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City of Palo Alto (ID # 5667)

City Council Staff Report

Report Type: Action Items **Meeting Date: 4/20/2015**

Summary Title: Green Building and Energy Ordinance Staff Report

Title: PUBLIC HEARING: Adoption of Local Amendments to the California Green Building Code and the California Energy Code

From: City Manager

Lead Department: Development Services Department

Recommendation

The Policy and Services Committee and staff recommend that the City Council conduct a public hearing and then adopt: 1) an ordinance repealing and restating Palo Alto Municipal Code Chapter 16.14 to adopt and amend the 2013 California Green Building Standards Code, Title 24, Chapter 11, of the California Code of Regulations (Attachment A); and 2) an ordinance repealing PAMC Chapters 16.17 and 16.18 and restating Chapter 16.17 to adopt and amend the 2013 California Energy Code, Title 24, Chapter 6, of the California Code of Regulations (Attachment B).

Executive Summary

The proposed revisions to the green building ordinance and energy code ordinance would continue Palo Alto's leadership position in promoting sustainable and high-performance building design and construction. The technical implications include more stringent requirements in the following areas: 1) a new energy "reach code" requiring building design to exceed the minimum State energy code requirements by fifteen percent (15%); 2) solar-ready infrastructure for new residential buildings; 3) "laundry-to-landscape ready" infrastructure for residential buildings; 4) water-efficient landscape strategies; and 5) Cal Green Residential Tier 1 and Tier 2 standards for new and remodel residential projects in lieu of the prior Build it Green framework.

On March 10th, 2015, the Policy and Services Committee met for a special meeting to review the recommended changes of the green building ordinance and energy reach code ordinance. The Committee directed staff to proceed with the vast majority of the recommendations, with some modifications. The Committee's direction has been incorporated into the attached ordinances.

Background

Every three years, the State of California adopts new building standards that are codified in Title 24 of the California Code of Regulations, referred to as the California Building Standards Code. The 2013 California Energy Code contains mandated energy efficiency measures. The 2013 California Green Building Standards Code (Cal Green) contains environmental performance requirements related to site design, water efficiency, material conservation, and air quality issues.

Palo Alto has a history of leadership in the area of sustainability, energy efficiency, and green building. Over the past three code cycles, Palo Alto has developed a green building code that is more aggressive than the State of California requirements. Staff has meet multiple times with the Green Building Advisory Group (GBAG), a group of green building stakeholders including architects, engineers, contractors, and other related parties to develop new recommendations brought before the City Council.

In August 2013, Staff held a GBAG Retreat to define and prioritize the green building requirements that are most important to the stakeholders. Two policy action items that resulted from the retreat include; 1) the development of the new green building ordinance, which is based on the 2013 California Green Building Standards Code; and 2) the development of a new energy reach code, which is based on the 2013 California Energy Code. After the retreat, the Green Building Technical Advisory Group (GBTAG) was formed with staff across multiple departments within Development Services. The GBTAG met to implement the policy set by the GBAG by developing technical green building recommendations.

The California Energy Commission (CEC) requires that a cost-effectiveness study be conducted and filed in the case of a local amendment to the California Energy Code. It is required that the City demonstrate to the CEC, using the cost-effectiveness study, that the amendments to the code are financially responsible to the non-residential and residential applicants.

As a result of the CEC requirements, staff conducted an informal bid process to select a consultant to conduct a cost effectiveness study. Staff selected TRC Solutions based on their ability to provide both residential and non-residential services within the same study and their ability to meet the project timeline. TRC Solutions performed the study using CEC-approved energy modeling software. The results of this study are located in Attachment C of this report.

Discussion

Energy Code Ordinance

With the updated Energy Code ordinance, the City of Palo Alto (CPA) will increase the minimum requirements for building energy performance. The primary metric associated with this requirement is called Time-Dependent Valuation (TDV). Palo Alto's increased requirements are generally expressed as percentage above the minimum TDV threshold using a methodology called the "performance approach". The result of the increased requirement above the

minimum is commonly referred to as an "energy reach code" since it improves upon the baseline standards.

The proposed ordinance adopts the performance approach specified within the 2013 California Energy Code to demonstrate that the TDV Energy of the proposed building exceeds the TDV Energy of the Standard Design by the prescribed percentage. Based on the results of the cost-effectiveness study, a target of 15% savings is proposed for new single-family, new multi-family, and new non-residential projects. A series of alternative requirements are applicable to alterations and additions.

The proposed ordinance mandates additional "solar ready" infrastructure for residential projects beyond the current regulation. Single-family residential structures will be required to dedicate 500 square feet on the roof surface in the event of the installation of future solar panels. In addition, the applicant will be required to provide conduit to support the installation of future wiring to support a solar system. Development Services has coordinated with the Building division, Public Works Department, and Urban Forestry division to address a condition in which shading from protective trees may impact a solar ready zone. In the event of a conflict between the Green Building Ordinance, the Solar Shade Act, and the Palo Alto Tree Ordinance, the requirement most protective of existing tree canopies will prevail.

