



New Foundations for Community-based Energy Efficiency
Presented by US HUD

June 17, 2009

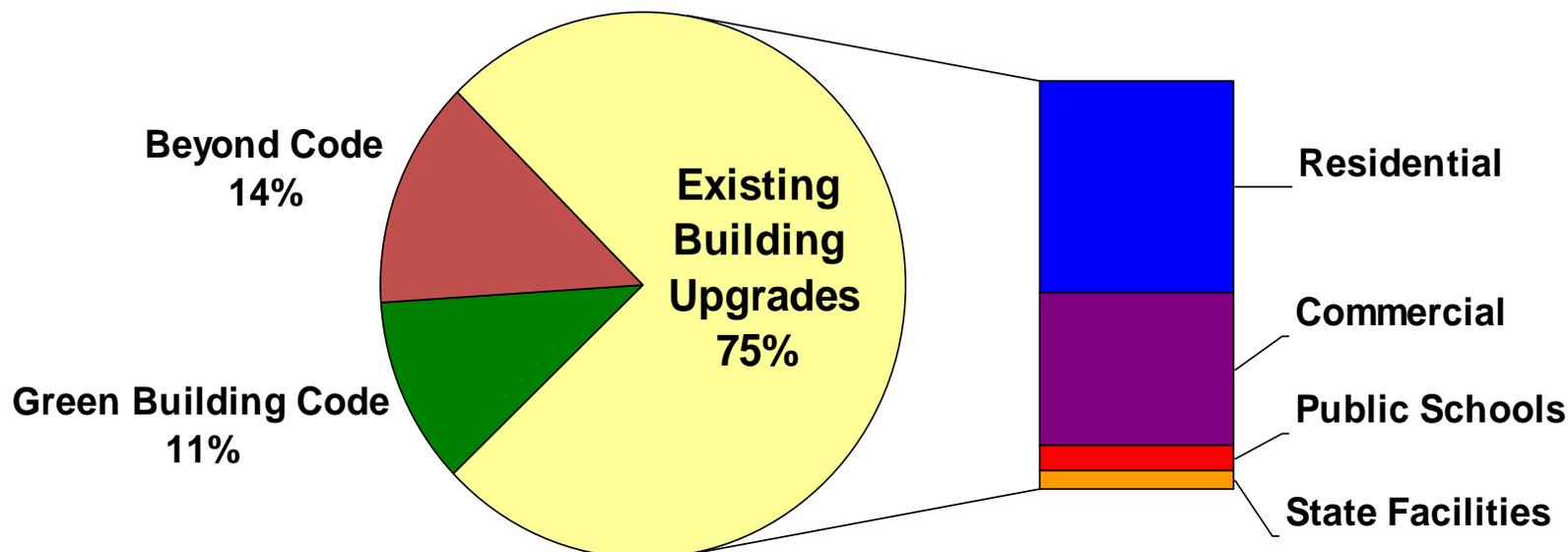
Integrating Green Building, Home Performance, and NSP

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Climate Action Opportunity: Retrofit Existing Homes

- ❖ Existing homes offer #1 GHG reduction potential
- ❖ Over 13 million existing homes in California
- ❖ 70% of housing predates Energy Standards
- ❖ 2/3 of all buildings that will exist in 2050 have already been built





What is a Comprehensive Home Energy Retrofit?



Source: Renewable and Appropriate Energy Lab



What is a Comprehensive Home Energy Retrofit?

- ❖ **Comprehensive Retrofit Fixes the Right Things First**
- ❖ Start with diagnostic testing, envelope improvements, & duct sealing to
 - Lower the necessary size and cost of mechanical equipment
 - Achieve 30-40% energy savings at low cost





Home Energy Retrofits as Economic Stimulus

❖ Good Potential for Jobs Creation & Tax Revenues

- 1.1 jobs and \$30,200 in tax revenues for every \$100,000 spent on residential remodeling

National Association of Home Builders

- 110,000 jobs for every 1 million homes retrofitted per year

Sustainable Spaces Inc.

❖ Opportunity to Re-employ Local Workers

- Home energy retrofits are labor-intensive jobs involving a locally trained construction workforce



Green Home Retrofits Address Multiple Goals

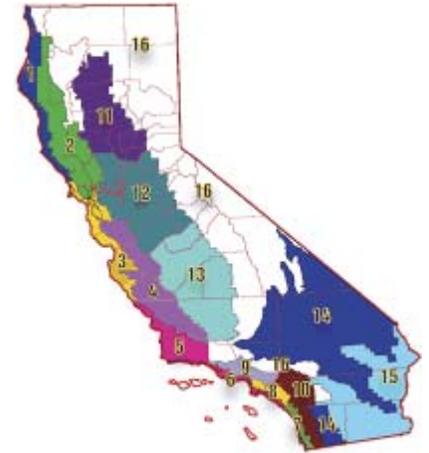


- ❖ Promote home energy retrofits as 1st step toward comprehensive green home improvements



