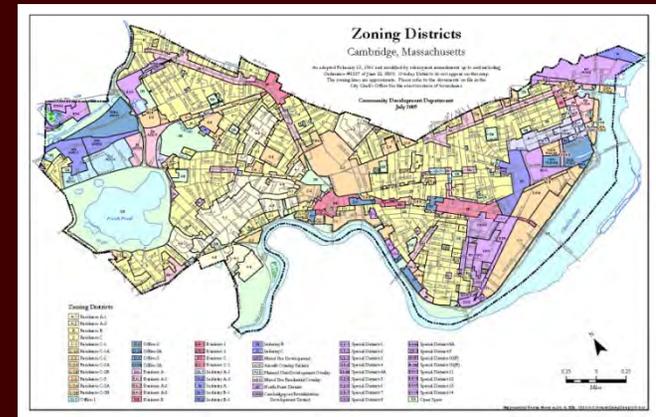


Sustainability

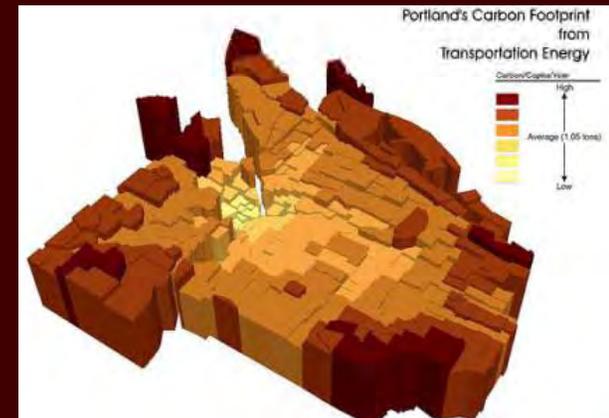
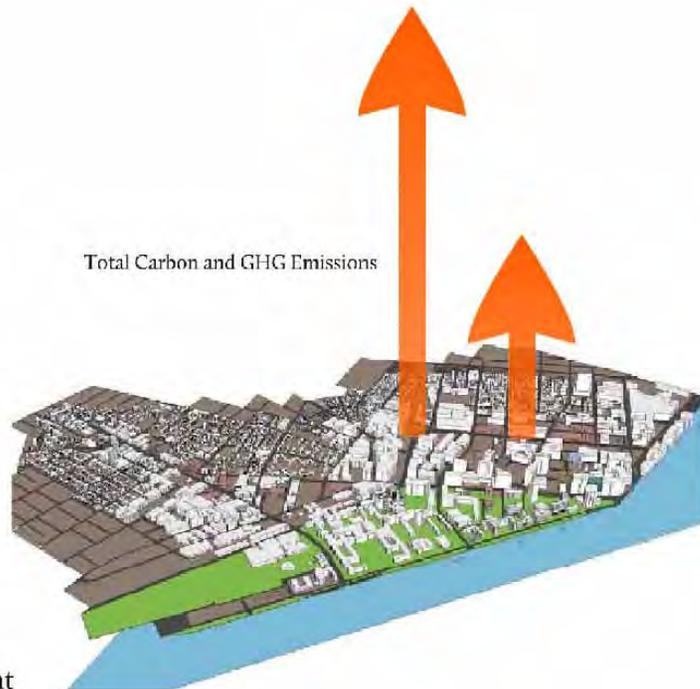
Make Kendall a global leader in environmental sustainability theory *and* practice – and highlight its performance



