

An aerial photograph of a city grid, showing a dense network of streets and buildings. The image is framed by a blue border. The text is overlaid on the right side of the image.

Money Talks

NACTO Designing Cities Conference
October 24th-26th, 2012

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Project Director

Infrastructure and Cities

- Infrastructure in Poor Condition
- Direct Effect on Behavior
- Large Capital Projects with a Long Design Life
- 50% Population Threshold



Streetscape and Sustainable Design Program Goals



- Support Economic Development
- Improve Public Safety and Public Health
- Enhance Quality of Life and Sense of Place
- Upgrade Infrastructure
- Be Multi-modal and Transit Friendly
- Incorporate Sustainable Best Practices
- Ensure Maintainability
- Be Beautiful

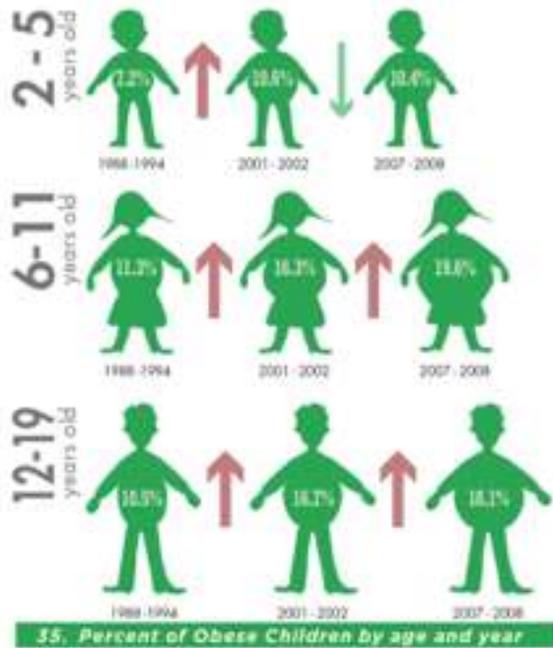
.....and cost less.

So How Do We Achieve This?

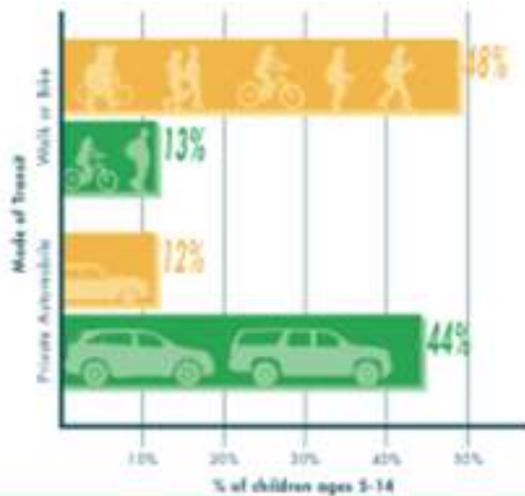
- Interdisciplinary Teams and Stakeholder coordination and outreach
- Data
- Good Design & Best Practices:
 - Guidelines, Policies & Plans
- Public/Private Partnerships
 - Community Organizations
 - Business Community
 - Industry
- Innovation and Pilots
 - Advance New Technologies
 - Drive New Material Development
 - Digital Public Way



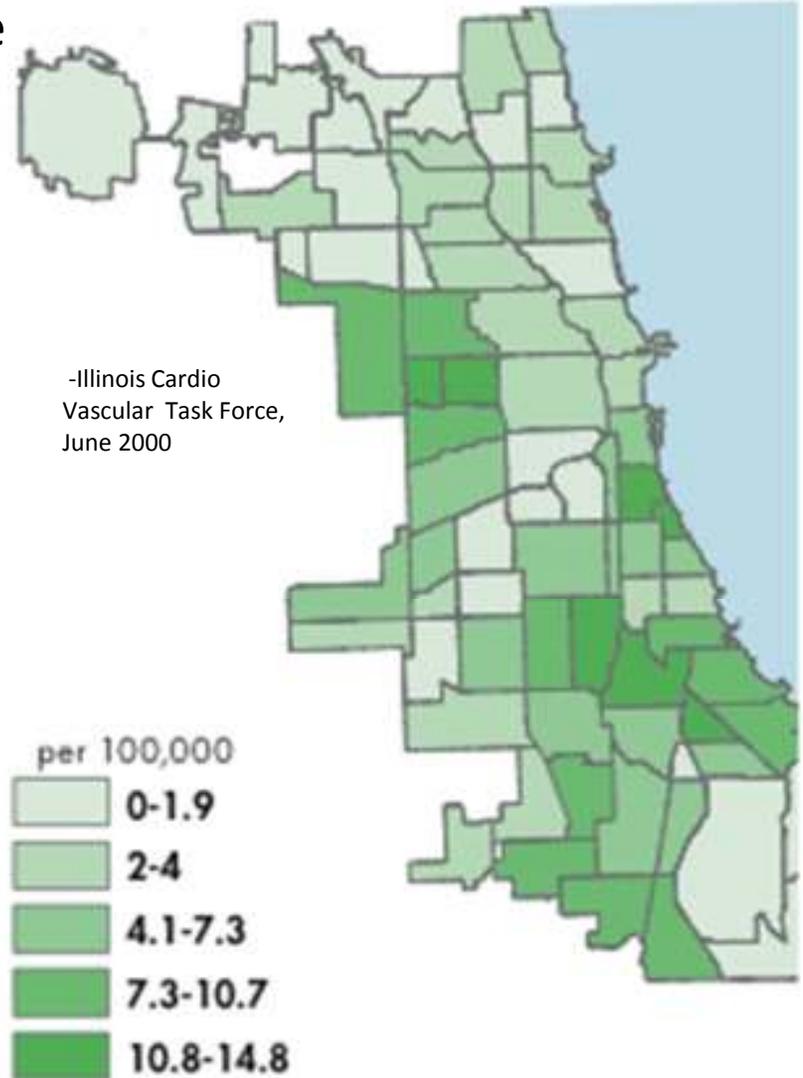
Data Driven - Public Health



- Obesity cost the state more than \$700 million every year and cost individuals an additional \$1,429 annually — 42% more than normal weight persons.



