ADAPTATION IMPLEMENTATION:
CHICAGO CLIMATE ACTION

Evolution of Urban Adaptation

- Ecosystem
- Infrastructure
- People/Equity

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FIVE STRATEGIES

Co-Benefits:

Improved Quality of Life

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ADDRESSING THE CHALLENGE OF CLIMATE CHANGE

ENERGY EFFICIENT BUILDINGS
8 ACTIONS

CLEAN & RENEWABLE ENERGY SOURCES
5 ACTIONS

IMPROVED TRANSPORTATION OPTIONS
10 ACTIONS

REDUCED WASTE & INDUSTRIAL POLLUTION
3 ACTIONS

PREPARATION
9 ACTIONS

=

35 WAYS

TO ENSURE A RESILIENT CITY

Higher Emissions:

31 days

Projected number of 100-degree days per year in Chicago

Lower Emissions:

8 days

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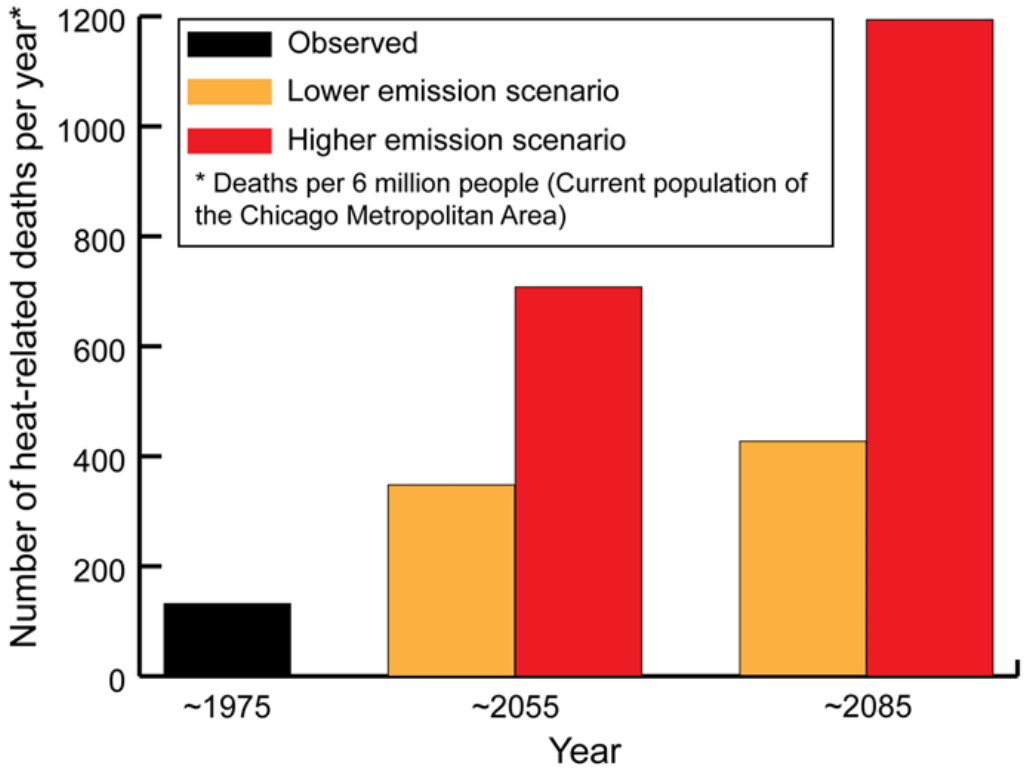
Health: Increasing heat-related risks

Fact: In a high-emissions scenario, Chicago could experience 1,200 heat-related deaths per year by 2085

Chicago Metropolitan Area Heat-Related Deaths
Observations and projections under multiple emissions scenarios



Source: Hayhoe et al. Journal of Great Lakes Research, 2010.

