City Council Agenda Report
Meeting Date: March 15, 2016
Department: Management Services

SUBJECT:

GREEN BUILDING CERTIFICATION FOR THE LAKE FOREST CIVIC CENTER

RECOMMENDED ACTION(S):

Authorize staff to design the Lake Forest Civic Center project to pursue LEED Certified status.

EXECUTIVE SUMMARY:

The City is engaged in designing a fully integrated Civic Center that will serve as the City's "100-Year Home." The Civic Center is envisioned to include facilities that address several of the community's remaining unmet needs, including a Community Center/Senior Center, Performing Arts Venue/Council Chambers, and Community Policing/Administrative Offices. These facilities will be housed in one or more new buildings.

The design, construction, and occupancy of new buildings can have significant direct and indirect impacts on the environment. These include the use of energy, water, and raw materials, as well as the production of waste and potentially harmful atmospheric emissions. In response to these impacts, green building standards, certifications, and rating systems seek to promote sustainable design, thereby, reducing environmental impacts.

At this stage in the Civic Center design process, it is timely for the City Council to authorize staff to pursue Green Building Certification for the Civic Center. The community is supportive of environmental stewardship efforts as evidenced by the results of the most recent Community Satisfaction Study. When asked "*If the city government could do one thing to make Lake Forest a better place to live now and in the future, what would you like to see?,*" 3% of residents stated "improve environmental efforts," the 9th most common response. The City has an opportunity to provide leadership for the community in green building, promote economic and environmental health, and set a positive example for the larger development community. Pursuing a green building program for the Civic Center complements the City's desire to improve the health of persons living, working and visiting Lake Forest, and to promote standards that provide for a sustainable

future. In the following sections staff provides a summary of the City's interest in green building to-date, as well as an overview of third-party Leadership in Energy and Environmental Design (LEED) certification.

BACKGROUND:

Green building is generally defined as a holistic systems approach to the life-cycle of a building from conceptual design through occupancy. Green building practices seek to reduce energy use, conserve water and other natural resources, limit solid waste during construction and operation, and promote healthy indoor air quality. The City has an interest in, and commitment to, a certain level of green building as evidenced by the development of the voluntary Lake Forest Green Home Education Program, as well as its legal obligation to uphold the California Green Building Standards (CalGREEN) Code, part of the California Building Standards Code and Fire Code.

Lake Forest Green Home Education Program

The City's formal interest in green building began in 2006 with the Planning Commission receiving a presentation on green building concepts. Based on the presentation and subsequent discussion, the Planning Commission recommended the City Council consider implementing a voluntary green building program for Lake Forest. In 2007, the City Council reviewed the recommendation and directed staff to develop a voluntary Lake Forest Green Home Education Program based on a foundation of outreach and education. City Council approved the program in November 2007.

The City's program provides the following definitions and benefits of green building.

What is green building?

Green buildings are sited, designed, constructed and operated to enhance the wellbeing of occupants, and to minimize negative impacts to the community and the natural environment. The 5 components of green design are:

- *Implementing sustainable site planning*
- *Safeguarding water and water efficiency*
- *Ensuring energy efficiency and employing renewable energy*
- *Using conservation of materials and resources*
- *Providing indoor environmental quality*

Benefits of green design

- *Improve indoor health*
- *Lower utility bills*
- *Reduce landfill waste*

California Green Building Standards (CalGREEN) Code

Pursuant to the California Green Building Standards (CalGREEN) Code, all new buildings must comply with applicable adopted building and energy codes. First adopted by the City Council as part of the 2010 California Building Standards Code and Fire Code, the CalGREEN Code contains both voluntary as well as mandatory compliance measures. The CALGreen Code includes building measures for all new construction to achieve a reduction in greenhouse gas emissions and energy and water usage. Some of the elements within the CalGreen Code include: site design; energy efficiency; water efficiency and conservation; recycling of construction materials and waste; and, environmental quality of construction materials.

