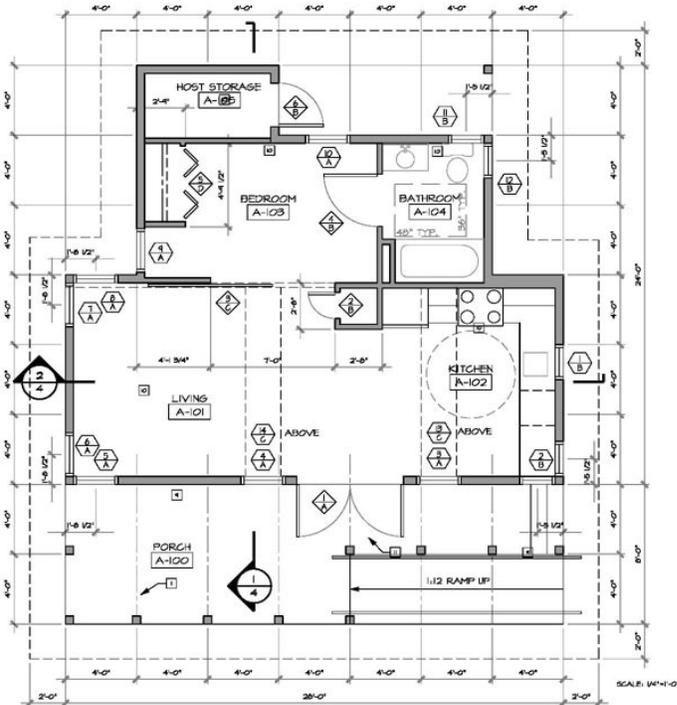


PRE-APPROVED designs



Written and research conducted by
Anastasia Koutalios and Natradee Quek

Small Housing BC | December 2017

WHAT WE EXPLORED

PREFACE	3
1. INTRODUCTION	5
2. THE WHAT, HOW, WHY & WHY NOT OF PRE-APPROVED DESIGNS	6
a. What are pre-approved plans?	6
b. Types of pre-approved designs	6
c. Opportunities & challenges	6
3. PRE-APPROVED PLAN DEVELOPMENT	8
a. Engagement methods, including pros & cons	8
b. Pre-approved considerations	9
4. PROTOTYPE COMPLEMENTARY STRATEGIES & INCENTIVES	10
5. CASE STUDIES	12
a. Sacramento and its infill home plan program	13
b. Santa Cruz and accessory dwelling unit (ADU) prototypes	15
c. Portland, contest, streamlined approval process and permit-ready plans	17
d. Kelowna and use of approved plans through its infill challenge	19
e. Edmonton's Infill Design contest and its design criteria and guidelines	21
6. LESSONS LEARNED & RECOMMENDATIONS	22
7. CONCLUSION	26
a. General conclusion & recommendations	26
b. Recommendations for City of Maple Ridge	26
c. Recommendations for City of Nelson	27
8. APPENDIX	28
A. City context	29
B. Build forms: Typologies & processes	30
C. Case studies, in-depth: Sacramento	32
D. Case studies, in-depth: Santa Cruz	33
E. Case studies, in-depth: Portland	35
F. Case studies, in-depth: Kelowna	36
G. Case studies, in-depth: Edmonton	38
H. Additional references	40

PREFACE

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EXECUTIVE SUMMARY

Pre-approved designs have been used at the city-level to encourage the development of accessory dwelling units (ADUs) as part of a greater infill or small housing program.

As part of this research, we examined five case studies:

- The City of Sacramento and its infill home plan program,
- The City of Santa Cruz and its accessory dwelling unit prototypes,
- The City of Portland’s contest, streamlined approval process and permit-ready plans,
- The City of Kelowna and use of approved plans through its infill challenge, and
- The City of Edmonton’s infill design contest, and its design criteria and guidelines.

In theory, pre-approved designs can contribute to more ADU uptake. Prototyped plans are often, however, married with other permitting and cost-saving incentives that have shown to be a direct catalyst to greater infill development. For example, the City of Portland went from less than 15 ADUs through pre-approved plans, then to 35 to 40 units per year without them to over 400 once robust incentives were applied [see case study].

All case studies, however, demonstrated the same findings: financial and time-saving incentives were the biggest factors in increasing the number of infill housing units produced, with or without templated plans. That said, prototyped designs, if built around a larger strategic plan, can play an effective role in promoting the benefits of infill densification, ADU design and construction and community preferences to key stakeholders.

Based on this research, Small Housing BC (SHBC) suggests the City of Maple Ridge develop its own three-pronged approach that includes a performance-based criteria/system¹, an incentive program and a communication plan; and that the City of Nelson do the same, but focus on the latter two points only. Furthermore, here are our proposed city-specific plans:

The City of Maple Ridge could see greater benefit from a performance-based strategy and incentive package than pre-approved designs. As such, Small Housing BC recommends the city form an internal working group to draft its triple-package. Should the city wish to still do pre-approved plans, SHBC suggests it develop them in-house with industry stakeholders selected through an invite-only request for proposal/qualification process, or purchase previously-built detached garden suite designs from the community, tailor them to the new criteria and license them out as future offerings.

The City of Nelson would like to use pre-approved plans as a way to engage design and building stakeholders into the city planning process. In this light, SHBC suggests that the City of Nelson create an interdisciplinary steering committee (similar to its housing forum) to enhance its small housing strategy through prototype designs. It advocates that the city launches an invite-only regional contest with the goal of creating a design lookbook, from which several designs will be shortlisted and developed as part of a greater living lab/pilot project program. This method will test the effectiveness of the new incentives and the appetite/preference for pre-approved designs in the community, and to refine the plans before offering them to the public for use. (See Conclusion for recommendations.)