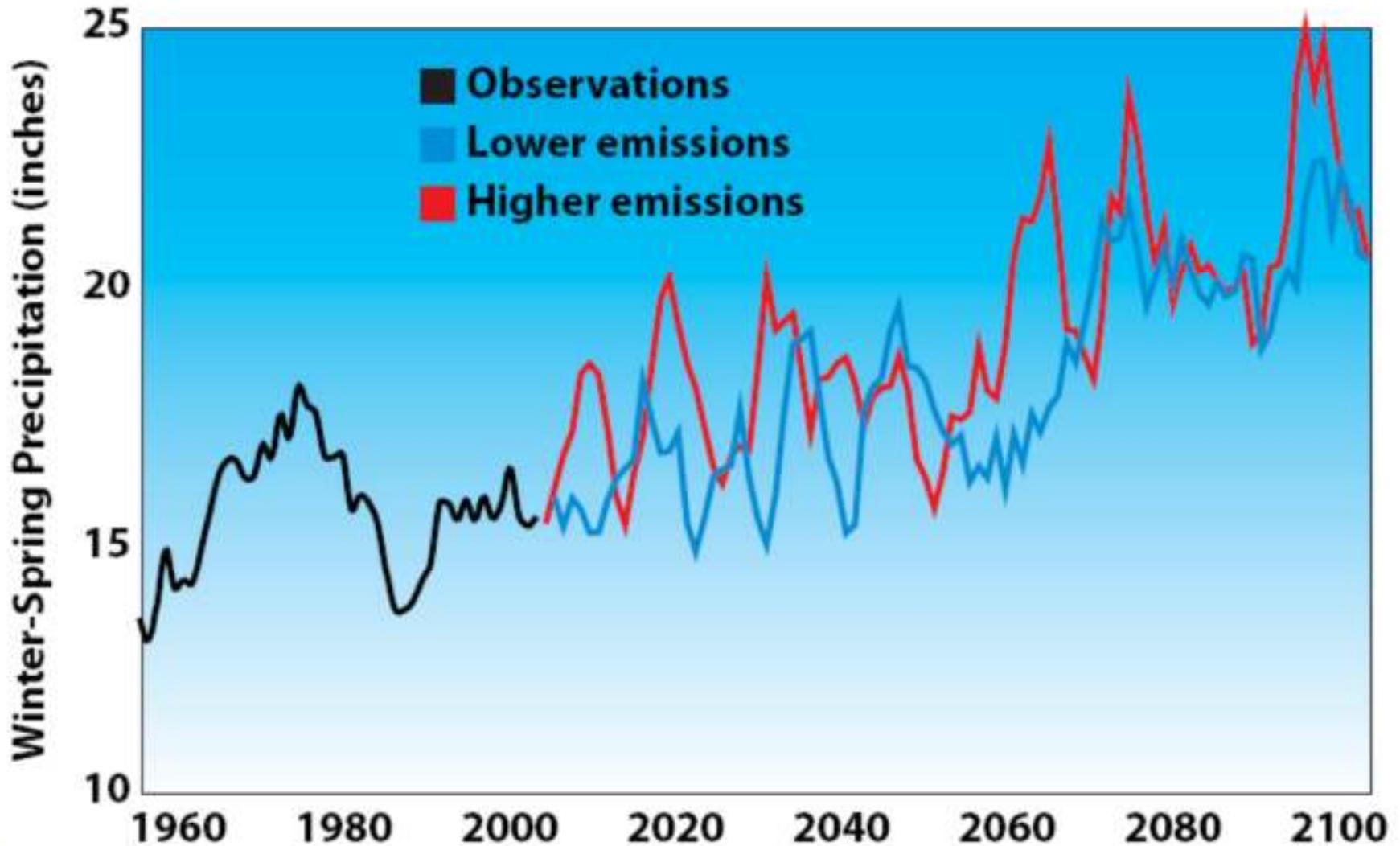
36. Childrens' Travel Patterns to School



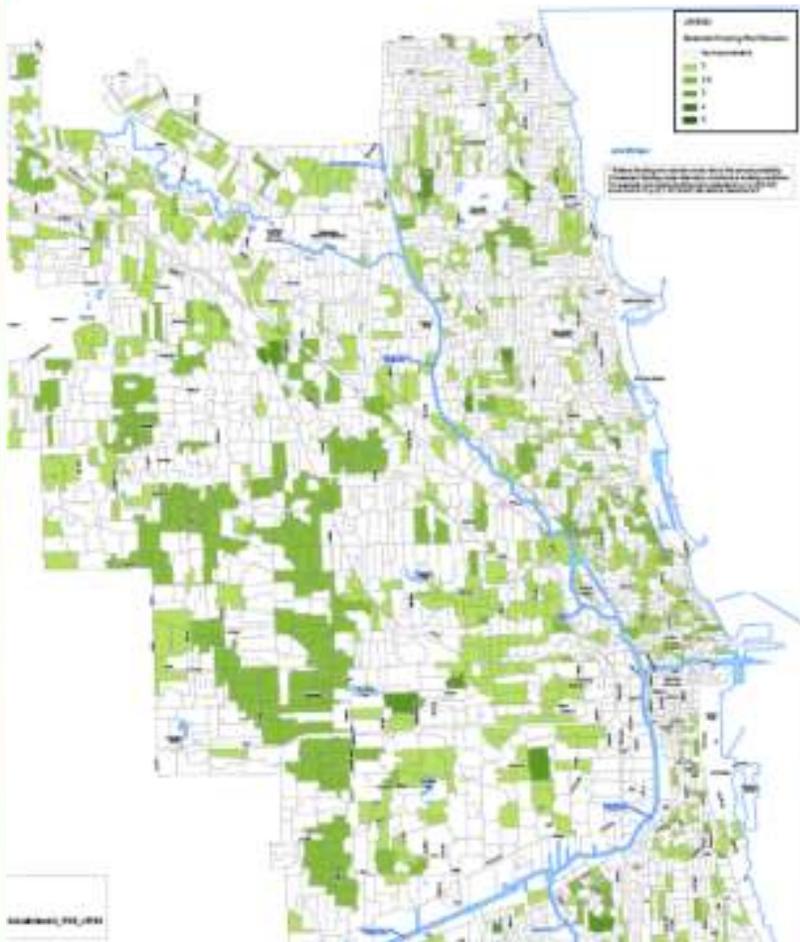
31. Average. Annual Adjusted Asthma Death Rates - 2005 - 2007

