

## **Attachment A**

### **EXECUTIVE SUMMARY OF BACKGROUND STUDIES** **AND POLICY RECOMMENDATIONS**

The City of San José has been actively developing a “soft story,” or WFTS,<sup>1</sup> seismic mitigation program since 2018, continuing earlier work that started soon after the 1989 Loma Prieta earthquake. Currently, the City envisions an overall program with two coordinated parts – a citywide part expected to address at least a thousand collapse-prone buildings, and a FEMA-funded part that will partially subsidize or rebate some owners’ retrofit costs. In 2022, the City contracted with a team led by David Bonowitz, S.E. to help develop both programs.

The purpose of this report is to present, in a comprehensive and narrative format, the information compiled by our team under contract to the City. The purpose of that information is to inform the policy-making process by summarizing and contextualizing data expected to be of interest to City staff, the City Council, and the public.

#### **1. Wood-frame target story (WFTS) inventory**

Chapter 1 summarizes and contextualizes the City’s inventory of WFTS buildings. Inventory comes first so that policy decisions can be informed by city-specific data.

- San José’s permanent housing stock comprises about 206,000 buildings containing about 351,000 units. Of those, about 17,000 buildings and 156,000 units are in multi-unit (three or more) apartment and condominium buildings. (Section 1.2.1)
- Buildings constructed before about 1990 with wood-frame target stories (WFTS), sometimes called “soft story” buildings, pose a widely recognized seismic risk to tenants, owners, and the City. San José has between 2,600 and 3,600 such buildings, containing between 18,000 and 25,000 units – 5 to 7 percent of its total housing stock. (Section 1.2.1)
  - The WFTS portion of the housing stock is significantly larger than the portion made up by buildings with other common seismic deficiencies for which mitigation programs have already been implemented, including cripple wall houses, room-over-garage houses, unreinforced masonry buildings, and mobile homes. (Section 1.3.1)
  - In some neighborhoods, the pre-1990 WFTS buildings comprise up to 20 percent or more of the local housing stock, comparable with other Bay Area cities that have already adopted mandatory WFTS retrofit programs. (Sections 1.2.3 and 1.3.2)
- As a group, the pre-1990 WFTS buildings have the following characteristics, among others, relevant to the development of a citywide mitigation program:

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<sup>1</sup> See the Terminology section of this report for explanations of key terms, including “soft story,” “target story,” and “wood-frame target story” or WFTS. While the public and many City documents refer to “soft story” buildings and programs, this report generally uses the acronym WFTS for technical reasons explained there.

- A substantial majority of the buildings are only two stories tall. This distinguishes San José’s WFTS cohort from the taller (and older) WFTS buildings in denser neighborhoods in San Francisco. (Section 1.2.2)
  - Essentially none have commercial spaces in the collapse-prone first story. This also distinguishes San José’s buildings from San Francisco’s. (Section 1.2.2)
  - About half have at least one occupiable residential unit in the collapse-prone first story. As this affects both the risk and the likelihood of tenant disruption during retrofit, it might also influence decisions about how to schedule and implement a retrofit program. (Section 1.2.2)
  - The pre-1990 WFTS buildings include only a small number of hotels and motels, care facilities, and deed-restricted affordable housing. Nevertheless, these specialty housing types should be included in a citywide mitigation program and should perhaps be prioritized for FEMA-funded retrofit rebates if their uses are deemed important to the City’s emergency planning and post-earthquake recovery. (Section 1.4)
- For purposes of mitigation planning, the pre-1990 WFTS buildings can be broken into subsets based on age, size (number of units), and ownership (rental or condominium), then combined to select an appropriate program scope. Four potential program scopes are described in the following table.

**Table 1.2.5-1 Four Possible WFTS programs**

<b>Subject buildings</b>	<b>Apartment</b>	<b>Condominium</b>	<b>Total</b>
<b>1. Pre-1978, 5+ units</b>	949 – 1,273 buildings 9,424 – 12,063 units	103 – 222 700 – 1,502	1,052 – 1,495 10,124 – 13,565
<b>2. Pre-1990, 5+ units</b>	1,118 – 1,441 10,716 – 13,355	523 – 831 3,382 – 5,729	1,641 – 2,272 14,098 – 19,084
<b>3. Pre-1978, 3+ units</b>	1,487 – 2,008 11,467 – 14,773	160 – 355 929 – 1,990	1,647 – 2,363 12,396 – 16,763
<b>4. Pre-1990, 3+ units</b>	1,665 – 2,185 12,792 – 16,098	901 – 1,392 5,391 – 8,508	2,566 – 3,577 18,183 – 24, 606

## 2. Review of existing San José seismic risk reduction policy

Chapter 2 reviews the City’s existing policies related to housing and earthquake risk reduction. This provides a context for assessing the WFTS inventory and potential mitigation options. (Existing policies and regulations specific to seismic retrofit are covered in Chapter 4.)

- San José’s planned mandatory retrofit program for WFTS buildings aligns with its broader hazard mitigation goals and with specific policy decisions made over the last two decades. (Sections 2.1 and 2.2)
- The City has already taken steps to develop, prioritize, fund, and implement a WFTS mitigation program, even if some of those steps are not explicitly recorded in the Local Hazard Mitigation Plan or related plans. (Section 2.2)

- Because the development and preservation of housing is so important to San José, details of the planned WFTS program will need to be coordinated with existing City policies for rent stabilization and tenant protection, as discussed in Sections 4.1.2, 4.2, and 5.2.4. (Section 2.3)

### 3. Engineering studies and precedents

Chapter 3 proposes a retrofit scope and engineering criteria to fit the inventory findings (Chapter 1) to the policy goals (Chapter 2).

- Post-earthquake reoccupancy and recovery are linked to San José's prioritization of affordable housing, as discussed in Chapter 2. Together with the inventory data, summarized in Chapter 1, this linkage merits a mandatory retrofit program for multi-unit buildings with suspected WFTS conditions. (Section 3.1.1)
- *California Existing Building Code* Appendix Chapter A4, which focuses the retrofit on collapse-prone structural conditions in the critical story, and which offers ample precedent in Bay Area WFTS programs, is suitable as retrofit design criteria for a mandatory program in San José. It can be expected to achieve the City's program objectives. (Section 3.1.2)
  - FEMA P-807, though it will need to be customized and supported with a technical bulletin, should also be allowed as criteria, especially for purposes of compliance by evaluation (Section 3.1.2). We used FEMA P-807 to study two small but common San José building types and to support a recommendation that they be exempt from mandatory retrofit (Section 3.2.1).
- A study of the four retrofit program scopes tabulated above, using a proxy portfolio and four earthquake scenarios, found that any of the four scopes will have a program-wide benefit-cost ratio (BCR) substantially higher than 1.0. The highest BCRs involve a scope that includes smaller buildings (3 or 4 units) but exempts newer buildings (built in 1978 or later). Including the many smaller buildings is especially important for reducing casualties and short-term housing loss. (Section 3.3)

### 4. Cost sharing

Chapter 4 assesses the City's existing regulations for retrofit cost sharing between owners and tenants. In particular, it presents a first-of-its-kind analysis of expected rent increases based on the City's Apartment Rent Ordinance (ARO), combining our inventory findings (Chapter 1) with the data from the City's rent registry. Chapter 4 also reviews the various state and federal assistance programs in light of our inventory findings.

- While a number of programs and regulations provide ways to share the cost of retrofit between owners, tenants, the City, and other potential funders, the most important ones for the City's planned program involve the FEMA grant the City has already secured and the existing regulations for pass through of Specified Capital Improvement costs in the City's Apartment Rent Ordinance. (Section 4.1)
- In theory, the ARO capital improvement pass-through regulations could result in raised rents on tenants in rent-stabilized units, which represent about 60 percent of the units in

the largest likely citywide program, but only about one third of the rent-stabilized units in the City. (Section 4.3.1)

- Analysis of current rents, using data from the City's rent registry, indicates conservatively that if all of the owners' costs are eligible for pass through, and ignoring the available FEMA funds, the median rent increase in these units will be less than 2%, but about 15 percent of the units could see increases that invoke the ARO's 3% cap. (Section 4.3.3)
- To minimize displacement from a planned mandatory program, the City should consider tailoring the current ARO provisions and regulations as follows (Sections 4.2 and 4.3.5):
  - For ARO-regulated buildings, allow pass through for only a portion of the retrofit cost.
  - Implement a streamlined petition and approval process for WFTS retrofits.
  - Prioritize displacement-prone buildings, units, and tenants for FEMA rebates.
  - Amend the ARO pass through regulations to clarify its application to WFTS retrofits.
  - Extend the ARO pass through regulations to non-ARO buildings.
  - Enhance and provide more outreach regarding the City's existing eviction assistance programs.
  - Monitor the program, collect data, and prepare to adjust regulations for the program's later stages.

## 5. Policy recommendations

Chapter 5 restates and expands on our policy recommendations from Chapters 2 through 4.

- San José should enact and implement a citywide mandatory WFTS retrofit program requiring compliance, by evaluation or retrofit, with criteria substantially similar to *California Existing Building Code* Appendix Chapter A4. Work above the highest wood-frame target story should not be required. Other structural improvements, nonstructural component protection, and mitigation of geologic site hazards should not be required. (Section 5.2.1)
- Any building built before 1990 that contains three or more housing units and has a wood-frame target story should be subject to the mandatory retrofit program. Certain 2-story, 4-unit buildings should be exempted based on work described in Section 3.2.1 of this report. As shown in Section 1.2.5, this program scope is expected to include 2,600 to 3,600 buildings containing 18,000 to 25,000 units. (Section 5.2.2)
- Assuming the recommended mandatory program, and assuming adequate PBCE capacity, we recommend spreading the program over seven years, starting with a one-year screening phase. The subject buildings would then comply in defined groups, with staggered deadlines. Grouping the buildings makes the program feasible for the City and recognizes that some buildings will need more time to comply, especially due to occupiable units in the critical ground floor. We recommend four compliance groups, with condominium buildings having the early deadlines (larger buildings first) and rental apartment buildings having later deadlines (again, larger buildings first). (Section 5.2.3)

- The City should adjust certain existing tenant protection and rent stabilization policies as they would apply to mandatory WFTS retrofits. In particular, certain allowances for pass through costs in the current Apartment Rent Ordinance should be adjusted or clarified to ensure fair cost-sharing by owners and tenants. The normal petition process should also be streamlined to approve typical WFTS retrofit projects without lengthy review. (Section 5.2.4)
- The FEMA rebates should be used to help low-resourced owners and tenants comply with the mandatory citywide program without excessive rent increases. Priority should be given to buildings that provide affordable housing to tenants qualified as low income, and the rebate amount should be set to essentially eliminate any rent increase for these qualified tenants. (Section 5.3)
- While the City and program stakeholders determine the retrofit program scope and schedule, the City should begin working on program implementation, identifying staffing needs and building the tools and procedures it will need for a successful, effective program. (Section 5.4)

## Terminology

The following abbreviations, acronyms, and definitions are used in this report. Certain terms might have other definitions when used in other places.

### Abbreviations and acronyms

<b>ARO</b>	Apartment Rent Ordinance (SJMC Section 17.23, Parts 1 through 9)			
<b>ASCE 41</b>	<i>Seismic Evaluation and Retrofit of Existing Buildings</i> (ASCE/SEI 41-17). The next edition is expected to be approved for publication in late 2023.			
<b>Cal OES</b>	California Governor’s Office of Emergency Services			
<b>CEBC</b>	<i>California Existing Building Code</i>			
<b>Chapter A4</b>	Appendix Chapter A4 of the 2022 (or latest) edition of the CEBC, titled “Earthquake Risk Reduction in Wood-Frame Residential Buildings with Soft, Weak or Open Front Walls”			
<b>CRMP</b>	California Residential Mitigation Program			
<b>DRAH</b>	Deed-restricted affordable housing			
<b>EOP</b>	Emergency Operations Plan (San José, 2019)			
<b>FEMA</b>	Federal Emergency Management Agency			
<b>FEMA P-807</b>	<i>Seismic Evaluation and Retrofit of Multi-Unit Wood-Frame Buildings with Weak First Stories</i> (FEMA P-807, May 2012)			
<b>HMGP</b>	Hazard Mitigation Grant Program			
<b>HOA</b>	Homeowners’ association (applies typically to a condominium development)			
<b>HSC</b>	<i>California Health and Safety Code</i>			
<b>LHMP</b>	Local Hazard Mitigation Plan			
<b>NOAH</b>	Naturally occurring affordable housing			
<b>PBCE</b>	San José Department of Planning, Building & Code Enforcement			
<b>P-807</b>	See FEMA P-807			
<b>SCI</b>	Specified Capital Improvement (as used in the ARO)			
<b>SFHA</b>	Special Flood Hazard Area			
<b>SJMC</b>	<i>San José Municipal Code</i>			
<b>TPO</b>	Tenant Protection Ordinance (SJMC Section 17.23, Part 12)			
<b>WFTS</b>	Wood-frame target story			
<b>WFTS types</b> (see also Figure 1.1.3-1)	2SO	Two sides open	LSO	Long side open
	3SO	Three sides open	OS	Open story
	CW	Cripple wall	SSO	Short side open
	EBP	End bay parking	ROG	Room over garage

## Definitions

The following explanations are not formal, legal, or consensus definitions. Rather, they are plain language descriptions of how these terms are generally used within this report, and they are intended only to simplify and clarify the report for readers. Where the same term is used in a reference, the definition from that reference applies.

**Affordable housing** Using Federal government guidelines, housing where the monthly cost (rent or mortgage, plus utilities) is not more than 30 percent of the tenants' monthly pre-tax income. Where the specific tenant is not known, housing planners and developers sometimes define the term based on area median income.

Housing experts distinguish two types of affordable housing: Naturally occurring affordable housing (NOAH) and deed-restricted affordable housing (DRAH). DRAH is more closely regulated and is tracked by the City and/or County.

In San José, some DRAH housing regulations reference this definition from SJMC Section 17.23.110: “ ‘Affordable Rental Unit’ means each Rental Unit that is owned or operated by any government agency, or any individual Rental Unit for which the Rent is limited to no more than affordable rent, as such term is defined in California Health & Safety Code Section 50053, for lower income households pursuant to legally binding restrictions recorded for the benefit of a government agency. ...”

**Apartment** Rental housing in a multi-unit building, tracked by the Santa Clara County Assessor as Use Code 03 (“Three and Four Family”) or 04 (with subcategories).

**Condominium (or condo)** A unit, or a multi-unit building comprising such units, generally assumed to be owner-occupied, tracked by the Santa Clara County Assessor as Use Code 06. Owners of individual units in a condominium building often act through their HOA.

**Deed-restricted affordable housing** See *affordable housing*

**Incentive** Incentives are ways in which a city (or other institution, such as a lender or insurer) can share the cost of work that would otherwise be voluntary. Incentives are normally implemented through a defined program with eligibility, prioritization, and compliance rules, much like a mandatory program. Positive incentives can be administrative – such as technical assistance, project expediting, or policy exemptions (waivers from triggered or future work) – or financial – such as fee waivers or rebates, insurance premium discounts, or subsidies or rebates of actual design and construction costs. Positive incentives applied to mandatory programs are no longer incentives (since the work is already required) but can be thought of as “sweeteners” or facilitators, as in Table 3.4.1-1. Negative incentives can include disqualification from related programs or from post-earthquake assistance for owners or buildings that do *not* retrofit.

<b>Multi-unit</b>	Having three or more units. This is based on the <i>California Building Code</i> and <i>California Residential Code</i> definitions of <i>dwelling</i> as a 1- or 2-unit building (often cited as “1- or 2-family”)
<b>Naturally occurring affordable housing</b>	See <i>affordable housing</i>
<b>Open front</b>	A common description of a WFTS condition characterized by a perimeter wall line generally lacking in-plane seismic force-resisting elements. The term is qualitatively defined in ASCE 41 but is not used in the Tier 1 checklists. The term <i>open-front wall line</i> is defined in Chapter A4, but essentially all Bay Area WFTS programs use the broader (and equally judgment-reliant) term WFTS.
<b>Pass through</b>	The portion of an owner’s project cost transferred to rental tenants in the form of a rent increase. In ARO-regulated buildings, pass through amounts are limited. See Section 4.2.
<b>Rebate</b>	The portion of an owner’s retrofit project cost reimbursed through the City’s FEMA-funded hazard mitigation grant. Some jurisdictions refer to these reimbursements as grants or subsidies; the City has chosen to call them rebates in the context of its WFTS mitigation program.
<b>Rent registry</b>	The City’s listing of rents for ARO-regulated apartments, described at <a href="https://www.sanjoseca.gov/your-government/departments-offices/housing/landlords-property-managers/rent-registry">https://www.sanjoseca.gov/your-government/departments-offices/housing/landlords-property-managers/rent-registry</a>
<b>Soft story</b>	<p>A structural condition variously defined as an irregularity for purposes of new building design (by ASCE 7), as a seismic deficiency for existing building evaluation (by ASCE 41), and as a type of wall line subject to retrofit (by Chapter A4). As an engineering term, a “soft story” condition can exist in buildings of any structural system or material, use or occupancy, or age.</p> <p>The term is also used in the vernacular and in policy (including retrofit ordinances and regulations) by policy makers, mitigation planners, the media, and the public to mean the set of buildings defined for purposes of a specific mitigation program. In this context, a “soft story building” usually means a residential wood-frame building of a specified size (stories or number of units) and age, with a recognizable collapse-prone lower story deficiency, such as a defined “soft story,” “soft wall line,” or WFTS.</p> <p>To avoid misunderstandings caused by the non-engineering use of this engineering term, and to avoid problems caused by its various engineering definitions, essentially all Bay Area mitigation programs (as well as this report) use the term WFTS and WFTS building instead.</p>



<b>Target story</b>	<p>As defined in multiple Bay Area WFTS program provisions and regulations, and as proposed for San José: Either (1) a basement story or underfloor area that extends above grade at any point or (2) any story above grade, where the wall configuration of such basement, underfloor area, or story is substantially more vulnerable to earthquake damage than the wall configuration of the story above; except that a story is not a target story if it is the topmost story or if the difference in vulnerability is primarily due to the story above being a penthouse or an attic with a pitched roof.</p> <p>Identification of a <i>target story</i> requires engineering judgment.</p>
<b>Townhouse</b>	<p>A style of multi-unit residential building common among San José’s condominium buildings, in which units are arrayed side by side, not stacked. Like the <i>California Residential Code</i>, which defines the term as a building with three or more <i>townhouse units</i>, this report uses the term to mean a particular configuration or style of building.</p> <p>See Section 3.2.2 and Figure 3.2.2-1.</p>
<b>Weak story</b>	<p>See <i>soft story</i>. The same definition and explanation apply, with <i>weak</i> substituted for <i>soft</i>.</p>
<b>WFTS building</b>	<p>A building with a suspected WFTS condition. At the inventory stage and throughout this report (and until confirmed by an appropriate evaluation or screening process), any WFTS building should be understood to have a <i>suspected</i> WFTS condition because the identification of the WFTS condition has not involved a site visit, drawing review, material testing, or calculation, some, or all of which are normally necessary for a confirmed assessment.</p> <p>A WFTS building can have any use, size, or age, but in the context of this report, the term may be understood to mean a multi-unit residential building, typically built before 1990. In many cases, the phrase “pre-1990 WFTS” is used for clarity, but in some cases the age is not stated but should be understood from context as referring to the buildings that are subject to the City’s planned mitigation program.</p> <p>As a non-engineering term, “WFTS building” is preferable to “soft story building” because it avoids conflation with the engineering definitions of “soft story.” Thus, <i>WFTS building</i> can be used to reference a building subject to a certain program, code provision or regulation – that is, also meeting the criteria for use, size, and age.</p>
<b>WFTS unit</b>	<p>A residential unit in a WFTS building. All of the units in a WFTS building are WFTS units, regardless of where in the building they are located. Since a WFTS is a condition that applies only to whole buildings, “WFTS unit” can be easily misunderstood, so the term should be used and understood only as a convenient shorthand.</p>

**Wood-frame target story** As defined in multiple Bay Area WFTS program provisions and regulations, and as proposed for San José: A target story in which a significant portion of lateral or torsional story strength or story stiffness is provided by wood-frame walls.

Identification of a *target story* requires engineering judgment.

See the list of WFTS types at “WFTS types” in the table of abbreviations above and Figure 1.1.3-1 for examples.