconfigured to accommodate additional positions.	No significant changes were made.	There were no significant changes made during construction.

Respondent No 4	Respondent No 5	Respondent No 6
☒ Yes	☒ Yes	☒ Yes
☐ No	☐ No	☐ No
Following 9/11, structural changes were made to mitigate impact of a bomb blast.	Significant layout changes were made during construction. Customs/Immigration hall was modified after construction to double amount of queuing space.	Baggage Handling System—Unknown amount Signage (wayfinding)—estimated $1 million additional

Respondent No 7	Respondent No 8	Respondent No 9
☒ Yes	☒ Yes	☒ Yes
☐ No	☐ No	☐ No
Yes. During our project a D.E.R.T. process was created and utilized to deal with changes and change orders. This was unique to our facility. To save space, I will describe it when we talk on Tuesday.	Mainly during construction.	Parking Garage—helix too narrow; had to be enlarged to avoid collisions. Number and placement of electrical outlets inadequate; more had to be added

Respondent No 10	Respondent No 11	Respondent No 12
☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No
Trials identified some changes required because of operational requirements, construction work ongoing until opening and beyond to support changes and rectifications.		Major changes value was approximately $10 Million. These were made in early stages of construction.

Respondent No 13	Respondent No 14
☒ Yes ☐ No	☐ Yes ☐ No
Substantial changes due to formation of TSA and requirement for in-line bag screening.	

Was activation program successful? What metrics were used to measure success? What were the benefits/challenges?

	Respondent No 1	Respondent No 2	Respondent No 3
	☐ Yes ☒ No	☒ Yes ☐ No	☒ Yes ☐ No
Metrics Used to Measure Success	Opening on time as planned with no surprises, good press, happy public, happy airlines. We have identified areas for improvement for future facilities activations.	No bad press. Airline operations normal and on time from day one Satisfied passengers. Concession sales at predicted levels	On time performance, which ranged between 95% and 98% during first week of operations Media and public reaction, which were both very positive Need for changes post-AOD—No significant changes were required Facilities operate as envisioned—updates to terminal operation plan were minimal IATA ASQ survey of customer service/satisfaction indicated significant improvements; Steve to provide details Air carriers acknowledge greater efficiency but this has not been quantified Reduced energy costs More airlines want to come to airport
Benefits/ Challenges	Trials pushed construction & commissioning but failed to achieve complete readiness. This was largely due to the independence of the various work streams.	Remedying defects particularly the issues with Jet Bridges and Ground Power Units. Minor changes were also required to:	Keeping air carriers in line and actively participating in activation—Day of Ops always takes precedence. Bankruptcy of anchor carrier Costs and lack of flexibility in program

	Lack of coordination and transparency between work streams Lack of commitment from operations—they all have day jobs and did not have time to support Activation program. Many elevators and escalators were not functioning at opening and airline staff (and others) did not know other ways to get to work. Nobody wanted to admit they were late and there was no objective/consistent metric for measuring readiness of each stakeholder.	➢ Apron Lighting ➢ Light Level Sensor Locations Challenges included coordination multiple contracting entities to complete on time. Each concession and airline had their own contractors fitting out their respective spaces.	
What Went Well	Airport Authority staff were all familiar with the facility. Unfortunately, Airline and Ground Handlers did not force all staff to participate in familiarization and training programs resulting in an insufficient number of staff being familiar with and trained on new facilities and systems. Health & Safety were successful. Relocation of GSE and migration to new terminal went as planned.	Airport Maintenance personnel were trained and familiar with the facility. Activation period allowed completion of access control and closed circuit television (security) system All key concessions and airline tenants were in normal operations on opening day.	Overall Program—other airports are now embracing similar approaches Training Trials Transition AOD Common Use Kiosks & Web Check-in Processes and Flows—Original plan still work

