

Elevator/ Escalator Modernization Program (2010 – 2013)

Item number: 7c Supp

Date of Meeting: July 28, 2009

Dependable

Airport

Service

Experience



Location and Number of Units

Main Terminal

South Satellite & Concourses

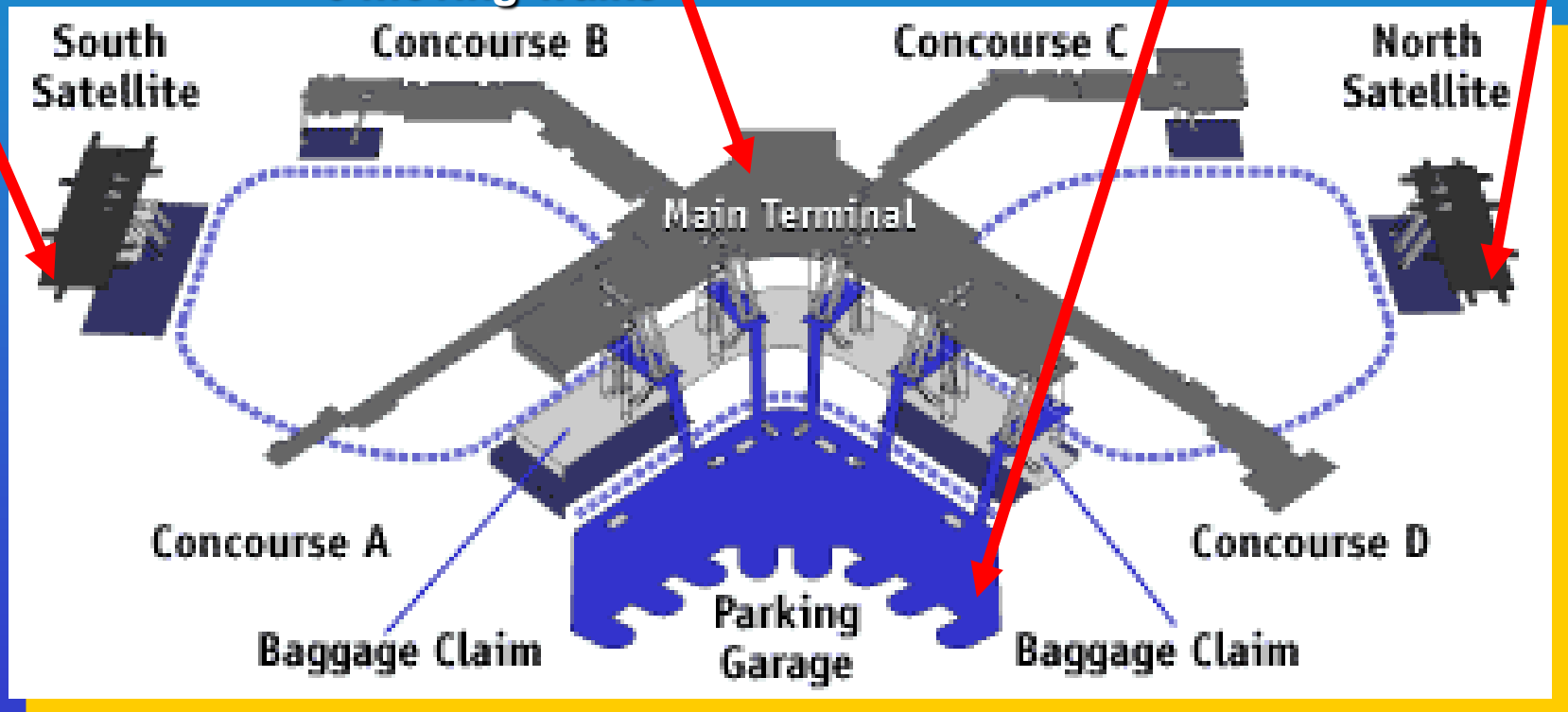
5 elevators
10 escalators

43 elevators
59 escalators
6 moving walks

Parking Garage North Satellite

28 elevators
6 escalators

5 elevators
4 escalators



Totals: elevators 81 escalators 79 moving walks 6

Vertical Transportation at Sea-Tac

- **Sea-Tac is a multilevel facility**
- **Vertical transportation at Sea-Tac:**
 - **Is critical to Airport Operations**
 - **Is critical to facility through-put**
- **Critical facility pathways**
 - **Parking garage to ticketing**
 - **Ticketing to satellite transit system**
 - **Satellite transit system to satellite gates**
 - **Concourses to bag claim**
 - **Behind the scenes paths for workers & goods**
- **Accessibility for Americans with Disability Act Compliance**

