



# Is your “It” together?

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Delivering Excellence. Exceeding Expectations.®

# Today's Taxi Pattern



Profile | World's Busiest Airport and AATC

What / Why / Value of ISO 55001

How AATC Manages Asset Risk

Is there a ROI?

Incorporating ISO and a Five Year Plan



# Profile World's Busiest Airport

## Hartsfield-Jackson Atlanta International Airport Economic Impact:

✈️ **448,696 Jobs** | Largest Employment Center in Georgia

✈️ **\$4.2 Billion** | Total annual payroll

✈️ **\$6.6 Billion** | Payroll's direct and indirect economic impact

✈️ **\$64 Billion** | Total airport revenue



# Profile World's Busiest and Efficient Airport

## Operational Excellence:



**105 Million+** passengers

21 consecutive years  
Busiest Airport



**2500+ flights per day**

16 consecutive years -  
Most Efficient Airport



**150+ US cities**

70+ international cities  
Non-stop service



**80% US population**

in 12 major cities  
2-hour flight





# Profile | Atlanta Airlines Terminal Company

## Delivering Excellence | Exceeding Expectations



1979 Formation



94 Full-time Employees



7.2 Million Square Feet



47 Contracts

1200 Contract Employees



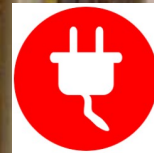
\$170M | Annual Operating Budget and support a \$6B-plus  
Capital Improvement plan

# ISO Focus | Central Utility Plants

Hartsfield-Jackson's Domestic and International  
Central Utility Plants | Big Airport = Little City