Case study overview

City	No. of approved prototypes	Method of development	No. of winning designers	Designs, cost to city	Designs, cost to builder	Other implemented strategies
Sacramento	4	RFQ/RFP	2	Firm-owned designs	\$1850 USD	Approved house plans were made more energy efficient and accessible
Santa Cruz	7	RFQ	7	\$10-12,000 per designer & one at \$0	\$15 USD for set plan book (8.5 by 11-inch version)	Development fees waived for low-income households, Development incentives to build ADUs, ADU manual, ADU financing, ADU prototype plans
Portland	2	Through contest lookbook	2	\$20,000 (prizes, total)	\$0 to builder, \$500 USD royalty per use	Permit in less than 10 days Waived service development charges (\$3000)
Kelowna	2	Contest	2	\$5,000 (prize, each)	\$4900-\$5000 CAD	Waived development charges (\$1300) Permit in less than 10 days, RU7 zone for pre-approved designs
Edmonton	0	Contest	12	\$15,000 (prizes, total)	N/A	Flag lot pilot program to rezone 3 lots in mature neighbourhoods

¹ Performance-based criteria applies less to design and more to the performance of the building, as it meets affordability, but more often, sustainable and environmental thresholds such as reaching a particular energy or greenhouse gas inventory (GHGI) intensity metric. (See Sections 4 and 6 for more details.)

1. INTRODUCTION

Small Housing BC (SHBC), a Vancouver-based registered society, is supporting the cities of Maple Ridge and Nelson to explore the expansion and revision of their respective detached garden suite and detached secondary dwelling unit (or laneway²) programs, to result in greater uptake of smaller forms in their communities. In doing so, both municipalities are open to introducing new forms to their offerings; this includes prefabricated modular and container units and tiny houses, in addition to wood-framed units and garage conversions. Through this process, Maple Ridge and Nelson are individually reviewing existing policy, conducting industry and public engagement events, and determining their best way forward. As part of this approach, they want to investigate whether the use of pre-approved plans could support an increased uptake of infill housing in their cities. (See Appendix A for city context on both municipalities.)

The goal of this research is to explore pre-approved prototypes as they pertain to city planning and from what we read, heard and saw, and outline city-specific recommendations—whether such plans have a place in the City of Maple Ridge and Nelson given their unique community needs, municipal goals and industry and market forces.

As part of this research, we examined five case studies across North America, to get a better sense of why they decided on pre-approved designs, how they developed them and whether they were successful in achieving their set goals through their implementation. We also looked at several of the cities' accessory dwelling unit (ADU) programs, more generally and at a high-level, and outlined changes that were made to zoning through ordinances or bylaw amendments to allow for pre-approved plans or to expedite uptake of the program overall. (For zoning details pertaining to each case study, see Appendix C through G.)

We have reviewed policy, municipal documents, contest briefs, online resources, and have conducted interviews with city planners, designers, builders, developers, researchers and other housing professionals from across North America (see Preface). We thank them for their time and expertise.

The case study and official community plan (OCP) review was conducted by Natradee Quek, a graduate student in the School of Architecture and Landscape Architecture at the University of British Columbia. We are grateful for her invaluable contribution.

Lastly, we thank the planning staff at the cities of Maple Ridge and Nelson for embarking on this shared and iterative journey with SHBC.

Let's begin!

Anastasia Koutalianos
Project manager, Small Housing BC

² To clarify: A laneway house or accessory dwelling unit (ADU) is a detached dwelling, separate from the main single-family home, but on the same lot. It is typically placed in the backyard. A secondary suite, however, is a separate unit but within the principal house. A basement suite is a type of secondary suite.

2. THE WHAT, HOW, WHY & WHY NOT OF PRE-APPROVED DESIGNS

a. What are pre-approved plans?

For the purpose of this research, a [pre-approved design or prototype](#) is a set or series of design and construction plans developed for purchase (by the city or designer(s)) that have been tailored to meet the parameters of a [particular municipal infill program](#). In the context of housing, the plans' style, function and production are informed by key stakeholders (city staff and council, industry and the public) to meet municipal regulations, objectives and strategies outlined in the community's housing and official plans.

Pre-approved plans are *one* mechanism, often implemented in conjunction with other strategies and incentives, that cities can employ to expedite the permitting and construction of certain types of housing, in this case accessory dwelling units (ADUs). In doing so, they can streamline the development process and reduce cost and time inefficiencies for staff, homeowners, builders and developers by adopting architectural designs that have been vetted and pre-approved by municipal staff.

b. Types of pre-approved designs

Pre-approved designs are available over the counter at city hall, as a library offering [Roanoke, Virginia], or used once and then put on file for future reuse with less review time and waived fees [Residential Basics Program in King County, Washington]. That said, here are a few types of pre-approved designs:

- Design ideas addressing neighbourhood fit and incorporating digestible density, but not set to criteria (Portland, OR)
- Basic building plans³ (Kent County, WA)
- Permit-ready designs (Sacramento, CA and Portland, OR)
- Pre-reviewed designs, with some variations allowed and a how-to manual (Santa Cruz, CA)
- Pre-approved designs (Kelowna, BC)

Example: City of Portland | *Excerpt from* https://www.huduser.gov/portal/casestudies/study_101711_1.html.

To streamline the approval process, the city designated the plans as [permit ready](#)—plans pre-approved by the city council that have already passed life, safety, and structural review. The permit-ready plans can only be used for lots measuring less than 36 feet wide and located outside of historic and conservation districts. Developers can purchase building permits and receive plan sets free of charge with the assurance that the plan will be approved, but if the developer changes the exterior, the design would no longer be permit-ready and would be subject to normal review processes. Developers can make changes to the interior floor plan, but the architect must first approve the modifications.

