



# *San Francisco Municipal Green Building*

*Capital Planning Committee  
November 14, 2016*

*Guillermo Rodriguez and Mark Palmer*



**SF Environment**

**Our home. Our city. Our planet.**

A Department of the City and County of San Francisco

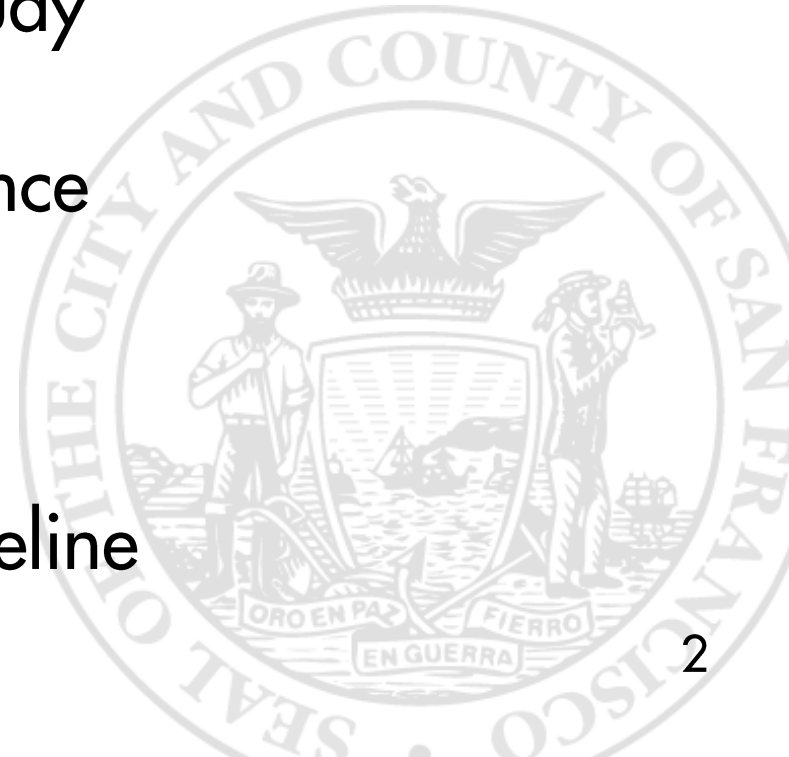




# Overview

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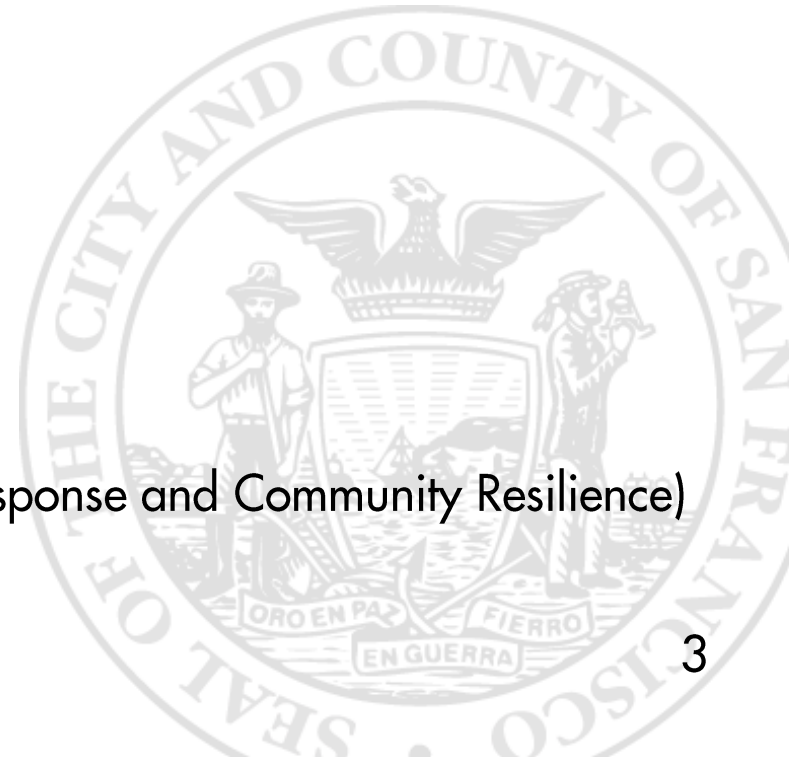
- I. Proposed Changes to Environment Code Chapter 7
- II. What is the value-add of LEED?
- III. Findings of LEED v4 Cost Study
- IV. Modifications to the Ordinance
- V. Waiver Process
- VI. Next Steps & Legislative Timeline