**23,000 Tons Cooling**  
10,000 homes



**280,000,000 kWh**  
25,000 homes



**115,000 lbs./hr.**  
Largest Steam  
locomotives

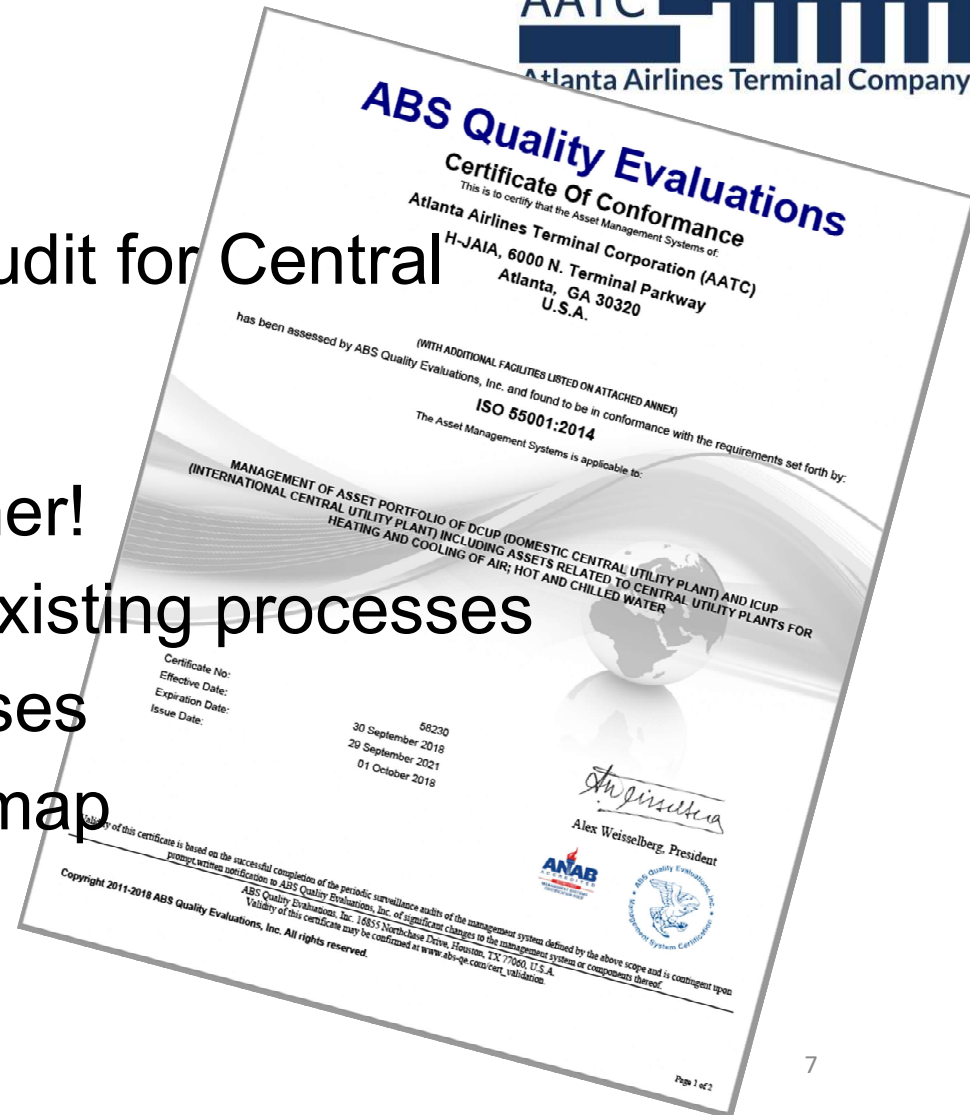


**325,000,000 gallons**  
33,000 homes

# What AATC has Achieved



- Certification / Surveillance Audit for Central Utility Plants
  - Domestic and International
- We are getting our “It” together!
- Stronger documentation of existing processes
- Development of new processes
- Developed a five-year road-map





# Why ISO 55001?



Many reasons but #1 – You get your “it” together!

- Defines asset value, criticality, and risk impact
- Aids in asset decision making
- Justifies asset-risk management decisions
- Improves awareness and response to risk
- Fewer disruptions and more rapid recoveries
- Organizational alignment of business goals and objectives
- Consistent decision making with improved communication throughout the organization





# Value of Asset-risk Management



- Reduce risks:
  - Safer working environment
  - Reliability in asset performance
- Happier customers, clients, and airlines
- Less financial liability for all parties involved
- Move to a Reliability Centered Maintenance (RCM) or Business Focused Maintenance (BFM) program
  - Proactive Maintenance vs Reactive Maintenance

# ISO 55001 Requirements for AATC Success

- Working with our partner – Jacobs – we:
  - **Assessed** the associated risks
  - **Developed** a Risk Priority Number (RPN) strategy
  - **Ensured** outsourced processes and activities are controlled
  - **Integrated** them into the organization's asset management system
  - **Interface** with the organization's own processes and activities
  - **Outcome - knowledge sharing** with “contracted service provider(s)”

# How AATC Manages Asset Risk

- Use an information driven decision making process
- Calculate the risk of where asset's **fail** to perform:

*Asset-Failure Risk = Likelihood of Asset-Failure x Consequence of Asset-Failure*

- Likelihood = probability of failure occurring:
  - Dependent on asset “failure mode”
  - Specific to the asset-type
- Consequence = Asset Criticality:
  - Effects that “happens” as a result of the failure
  - Specific to the asset-system



# How AATC Manages Asset Risk

## ELEMENTS OF RISK

LIKELIHOOD MATRIX					
Likelihood Score	1	2	3	4	5
Category	<i>Rare</i>	<i>Unlikely</i>	<i>Possible</i>	<i>Likely</i>	<i>Almost Certain</i>
Description	0-10% or Every 10+ yrs	10-40% or Every 5 to 10 yrs	40-60% or Every 3 to 5 yrs	60-90% or Every 2 to 3 yrs	90-100% or Annually

CONSEQUENCE MATRIX					
Consequence Score	1	2	3	4	5
Category	<i>Insignificant</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Extreme</i>