Completed site plans for *Living Smart* homes are eligible for review under the city's [fast track](#) program. Under the program, developers with eligible projects can receive housing permits within 10 working days, saving them both time and money. Although most standard fees apply and vary according to the size and scope of the project, applicants receive a 50 percent discount on bureau of development services charges related to plan reviews and inspections. Portland also provides residents with [estimated fees](#) for *Living Smart* homes. [See case study for current information on this program.]

c. Opportunities & challenges

There are two distinct camps on prototypical architecture: ones who love pre-approved designs for their ease of use and streamlining potential, and others who see their merits, but think they are cumbersome, prescriptive and deprive a community of diversity and creative homebuilding. Here are some of the pros and cons to pre-approved designs:

Pros —

Tools for learning and engagement

1. Prototypes can be used as a learning and communication tool to explore and experiment with new and/or alternative forms while testing municipal policy and procedure; also, a testing ground for the performance, maintenance, flexibility and buildability of a particular prototype
2. Expedite a city's decision-making process by focusing feedback on specific visuals over hypothetical designs; easier to sell an idea if it's 3-dimensional
3. End-users can test the prototype and improve the design through future iterations

³ According to Kent County in Washington state, a basic plan is a house design pre-approved for construction. It allows for variations but too many options and you'll need another basic plan; for example, an additional garage, cantilevered floor area, basement, bonus room over the garage and different roof lines. Plans still require review and approval to move forward. See <https://www.kentwa.gov/Home/ShowDocument?id=7665>.

4. Allow teams to experiment and fail without too much added cost; relatively inexpensive experimentation
5. Can serve as an effective engagement tool as local designers and builders are brought into the design process

City-specific

1. Can create housing specific to the community and neighbourhood's needs
2. Can match visual aesthetic with design and municipal policy and regulations
3. Can provide a number of plans for various contexts, and outline their use in a how-to manual
4. Can be refined to include different features and variations
5. Can enhance heritage retention

Possible savings in time & costs

1. The pre-approved designs have already been vetted by the city, and thus, help reduce processing times
2. Pre-approved plans could contribute to more affordable housing for the owner-builder by reducing or eliminating initial design costs

Cons —

Not addressing the right issues

1. Pre-approved designs focus on the design of the home, which is not the biggest cost or barrier to greater ADU uptake, rather than exploring more challenging components, such as processing and zoning concerns
2. Pre-approved designs alone cannot guarantee greater uptake, and often require further incentivizing and financial waivers (potential loss of revenue to the city, unless objectives for the plans are met)

Design shortfalls

1. Prototypes can lead to similar looking homes that lack in diversity and artistic imprint; potential for too much of the same, creating generic-looking neighbourhoods
2. Pre-approved plans undercut designers by removing them out of the design equation of the home, as design costs are factored into the plans themselves
3. Hard to apply to diverse topologies and terrains
4. Homeowners inherently want choice in exterior finishes and interior layout, making it hard to create plans that meet all needs and tastes
5. Difficult to apply learnings to a prototyped design without changing the overall plan; thus, plans can lack flexibility and adaptability
6. Temporary solution, with plans often expiring within 1-5 years⁴

Expected costs

1. Designs require a high-level of trial and error (and research and development), in that you must run several iterations of the plans before the process is streamlined, which could mean more variations, variances and staff time
2. Dedicated city staff cost in terms of time and resources required to develop the program, connect with industry, create plans and marketing materials, and conduct public engagement around the plans and their promotion
3. If plans are designer-owned, they can subject to the open market and can be sold at any rate

⁴ Timelines are set as a way to mitigate future risk should zoning and code changes come into effect, or as a fail-safe mechanism should preferences change or the program not succeed, after which the plans will not be guaranteed by the city.

3. PRE-APPROVED PLAN DEVELOPMENT

a. Engagement methods, including pros & cons

There are several ways to create pre-approved designs: in-house (in this case by city staff) or by engaging design and building professionals through:

- contests or
- calls for submissions including expressions of interest (EOI) or requests for proposal/qualification (RFP/RFQ).

We will explore the latter two in more detail.

Contests —

There are three types of design-related contests: open, invited or limited.⁵

- **Open contests** allow for the broadest range of ideas, and can be limited to the local market or region, or open to international submissions. An open contest can have several stages: one for first-round entries, and a second for shortlisting designers or designs and possibly developing an invite-only process. Open contests can include a winning prize or commission, or provide a royalty on design(s).
- **Invited competitions** typically require the sponsor to invite a small group of designers and/or architects, perhaps three to five, to address their design needs. Competing firms or individuals are paid a fair and equal fee for the cost of their work. A winning design is chosen with the help of a jury or clearly defined criteria.
- **Limited contests** restrict the number of licensed architects and/or designers who can compete. This approach can favour a national, regional or local market over a wider contest. The sponsor would decide how to limit the choice of applicants (based on area or location) and choose whether to run one or two-stages. The first-stage could include a concept design; the second, a shortlist of candidates and a more developed design.

The Royal Architectural Institute of Canada (RAIC) defines “an architectural competition as a method of obtaining a design solution to a sponsor’s requirements that relies on a process which is fair and equitable to all stakeholders [raic.org].”⁶ There are two categories that apply to this definition: endorsed or non-endorsed.

- **Endorsed competitions** include a professional advisor, jury and is endorsed by a recognized association of architects (AIBC), with the winning architect receiving a commission.⁷
- **Non-endorsed contests** do not require an advisor, jury or endorsement. It may or may not include a commission for the winner.