	Respondent No 4	Respondent No 5	Respondent No 6
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Metrics Used to Measure Success	The Press, Focus Groups and Surveys were used to measure the success of the opening. There were no negative press accounts—everything was positive.	Initial opening of CLK had lots of issues so Activation could have been more successful. We still follow similar model and have successfully opened several additions and expansions (Terminal 2). We now keep all stakeholders involved in process and keep AOD soft as long as possible. Operations department has a comprehensive set of KPIs to measure performance of airport. These along with IATA surveys are analyzed before and after each activation. We dovetail with these during construction and agree with project owners and users on a set project specific KPI's, which measure impact of construction on existing facilities, business partners and public (or hopefully lack of impact). Our aim is for our construction works to remain invisible.	Established a path and goal with a set common deadline for everyone to work towards. Resulted in systems being fully tested, problems resolved and necessary training taking place. Ultimately resulted in the confidence in setting a soft opening and grand opening with ribbon cutting ceremony.
Benefits/ Challenges	Getting Construction Team to listen to Activation needs and provide accurate information about progress of construction Getting activation requirements incorporated into overall project schedule. Construction was not on board—focus was completing construction not successfully opening facilities. Lack of alignment between Construction and Activation.	Getting Operations and Construction to work to the same plan. Managing media expectations. It is important that media and all stakeholders understand the complexity and challenge of activating new facilities. It is a mistake to let them think it is easy. Keeping stakeholders engaged throughout the process. This is critical to mitigating surprises at AOD. Familiarization and training were compromised since construction and commissioning of systems were late. Developing contingency plans for everything and training staff in them.	Keeping track of all the moving parts and the magnitude of the project. Managing change orders and having a formal process for approving them was helpful as this appeared to get out of control towards the end.
What Went Well	Opening Day!!! Integrated Schedule prepared by Activation Team. Training—Activation Team consolidated contractor training programs and incorporated them into an overall program Soft Trails—Airport and Stakeholder (i.e. Airline) staff (no community volunteers were used—this facilitated staff orientation Peer Reviews—Activation Team visited Toronto, San Francisco, & Detroit to review programs and incorporate lessons	We learned a lot and now plan for contingencies. As much emphasis is placed on what to do when systems don't work as on how to operate when everything is normal.	Good project management and over-sight, regular meetings, sound program management, focused Activation Team and a decisive and empowered steering committee.

	learned Move Control Command Center provided centralized coordination,		

	Respondent No 7	Respondent No 8	Respondent No 9
	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Metrics Used to Measure Success	Although no formal "metrics" were used—other than to ensure that our Guiding Principles were being met—we considered our Transition Program a success based on the number of "attaboys" received from the community, media, FAA & TSA. The feedback was very positive, so the return-on-investment (ROI) was high.	Overall perception (public, media) Number & impact of occurrences Qualitatively & quantitatively assessed staff-induced errors Systems performance (KPIs where applicable)	The activation was extremely successful. Situation Room monitored issues as they arose (which were few). Media coverage was used as an external feedback mechanism, and it was overwhelmingly positive. Opening day was just another day.
Benefits/ Challenges	The challenges were seen and felt mostly post-opening when it became evident that we had issues with the BHS and Fire Alarm systems. Also because training was not properly covered by scope and spec earlier, there were issues with personnel and employees not understanding how certain pieces of equipment or software worked. We discovered that our signage was causing the general travelling public some headaches. Our Computerized Maintenance Management System (CMMS) was not functional, which created its own set of problems for our Facilities group. I will describe these more fully when we chat next week.	Fit-out schedule for concessionaires Political aspects relating to 'grandfather' rights of entities or unions System-wise: Baggage Handling System Specific system interfaces	The new security system caused a lot of behind-the-scenes grief for airline and airport employees. Alarms were going off continuously (no exaggeration), and security personnel had to be outsourced to guard doors where security system was not operational. This ended up being very costly. In hindsight, a cutover plan, which allowed more time for employees to become familiar with the new system would have made things easier. Another challenge was ensuring that all of the necessary training occurred prior to terminal opening. Training is best done immediately before the knowledge is put to use, but some employees (such as maintenance personnel) were required to attend as much as 120 hours of training. Wayfinding was a bit difficult for the back-of-house staff. It was difficult for airline/airport personnel to determine secure areas from non-secure areas. Immediately upon activation, we went through the terminal and hung several sheets of green poster board to identify areas of transition between non-secure and secure areas.
What Went Well	The Transition Team worked well together. There was lots of communication both upline and downline, as well as formal and informal. A large amount of faith and trust was	Cooperation with the airport community Operational & Contingency Planning Tests & Trials	The opening itself went amazingly smoothly. The staff in the Situation Room was quite frankly bored. A member of the media complained that he had been "hanging around the terminal for 8 hours waiting for something to go wrong, with nothing to show for it."