Program Objective & Scope

- **Increase passenger, employee & freight mobility and convenience**
- **Increase system reliability and availability**
- **Bring all vertical transportation up to latest technology**
- **Renew and replace equipment that is beyond its service life**
- **Implement a comprehensive and systematic renewal and replacement program**
- **Ensure the integrity and continuity of operations and systems**
- **Enhance operational reliability**
- **Lower on-going operational costs**

Sea-Tac Vertical Transportation Equipment Issues

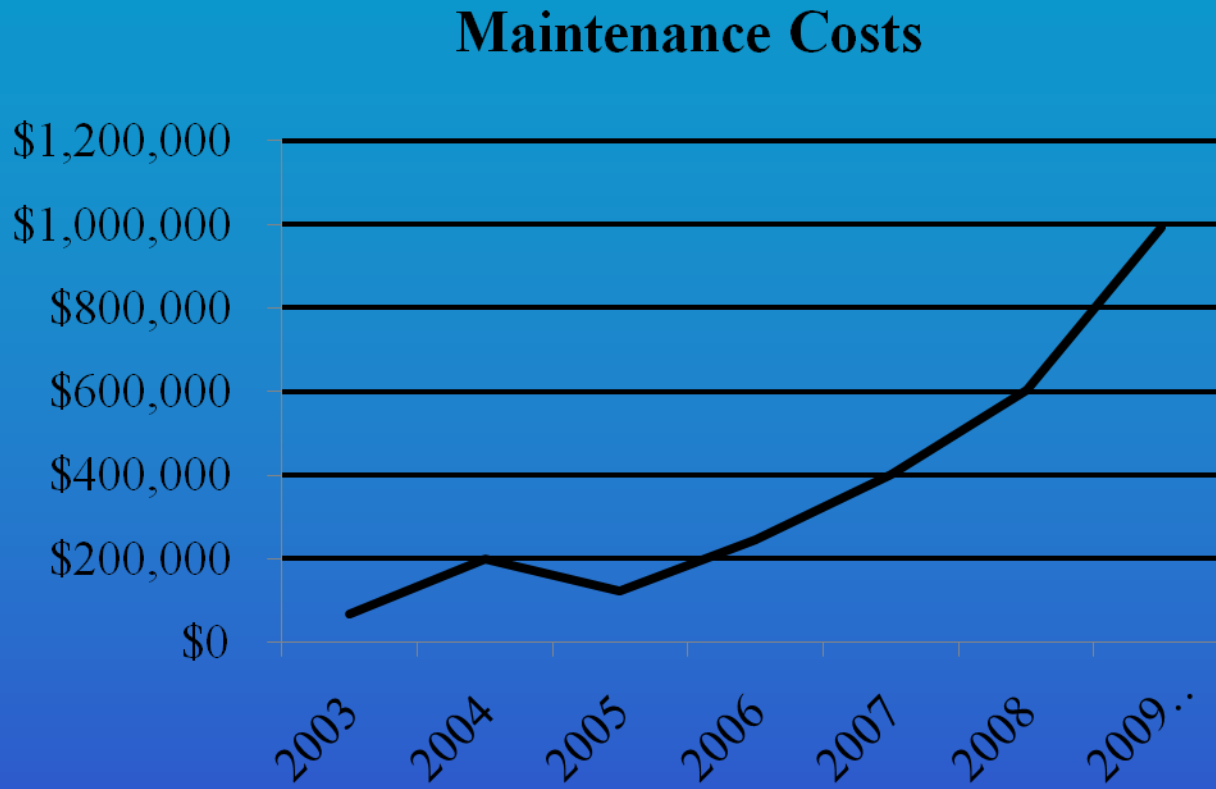
- **Aging equipment requires more maintenance**
 - **Parts become obsolete and hard to obtain**
 - **Technological obsolescence**
 - **Longer downtimes**
 - **More disruptions to operations**
- **Aging equipment presents reliability concerns**
- **Increasing passenger traffic places increasing loads/demands on the equipment**
- **Service Life Factor:**
 - **Equipment age/expected service life (25 yrs)**