Data Driven - Environment

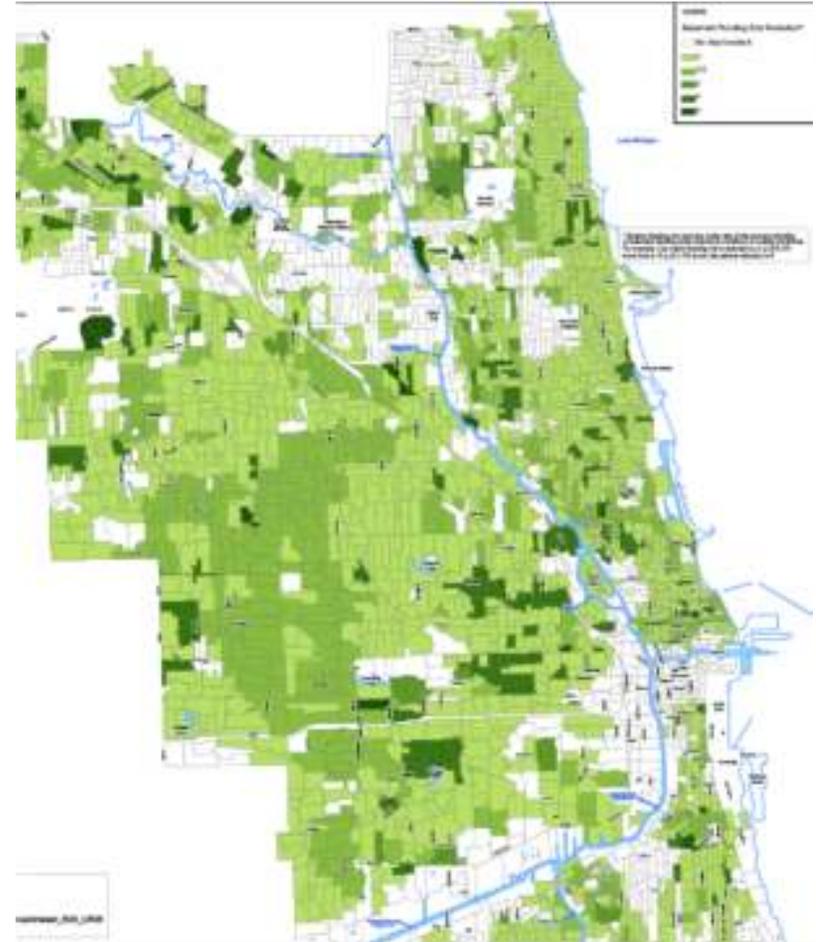
Fact: In a high-emissions scenario, 2040 springs could have 20% more precipitation events and summers could have 10% fewer



Basement Flooding Risk Reduction



10% Removal of Impervious Area



25% Removal of Impervious Area

Data Driven – Water • Is Water the New Oil?

20% of the Earth's fresh water is deposited in the Great Lakes

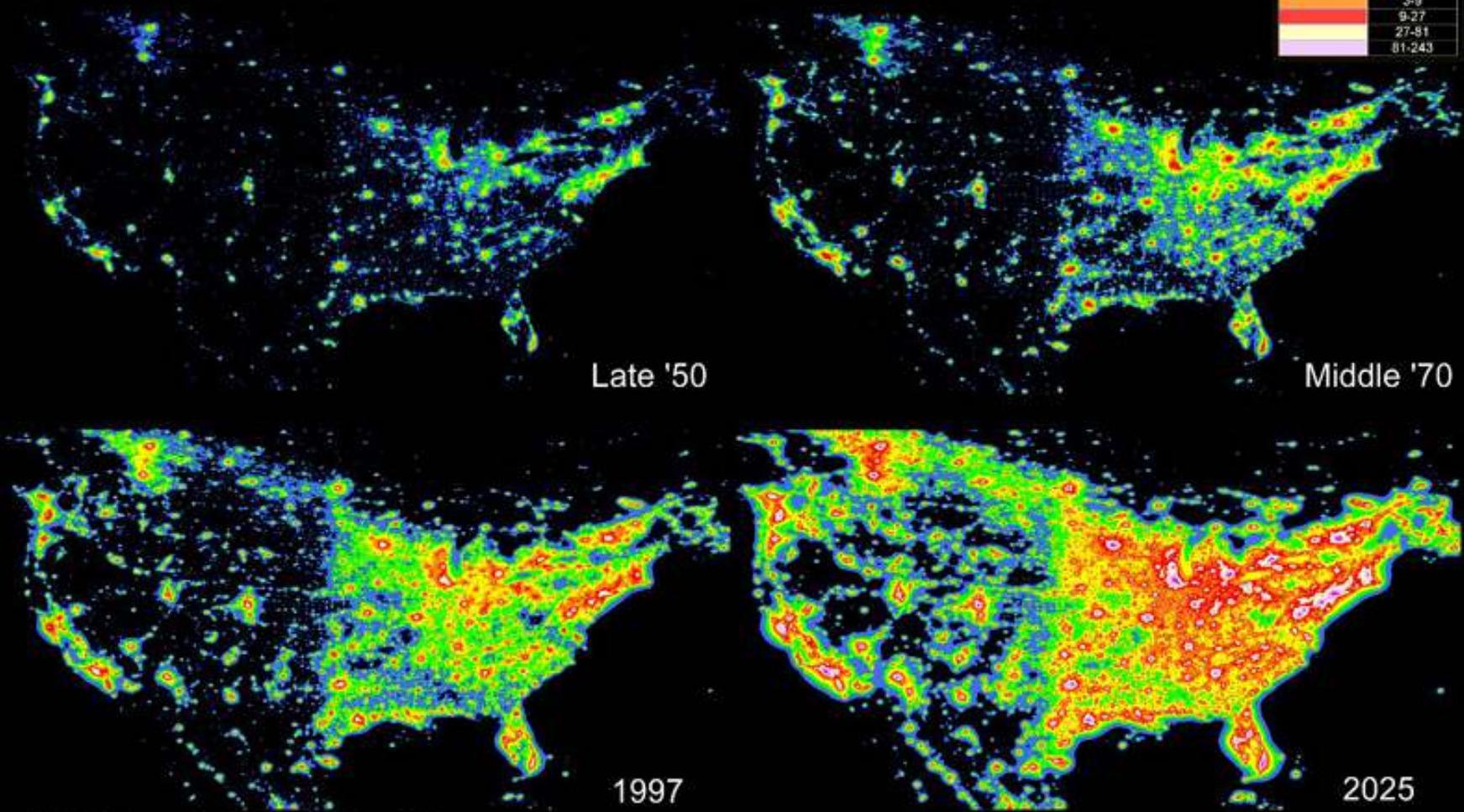
90% of the United States' fresh water is deposited in the Great Lakes