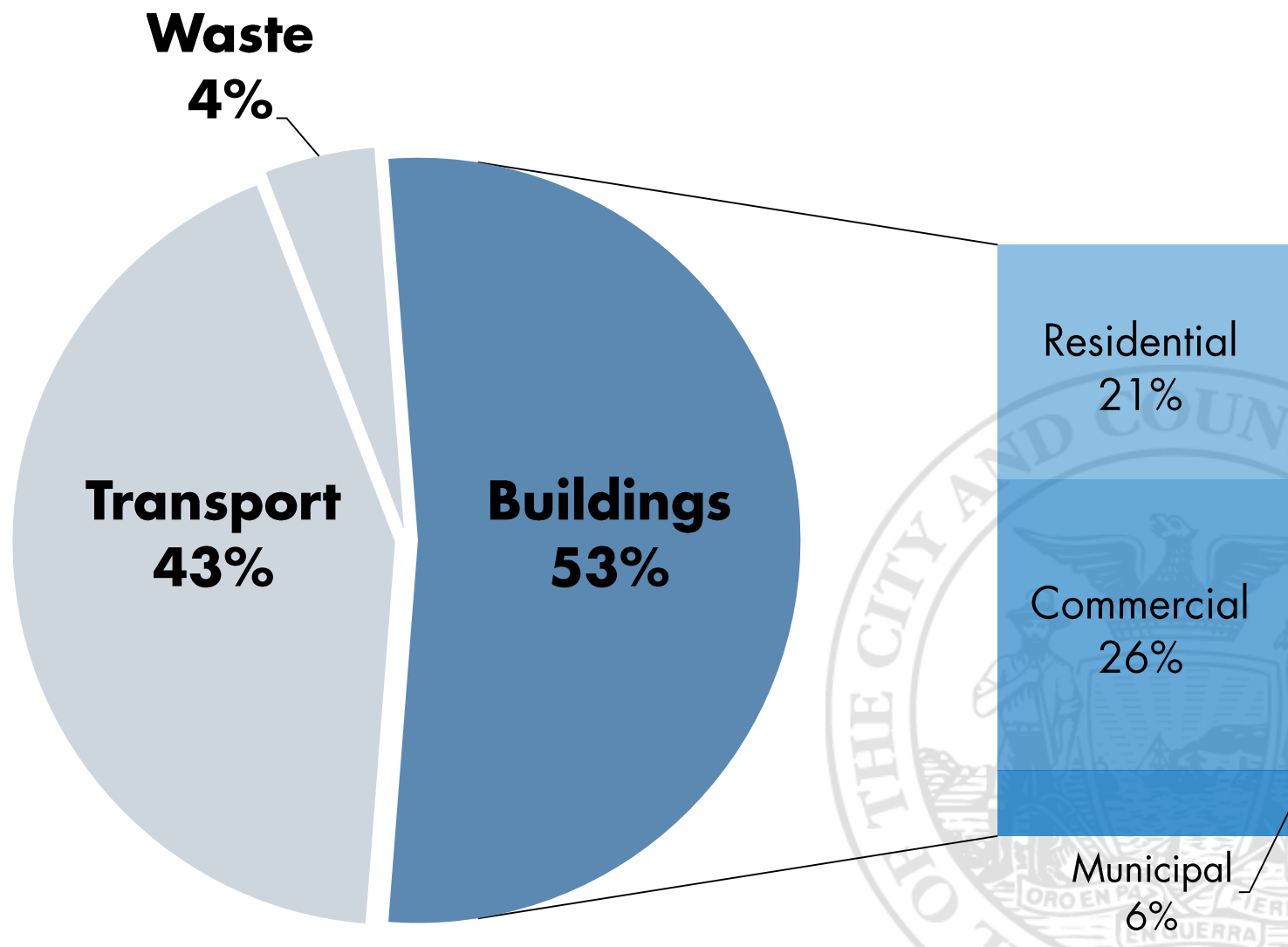
# Updating Env Code Chapter 7

- LEED v3 expired this year. Need to update Env Code to be compliant with new LEED v4 requirements.
- Additional updates:
  - Title 24 2016 (~15% stricter than 2013)
  - CalGreen 2016 (only minor changes)
  - Feasibility
    - Zero Net Energy (CA State goal by 2030)
    - Solar Plus Energy Storage (Emergency Response and Community Resilience)



