PLANNING & COMMUNITY DEVELOPMENT DEPARTMENT

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Sustainability Goals for Civic Community Campus

1. **Energy efficiency.** Build the most energy efficient building possible. Set energy EUI targets that will prepare project to be a **net zero carbon building - a building that is highly energy efficient with remaining energy needs powered from on-site and/or off-site renewable energy sources.**

   Why:
   The City has committed to lead statewide on Sustainability. The City of Middleton has set both city energy goals and community-wide energy goals. City goals for using 100% renewable energy for all of its energy needs by 2040 begin with reducing energy use. Resolution #2018-32 states that the City will work to reduce its energy use for city operations at least 15% by 2030, and 50% by 2050; and meet 66% of all City operations through renewable energy resources by 2025, 80% by 2035, and 100% by 2040. The City must lead this effort if we expect the business and residential community to also meet stringent energy use goals. A new building is a grand opportunity to model how this can be done cost-effectively, in the midst of a climate crisis. The year 2025 marks the halfway point along the timeline the IPCC (Intergovernmental Panel on Climate Change) lays out as an absolute deadline for dealing with our climate crisis.

   The City of Middleton residents support our efforts to combat Climate Change. The City of Middleton held the first climate referendum in the country in 2016 asking residents directly if they support city policies to address climate change. An overwhelming 81% voted yes. The City piloted our utility's (MGE) first two shared solar arrays – MGE chose our city to launch this new program. The City along with the Middleton Cross Plains Area School District are the first two customers in the state of Wisconsin to buy solar energy through a novel Renewable Energy Rider rate structure provided by MGE. Middleton was awarded the Pioneer of the Year Award by RENEW WI in 2020 for our work in partnership with our utility and school district.

   Beyond city and community energy goals, we must envision and anticipate future county, state, and federal mandates and requirements for carbon emissions, adherence to Paris Climate Accord and the United Nations Sustainable Development goals. Other cities in Wisconsin are drafting Net Zero Energy Building Guidelines and Dane County has also released their Climate Action Plan that calls for Net Zero Energy Building Guidelines. The state currently disallows municipalities from requiring this, but the trend is pointing towards net zero carbon development from all other fronts.

   Considerations:
   -Depending on upcoming court rulings, there might be third party financing options for cities to develop rooftop solar without upfront cost in the near future.
   -We have a solid relationship with MGE, our utility. We will reach out to them to see how we can utilize off-site solar for a net zero carbon building and/or microgrid technology.
   -Whole building energy modeling with EUI targets
   -Geothermal, building envelope, efficient HVAC and smart controls, day-lighting, on and/or offsite solar, future battery storage capability, commissioning, etc.

2. **Strive to build a net zero water building.** Water and climate change are inextricably linked. As the planet warms, weather patterns will shift, exacerbating drought in some areas and delivering more

rainfall to others. Water itself requires energy to deliver, so excess use compounds our energy problems. **A net zero water building is analogous to a net zero carbon building. It uses a combination of rainfall harvesting, conservation, and water recycling to greatly reduce water use and reduce pressure on local wastewater utilities.** This is sometimes referred to as "closing the water loop" in a building. It is nearly impossible to achieve this fully, but using strategies to get there in the correct combination can get us close.

Why:
There is an energy-water nexus in building design. Both use energy. Reducing water use and reducing the amount of water pumped offsite to the MMSD wastewater facility will save energy and also help us meet our energy goals.

Considerations:
-during design specify water efficient equipment and elements, develop contract language to ensure correct procurement during construction, require commissioning of water and wastewater systems, develop operations plan for building and user training program, meter water use
-purple pipe water recycling system
-rooftop rainwater catchment (w/treatment system) to supply water for toilets
-water conscious landscaping

3. **Meet 100% of stormwater runoff volume control according to pre-development runoff volume.**

   Why:
   Eliminating runoff from the site during rain events will reduce flooding locally and downstream, and save money and property. We must pilot and model how large urban development projects can achieve this.

   Considerations:
   -green infrastructure: green roof, blue roof, underground cisterns, bio-retention (evapotranspiration and infiltration, water-reuse)
   -smart technologies that utilize real time weather data to anticipate rain events - in order to manage water on the rooftop or impervious surfaces most efficiently
   -permeable pavement or natural landscape where applicable
   -need to determine what is feasible for on-site capture versus off site or fee in lieu.

4. **Celebrate through design our proximity to the Yahara Chain of Lakes and our rich water resources.** Highlight our place and responsibility in our watershed through design elements that the public can interface and interact with. The interior and exterior design should seek to embed the built environment into the functionality of our watershed.

   Why:
   We live adjacent to water rich resources – lakes, groundwater, the Pheasant Branch Creek Corridor. These resources provide habitat, drinking water, recreation, and flood control. Understanding our place within this watershed and how our health is inextricably tied to the health of our watershed can be conveyed through design elements and add value to our ecological and civic assets.

   Considerations:
   -Interior design elements: water efficient fixtures and recycled water systems with educational signage, interior design elements that use water as a theme.
   -exterior design elements: green infrastructure such as green or blue roof, underground cistern, permeable paving, educational elements embedded into the design calling out our place in the watershed, surfacing water for enjoyment of public (landscape design element), using design to highlight infiltration and to understand where our water goes once it leaves our site.

5. **Strive for a zero waste building.** Use the TRUE rating system as a guide to create a zero waste building. TRUE is a whole systems approach aimed at changing how materials flow through society, resulting in no waste. TRUE promotes processes that consider the entire lifecycle of products used within a facility.