1,000,000,000 (Billion) gallons of Lake water per day are consumed by Chicagoans

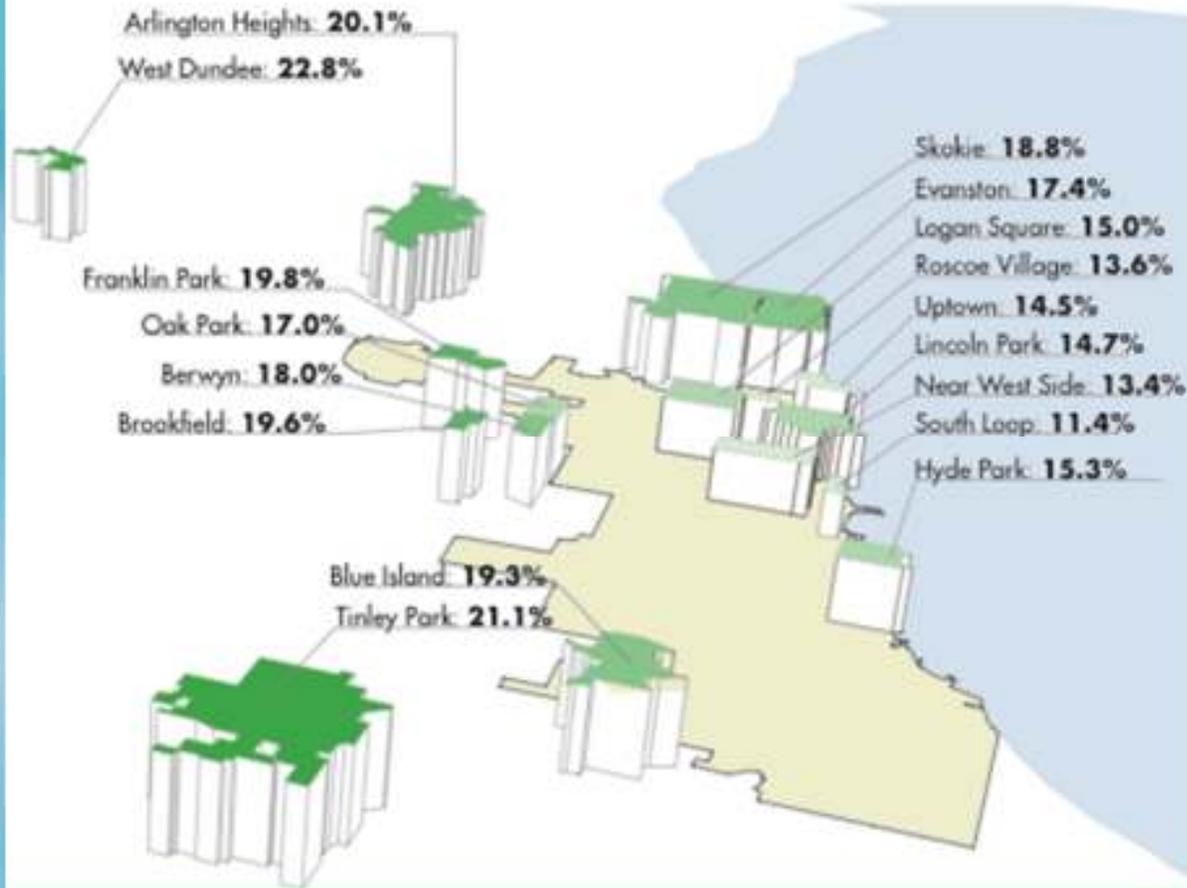
<1% of drained water is renewed by Chicagoans

Data Driver – Energy

Artificial Night Sky Brightness due to Light Pollution in North America
A preliminary picture of the growth from 1950 to 2025

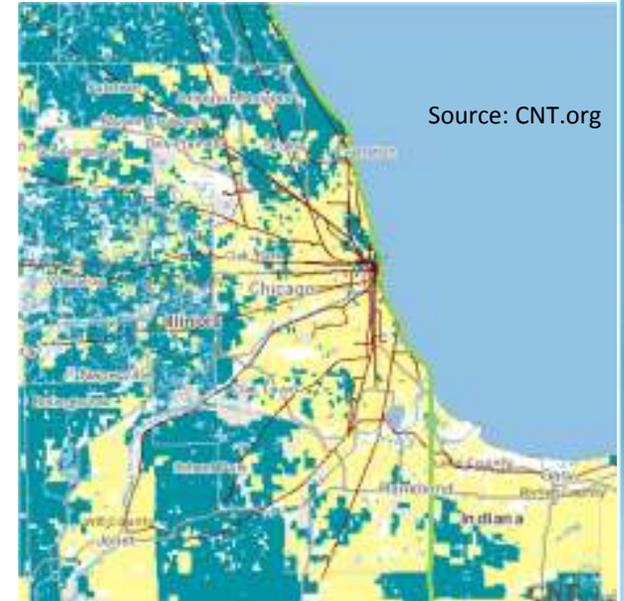


Housing and Transportation Costs

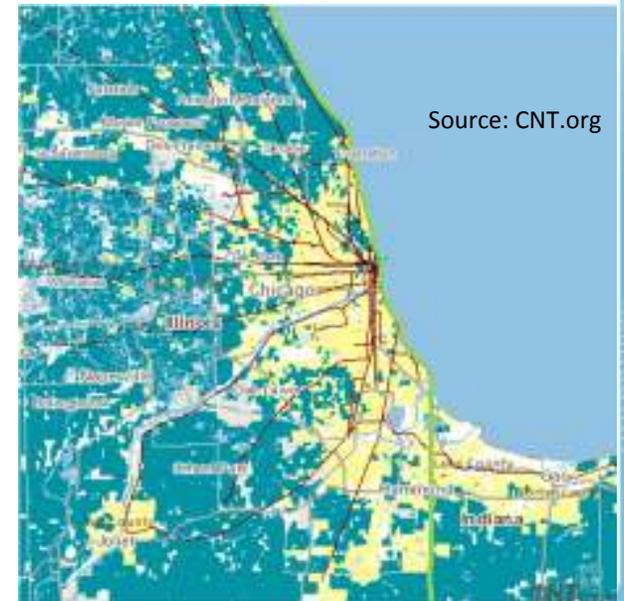


Percent of Average, Median Household Income Spent on Transportation by Neighborhood

