



Richard M. Daley
Mayor

Rosemarie S. Andolino
Commissioner
Chicago Department of Aviation

Airports Going Green Conference



The New Sustainable Airport Manual

Gene Peters, Director, Ricondo & Associates
Ted Woosley, Vice President, Landrum & Brown

Sustainable Design Manual (SDM) = Sustainable Airport Manual (SAM)

SDM



December 2003

SAM



August 2009

Sustainable Design Manual: Looking Back...

- Developed as a result of Mayor Daley's vision
- At a time when airports and sustainability was a relatively new concept
- Developed in the early stages of the OMP EIS process



Sustainable Design Manual: Overview

- Supported the City of Chicago's ongoing efforts toward implementing more environmentally sustainable buildings and infrastructure
- Organizational structure mirrored U.S. Green Building Council's LEED® Green Building Rating System Version 2.1 New Construction
- Applied to
 - Occupied and unoccupied buildings
 - Civil airside and landside projects
- Focused on not only what you built but how you built it

Sustainable Design Manual: Overview

OMP SDM was the first to:

- Establish sustainable guidance for airport development
- Develop a rating system for sustainable achievements on airport projects
- Create a Green Airplane Certificate award system
- Recognize designers and contractors for sustainable accomplishments on OMP projects

Why SAM?

- SDM has now been updated and renamed the Sustainable Airport Manual, or SAM, to include lessons-learned, new technologies and best practices used by airports around the world.
- Updated to correspond with the USBGC LEED® 2009 for New Construction and Major Renovations Rating System
- Applies to both O'Hare and Midway International Airports and can be a model for other airports



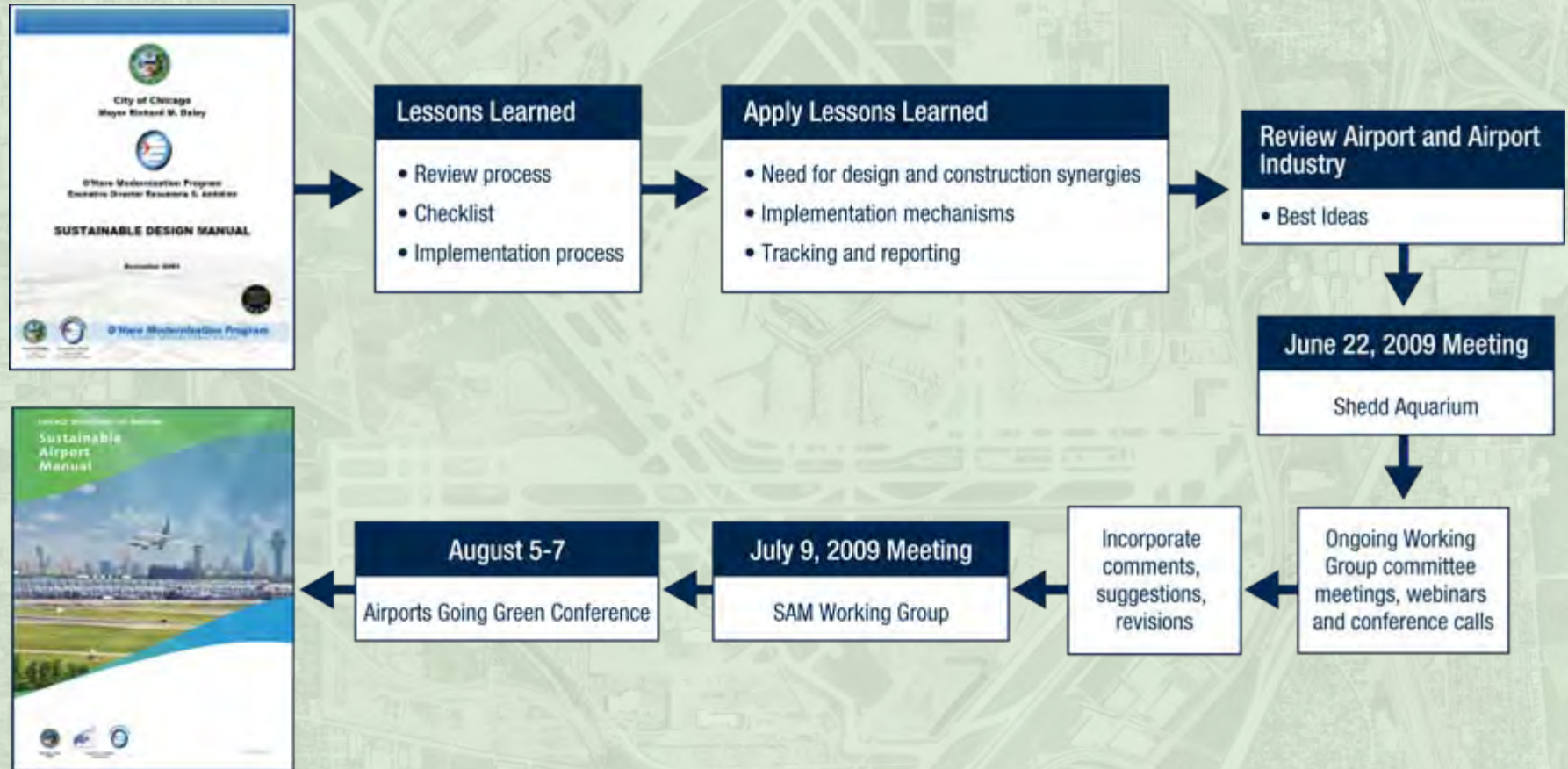


Sustainable Airport Manual Updating Process

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SAM: Updating Process Overview



SAM: Updating Process

- June 22, 2009: Approximately 100 people (in person, via webinar and conference call) participated in the SDM Working Group at the Shedd Aquarium to:
 - Gather input from airport industry experts
 - Establish committees for each of the chapters in the SAM
 - Establish the goal to present the updated Manual at the American Association of Airport Executives (AAAE) 2009 Airports Going Green Conference



SAM: Updating Process



Webinar at the June 22, 2009 SDM Working Group

Working Committees – Chair and Co-Chair Assignments

Committee	Chair	Co-Chair
Administrative Procedures	<u>Sharon Douglas</u> Atlanta-Hartsfield International Airport ATL	<u>Amy Hanson</u> Federal Aviation Administration FAA
Sustainable Site Management	<u>Janell Barrilleaux</u> Denver International Airport DIA	<u>Ken Westlake</u> US Environmental Protection Agency USEPA
Water Efficiency	<u>Walter Seedlock</u> Metropolitan Washington Airports Authority MWAA	<u>Steve Howards</u> Clean Airport Partnership CAP
Energy and Atmosphere	<u>Etienne Rouverand</u> Charles de Gaulle International Airport CDG	<u>Doug Widener</u> United States Green Building Council USGBC
Materials and Resources	<u>Sam Mehta</u> San Francisco International Airport SFO	<u>T.J. Schultz</u> Airports Consultants Council ACC
Indoor Environmental Quality	<u>Stewart Dalzell</u> Boston-Logan International Airport, MASSPORT BOS	<u>Michael Berkshire</u> Chicago Department of Zoning and Planning COC DZP
Construction Practices	<u>Kristi McKenney</u> Oakland International Airport OAK	<u>Dennis Probst</u> Minneapolis Airports Commission MSP
Document Organization and Process	<u>Elizabeth Leavitt</u> Seattle-Tacoma International Airport SEA	<u>Steve Clermont</u> Center for Transportation and the Environment CTE
Additional Chapters		
Planning	<u>Jim Crites</u> Dallas-Fort Worth International Airport DFW	<u>Todd Welty</u> Reno-Tahoe International Airport RNO
Operations and Maintenance	<u>Paul Manasjan</u> San Diego County Regional Airport Authority SAN	<u>Chris Johnson</u> United Airlines UAL
Concessions and Tenants	<u>Phil Ralston</u> Portland International Airport PDX	<u>Paul Shank</u> Baltimore Washington International Airport BWI

Follow-On Committee Meetings

- June 29th – July 6th: Working Groups participated in meetings, conference calls and webinars
 - Discussed individual review of draft SAM
 - Submitted comments/revisions/suggestions
 - Suggested/submitted case studies to be included in the updated manual



Follow-On Committee Meetings

- July 9, 2009: Working Group committees were brought together to present their findings, revisions and suggestions
- 519 comments received by July 10th for all meetings



Sustainable Airport Manual

...This is a living document with many features to be updated on a continuous basis. Because technology is changing and new cutting-edge material is becoming available, there are opportunities to make enhancements on a continuous basis...

Sam Mehta

San Francisco International Airport

...We want to make sure that people who want to follow a concept back to its origins have the references to do so...we have participation nationally and globally from other airports and we want this document to have a worldwide benchmark presence...

Ken Westlake

U.S. Environmental Protection Agency

...What you're trying to do is maximize your output with the least amount of input; reducing work, reducing materials, reducing your overall environmental footprint...

James Crites

Dallas-Ft. Worth International Airport

SAM: Updating Process

- August 5, 2009 - TODAY!!
 - Presenting to you, for the first time, live and in person.....
The updated SAM!



A banner for the "Airports Going Green Conference". On the left is a green circle with a white airplane silhouette. To its right, the text "Airports Going Green" is in a large, bold, italicized font, with "CONFERENCE" in a smaller, spaced-out font below it. Further right is the official seal of the City of Chicago, with the text "Richard M. Daley Mayor" underneath. Below the main title, it says "August 5 - 7, 2009 • Fairmont Hotel, Chicago Illinois". At the bottom are three logos: the AAE logo, the Chicago Department of Aviation logo, and the O'Hare Modernization Program logo. On the right side of the banner is a circular inset image showing an aerial view of the O'Hare airport terminal and surrounding infrastructure.

 ***Airports Going Green***
CONFERENCE


Richard M. Daley
Mayor

August 5 - 7, 2009 • Fairmont Hotel, Chicago Illinois





Sustainable Airport Manual Contents

SAM: What's In It?

