USING INNOVATIVE TECHNOLOGIES TO CREATE A BARRIER-FREE AIRPORT

CHA
design/construction solutions

Agenda

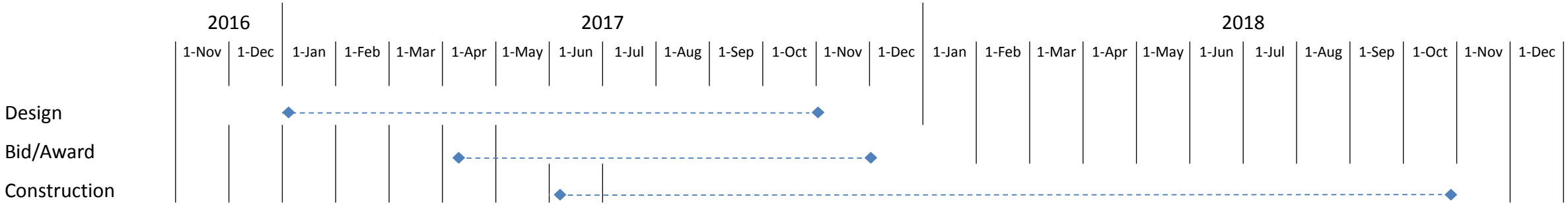
- Project introduction
- Timeline
- Design approach/phasing and construction
- ROC vision
- System integration
- Results

PROJECT INTRODUCTION

- June 2016 Upstate Airport Economic Development and Revitalization is announced by Governor Andrew Cuomo
- ROC wins the $39.8 M in NYSDOT Grant
- ROC sets $79 M budget for the Renovation Project
- ROC/Consultants sets goals for the project

TIMELINE

- Design/Bid and Award 24 projects 10 months



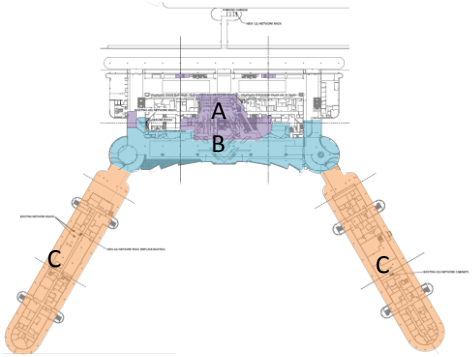
- Strategic phasing
- Releasing early packages to extend construction time line
- VE

PROJECT INTEGRATION

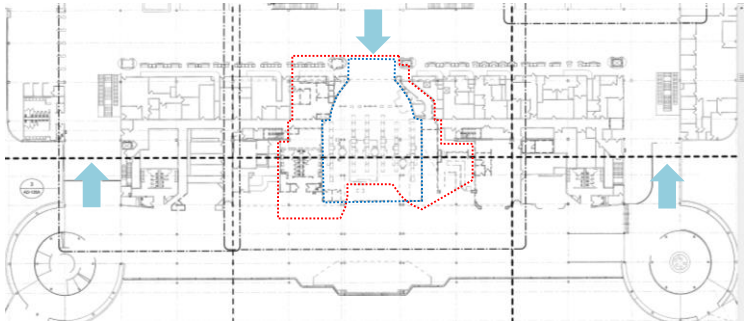
- Project integration County/Airport/Designer/CM