Housing only (% income)



Housing + transportation

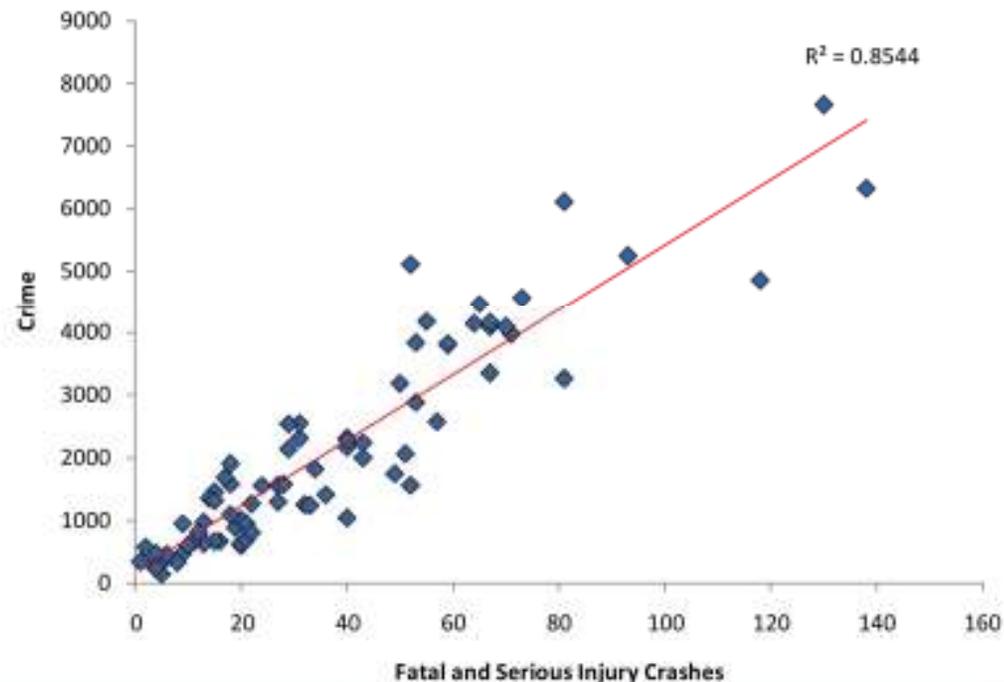


Crime and Pedestrian Crashes

- Incidences of crime by Chicago Community Area (CCA).
- Years 2005 through 2009 were averaged and compared to the average number of fatal and serious injury pedestrian crashes over the same time period in each CCA.
- Crime was the only variable including income, race, language spoken at home, and Walk Scores® that correlated to pedestrian crashes.
- There may be many variables responsible for this correlation.

-City of Chicago 2011 Pedestrian Crash Analysis Technical Report

Figure 1: Crime vs. Fatal and Serious Injury Pedestrian Crashes by Chicago Community Area



Make Way for People



People Spots

Build parklets and pop-up cafes on platforms in the parking lane of streets with narrow sidewalks or high pedestrian volumes.



People Streets

Convert “excess” asphalt into hardscape parks, creating safer intersections and more public open space.



People Plazas

Activate existing CDOT Malls, Plazas and Triangles with new programming and retail opportunities.



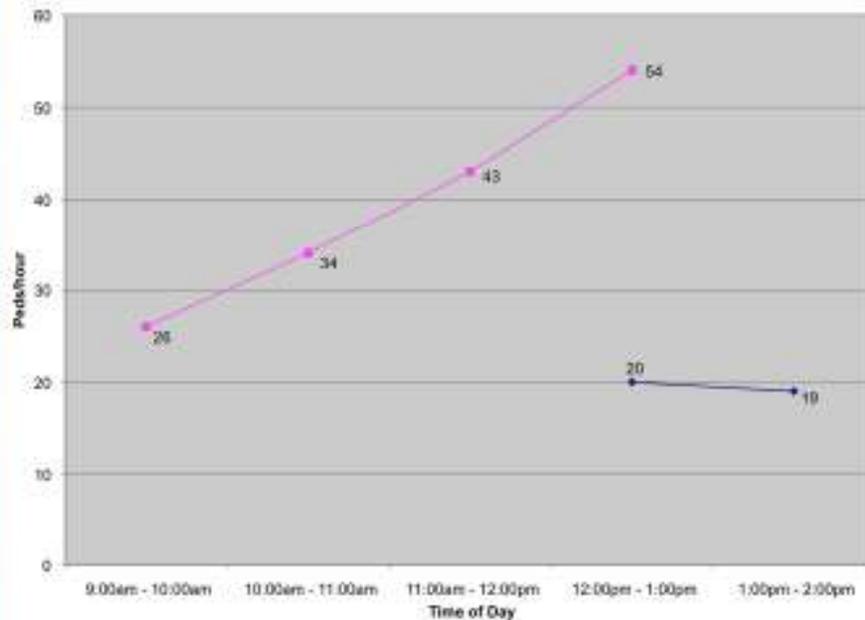
People Alleys

Enable use of alleys for artwalks, seating and events to support placemaking and economic development.



Before and After Ped Counts

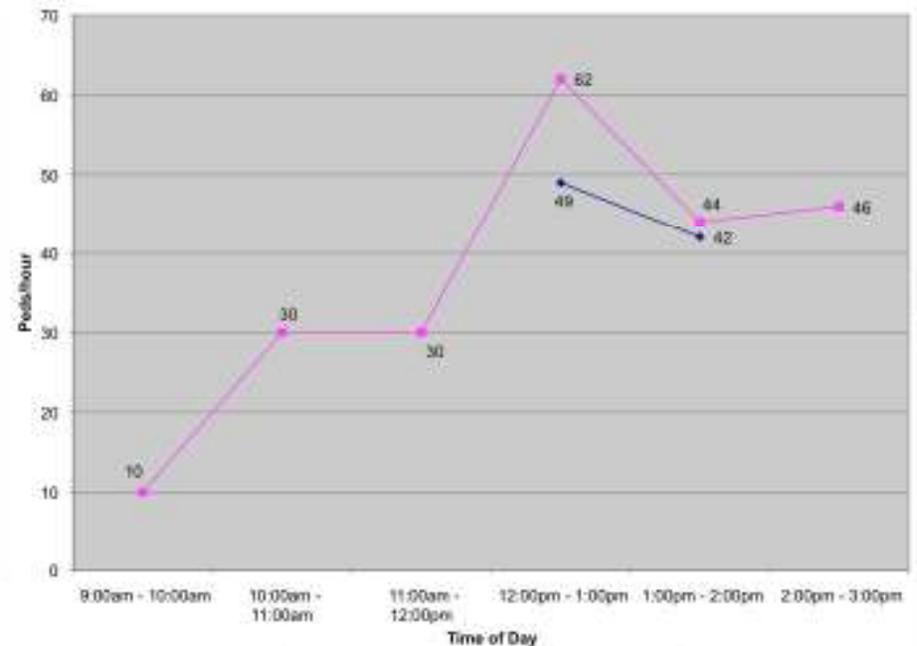
MWFP Ped Count Comparison, 47th & Greenwood Weekend