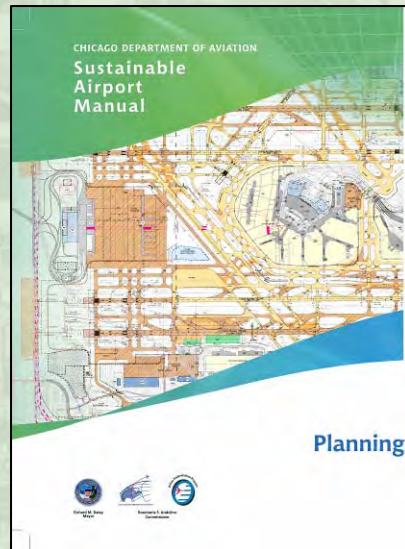
- The SAM includes 4 chapters
- Section 1.0 Administrative Procedures is common to all Chapters
- The Design & Construction Chapter - includes 8 sections
 - 2.0 Sustainable Site Management
 - 3.0 Water Efficiency
 - 4.0 Energy & Atmosphere
 - 5.0 Materials & Resources
 - 6.0 Indoor Environmental Quality
 - 7.0 Construction Practices
 - 8.0 Innovation in Design/Construction
 - 9.0 Regional Priority



New Chapters

- Three additional chapters are being added. Working Group Committees are continuing to draft these new chapters.

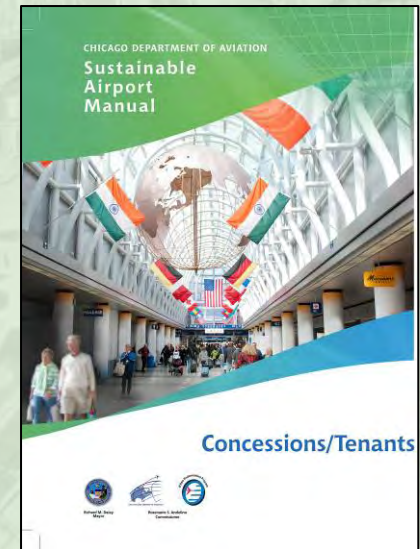
Planning



Operations & Maintenance



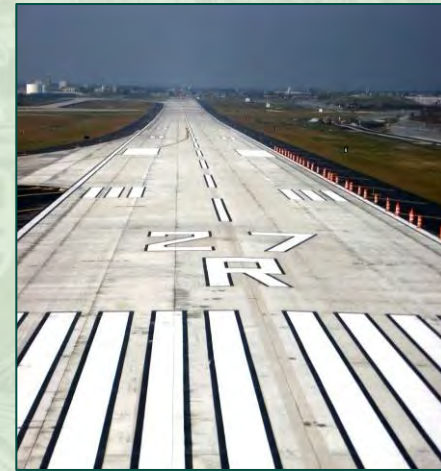
Concessions & Tenants



- Sign up to join our committees!

SAM Project Categories

- Like SDM, the SAM has been written with consideration of four general project categories:
- Civil – Airside: Projects located inside of the Air Operations Area (AOA) that do not include normally occupied structures and consist mainly of horizontal structures.
- Civil – Landside: Projects located outside of the AOA that do not include normally occupied structures and consist mainly of horizontal structures.



SAM Project Categories

- **Occupied Buildings:** Projects consisting of facilities and associated surroundings that, when construction is complete, will be normally occupied by employees and passengers.
- **Unoccupied Buildings:** Projects consisting of facilities and associated surroundings that, when construction is complete, will be unoccupied.



FAA Administration Building



South Airfield Lighting Control Vault

Sustainable Airport Manual

- The SAM Rating System includes:
 - 13 Prerequisites (required)
 - 72 Credits (optional)
 - A maximum total of 120 points
- SDM versus SAM Rating System:
 - 6 new prerequisites
 - 14 new credits
 - 50 additional points possible
 - Most points available in the Energy & Atmosphere, Materials & Resources, and Sustainable Sites Sections

SAM Sections and Points

- Sections new to SAM
- Administrative Procedures
- Innovation in Design
- Regional Priority

Sections	Prerequisites	Credits	Total Points
Administrative Procedures	2	1	1
Sustainable Sites	2	10	18
Water Efficiency	1	4	10
Energy & Atmosphere	3	6	35
Materials & Resources	1	14	21
Indoor Environmental Quality	2	15	16
Construction Practices	2	10	7
Innovation in Design/Construction	0	8	8
Regional Priority	0	4	4

SAM Prerequisites


- 5 of the 13 prerequisites are unique to SAM
 - Green Meetings (new)
 - Document Reduction and Recycling Initiative (new)
 - Construction Activity Pollution Prevention
 - Adopt Chicago Department of Aviation Best Management Practices (new)
 - Water Use Reduction, 20% (new to LEED 2009 & SAM)
- Fundamental Building Systems Commissioning
- Minimal Energy Performance
- Fundamental Refrigerant Management
- Storage & Collection of Recyclables
- Minimum Indoor Air Quality Performance
- Environmental Tobacco Smoke Control
- Clean Fuel Construction Vehicles (new)
- Construction Equipment Maintenance (new)

New SAM Credits - Categories

- Establish and Adopt a Corporate Sustainability Policy
Green Meetings (not part of SDM)
- Aggregate Reuse, 10% by Weight (not part of SDM)
- Construction Waste Management, Divert 90% from Landfill, now additional point for increased diversion percentage (50% and 75% previously)
- Balanced Earthwork, 75%-95% Managed On-Airport (not part of SDM)
- Optimize Energy Performance, 8%-48% Civil, now up to 6 points available for non-building projects
- Local/Regional Materials, 50% Extracted, Harvested, or Manufactured Locally (within 250 miles), now additional point for increased percentage manufactured locally (10% and 20% previously)



New SAM Credits - Categories

- Low Emission Construction Vehicles, more stringent than Clean Fuel Construction vehicles from SDM 
- Alternative Transportation During Construction, Low Emitting & Fuel Efficient Vehicles, 10%-50%, additional points for low emitting/fuel efficient on-road vehicles
- Sustainable Temporary Construction Materials (not part of SDM)
- Menu Items: Construction Equipment Retrofit, Photovoltaics, etc. (not part of SDM)
- Equipment Salvage and Reuse (not part of SDM)
- Regional Priority credits (not part of SDM)
- LEED Certified Project (not part of SDM)

New SAM Credit Highlights

- New Section: Administrative Procedures
- This section is common to all chapters of the SAM
- 2 Prerequisites are required
 - Green Meetings
 - Document Reduction and Recycling Initiative
- 1 credit worth 1 point is optional
 - Establish and Adopt a Corporate Sustainability Policy

New SAM Credit Highlights

- New Section: Innovation in Design/Construction
- This section now includes 2 new credits unique to the SAM:
 - Any of the following Menu Items for 1 point each, 3 points maximum: Construction Equipment Retrofit, Photovoltaics, Geothermal Heating/Cooling, Wind Power, Rainwater Harvesting, Permeable Pavement, Trombe or Solar Walls, Green Walls, or Alternative Water Heating
 - LEED Certified Project



New SAM Credit Highlights

- New Section: Regional Priority
- This section includes credits identified by USGBC local councils and chapters as having environmental importance for a project's region (based on zip code)
- The 4 credits for ORD include:
 - Alternative Transportation, Public Transportation Access
 - Alternative Transportation, Low Emitting Vehicles
 - Alternative Transportation, Parking Capacity
 - Stormwater Design, Treatment

New SAM Credit Highlights

- Material and Resources:
- Balanced Earthwork
 - Previously accounted for in Construction Waste Management Credit
 - Soil considered a resource at ORD, therefore a new credit was developed
 - Saved over a hundred million dollars by implementing a balanced earthwork management plan



New SAM Credit Highlights

- Energy & Atmosphere:
- Optimize Energy Performance, 8%-48%, Civil
 - Sets the metric to measure energy efficiency on civil/infrastructure projects
 - SAM now includes 2 compliance options for achieving points for civil projects

Energy & Atmosphere

■ Optimize Energy Performance, 8%-48%, Civil

SAM Credit	% Energy Reduction Over Baseline*			Points
	New Buildings	Existing Buildings	Civil**	
4.4.1	12%	8%	8%	1
4.4.2	14%	10%	16%	2
4.4.3	16%	12%	24%	3
4.4.4	18%	14%	32%	4
4.4.5	20%	16%	40%	5
4.4.6	22%	18%	48%	6
4.4.7	24%	20%	-	7
4.4.8	26%	22%	-	8
4.4.9	28%	24%	-	9
4.4.10	30%	26%	-	10
4.4.11	32%	28%	-	11
4.4.12	34%	30%	-	12
4.4.13	36%	32%	-	13
4.4.14	38%	34%	-	14
4.4.15	40%	36%	-	15
4.4.16	42%	38%	-	16
4.4.17	44%	40%	-	17
4.4.18	46%	42%	-	18
4.4.19	48%	44%	-	19