DESIGN APPROACH/PHASING AND CONSTRUCTION

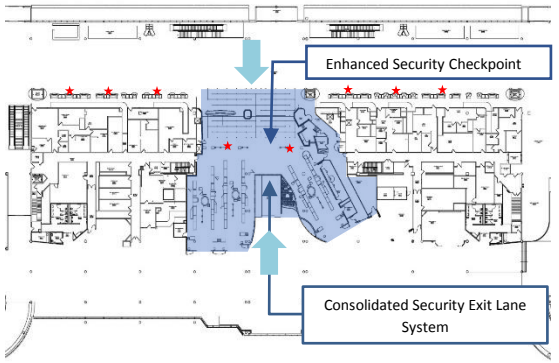
General Overview



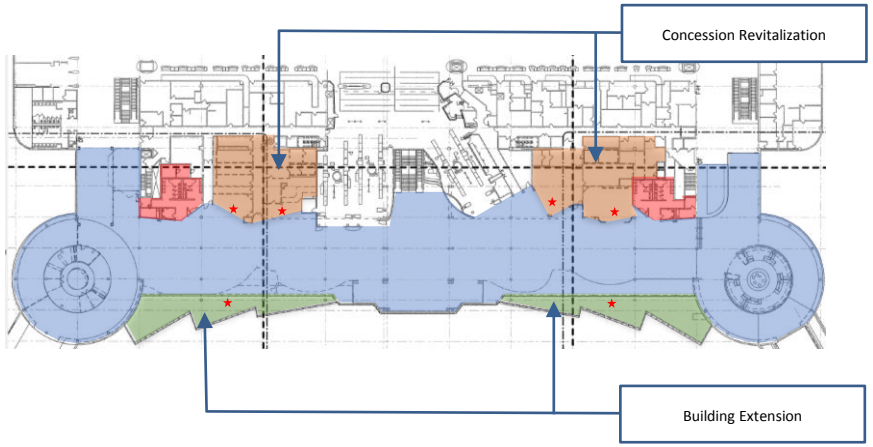
Existing Checkpoint and Deplaning Route



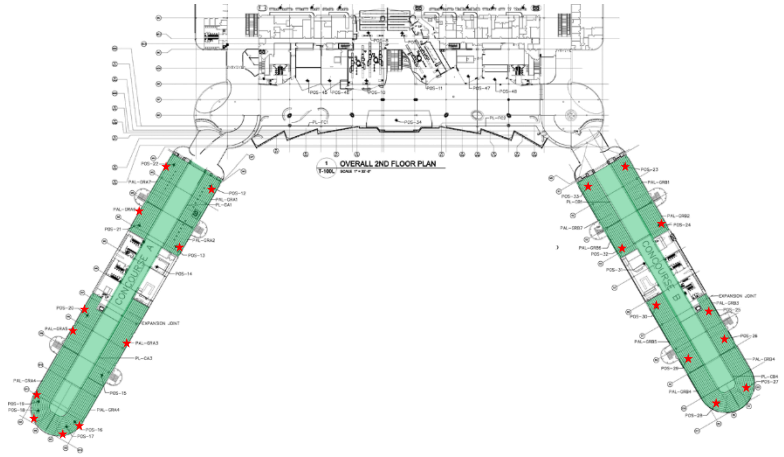
Enhanced Checkpoint & Exit Lane



Food court & Concession Enhancement



Concourse Technology & Amenities



ROC VISION

The goal of the Program was to build a more efficient and state-of-the art facility responding to the necessities of the community.

- Barrier-free airport
- Security and satisfaction of passengers
- Broadening the opportunities for business

ROC VISION

Why a free-barrier airport?

- Rochester is home to the NTID (National Technical Institute for the Deaf) largest technological institute in the world for the deaf.
- Innovation – to be different – on the edge of technology

BARRIER-FREE AIRPORT

ROC VISION

Pairing security and satisfaction of passengers

- One point of entry and exit

ROC VISION

- Broadening the opportunities for business

ROC VISION

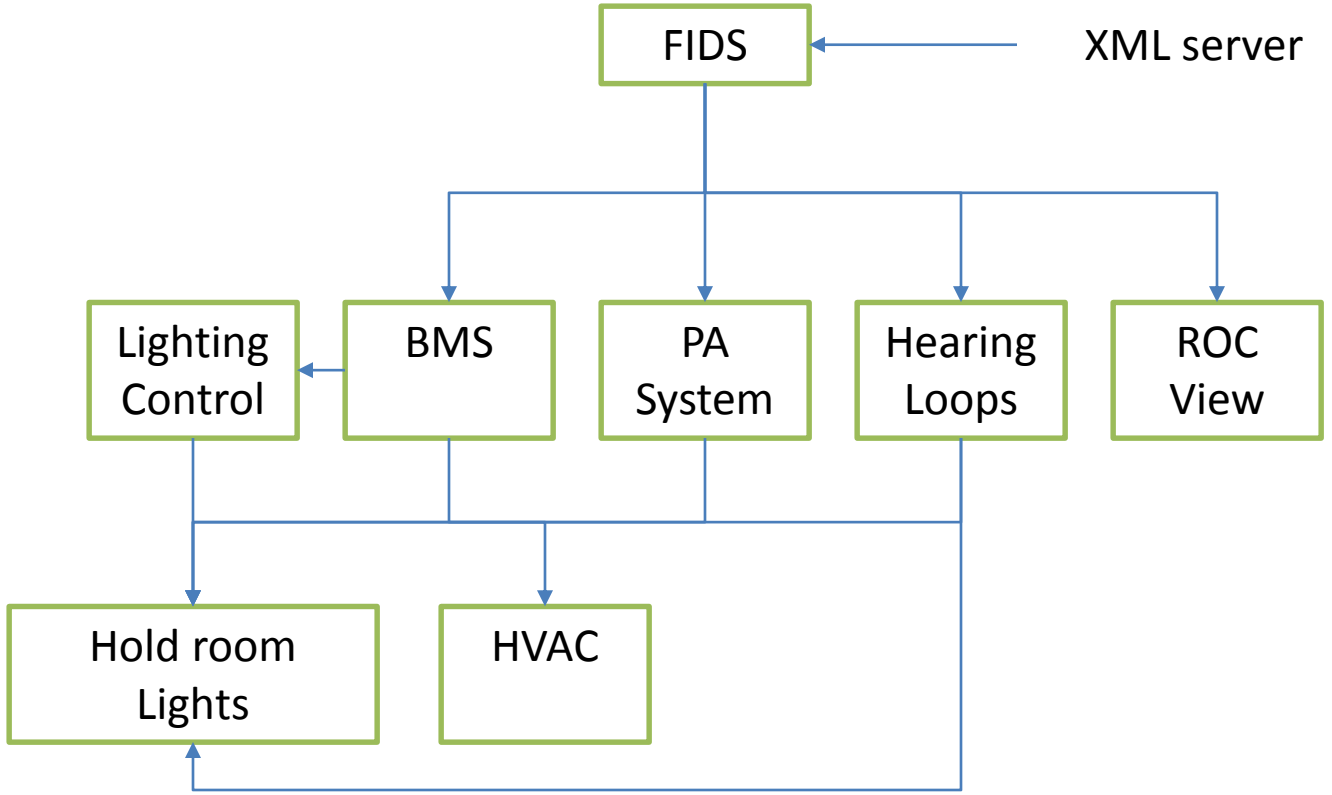
Broadening the opportunities for business