Open and limited competitions for building projects, including site-specific or prototype designs, require an endorsement only because most provincial associations of architects prevent their members from participating in contests that have not been approved. Invite-only architectural contests fall outside of this rule.

Here are pros and cons to contests as a mechanism to elicit ideas or designs, more generally:

Pros —

- Relatively inexpensive to run (minus dedicated staff time and resources), with funds mainly allocated to prizing and/or honorariums
- Bring forward a broad range of schematic explorations
- Generate ideas that otherwise may have not been considered by city staff
- Create new professional relationships and innovative construction
- Can recruit seasoned professionals and emerging talent
- Promote municipal mandates and strategies
- Showcase and promote architectural talent through marketing materials and future outreach
- Can serve as a tool for marketing and recruitment of the program and sponsor’s goals

Cons —

- Require dedicated staff time and financial resources to develop, create marketing materials⁸, and promote
- Potential issues in working with winning designers that are out-of-province or the country

⁵ See <https://www.raic.org/raic/competition-methods>.

⁶ See <https://www.raic.org/raic/architectural-competitions-%E2%80%93-introduction>.

⁷ It would take anywhere from one to three months to apply and receive endorsement from the Architectural Institute of British Columbia (AIBC), the provincial association of architects in BC. There is no cost associated with the endorsement other than the time to write letters and create the necessary support material. A professional advisor is typically paid \$1000-2000 [Sean Ruthen, AIBC chair].

⁸ What to include in a contest brief: <https://www.raic.org/raic/competition-brief>.

Calls for submission —

Another approach is a multi-round limited or invite-only call for submission through an expression of interest. This could be followed by an RFP, RFQ and/or design-service agreement. Here are their pros and cons:

Pros —

- Cities are already familiar with how to draft and circulate an RFP or RFP, and manage the process
- Can stimulate local economy and support regional talents, builders and developers
- Can leverage current relationships and build new ones

Cons —

- Time and resources to develop documentation and support materials
- Can limit competition to local talent and/or companies already known by the sponsor
- Can be overwhelmed with aesthetic bias and preconceived notions
- Agreements require funding in advance, and could run up to \$25,000 per supplier/designer⁹ to make it financially viable and interesting for firms to apply

b. Pre-approved considerations

In addition to creating prototypes that are set to specific criteria and within a neighbourhood or city context, here are a few considerations applied to pre-approved designs that other municipalities have implemented or explored:

→ Ownership

- Designs can be owned by the city or the designer, or a combination of both. In this case, the city owns the designs (through awarded prize money) but provides the designer a royalty for each use.

→ Cost

- The cost of the plans can be free (as in the case of Portland, OR with its *Living Smart* contest, see case study) or charged per use. The City of Sacramento charged \$1850 USD for plans [see case study]; whereas one of the winning designs out of Kelowna charges \$4900 for his plans [Shane Styles, *Inhabitat Residential*¹⁰] and the other, \$5000 [Architecturally Distinct Solutions]. If the designer owns the designs, they can theoretically charge as much or as little as they want, which may impact the affordability of the program.

→ Expiry date

- Some cities have put an expiry date on the designs, after which they can no longer guarantee expedited process or the incentives associated with them at the time. Typically, cities apply a two to three-year timespan on pre-approved designs. Timelines are set as a way to mitigate future risk should zoning and code changes come into effect, or as a fail-safe mechanism should preferences change or the program not succeed, beyond which the plans will not be guaranteed by the city. It does beg the question: will the cost of the program (including staff time) balance out the expected outcomes and uptake from the plans themselves?

→ Zoning or pre-zoning

- Some cities, such as Kelowna, have applied a pre-zoning requirement to pre-approved designs, allowing them only in particular zones (in its case, the RU7 zone). This limits the zone in which the designs can be built and acts as a building lab or pilot project zone. Other municipalities have limited the number of units that can be built in a particular neighbourhood, to prevent too many of the same in one area. Other considerations include heritage preservation, and allowing only certain prototypes in areas designated protected, or not at all.

⁹ As quoted by Horizon North.

¹⁰ More on the Kelowna infill example and designer contact details here, <https://www.kelowna.ca/our-community/planning-projects/current-planning-initiatives/infill-housing-and-ru7-zone>.

4. PROTOTYPE COMPLEMENTARY STRATEGIES & INCENTIVES

Pre-approved designs are often coupled with complementary strategies and incentives to further encourage the use of the plans, and in turn, address the objectives or criteria the designs hope to meet. For instance, greater densification in existing single family neighbourhoods, affordable housing, neighbourhood fit and so forth. Here are a few options cities can explore at the municipal level to generate further uptake in the pre-approval process.

