





Integrating Environmental Sustainability
Into a Capital Program

2014 Illinois Healthy and High Performing Schools Symposium





Panelists

- Deeta Bernstein, LEED AP BD+C
 Sustainability Manager,
 Public Building Commission of Chicago
- Chey Hsiao, AIA, LEED AP Associate,
 SMNG-A Architects, Ltd.

Learning Objectives

- Learn how an organizational approach which facilitates sustainability in multiple projects can be structured, and what factors to consider when determining which sustainability elements to integrate in a given project, and across the program.
- 2. Explore how evolving prototypes can support sustainable design and continuous improvement throughout a multi-year program.
- 3. Understand how to align municipal needs for resilience and efficiency with project opportunities.
- Understand what a large program can accomplish in terms of resource savings and ongoing environmental impact.

Agenda

Section 1 – Program Objectives and Accomplishments

- 1. Program Background
- 2. Accomplishments

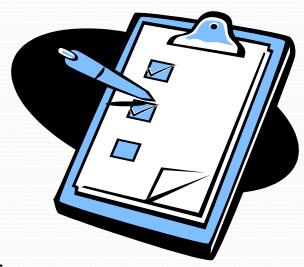
Section 2 – Setting Up For Success

- 3. Program Structure
- 4. Approach of the Program

Section 3 – Development and Evolution

- 5. Evolving Prototypes
- 6. Case Study

Section 4 – Making a Great Program Even Better Q&A



Section 1: Program Drivers and Accomplishments

The Program

The Public Building Commission of Chicago

Mission

The Public Building Commission of Chicago (PBC) is committed to client service and strong stewardship of public resources. The PBC plans, designs and builds facilities that reflect the highest standards of environmental and economic sustainability.

Vision

A built environment in which function, beauty and sustainability are inherent to every community; where physical surroundings inspire and support achievement of the individual goals of those who live, work and visit Chicago and Cook County; and, where people gather to share the common values that truly build our communities.



Daley Center, PBC Offices

The Program

- PBC manages a multi-year capital program Over \$2.6B in development authority
- >4 Million SF of development
- Over 100 total projects
- 83 LEED-eligible:
 - Public Schools
 - Municipal Firehouses/Police Stations/ Libraries
 - Parks/Field Houses/Harbors
 - Other Projects

The Program



Economic Sustainability

- For projects completed in 2013, currently trending \$32.9M,
 6.02% under original budget.
- Construction projects completed in 2013 created 1,744 fulltime equivalent (FTE) jobs
- Inclusion:
 - MBE participation, work awarded in 2013: 32.21% or \$116.7 M
 - WBE participation, work awarded in 2013: 7.73% or \$28 M
 - Combined total: 39.93% M/WBE
 - Professional consulting services, 2013, Combined M/WBE participation 70.25% or \$11.34 M

Sustainable Accomplishments

• \$1,418,707

= Energy savings annually

565,231 Gal

- = Stormwater diverted from sewers
- 22,251,437 Gal
- Potable water saved annually

• 635,686 SF

= Green roof area

• 2,406

= New shade trees

• \$56,082,280

= Recycled materials

\$89,726,861

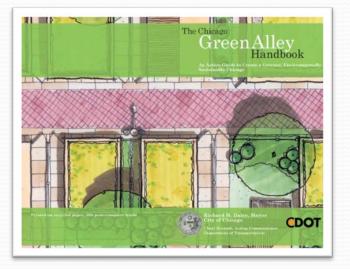
= Regional materials

• 181,536 Tons

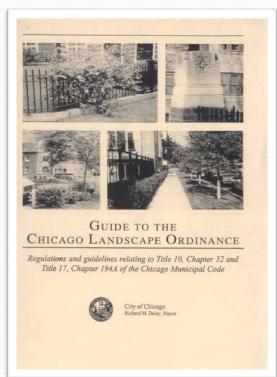
= Waste diverted from landfills

Paradigm Shift



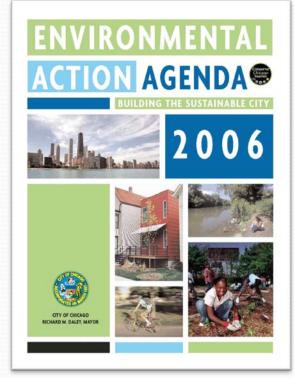






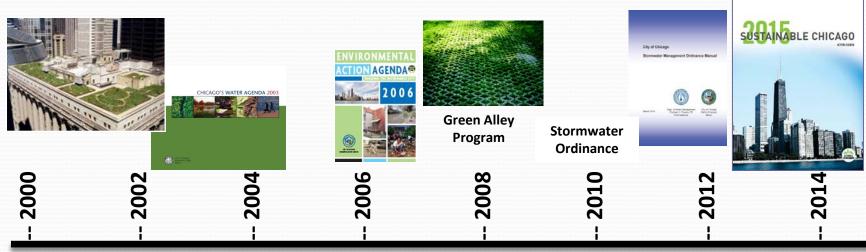


OUR CITY, OUR FUTURE.