ROC VISION

Broadening the opportunities for business

SYSTEM INTEGRATION

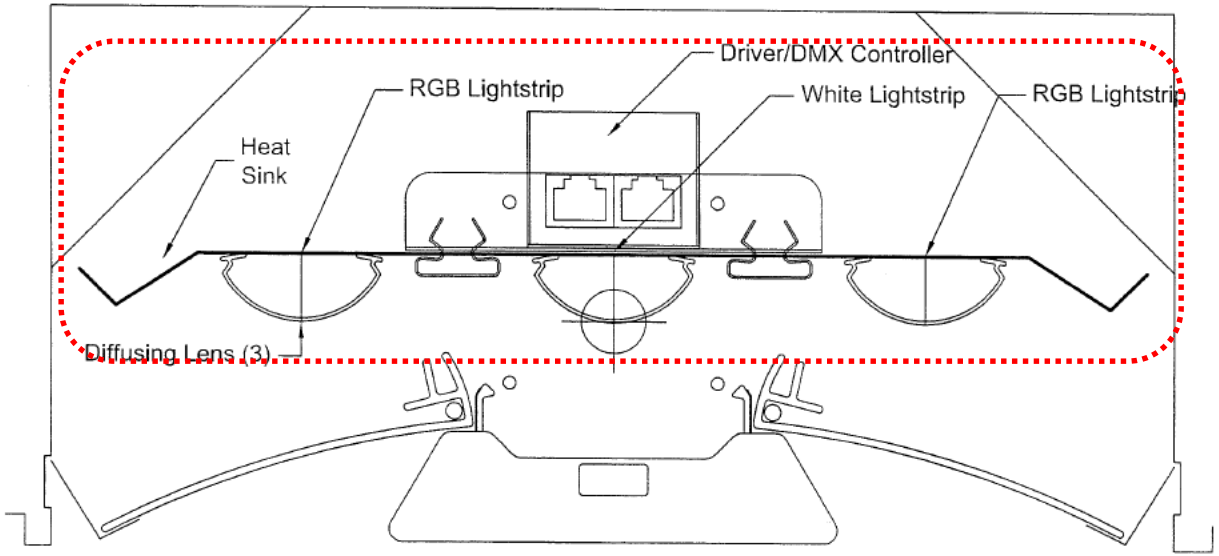
Taking advantage of FIDS



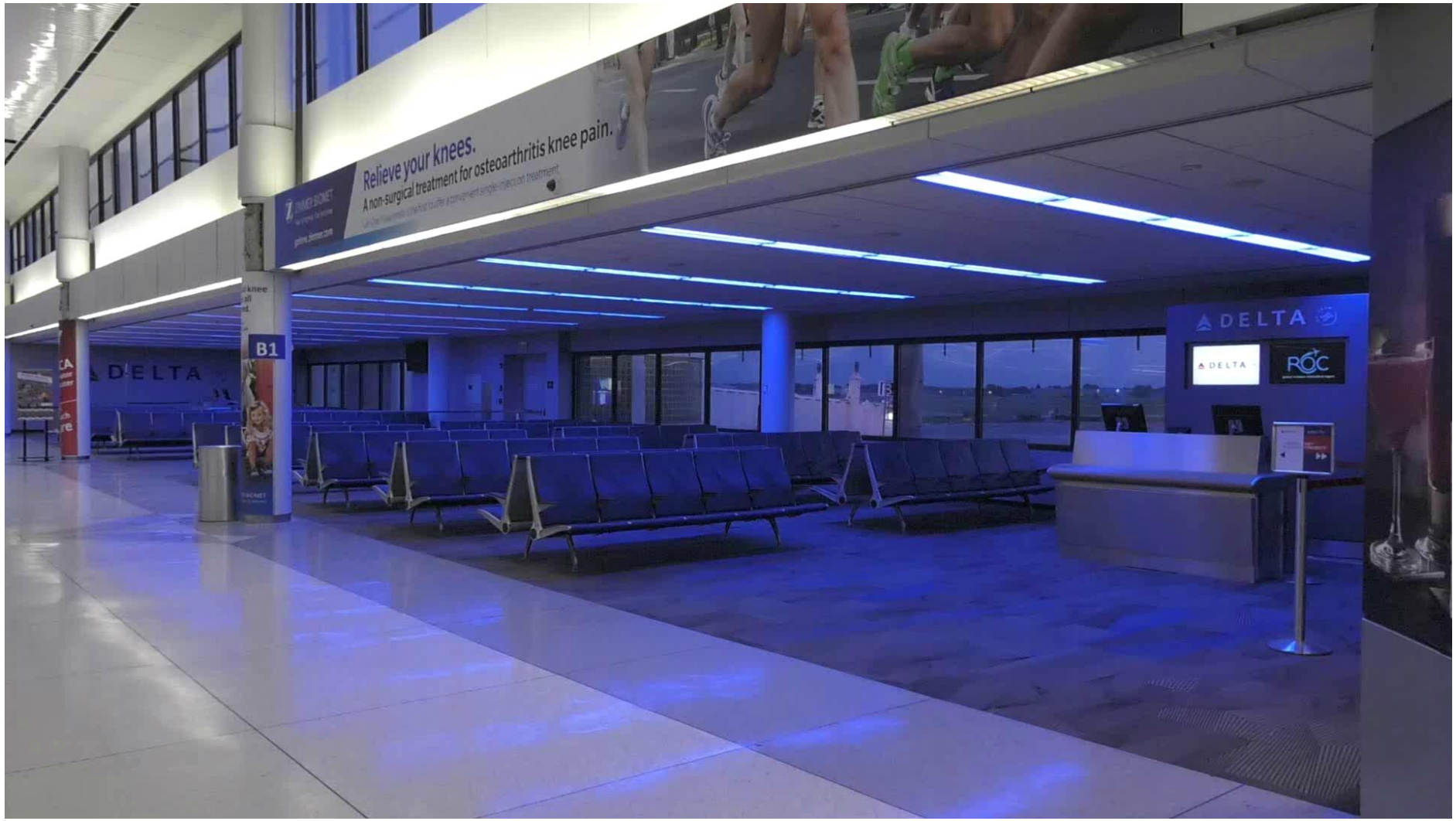
SYSTEM INTEGRATION