◆ Before 7/7/12
■ After 9/22/12



MWFP Ped Count Comparison, 47th & Greenwood Weekday



◆ Before 6/27/12
■ After 9/26/12



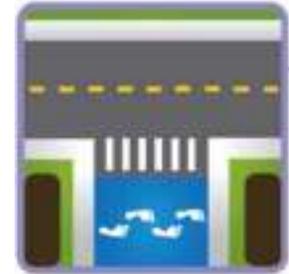
Attitude and Behavior

- Sense of Community
 - 6.9 to 7.7 (Out of a scale of 1 to 10)
- Meeting City Green Objectives
 - Increased by 23%
- Mode Share
 - 7% more walked
 - 17% more rode bikes
 - 5% fewer drove
- Activity Mapping
 - Greatly increased diversity of activities
 - +24% in sitting, +9% in socializing, +26% in eating and drinking, +17% phone use



Kenmore Ave. – DePaul University

MAKE WAY FOR
PEOPLE
Transforming the Public Way



- The 2300 block of North Kenmore Avenue temporarily closed May 1 - May 30, 2012.

- DePaul University will host a series of community and family-friendly events, including “Pop-up Concerts” and “Kickin’ it on Kenmore”.



Ending Business as Usual:

Creating Innovation for the Environment or is it Environment for Innovation?

- Lead by Example
- Partner with the Private Sector
- Connect to the Community

..green is not about cutting back. It's about creating a new cornucopia of abundance for the next generation by **inventing a whole new industry**. It's about getting our best brains out of hedge funds and into **innovations** that will not only give us the clean-power industrial assets to preserve our American dream but also give us the technologies that billions of others need to realize their own dreams without destroying the planet."

—Thomas L. Friedman, The New York Times

Chicago Innovation: Green Alley Program

Development of Permeable Asphalt and Concrete:

- Best Practices
- Material Testing
- Trail Batches

The Ground Tire Rubber Solution:

- Approx 600 tires recycled per alley
- Solved cohesion problem



Project Sustainable Goals

Stormwater Management

Divert 80% of the typical average annual rainfall and at least 2/3 of rainwater falling within catchment area into stormwater best management practices.

Water Efficiency

Eliminate use of potable water for irrigation, specify native or climate adapted, drought tolerant plants for all landscape material.

Transportation

Improve bus stops with signage, shelters and lighting where possible, promote cycling with new bike lanes, improve pedestrian mobility with accessible sidewalks.

Energy Efficiency

Reduce energy use by min. 40% below a typical streetscape baseline, use reflective surfaces on roads/sidewalks, use dark sky-friendly fixtures. Min. 40% of total materials will be extracted, harvested, recovered, and/or manufactured within 500 miles of the project site.

Recycling

Recycle at least 90% of construction waste based on LEED NC criteria, Post/Pre-Consumer recycled content must be min. 10% of total materials value.

Urban Heat Island, Air Quality

Reduce ambient summer temperatures on streets and sidewalks through use of high albedo pavements, roadway coatings, landscaping, and permeable pavements. Require ultra low sulfur diesel and anti-idling.

Education, Beauty & Community

Provide public outreach materials/self-guided tour brochure to highlight innovative, sustainable design features of streetscape. Create places that celebrate community, provide gathering space, allow for interaction and observation of people and the natural world.

Commissioning

Model Stormwater BMP's in Infoworks to analyze and refine design. Monitor stormwater BMP's to ensure predicted performance and determine maintenance practices.

Sustainability Value Evaluation

- Cost Benefit Analysis
 - Based on Triple Bottom Line
 - Cermak/Blue Island pilot project as a case study
 - PBA's PRISM analysis will include:
 - Net Present Value (NPV) - the analysis will convert potential gains and losses from the proposed investment into monetary units and compare them on the basis of economic efficiency, i.e., net present value (NPV). NPV provides some perspective on the overall dollar magnitude of benefits compared to costs.
 - Benefit Cost Ratio (BCR), which is the present value of incremental benefits divided by the present value of incremental costs, yields the benefit-cost ratio. The Benefit Cost Ratio can be useful when the objective is to prioritize or rank projects or portfolios of projects with the intent to decide how to best allocate an established capital budget



Innovations

- Photocatalytic, permeable, high albedo Pavers
- New recycled Aggregates
- 30% recycled content concrete – slag, aggregates, wash water
- 40% to 50% recycled content warm mix asphalt -slag, FRAP, RAS, GTR,
- Micro-thin Concrete overlay
- Tracking



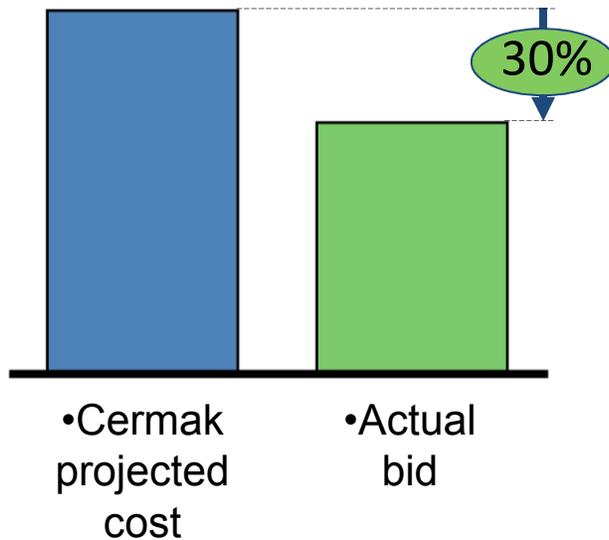
National and Local Rating Systems

CATEGORY	Design Strategy	Rating System			
		I-LAST Rating System (IDOT)	Green Roads Rating System	Sustainable Sites Initiative	LEED-ND
Planning	Identify Stakeholders and develop Stakeholders Involvement Plan	2	----	----	----
	Engage Stakeholders to conduct Context Audit and develop project purpose	2	----	----	----
	Involve Stakeholders to develop and evaluate alternatives	2	----	4	2
	Employ Stakeholder involvement techniques to achieve consensus for Preferred Project Alternative	2	----	----	----
	Plan for Context Sensitive Solutions (CSS)	----	5	----	----
TOTAL POINTS EARNED:		130	79	100	32
POINTS POSSIBLE:		228	118	250	100
Percentage % of possible points:		57%	67%	40%	32%
Ranking:		N/A	Evergreen (>60% of total)	One Star (Four Star possible)	(need 8 more Points to become "Certified")