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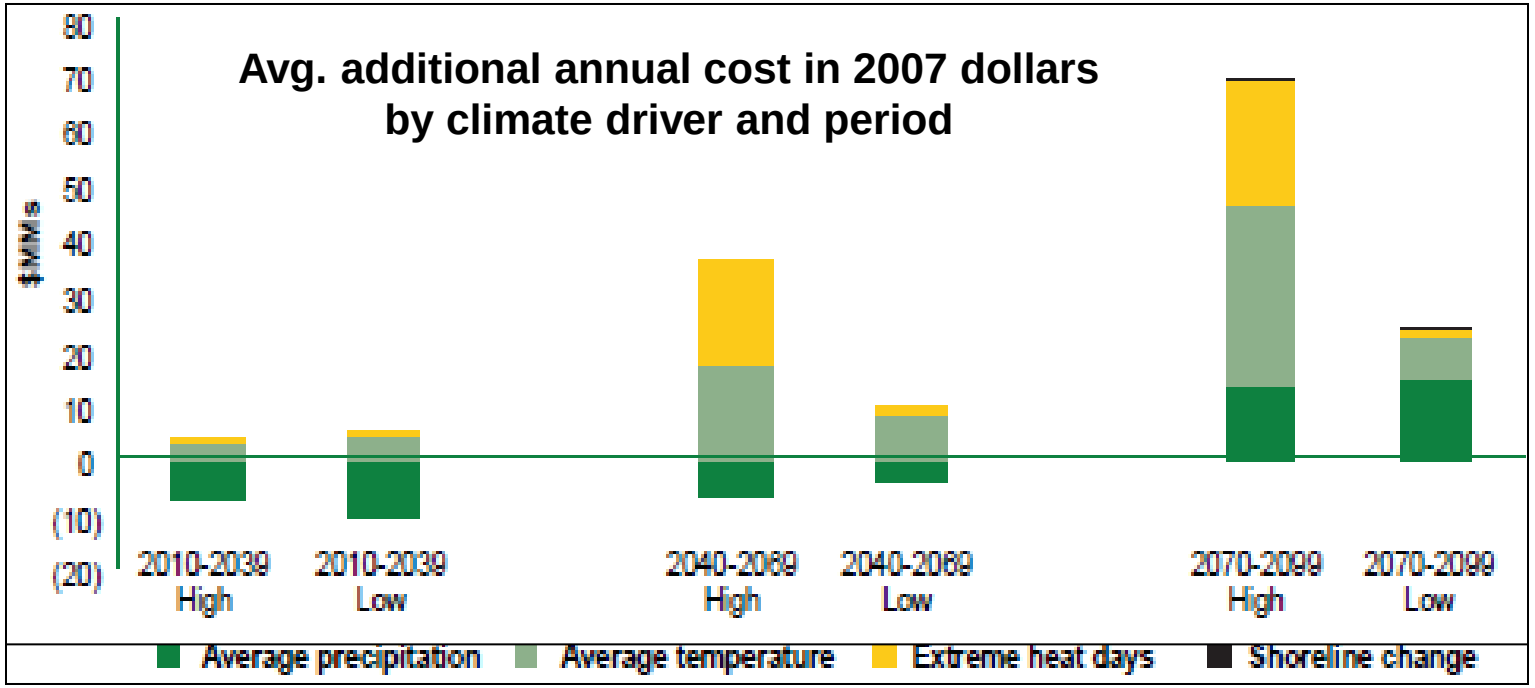
Climate Matters: Emergency Services

Climate Matters: Extreme Precipitation

Economic Risk of Climate Impacts

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



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.