Paradigm Shift

From Green Medians to Sustainable Chicago 2015





Chicago Standard









Retrofit Chicago



2013

Paradigm Shift

Codes / Requirements

- Stormwater Management Ordinance
- Waste Management Ordinance
- Green Permit
- Updated IL Energy Code

Plan / Initiatives

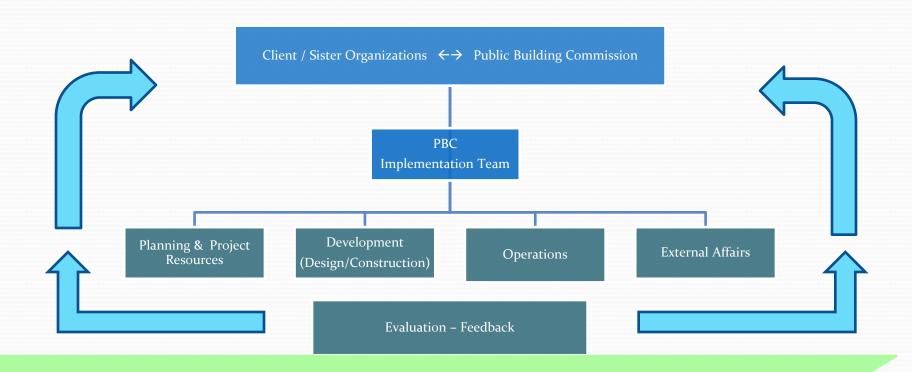


Section 2: Setting up for Success

The Shared Commitment



Integrating Shared Agenda



Sustainable Program

The Team and the Approach



Program Approach

 Build sustainable expectations into traditional project/program management strategies/tools/approach



What was Standardized

- Procurement
- Process/Approach
- Program

SUSTAINABILITY STRATEGY

Langston Hughes Elementary School 240 West 104th Street











SUSTAINABLE SITES

- Y R Construction Activity Pollution
- Prevention Site Selection
- Development Density & Community Connectivity
- Brownfield Redevelopment
- Alternative Transportation,
- Public Transportation Access Alternative Transportation, Bicycle
- Storage & Changing Rooms 1 1 Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles

- WATER EFFICIENCY
- Water Efficient Landscaping, Reduce potable water use by
- Water Efficient Landscaping, No.
- Potable Use or No Irrigation Innovative Wastewater
- Technologies Water Use Reduction, 20% Reduction
- Water Use Reduction 30% Reduction

ENERGY & ATMOSPHERE

- Fundamental Commissioning of
- the Building Energy Systems Minimum Energy Performance
- Fundamental Refrigerant Management
- Optimize Energy Performance
- On-Site Renewable Energy, 2.5% , 7.5%, or 12.5% **Enhanced Commissioning**
- Enhanced Refrigerant Management Measurement & Verification

MATERIALS & RESOURCES

- Y R Storage & Collection of Recyclables
- X 1 Building Reuse, Maintain 75% of Existing Walls, Floors & Roof
- X 1 Building Reuse, Maintain 100% of Existing Walls, Floors & Roof
- X 1 Building Reuse, 50% of Interior Non-Structural Elements
- 1.1 Construction Waste Management. Divert 50% from Disposal
- 1 1 Construction Waste Management, Divert 75% from Disposal X 1 Materials Reuse, 5%

INDOOR ENVIRONMENTAL QUALITY

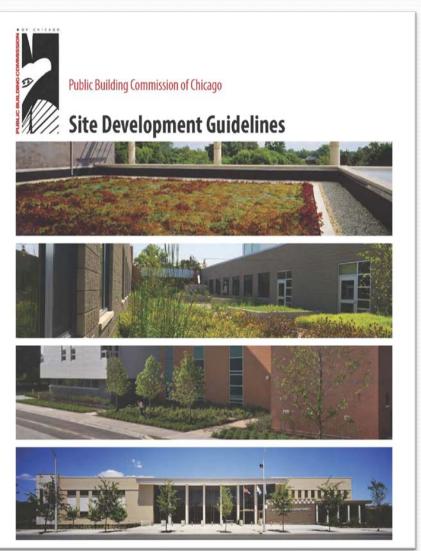
- Y R Minimum IAQ Performance Y R Environmental Tobacco Smoke (ETS) Control
 - 1 1 Outdoor Air Delivery Monitoring
 - X 1 Increased Ventilation 1.1 Construction IAQ Management Plan,
 - **During Construction**
 - 1 1 Construction IAQ Management Plan. Before Occupancy 1 1 Low-Emitting Materials; Adhesives &
 - 1 1 Low-Emitting Materials; Paints & Coatings