Holdroom Lighting Retrofit

- Performance spec
- ETL approval
- In situ installation

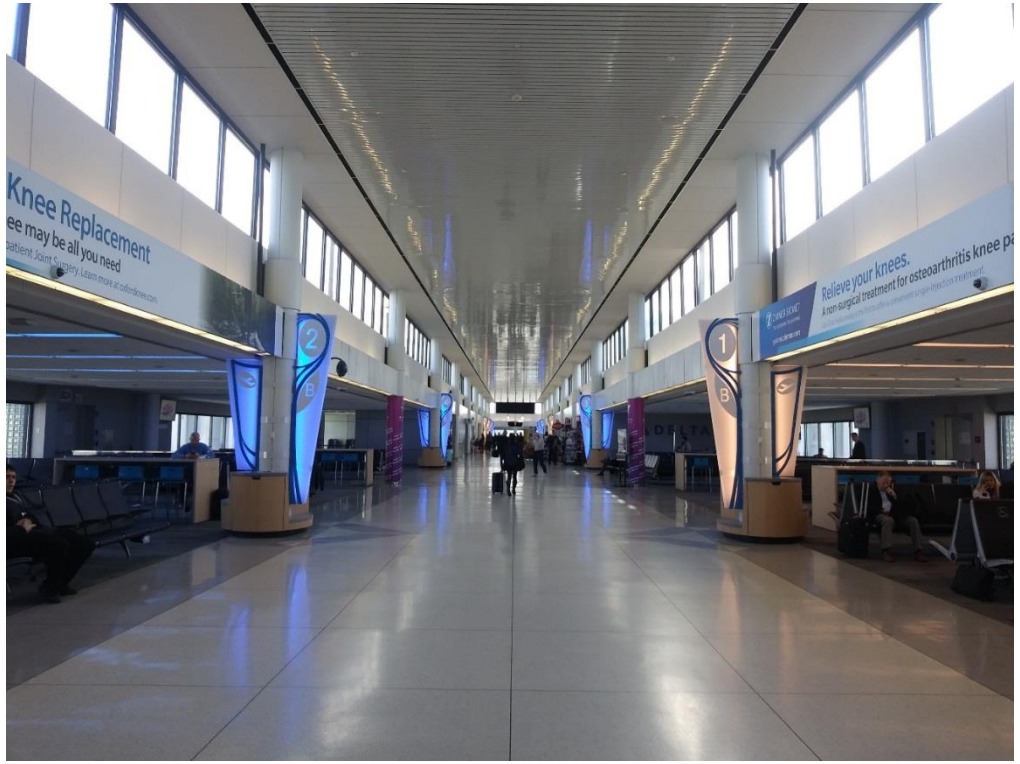


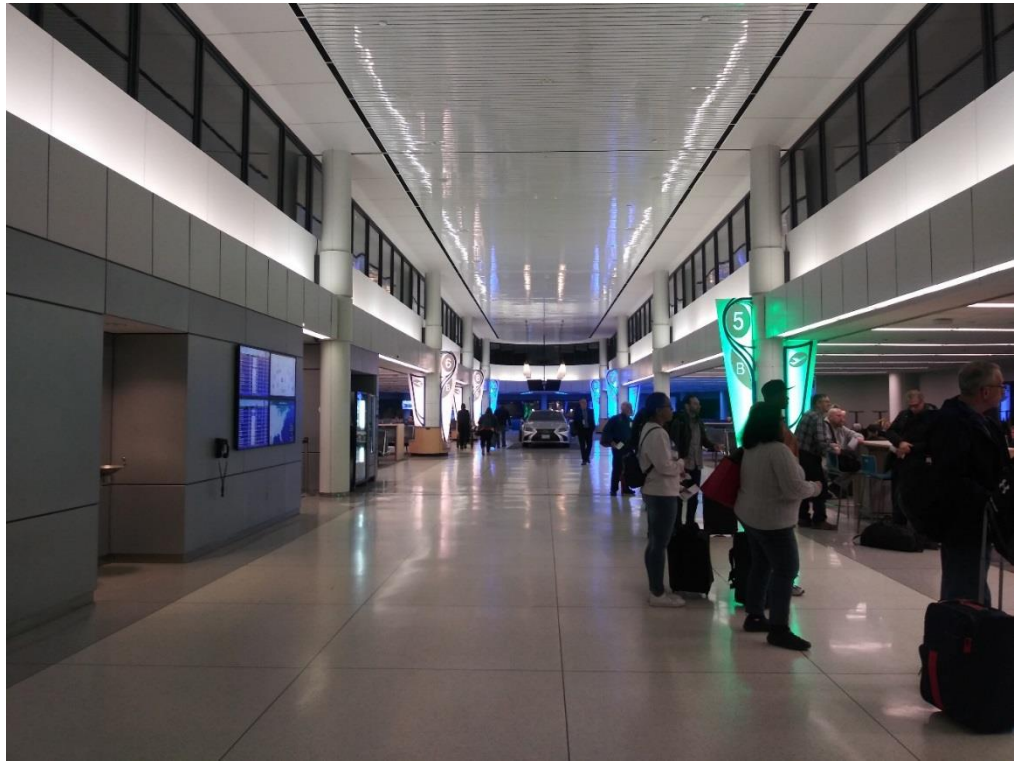
SYSTEM INTEGRATION



SYSTEM INTEGRATION

Holdroom gate signs