Sustainable Streets are Cost Effective

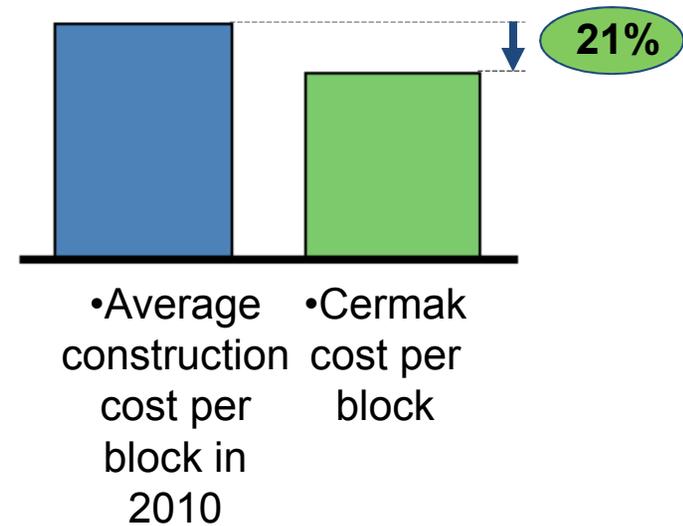
Cost is 30% less than projected...

Cermak total project cost (\$)



... And is 20% less expensive than the average block in 2010

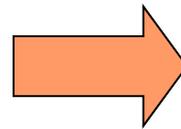
Average per block cost (\$)



Stimulating New Jobs with Green Infrastructure

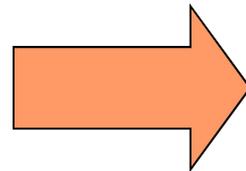
For every 1.25 Billion spent...

New Infrastructure



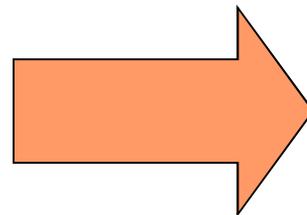
43,200 jobs

Infrastructure
Rehabilitation



47,000 jobs

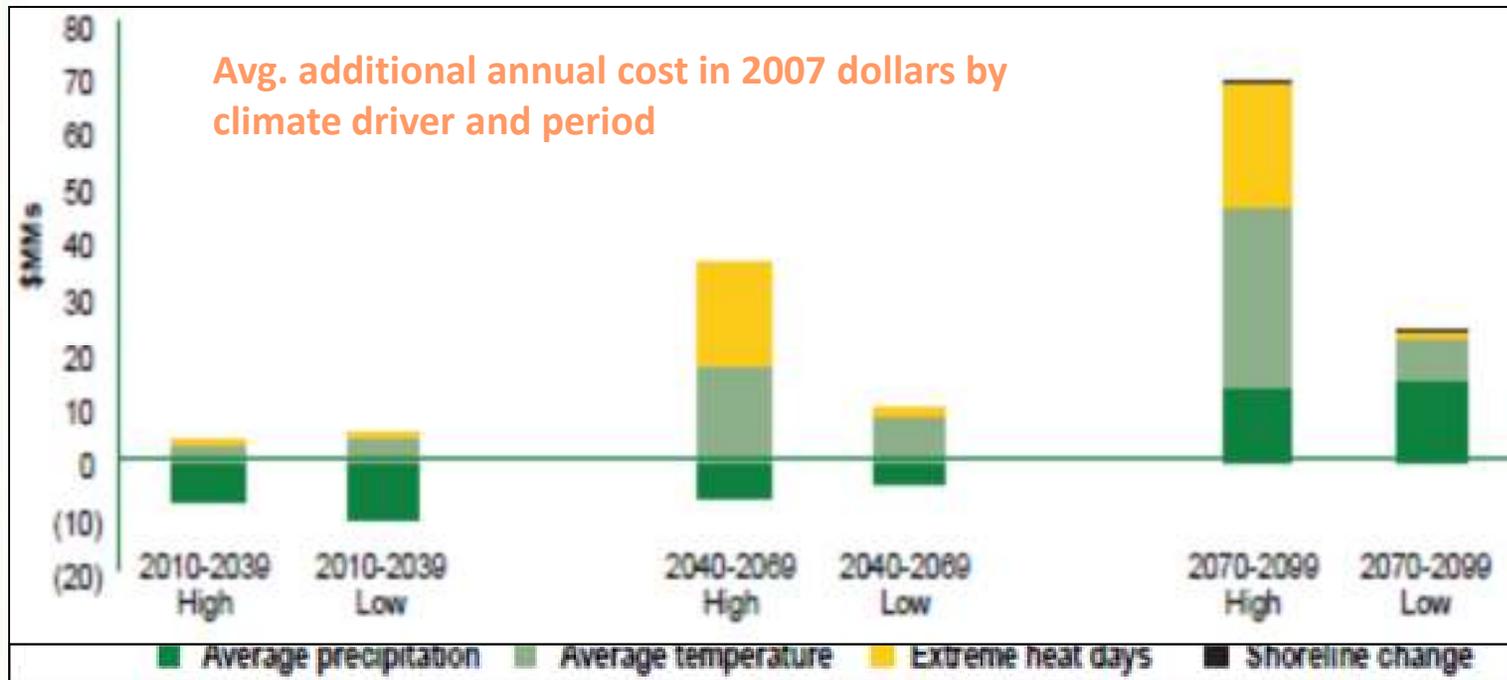
Green
Infrastructure



51,200 jobs

Economic Risk of Climate Impacts

The City, in partnership with Oliver Wyman, analyzed economic impacts on City infrastructure, key departments and budgets