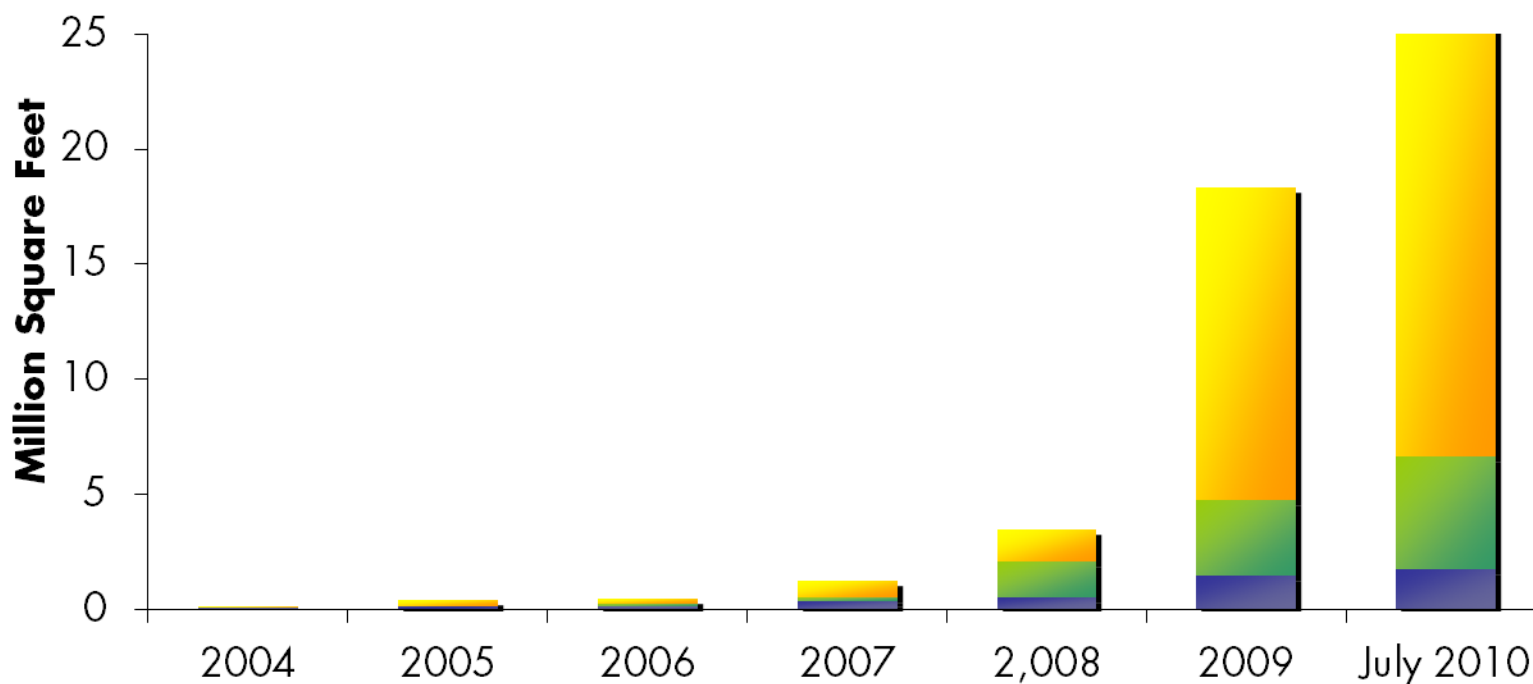


# GHG Emissions from San Francisco





# San Francisco LEED Square Footage



Existing Buildings Operations & Maintenance

New Construction & Major Renovations (LEED NC and CS)

Tenant Improvements (LEED CI)

107 million sq ft

Present





# Value-Add of LEED

**LEED is a leading-edge system for designing, constructing, operating and certifying the world's greenest buildings. It facilitates an integrated design process.**

## Independent Verification

LEED provides independent verification of a building's green features. Current City building inspectors do not have the training and experience to verify that green building requirements are met.

## Resource Efficiencies

LEED buildings use less water and energy and reduce greenhouse gas emissions than code-compliant buildings. As an added bonus, they save money.

## Superior Human Experience & Health

LEED buildings are demonstrating increased recruitment and retention rates and increased productivity benefits for employers. Harvard study shows cognitive function is markedly affected by indoor air quality.