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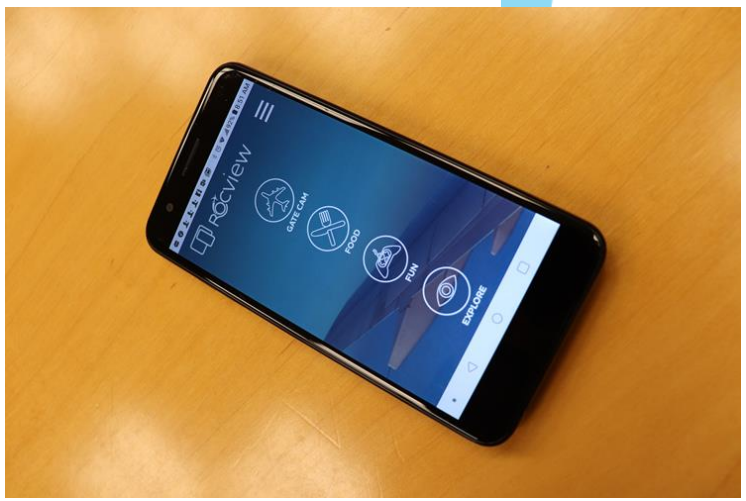


- Home
- Maps
- Hearing Assistive Tech.
- Strong Museum of Play
- Car Rentals
- Flights
- Food
- Fun
- Explore