urban design/planning study for the **central** and **Kendall square area**

Sustainability

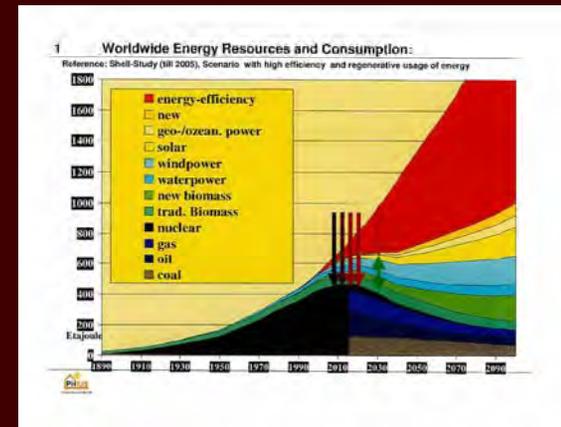
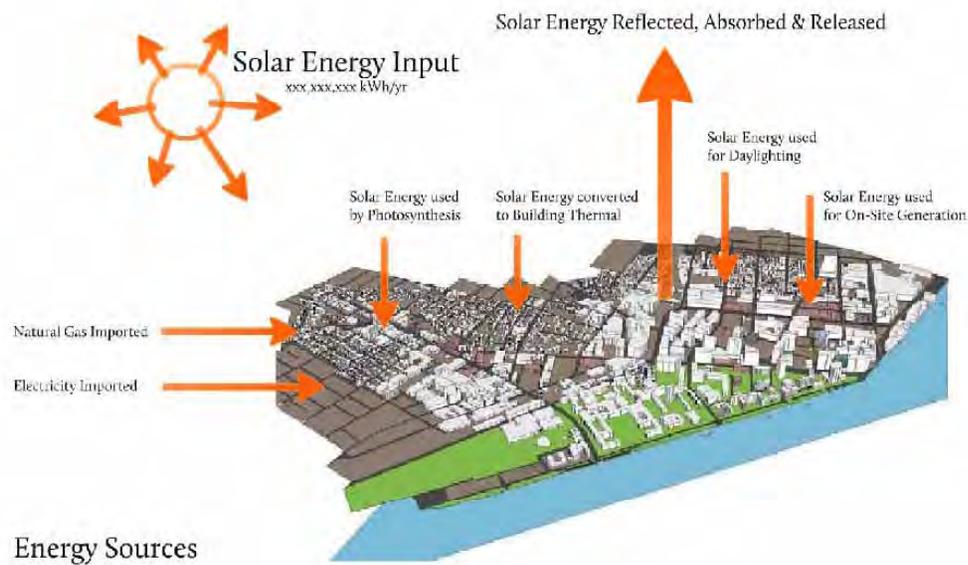
A Diverse Emissions Footprint



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Sustainability

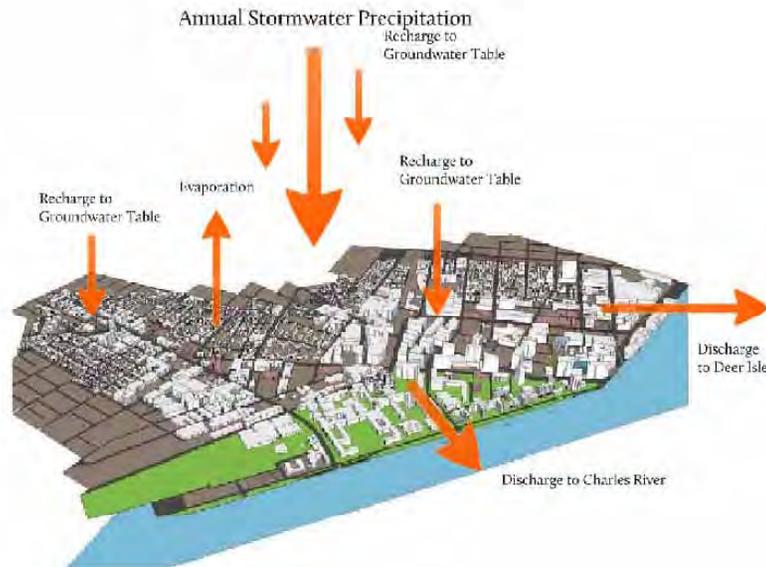
Energy Profile and District Opportunities



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Sustainability

Water Management and Adaptation



Precipitation



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The U.S. Conference of Mayors
Mayors Climate Protection Center