## Presentations on LEED v4

CPC Meeting, **August 29<sup>th</sup>**

CPC Follow-up Meeting, **October 11<sup>th</sup>**

CPC Pre-Meeting, **November 9<sup>th</sup>**

CPC Meeting, **November 14<sup>th</sup>**



# Outreach, Analysis and Education

## Follow-up Meetings

**Aug 30:** Initiate Task Order for Arup v4 study

**Sept 1:** Edgar Lopez SFPW: v4 study

**Sept 1:** Masoud Vafaei RED: v4 study

**Sept 8:** Kathy How SFPUC: Infrastructure Group SSIP

**Sept 9:** Edgar Lopez SFPW: v4 study

**Sept 14:** Municipal Green Building Task Force: v4 study

**Sept 26:** Edgar Lopez and Arup: v4 study work plan

**Sept 26:** Roberto Lombardi SFPL: v4 study

**Sept 1 – Oct 1:** Meetings between Debbie and CPC Department heads

## LEED v4 CalGreen 2016 Presentations

**Sept 6:** SFRPD Dawn Kamalanathan and project managers

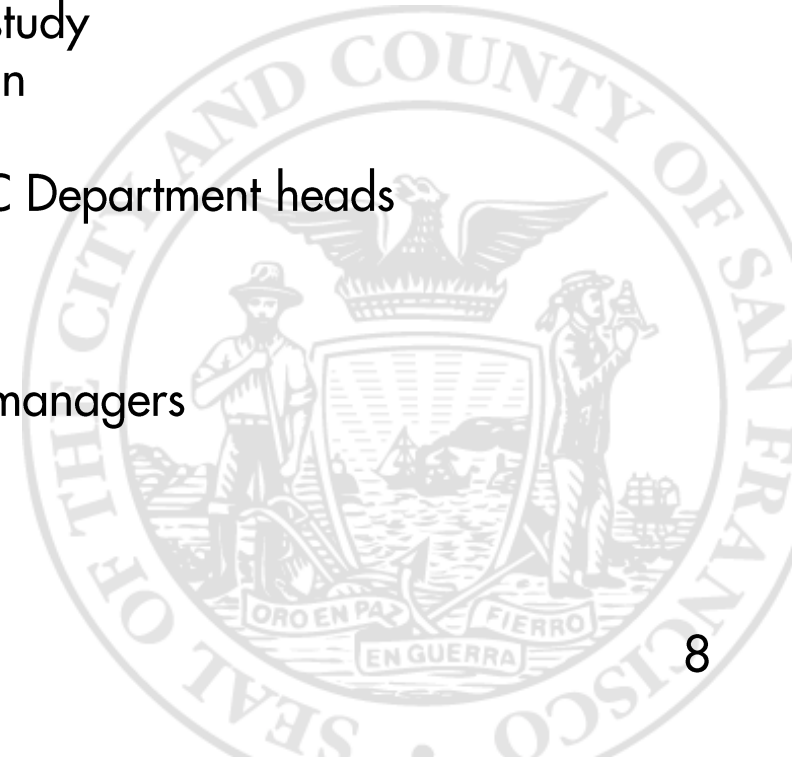
**Sept 15:** SFPW Green Building Committee