Risk Impact and Probability Distributions

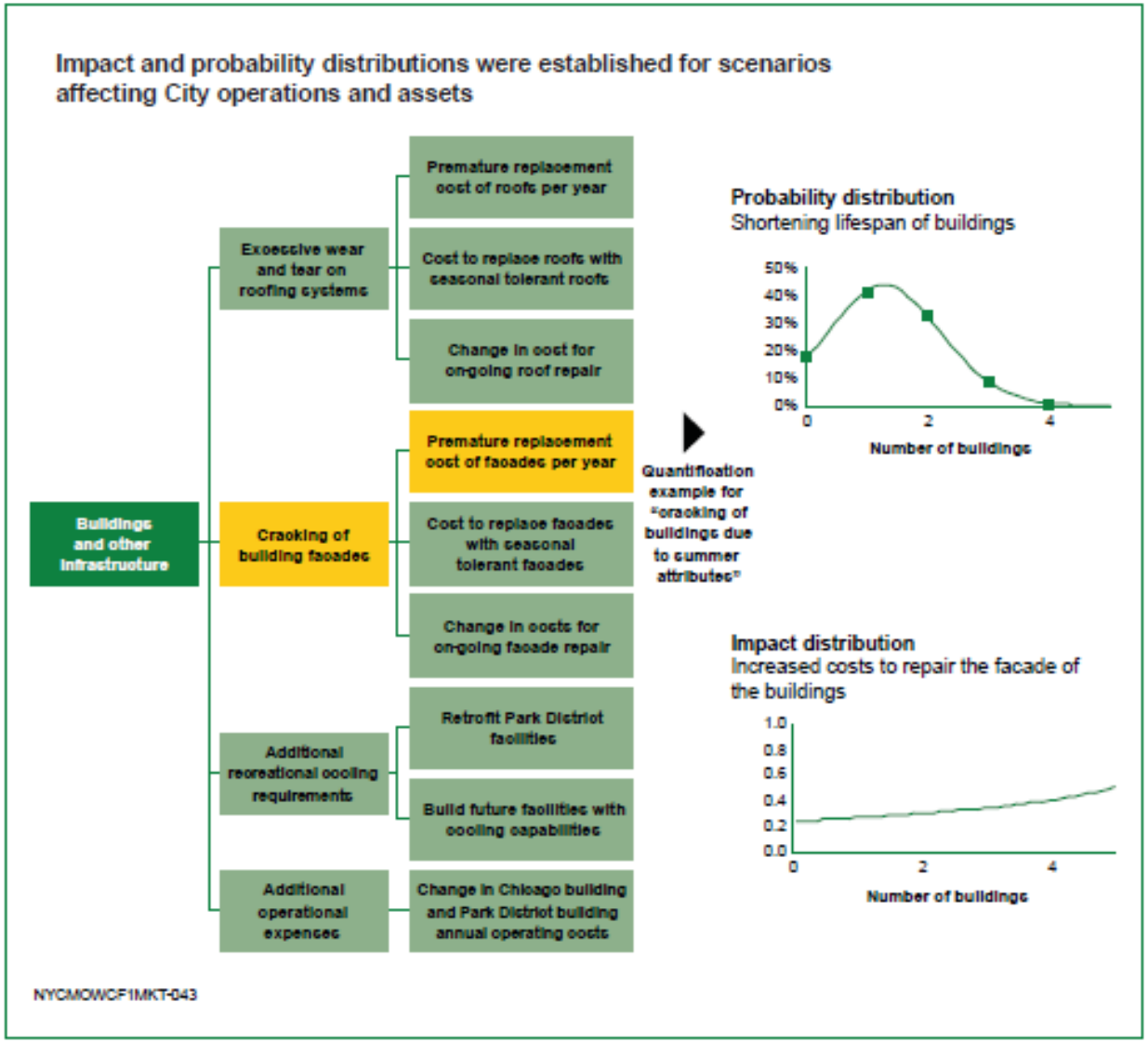


Chart source: Oliver Wyman, Corporate Risk Case Study, 2008.