Equipment Service Life Factors

**Number of elevators and escalators with a service life factor greater than 1.0
(expected service life is 25 years)**

- **32 elevators – 39.5% of total**
- **48 escalators – 60.8% of total**

Corrective Maintenance Cost Trend



2009 Costs are prorated from the first 5 months actual costs.

Scope of Modernization

Modernization includes:

- **New hoist machines**
- **25 year industry standard service life**

Technology Improvements

- **Energy efficient saves operating costs**
- **Easier to maintain**
- **Solid state drive**
- **Solid state logic**

Code improvements

- **Fireman's service phase I & II**
- **Seismic restraints for guide rails, machines & controllers**
- **Central monitoring**
- **Improve lighting**
- **Relocate disconnect switches to meet code**
- **Improve ventilation and equipment cooling**

Projects Accomplished

Elevators modernized so far: (5 of 81)

NSA Modernized. Completed in 2005.

NSB Added new elevator. Completed in 2005.

NSBF Modernized. Completed in 2005.

MT1 Modernized. Completed in 2006

3F Modernized. Completed in 2007.

Projects In Process

Seven Garage Elevators

"A" Bank

P18

P19

P20

P21

P22

P23

P24

Upgrade includes:

- **Solid state drive**
- **Solid state logic**
- **Fireman's service phase I & II**
- **Seismic restraints for guide rails, machines & controllers**
- **Central monitoring**
- **Energy efficient**

Six Garage Escalators

- **Code Improvements**

Projects In Process

Replacement of 42 Escalators

- **Severed drive shafts prompted a survey of all the escalators at SeaTac.**
- **This survey identified 42 escalators that are of equivalent age and construction.**
- **The survey also found several escalators needing emergency repairs to prevent similar failures.**

Future Projects

- **2010 Projects (estimated budget \$7.7M)**
 - Two new CTE freight elevators
 - Modernize elevators NSCF, SSAF, SSD and MT-7
 - Add two new elevators at Gate C2
- **2011 Projects (estimated budget \$8.0M)**
 - Modernize elevators SSC, SSB, MT4 and MT5
 - Add two new south satellite elevators between STS and concourse levels.
- **2012 Projects (estimated budget \$7.8M)**
 - Modernize elevators PG-B and PG-C banks, MT2, MT3, MT6 and NSDF
- **2013 Projects (estimated budget \$5.1M)**
 - Modernize escalators 601, 602, 611, 612, C-1, C-2, C-3, C-4, NS-1, NS-2, NS-3 and NS-4.
 - Add new escalator in the south satellite
- **2014 and beyond projects are to be determined.**

Renewal/ Replacement Criteria

- The Program is evaluated annually
- Projects are prioritized utilizing the following:
 - Service life factor
 - Condition of equipment
 - Changing facility needs
 - Through-put considerations
 - Available budget
- Evaluation Team
 - Facilities and Infrastructure
 - Maintenance
 - Operations/ Airlines
 - Concessions
 - Others as needed

Other Airports projects:

AIRPORT	MAP	NUMBER OF UNITS	COST	PROJECT DURATION
Las Vegas	44	28 escalators 14 moving walks	\$20 M	2.5 yrs completed early 2009
Los Angeles	59	4 terminals All elevators All escalators	\$24 M	2009-2011
San Diego	18	5 escalators	\$2.3 M	11 months
Honolulu	19	30 escalators	\$9.7 M	complete June 2010
Sea-Tac	32	28 elevators 13 escalators	\$28.6 M	complete 2014

Abbreviations

NS	NORTH SATELLITE (prefix)
MT	MAIN TERMINAL (prefix)
F	FREIGHT ELEVATOR (suffix)
P or PG	PARKING GARAGE (prefix)
SS	SOUTH SATELLITE (prefix)
C	CONCOURSE C (prefix)
MAP	MILLION ANNUAL PASSENGERS
STS	SATELLITE TRANSIT SYSTEM