■ Worth up to 6 points of Civil Projects

Energy & Atmosphere

■ Technology/Strategies for Civil Projects worth up to 3 points

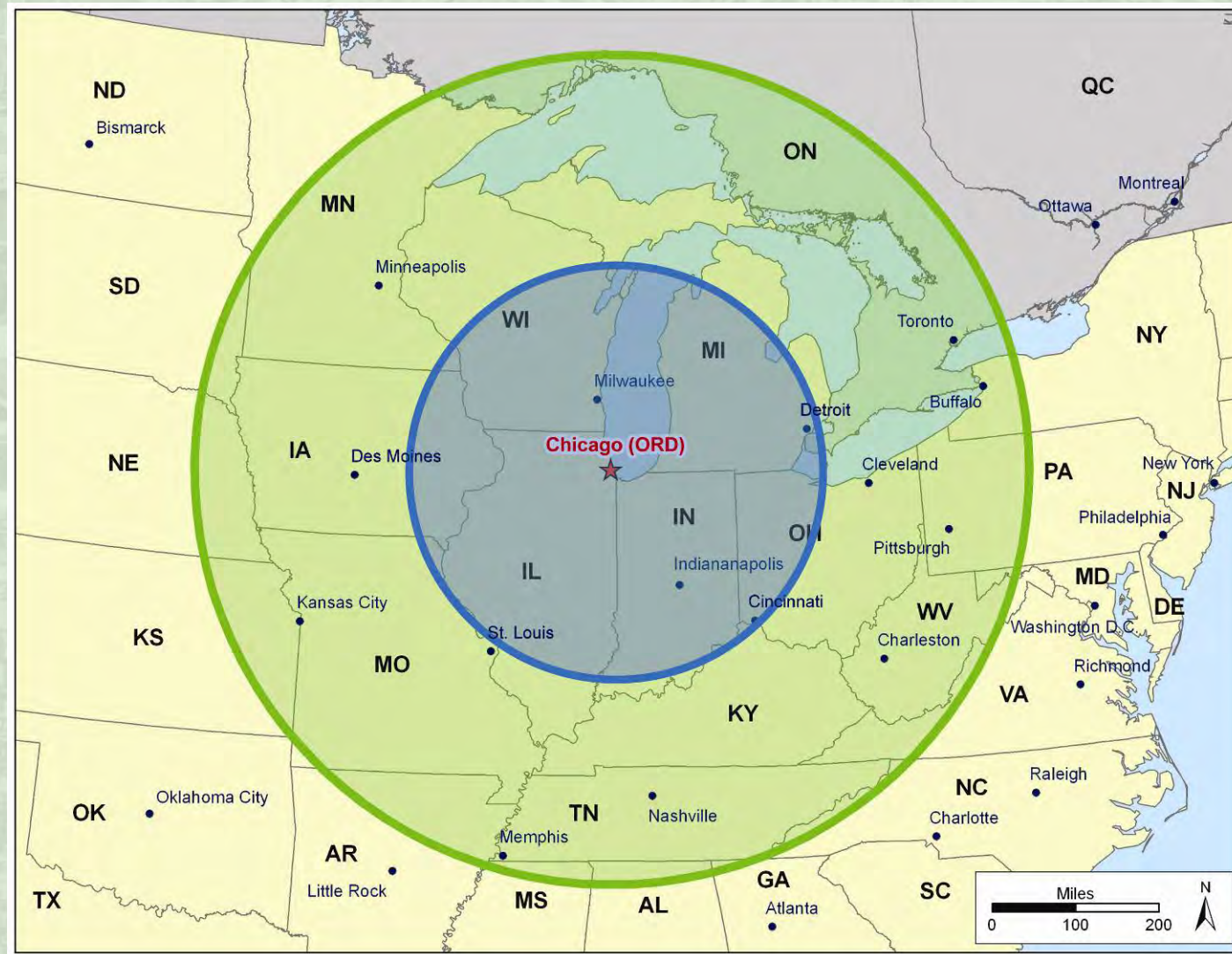
Technology/Strategy	Points
LED lighting for roadways, parking areas, or pedestrian areas	1 Point
LED runway lights or taxiway lights	1 Point
Nighttime/motion sensor or electronically-controlled ballast activation for roadway, parking, or pedestrian lighting, as applicable, with special consideration for safety.	1 Point
High efficiency motors, >92% at full load for all motor horsepower ratings	1 Point
Variable speed drive for pump motors	1 Point
Solar powered signage, lighting, or equipment	1 Point
The SRP will consider other proposed strategies or technologies proposed by the designer provided they meet the intent of this credit.	1 Point
Any combination of the above items	Up to 3 Points Maximum

NOTE: The awarding of points will be at the discretion of the SRP.

New SAM Credit Highlights

- Materials and Resources:
- Local/Regional Materials, 50% Extracted, Harvested or Manufactured Locally (within 250 miles)
 - Projects evaluated under the SDM were achieving greater than 50% regional material within 500 miles
 - Because of the availability of construction materials in the Chicago area the credit was added to further support the local economy and minimize transportation impacts

New SAM Credit Highlights



Organization of SAM Credits

- Each sustainable design credit has 5 subsections:

- Intent

- Requirements

- Submittal

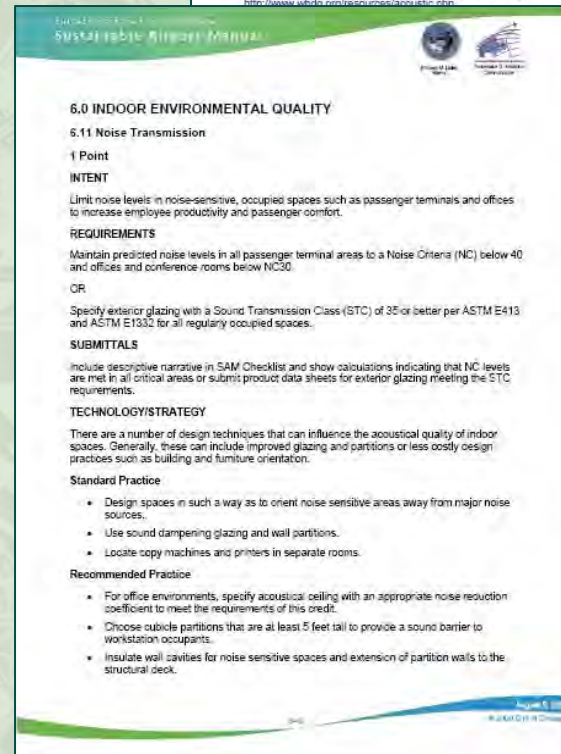
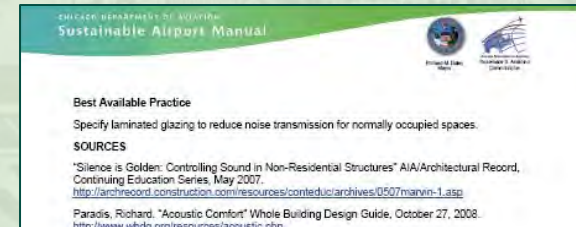
- Technology/Strategy

- Standard Practice

- Recommended Practice

- Best Available Practice

- Case study



Organization of SAM Credits



2.0 SUSTAINABLE SITES

2.4.1 Alternative Transportation, Public Transportation Access

6 Points

INTENT

Reduce pollution and land development impacts from automobile use.

REQUIREMENTS

Locate project within 1/2 mile walking distance (measured from main building entrance) of an existing or planned and funded commuter rail, light rail, or subway station (measured from the building entrance).

OR

Locate project within 1/4 mile walking distance (measured from main building entrance) of one or more stops for two or more public, campus, or private bus lines usable by building occupants.

SUBMITTALS

Include descriptive narrative in SAM Checklist.

TECHNOLOGY/STRATEGY

Perform a transportation survey of future building occupants to identify transportation needs and share results to encourage knowledge and use of mass transit. Whenever possible, co-locate buildings and mass transit and provide clear directional signage.

Standard Practice

- CDA's current transportation plan meets the basic requirements of this strategy.
- Shuttle buses and ATS transportation are currently available.

Recommended Practice

Work with CDA to plan for and implement strategies aimed at the following goals:

- Improve and/or increase public transportation access from the City and suburbs.
- Reduce parking needs.
- Improve efficiency of access.



Best Available Practice

Below are additional suggestions that could further support an inter-modal public transportation network. Teams should consider impact of future implementation.

- Provide incentives to employees to use public transportation, car-pooling and shuttles.
- Consolidate rental car facilities and mini-bus transportation to minimize congestion on terminal roads. Consider the use of an alternate fuel mini-bus fleet to reduce vehicle emissions and carbon footprint.
- Operate satellite 'check-in' facilities (downtown and suburban locations) to minimize congestion on terminal access roads and encourage use of public transportation.
- Construct airport to airport (O'Hare-Midway) high-speed rail connection.
- Develop Airport-Downtown express connection, including satellite check-in facilities.
- Develop additional train/mass transit service to/from the suburbs.
- To ease in local understanding of available modes of alternative transportation, airports can include mass-transit routes on an airport area map.

CASE STUDY

Electric Transit

Charles De Gaulle International Airport - Paris, France

In April 2007, Charles de Gaulle International Airport in Paris France commissioned a new automatic metro line, the Charles de Gaulle Véhicule Automatique Léger (CDGVAL). The metro line is a free driverless train transferring passengers and 85,000 airport employees. The CDGVAL links three airport terminals, TGV/RER stations, and long-term parking lots. The CDGVAL is a 100 percent electric, making it possible to save 750 tons of fuel per year and decreases 15 tons of NO_x and 2,500 tons of CO₂ released annually by the buses. It also decreases travel time between the two furthest points on the system by more than 50 percent.

<http://www.enviro.aero/CharlesDeGaulleAirport.aspx>



Sustainable Airport Manual Implementation and Review Process, Certification

- SAM now evaluates projects for both Design and Construction

Tampa
7/24/09

Sustainable Airport Manual (SAM) Construction Checklist

WBS No.
Project Name
Contract Name
Release
Mission:
Project Category: Occupied Building (DB)

Release Date
XX/XX/XXXX

Construction

U.S. Department of Transportation

Florida Department of Transportation

August 5, 2009
0-2009-01-01 (Change)