Adaptation Implementation Prioritization

Prioritized adaptation actions by risk, timing, and department in collaboration with MWH

- **Identify adaptation strategies and develop implementation tactics to reduce vulnerability to:**
  - Extreme heat
  - Extreme precipitation
  - Buildings/infrastructure/equipment
  - Ecosystem degradation

125 Potential Adaptation Actions Organized by Risk, Timing and Department

Impact	Risk	Timing **	Construction, Buildings & Property	Tourism	Environment	Fire	Fleet Management	Housing	Human Services	Emergency Management	Police	Public Health	Streets and Sanitation	Transportation	Water Management	Parks and Open Space	Storm Water Management
Need to get greater penetration of A/C to residential units (particularly high risk areas)	Moderate	Near	x					x				x					
Damage to property and increasing cost of insurance due to stormwater	Moderate	Mid	x			x			x			x	x		x		x
Higher costs associated with managing invasive species	Moderate	Mid			x										x	x	
Increased potential for shoreline erosion/ storm damage	Moderate	Mid			x						x					x	
Possibility of higher frequency/severity of storms	Moderate	Mid				x				x	x		x			x	

Chart Source: MWH, Chicago Area Climate Change Quick Guide, 2008.

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CCAP Adaptation Evolution

2007	2008	2009	2010
• **Understood the climate science:** Assess climate impacts • **Assessed economic risk:** Project City cost of no action at -$2.54B in high-emissions • **Developed adaptation action framework:** Prioritize actions by risk & timing	• **Created 5 climate impacts working groups:** 21 departments & agencies create 39 “Tactics” for 5 groups • **Launched CCAP:** Mayor, September	• **Created CCAP department work plans:** Departments commit to adaptation actions through work plans	• **Defined adaptation targets:** People, Natural Environment, Built Environment • **Hosting “Lessons Learned” meetings:** Improve responses to extreme weather events • **Forming Adaptation Advisory Group:** Will provide guidance and oversight

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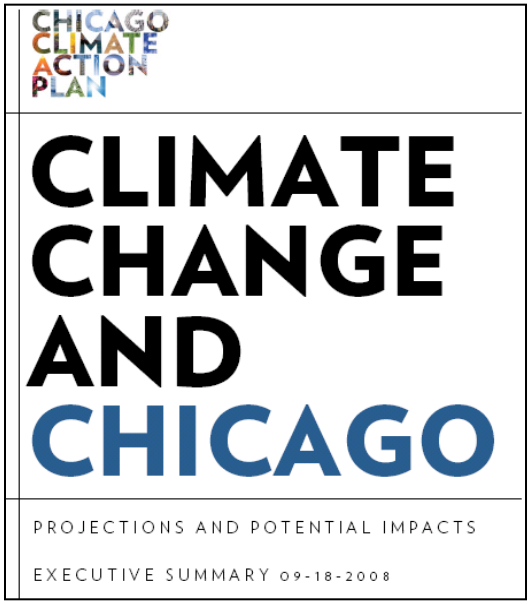
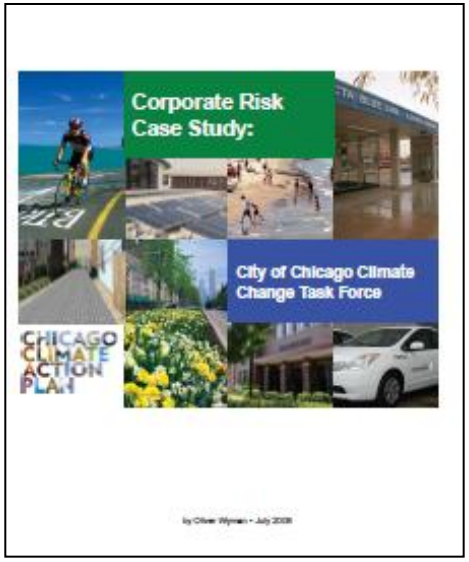
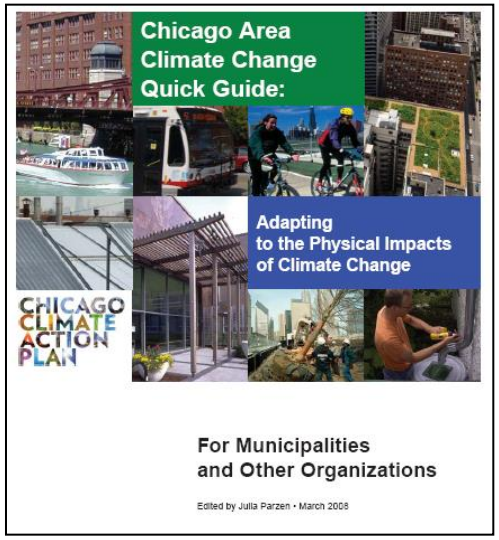
Adaptation Resources



