



Listening Session for Proposed URM Transfer of Development Rights (TDR) Program

Photo by John Skelton



Seattle Department of
Construction & Inspections



Seattle
Office of Planning &
Community Development

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Meeting Goals

- Provide background and next steps for Unreinforced Masonry (URM) buildings.
- Discuss proposed financial resource for retrofits: potential new Transfer of Development Rights (TDR) Program to inform future feasibility study.
 - Understand building owner considerations for selling development rights.
 - Understand developer considerations and motivations when buying development rights.

Resolution 32033: Creating a URM Retrofit Program

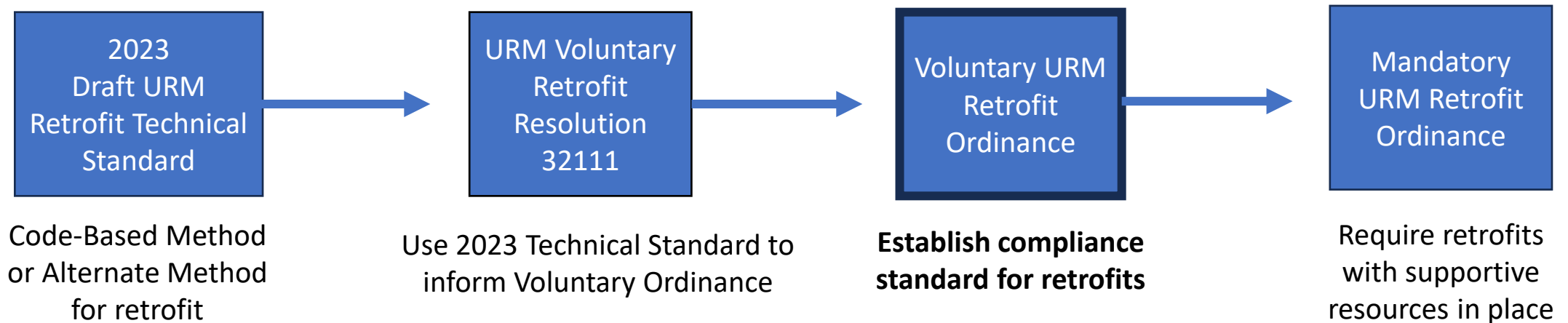
- Reduce risk of injury and death from URM collapse.
- Preserve historically and culturally significant structures.
- Minimize the financial impact of a URM retrofit program.

Yolanda Ho LEG URM Retrofit Program RES D2	
1	CITY OF SEATTLE
2	RESOLUTION 32033
3	
4	A RESOLUTION declaring the City Council's and the Mayor's intent to consider strategies to
5	ensure that all unreinforced masonry buildings in Seattle are seismically retrofitted.
6	
7	WHEREAS, Seattle has over 1,100 unreinforced masonry buildings (URMs), which are
8	buildings typically built prior to 1945 with brick or clay tile bearing walls where the
9	parapets and walls are not secured to the floors and roofs; and
10	WHEREAS, URMs are vulnerable to damage or collapse during earthquakes, potentially
11	endangering people within the buildings if walls fully or partially collapse and
12	pedestrians if parapets break away and fall into the street; and
13	WHEREAS, the February 2001 6.8 magnitude Nisqually earthquake injured about 400 people
14	and caused around \$2 billion in property damage, including over \$8 million in repair
15	costs to URMs in S
16	WHEREAS, of the buildin
17	Nisqually earthqua
18	WHEREAS, in 2017, Seat
19	("Council") that w
20	experiencing ano



Pathway to Required URM Retrofits

- Long-term goal remains establishing a Mandatory URM Retrofit Ordinance.
- Short-term goal: Voluntary URM Retrofit Ordinance (*Mid/Late 2024*).
 - Establishes a retrofit compliance standard.
 - Provides building owners assurance their retrofit will be compliant with future legislation.



Seattle's URMS and Compliance Timelines*

Vulnerability Classification	Number of URMs	Compliance Timeline
Critical vulnerability: emergency service facilities and schools	75	7 years
High vulnerability : buildings over three stories in poor soil areas (i.e., liquefaction and slide areas); and buildings containing public assembly spaces with occupancies of more than 100 people	184	10 years
Medium vulnerability: all other buildings	883	13 years
Total Confirmed URMs	1,142	

*Compliance timelines won't be effective until Mandatory URM Retrofit Ordinance is adopted.

Number of URMs by classification, September 2021

More Frequent → Less Frequent

Nisqually type event: 86% Chance in 50 years	Cascadia event: 10- 33% in 50 years	Seattle Fault event: event: 5- 7% in 50 years
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New Buildings

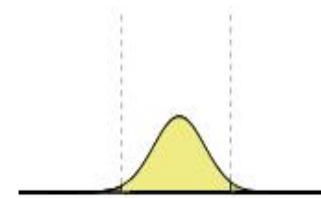
Basic Code



Casualty Risks



Chance of
Post-EQ Placard

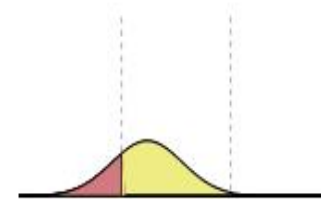
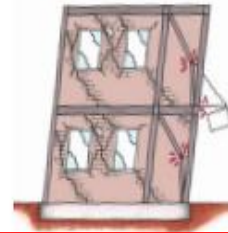
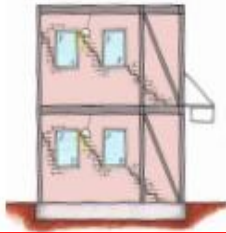


Expected Building
Downtime

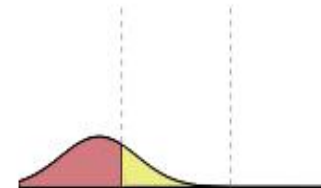
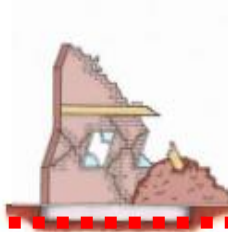
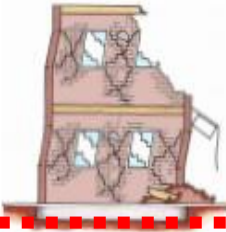


Older Buildings

Basic Retrofit**

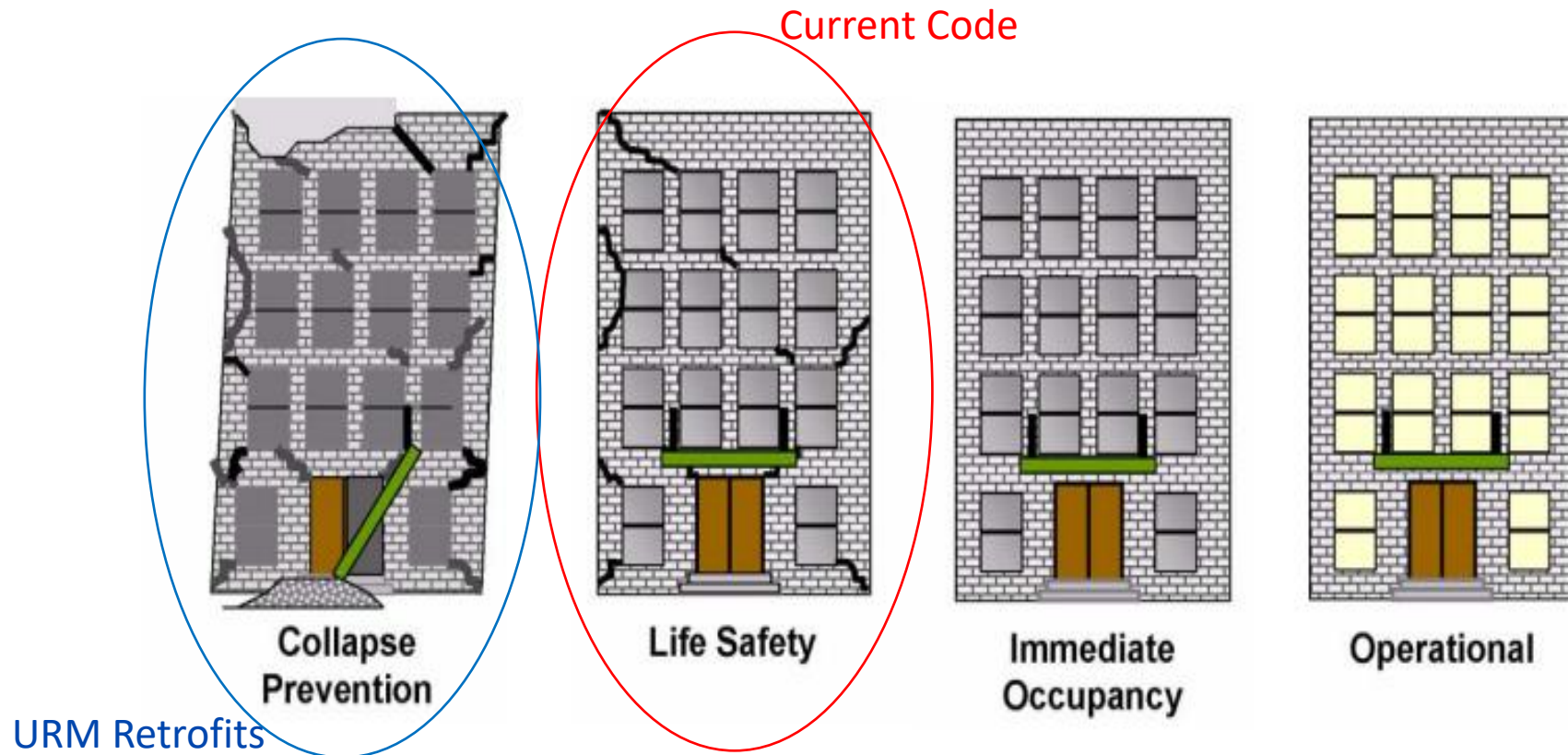


Unretrofitted



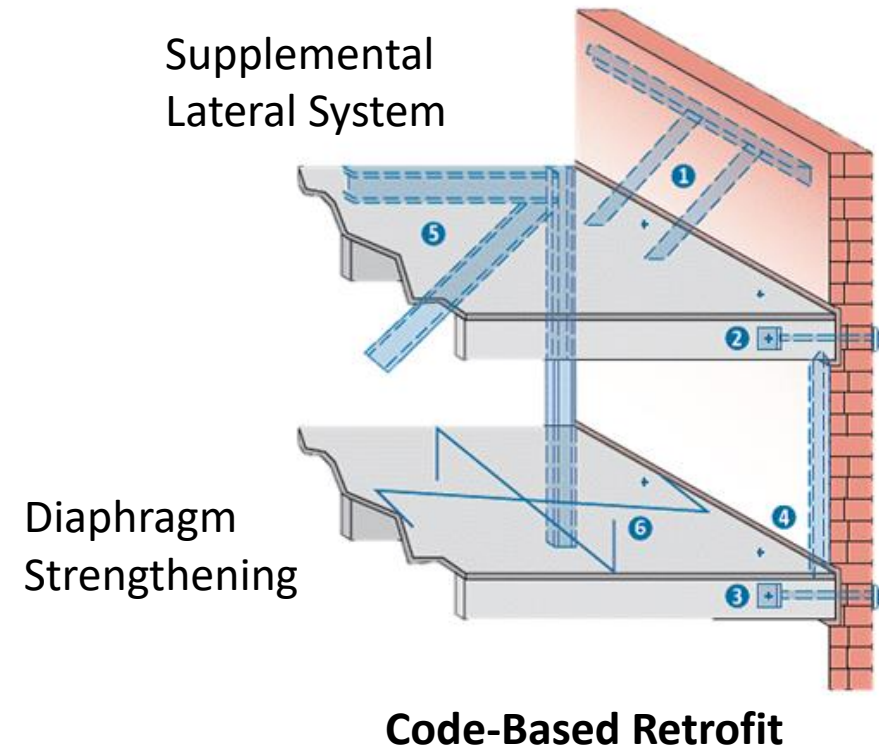
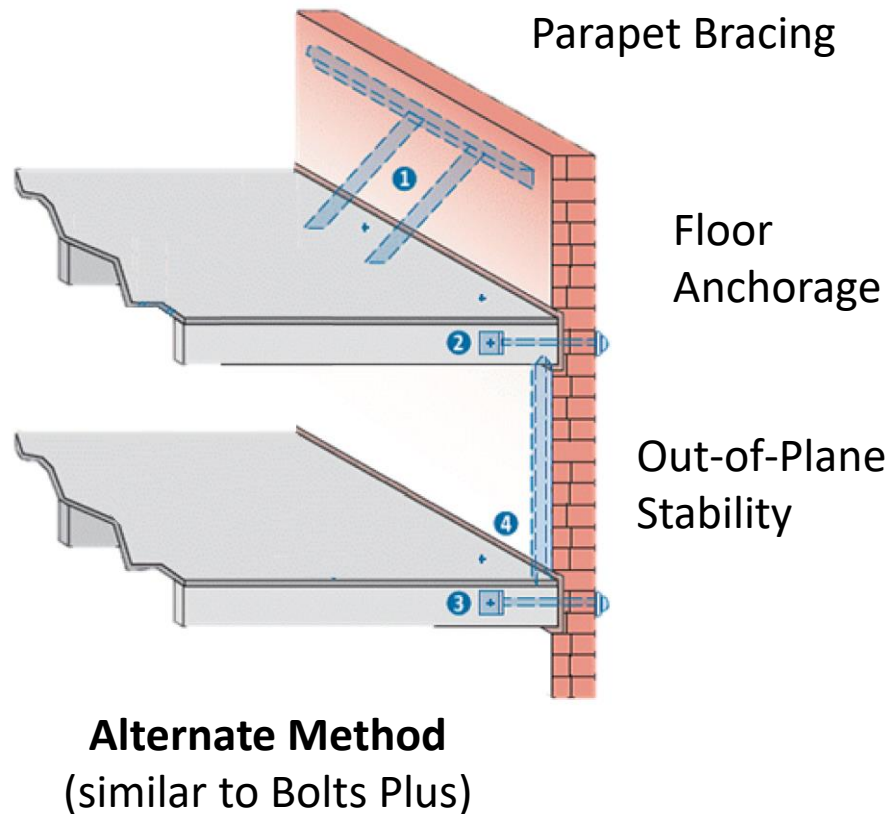
FEMA P-58

Building Codes vs Building Performance

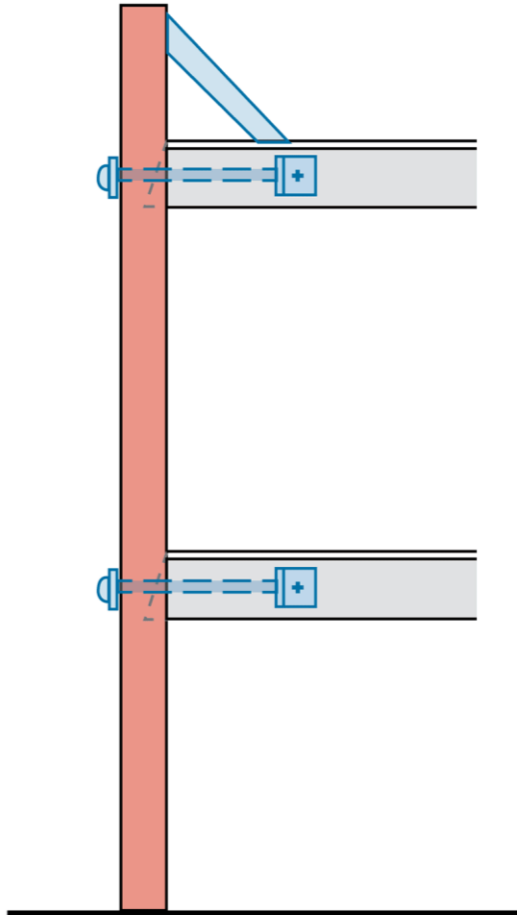


Seattle's Two Methods for URM Retrofits

Establish two pathways:



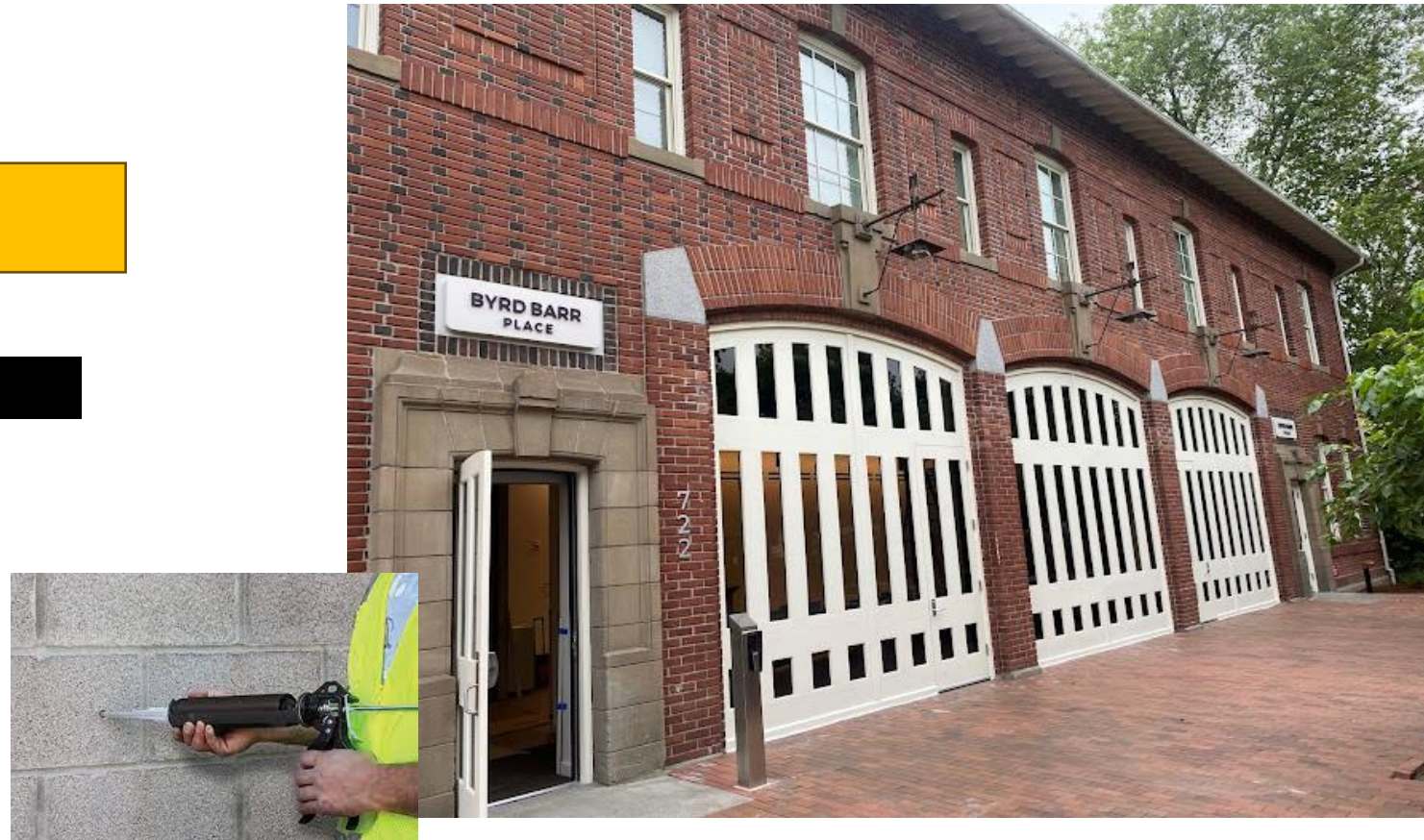
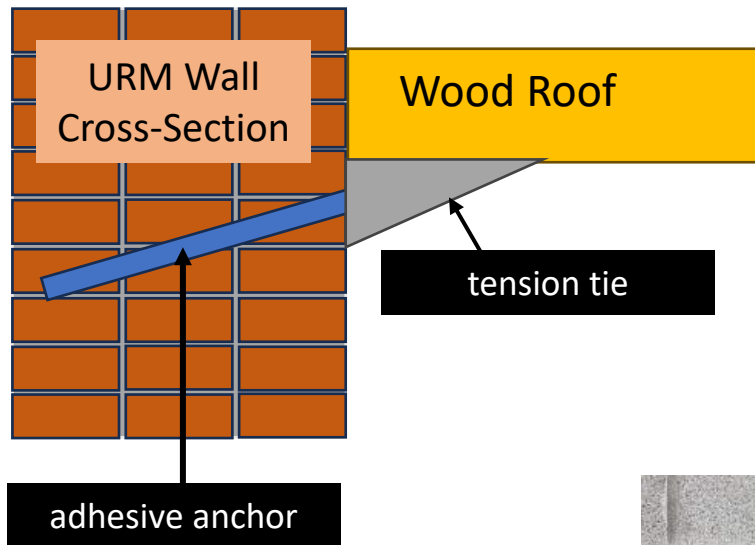
By retrofitting, we can reduce the risk of collapse



FEMA 547

Minimizing the Visual Appearance of Retrofits

Example: Use of adhesive anchors* from the interior to anchor roofs and floors to exterior walls



**Adhesive anchors have use limitations that may make them more restrictive than through-bolts.*

Code-Based Retrofit



BuildingWork



MKA



Lund Upsahl



Minimizing Visual Appearance of Retrofits

Example: Camouflage of braced frames



Retrofit Costs

- Qualification Estimates
 - ~25 percent may utilize Alternate Method
 - ~35 percent will require a store-front frame to use alternate method
 - ~40 percent will require code-based retrofit
- Code-based retrofit 3-4x cost of Alternate Method, or more
- Total estimated cost \$1.3B (2019 dollars)

Table 2: Average Costs (Per Square Foot) to Retrofit

Percent of URM inventory:	Bolts+ 23%	Bolts++ Frame 36%	Full Seismic 41%
Construction Costs			
Hard Costs ¹	\$17.32	\$19.24	\$61.99
Sales Tax (10.1%)	\$1.75	\$1.94	\$6.26
Hard Costs Contingency (10%)	\$1.91	\$2.12	\$6.83
Total Hard Costs	\$20.98	\$23.30	\$75.08
Soft Costs (15%) ²	\$3.15	\$3.50	\$11.26
Soft Costs Contingency (10%)	\$0.31	\$0.35	\$1.13
Total Soft Costs	\$3.46	\$3.85	\$12.39
Total Construction Expenses	\$24.44	\$27.15	\$87.47
Relocation Expenses³			
	\$8.00	\$8.00	\$8.00
TOTAL (Including Relocation)	\$32.44	\$35.15	\$95.47

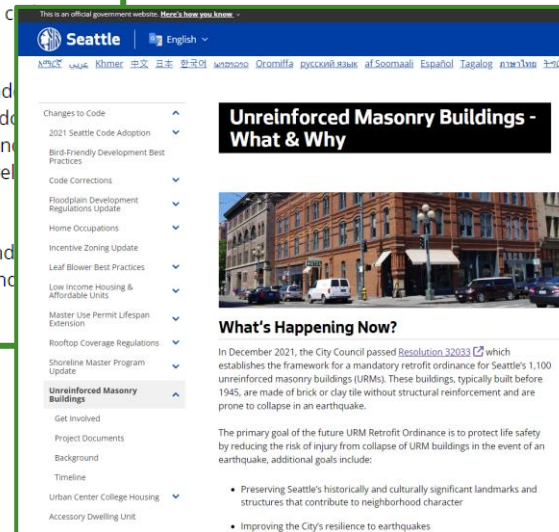
National Development Council, 2019

SDCI URM Webpage & Blog

Technical Standard:

A team of structural engineers have been updating the 2012 Technical Standard to reflect changes in building codes and a better understanding of Seattle's earthquake hazard. The updated draft URM Retrofit Technical Standard and supporting Director's Rule are the first step in establishing a baseline retrofit standard for the voluntary retrofit of URM buildings. The Director's Rule and Technical Standard will be used to inform the phasing in of a mandate for the seismic retrofits of URMs as requested in Resolution 32033.

- Director's Rule 6-2023, [A Method for the Seismic Improvement of Unreinforced Masonry \(URM\) Buildings](#). The intent of this rule is to provide a voluntary methodology for seismic improvements to URMs which addresses testing and quality of existing masonry constructions and mitigates collapse hazards in an earthquake. This rule will formally allow use of the alternate method for retrofit, reducing costs to building owners compared to a code-based retrofit while increasing life safety of the building.
- Components of the [Draft URM Retrofit Technical Standard](#) will be added through the above Director's Rule. It is SDCI's intent SDCI to pursue adoption of the draft Technical Standard to establish minimum compliance standards for retrofit of URMs. This draft Technical Standard will inform the development of the mandatory retrofit ordinance requested in Resolution 32033.
 - We held two virtual public meetings providing opportunities for questions and answers on the draft URM Retrofit Technical Standard on June 8, 2023, and June 12, 2023. Be sure to check out [slides](#) and [recording](#) from these presentations.



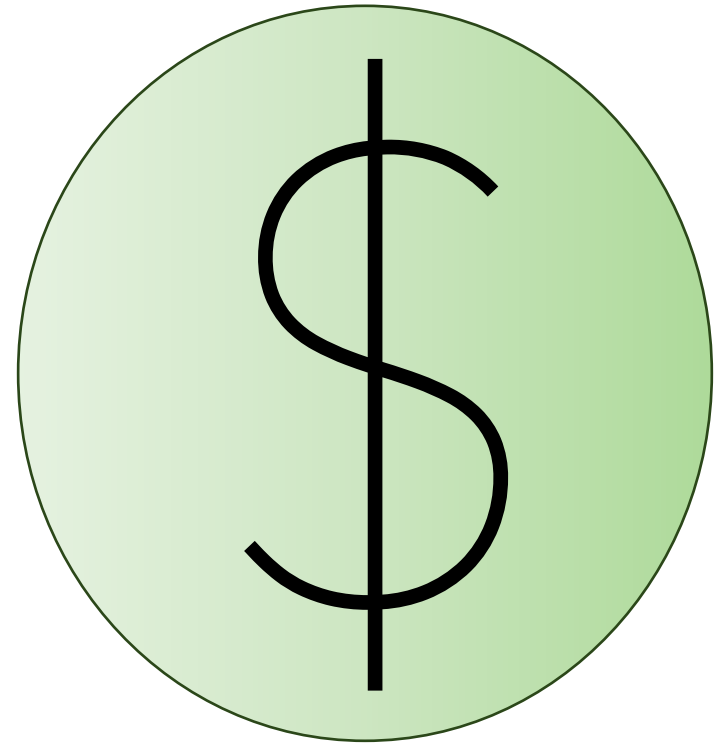
<https://buildingconnections.seattle.gov/>

[Seattle.gov/sdc/codes/changes-to-code/unreinforced-masonry-buildings](https://seattle.gov/sdc/codes/changes-to-code/unreinforced-masonry-buildings)

Questions about the Retrofit Technical Standard or future legislation?

Funding Solutions

- Low-interest loans such as C-PACER (Commercial Property Assessed Clean Energy & Resiliency Program)
- Tax credits for historic preservation and greenhouse gas reduction
- Reduced insurance requirements
- Federal grants
- **Transfer of Development Rights (TDR)**

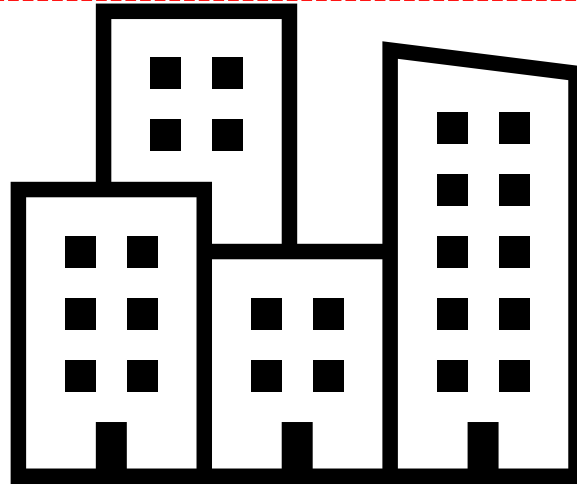


URM Policy Development Working Groups

URM Policy Development Working Groups				
Group	Technical Standard Briefing Working Group	Communications Working Group	Funding Working Group	Owner & Tenant Needs Working Group
Intent	<i>Provide forum for Q&A on technical standard</i>	<i>Community engagement and acceptance</i>	<i>Explore ways to mitigate cost of retrofits</i>	<i>Address physical and economic displacement</i>
Sub-Group		<i>Case-studies sub-group</i>	<i>Retrofit Credit/TDR sub-group</i>	
Sub-Group			<i>Grant & Finance sub-group</i>	

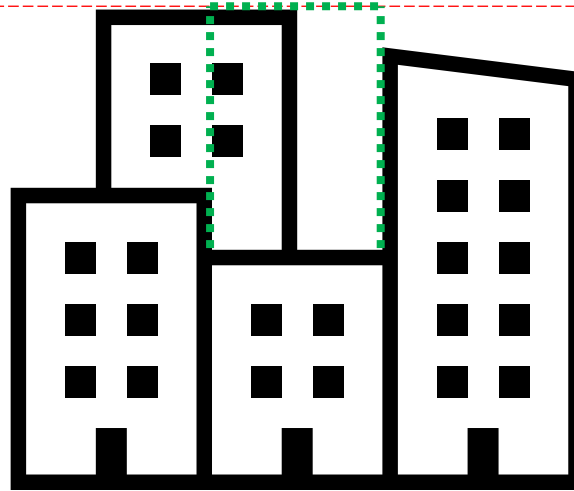
Explaining Transfer of Development Rights (TDR)

- The city has rules in place that dictate the maximum height and floor area of buildings based on their neighborhood and other factors.



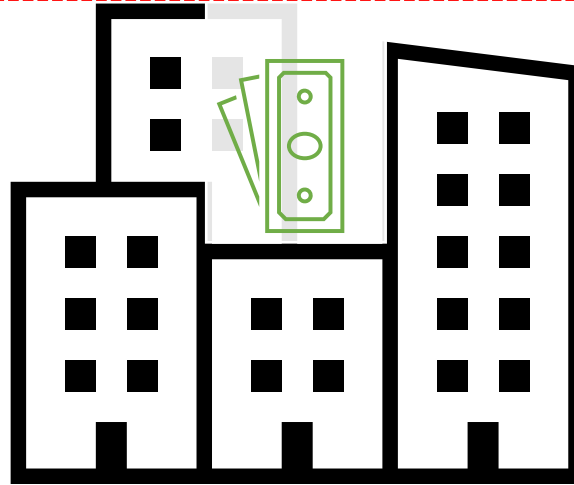
Explaining Transfer of Development Rights (TDR)

- When a building owner wants to increase their height or floor area above the limit, they can purchase **development rights** from a building with **development potential**. This graphic shows a shorter building, but it could also be a building with a floor area less than the site maximum.



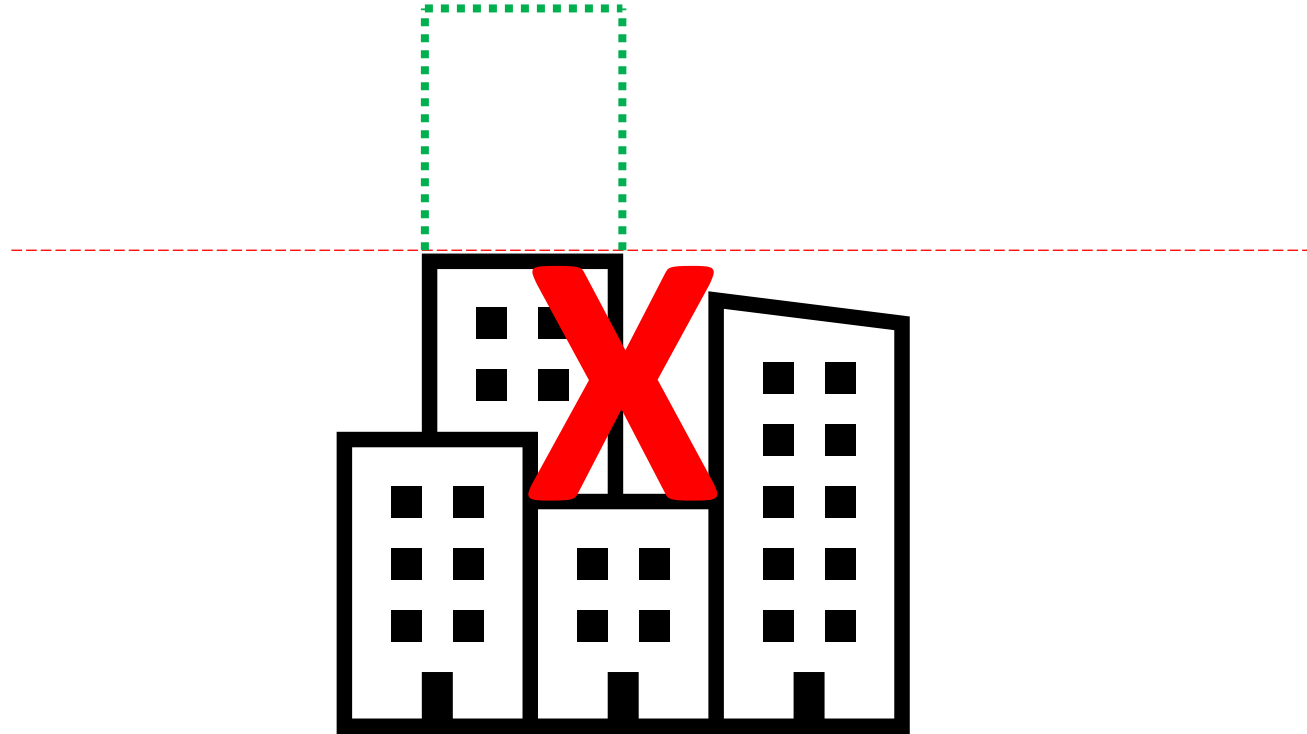
Explaining Transfer of Development Rights (TDR)

- The owner of the shorter building is paid for the sale of their future development rights. They are no longer allowed to add height to their building.

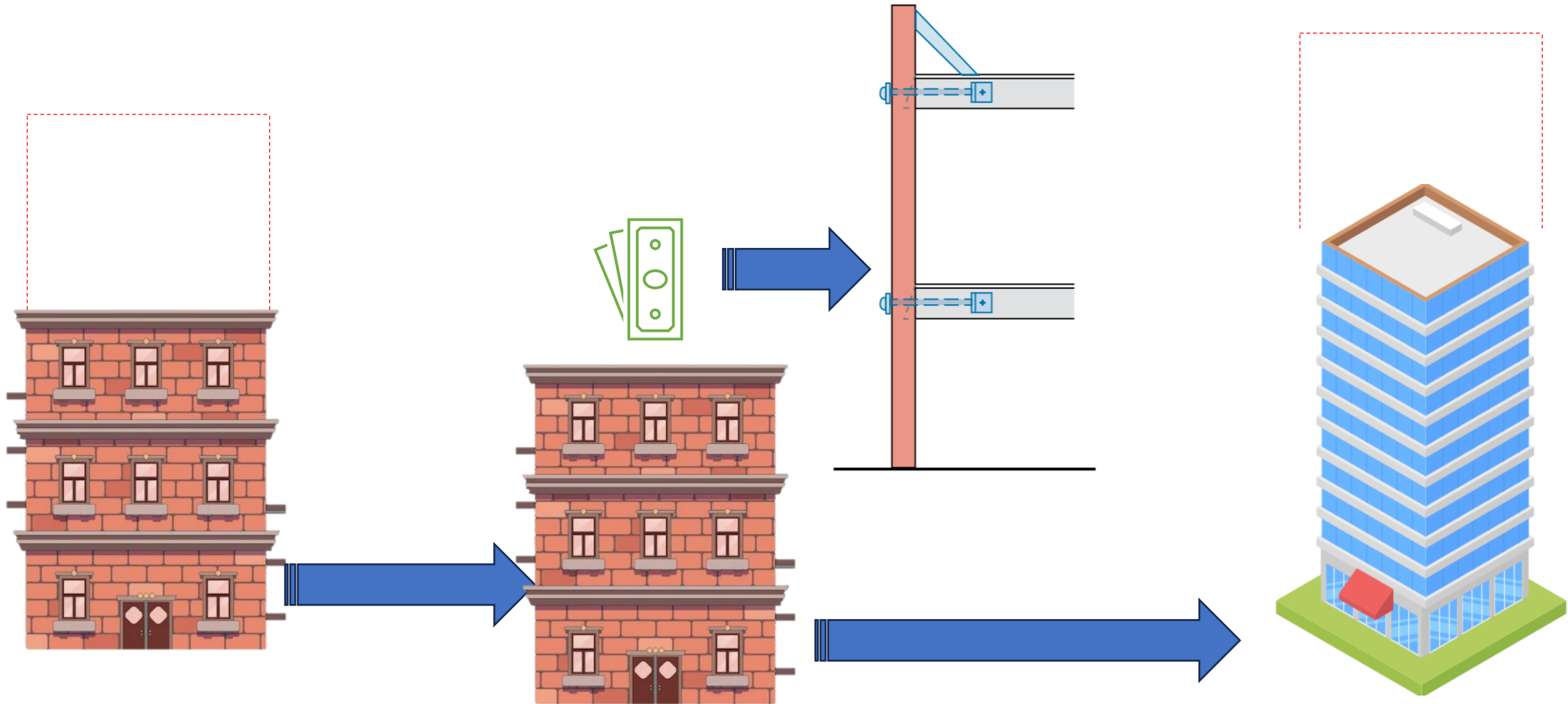


Explaining Transfer of Development Rights (TDR)

- The purchasing building can now build taller, using the purchased development rights.

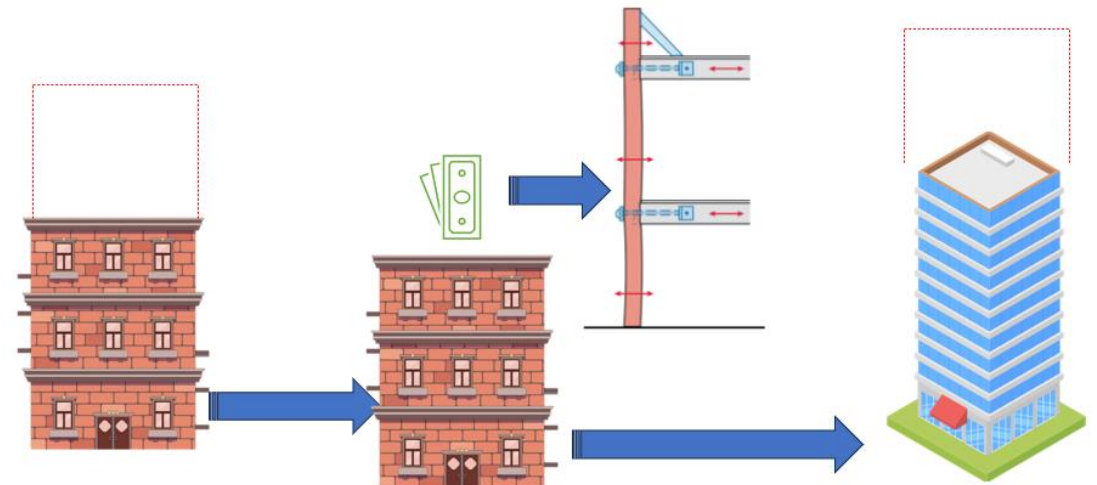


Proposed: TDR for URM Retrofits



Proposed: Transfer of Development Rights Program for URM Retrofits

- **Voluntary**
- Only allowed for Unreinforced Masonry Buildings (URMs)
 - Money from sale of development rights must go towards URM retrofits
- Where will development rights be used?
 - Defined neighborhoods within the city where developers can build taller
 - Maps on table for discussion purposes



Listening Session Format

- Each table has:
 - A map that shows URM locations and zoning geographic zones
 - Copies of scenarios and discussion questions
 - An easel with paper
 - A notetaker and facilitator
- On easels, write down considerations, needed resources, and deal-breakers for each of the two scenarios.

Round-Robin Discussion

- Time for discussions: 20 minutes each
- Will regroup to share findings



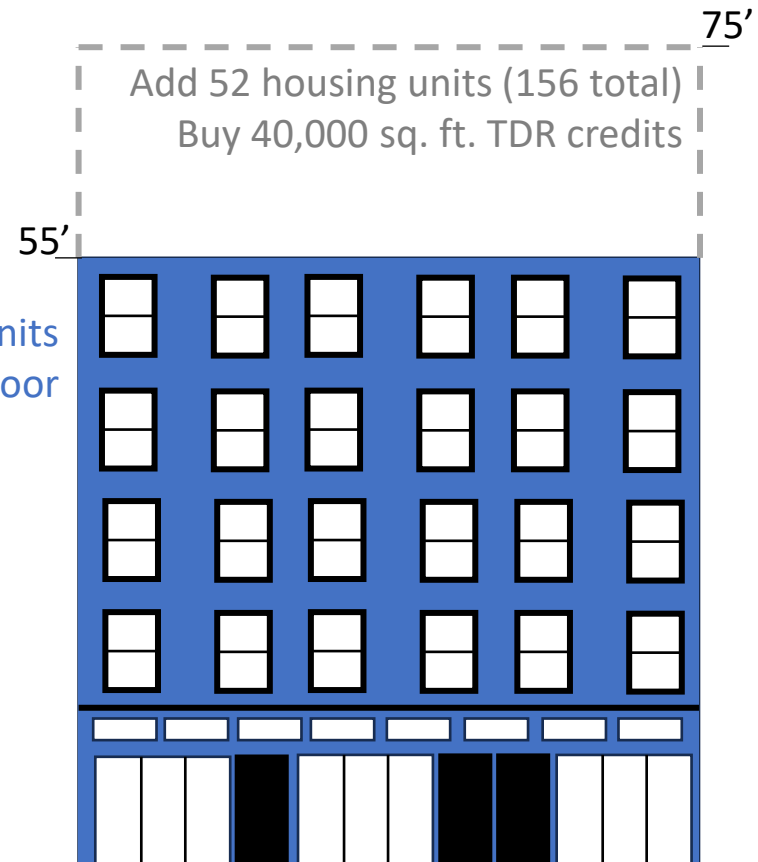
Hypothetical Scenario 1: Discussion Questions

- How would you go about determining what you would be willing to pay for the TDR credits?
- Based on what you know about development, how much do you think you would be willing to pay for the TDR credits?
- What questions or concerns do you have about a URM TDR program?

Hypothetical Scenario 1: Developer Considerations

- You are a developer considering purchasing URM TDR credits.
- Building site is located in a Neighborhood Commercial (NC) zone with a 55' height limit.
 - Without purchasing TDR:
 - 5-story mixed use
 - 104 housing units
 - 100,000 sq. ft.
 - With purchasing TDR 40,000 sq. ft. of TDR credits:
 - 7-story mixed use (adds two floors)
 - 156 housing units (adds 52 housing units)
 - 140,000 sq. ft. (adds 40,000 sq. ft.)

104 housing units
20,000 sq. ft./floor

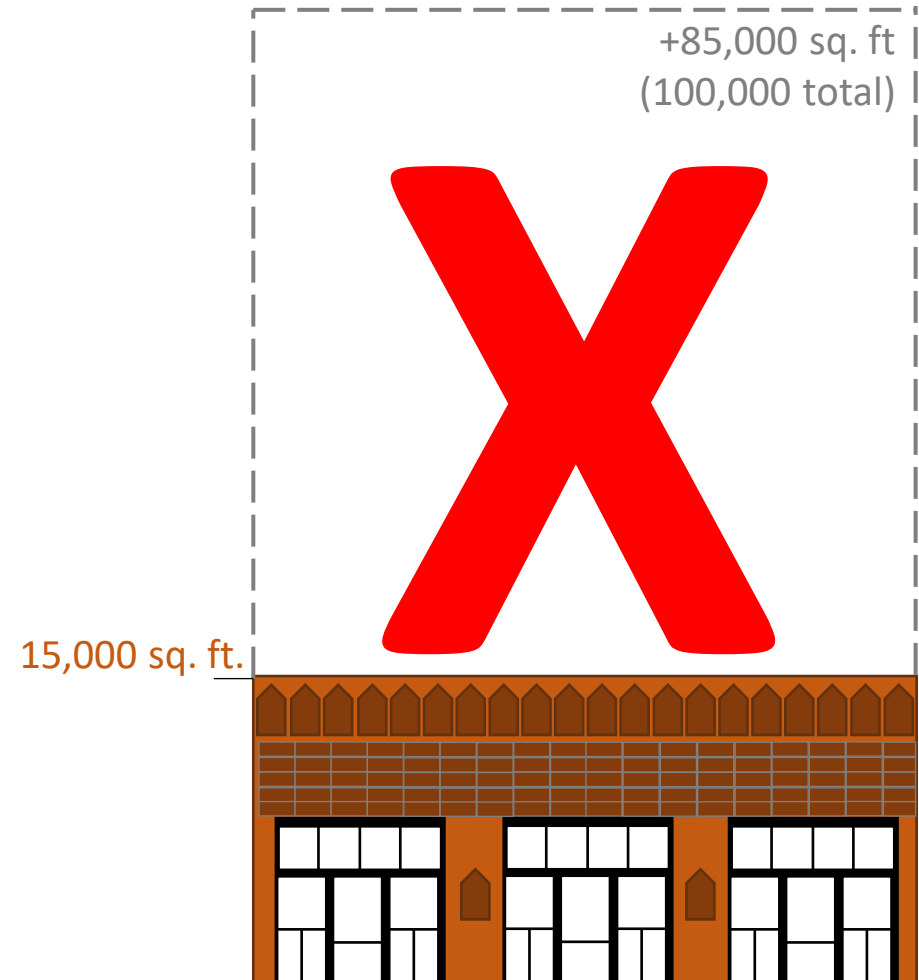


Hypothetical Scenario 2: Discussion Questions

- How would you go about determining whether to sell development rights?
- What price do you think you would need in order to participate in the URM TDR?
- What questions or concerns do you have about a URM TDR program?

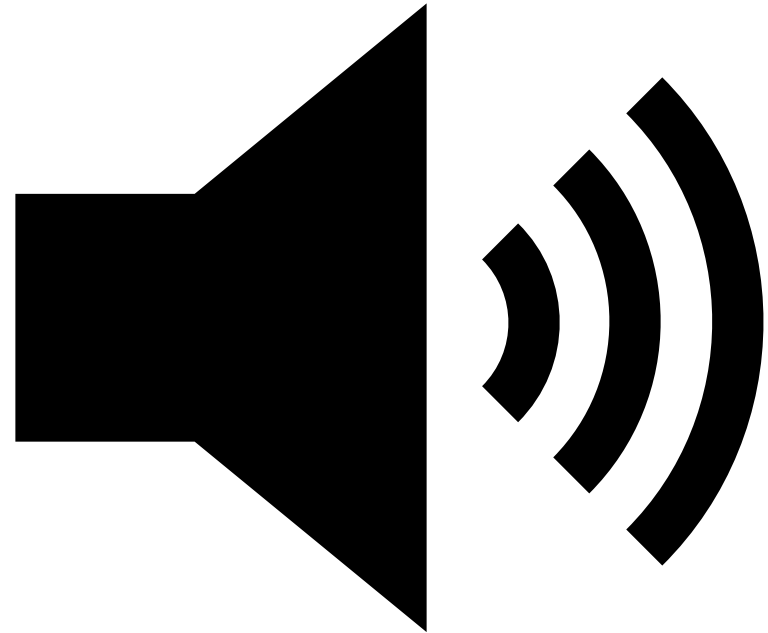
Scenario 2: URM Owner Considerations

- You are a URM owner considering selling future development rights to fund seismic retrofits.
- Current building is 15,000 sq. ft.
- Redeveloped:
 - 120 ft height limit
 - 100,000 sq. ft. maximum
- Maximum Development Credits: 85,000 sq. ft.
 - Restricted to 15,000 sq ft. in perpetuity



Sharing findings

- Themes from Scenario 1: Developer Considerations
- Themes from Scenario 2: URM Owner Considerations



Next Steps

- Technical feasibility study with program recommendations
- Development of Voluntary URM Retrofit Ordinance
- Stay Connected
 - Website
 - Building Connections Blog
 - URM Working Groups

Contacts Information

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