- Density bonuses
 - By meeting certain criteria related to sustainability or affordability, the builder may be awarded additional square footage, gross floor area or height. An example would be an energy performance metric to measure the impact of a building on carbon emissions.
- Fast-tracking
 - Expediting process through time-saving options, such as a building permit in 10 days like at the City of Kelowna. Kelowna also doesn't require architectural drawing approvals to begin the permitting process, which could save time.
- Rebates
 - Could be tied into long-term affordable strategies, where if the homeowner were to rent out his/her laneway house at a market or below-market rate over a particular length of time, he/she could get a rebate on permitting or process fees, or waived property taxes; would require signing an agreement between city and homeowner. The city benefits in that the affordable homeownership strategy is passed onto the homeowner rather than staff.
- Relaxations
 - Could lower requirements to meet high-level key objectives. For example, a hybrid model for on-site and street parking, whereby the homeowner pays for the street parking through a permit pass which is applied to his/her property taxes directly, or use of parallel street parking, to reduce the number of overall parking spaces required [City of Vancouver]. Other examples include relaxing servicing and municipal collection requirements if the builder can prove he/she has an adequate composting system or is using a rainwater filtration system for fire protection.
- Pre-zoning
 - Permitting pre-approved plans in particular zones only, to lessen variations and variances, based on known lot sizes and site specifications, as with the RU7 zone in the City of Kelowna.
- Performance-based
 - This incentive applies less to design and more to the performance of the building, as it meets affordability, but more often, sustainable and environmental thresholds such as reaching a particular energy or greenhouse gas inventory (GHGI) intensity metric. It is worth noting that small homes may be challenged to achieve higher thresholds of the BC Energy Step Code¹¹ while maintaining affordability, given their smaller footprint. However, key performance metrics can still be highly pertinent for the construction and build of an ADU, as it pertains to the envelope, structure and materials used. In addition to advancing sustainability, performance-based systems can also privilege other municipal priorities such as heritage preservation. For example, if an ADU were to meet key municipal objectives, the said building might be granted the ability to stratify and sell.

Example — Santa Cruz

The city adopted a green building standard. New ADUs (not conversions of existing spaces) are required to meet green building prioritized permit processing. Conversion of existing space into an ADU is required to meet minimum green building points plus 15 additional points (2014).

→ Waived fees or rebates

- Often received in exchange for something else, and are best tied with performance metrics that clearly articulate the criteria for eligibility of full or partial waived fees or rebates. These can be awarded at the design, development permit or home occupancy phase.

Example — City of Kelowna

By using one of two pre-approved plans in the RU7 zone, development charges are waived [\$1300, see case study].

Example — City of Portland

Waives all servicing costs including water, sewer, transportation and park fees (totaling \$17,000-\$20,000 per unit, or roughly 10% of construction cost; ADUs typically sell for \$150,000) [Shawn P. Wood, City of Portland].

¹¹ More on the BC Energy Step Code, <https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards/energy-efficiency/energy-step-code>.

Example — City of Santa Cruz

Property owners sign an agreement with the city committed to making their ADU a low-income unit, and in doing so, all development fees associated with the ADU are waived. However, there has been very little uptake of this incentive (and none in the last 1.5 years), as homeowners know that they can get market or above-market rents [Rachel Grothe, City of Santa Cruz].

Another approach is to build the incentives into the development of the pre-approved process. For example, the City of Kelowna gave the prototype designers a development process incentive as a reward.¹²

¹² See more on the Kelowna example here, <https://www.kelowna.ca/our-community/planning-projects/current-planning-initiatives/infill-housing-and-ru7-zone>.

5. CASE STUDIES

We looked at five case studies, in cities across North America, to see how pre-approved designs were created and used in their jurisdictions. Here is why they chose that route and how they went about using them in their municipalities:



D2N-PROTOTYPE DETACHED, TWO-STORY, NEW

Image from Santa Cruz's how-to manual, sourced from Google

68

a. **Sacramento and its infill home plan program**

Program name: Pre-approved infill home plan program.

Year(s): 2006, upgrades in 2009 [see Appendix C for timeline details].

Lead(s): [Not found].

Committees and partners: City of Sacramento community development department, City of Sacramento Planning and Design Commission, Sacramento Municipal Utility District (SMUD), Solar Smart and Home of the Future programs and Sacramento Housing and Redevelopment Agency.

Problem: Numerous small and irregularly sized vacant infill sites throughout the city.

Solution: To increase investment in established neighbourhoods, and thus reduce vacant lots, by upholding new designs through a pre-approved infill housing plan program that could equally streamline the approval process for development and support quality infill construction.¹³

"The City-sponsored Pre-Approved Infill House Program was launched in 2006 to promote quality development on the numerous small and irregularly sized vacant infill sites throughout the City. The program encourages quality infill by using pre-approved building plans to streamline the development review process, thereby reducing development costs. While the program originally targeted the Oak Park and Del Paso Heights design review districts, it was implemented citywide (except for the Central City, historic districts and Planned Unit Development (PUD) areas) due to the popularity of the program."
—Excerpt from New Pre-Approved Infill House Plans, 2011

Pre-approved prototypes: Yes.

How they did it: RFQ/RFP process, open to architects.

Process: Two firms (Piches Architecture and Easton Architects¹⁴) were selected and worked to create pre-approved plans; four plans were chosen for the program (two from each firm), though one was removed as it did not comply with building bylaws at the time (Plan D).

Designs¹⁵:

- Plan A: Cottage with coach gate by Piches Architecture
- Plan B: Bungalow by Piches Architecture
- Plan C: Bungalow by Cynthia Easton Architects
- Plan D: Cottage by Cynthia Easton Architects (removed from use in 2008 since it did not meet design ordinances adopted by council in 2007)

Design ownership & copyright: Plans are owned by the designers. [According to Easton Architects website, the plans are no longer guaranteed as pre-approved but still available for purchase.]

Cost of designs to city/builder: Cost unknown to city; plans were purchased directly from designers for \$1850.¹⁶

Incentives or fast-tracking: Pre-approved plans streamline development review process by waiving all design review fees, reducing residential plan review fees by 50% and decreasing impact fees by as much as \$7000.¹⁷ [See Appendix C for details on changes to zoning and bylaws.]

Outcomes & conclusions —

- The architecture firms continued to work on creating plans for the city. As the city adapted its program or the building code was adjusted, new house plans were created.
- From 2007-2011, 15 pre-approved homes were built, despite the poor economy and slow housing market during that time; the program was expanded since its launch and is now city-wide (originally, it was limited to

¹³ Please note: Information from Sacramento's program is no longer on the city's website. This may be in response to new ADU laws passed by the State of California, effective January 1, 2017. These changes can be found here: <http://www.hcd.ca.gov/policy-research/docs/SummaryChangesADULaws.pdf>.