[MCPC HOME](#) [THE AGREEMENT](#) [BEST PRACTICES](#) [PARTNERS](#) [USCM HOME](#)

Participating Mayors

[View Map](#)

[View Agreement](#)

[Sign On](#)

Cities That Have Signed On

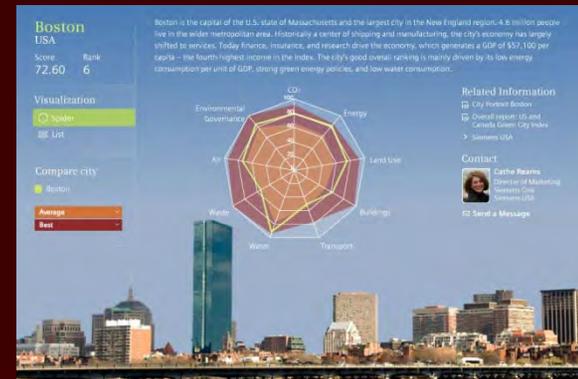
1,054 as of 7/12/2011



Sustainability

What is already happening?

- City of Cambridge
- Institutions
- Corporate Citizens
- Business Community
- Residents

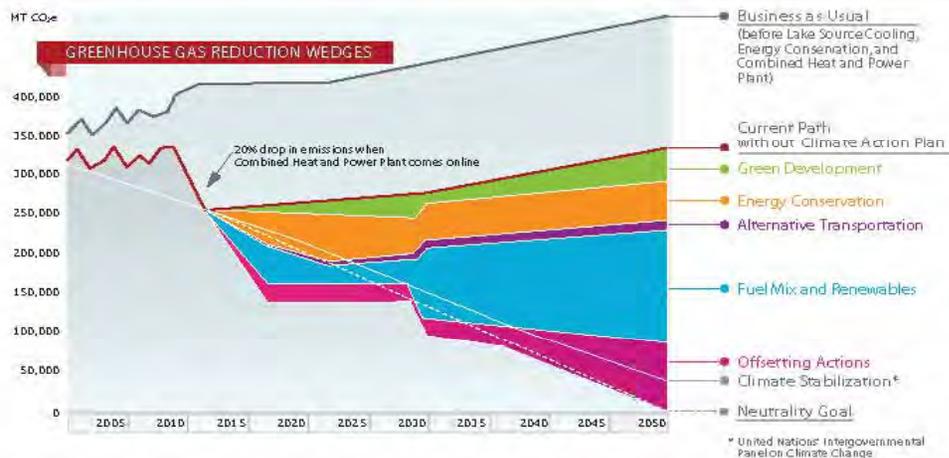
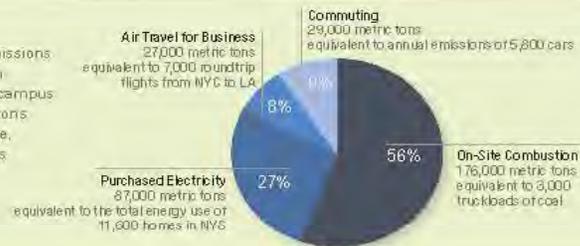


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Sustainability

Our Current Carbon Footprint

The 2008 inventory of Cornell's greenhouse gas emissions establishes the baseline for the Climate Action Plan. The fiscal year 2008 carbon footprint for the Ithaca campus was calculated to be approximately 319,000 metric tons (CO₂ equivalent emissions), including carbon dioxide, nitrous oxide, and methane—the greenhouse gases associated with fossil-fuel consumption.