Projections and potential impacts



Corporate risk analysis



Adaptation quick guide

www.chicagoclimateaction.org

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Adaptation Quantification

Potential measures

- Climate change measures

- Climate readiness measures
  - Stormwater catch-basin restrictors in place (built environment)
  - Permeable pavement built (built environment)
  - Water control structures sized for extreme precipitation (natural environment)
  - Urban Heat Island area planted with climate ready trees (natural environment)

- Surveillance measures
  - Heat-related fatalities per year (people)
  - Street closure hours per year due to flooding (people, built environment)
  - Power shut down hours per year (people, built environment)
  - Heat-related school and labor absences per year, (people)
  - Beach closure days per year, (natural environment)

CCAP's Adaptation Drivers

- Model City adaptation implementation for CCAP scale-out
- Leverage City business as usual to serve adaptation goals
- Prioritize vulnerable communities
- Balance the need for research with the need to act
- Enhance collateral benefits of climate change mitigation

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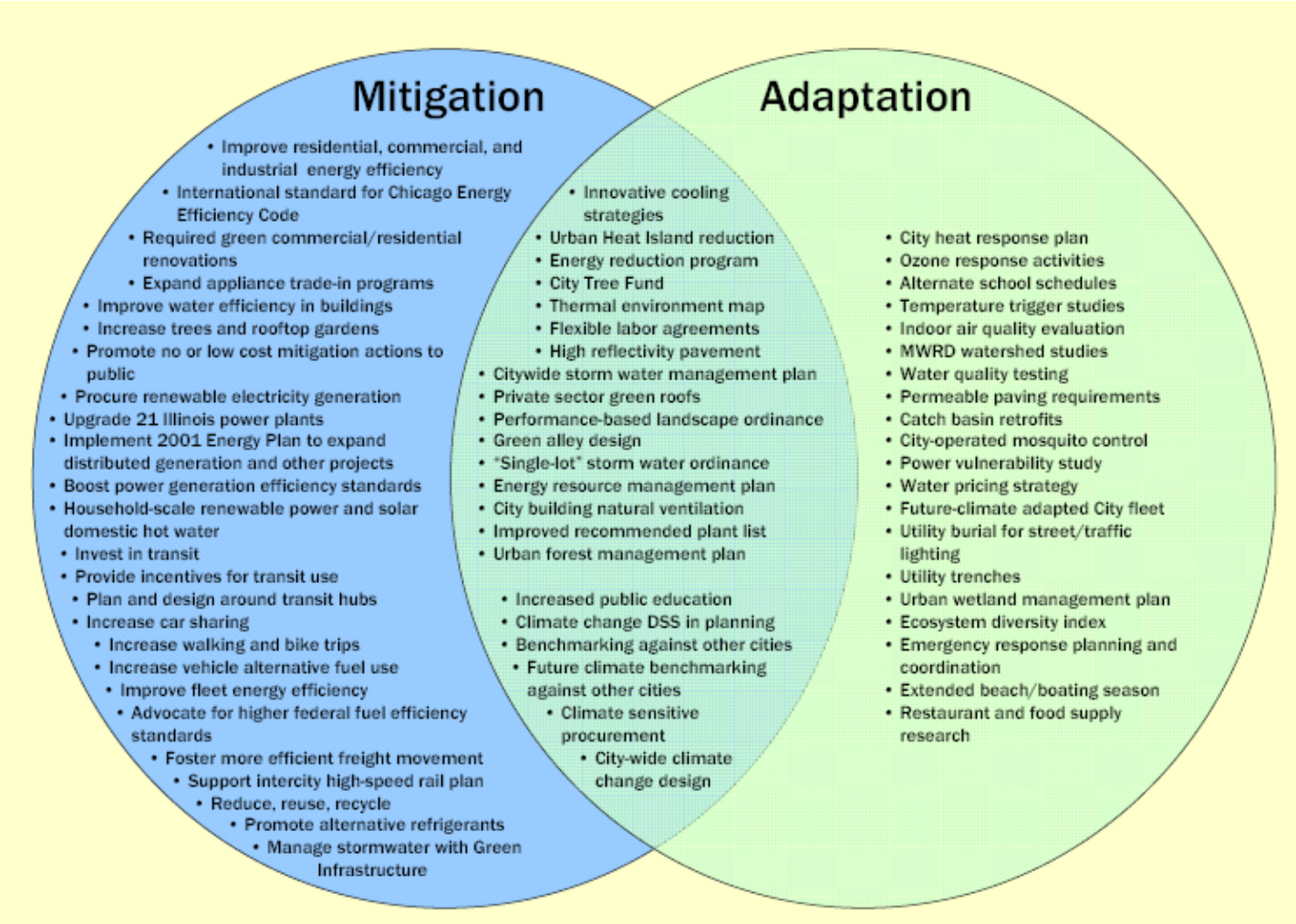
Mitigation-Adaptation Overlap