- Gate Cameras
- Amenities

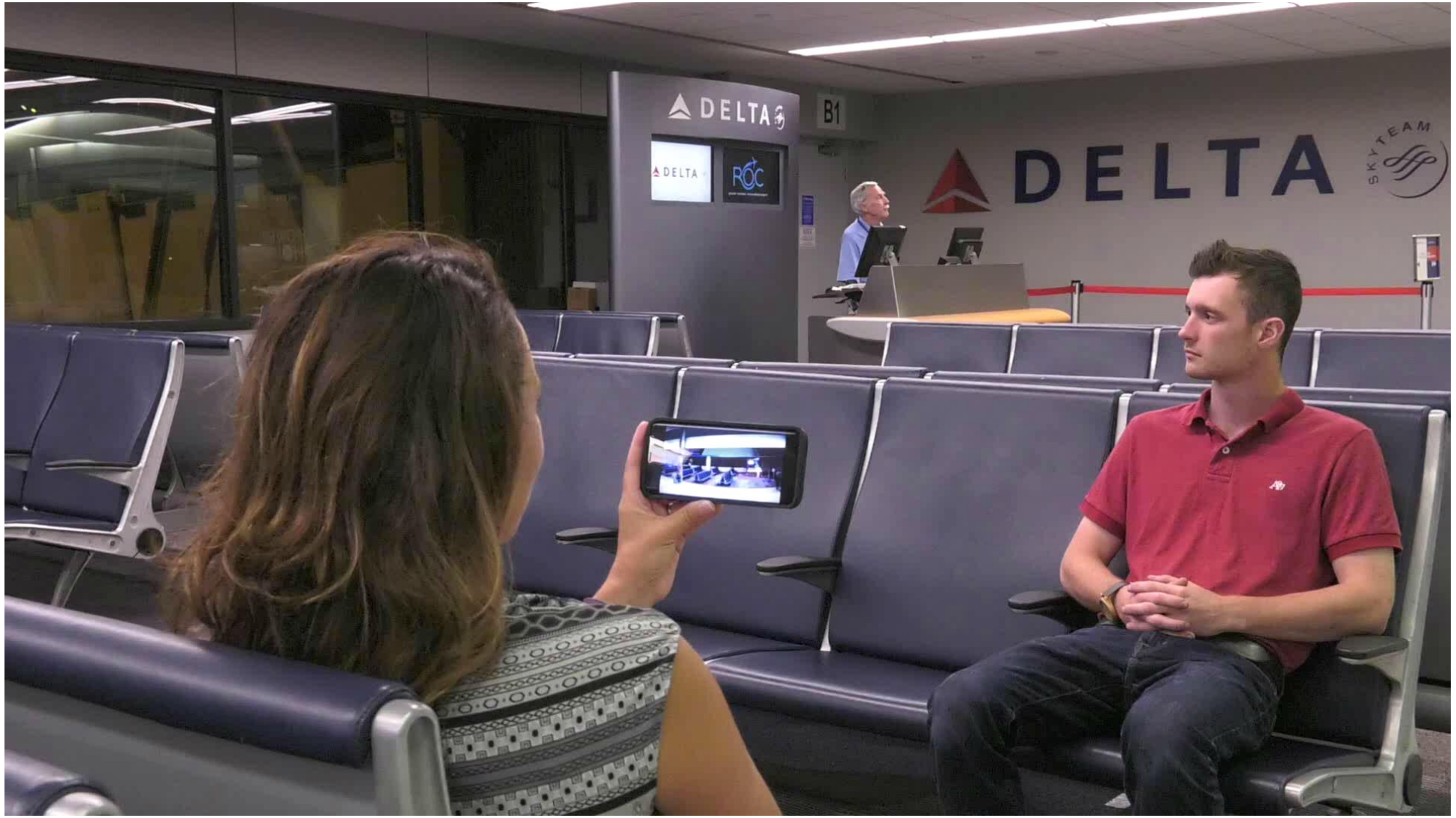
- GATE CAM
  - Departures
    - Airline Selection
    - Flight Selection
  - Arrivals
  - Select Gate
    - Gate
- Flight
  - Gate Camera
  - Gate Map