**Sept 20:** SFPW Architects

**Sept 27:** SFPW Section Managers

**Sept 30:** SFPW Project Managers

**Oct 12:** SFO Project Managers







# What We Heard

Cost

Building Performance

Certification



# Cost Study of LEED v4

## ORIGINAL ASSESSMENT

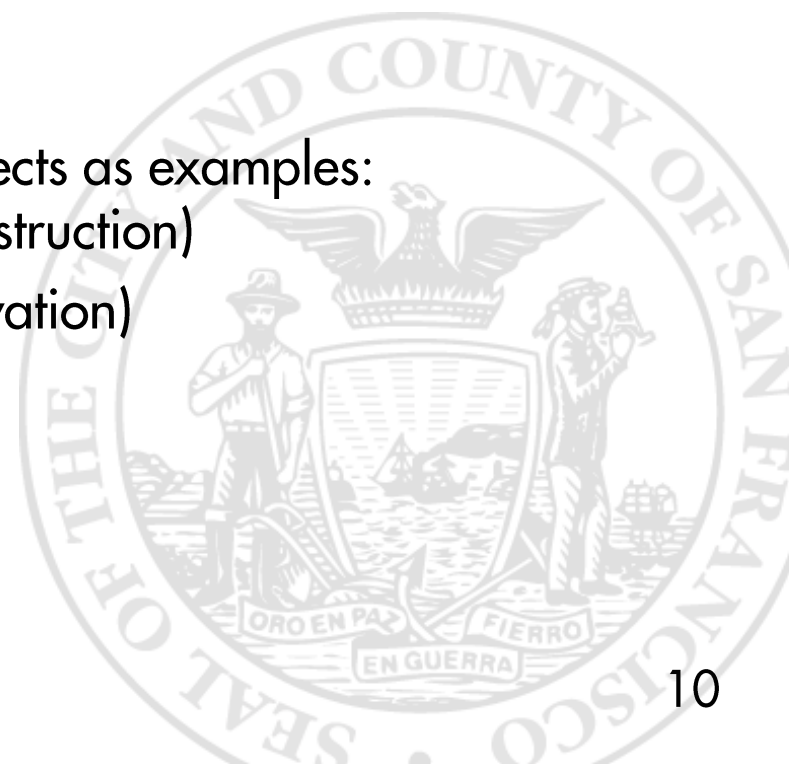
Massachusetts Case Study: v3 Gold to v4 Gold = **0.533%** of total project cost

## COST STUDY

Analyze the projected cost differences of two San Francisco municipal projects going from v3 Gold to v4 Gold

Use 2 recently certified LEED v3 Gold city projects as examples:

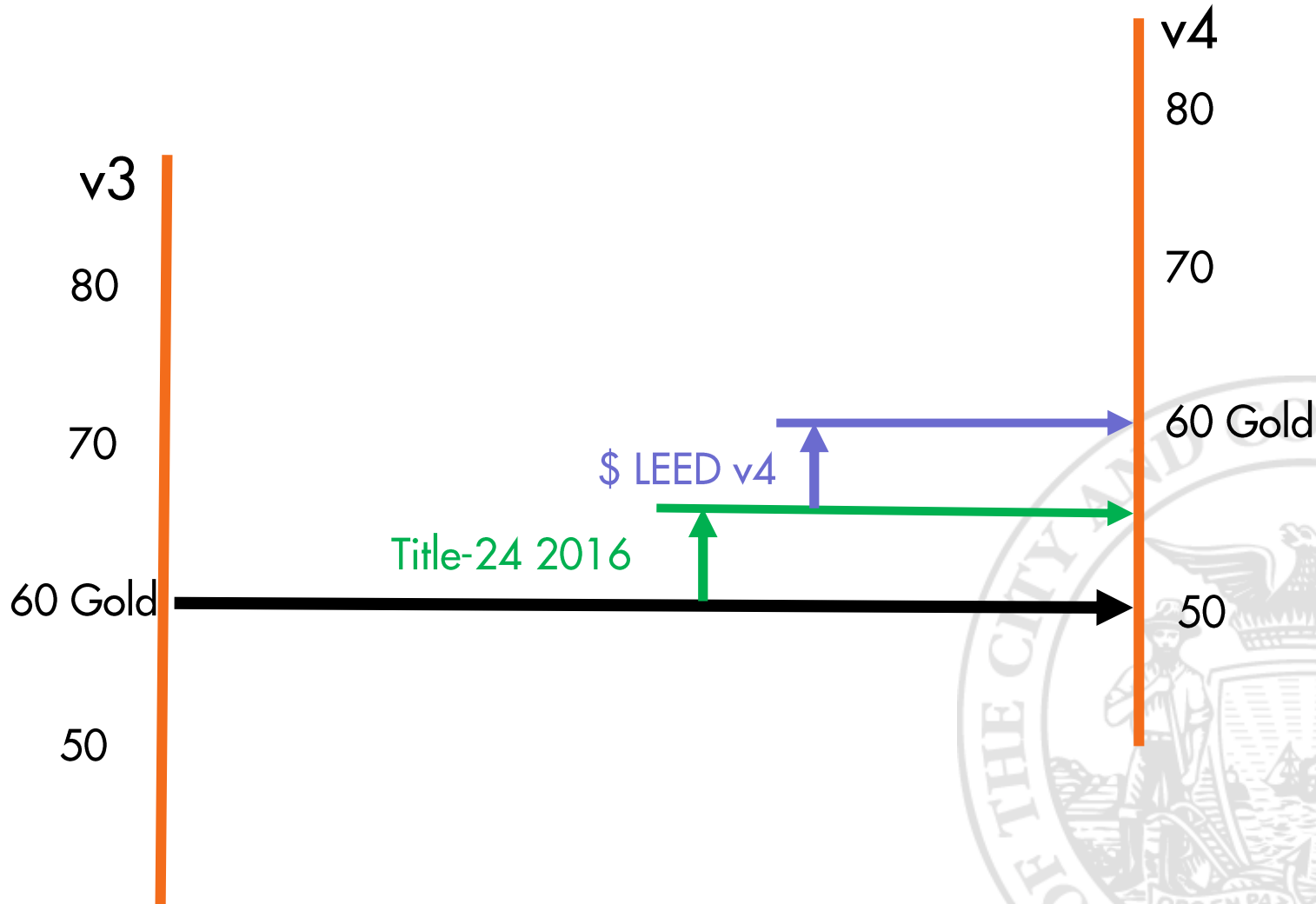
- North Beach Branch Library (new construction)
- Sunset Recreation Center (major renovation)