Example Complementary Actions

- Stormwater management
- Urban forest management
- Green infrastructure to help capture stormwater on-site
- High albedo surfaces

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Joyce Coffee

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TriplePundit people, planet, profit

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by 3p Contributor on Wednesday, Dec 14th, 2016 SOCIETY

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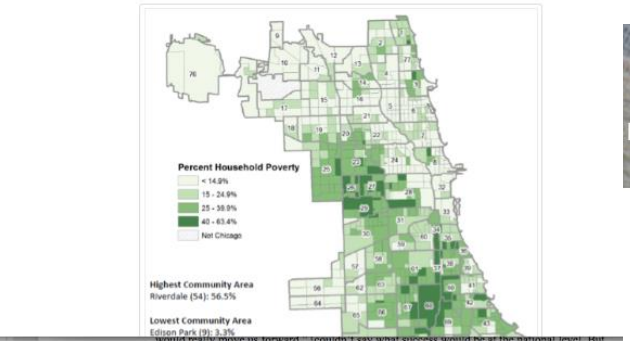

I'm immersed in a fascinating variety of projects for the Rockefeller Foundation and Regional Plan Association and all include a similar question about how to finance urban resilience. That got me wondering: What well-known financing solutions could help us to finance more adaptation today?

Here are seven:

1. **Climate Reinvestment Act**: In the post-housing bust period, Community Reinvestment Act funds have shifted to financing schools and the like from funding low-income housing. This has been a shift for banks that used to achieve their CRA goals within their general market share in low-value mortgages. So, what if banks to meet the credit needs of the communities where they operate used CRA investments for resilience that improved communities, such as green infrastructure to absorb stormwater and prevent flooding? Or how about LaSalle Bank, which a decade ago paid for tree planting along the Chicago marathon route counter urban heat island and runner's heat stress.

2. **General Obligation Bonds**: Cities are reluctant to assume more debt, worried especially about damaging their credit ratings. Yet, deferred maintenance, presumably triggered partly by insufficient bonds to pay for infrastructure improvements, means that much of the country's infrastructure earns a dismal grade of D+ from the Society of Civil Engineers. Credit raters, though, are rational actors and more of them are mindful of resilience – vis-a-vis **Standard &Poor's recent reports** on the impact of climate risk on sovereigns and corporations – and it's a great time to borrow with interest rates low and investors seeking to diversify from stocks in a bull market.

3. **Green Banks**: In the last decade, a healthy proliferation of Green Banks – public or quasi-public financing institutions that provide low-cost, long-term financing support to

TriplePundit people, planet, profit

Special Series Cate

As Feds Devalue Science, It's Time To Take It to the City

by 3p Contributor on Wednesday, Mar 1st, 2017 SOCIETY

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