POINTS DETAILED	SPONSOR FOR PRO-CT BY SUSP	STATUS BY PRO-CT BY SUSP	CREDIT DESCRIPTION	POINTS	REFERENCE BROWSE LIST #	REFERENCE SPECIFICATION SECTION	MARKING
			Prerequisite 2 - Construction Equipment Maintenance				
			Maintain the most current inventory of all construction vehicles				
			2.1 Construction & Activity Pollution Prevention	1	See 2.1	See 2.1	Fill in scope of work
			2.2 Construction & Activity Pollution Prevention	1	See 2.2	See 2.2	See 2.1
			2.3 Construction & Activity Pollution Prevention	1	See 2.3	See 2.3	See 2.1
			2.4 Construction & Activity Pollution Prevention	1	See 2.4	See 2.4	See 2.1
			2.5 Construction & Activity Pollution Prevention	1	See 2.5	See 2.5	See 2.1
			2.6 Construction & Activity Pollution Prevention	1	See 2.6	See 2.6	See 2.1
			2.7 Construction & Activity Pollution Prevention	1	See 2.7	See 2.7	See 2.1
			2.8 Construction & Activity Pollution Prevention	1	See 2.8	See 2.8	See 2.1
			2.9 Construction & Activity Pollution Prevention	1	See 2.9	See 2.9	See 2.1
			2.10 Construction & Activity Pollution Prevention	1	See 2.10	See 2.10	See 2.1
			2.11 Construction & Activity Pollution Prevention	1	See 2.11	See 2.11	See 2.1
			2.12 Construction & Activity Pollution Prevention	1	See 2.12	See 2.12	See 2.1
			2.13 Construction & Activity Pollution Prevention	1	See 2.13	See 2.13	See 2.1
			2.14 Construction & Activity Pollution Prevention	1	See 2.14	See 2.14	See 2.1
			2.15 Construction & Activity Pollution Prevention	1	See 2.15	See 2.15	See 2.1
			2.16 Construction & Activity Pollution Prevention	1	See 2.16	See 2.16	See 2.1
			2.17 Construction & Activity Pollution Prevention	1	See 2.17	See 2.17	See 2.1
			2.18 Construction & Activity Pollution Prevention	1	See 2.18	See 2.18	See 2.1
			2.19 Construction & Activity Pollution Prevention	1	See 2.19	See 2.19	See 2.1
			2.20 Construction & Activity Pollution Prevention	1	See 2.20	See 2.20	See 2.1
			2.21 Construction & Activity Pollution Prevention	1	See 2.21	See 2.21	See 2.1
			2.22 Construction & Activity Pollution Prevention	1	See 2.22	See 2.22	See 2.1
			2.23 Construction & Activity Pollution Prevention	1	See 2.23	See 2.23	See 2.1
			2.24 Construction & Activity Pollution Prevention	1	See 2.24	See 2.24	See 2.1
			2.25 Construction & Activity Pollution Prevention	1	See 2.25	See 2.25	See 2.1
			2.26 Construction & Activity Pollution Prevention	1	See 2.26	See 2.26	See 2.1
			2.27 Construction & Activity Pollution Prevention	1	See 2.27	See 2.27	See 2.1
			2.28 Construction & Activity Pollution Prevention	1	See 2.28	See 2.28	See 2.1
			2.29 Construction & Activity Pollution Prevention	1	See 2.29	See 2.29	See 2.1
			2.30 Construction & Activity Pollution Prevention	1	See 2.30	See 2.30	See 2.1
			2.31 Construction & Activity Pollution Prevention	1	See 2.31	See 2.31	See 2.1
			2.32 Construction & Activity Pollution Prevention	1	See 2.32	See 2.32	See 2.1
			2.33 Construction & Activity Pollution Prevention	1	See 2.33	See 2.33	See 2.1
			2.34 Construction & Activity Pollution Prevention	1	See 2.34	See 2.34	See 2.1
			2.35 Construction & Activity Pollution Prevention	1	See 2.35	See 2.35	See 2.1
			2.36 Construction & Activity Pollution Prevention	1	See 2.36	See 2.36	See 2.1
			2.37 Construction & Activity Pollution Prevention	1	See 2.37	See 2.37	See 2.1
			2.38 Construction & Activity Pollution Prevention	1	See 2.38	See 2.38	See 2.1
			2.39 Construction & Activity Pollution Prevention	1	See 2.39	See 2.39	See 2.1
			2.40 Construction & Activity Pollution Prevention	1	See 2.40	See 2.40	See 2.1
			2.41 Construction & Activity Pollution Prevention	1	See 2.41	See 2.41	See 2.1
			2.42 Construction & Activity Pollution Prevention	1	See 2.42	See 2.42	See 2.1
			2.43 Construction & Activity Pollution Prevention	1	See 2.43	See 2.43	See 2.1
			2.44 Construction & Activity Pollution Prevention	1	See 2.44	See 2.44	See 2.1
			2.45 Construction & Activity Pollution Prevention	1	See 2.45	See 2.45	See 2.1
			2.46 Construction & Activity Pollution Prevention	1	See 2.46	See 2.46	See 2.1
			2.47 Construction & Activity Pollution Prevention	1	See 2.47	See 2.47	See 2.1
			2.48 Construction & Activity Pollution Prevention	1	See 2.48	See 2.48	See 2.1
			2.49 Construction & Activity Pollution Prevention	1	See 2.49	See 2.49	See 2.1
			2.50 Construction & Activity Pollution Prevention	1	See 2.50	See 2.50	See 2.1
			2.51 Construction & Activity Pollution Prevention	1	See 2.51	See 2.51	See 2.1
			2.52 Construction & Activity Pollution Prevention	1	See 2.52	See 2.52	See 2.1
			2.53 Construction & Activity Pollution Prevention	1	See 2.53	See 2.53	See 2.1
			2.54 Construction & Activity Pollution Prevention	1	See 2.54	See 2.54	See 2.1
			2.55 Construction & Activity Pollution Prevention	1	See 2.55	See 2.55	See 2.1
			2.56 Construction & Activity Pollution Prevention	1	See 2.56	See 2.56	See 2.1
			2.57 Construction & Activity Pollution Prevention	1	See 2.57	See 2.57	See 2.1
			2.58 Construction & Activity Pollution Prevention	1	See 2.58	See 2.58	See 2.1
			2.59 Construction & Activity Pollution Prevention	1	See 2.59	See 2.59	See 2.1
			2.60 Construction & Activity Pollution Prevention	1	See 2.60	See 2.60	See 2.1
			2.61 Construction & Activity Pollution Prevention	1	See 2.61	See 2.61	See 2.1
			2.62 Construction & Activity Pollution Prevention	1	See 2.62	See 2.62	See 2.1
			2.63 Construction & Activity Pollution Prevention	1	See 2.63	See 2.63	See 2.1
			2.64 Construction & Activity Pollution Prevention	1	See 2.64	See 2.64	See 2.1
			2.65 Construction & Activity Pollution Prevention	1	See 2.65	See 2.65	See 2.1
			2.66 Construction & Activity Pollution Prevention	1	See 2.66	See 2.66	See 2.1
			2.67 Construction & Activity Pollution Prevention	1	See 2.67	See 2.67	See 2.1
			2.68 Construction & Activity Pollution Prevention	1	See 2.68	See 2.68	See 2.1
			2.69 Construction & Activity Pollution Prevention	1	See 2.69	See 2.69	See 2.1
			2.70 Construction & Activity Pollution Prevention	1	See 2.70	See 2.70	See 2.1
			2.71 Construction & Activity Pollution Prevention	1	See 2.71	See 2.71	See 2.1
			2.72 Construction & Activity Pollution Prevention	1	See 2.72	See 2.72	See 2.1
			2.73 Construction & Activity Pollution Prevention	1	See 2.73	See 2.73	See 2.1
			2.74 Construction & Activity Pollution Prevention	1	See 2.74	See 2.74	See 2.1
			2.75 Construction & Activity Pollution Prevention	1	See 2.75	See 2.75	See 2.1
			2.76 Construction & Activity Pollution Prevention	1	See 2.76	See 2.76	See 2.1
			2.77 Construction & Activity Pollution Prevention	1	See 2.77	See 2.77	See 2.1
			2.78 Construction & Activity Pollution Prevention	1	See 2.78	See 2.78	See 2.1
			2.79 Construction & Activity Pollution Prevention	1	See 2.79	See 2.79	See 2.1
			2.80 Construction & Activity Pollution Prevention	1	See 2.80	See 2.80	See 2.1
			2.81 Construction & Activity Pollution Prevention	1	See 2.81	See 2.81	See 2.1
			2.82 Construction & Activity Pollution Prevention	1	See 2.82	See 2.82	See 2.1
			2.83 Construction & Activity Pollution Prevention	1	See 2.83	See 2.83	See 2.1
			2.84 Construction & Activity Pollution Prevention	1	See 2.84	See 2.84	See 2.1
			2.85 Construction & Activity Pollution Prevention	1	See 2.85	See 2.85	See 2.1
			2.86 Construction & Activity Pollution Prevention	1	See 2.86	See 2.86	See 2.1
			2.87 Construction & Activity Pollution Prevention	1	See 2.87	See 2.87	See 2.1
			2.88 Construction & Activity Pollution Prevention	1	See 2.88	See 2.88	See 2.1
			2.89 Construction & Activity Pollution Prevention	1	See 2.89	See 2.89	See 2.1
			2.90 Construction & Activity Pollution Prevention	1	See 2.90	See 2.90	See 2.1
			2.91 Construction & Activity Pollution Prevention	1	See 2.91	See 2.91	See 2.1
			2.92 Construction & Activity Pollution Prevention	1	See 2.92	See 2.92	See 2.1
			2.93 Construction & Activity Pollution Prevention	1	See 2.93	See 2.93	See 2.1
			2.94 Construction & Activity Pollution Prevention	1	See 2.94	See 2.94	See 2.1
			2.95 Construction & Activity Pollution Prevention	1	See 2.95	See 2.95	See 2.1
			2.96 Construction & Activity Pollution Prevention	1	See 2.96	See 2.96	See 2.1
			2.97 Construction & Activity Pollution Prevention	1	See 2.97	See 2.97	See 2.1
			2.98 Construction & Activity Pollution Prevention	1	See 2.98	See 2.98	See 2.1
			2.99 Construction & Activity Pollution Prevention	1	See 2.99	See 2.99	See 2.1
			2.100 Construction & Activity Pollution Prevention	1	See 2.100	See 2.100	See 2.1
			2.101 Construction & Activity Pollution Prevention	1	See 2.101	See 2.101	See 2.1
			2.102 Construction & Activity Pollution Prevention	1	See 2.102	See 2.102	See 2.1
			2.103 Construction & Activity Pollution Prevention	1	See 2.103	See 2.103	See 2.1
			2.104 Construction & Activity Pollution Prevention	1	See 2.104	See 2.104	See 2.1
			2.105 Construction & Activity Pollution Prevention	1	See 2.105	See 2.105	See 2.1
			2.106 Construction & Activity Pollution Prevention	1	See 2.106	See 2.106	See 2.1
			2.107 Construction & Activity Pollution Prevention	1	See 2.107	See 2.107	See 2.1
			2.108 Construction & Activity Pollution Prevention	1	See 2.108	See 2.108	See 2.1
			2.109 Construction & Activity Pollution Prevention	1	See 2.109	See 2.109	See 2.1
			2.110 Construction & Activity Pollution Prevention	1	See 2.110	See 2.110	See 2.1
			2.111 Construction & Activity Pollution Prevention	1	See 2.111	See 2.111	See 2.1
			2.112 Construction & Activity Pollution Prevention	1	See 2.112	See 2.112	See 2.1
			2.113 Construction & Activity Pollution Prevention	1	See 2.113	See 2.113	See 2.1
			2.114 Construction & Activity Pollution Prevention	1	See 2.114	See 2.114	See 2.1
			2.115 Construction & Activity Pollution Prevention	1	See 2.115	See 2.115	See 2.1
			2.116 Construction & Activity Pollution Prevention	1	See 2.116	See 2.116	See 2.1
			2.117 Construction & Activity Pollution Prevention	1	See 2.117	See 2.117	See 2.1
			2.118 Construction & Activity Pollution Prevention	1	See 2.118	See 2.118	See 2.1
			2.119 Construction & Activity Pollution Prevention	1	See 2.119	See 2.119	See 2.1
			2.120 Construction & Activity Pollution Prevention	1	See 2.120	See 2.120	See 2.1
			2.121 Construction & Activity Pollution Prevention	1	See 2.121	See 2.121	See 2.1
			2.122 Construction & Activity Pollution Prevention	1	See 2.122	See 2.122	See 2.1
			2.123 Construction & Activity Pollution Prevention	1	See 2.123	See 2.123	See 2.1
			2.124 Construction & Activity Pollution Prevention	1	See 2.124	See 2.124	See 2.1
			2.125 Construction & Activity Pollution Prevention	1	See 2.125	See 2.125	See 2.1
			2.126 Construction & Activity Pollution Prevention	1	See 2.126	See 2.126	See 2.1
			2.127 Construction & Activity Pollution Prevention	1	See 2.127	See 2.127	See 2.1
			2.128 Construction & Activity Pollution Prevention	1	See 2.128	See 2.128	See 2.1
			2.129 Construction & Activity Pollution Prevention	1	See 2.129	See 2.129	See 2.1
			2.130 Construction & Activity Pollution Prevention	1	See 2.130	See 2.130	See 2.1
			2.131 Construction & Activity Pollution Prevention	1	See 2.131	See 2.131	See 2.1
			2.132 Construction & Activity Pollution Prevention	1	See 2.132	See 2.132	See 2.1
			2.133 Construction & Activity Pollution Prevention	1	See 2.133	See 2.133	See 2.1
			2.134 Construction & Activity Pollution Prevention	1	See 2.134	See 2.134	See 2.1
			2.135 Construction & Activity Pollution Prevention	1	See 2.135	See 2.135	See 2.1
			2.136 Construction & Activity Pollution Prevention	1	See 2.136	See 2.136	See 2.1
			2.137 Construction & Activity Pollution Prevention	1	See 2.137	See 2.137	See 2.1
			2.138 Construction & Activity Pollution Prevention	1	See 2.138	See 2.138	See 2.1
			2.139 Construction & Activity Pollution Prevention	1	See 2.139	See 2.139	See 2.1
			2.140 Construction & Activity Pollution Prevention	1	See 2.140	See 2.140	See 2.1
			2.141 Construction & Activity Pollution Prevention	1	See 2.141	See 2.141	See 2.1
			2.142 Construction & Activity Pollution Prevention	1	See 2.142	See 2.142	See 2.1
			2.143 Construction & Activity Pollution Prevention	1	See 2.143	See 2.143	See 2.1
			2.144 Construction & Activity Pollution Prevention	1	See 2.144	See 2.144	See 2.1
			2.145 Construction & Activity Pollution Prevention	1	See 2.145	See 2.145	See 2.1
			2.146 Construction & Activity Pollution Prevention	1	See 2.146	See 2.146	See 2.1
			2.147 Construction & Activity Pollution Prevention	1	See 2.147	See 2.147	See 2.1
			2.148 Construction & Activity Pollution Prevention	1	See 2.148	See 2.148	See 2.1
			2.149 Construction & Activity Pollution Prevention	1	See 2.149	See 2.149	See 2.1
			2.150 Construction & Activity Pollution Prevention	1	See 2.150	See 2.150	See 2.1
			2.151 Construction & Activity Pollution Prevention	1	See 2.151	See 2.151	See 2.1
			2.152 Construction & Activity Pollution Prevention	1	See 2.152	See 2.152	See 2.1
			2.153 Construction & Activity Pollution Prevention	1	See 2.153	See 2.153	See 2.1
			2.154 Construction & Activity Pollution Prevention	1	See 2.154	See 2.154	See 2.1
			2.155 Construction & Activity Pollution Prevention	1	See 2.155	See 2.155	See 2.1
			2.156 Construction & Activity Pollution Prevention	1	See 2.156	See 2.156	See 2.1
			2.157 Construction & Activity Pollution Prevention	1	See 2.157	See 2.157	See 2.1
			2.158 Construction & Activity Pollution Prevention	1	See 2.158	See 2.158	See 2.1
			2.159 Construction & Activity Pollution Prevention	1	See 2.159	See 2.159	See 2.1
			2.160 Construction & Activity Pollution Prevention	1	See 2.160	See 2.160	See 2.1
			2.161 Construction & Activity Pollution Prevention	1	See 2.161	See 2.161	See 2.1
			2.162 Construction & Activity Pollution Prevention	1	See 2.162	See 2.162	See 2.1
			2.163 Construction & Activity Pollution Prevention	1	See 2.163	See 2.163	See 2.1
			2.164 Construction & Activity Pollution Prevention	1	See 2.164	See 2.164	See 2.1
			2.165 Construction & Activity Pollution Prevention	1	See 2.165	See 2.165	See 2.1