GreenPoint Rated

- ❖ Consumer label backed by third party verification provides credible yet accessible standard for green homes
- ❖ Toolkit for local government program implementation
 - Comprehensive checklist of best practices
 - Community Design
 - Energy Efficiency
 - Indoor Air Quality
 - Resource Conservation
 - Water Conservation
 - 3rd party verification protocols
 - Certified GreenPoint Rater network
 - Tracking system & Climate calculator





GreenPoint Rated Existing Home

- ❖ First comprehensive existing home program in the nation
- ❖ Mirrors GreenPoint Rated New Home
- ❖ Credible criteria based on nationally accepted standards for home performance
- ❖ Compatible with Home Performance with Energy Star (HPwES)
- ❖ Matches California Energy Commission's HERS Phase II protocols for evaluation criteria for existing homes



GreenPoint Rated for NSP Rehab

❖ Basic health & safety + low-cost measures can qualify a rehab project as **GreenPoint Rated Elements**

Project Name		Required Renovation Practices (NSP)	Cost Effective Pathway	Points Achieved	Community	Energy	Indoor Health	Resource	Water
H. HEATING, VENTILATION & AIR CONDITIONING									
1. General HVAC Equipment Verification and Correction									
Yes	a. Visual Survey of Installation of HVAC Equipment (Required for Whole House and Elements)	X					2		
Yes	b. Conduct Diagnostic Testing to Evaluate System		X	2			2		
No	c. Conduct Flow Hood Test and Assess Delivery of Air						1		
No	d. Air Conditioning Compressor Operates Properly and Refrigerant Charge is Optimal						1		
No	2. Design and Install HVAC System to ACCA Manuals J, D and S						4		
3. Sealed Combustion Units									
Yes	a. Furnaces		X	2			2		
No	b. Water Heaters						2		
4. Zoned, Hydronic Radiant Heating									
Yes	5. High Efficiency Air Conditioning with Environmentally Responsible Refrigerants		X	1	1		1		
6. Effective Ductwork Installation									
No	a. New Ductwork and HVAC unit installed Within Conditioned Space						1		
Yes	b. Duct Mastic Used on All Ducts, Joints and Seams		X	1			1		
No	c. Ductwork installed under Attic Insulation (Buried Ducts)						1		
No	d. Ductwork System Is Pressure Relieved						1		
Yes	7. High Efficiency HVAC Filter (MERV 6+)		X	1			1		
No	8. No Fireplace OR Sealed Gas Fireplaces with Efficiency Rating ≥80% using CSA Standards						1		
9. Effective Exhaust Systems Installed in Bathrooms and Kitchens									
≥90%	a. ENERGY STAR Bathroom Fans Vented to the Outside		X	1			1		
≥90%	b. All Bathroom Fans are on Timer or Humidistat		X	1			1		
Yes	c. Kitchen Range Hood Vented to the Outside		X	1			1		
10. Mechanical Ventilation System for Civilian Installed									

Total Available Points	224+	26	93	47	79	44
Minimum Points Required (Whole House)	50		20	5	6	8
Minimum Points Required (Elements)	25		8	2	2	4
Total Points Achieved	49	1	18	11	9	14



GreenPoint Rated Aligns NSP with Climate Action Goals

- ❖ Savings from building green:
 - Therms
 - kWh
 - GHGs of refrigerant
 - Waste (tons)
 - Gallons of water indoors & outdoors
 - Vehicle miles traveled
- ❖ CO₂ equivalents of all above
- ❖ Forecasted and actual savings
- ❖ Footprint
- ❖ Scope 1, 2 & 3 emissions
- ❖ Results on GPR Consumer label

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GreenPointRATED

EXISTING HOME

Whole House

ADDRESS: Freeda Court
732 Hayes Avenue
Livermore CA, 94550

YEAR BUILT: 1950, upgraded to 2005 codes

BASED ON: Single Family, ver. 1.0

PERFORMANCE ABOVE A CONVENTIONAL
HOME BUILT IN THE SAME YEAR.