¹⁴ Designers: Piches Architecture, David Piches, architect, 115 Taylor Street Roseville, CA 95678, (916) 783-4624, www.architecturebypiches.com/dpiches@surewest.net; Cynthia Easton Architects, Ida Clair, architect, 4532 Freeport Blvd., Sacramento, CA 95822, (916) 453-1505, www.eastonarchitects.com/ida@eastonarchitects.com. Note: The two winning design firms have consistently worked with the city since 2006.

¹⁵ For all designs, see http://www.sachcc.org/docs/shcc_cityofsac_infillhouseplan_brochure_4-17-09.pdf and <http://www.saccountyinfill.net/Documents/FINALInfillModelHomePlanProgramdocLIDupdate4-1-13.pdf>.

¹⁶ The City of Sacramento charged \$1850 for plans; the county of Sacramento implemented the same program and charged \$2250 USD. See https://www.sachcc.org/docs/shcc_cityofsac_infillhouseplan_brochure_4-17-09.pdf and <http://www.saccountyinfill.net/Documents/FINALInfillModelHomePlanProgramdocLIDupdate4-1-13.pdf>.

¹⁷ See https://www.sachcc.org/docs/shcc_cityofsac_infillhouseplan_brochure_4-17-09.pdf.

the Oak Park and Del Paso Heights design review districts). This suggests an interest and market for ADUs in Sacramento, or at a minimum, a way to incentivize greater uptake.¹⁸

- The pre-approved plan program proved successful [as stated on the city's website, however, we cannot speak to how it was successful]. At this point in time, information cannot be found on the city's infill plans, while registered house plans continue to be part of the City of Sacramento's development strategy.
- In 2009, in partnership with SMUD and SHRA, sustainable and accessible initiatives provided grant money for the program and shaped housing forms with environmental and social considerations.

¹⁸ See http://sacramento.granicus.com/MetaViewer.php?view_id=28&clip_id=2727&meta_id=369077.

b. Santa Cruz and accessory dwelling unit (ADU) prototypes

Program name: Accessory dwelling unit development program.
Year(s): 2003-ongoing [see Appendix D for more timeline details].

Lead(s): Carol Berg, housing and community development manager and Norm Daly, housing programs coordinator, City of Santa Cruz.

Committee: Housing and Community Development Division (3-member team).

Problem: A city-wide housing crisis, and desire to improve the ADU process for homeowners.

Solution: To develop off-the-shelf-ready designs to 1) facilitate the development of well-designed ADUs in the City of Santa Cruz, 2) help minimize the impact of population growth on the community by providing more rental housing in the developed core of the city, 3) promote infill development to help preserve the surrounding natural greenbelt, and 4) foster the use of public transportation within the city. The City of Santa Cruz provided homeowners with tools such as manuals, prototypes, and financial assistance to encourage residents to become mini-developers of ADUs and essentially guide residents through the process; the ADU plan sets book contained seven ADU prototype concepts designed by local and regional architects and an ADU manual containing a step-by-step guide on how to plan, design and obtain permits for an ADU. Funding for this program was provided by a Sustainable Communities grant from the California Pollution Control Financing Authority.

Pre-approved designs: Yes, but referred to as “pre-reviewed” rather than “pre-approved” designs for liability reasons [Carol Berg, City of Santa Cruz].¹⁹

How they did it: RFQ process

Process: Seven local and regional architects²⁰ were selected through an RFQ process. Each designer was assigned a specific type of dwelling (see below), using a specific site for each typology to keep the process as real as possible. The drawings were off-the-shelf-ready, with the exception of an added site plan required. These prototype concepts were outlined in the ADU plan sets book; however, “[d]ue to the changes in the zoning ordinance and the California building code [in the mid-2000s], these publications and drawings have been provided to serve as examples of typical Accessory Dwelling Unit layouts, and not as construction documents.” [cityofsantacruz.com]

Designs²¹:

- Single storey ADU utilizing prefabricated components
- Detached ADU over existing garage
- Single storey ADU facing alley
- Alley ADU utilizing alternative materials and techniques
- Garage ADU conversion
- Storey and a half detached ADU
- Detached ADU over garage

Design ownership & copyright: City-owned.

Cost of designs to city/builder: Originally, the city paid each designer \$10,000 through grant funds. When it was clear that wouldn't cover costs, the city allocated roughly another \$2000 to each designer by reallocating funds from the grant; the garage conversion prototype was done gratis by a local architect who was also on city council. The plan set book (the 8.5 by 11-inch version; a larger version was printed too but had less uptake) cost \$15 USD and could be purchased from the city. No fees were charged for use of the plans; however, it is unknown how much homeowners would have had to pay to get the plans customized for their ADU development [Carol Berg].

Incentives or fast-tracking:

- Accessory units proposed to be rented at affordable rents as established by the city, may have development fees waived,
- The covered parking requirement for the primary residence shall not apply if an accessory dwelling unit is provided,
- Three parking spaces may be provided in the front or exterior yard setback under this incentive with the parking design subject to approval by the Zoning Administrator. The maximum impervious surfaces devoted to the parking area shall be no greater than the existing driveway surfaces at time of application. Not more than 50% of the front yard width shall be allowed to be parking area,

¹⁹ Building code changes in the mid-2000s ended the plans being shelf-ready; however, they were never guaranteed. Each plan set had disclaimers printed over them. The plans themselves required modifications and updates, and someone qualified to sign-off on them before they could be submitted [Carol Berg].