SAM Green Airplane Rating System



SUSTAINABLE AIRPORT MANUAL

GREEN AIRPLANE RATING SYSTEM



Sustainable Airport Manual Credits	Design Checklist				Construction Checklist				LEED 2009 Reference
	Civil-Airside	Civil-Landside	Occupied Buildings	Unoccupied Buildings	Civil-Airside	Civil-Landside	Occupied Buildings	Unoccupied Buildings	
1.0 Administrative Procedures	1	1	1	1	1	1	1	1	
1.1 Prerequisite 1 Green Meetings	Required	Required	Required	Required	Required	Required	Required	Required	
1.2 Prerequisite 2 Document Reduction and Recycling Initiative (DRRI)	Required	Required	Required	Required	Required	Required	Required	Required	
1.3 Establish and Adopt a Corporate Sustainability Policy	1	1	1	1	1	1	1	1	
2.0 Sustainable Site Management	3	5	10	6	2	6	10	6	SS
2.1 Prerequisite 1 Construction Activity Pollution Prevention	Required	Required	Required	Required	Required	Required	Required	Required	SS pr1
2.2 Prerequisite 2 Adopt CDA Best Management Practices	Required	Required	Required	Required	Required	Required	Required	Required	
2.3 Brownfield Redevelopment	1	1	1	1	1	1	1	1	SS cr3
2.4.1 Alternative Transportation, Public Transportation Access			6				6		SS cr4.1
2.4.2 Alternative Transportation, Bicycle Access, Storage & Changing Rooms			1				1		SS cr4.2
2.4.3 Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles (Non-Construction)			3				3		SS cr4.3
2.4.4 Alternative Transportation, Parking Capacity			2				2		SS cr4.4
2.5.1 Stormwater Design, Quantity Control		1	1	1		1	1	1	SS cr6.1
2.5.2 Stormwater Design, Quality Control		1	1	1		1	1	1	SS cr6.2
2.6.1 Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1	1	1	1	1	1	1	1	SS cr7.1
2.6.2 Landscape & Exterior Design to Reduce Heat Islands, Roof			1	1			1	1	SS cr7.2
2.7 Light Pollution Reduction	1	1	1	1	1	1	1	1	SS cr8
3.0 Water Efficiency	4	4	10	11	4	4	10	10	WE
3.1 Prerequisite 1 Water Use Reduction, 20% Reduction			Required	Required			Required	Required	WE pr1
3.2.1 Water Use Reduction, 30% Reduction			2	2			2	2	WE cr3.1
3.2.2 Water Use Reduction, 35% Reduction			1	1			1	1	WE cr3.2
3.2.3 Water Use Reduction, 40% Reduction			1	1			1	1	WE cr3.3
3.3.1 Water Efficient Landscaping, Reduce by 50%	2	2	2	2	2	2	2	2	WE cr1.1
3.3.2 Water Efficient Landscaping, No Potable Water Use or No Irrigation	2	2	2	2	2	2	2	2	WE cr1.2
3.4 Innovative Wastewater Technologies			2	2			2	2	WE cr2
4.0 Energy & Atmosphere	15	15	35	35	15	15	35	35	EA
4.1 Prerequisite 1 Fundamental Building Systems Commissioning			Required	Required			Required	Required	EA pr1
4.2 Prerequisite 2 Minimum Energy Performance	Required	Required	Required	Required	Required	Required	Required	Required	EA pr2
4.3 Prerequisite 3 Fundamental Refrigerant Management			Required	Required			Required	Required	EA pr3
4.4.1 Optimize Energy Performance, 12% New Buildings, 8% Existing Buildings, 8% Civil	1	1	1	1	1	1	1	1	EA cr1.1
4.4.2 Optimize Energy Performance, 14% New Buildings, 10% Existing Buildings, 10% Civil	1	1	1	1	1	1	1	1	EA cr1.2
4.4.3 Optimize Energy Performance, 16% New, 12% Existing, 24% Civil	1	1	1	1	1	1	1	1	EA cr1.3
4.4.4 Optimize Energy Performance, 18% New, 14% Existing, 32% Civil	1	1	1	1	1	1	1	1	EA cr1.4
4.4.5 Optimize Energy Performance, 20% New, 16% Existing, 40% Civil	1	1	1	1	1	1	1	1	EA cr1.5
4.4.6 Optimize Energy Performance, 22% New, 18% Existing, 48% Civil	1	1	1	1	1	1	1	1	EA cr1.6
4.4.7 Optimize Energy Performance, 24% New, 20% Existing			1	1			1	1	EA cr1.7
4.4.8 Optimize Energy Performance, 26% New, 22% Existing			1	1			1	1	EA cr1.8
4.4.9 Optimize Energy Performance, 28% New, 24% Existing			1	1			1	1	EA cr1.9
4.4.10 Optimize Energy Performance, 30% New, 26% Existing			1	1			1	1	EA cr1.10
4.4.11 Optimize Energy Performance, 32% New, 28% Existing			1	1			1	1	EA cr1.11
4.4.12 Optimize Energy Performance, 34% New, 30% Existing			1	1			1	1	EA cr1.12
4.4.13 Optimize Energy Performance, 36% New, 32% Existing			1	1			1	1	EA cr1.13
4.4.14 Optimize Energy Performance, 38% New, 34% Existing			1	1			1	1	EA cr1.14
4.4.15 Optimize Energy Performance, 40% New, 36% Existing			1	1			1	1	EA cr1.15
4.4.16 Optimize Energy Performance, 42% New, 38% Existing			1	1			1	1	EA cr1.16
4.4.17 Optimize Energy Performance, 44% New, 40% Existing			1	1			1	1	EA cr1.17
4.4.18 Optimize Energy Performance, 46% New, 42% Existing			1	1			1	1	EA cr1.18
4.4.19 Optimize Energy Performance, 48% New, 44% Existing			1	1			1	1	EA cr1.19
4.5.1 On-Site Renewable Energy, 1%	1	1	1	1	1	1	1	1	EA cr2.1
4.5.2 On-Site Renewable Energy, 3%	1	1	1	1	1	1	1	1	EA cr2.2
4.5.3 On-Site Renewable Energy, 5%	1	1	1	1	1	1	1	1	EA cr2.3
4.5.4 On-Site Renewable Energy, 7%	1	1	1	1	1	1	1	1	EA cr2.4
4.5.5 On-Site Renewable Energy, 9%	1	1	1	1	1	1	1	1	EA cr2.5
4.5.6 On-Site Renewable Energy, 11%	1	1	1	1	1	1	1	1	EA cr2.6
4.5.7 On-Site Renewable Energy, 13%	1	1	1	1	1	1	1	1	EA cr2.7
4.6 Enhanced Commissioning			2	2			2	2	EA cr3
4.7 Enhanced Refrigerant Management			2	2			2	2	EA cr4
4.8 Measurement & Verification			3	3			3	3	EA cr5