- FOOD
  - TOR
    - Menu
    - Concession Map
  - Gusto
  - Subway
  - Dunkin Donuts
  - Bar
  - Diner

- FUN
  - Strong Museum of Play Location
  - Games
    - Game 1
    - Game 2
    - Game 3
    - Game 4
    - Game 5
    - Game 6

- ROC ABOUT US
  - Business Center
  - Pet Relief Station
  - TBD
  - Strong Museum of Play Description
  - Amenities
  - Energy & Environment
  - Hearing Assistive Tech.
  - Recomposure Scales
  - Way Finding

SYSTEM INTEGRATION



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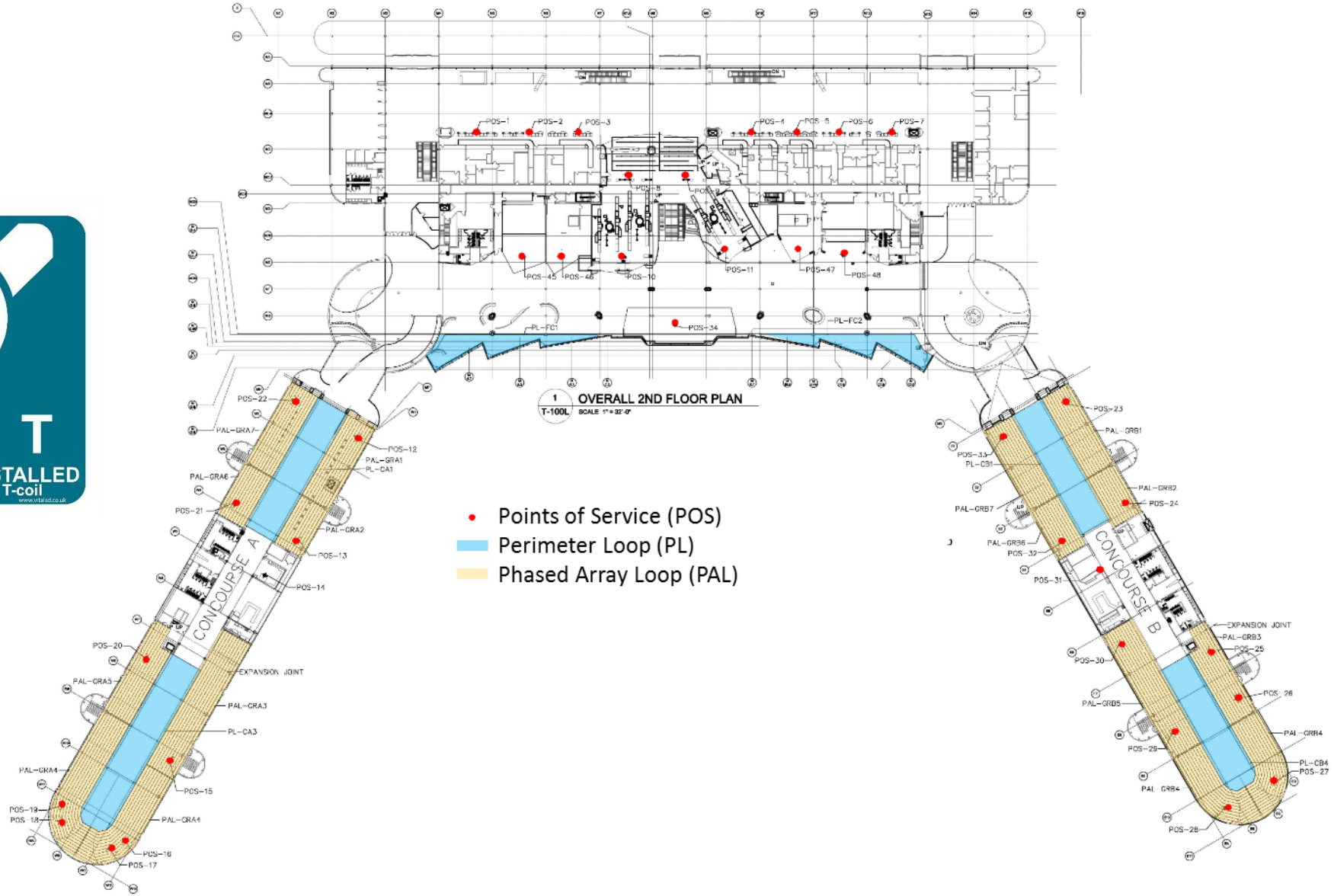