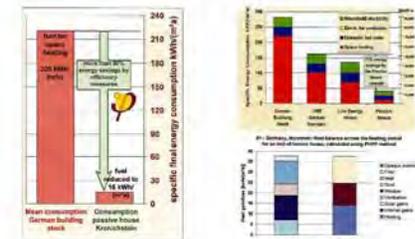


www.sustainable.campus.cornell.edu/climate 5

First Steps:

- Organization
- Assessment
- Goal Setting

2 Passive House: Factor10 Reduction in Space Conditioning Energy



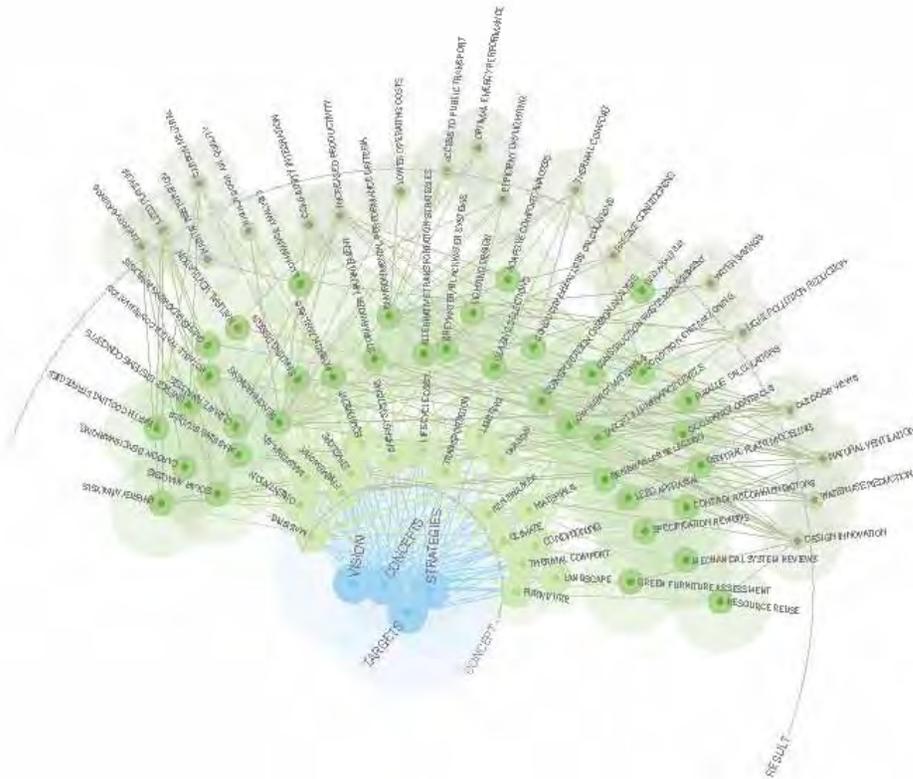
(Source: Krüppner and Drowler 2001)



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Sustainability

Establish a process for execution of plan with measurable and transparent reporting



Quantitative indicators

Category	Indicator	Average	Boston	Year	Scale	Source	Comments
CO ₂	CO ₂ emissions per unit of GDP (metric tons/\$Bn)	256.6	198.5	2002	MSA	Purdue University – The Vulcan Project; US Bureau of Economic Analysis	Using MSA GDP
	CO ₂ emissions per person (metric tons)	18.5	12.2	2002	MSA	Purdue University – The Vulcan Project; US Census Bureau	Using MSA population
Energy	Electricity consumption per unit of US GDP (kWh/\$Bn)	18.02	0.19	2009	City	City of Boston; US Census Bureau	Using MSA GDP
	Electricity consumption per person (kWh)	253.2	49.6	2009	City	City of Boston; US Census Bureau	Using MSA population
Land use	Green spaces as % of total area (%)	11.4	16.3	2008	City	Trust for Public Land; US Census Bureau	Using city population
	Population density (persons/acre)	0,105.8	13,241.0	2009	City	US Census Bureau	Using area of city in 2000
Buildings	Number of LEED certified buildings (Silver, gold or platinum) (Buildings/100,000 persons)	8.4	6.5	2010	City	US Green Building Council; US Census Bureau	Using city population
	Share of workers traveling by public transport, bicycle, or foot (%)	13.0	18.3	2009	MSA	US Census Bureau American Community Survey	
Transport	Length of public transport (miles/minut)	1.4	3.3	2009	Metro area	National Transit Database	Using service area square miles
	Annual vehicle revenue miles (miles/person)	24.4	22.8	2009	Metro area	National Transit Database	Using service area population
	Maximum public transport vehicles available per square mile (vehicles/mile ²)	4.0	0.8	2009	Metro area	National Transit Database	Using service area square miles
	Average commute time from residence to work (minutes)	28.0	29.4	2009	MSA	US Census Bureau American Community Survey	
Waste	Recycled municipal waste (%)	15.0	20.0	2009	City	City of Boston Department of Public Works	
	Total water consumption per person per day (gallons)	155.1	73.5	2005	MSA	USGS	Using USGS publicly supplied population
Air	Water leakages in water distribution system (%)	12.8	9.0	2009	City	Mayor's Office of Sustainability	
	Nitrogen oxides emissions per annum (pounds/person)	38	50	2005	County	EPA-US Census Bureau	Using county population
	Particulate matter (PM10) emissions per annum (pounds/person)	25	16	2005	County	EPA-US Census Bureau	Using county population
	Sulfur dioxide emissions per annum (pounds/person)	12	14	2005	County	EPA-US Census Bureau	Using county population