SAM Green Airplane Rating System

5.1	Prerequisite 1 Storage & Collection of Recyclables	Required	Required	Required	Required	Required	Required	Required	Required	MR p1
5.2.1	Building and Infrastructure Reuse, Maintain 55% of Existing Walls, Floors, and Roof or Infrastructure	1	1	1	1	1	1	1	1	MR a1.1
5.2.2	Building and Infrastructure Reuse, Maintain 75% of Existing Walls, Floors, and Roof or Infrastructure	1	1	1	1	1	1	1	1	MR a1.2
5.2.3	Building and Infrastructure Reuse, Maintain 95% of Existing Walls, Floors, and Roof or Infrastructure	1	1	1	1	1	1	1	1	MR a1.3
5.2.4	Building and Infrastructure Reuse, Maintain 50% of Interior Non-Structural Elements	1	1	1	1	1	1	1	1	MR a1.4
5.3.1	Construction Waste Management, Divert 50% from Landfill	1	1	1	1	1	1	1	1	MR a2.1
5.3.2	Construction Waste Management, Divert 75% from Landfill	1	1	1	1	1	1	1	1	MR a2.2
5.3.3	Construction Waste Management, Divert 90% from Landfill	1	1	1	1	1	1	1	1	
5.4.1	Balanced Earthwork, 75% Managed On-Airport	1	1	1	1	1	1	1	1	
5.4.2	Balanced Earthwork, 95% Managed On-Airport	1	1	1	1	1	1	1	1	
5.5	Aggregate Reuse, 10% by Weight (of Total Aggregates Used on Airport Projects from Airport Projects)	1	1	1	1	1	1	1	1	
5.6.1	Material Reuse, 5%	1	1	1	1	1	1	1	1	MR a3.1
5.6.2	Material Reuse, 10%	1	1	1	1	1	1	1	1	MR a3.2
5.7.1	Recycled Content, 10%	1	1	1	1	1	1	1	1	MR a4.1
5.7.2	Recycled Content, 20%	1	1	1	1	1	1	1	1	MR a4.2
5.8.1	Local/Regional Materials, 10% Extracted, Harvested or Manufactured Regionally	1	1	1	1	1	1	1	1	MR a5.1
5.8.2	Local/Regional Materials, 20% Extracted, Harvested or Manufactured Regionally	1	1	1	1	1	1	1	1	MR a5.2
5.8.3	Local/Regional Materials, 50% Extracted, Harvested or Manufactured Locally (within 250 miles)	1	1	1	1	1	1	1	1	
5.9	Recycle Renewable Materials									MR a6
5.10	Certified Wood									MR a7
5.11	Furniture & Equipment									†
5.12	Equipment Salvage and Reuse	1	1	1	1	1	1	1	1	
6.0	Indoor Environmental Quality	0	0	16	7	0	0	16	7	EQ
6.1	Prerequisite 1 Minimum Indoor Air Quality (IAQ) Performance	Required	Required	Required	Required	Required	Required	Required	Required	EQ p1
6.2	Prerequisite 2 Environmental Tobacco Smoke (ETS) Control	Required	Required	Required	Required	Required	Required	Required	Required	EQ p2
6.3	Outdoor Air Delivery Monitoring	1				1				EQ c1
6.4	Increased Ventilation	1				1				EQ c2
6.5.1	Construction IAQ Management Plan, During Construction			1	1			1	1	EQ a3.1
6.5.2	Construction IAQ Management Plan, Before Occupancy			1	1			1	1	EQ a3.2
6.6.1	Low-Emitting Materials, Adhesives and Sealants			1	1			1	1	EQ a4.1
6.6.2	Low-Emitting Materials, Paints and Coatings			1	1			1	1	EQ a4.2
6.6.3	Low-Emitting Materials, Flooring Systems			1	1			1	1	EQ a4.3
6.6.4	Low-Emitting Materials, Composite Wood & Agrifiber Products			1	1			1	1	EQ a4.4
6.7	Indoor Chemical & Pollutant Source Control			1	1			1	1	EQ c5
6.8.1	Controllability of Systems, Lighting			1				1		EQ a6.1
6.8.2	Controllability of Systems, Thermal Comfort			1				1		EQ a6.2
6.9.1	Thermal Comfort, Design			1				1		EQ a7.1
6.9.2	Thermal Comfort, Verification			1				1		EQ a7.2
6.10	Daylight & Views, Daylight 75% of Spaces			1				1		EQ a8.1
6.10.2	Daylight & Views, Views for 90% of Spaces			1				1		EQ a8.2
6.11	Noise Transmission			1				1		
7.0	Construction Practices	0	0	0	0	7	1	1	1	CP
7.1	Prerequisite 1 Clean Fuel Construction Vehicles	Required	Required	Required	Required	Required	Required	Required	Required	
7.2	Prerequisite 2 Construction Equipment Maintenance	Required	Required	Required	Required	Required	Required	Required	Required	
7.3	Construction Practice Reference: 2.1 - Construction Activity Pollution Prevention	NA	NA	NA	NA	0	0	0	0	
7.4	Construction Practice Reference: 4.1 - Systems Commissioning	NA	NA	NA	NA	0	0	0	0	
7.5	Construction Practice Reference: 5.3 - Construction Waste Management	NA	NA	NA	NA	0	0	0	0	
7.6	Construction Practice Reference: 6.5 - Construction IAQ Management Plan	NA	NA	NA	NA	0	0	0	0	
7.7	Low Emission Construction Vehicles	NA	NA	NA	NA	1	1	1	1	
7.8.1	Alternative Transportation During Construction, Staging Area	NA	NA	NA	NA	1	1	1	1	
7.8.2	Alternative Transportation During Construction, Low Emitting & Fuel Efficient Vehicles, 10%	NA	NA	NA	NA	1	1	1	1	
7.8.3	Alternative Transportation During Construction, Low Emitting & Fuel Efficient Vehicles, 50%	NA	NA	NA	NA	1	1	1	1	
7.9	Construction Materials Conveying	NA	NA	NA	NA	1	1	1	1	
7.10	Construction Noise and Acoustical Quality	NA	NA	NA	NA	1	1	1	1	
7.11	Sustainable Temporary Construction Materials	NA	NA	NA	NA	1	1	1	1	
8.0	Innovation in Design/Construction	1	1	1	1	1	1	1	1	ID
8.1	Innovation in Design/Construction	1	1	1	1	1	1	1	1	ID a1.1
8.2	Innovation in Design/Construction	1	1	1	1	1	1	1	1	ID a1.2
8.3	Innovation in Design/Construction	1	1	1	1	1	1	1	1	ID a1.3
8.4.1	Menu Item 1: Menu Items (any of the following up to 3 total): Construction Equipment Retrofit, Photovoltaics	1	1	1	1	1	1	1	1	
8.4.2	Menu Item 2: Geothermal Heating/Cooling, Wind Power, Rainwater Harvesting, Permeable Pavement, Trombe or	1	1	1	1	1	1	1	1	
8.4.3	Menu Item 3: Solar Walls, Green Walls, or Alternative Water Heating	1	1	1	1	1	1	1	1	
8.5	LEED Accredited Professional	1	1	1	1	1	1	1	1	ID a2
8.6	LEED Certified Project	NA	NA	NA	NA	1	1	1	1	
9.0	Regional Priority	0	1	4	0	0	1	1	1	RP
9.1	Regional Priority 2.4.1 - Alternative Transportation, Public Transportation Access							1		RP a1.1
9.2	Regional Priority 2.4.3 - Alternative Transportation, Low Emitting Vehicles							1		RP a1.2
9.3	Regional Priority 2.4.4 - Alternative Transportation, Parking Capacity							1		RP a1.3
9.4	Regional Priority 2.5.2 - Stormwater Design, Quality Control			1	1			1	1	RP a1.4
TOTAL POINTS POSSIBLE		87	84	112	88	64	57	126	85	

1 Reference LEED-EB MR2.1 and MR2.2 (Jan 2008 version).

2 Minimum points needed to achieve rating.



Richard M. Daley
Mayor



Danica R. Brown
Commissioner

August 5, 2009
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SAM Green Airplane Rating*













Prerequisites	CA	CL	OB	UB	CA	CL	OB	UB	LEED Points (LEED Rating)
8	8	13	12	8	8	13	12		40-49 (Silver)
2	2	2	2	2	2	2	2		50-59 (Gold)
17	18	41	32	20	21	44	35		60-79 (Platinum)
21	23	51	40	25	26	55	43		80-110 (Platinum Plus)
26	27	61	48	29	31	65	52		
34	36	81	64	39	41	87	69		

Certification Point System

- The rating system for the SAM has a 5 tier approach based on 4 project types

- “Green Airplane” symbols are used to designate achievement levels

Green Airplanes	Prerequisites	Civil-Airside	Civil-Landside	Occupied Buildings	Unoccupied Buildings	Reference LEED 2009 Rating System:
		8	8	13	12	
		2-16	2-17	2-40	2-31	
		17-20	18-22	41-50	32-39	Certified
		21-25	23-26	51-60	40-47	Silver
		26-33	27-35	61-80	48-63	Gold
		34-47	36-50	81-112	64-88	Platinum
MAXIMUM		47	50	112	88	

Green Airplanes	Prerequisites	Civil-Airside	Civil-Landside	Occupied Buildings	Unoccupied Buildings	Reference LEED 2009 Rating System:
		8	8	13	12	
		2-19	2-20	2-43	2-34	
		20-24	21-25	44-54	35-42	Certified
		25-28	26-30	55-64	43-51	Silver
		29-38	31-40	65-86	52-68	Gold
		39-54	41-57	87-120	69-95	Platinum
MAXIMUM		54	57	120	95	

Green Airplane Certifications

- Green Airplane Certifications
 - Rating system and award process
 - Recognizes those who meet or exceed contractual obligations to incorporate sustainable design initiatives into specific OMP development projects