Green Building Code Ordinance

With the updated Green Building Code ordinance, the City of Palo Alto (CPA) will replace the residential green building compliance methodology from Build It Green/Green Point Rated, a points-based rating system, to CAL Green Tier 1 and Tier 2 compliance, which is part of the California Building Code. This change represents Development Services' goal of de-emphasizing the value of "points" and increasing the focus on the environmental performance requirements within the building code. In addition, adopting Cal Green over Green Point Rated allows staff to enforce green building requirements using similar methods to that of other codes.

The Green Point Rated program utilizes industry experts, called Green Point Raters, to provide field verification of program construction requirements.. In the past, these Green Point Raters have been critical to staff's ability to enforce local green building requirements. Staff recommends that Green Point Raters remain an integral component for the enforcement of the green building requirements, as presented in the proposed ordinance.

Water Efficiency

During the Green Building Advisory Group retreat, water use was identified as a high-priority item to address within the new green building ordinance. As a result, the proposed technical amendments to Cal Green include an increased emphasis on greywater and irrigation efficiency. In the area of greywater, the ordinance mandates the installation of a "laundry-to-landscape ready" irrigation system. This would require all new construction projects to install a three-way

diverter valve in the drain line of all laundry fixtures to assist in the future installation of a "laundry-to-landscape" system. The installation of such a valve will enable a homeowner to install a future "laundry-to-landscape" system with limited barriers.

The ordinance also lowers the square footage trigger for irrigation efficiency. Irrigation efficiency in California is regulated using the Model Water Landscape Ordinance (MWLO). For non-residential projects, the existing regulation requires compliance with the MWLO for landscapes of any size associated with new construction and landscapes of 1,000 square feet for renovations projects. Under the new ordinance, compliance with the California Model Water Ordinance is required for landscapes of any size on all non-residential construction projects regardless of scope size. For residential projects, the new ordinance requires compliance with the local Model Water Ordinance for all residential construction projects when a landscaped area of 1,000 square feet or more is included in the scope.

Policy and Services Committee Recommendations

At its March 10, 2015 meeting, the Policy and Services Committee approved the recommended ordinance updates with the following modifications and direction.

First, the Committee directed staff to include an infeasibility exemption section of the ordinances allowing staff to permit alternative measures where strict compliance is not feasible or cost effective. This section has been included in the energy code ordinance in Attachment B, outlining clear guidelines for infeasibility.

Second, the Committee directed staff to modify the energy ordinance to lower the residential square footage trigger from 1,250 square feet to 1,000 square feet. This modification was recommended by the Green Building Advisory Group. This will provide alignment with the triggers associated with the Green Building Ordinance. This change has been made to the energy reach code ordinance in Attachment B.

Third, the Committee directed staff to convene the Green Building Advisory Group to clarify the requirements for the Residential Tier 1 and Tier 2 requirements. Staff has convened the Green Building Advisory Group for two meetings and has incorporated the requested clarifications in Attachment A.

Fourth, the Committee directed staff to add estimated Green House Gas (GHG) savings calculations associated with the updates to the ordinances. These calculations have been incorporated into Chapter 4, Section 4.3 of the Cost-Effectiveness Study found in Attachment C.

Fifth, the Committee directed staff to provide cost assumptions associated with the "laundry to landscape ready" diverter valve hardware and installation. The cost assumptions have been provided in Attachment D.

Policy and Services Considerations for Future Energy and Green Building Ordinances

At the March 10, 2015 meeting, the Policy and Services Committee provided the following feedback for the next code cycle and updates to the green building and energy reach code ordinances.

First, staff presented a rough timeline for goals towards a Zero Net-Energy ordinance for both commercial and residential construction projects. The timeline presented followed similar goals to the state's goal for Zero Net Energy. The state set a goal for Zero Net Energy at the year 2020 for new residential projects and 2030 for new commercial projects. Similarly, staff presented a preliminary timeline for Zero Net Energy as 2017 for larger residential projects and 2025 for some commercial buildings. The committee requested that staff re-examine the sequencing of this timeline during the next code cycle to ensure that using the same goal sequencing as the state is the appropriate methodology. This item will be included in the next code-cycle ordinance update.

Second, the Committee requested that staff include the study of mandating the installation of photovoltaic panels with specific exemption requirements. This item will be included in the next code-cycle ordinance update.

Resource Impact

Resource impacts from the adoption of these ordinances will be the additional staff time in plan checking and inspection requirements. In addition, staff will be reviewing the green building permit fees and process to ensure it is cost neutral and, if necessary, bring forward recommendations to adjust the fees to achieve cost neutrality as part of the annual budget process. The Fiscal Year 2016 Proposed Budget will include contractual support for a cost effectiveness study that is required as a result of the ordinance exceeding minimum State requirements.

Environmental Review

This action is exempt from the California Environmental Quality Act under CEQA Guidelines section 15061.

Attachments:

- Attachment A Draft ORD Amending Chptr 16 14 Green Building v7 (PDF)
- Attachment B Draft ORD Amending Chptr 16 17 Energy Code (PDF)
- Attachment C: Palo Alto Reach Code Cost Effectiveness (PDF)
- Attachment D: Three Way Valve (PDF)