St. Louis Park
MINNESOTA

**Meeting: City Council**
**Meeting Date: May 21, 2018**
**Action Agenda Item: 8c**

## EXECUTIVE SUMMARY

**TITLE:** Westwood Hills Nature Center Project

**RECOMMENDED ACTION:** Motion to approve the results of the Design Development Phase and authorize staff and consultants to move to the next phase of preparing Construction Documents for the Westwood Hills Nature Center project.

**POLICY CONSIDERATION:** Does Council wish to move to the Construction Document Phase and direct staff and consultants to prepare Plans and Specifications?

**SUMMARY:** On December 18, 2017, the city council approved the schematic design and authorized staff to begin the design development phase. Staff has worked with HGA architecture and RJM Construction to further the design of the WHNC and refine cost estimates. During the design development phase, soil testing was done to determine the quality of soils and appropriate foundation design. American Engineering Testing (AET) performed 13 soil borings which were drilled to 35 feet and tested for building footing suitability. The findings from these borings determined the soils were much more mucky and unsuitable than originally anticipated (NOTE – the soil issues are not related to contamination). While the estimated project budget did anticipate the need for soil correction, the condition of the soils will require a foundation system more expensive than currently included in the budget by approximately $500,000. Based on Council direction, the design team is continuing to develop a "Zero Energy" certified building.

**FINANCIAL OR BUDGET CONSIDERATION:** The Westwood Hills Nature Center (WHNC) project has been included in the City's CIP and long range financial plan since 2015. In December the estimated total project budget was $12 million, assuming inflationary costs for a 2019 start. A design contingency of $400,000 and construction contingency of $600,000 are currently included in the project budget. There is the possibility that the full amount of the contingency funds will not be needed and thereby offset all or part of the additional soils correction expense. Actual bids for the project may come in lower than anticipated and help offset the extra soils expense. However, as the Council considers moving into the next phase of project development, including preparation of construction plans and specs, staff would advise that at this time the project budget be assumed to be $12.5 million.

**VISION CONSIDERATION:** St. Louis Park is committed to being a leader in environmental stewardship. We will increase environmental consciousness and responsibility in all areas of city business.

**SUPPORTING DOCUMENTS:** Discussion
Life Cycle and Energy Cost Analysis
Building Carbon Emissions Comparison
Westwood Hills Nature Center Building Floor Plan

**Prepared by:** Cynthia S. Walsh, Operations and Recreation Director
**Approved by:** Tom Harmening, City Manager

## DISCUSSION

**DESIGN DEVELOPMENT PHASE:** On December 18, 2017 the city council authorized staff to move into the design development phase of the project. Through the design development phase the building footprint was decreased by approximately 2,000 square feet to contain the project cost to the established budget of $12 million. To reduce costs, the roof has been lowered over the mechanical rooms and raptor mews. The interior roof structure of the mechanical rooms and mew area are not typically visible for the public. The design development includes spaces to divide the area into four mews for raptors, three multi-purpose rooms that will accommodate 25 people in room A and 50 people each in room B and C, all which open into one larger space that can be used for programs or rentals with room for 125. In addition, the building design includes a catering kitchen for use by people renting the classrooms, separate exhibit and gathering space, a small lounge area for people to sit and observe nature, a conference room for use by staff or small neighborhood/resident gatherings, staff offices and all the back of house space for storage, mechanical, raptor and animal care etc. Through the design development phase color pallets, flooring, walls, textures, finishes, furniture, etc. were chosen, as well as, soil boring, bird glass, mechanical refinement, audio/visual details, life cycle cost analysis, and making sure the construction and building meets all state and city codes.

Split Rock Studios is designing the exhibits with the intent to integrate the building into the exhibit design to support the nature center's educational programming. Designing the exhibits appropriately is important as we consider working towards zero energy since they can be one of the largest energy users. Split Rock Studios has completed their Schematic Design Phase II where there are four separate exhibit zones: pollinators, wetland, woodland snag, and prairie mound.

The following steps were completed during the Design Development Phase:

- Wetland delineation
- Site survey
- Trees located within survey area
- All utilities
- The proposed new building site has been staked
- Soil borings and geotechnical soil testing to determine that geo piers are necessary
- Acoustic analysis
- Exhibit lighting analysis
- Audio/Visual analysis
- Energy analysis
- Exhibit coordination with Split Rock Studios
- Exterior/Interior material concept design
- Bird glass and window system research
- Storm water management design
- Reduced building footprint and lowered the ceiling in the mechanical area and mews
- Geothermal test wells drilled and conductivity tests conducted

**SOIL CONDITIONS**: Staff has worked with HGA architecture and RJM Construction to further the design of the WHNC and refine cost estimates. During the current design development phase, soil testing was done to determine the quality of soils and appropriate foundation design. American Engineering Testing (AET) performed 13 soil borings which were drilled to 35 feet and tested for building footing suitability. The findings from these borings determined the soils were much more mucky and unsuitable than originally anticipated (NOTE – the soil issues are not related to

contamination). While the estimated project budget did anticipate the need for soil correction, the condition of the soils will require a foundation system more expensive than currently included in the budget by approximately $500,000.

Staff and consultants studied four possible foundation solutions for this site:

1. Relocating the building: This option was closely studied and additional borings revealed soil conditions worsened in other parts of the site. As a result, this option was eliminated.
2. Soil corrections: Excavating all fill material and replacing with new suitable soils. Due to the significant depths of poor soils and high water table, this option is not recommended.
3. Pilings: Multiple deep piles around the perimeter and through the interior would support concrete grade beams and a structural concrete slab between 8" to 10" thick. This option is not recommended because it is the most expensive.
4. Geopier system: Aggregate piers are driven in a tight grid pattern to support the foundation and floor slabs. This system is recommended as the most cost effective solution and has been successfully utilized on a recently constructed apartment complex in the city.