**Saylor**  
Consulting

# ARUP Study Methods Illustrated





# North Beach Branch Library







# North Beach Branch Library



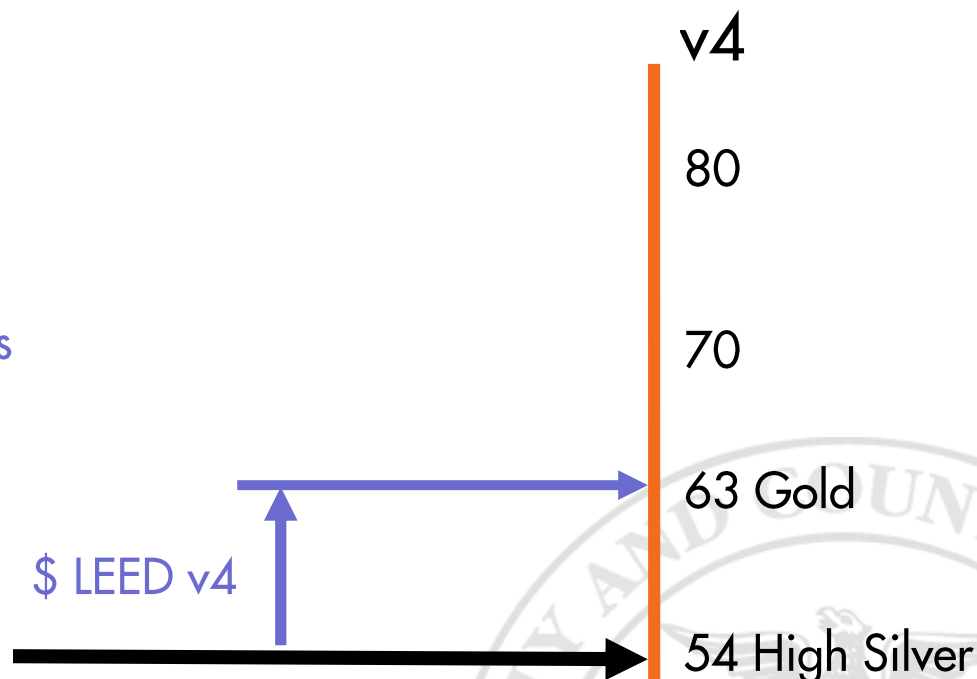




# North Beach Library Results

## \$ LEED v4 Estimate

- 5 Credits\* worth 7 points  
\$71,000 soft and hard costs
- +0.8% of the original  
\$9,198,650 total project cost