➤ Health and Safety

➤ Operations

➤ Customer  
Experience and  
Reputation

➤ Legislative and  
Regulation  
Including the  
Safety System<sup>12</sup>

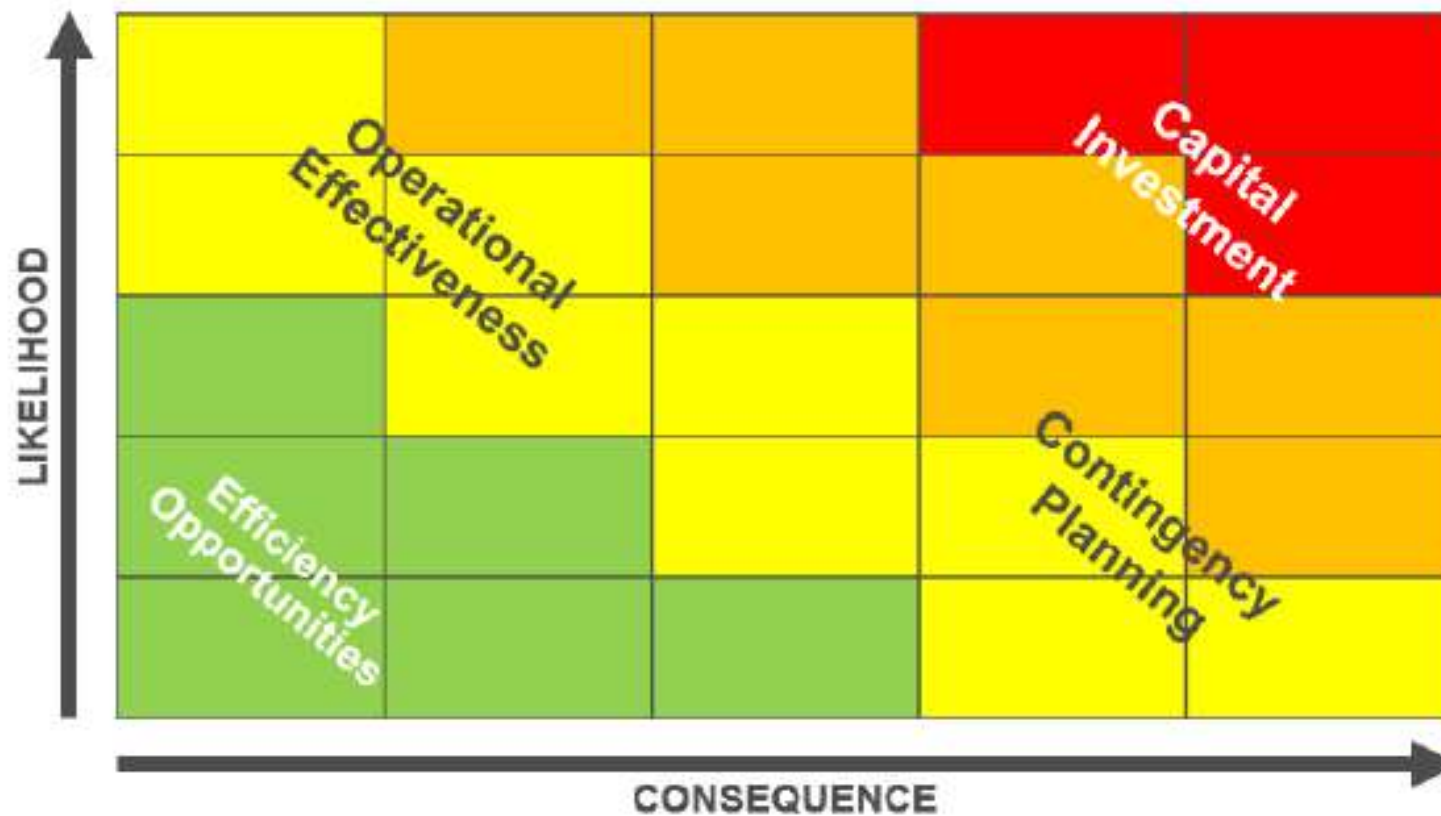
➤ Financial

➤ Environmental

# How AATC Manages Asset Risk

		Consequence				
		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Extreme
Likelihood	5 Almost Certain	Medium	High	High	Very High	Very High
	4 Likely	Medium	Medium	High	High	Very High
	3 Possible	Low	Medium	Medium	High	High
	2 Unlikely	Low	Low	Medium	Medium	High
	1 Rare	Low	Low	Low	Medium	Medium