SYSTEM INTEGRATION

Energy savings

Chiller Replacement					
Base	Chiller Nominal Load (Tons)	Chiller kW/Ton	Hours / Season	Annual kWh	Annual $@$.08 / kWh
	525	0.88	4320	1995840	$159,667.20
Current	Chiller Nominal Load (Tons)	Chiller kW/Ton	Hours / Season	Annual kWh	Annual $@$.08 / kWh
	525	0.45	4320	1020600	$ 81,648.00
Net				975240	$ 78,019.20

Concourse Overhang Heating									
Base	Boiler Efficiency	Surface Area (Outdoor Exposure)	U	Cavity Temperature	µ OA Temp	µΔT (Cavity v OA)	Hours / Season	Annual Loss (mmbtu)	Annual $@$4.00/mCF
	0.77	23,761	0.0833	90	36	54	6000	832.84465	$ 3,331.38
Current	Boiler Efficiency	Surface Area (Outdoor Exposure)	U	Cavity Temperature	µ OA Temp	µΔT (Cavity v OA)	Hours / Season	Annual Loss (mmbtu)	Annual $@$4.00/mCF
	0.77	23,761	0.0833	55	36	19	4320	210.98731	$ 843.95
Net								621.85734	$ 2,487.43

DCV Integration With FIDS																			
Boiler Eff	Chiller kw /ton	$/mcf	Cost per kWh																
0.78	0.45	$ 4.00	$ 0.08																
Base	µ Heating Season OA Temp	µ Cooling Season OA Temp	Hold Room Min Vent Rate (cfm)	Hold Room 80% Vent Rate (cfm)	µ Cooling Supply Air Temp	µ Reheat Supply Air Temp	Hrs / Heating Season	Hrs / Cooling Season	Hrs / Heating Season @min Vent Rate	Hrs / Cooling Season @min Vent Rate	Heating Load @ 80% Vent Rate (mmbtu/hr)	Cooling Load @ 80%Vent Rate (mmbtu)	Heating Load @ min Vent Rate	Cooling Load @min Vent Rate (mmbtu)	Heating mmbtu/yr	Cooling mmbtu/yr	Heating $/yr	Cooling $/yr	Total Hold Room$/yr
	36	78	9000	22000	55	82	3100	3700	620	740	0.64152	0.54648	0.26244	0.22356	1,753.68	1783.0152	$8,993.24	$11,886.77	$ 20,880.01
Current	µ Heating Season OA Temp	µ Cooling Season OA Temp	Hold Room Min Vent Rate (cfm)	Hold Room 80% Vent Rate (cfm)	µ Cooling Supply Air Temp	µ Reheat Supply Air Temp	Hrs / Heating Season	Hrs / Cooling Season	Hrs / Heating Season @min Vent Rate	Hrs / Cooling Season @min Vent Rate	Heating Load @ 80% Vent Rate (mmbtu/hr)	Cooling Load @ 80%Vent Rate (mmbtu)	Heating Load @ min Vent Rate	Cooling Load @min Vent Rate (mmbtu)	Heating mmbtu/yr	Cooling mmbtu/yr	Heating $/yr	Cooling $/yr	Total Hold Room$/yr
	36	78	9000	22000	55	82	3100	3700	2325	2220	0.64152	0.54648	0.26244	0.22356	1,107.35	1305.0936	$5,678.72	$ 8,700.62	$ 14,379.35
Net															646.33	477.92	3,314.52	3,186.14	$ -

Gate Hold Room Lighting					
Base	# Fixtures	Watts per Fixture	Run hours per year	kWh/yr	$/yr @ $.08/kWh
	768	49	6000	225,792.00	$ 18,063.36
Current	# Fixtures	Watts per Fixture	Run hours per year	kWh/yr	$/yr @ $.08/kWh
	768	13	6000	59904	$ 4,792.32
Net				165,888.00	$ 13,271.04

Totals	
Chiller Replacement	$ 78,019.20
Overhang Heating	$ 2,487.43
DCV / FIDS Integration	$ 6,500.66
Hold Room Lighting (LED)	$ 13,271.04
Total	$100,278.33

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