Estimated resources saved versus a conventional home

5368 gallons of water saved per year

7443 kilowatt hours saved per year

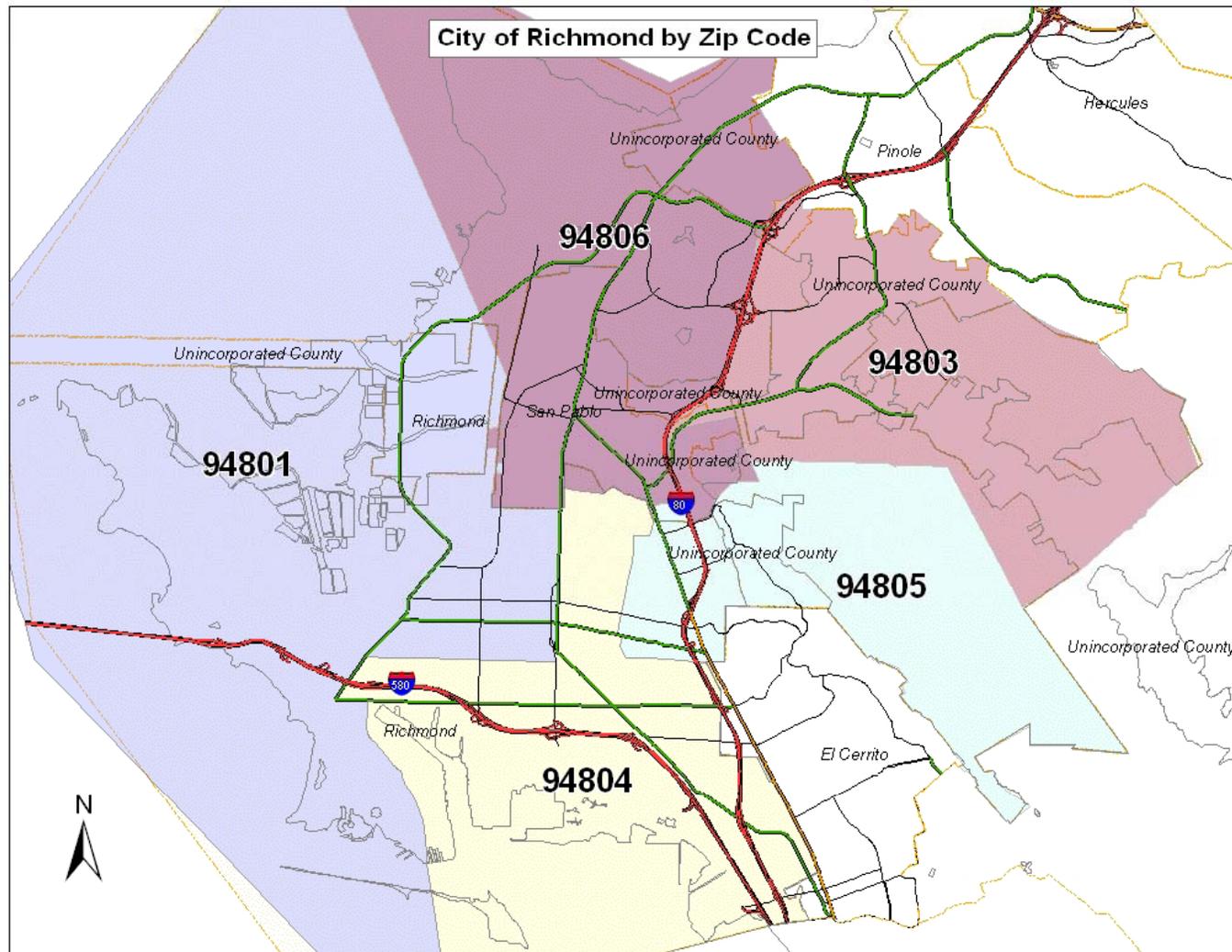
5 tons of CO₂ emissions avoided per year