# How AATC Manages Asset Risk





# How AATC Manages Asset Risk

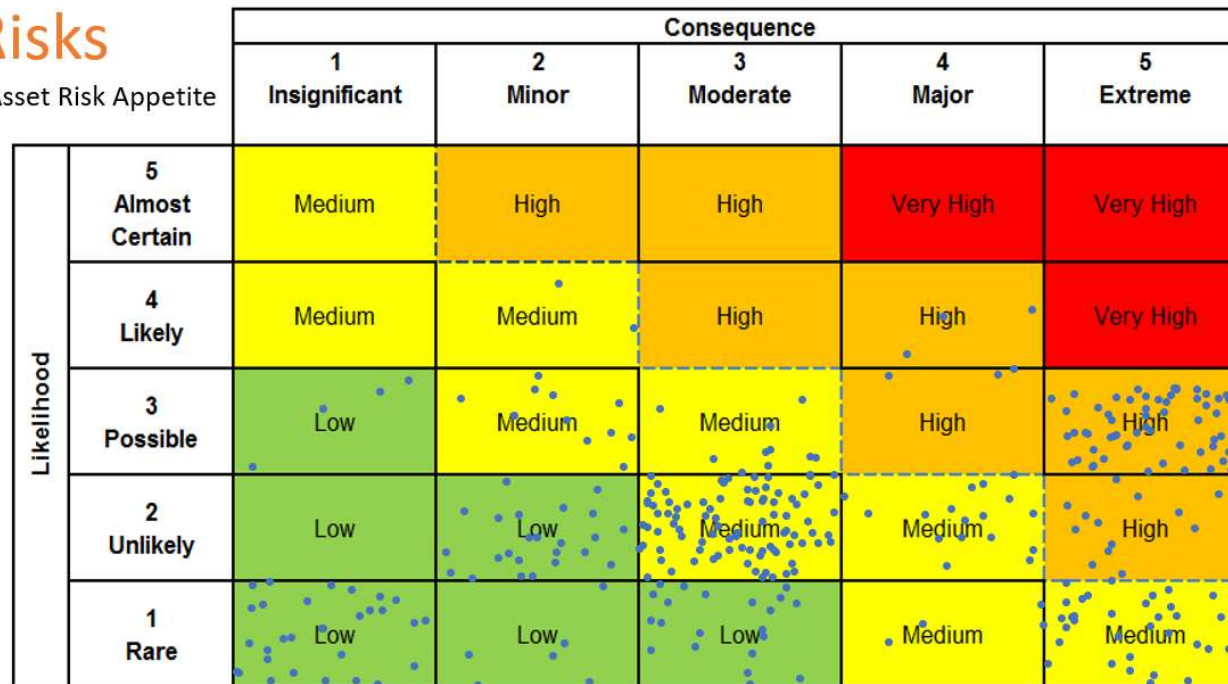
Example Risk Reduction Option	Reduces Consequence	Reduces Likelihood
<b>Capital Investments</b>		
Refurbishment		✓
Replacement		✓
Additional redundancy	✓	
<b>O&amp;M Effectiveness</b>		
Development of operating SOPs		✓
Improved proactive maintenance		✓
Enhanced monitoring through SCADA		✓
<b>Contingency Plans</b>		
Improved response & recovery	✓	
<b>Other</b>		
Demand management	✓	
Provision of critical spares	✓	

# AATC Asset-risk Reduction Graphic - Before

Asset Risk Profile 2018 – prior to implementation of Enterprise Risk Management Framework from ISO 55001 project