			The physical move from the old terminal to the new also went extremely well. The move was meticulously planned and executed. Most move activity occurred in the two weeks prior to opening, and some occurred after opening. Only mission-critical items were moved during the overnight period, and the move was completed in plenty of time for opening the next morning.
	shown by the Executive Director and senior staff towards the Transition Team. In many respects we were building the plan as we went along; I guess our thinking was strategically on track and correct for the most part.		

	Respondent No 10	Respondent No 11	Respondent No 12
	☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☐ No
Metrics Used to Measure Success	No formal metrics for success. 1st phase all flights left within 15 minutes of departure times, no adverse publicity for any phase of the transition	Metrics were the on-time transfer of operations from the old airport and the opening of the new airport in one day. Benefits were a clear goal setting that was recognized by all participants. Project was supported by specific milestones that had to be met: completion of construction, dates for testing specific functions and entire operation, transfer and opening of the airport.	Terminal opened as scheduled. No flights were delayed as a result of facility.
Benefits/ Challenges	Delays in the construction programme meant trials overlapped with construction significantly. True state of construction progress not always known.	The establishment of a new airport operator, the alignment of all stakeholders' procedures and determining that procedures had been properly tested.	Schedule and budget.
What Went Well	A comprehensive training and familiarization programme with all staff having visited the facility a number of times prior to opening. The 90/60/30 method of reporting on readiness was also extremely successful in getting all the stakeholders aiming towards same goal in a controlled manner. Having previous experience in the ORAT team meant that we could know what mattered and what didn't.	The equipment transfer from the old airport to the new airport.	Baggage handling system was contracted as design-build and was a major success.

	Respondent No 13	Respondent No 14
	☒ Yes ☐ No	☒ Yes ☐ No
Metrics Used to Measure Success	Pax complaints (none recalled) airline complaints, maintenance calls from tenants, performance of BHS screening.	Overall perception (public, media) Number & impact of occurrences Qualitatively & quantitatively assessed staff-induced errors Systems performance (KPIs where applicable)
Benefits/ Challenges	Operation of the in-line BHS and cut-overs to new conveyor devices installed in the existing line. Also, implementing alternative plans for MuFIDS errors in displays	Late establishment of ORAT program Short duration between handover and opening Fit-out schedule for concessionaires Political aspects relating to 'grandfather' rights of entities or unions System-wise: Baggage Handling System Specific system interfaces
What Went Well	Coordination and cooperation amongst the airport staff and between the airline staff and airport staff. Cooperation with Construction Manager and General Contractor Public open house that loaded the building prior to operation—excellent public turn-out. International Airline staff familiarity with new BHS and access control system. Move of the airport staff to new office. TSA staff familiarization and operational readiness trails on the BHS.	Cooperation with the airport community Operational & Contingency Planning Tests & Trials

What would you do again? What would you do differently? Explain.