Atelier 10

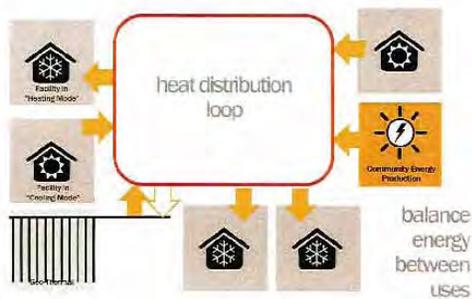


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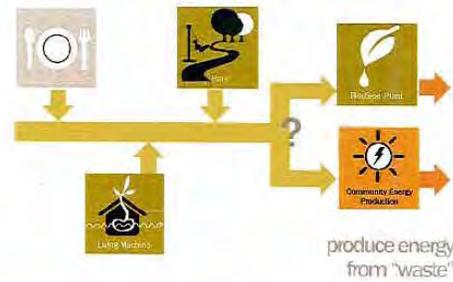
Sustainability

Benefit from District Energy opportunities

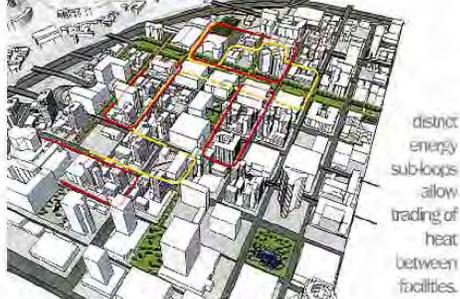
eco-district.energy.balancing



eco-district.energy.recovery



eco-district.energy.balancing



eco-district.energy.recovery



Legend

- Red – Active steam line
- Yellow – Inactive steam line
- Green – Customers



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Sustainability

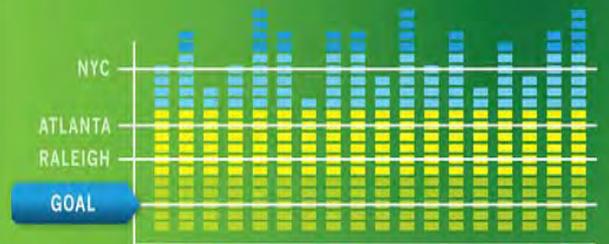
Demonstrate benefits from innovation in district energy management strategies



ENVISION:CHARLOTTE
UNITING FOR A SUSTAINABLE CITY

8:28am | 9.9.2010

CHARLOTTE CURRENT ENERGY USE *



*PER CAPITA MONDAY ————— FRIDAY

WHAT CAN YOU DO TODAY?

Turn your computer off before you leave the office. If 1/3 of Center City employees did this for 30 DAYS, the carbon saved would equal 2152 CARS off I-77 for a month.