**2018 DESIGN DEVELOPMENT PUBLIC PROCESS PRESENTATIONS:**
Feb. 8: Present to Discover St. Louis Park Staff
Feb. 12: Present to Health in the Park – City Hall
Feb. 13: Present to Dept. Head Team
Feb. 13: Present to CEAC – Lenox Community Center
Feb. 22: Present at a WHNC Public Meeting
Feb. 26: Present at DRC
Feb. 27: Present at Root and Shoots – High School
Feb. 27: Present at Senior Men's Group – Lenox Community Center
Feb. 28: Present at a WHNC Public Meeting (HGA presents)
March 2: Present at Sunrise Rotary
March 12: Present at School Board Meeting – High School
March 15: Present at DSLP – Marriott
March 28: Present at Multicultural Advisory Committee
April 3: Present at WHNC Volunteer Breakfast
April 4: Present at Joint Commission Meeting (PRAC, Planning Com., Sustainability Commission)
April 11: Present at Realtor Forum – City Hall
April 16: Present to Noontime Rotary – Double Tree West End
May 15: Present at DPAC – District Office

One of the suggestions that came out of the public process was the possibility of providing a means by which people could donate to the project. Staff will be exploring ideas of how we may incorporate donation opportunities into the project.

**SUSTAINABILITY GOAL**: Sustainability strategies and energy analysis have been developed and sustainability rating systems have been reviewed. Based on Council direction, the design team is working towards a "Zero Energy" certified building, which means one hundred percent of the building's energy needs on a net annual basis are supplied by on-site renewable energy https://www.living-future.org/net-zero/certification/. Generally, zero energy is accomplished through maximizing passive climatic opportunities, choosing efficient mechanical systems, and continuing to fine tune the building's operation to reduce energy loads dramatically. Offsite energy may need to be used during some years as elements that are beyond our control (weather) play a huge role in meeting our sustainability goals. If Council continues to direct staff towards a certified

Zero Energy building, all components in the Life Cycle Analysis need to be integrated (please see attached "Life Cycle and Energy Cost Analysis" for this data)

Zero energy buildings are among the most progressive sustainable design projects in the world today. Due to the new and innovative nature of this goal, St. Louis Park has the opportunity to create a project which is among the first (or perhaps be the first) non-residential Zero Energy Project in Minnesota--leading the way for future sustainable design work in our cold-climate region.

**CARBON EMISSIONS**:
The attachment provided with this report shows that the current design for the Westwood Hills Nature Center will result in a reduction of 98,000 pounds per year of carbon emissions due to the energy efficiency strategies.

**LIFE CYCLE AND ENERGY COST ANALYSIS:** The attached analysis was developed in response to council's question of how the energy saving strategies proposed compare to the cost to implement the energy saving strategies. This first required HGA to develop building and mechanical plans to sufficient detail to perform energy modeling and a cost analysis.

There are four major components providing most of the reduced energy consumption and production for the proposed building. While the design incorporates other strategies like building orientation for ventilation and passive solar, the analysis was only for items which could be individually evaluated.

Pursuing a Zero Energy goal requires all the components work collectively. For example, without an enhanced thermal envelope, the mechanical systems would need to be increased in capacity.

Lifetime operation savings was chosen rather than simple energy cost savings to reflect the total cost of equipment, maintenance, and replacement costs, in addition to energy costs over the lifetime of the building.

**OPERATING COSTS ANALYSIS:** Staff has looked at how this building will impact future staffing and other operational needs. At this time, we would look at restructuring the staff who work at the nature center which would result in an increase of one fulltime naturalist and a decrease in a non-benefited year-round seasonal staff person. There is also an additional Public Service Worker to assist the Facilities Maintenance group with maintenance of this building and support weekend operating hours of the facility. This position would also provide services to other city buildings outside normal business hours. The estimated increase in staffing costs is approximately $140,000. There would also be additional revenue of approximately $50,000 - $60,000 for rentals of the facility and programming that would offset this cost. We have not included estimates in staffing needs or revenue if the school district expands their programming. These figures also do not account for the energy savings from a zero energy facility.

**NEXT STEPS**:
Assuming the City Council approves moving to the next phase of project development, outlined below is the anticipated schedule:

- September or October 2018: Request Council to approve construction documents including plans and specs and authorize bids.
- Late November or December 2018: Approve bids and authorize the project.
- Spring 2019: Construction begins as soon as weather permits.
- Fall 2020: Construction is complete including deconstruction of current building


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RAPTOR CARE
MEW
WARM MEW
WARM MEW
CLASSROOM DECK
PUPPET STAGE
PROGRAM STORAGE
STOR B
STOR A
STOR C
COATS
CATERING STAGING
DISPLAY WORK RM
EXHIBIT TERRACE
GATHERING/ EXHIBIT
ENTRANCE
LOUNGE
CONF / READING
TELECOM
RENTALS
QUIET
WORK ROOM
WELCOME
STAFF OFFICE
MGR OFFICE
MECH
VESTIBULE
FAMILY
MAIN PUBLIC ENTRY
ENTRY TERRACE
UTILITY
ELEC
MECH
UTILITY/ RECEIVING
TRASH/RECYCLE
GROUP ENTRY
CLASSROOM ENTRY
MEN
WOMEN
LEGEND
ADMIN
BUILDING SUPPORT
CIRCULATION
EDUCATION
EXTERIOR
PROGRAM SUPPORT
PUBLIC GATHERING SUPPORT
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