	Respondent No 1	Respondent No 2	Respondent No 3
What would you do Again?	More joint working groups to encourage more transparency between groups.	Same activation format	Same program with adjustments to reflect scope of project.
What would you do differently?	Integrate Activation plan with Construction & Commissioning plans. Formalize interface management and expand to include systems, processes, people, construction, operations, and other stakeholders. Enforce joint/consistent metrics for reporting progress and have it audited by	More involvement during design phase to prevent "changes" during construction. Better engage airlines More time spent with maintenance personnel and airline tenants. Testing jet bridges, apron lighting, other	SPOCs (single points of contact) for each department should have hard line reporting to Activation Team and dotted line to department. For this project it was other way around and at times this led to conflicts in demand for SPOC focus/time.

an independent 3rd party. Better engage operations (particularly airline) Make sure that Authority Staff, Airline Staff, and other significant stakeholders complete familiarization and training prior to opening. Develop and communicate contingency plans to address what happens should systems, equipment, people, processes fail.	airline operational components.	

	Respondent No 4	Respondent No 5	Respondent No 6
What would you do Again?	We would do the same program but would start sooner and make sure it was incorporated upfront as part of the overall program. We would engage the same group of consultants and make sure it was led by Kim Arnold from Jacobs.	Follow similar plan but keep AOD soft.	Development of the Activation Team, a formal process, established goals and measures to control change orders and costs.
What would you do differently?	Start sooner Enforce transparency regarding progress of construction. Make sure activation requirements are incorporated from the start.	Foster closer cooperation and better more transparent communications between all stakeholders. Start detailed planning earlier Keep all stakeholders engaged throughout Increase rigor of testing, commissioning, and trials Have contingencies for everything.	

	Respondent No 7	Respondent No 8	Respondent No 9
What would you do Again?		Would follow same methodologies and implementation strategies.	The use of Airport Ambassadors (volunteers with red sweaters placed strategically throughout the new terminal to assist passengers) was particularly well received. The plan to terminate the last flights of the day at the new terminal worked splendidly.
What would you do differently?	Add more structure. Define metrics and measurements to be achieved. Ensure that training and elements of the design of the facility be revised to better meet our needs.	Seek ways to optimize Coordination and Communication.	Communication could have been improved considerably. Generally speaking, project team executives were very guarded with information, and this resulted in an information vacuum, which quickly got filled with misinformation and a lot of paranoia. The key stakeholders were not engaged early enough in the process to make key decisions affecting the operation of the terminal, and this resulted in either a lack of goodwill or last-minute design changes and/or added expense.

	Respondent No 10	Respondent No 11	Respondent No 12
What would you do Again?	Soft opening 90,60, 30 Process SPOC Process: The establishing of an operational readiness Single Point of Contact (SPOC) and deputy SPOC for each organisation was very successful and ensured the participation of all key stakeholders and facilitated easier flow of information. Treat ORAT as a specialist activity that warrants expert help	Establish a dedicated team responsible to monitor preparations and to perform testing.	Yes, I would hope to.
What would you do differently?	Review effectiveness of large trials (3,000 + people) against targeted smaller trials (load tests) without members of the public. Recognise the detailed planning and logistics involved in big trials and resource accordingly. Better access and integration with the construction commissioning team. Complete commissioning before opening!!	Perform more detailed assessment of the level of training and familiarization of stakeholders through more extensive testing.	Try to mitigate Owner/Airline directed changes.

	Respondent No 13	Respondent No 14
What would you do Again?	Same organization strategy with the same commitment from senior executive management. Operational readiness trials. Creation of Plan A, Plan B and sometimes even Plan C Regular communication with all parties Employee same tracking tools Make the airlines and tenants part of the activation program—track their progress on tasks.	Would follow same methodologies and implementation strategies.
What would you do differently?	Conduct earlier readiness trials on modification on existing BHS systems with seasoned airlines. Considerable attention was paid to the international carriers because they were operating new systems and not enough attention paid to the domestic carrier that was to only experience a relatively minor change in the BHS. Ghost flights for MuFIDS to test consistency between monitor and back-wall displays.	Seek ways to optimize Coordination and Communication.

With the benefit of hindsight are there any changes you would make or suggest making regarding? Explain.

Respondent No 1	Respondent No 2	Respondent No 3
Define activation requirement early and incorporate into construction schedule. If this is done it should be possible to conduct many early trials while portions of the facility are still in construction.	Activation format was good.	Would not recommend any material changes.