   Why:
   Actionable ways to reduce waste are highlighted in the City of Middleton Sustainability Plan. The City already has a purchasing policy to reduce its waste stream and is exploring an internal city food waste composting program. During the design phase the project should source materials with the least embodied carbon and highest levels of recycled content, from local sources. Designers should consider the life cycle cost and end use strategy for all materials. Most zero-waste strategies depend upon post-occupancy training and policies, but the building design should take into account space needs for accessible and user friendly recycling stations and composting infrastructure in appropriate areas. During construction the project should recycle over 90% of its construction waste.

   Considerations:
   -composting system collected on site. Explore mini-digesters and/or local digesters or farms that could receive food waste.
   -design space for a robust internal recycling area and program
   -user training and internal policies
   -purchasing policy to limit waste
   -no single use plastics
   -construction waste recycling policy - This will require staging space on site during construction for multiple dumpsters potentially.
   -material sourcing strategies in accordance with LEED and TRUE standards.

6. **Transportation.** The overall goal is three-fold. Reduce the total vehicle miles traveled to and from the new civic campus by providing transit options, biking, and walking amenities. Provide vehicle charging infrastructure for electric vehicles and plan for greater adoption in the coming 5-10 years. Evaluate transit accessibility from all neighborhoods – can everyone safely and affordably travel to the city center without a car? If not, what services can the city provide to make this a reality? Locate space for potential car-sharing program.

   Why:
   The transportation sector accounts for nearly 30% of carbon emissions in Dane County currently. Reducing vehicle miles traveled has a gradual but increasing emission reduction impact over time making it a critical strategy. Actions that increase and incentivize electric vehicle sales over the next 10-20 years will result in significant emissions reductions according to some of the most recent data and modeling done for the Dane County Climate Action Plan. In addition to emissions reduction, equity is a major consideration when siting civic assets in downtown Middleton. We must evaluate who is served and who can access these assets. Our civic assets must be accessible for everyone; transportation planning plays a critical role.

   Considerations:
   -parking dedicated to seniors, and other user groups needing safe and secure access in close proximity to building
   -look at larger transportation infrastructure that serves downtown area. Who is served and who is not? What is the range and price of services to and from downtown Middleton?
   -if we are planning long term – what trends will affect parking and transportation (autonomous vehicle infrastructure, b-cycle, car sharing programs, electric vehicles, Renewable Gas Vehicles RNG vehicles).

7. **Design for long term resiliency. Resiliency is a function of mitigation and adaptation and is a measure of the community's overall capacity to provide services, maintain infrastructure and sustain its economy in the face of a hazardous event or trend.** This encompasses energy security during disasters, safety, ability to adapt and integrate new technologies, rethink land use policies, create compact development, use projected climate patterns rather than historical patterns when designing buildings, and consider the costs of failing to prepare for a new climate normal when making design decisions.

   Why:
   Pay now or pay later.

8. **Inclusion of microgrid technology, or microgrid ready. A microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island-mode**. Locate potential space for components and controls, work with MGE to establish needs for solar on site or off site and interconnection issues. This is a resiliency component that would provide residents and local officials in the region with an islanded power source/Resiliency Hub in the face of disaster that isn't fossil fuel dependent.

   Why:
   A microgrid not only provides backup for the grid in case of emergencies, but can also be used to cut costs, or connect to a local resource that is too small or unreliable for traditional grid use. A microgrid allows communities to be more energy independent, resilient in the face of disasters that cut power, and more environmentally friendly. Distributed resources and new models of grid architecture are coming and utilities know this.

   Considerations:
   -R&D grant money as well as buy-in from local utility for pilot.
   -grid architecture is changing and new ways of regulating and managing Distributed Energy
    Resources are "in the sandbox"
   -new PSC rulings and commissioners
   -battery storage technologies

9. **Use a Health equity assessment and public engagement process to ensure this civic development promotes well-being and long term benefits for all residents.** Health Equity means that everyone has a fair and just opportunity to be as healthy as possible. Health is broadly defined in this instance, with overlapping indicators between sustainability and equity in a community.

   Why:
   Using a health equity lens and engaging residents on this topic for the Community Campus Plan would:
   - More effectively engage the public
   - Strengthen partnerships and build trust between local government and community groups and residents
   - Improve long-term adverse health impacts
   - Add value to our community's civic assets
   - Provide a lasting template/framework for city government to evaluate and assess how public projects impact the community
   - Bring people of all backgrounds back into public life, reconnecting communities to civic assets where trust can be formed.

- Elevate and center city residents' needs who have been historically disadvantaged by injustice or whose voice is not often heard nor represented by city government

10. **Explore workforce job training**. Incorporate on-site job training for youth or recently incarcerated individuals, and offer apprenticeships in the trades and solar industry for local residents.

11. **Promote and protect biodiversity.** Build a bird-friendly building that minimizes bird collision mortality. Specify plant species on rooftops, in streetscape design, and within landscape plans that offer ecological benefits to pollinator species and birds, and do not require chemicals to maintain. Specify plant species that offer ecological co-benefits (i.e. food source for pollinators, water infiltration and evapotranspiration, reduced heat island effects, beauty, shelter for insects and birds, etc.)

    Why:
    500 million birds die annually in the United States from bird collisions with buildings. We are losing habitat for key ecological pollinator species – necessary for species survival and our survival as well.

    Considerations:
    -follow bird collision mortality mitigation guidelines promoted by Madison Audubon and used by UW Madison Campus Planning.
    -take care to align bird collision guidelines with placement of vegetation so the two are not in conflict.

    -Prepared by Sustainability Coordinator, Kelly Hilyard