2152 CARS

COMPARE ENERGY USE


ENERGY SAVED


TREES SAVED


NUMBER OF HOMES


NUMBER OF CARS


CARBON FOOTPRINT

CHARLOTTE WEATHER



74°

CLOUDY

TEMP: 74°
DEWPOINT: 23
HUMIDITY: 73%
PRESSURE: 29.9
WINDS: WSW 7mph

HOW DID YOU GET TO WORK?

 CARPOOL

 LYNX

 BICYCLE / WALK

 SINGLE OCCUPANCY VEHICLE

↑ 562

↑ 723

↓ 189

↓ 3521

CHECK IN



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Sustainability

Link storm-water mitigation strategies to public space improvements



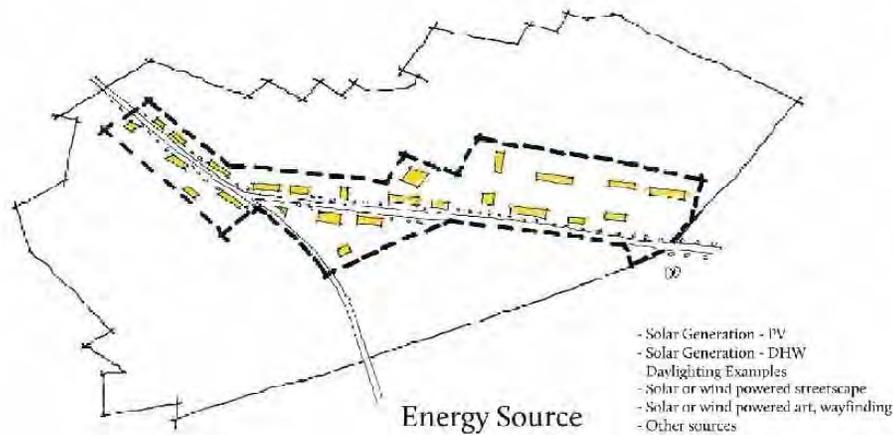
Vanessa Keith AIA, studio TEKA



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Sustainability

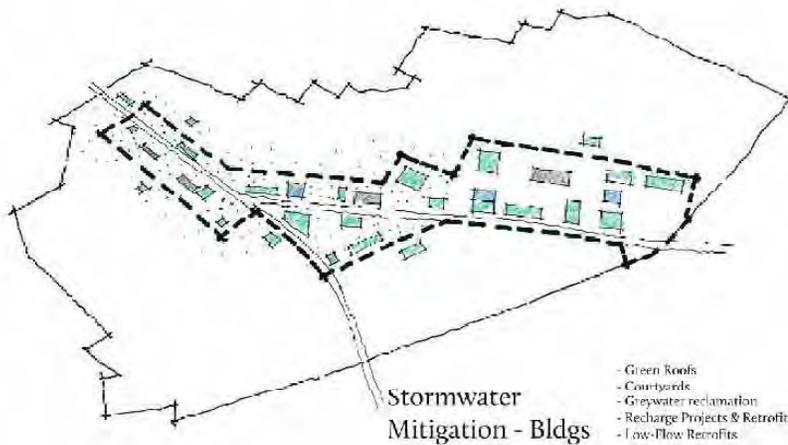
Demonstrate exemplary innovation with on-site energy production alternatives



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Sustainability

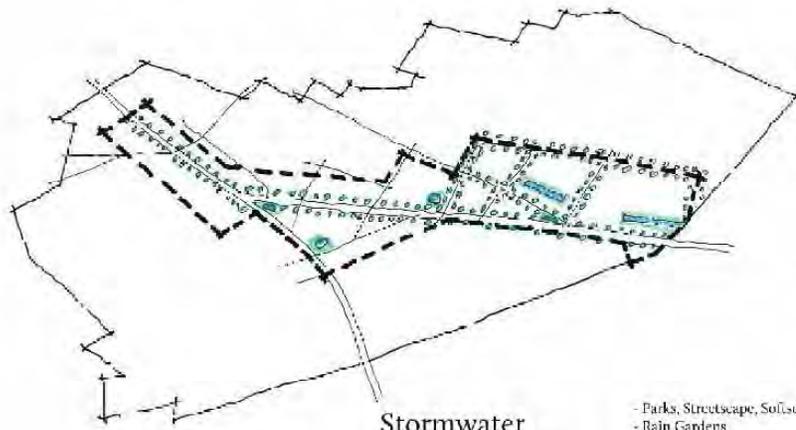
Increase capacity of storm and waste-water infrastructure by decreasing load