INNOVATION & DESIGN PROCESS

- Innovation in Design: Water use reduction over 40%
- Innovation in Design: Exemplary open space
- Innovation in Design: Green Housekeeping
- Innovation in Design: Exemplary use of Regional Materials
- 1 1 LEED™ Accredited Professional

What was Standardized

- Design Standards:
 - Systems
 - Materials
- Sustainable prototype evolution process

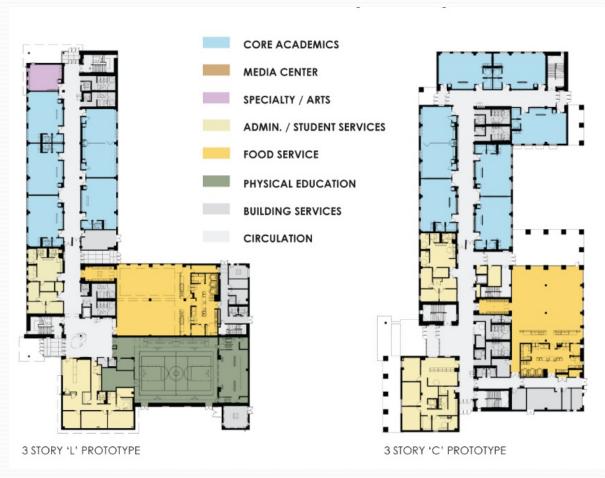


Section 3: Development and Evolution

How Prototypes Evolve

Where did we start?

- How did we get where we are today?
- What do we see happening in the future?





Schurz High School



Elementary & High Schools



Federico Garcia Lorca Elementary School



Calmeca Academy of Fine Arts & Dual Language



South Shore International College Preparatory High School

Field/Beach Houses/Harbors



Haas Park Fieldhouse



Taylor -Lauridsen Park Fieldhouse



Kathy Osterman Beach House



Ping Tom Memorial Park Field House

Municipal Buildings



Engine Company 109



Engine Company 16



Greater Grand Crossing Branch Library



22nd District Police Station

Modern Schools Across Chicago



LANGSTON HUGHES ELEMENTARY SCHOOL



BRIGHTON PARK I ELEMENTARY SCHOOL



IRENE C. HERNANDEZ MIDDLE SCHOOL



MARK T SKINNER WEST ELEMENTARY SCHOOL



LEE PASTEUR HURLEY ELEMENTARY SCHOOL



POWELL ELEMENTARY SCHOOL



AVONDALE/IRVING PARK AREA ELEMENTARY SCHOOL



BRIGHTON PARK II ELEMENTARY SCHOOL



BOONE CLINTON ELEMENTARY SCHOOL

Case Study

Mark T. Skinner West Elementary School

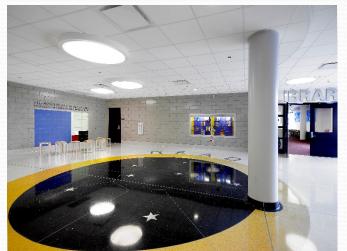


Mark T. Skinner West Elementary School





Mark T. Skinner West Elementary School









Case Study

Federico Garcia Lorca Elementary School



Federico Garcia Lorca Elementary School



Federico Garcia Lorca Elementary School









Case Study

Mt. Greenwood Elementary School Annex







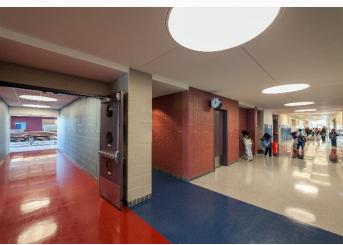


Durkin Park Elementary School Annex











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Section 4: How to make a great program even better

Making a Great Program Even Better

Feedback from O&M and Users

- Metrics
 - Energy
 - Water
- Post Occupancy Evaluation
 - Engineers and trades
 - Staff

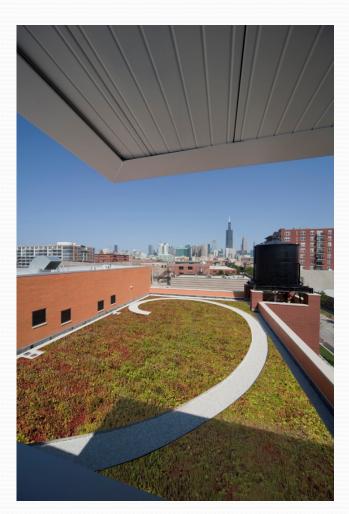
So Now We Know

- Additional upfront work
- What to track, measure and prioritize
- Improvements we incorporated along the way
- Integrating feedback



Wrap Up

- Role of Municipal leadership in Innovation and Adaptation
- Certifications and Awards
 - More municipally owned LEED Certified public buildings than any other U.S. City
 - Environmental Awards, Program
 Management Awards
- Benefits to stakeholders and citizens
- Long-term contribution to construction industry



Questions



THANK YOU!!

Contact Information:

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Chey Hsiao chey Hsiao