SAM: Implementation and Review Process

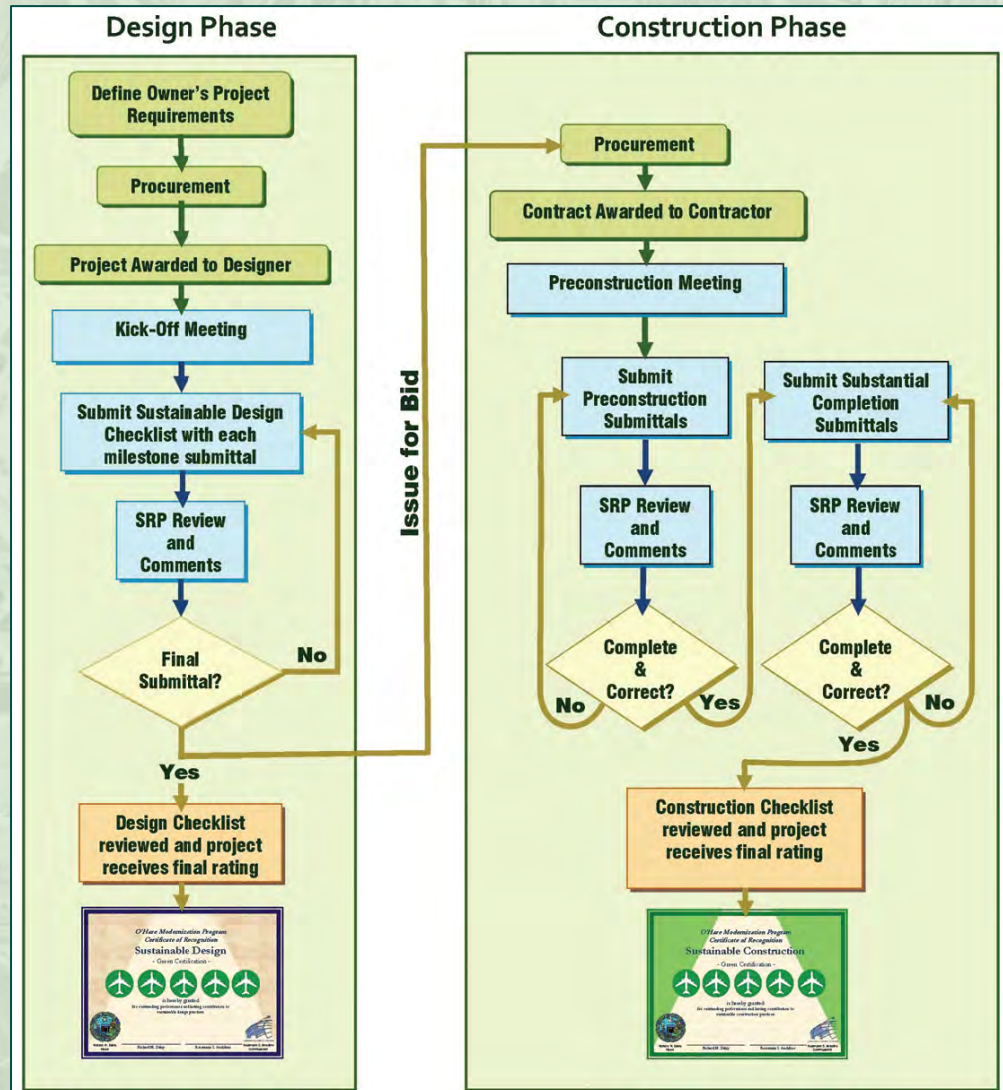
- The manual and supporting documentation are administered by the Sustainable Review Panel (SRP), which consists of representatives from:
 - Chicago Department of Aviation (CDA) Management staff
 - CDA Design and Construction Staff and Representatives
 - OMP Project Management Office (PMO)
 - Master Civil Engineer (MCE)
 - Airport Planners

SAM: Implementation and Review Process

- The SRP is responsible for review and support, including:
 - Review of project designs with respect to sustainable design
 - Review of all design and construction projects and awarding of “Green Airplane Certification”
 - Technical support to the CM
 - Preparation and review of of sustainable design related specifications and technical memoranda

SAM Implementation

- The SRP oversees the application of the SAM and reviews design and construction submittals for their compliance with the Manual.



SAM Contractually Required

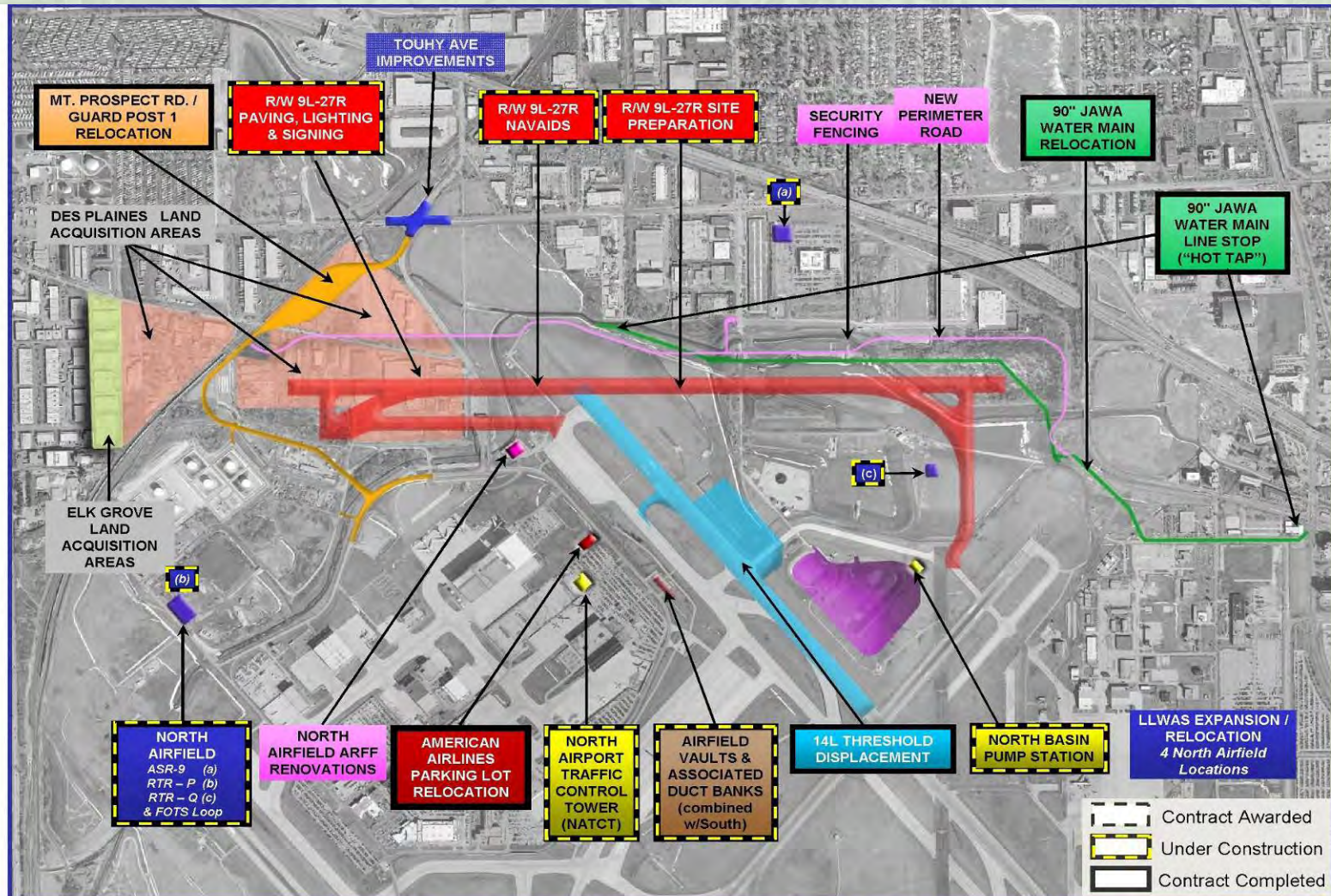
Just like the SDM the SAM will be required as part of all City Airport Contracts.

- SAM is introduced in the Request for Proposals Process
- Included in project kick-off meetings for design and construction
- Every design team is required to have a LEED Accredited Professional on staff
- Designers submit SAM checklist at key design milestones for review (30%, 60%, 90%, 100%)
- Contractors required to comply with sustainable construction specifications

Sustainable Construction Specifications

- Contractors are required to comply with the following sustainable construction specifications:
 - Construction Air Quality
 - Construction Waste Management
 - Regional Materials
 - Recycled Content
 - Soil Erosion and Sedimentation Control
 - Seeding
 - Sustainable Airport Landscaping

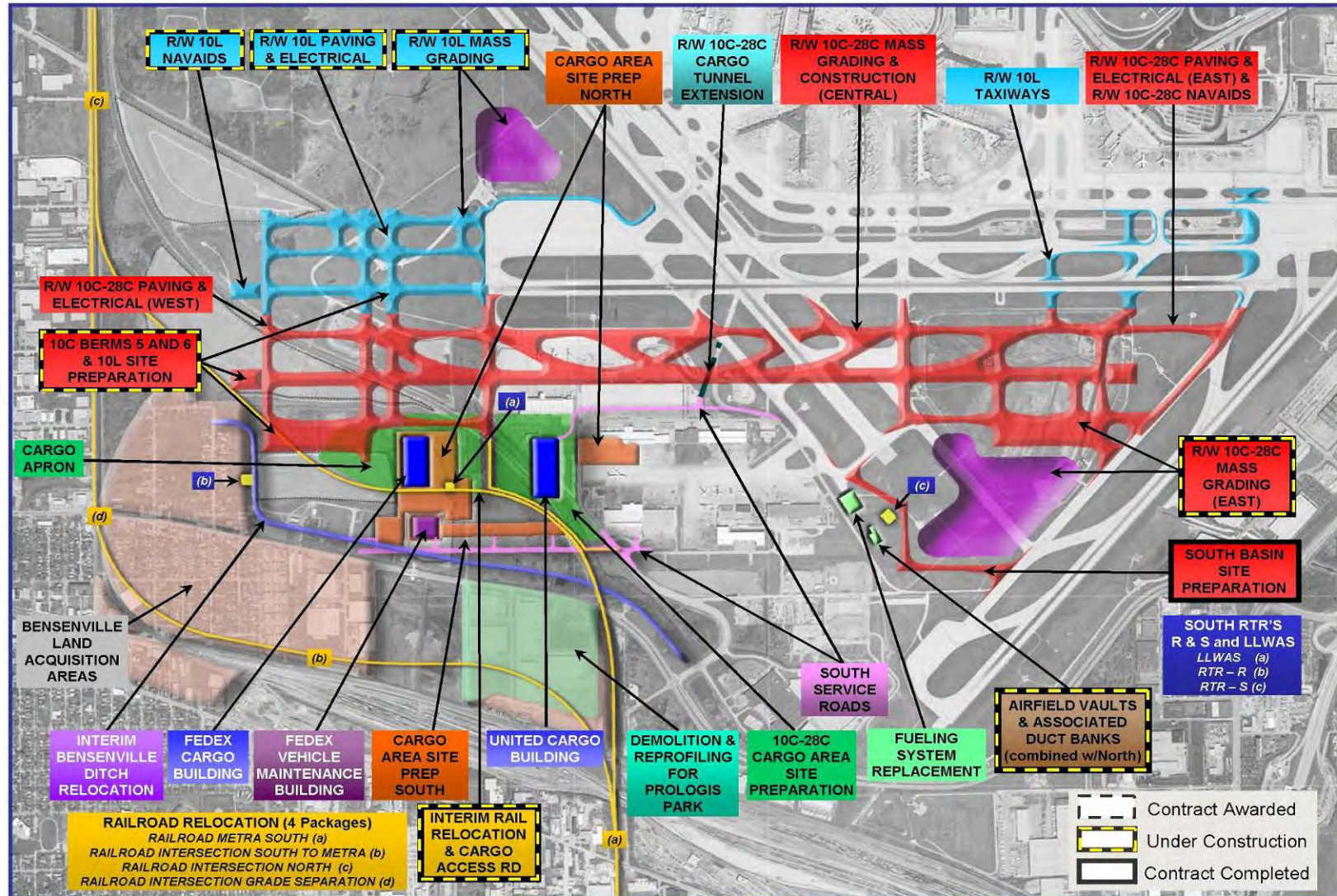
North Airfield Project Layout (by Contract)