**81 Risks**

...above Asset Risk Appetite



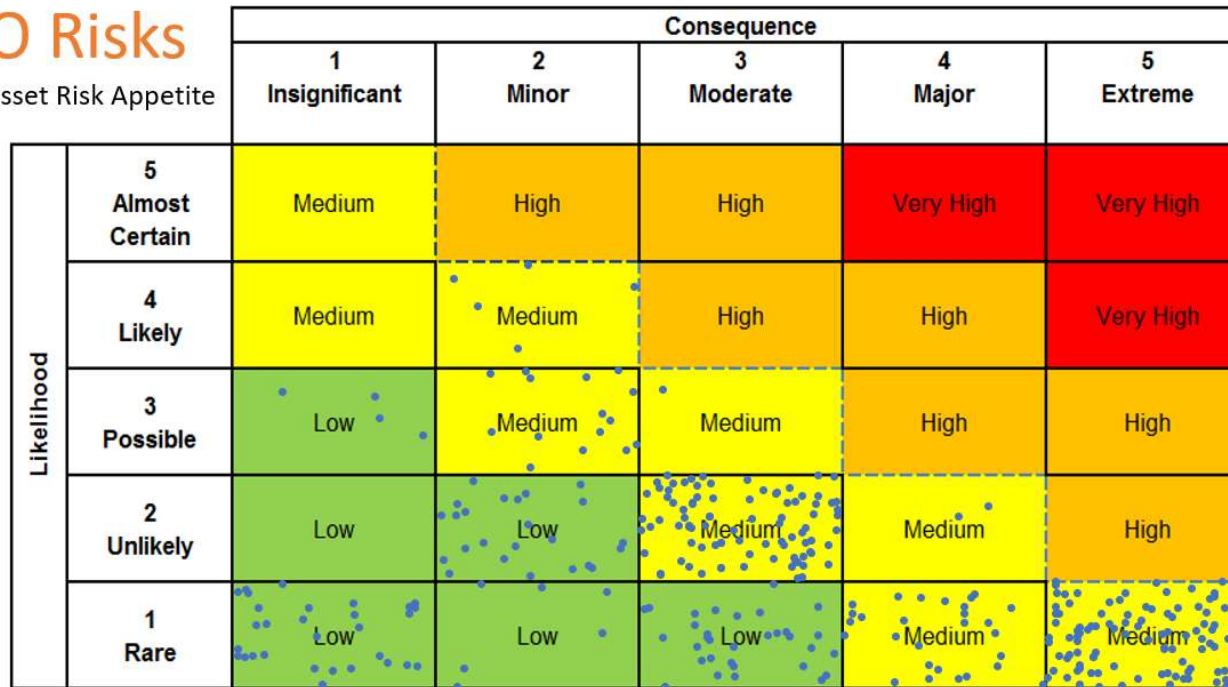
Number of risks assessed = 337  
Assessed assets = 268

# AATC Asset-risk Reduction Graphic - After

Asset Risk Profile 2019 – benefits from implementing Enterprise Risk Management Framework from ISO 55001 project

## ZERO Risks

...above Asset Risk Appetite



Number of risks assessed = 337  
Assessed assets = 268



# Calculation for ROI - Return

CONSEQUENCE MATRIX					
Consequence Score	1	2	3	4	5
Category	<i>Insignificant</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Extreme</i>
<i>Customer Experience and Reputation</i>	Low Visibility; or, Largely transparent to customer; or, Unlikely to impact perceptions	Visible: Customer facing; or, minor negative perceptions possible; or, perception of an isolated area/experience aspect by a limited number of people; or, unlikely to result in customer action or impact overall perception or satisfaction	Tangible: Impacts other senses; or, Impacts perception of an isolated area/experience aspect by many people; or, Likely to result in feedback by a few customers; or, Impacts perception of aspects/services across the facility and services, but shortly forgotten	Disruptive: Impedes/hinders movement or access to services; or, Widespread negative perception likely; or, Likely to result in feedback by many; or, Impacts perception of aspects/services across the facility and services, and will likely carry over to next visit	Obstructive: prevents or significantly delays movement or access to services; or, Likely to result in action or compensation demands; or, Likely to be reported to/by media; or, Negative perception likely to spread to customers not directly impacted
<i>Operations</i>	Impact to operations mitigated by existing SOPs or other internal processes	Impacts to efficiency, but no loss of service delivery	Operations/Service disrupted - reduction in efficiency or quality; or, Impacts largely limited to event duration and do not carry over to other aspects of impacted services or operations	Escalation of impact - aspects of services / operations unavailable; or, Operations/services are not able to quickly recover losses once returned to service; or, Minor impacts extend beyond event duration and may carry over to other aspects of impacted services or operations	Loss of operation - Complete loss of service or operations; or, Major impacts extend beyond event duration or carry over to other aspects of impacted services or operations

# Calculation for ROI - Return

- Monetizing the following consequences:

Scenario	Consequence Category	Consequence before Risk Management	Consequence after Risk Management	Consequence Description before Risk Management	Consequence Description after Risk Management	Cost associated with the Consequence from the scenario of the asset failing (before risk management)	Cost associated with the Consequence from the scenario of the asset failing (after risk management)	Notes	Assumptions / Descriptions for Column I (Pre)	Assumptions / Descriptions for Column J (Post)
<p>PUMP - ELECTRIC (75- 100 HP) ASSETS: DCUP.SCHW.DST.M.PMP.DT-25 and DCUP.SCHW.DST.M.PMP.DT-26</p> <p>Scenario: Multiple failures of the same asset type on a hot day. Pumps for the secondary water chillers at DCUP fail due to not being replaced.</p>	Operations	5	4	Loss of operation - Complete loss of service or operations; or, Major impacts extend beyond event duration or carry over to other aspects of impacted services or operations	Escalation of impact - aspects of services / operations unavailable; or, Operations/services are not able to quickly recover losses once returned to service; or, Minor impacts extend beyond event duration and may carry over to other aspects of impacted services or operations	\$24,175	\$16,050	Gary, Tracy, Marshall to discuss with Tony the labor and materials for reacting to these two events: 1. The first before the critical spare was purchased. 2. The second for 2019 (after the critical spares / components are in stock).	Tech Labor: 100hrs Mgmt Labor: 24hrs Motor: \$7300 Pump: \$6000 Coupling: \$250 Rental @ 4wks : \$2400	Tech Labor: 24hrs Mgmt Labor: 8hrs Motor: \$7300 Pump: \$6000 Coupling: \$250
	Customer Experience and Reputation	5	4	Obstructive: prevents or significantly delays movement or access to services; or, Likely to result in action or compensation demands; or, Likely to be reported to/by media; or, Negative perception likely to spread to customers not directly impacted	Disruptive: Impedes/hinders movement or access to services; or, Widespread negative perception likely; or, Likely to result in feedback by many; or, Impacts perception of aspects/services across the facility and services, and will likely carry over to next visit			1. Internal AATC discussion about the loss of revenue, due to a loss in reputation or negative customer experience. 2. Discuss with Kofi the costs associated with contract withdrawal due to a loss in reputation or negative customer experience.  Two events: 1. The first before the consequence reduction. 2. The second for 2019 (after the consequence reduction).		

# Calculation for ROI – Investment

- Direct cost (invoiced) = \$51,919
- Direct and Indirect cost = \$60,716

## Breakdown:

- AATC labor = \$ 8,797
- Jacobs labor (invoiced) = \$14,187
- Materials for asset = \$37,732

## Operations Consequence – Results

- Return – reduction in AATC cost for operations = \$57,780

### Breakdown:

- AATC cost for operations:
  - Before risk management = \$65,029
  - After risk management = \$7,249
- Return on Investment – *operations*
  - Direct cost (invoiced) = 1.11
  - Direct and Indirect cost = 0.95



# Customer Experience and Reputation

- Focused on four risk scenarios
- All have the following:
  - Multiple asset failures of the same asset type due to not being replaced
  - Before risk management = Downtime of 8 to 12 hours
  - After risk management = Downtime of 3 to 6 hours

# Incorporating ISO Throughout

- It becomes your walk, your culture!
- Future AATC requirements:
  - Required processes and knowledge sharing
  - Documented information and records
  - Monitoring, measurement, analysis and evaluation
- Manage **Risk** in accordance with ISO 55001 and 31000
- Manage **Safety** in accordance with ISO 45001
- Manage BCP **emergencies** in accordance with ISO 22301

# The Five Year Plan

- Incorporating existing assets:
  - 2019: Surveillance Audit 1 and emergency power generation and electrical distribution
  - 2020: Surveillance Audit 2 and KONE (VT), and Jacobs (HVAC/Mechanical)
  - 2021: Recertification and ELS (BHS), AFA (Fire Alarms), and Jacobs (Water Distribution and Wastewater)
  - 2022: Surveillance Audit 1 and MOPAC (Roofing)

# AATC Partnership with Our Vendors

- Success is a six lane super highway
- Work together to make all partners better
  - Establish strong Key Performance Indicators (KPIs)
    - We improve what we focus on
    - We focus on what we measure
  - Work Execution Management recognition:
    - Recognizing employees who excel
    - Recognizing service partners who excel
  - Awards, honours, and having a client who has your back







Questions?