²⁰ For all designers and their contact information, see <http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/programs/accessory-dwelling-unit-development-program/adu-prototype-architects>.

²¹ See ADU manual, <http://www.cityofsantacruz.com/home/showdocument?id=8875>.

- For a parcel with a permitted accessory dwelling unit, required parking spaces for the primary residence and the accessory dwelling unit may be provided in tandem on a driveway. A tandem arrangement consists of one car behind the other. No more than three total cars in tandem may be counted towards meeting the parking requirement, and
- Developments involving residential units affordable to low or very-low income households may apply for a waiver of the following development fees:
 - Sewer and water connection fees for units affordable to low and very low income households,
 - Planning application and planning plan check fees for projects that are one hundred percent affordable to low and very-low income households,
 - Building permit and plan check fees for units affordable to very-low income households,
 - Park land and open space dedication in-lieu fee for units affordable to very low income households,
 - Parking deficiency fee for units affordable to very-low income households, and
 - Fire fees for those units affordable to very-low income households.

Outcomes & conclusions —

- Carol Berg notes that a strong political will was pivotal to the success of the ADU development program.
- Carol Berg recalls three out of the seven prototypes being built.
- ADU manual written by RACE STUDIO, Public Architecture, and Peterson architecture to assist homeowners in implementing their own ADUs. (including lease agreements, step-by-step process for homeowners).
- Plan Sets Book: Originally could be purchased as working drawings, but recent changes in state legislation/building codes have made these plans as examples of layout only; sold approximately 800 at-cost manuals, so there is an appetite (within two years of the program launch).
- Financial assistance provided to homeowners but proven not to be successful, people tended to refinance their houses and build in ADUs.
- Santa Cruz's ADU program has won national awards from the American Planning Association, the American Institute of Architects and the United States Environmental Protection Agency.
- By incentivizing homeowners as developers, and creating the tools for residents to go through the process, Santa Cruz's ADU program has been very successful with implementation. Working with design professionals to create manuals and prototypes was a large piece of this, along with the efforts of the planning department to change zoning and other considerations (utilities, parking) in order for ADUs to be implemented.

Lessons learned

- Speaking to the current ADU program: Reducing minimum lot size has allowed for more units to be built. Encouraging the conversion of structures has had a big impact too, as well as the state-wide code changes. Currently, if you were converting an existing structure, say a garage, you don't have to install fire sprinklers if the main house has them; the water connection is also waived if you are converting a structure that was been legally built [Rachel Grothe, City of Santa Cruz].
- Currently, the city has an affordability requirement for fee waivers in place. A property owner can sign into an agreement with the city to provide a below-market long-term rental, and as a result, get certain fees omitted. However, uptake isn't high as there is greater incentives to rent at higher prices [Grothe].
- There is debate whether pre-approval is worth it in the long-run. In theory, they can be helpful but a lot of the city's homeowners that want to build an ADU aren't architects and designers, so they can get easily overwhelmed with the process. That said, there hasn't been much opposition. Most builders are in their 60s and want an ADU to house their kids. [Grothe]
- Relaxing the net lot area to 10% has increased uptake of the ADU program. Before their lots were considered too small. Now, a 5000-square-foot lot can have a 500-square-foot unit on it; units are typically built to 500- to 800-square-feet [Grothe].

c. Portland, contest, streamlined approval process and permit-ready plans

Program name: Living Smart: Big Ideas for Small Lots.

Year(s): 2004, approximately 6 months [see Appendix E for more timeline details].

Lead(s): Shawn P. Wood, construction waste specialist; prior lead on pre-approved plans on narrow lots, City of Portland.

Committee(s): An advisory team composed of builders, architects, and neighborhood residents helped city staff define the competition parameters.

Problem: Narrow-lot homes (25-foot wide) provided affordable housing options for many of the city's low- and median-income families, as well as first-time homebuyers. However, because these homes were architecturally incompatible with existing neighbourhood residences, community opposition to their development grew.

Solution: To address neighbourhood concerns and ensure an adequate supply of affordable single-family homes, Portland initiated the Living Smart Program in 2003. The contest's goal was to create an ADU ideas book and relax development standards. To encourage creativity, the competition allowed "permissive development standards" for the designs, including exemptions from certain zoning code requirements. In 2005, the city's commissioner spearheaded the creation of two permit-ready, high-quality designs for "skinny-lot" houses on small, infill lots from the two winning designs from the contest.²²

Pre-approved prototypes: Not initially; permit-ready plans were developed two years after the contest
How they did it: Ideas contest; open to international architects and design professionals.

Process: Living Smart was not a traditional contest; it was intended to source out designs to create an ideas book, hence no design criteria or guidelines accompanied the brief. In 2006, the commissioner (and respective team) chose two designs (one of which was a People's Choice winner from the ideas book), to have them made into permit-ready plans.

Designs²³:

- https://www.portlandonline.com/bds/Living_Smart_Design_Excellence_Monograph.pdf
- <http://www.fhzal.com/competitions/LivingSmart/LivingSmart-Catalogue.pdf>

Design ownership & copyright: City-owned with \$500 royalty to the designer for every plan that was built.

Cost of designs to city/builder: Each designer (2) was awarded \$10,000; designs were free to the public.

Incentives or fast-tracking:

- Free designs, permit in 10 days and a break on permit fees to do with design review and construction of the house by 50%, a \$3000 saving (2006-2007); if the exterior of the house was changed in any way, the plan was no longer guaranteed and all benefits were null and void, and
- Today, over 400 ADU are built in Portland per year, a big jump from just 35 to 40 units in early 2010. Much of this has to do with the city waiving all system development charges (sewer, water, transportation and parks), which today amounts to a \$17,000-20,000 savings. This waiver has been renewed three times: 2010-2013, 2013-2016 and 2016-2018 (ends in July 2018). An 800-square-foot ADU costs roughly \$150,000, so that's a savings of more than 10% of the total construction cost [Wood].