34% energy efficiency improvement overall

www.GreenPointRated.org

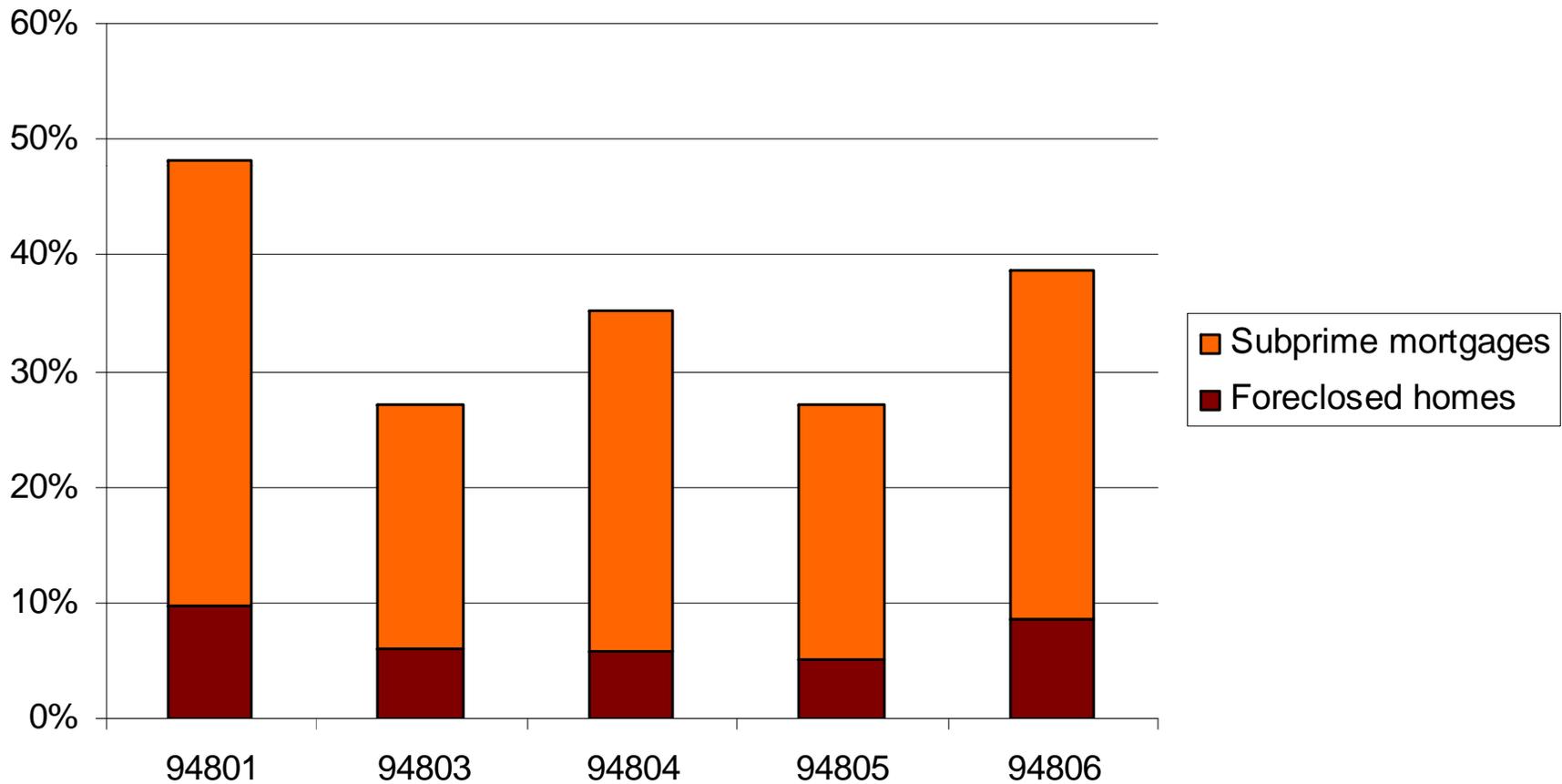


Demonstrating Feasibility: the City of Richmond Proposal





Foreclosure & Subprime Mortgage Rates





NSP Targets

- ❖ Program \$3.3 million to impact 76 parcels
- ❖ 3 high priority zip codes

Zip Code	Residential Parcels	% Foreclosures	Total Foreclosures
94801	6,945	9.8%	681
94803	3,703	6.0%	222
94804	11,558	5.7%	657
94805	4,472	5.2%	232
94806	3,794	8.6%	326
TOTAL	30,472	7.0%	2,118



Prior City Actions on AB32

- ❖ Greenhouse Gas Emissions Inventory
- ❖ Energy and Climate Change Element in the General Plan
- ❖ Municipal Green Building Ordinance
- ❖ GreenPoint Rated requirements for new homes



Proposed Approach

❖ Planning

- Set criteria for selecting neighborhoods & homes
- Integrate green workforce development & building performance contracting
- Develop rehab standards / model specs
- Establish Quality Assurance mechanism
- Provide cost estimation, financial advisory services, analysis

❖ Demonstration

- Acquire & rehab 3-5 homes, applying Best Practices from planning phase



Home selection: repair or demolish?

❖ 2 bdr 1 bath; 812 sq ft;
built 1950; \$47,900





Prioritized Rehab Standards

1. Health and Safety

- Conduct repairs and improvements to ensure long-term safety and health of occupants
- Reduce likelihood of major repairs in the future
- Improve indoor air quality

2. Building Performance

- Improve energy performance of the home
- Reduce utility bills
- Promote water conservation practices

3. Cosmetic Improvements

- Improve the aesthetic appearance of the home
- Increase likelihood and speed of home sale
- Contribute to property value increases and community enhancement in surrounding area



Quality Assurance: Contractor Credentialing Required

Skill Set	Credential
Home Performance Contracting	Building Performance Contractor, BPI Certified Building Analyst 
Home Energy Rating	California Whole House Home Energy Rater
Green Building	GreenPoint Rater 



In Summary...

- ❖ Build It Green seeks to...
 - Preserve and expand affordable housing stock
 - Demonstrate feasibility of comprehensive green rehabs within financial parameters of NSP
 - Support City of Richmond's response to climate change
 - Deliver comfort, health, and economic benefits to residents
 - Support self-sufficient, local home performance industry



Contact Us

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