Respondent No 4	Respondent No 5	Respondent No 6
Start sooner Enforce transparency regarding progress of construction. Make sure activation requirements are incorporated from the start.	If possible, always phase opening. This was not possible for opening of CLK but has been possible for T2 and other expansions	

Respondent No 7	Respondent No 8	Respondent No 9
	Fine tuning on certain processes and use of more e-tools for higher visibility by all parties involved to ensure same level of information and common understanding.	

Respondent No 10	Respondent No 11	Respondent No 12
Minimize changes to airport operational IT systems whilst airport transition programme ongoing. Freeze construction at least 90 days out from AOD. Work closer with engineering and delivery team so true extent of facility readiness can be gauged in advance of trials etc., to avoid duplication of efforts or time wasting.	More detailed testing would identify weaknesses in level of familiarization of stakeholders with new airport environment.	

Respondent No 13	Respondent No 14
Plan and execute operational readiness trials even on the apparent simplest process.	Fine tuning on certain processes and use of more e-tools for higher visibility by all parties involved to ensure same level of information and common understanding

Are there any other lessons learned or caveats you can share with us? Explain.

Respondent No 1	Respondent No 2	Respondent No 3
Familiarization and training of all staff and stakeholders is critical. Transparent, consistent, objective reporting and metrics to measure progress would provide management with information needed to make better decisions.	Active involvement of design and construction team with Activation Team produces best results (partnering across staff/organizational boundaries) Activation Team involvement during design can improve the final product as well as smooth the transition to opening day.	Can't start too early Detailed terminal operation plan is critical for development of trials and for proving terminal functions as planned Training is critical In addition to proving terminal systems, processes, procedures, staff, etc., function as planned; they provide great opportunity to introduce media and public to new facility in a controlled manner. Detailed highly scheduled transition plans are critical to measuring success and eliminating surprises on AOD.

Respondent No 4	Respondent No 5	Respondent No 6
Complete concession construction sooner. Have full time liaisons between various constituents and stakeholders.	Have contingencies for everything and make sure everyone is as trained in contingencies as normal operations. Keep AOD soft as long as possible—don't commit until everything and everyone is ready. Familiarization and training take time. People do not take training and familiarization seriously until they are in new facility.	Make sure everything gets tested before the contractor packs up and leaves as it is very difficult to get them mobilized and back onsite once they leave. Ensure a good hand-off to system maintainers and make sure training of maintenance staff takes place and they receive manuals for all system. A good understanding of warranty items and who is responsible for what is critical in such a large project.

Respondent No 7	Respondent No 8	Respondent No 9
Training Back Door Ops to restaurants Oversize belt for the BHS Standards (signage, graphics, etc.) Diving into details Creative use of IT (WiFi network)	Lessons learned are on secondary issues or subjects not directly controlled by ORAT.	

Respondent No 10	Respondent No 11	Respondent No 12
All large construction projects or new builds need to have a defined end to end project delivery process that is bought into and most importantly understood by all stakeholders involved in the project. The process for moving out of one phase of the project needs to be understood and adhered to by all (what are the project gateways, what form of controls are administered to ensure the timing is right	No formal debriefing took place to collect all data relevant to actual transfer and opening. Also importance of home-based carrier in successful transfer.	

to move to the next stage and ensure all pre-requisites have been met?).

The communications need to be clear— (who is in charge, who makes the decisions, who is responsible for what).

There should to be a corporate-wide Information Sharing tool—a project extranet for example where everyone can get access to the most up to date information, drawings and status reports. It should be obligatory for all parties involved in the new facility to use a collaboration tool.

End users need to be involved in all phases of the project not just the start and the end—the evolution of the project needs to be an iterative process.

Recognise that not everything can be completed for opening day and put in place a decision process to manage the risk and to accept the asset in a particular condition with a follow up team to complete what remains to be done.

Respondent No 13	Respondent No 14
Scores but none significant.	

Abbreviations used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation