### IDEAS for CLIMATE RESILIENCE in BUSINESSES

Understand and build upon Springfield's hazard and community vulnerability assessments Identify the degree of vulnerability and exposure to hazards your community may face, and the likely impact of that vulnerability on the services the community may expect your UNDERSTAND business to provide. THE RISKS Develop management efforts to reduce the firm's detrimental impacts on local environmental, social, economic, and governance performance indicators. Identify direct actions to improve the policies, decisions, and incentives of the corporatation's wider value **REDUCE THE** chain. FOOTPRINT Develop strategic measures and methodologies toward reduction targets and efficiency goals, which can result in cost savings, a reduced carbon footprint, and potential positive brand benefits. DEVELOP TARGETS Create initiative schemes and reward systems for reaching targets. Require recycling and composting. MGM's MyGreenAdvantage is a good case study. **WORK WITH** STAFF To see a return on your climate-smart investments. THINK LONGTERM Develop an integrated sustainability policy with an action plan that incorporates climate change issues throughout the value chain and frames sustainable business practices as the VALUE way forward. **SUSTAINABILITY** Participate in an energy efficiency audit and retrofit. Install wind and/or solar energy systems for both thermal energy (domestic hot water heating) and electric power generation. Use space creatively to make room for renewables, as American Outdoor Brands did with their REDUCE solar parking array. **ENERGY USE** Reduce the emissions embodied in any materials used in construction and maintenance of facilities and infrastructure by purchasing locally sourced materials and using reclaimed or recycled materials and amenities. REDUCE WASTE

### IDEAS for CLIMATE RESILIENCE in H E A L T H C A R E

UNDERSTAND

THE RISKS

**PROTECT VITAL** 

**SERVICES** 

PROTECT VITAL

ENSURE ACCESS

ENSURE PASSIVE

WORK WITH

**REDUCE ENERGY** 

CONSUMPTION

REDUCE WASTE Understand and build upon Springfield's hazard and community vulnerability assessments Identify the degree of vulnerability and exposure to hazards your community may face, and the likely impact of that vulnerability on both medical services (patient surge) and non-traditional needs (beyond clinical care) the community may expect a medical facility to provide.

Engage frontline workers in planning in order to understand the organizational vulnerabilities that extreme weather may reveal, and to prepare and equip personnel for such circumstances. Assess the limits on housing substantial numbers of personnel, with families and pets, during shelter-in-place. Develop a plan for converting unoccupied locations to staff accommodation, including during times of possible patient surge.

Elevate utility systems and equipment above the local Design Flood Elevation (DFE), the design flood relative to the datum specified on the community's legally designated flood hazard map.

Assess access roads and building evacuation routes for extreme weather vulnerabilities, considering whether downed trees, floods, or blocked culverts will affect road use and site access. Create redundancy in the facility's evacuation routes to avoid entrapment.

Implement building facade design measures ranging from enhanced insulation, roof overhangs, fixed solar shading devices, and operable windows, for enhanced thermal comfort and mitigation of overheating in the event of a total systems failure.

Reduce the risk of flash flooding and urban heat island effect by managing stormwater and incorporating vegetation onsite. Reduce impervious surfaces, harvest rainwater, and direct remaining stormwater runoff to soil and vegetation based water treatment methods, such as rain gardens, bio-swales, and green roofs.

Participate in an energy efficiency audit and retrofit. Install wind and/or solar energy systems for both thermal energy (domestic hot water heating) and electric power generation. Reduce transportation-based emissions by transitioning to high-efficiency or alternative-fuel vehicles and ambulances and increase the purchasing of local and organic produce by a goal quantity.

Disinfect plastics and recycle, rather than incinerating potentially infectious plastic medical waste. Eliminate the purchase and sale of bottled water.

# IDEAS for CLIMATE RESILIENCE in HIGHER EDUCATION

UNDERSTAND THE RISKS PROVIDE **LEADERSHIP** PROTECT VITAL **FUNCTIONS SUPPORT ADAPTATION** ENSURE PASSIVE **SURVIVABILITY WORK WITH** NATURE

REDUCE ENERGY

REDUCE WASTE Understand and build upon Springfield's hazard and community vulnerability assessments Identify the degree of vulnerability and exposure to hazards your community may face, and the likely impact of that vulnerability on both educational services and non-traditional needs (beyond education) the community may expect an educational institution to provide.

Provide leadership in communicating anticipated local and regional climate changes, articulating what these changes mean for regional residents, businesses, and governments (translating the science into information that policymakers can apply to their work). Conduct multi-disciplinary adaptation research related to very localized questions regarding specific ecosystems and impacts.

Elevate utility systems and equipment above the local Design Flood Elevation (DFE), the design flood relative to the datum specified on the community's legally designated flood hazard map.

Use on-campus building and operational efforts as an opportunity to engage local officials regarding the possibilities for broad community incentives or regulations aimed at climate adaptation; participate in local working groups or committees aimed at improving community climate resilience.

Implement building facade design measures ranging from enhanced insulation, roof overhangs, fixed solar shading devices, and operable windows, for enhanced thermal comfort and mitigation of overheating in the event of a total systems failure.

Use Low Impact Development (LID) techniques in all parking lots, including vegetated swales, permeable pavement, etc., to capture, treat, and reduce peak flows of stormwater runoff.

Participate in an energy efficiency audit and retrofit. Install wind and/or solar energy systems for both thermal energy (domestic hot water heating) and electric power generation. Reduce transportation-based emissions by transitioning your fleet to high-efficiency or alternative-fuel vehicles and increase the purchasing of local and organic produce by a goal quantity.

Locate recycling containers at all sport games and school festivals to divert plastic beverage containers from the landfill. Compost food waste. Eliminate the purchase and sale of bottled water.

## IDEAS for CLIMATE RESILIENCE in HOUSING&DEVELOPMENT

Understand and build upon Springfield's hazard and community vulnerability assessments Identify the degree of vulnerability and exposure to hazards your community may face, and the likely impact of that vulnerability on the built environment and non-traditional needs UNDERSTAND (beyond housing) the community may need. THE RISKS Design new developments and redevelopments to help set up social infrastructure through opportunities for people to meet each other, including programming, physical activity opportunities, and physical connectivity to other parts of the city. FACILITATE EQUITY Elevate utility systems and equipment above the local Design Flood Elevation (DFE), the design flood relative to the datum specified on the community's legally designated flood hazard map. **PROTECT VITAL FUNCTIONS** Use Health Impact Assessments (HIAs) to integrate individual health, equity, and community well-being into the planning process. **BUILD HEALTHY** Implement building facade design measures ranging from enhanced insulation, roof overhangs, fixed solar shading devices, and operable windows, for enhanced thermal comfort and mitigation of overheating in the event of a total systems failure. Consider super-insulated building envelopes to protect inhabitants from extreme heat or cold if ENSURE PASSIVE building operations fail. **SURVIVABILITY** Use Low Impact Development (LID) techniques in all parking lots, including vegetated swales, permeable pavement, etc., to capture, treat, and reduce peak flows of stormwater runoff. **WORK WITH** NATURE Participate in an energy efficiency audit and retrofit. Install wind and/or solar energy systems for both thermal energy (domestic hot water heating) and electric power generation. **REDUCE ENERGY** CONSUMPTION Whenever possible, used reclaimed and/or regionally sourced materials for construction. REDUCE WASTE

### IDEAS for CLIMATE RESILIENCE in TRANSPORTATION

UNDERSTAND THE RISKS FACILITATE MOBILITY DEVELOP TARGETS **EDUCATE STAFF** UPGRADE THE FLEET VALUE **SUSTAINABILITY WORK WITH** NATURE REDUCE WASTE

Understand and build upon Springfield's hazard and community vulnerability assessments Identify the degree of vulnerability and exposure to hazards your community may face, and the likely impact of that vulnerability on the services the community may expect a transportation facility to provide.

In planning and retrofitting transportation routes, networks, and hubs, consider combined mobility (taxi/car-sharing, walking, cycling, rail) efficiency.

Develop strategic measures and methodologies toward reduction targets and efficiency goals, which can result in cost savings, a reduced carbon footprint, and potential positive brand benefits.

Increase fuel and energy efficiency by reducing fuel consumptive habits such as idling and rapid acceleration/deceleration (e.g., create initiative schemes and reward systems for reaching targets). Maintain a regular maintenance program including maintaining tire pressure and other preventive maintenance practices, like replacing air filters.

Integrate climate change risk into product design and fleet technology upgrades (e.g., through efficiency measures, vehicles that can accept alternative fuels, hybrid vehicles, fuel management software, regenerative breaking, etc.)

Develop an integrated sustainability policy with an action plan that incorporates climate change issues throughout the value chain and frames sustainable business practices as the way forward.

Use Low Impact Development (LID) techniques in all parking lots, including vegetated swales, permeable pavement, etc., to capture, treat, and reduce peak flows of stormwater runoff.

Reduce the emissions embodied in any materials used in construction and maintenance of facilities and infrastructure by purchasing locally sourced materials, using reclaimed or recycled materials and amenities. Consider LEED Silver or better certification for new constructions.