DISCUSSION:

The Lake Forest Civic Center project is currently in the conceptual design phase, the first of four design-related sub-phases culminating in the development of construction documents. During conceptual design is the ideal time to make a decision regarding third-party green building certification to maximize cost-efficiency and cost-effectiveness. If the decision is delayed and later made to pursue green building certification, significant rework and costs could be incurred as the design team will have worked towards a different set of goals and objectives. Through early identification of goals related to third-party certification, City staff, the design team, and the construction management team can work collaboratively on an integrative design that manages the costs of green building so they are low or non-existent when compared to conventional design.

California Green Building Standards (CalGREEN) Code

The CalGREEN code is the first statewide green building code in the nation, setting minimum environmental standards for newly constructed and renovated buildings. CalGREEN establishes a base level of environmental performance promoting cost-effective building practices to ensure better-performing, safer, healthier, and more sustainable buildings. Mandatory measures set forth by CalGREEN address planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The City will ensure that the design and construction of the Civic Center buildings comply with the mandatory elements of the CalGREEN Code as

required by State law.

Green Building Rating or Certification

Although a building does not have to be certified to be sustainable and well-built, certification through a rating system provides third-party, objective verification of the green nature of a project. Green building rating systems are a type of building certification that rate relative levels of compliance or performance with specific environmental goals and requirements. Rating systems also clearly outline what standards need to be followed and what types of green products should be included in construction specifications. Following are overviews of three nationally-recognized rating/certification systems.

- Leadership in Energy and Environmental Design (LEED)

  A green building rating and certification system managed by the U.S. Green Building Council (USBGC). Relies on independent third-party verification.

  Areas of Focus:
  - Water efficiency
  - Energy & atmosphere
  - Materials & resources
  - Indoor environmental quality
  - Locations & linkages
  - Innovation in design
  - Awareness and education

- Green Globes

  A green building guidance and assessment program managed by the Green Building Initiative.

  Areas of Focus:
  - Energy
  - Indoor environment
  - Water
  - Resources
  - Emissions

- Living Building Challenge

  A performance-based standard and certification program managed by the International Living Future Institute.

Areas of Focus:

- Water
- Energy
- Materials
- Health
- Equity
- Beauty

While each rating system is unique, the common objective across all three systems is that projects certified within these programs are designed to promote design and construction practices that reduce the negative environmental impacts of buildings and improve occupant health and well-being.

Leadership in Energy and Environmental Design (LEED) Certification

LEED certification is one of the more commonly recognized standards for measuring building sustainability, and is the most widely used third-party verification for green buildings, with around 1.85 million square feet being certified daily (www.usgbc.org/leed). The LEED rating system offers four certification levels for new construction – Certified, Silver, Gold, and Platinum. Points towards a particular level are accrued across five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality.

Costs Associated with LEED Certification

There are five categories of costs associated with building to a USGBC LEED standard. With early involvement, design teams are achieving LEED certification at 0-2% higher initial costs than conventional design budgets.

- Fees. Fees must be paid to the Green Building Certification Institute to register and certify a project. These are roughly $0.03 - $0.05 per square foot for new construction.
- Documentation. A consultant is traditionally hired to compile and submit the LEED documentation and generally manage the compliance process.
- Research and design. Costs are dependent on how early in the design process it is decided to pursue LEED certification.
- Commissioning and modeling for compliance. The Civic Center project already allows for basic commissioning services. Energy modeling may be required dependent upon the points pursued. Energy modeling services can range from $15,000 to $50,000.
- Construction costs. Costs are difficult to determine because cost premiums may be offset by savings in other areas.