\*Credits selected were applicable to project needs



# Sunset Recreation Center







# Sunset Recreation Center







# Sunset Recreation Center



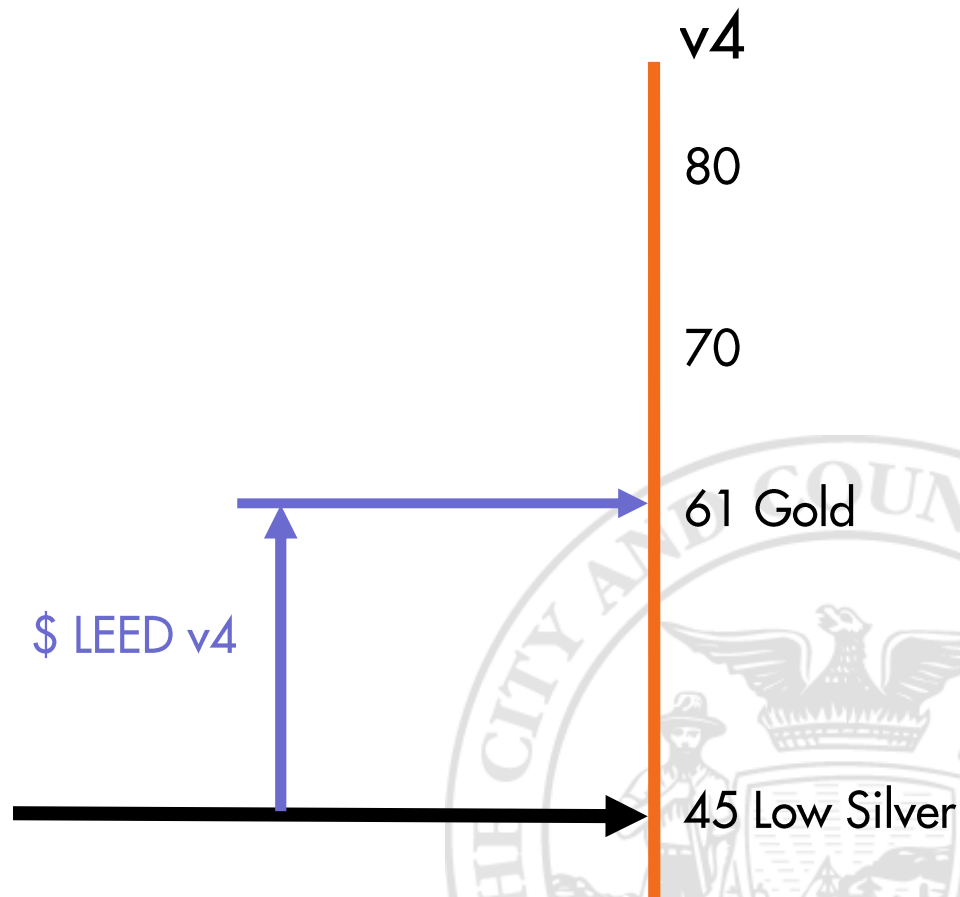


# Sunset Rec Center Results

## \$ LEED v4 Estimate

- 9 Credits\* worth 17 points
- \$255,000 soft and hard costs assuming PV is on PPA (\$484,500 total if PV is purchased)
- + 2.6% of the \$9,717,916 total project cost (5% total if PV is p

\*Credits selected were applicable to project needs







# Cost Study Findings

- LEED v4 update added 0.8 – 2.6% to the project budget (0 – 5% might be a reasonable broader range to assume)
- Cost is estimated using “likely” credits rather than the cheapest ones. So teams have some agency in staying at the lower end of the premium range if desired.
- Whether PV is directly purchased or acquired for free via PPA or other means makes a large budget impact.
- Energy performance was improved for LEED v4, which would result in reduced operating costs and contribute to City Climate Action goals.



# Modifications to LEED v4 Ordinance

1. Municipal LEED v4 requirements only apply to municipal construction projects greater than 10,000 square feet (and less than 25,000 square feet)
2. Altered feasibility study for Solar plus Energy Storage
  - Reduced the number and type of projects
  - Added a sunset date



# Waiver Process

1. **Waivers can be submitted to the Director of the Department of Environment if:**
  - Requirements are **cost prohibitive** as weighed against the benefits
  - Compliance would create an **unreasonable burden** on the construction project or City department
2. **The Municipal Green Building Task Force shall provide the Director with a recommendation with respect to the waiver request.**
3. **The Director may grant a waiver if the requesting Department has:**
  - (A) Documented the circumstances and burdens at issue; and
  - (B) Developed a reasonable plan to maximize the number of LEED points attainable.



# Waiver Request Log

13 granted – 0 denied

Request Date	Department	Project	Waiver	Notes	Granted	Denied	Waiver Request #
4/4/2012	SFPW	SFGH	Emergency	generator	Granted		2012001
3/23/2015	SFPW	OCME	EAc4	process refrigeration	Granted		2015001
9/17/2015	SFPUC	ACWC	EAc4	VRF	Granted		2015002
9/17/2015	SFPUC	Sunol Admin	EAc4	VRF	Granted		2015003
9/17/2015	SFPUC	Moccasin	EAc4	VRF	Granted		2015004
11/24/2015	SFO	Big Room	Certification	Temporary	Granted		2015005
11/24/2015	SFO	IBAB	Certification	Temporary	Granted		2015006
11/24/2015	SFO	B606	Certification	Temporary	Granted		2015007
11/24/2015	SFO	FH3	EAc4	VRF	Granted		2015008
11/24/2015	SFO	GTU	EAc4	VRF	Granted		2015009
11/24/2015	SFO	B624	EAc4	VRF	Granted		2015010
8/7/2015	SFRP	Balboa	Certification	EAp2	Granted		2016001
10/3/2016	AAM	Addition	Certification	LEED O&M Gold	Granted		2016002



# Legislative Timeline & Next Steps

- Continue discussion with CPC members on building performance and operations; explore CPC Sustainability Sub-Committee
- Municipal Green Building Task Force will look into alternatives to LEED certification and report back to CPC in 6 months

## Legislative Schedule

Nov 27:	BOS Introduction
January:	BOS Committee Hearing
January:	BOS Action
February:	Mayor Action
Effective:	March 1, 2017





# Thank you

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