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Sustainability

Reconnect with site ecology



Stormwater Mitigation - Site

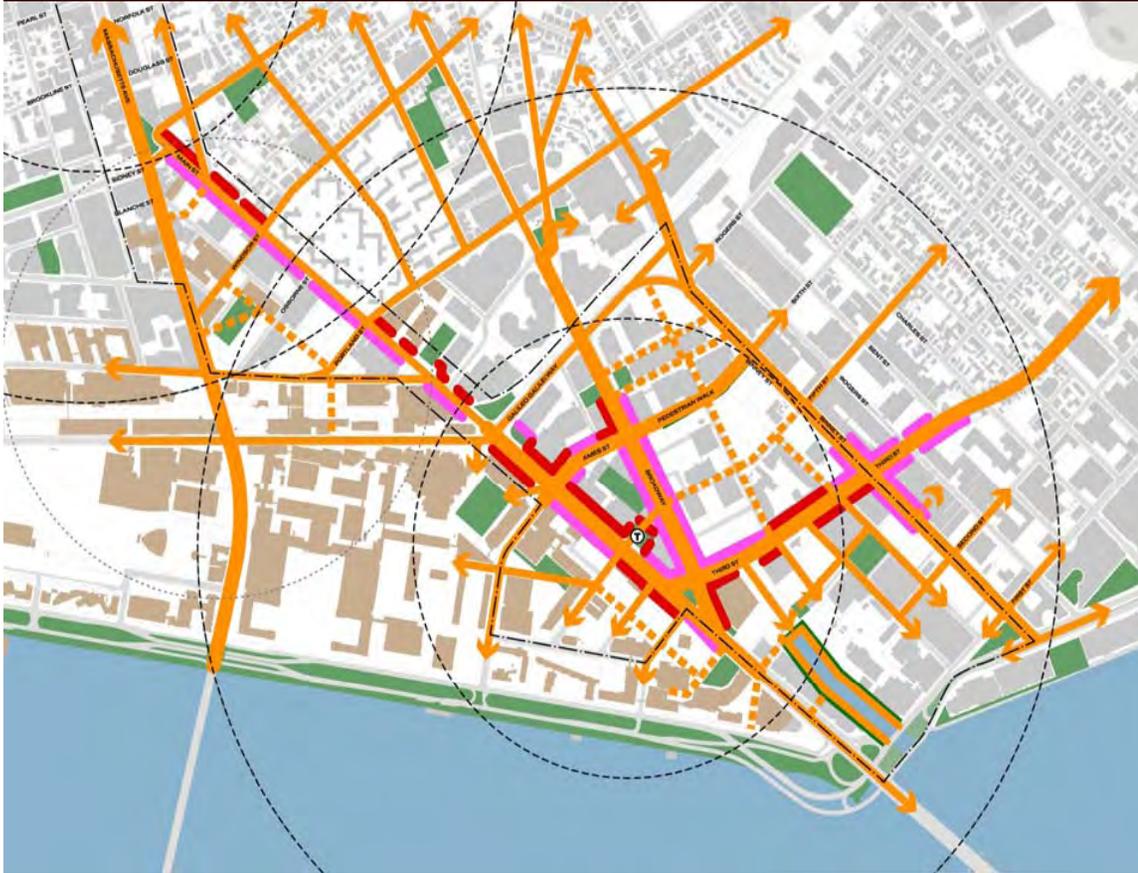
- Parks, Streetscape, Soilscape
- Rain Gardens
- Tree-boxes
- Detention and Retention



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Sustainability

Make Kendall a global leader in environmental sustainability theory *and* practice – and highlight its performance



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