1. Areas & type of financial impact (e.g. capital investment, operational costs)
2. Primary impact drivers, (e.g. heat, precipitation)
3. Nature of the impact, (e.g. deterioration of building facades)
4. Magnitude of potential impacts

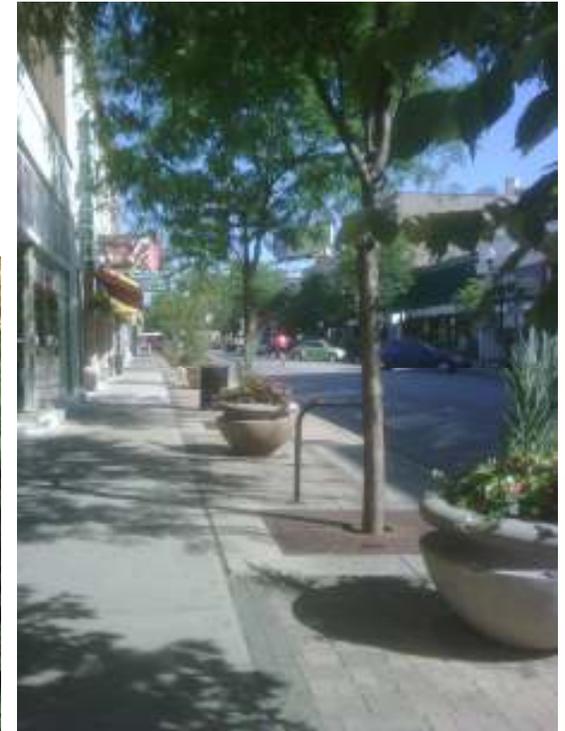
Chart source: Oliver Wyman, Corporate Risk Case Study, 2008.
Copyright 2011, City of Chicago

Lincoln Square Neighborhood existing assets

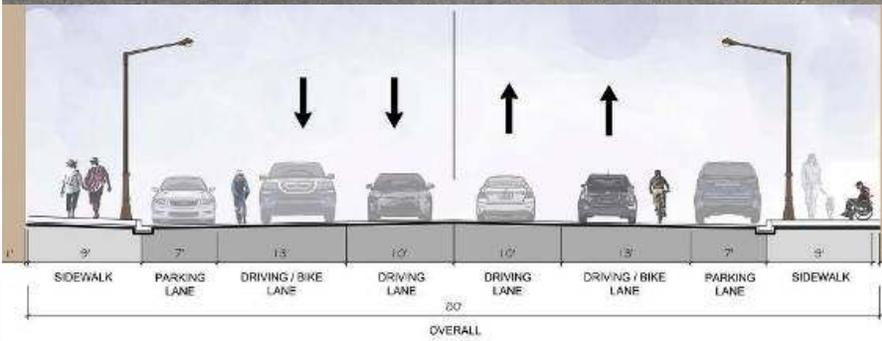




Lincoln Square and Giddings Plaza

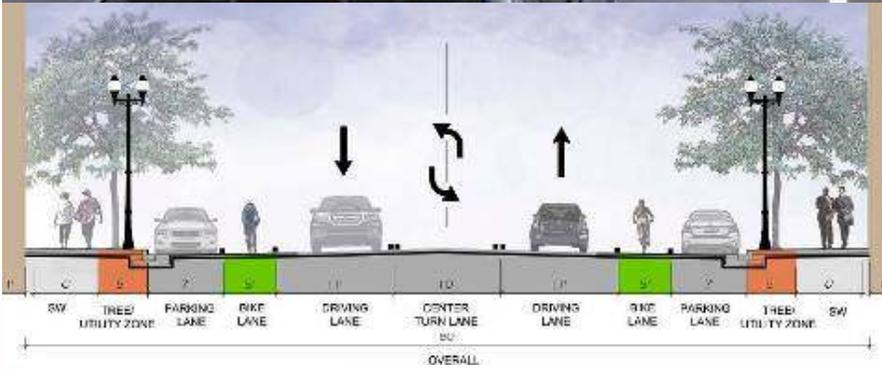


Streetscapes – Lawrence Avenue



Existing Cross Section

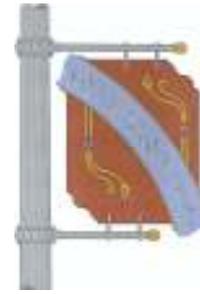
Streetscapes – Lawrence Avenue



Proposed Cross Section

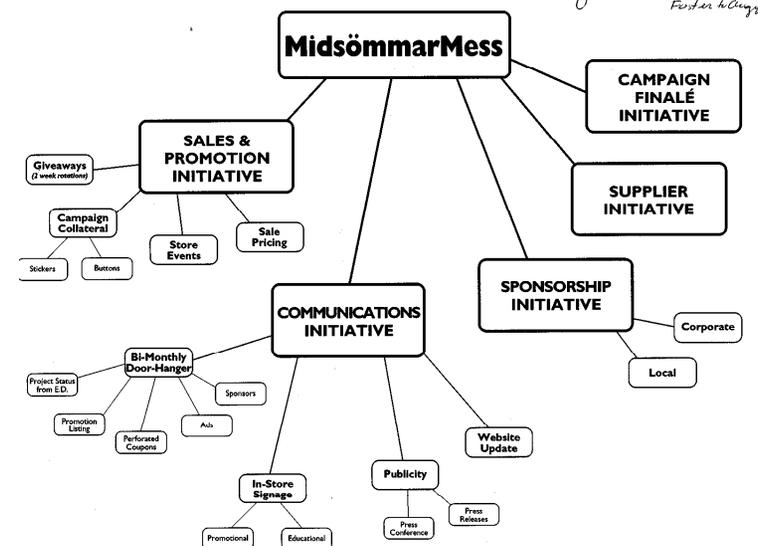
The Economics of Construction

- Regular design meetings with community
- Community representative part of the team
- On site tests of ideas
- Careful coordination with Chamber of Commerce.
- Both business and residential support
- A sense of ownership on the part of the community.
- Special Sales and Promotions
- Valet Parking
- Working with businesses that have parking lots to make them available to the district as a whole during construction.
- Celebrate your success



Andersonville Businesses Cope With Construction Woes

Cooperation Is Key as Streetscape Project Continues



Thank You



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Streetscape and Sustainable Design Program | 312-744-5900