Rev 11/06/07

Disclaimer – Any and all information contained herein is subject to change without notice

South Airfield Project Layout (by Contract)



Certification Results

- Over 40 design and construction projects have been reviewed with the SDM
 - 28 have been awarded sustainable design certification
 - 4 have been awarded sustainable construction

Projects Recognized for Sustainable Design and Construction Practices at O'Hare International Airport (through 2008)

DESIGN



ASR-9, RTR-P and RTR-Q Facilities and FOTS Loop

Bird Deterrent Wire

JAWA Relocation

Mt. Prospect Bridge Demolition

North Airfield ARFF Facility

North Airfield Facilities Relocation K-9 Kennels & Building 706

North Airfield Fence Removal and Misc. Work

North Airfield Lighting Control Vault Expansion

North Airfield Security Fencing

North LLWAS Expansion/Relocation

North Perimeter Road and Security Fencing

Runway 9L/27R NAVAIDS

Runway 9L/27R Paving & Electrical

Runway 9L-27R Site Preparation

Willow-Higgins Creek Relocation



American Airlines Parking Lot Replacement

Runway 14L Displaced Threshold



North Detention Basin Pump Station & Spillway



Mount Prospect Road and Guard Post 1 Relocation

North Air Traffic Control Tower

CONSTRUCTION



JAWA Relocation



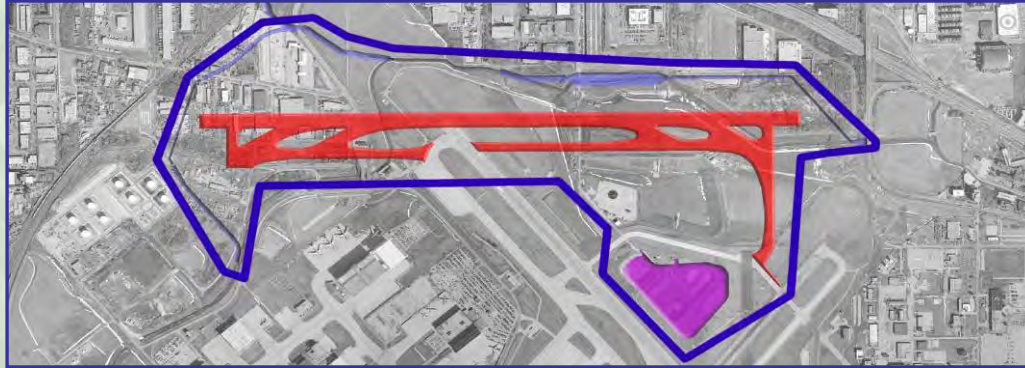
American Airlines Parking Lot Replacement

Runway 14L Displaced Threshold

Design & Construction Awards

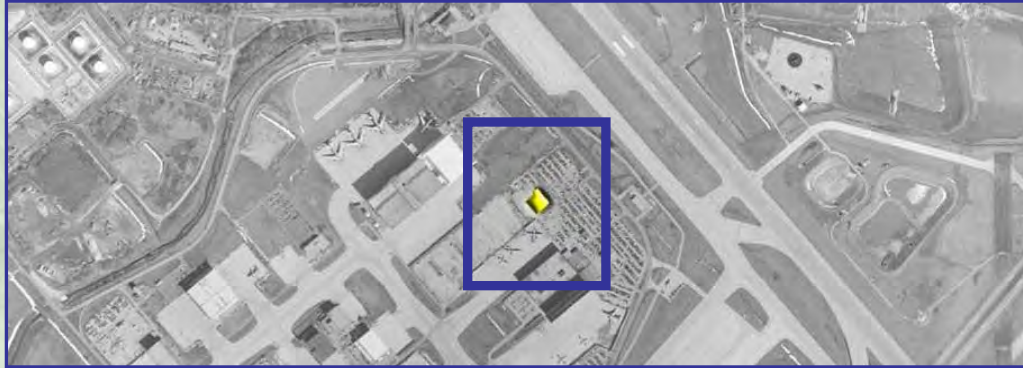


Willow-Higgins Creek Relocation



- 35% Recycled content materials
- At least 70% of the materials will be obtained locally/regionally
- Excess vegetation and trees mulched for use in other OMP projects
- Demolished concrete will be recycled - on-airport concrete recycling facility
- An estimated 90% of the construction waste will be diverted away from landfills
- An innovative traveling form system (EFCO) was used – eliminates up to 30,000 sq. ft. of traditional wooden forms

American Airlines Parking Lot



- Lighting includes efficient high pressure sodium fixtures avoiding off-site light trespass
- Lighting is 67% more energy efficient
- Existing lot asphalt paving, base, and landscaping materials will be Salvaged and Recycled
- At least 50% of materials will be obtained from Local/regional sources.
- Approximately 15% of materials contain Recycled Content
- The light poles and fixtures from the original lot will be Reused
- At least 50% of construction waste to be diverted from landfills

North Detention Basin Pump Station and Spillway



- Detention Basin designed to protect local waterways by capturing contaminated stormwater runoff from North Airfield Development
- High Reflectivity pump station roof, white thermoplastic polyolefin (TPO) roof membrane with a reflectivity of $> 70\%$ and emissivity > 0.9
- Exterior lighting on pump station hooded and shielded to direct light downward
- Use of Energy Efficient Pumps - Includes variable frequency drive (VFD) motors reducing energy use over standard pump systems. VFD save 29% of electricity used (81,495 kWh per year/equivalent to energy use of 8 average homes)
- Nearly 100% of construction waste diverted from landfill and used on-site. Over 14,000 tons of soil and 15 tons of concrete reused/recycled. Only 2 tons of masonry, wood, drywall, and plastics disposed of off-site
- Construction materials to contain at least 10% Recycled Content, including concrete, bituminous concrete, and steel
- All concrete and reinforcing steel to be purchased locally, accounting for 75% (over \$7 million) of materials from sources within 500 miles

Mt. Prospect Road – Guard Post 1

4 Green Airplanes for environmentally friendly initiatives:



- Vegetated roof atop the entire Guard Post canopy
- Captures rainwater runoff
- Reduces water consumption 50%
- Sign salvaged and reused
- Existing Road & Guard Post recycled & reused
- Low VOC emitting sealants, paints, and coatings
50% of extracted materials
- 50% of extracted materials
- Local/regional materials
- 50% of construction debris diverted from landfill



Gene Peters & Ted Woosley

5 Green Airplanes



O'Hare Modernization Program
Certificate of Recognition
Sustainable Design

OMP SDM v Dec 2003

- Green Certification -



is hereby granted to:

Rosemarie S. Andolino

for outstanding performance and lasting contribution to
sustainable design practices

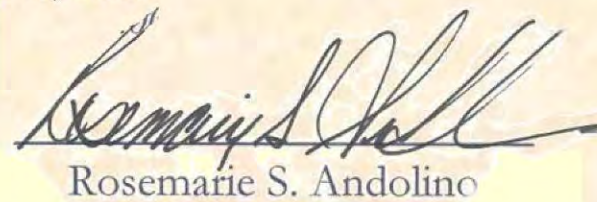
Awarded: July 18, 2008



Richard M. Daley
Mayor



Richard M. Daley



Rosemarie S. Andolino



Rosemarie S. Andolino
Executive Director





Thank you!



airportsgoinggreen.org

Comments? Case Studies?
Lessons-Learned? New Technologies?
SAMinfo@cityofchicago.org



Rosemarie S. Andolino
Commissioner

Key Highlights

- Green roofs (total of 383,000 square feet at ORD)
 - North Airport Traffic Control Tower
 - 8,822 square feet
 - South Airfield Lighting Control Vault
 - 18,900 square feet
 - FedEx Sort Building
 - 174,442 square feet (13th largest in the U.S./3rd largest in City of Chicago Ranking)
 - United Airlines Cargo Building
 - 162,763 square feet (14th largest in the U.S./4th largest in the City of Chicago Ranking)
 - Guard Post 1 Canopy
 - 6,500 square feet
 - Aircraft Rescue and Firefighting Facility
 - 3,440 square feet

Key Highlights

- Pursuing LEED Certification
 - North Air Traffic Control Tower (pursuing Silver)
 - To be the FIRST LEED Certified Air Traffic Control Tower
 - FedEx World Service Center / Administration Building (pursuing Silver)

Key Highlights

- Optimized energy performance
 - North Airport Traffic Control Tower
 - Decrease energy use by > 36%
 - South Airfield Lighting Control Vault
 - Energy efficient heat pumps and lighting
 - South Detention Basin & Pump Station
 - Use of Variable Frequency Drives (VFDs) on all pumps
 - VFDs minimize costs associated with pumping storm water & ground water
 - High efficiency motors
 - Guard Post 1 Canopy
 - 6,500 square feet

Key Highlights

- Salvage and reuse of materials
 - Lighting fixtures
 - 9L-27R NAVAIDS
 - Salvaged from 22R
 - 10C-28C Mass Grading
 - American Airlines Parking Lot
 - Light poles
 - Kiosks from Guard Post #1
 - Ultra-low sulfur diesel fuel used in 100% of construction vehicles