A 2004 study by Davis Langdon Adamson, a construction cost-planning and management company, found that the costs of constructing a sustainable building tend to match or only slightly exceed those of comparable non-green buildings. The study, *Costing Green: A Comprehensive Cost Database and Budgeting Methodology*[1], measured the square-foot construction costs of 61 buildings seeking certification under the LEED rating system against those of buildings of similar type that did not aim for sustainability. Taking into account a range of construction factors including climate, location, market conditions and local standards, the study found that for many of the green projects, pursuing LEED certification had little or no budgetary impact.

Life Cycle Savings and Benefits of LEED-Certified Green Buildings

Pursuing LEED certification reflects a commitment to healthier, more productive places; reduced stress on the environment by encouraging energy and resource-efficient building; and savings from decreased utility costs. When evaluating the budgetary impacts of green building, it is important to look beyond initial, up-front costs. Increasingly, industry professionals are using "life-cycle assessments" to evaluate and quantify the economic and environmental costs and benefits of materials and products over a building's entire life. A brief summary of some of the savings and benefits of green building as documented in a literature review is included as Appendix A.

Three reports, McGraw-Hill Construction's "2012 World Green Building Trends" and "2013 Dodge Construction Green Outlook," and Turner Construction's "Green Building Market Barometer" indicate increasing demand for green building. These reports also found firms' top reasons for building green were largely economic, marking a shift from 2008 when the top reason for pursuing green building was "doing the right thing." Although the benefits of pursuing LEED certification in relation to environmental stewardship are significant, the bottom line also reflects a healthy return on investment.
Although the architect will pursue efficiency and durability during the design process as a matter of course, as well as follow minimum CalGREEN requirements, LEED certification is additionally linked with a level of quality control. The LEED application process provides a check that ensures the goals set in design are achieved in construction. If the City is serious about building green, leaving a legacy of environmental stewardship and fiscal responsibility, and setting a positive example for the larger development community – LEED will

[1] Davis Langdon, Lisa Fay Matthiessen, Peter Morris. (July 2004). "Costing Green: A Comprehensive Cost Database and Budgeting Methodology." http://www.usgbc.org/Docs/Resources/Cost_of_Green_Full.pdf

help ensure that the project teams deliver.

Conclusion

Staff identified three options, with varying fiscal impacts, in regards to Green Building Certification for the Lake Forest Civic Center.

- Option 1.
  Comply with minimal State-mandated CalGREEN Code and optimize green building practices where possible.
  Fiscal impact compared to conventional process: Negligible.

- Option 2.
  Pursue LEED Certified status.
  Fiscal impact compared to conventional process: Approximately 0 – 1% of project costs.

- Option 3.
  Pursue LEED Silver, Gold, or Platinum status.
  Fiscal impact compared to conventional process: Approximately 1 – 2+% of project costs depending upon level of certification.

Staff recommends the City Council authorize staff to pursue LEED Certified status (Option 2) for the Lake Forest Civic Center. With this authorization, staff will direct the design process to support an application for LEED Certified status. However, staff will balance the desire to pursue LEED Certified status with the requirement to keep design and construction costs within the approved Civic Center budget. There are three design checkpoints built into the design process; at each of these checkpoints, increasingly detailed cost estimating activities will be completed to provide the City with an approximate budget for the Civic Center as designed to-date. At each of these design milestones, staff will evaluate the fiscal impact of certain design decisions, including those related to green building. If the budget is impacted beyond the established and approved limits, the City can make alternate design decisions and decide not to pursue LEED Certified status.

With the design and construction of the Lake Forest Civic Center, the City has an opportunity to provide leadership for the community in green building, promote economic and environmental health, and set a positive example for the larger development community in Lake Forest. Pursuing a green building program for the Civic Center complements the City's desire to improve the health of persons living, working and visiting Lake Forest, and to promote standards that provide for a sustainable future.

FISCAL IMPACT:

If the City Council authorizes staff to pursue LEED Certified status, staff is estimating associated costs would be approximately 0-1% of the overall construction budget.

ATTACHMENTS:

Appendix A. Literature Review of Life Cycle Savings and Benefits of Green Buildings.

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