Outcomes & conclusions —

- 426 submissions from 22 countries
- Publication of two design catalogues: *Designs of Excellence* (ideas book of 49 designs on narrow lots) and *Portland Catalogue of Narrow House Designs* (21 designs specifically suited to Portland's neighbourhoods)
- In 2005, two of the four People's Choice award winners were contracted by the city to develop their designs into permit-ready plans:
 - Bryan Higgins' design was 1400-square-feet on three levels with three-bedrooms and two-baths; no garage included, and
 - Trent and Roxanne Vargas Greenan, a 1532-square-foot house with three-bed and bath and a garage.

Note: Neither design met zoning requirements. The city council approved necessary amendments to the zoning code in 2006 to allow for construction, including an exemption from off-street parking requirements.

- So far, 14 homes have been built using Living Smart designs (most were spec houses; one was built by a homeowner). Sale prices for these homes vary by location; a cross-section of homes have been sold at prices ranging from \$290,000 to \$400,000.

²² Excerpt taken from <http://www.fhzal.com/competitions/LivingSmart/LivingSmart-Catalogue.pdf>.

²³ Designs were by Bryan Higgins, Portland-based architect and LEED AP, and Trent and Roxanne Vargas Greenan.

- The Living Smart program has been successful in balancing the development of narrow lots, infill housing and preservation of community character. In 2006-2007, the city began working with two other designers featured in the Portland catalogue to produce additional Living Smart designs that were more modest and affordable; however, the poor economy and lack of financial resources forced the city to temporarily suspend these plans. [Excerpt, see footnote 21.]
- With the Living Smart program, the city is poised to promote residential infill development well into the future. Adding design prototypes to the program that are more affordable to build will boost the city's goal of developing more small houses to meet the need for entry-level housing.

Lessons learned

- Designs were created without affordability as one of the contest's objectives, and it started to show. Had the city been more familiar with the parameters, and used standard dimensions and reduced waste throughout the construction process, the program would have been more successful, in terms of number of units built [Shane P. Wood, City of Portland]
- One of the shortlisted houses was very expensive because it was highly customized. The city ended up having a lot of variances and variations to cut back costs. Out in the field, people were straying from the plans to lower costs. Hence the city changed its approach; if the facade was changed, no incentives were given [Wood].
- [Why permit-ready?] The city could only control so many incentives; it couldn't pay people to build ADUs but it could offer free plans. Plus, the stock plans are inexpensive and the competition isn't very high. So the city opted for free plans [Wood].
- Having a contest with relaxed standards and open design criteria creates for more interesting designs. But if you actually want to build it, you need to have cost in mind, be it total cost or dollars per square-foot. Some of the ideas in the lookbook would have cost a few millions of dollars to build. It's good to have a round of competitions, from innovative to more practical units, that are affordable and off the shelf [Wood].
- The city could have offered more variations, and hence more flexibility, within the same plan. For example, vertical or horizontal siding, or different roof pitches [Wood].
- The amount of effort from an administrative perspective to run a contest is big. Working with the designers. Procurement, payment. That's the caution. It looks good on paper but someone will have to put staff and money to it [Wood].
- We would have liked more uptake but the recession hit and had to reevaluate the effort spent [Wood].
- It's important to educate the public on the benefits of ADUs. The City of Portland's current ADU program offers tours through industry stakeholders. Also, the city developed a video promoting the concept of ADUs and their benefits: aging in place, intergenerational living and rental/income generation. It gives future ADU builders a sense of what to expect. The city equally hosts an annual national ADU summit, Build Small Live Large.
- The city hasn't seen a lot of push back, however, the biggest hurdle is the homeowner acting as the builder and developer. In 2012, the City of Portland ran two surveys related to ADU owners and got a 45% response rate. When asked what they found most challenging about the process, most responded the permitting system. They didn't understand it and found it complicated. Most often, they were homeowners acting as developers. Here are the findings from those surveys:
 - ADU survey: Methodology and data report (September 2013), <https://accessorydwellings.files.wordpress.com/2013/10/adureportfrev.pdf>
 - Evaluation and interpretation of survey of ADU owners, Portland, Oregon (June 2014), <http://www.oregon.gov/deq/FilterDocs/ADU-surveyinterpret.pdf>

d. Kelowna and use of approved plans through its infill challenge

Program name: Infill Housing and RU7 Zone.

Year(s): 2015-ongoing [see Appendix F for more timeline details].

Lead(s): James Moore, [at launch] acting department manager, policy and planning, City of Kelowna.

Committee(s): Infill Challenge Evaluation committee and community panel (21 people drafted, representing diverse groups). Contest was judged by the Infill Challenge Evaluation committee.

Problem: Urban sprawl and the lack of focused development in areas with existing infrastructure.

Solution: The infill challenge design contest acted as a catalyst for infill housing and find new designs for sensitive infill housing. Contest objectives included:

- Respect for context—designs should respect their local and neighbourhood contexts,
- Limit bulk—the bulk and massing of buildings should not dominate surrounding development,
- Positive relationship to the street—buildings should demonstrate an open and positive relationship to the street through front porches and other tools, and
- High-quality open/green space—designs should provide ample, accessible open space for residents.

Pre-approved prototypes: Yes.

How they did it: Contest, modified RFP: online through bidding websites, AIBC, UDI; open design challenge (open to everyone, not just architects).

Process: Ten submissions were received, and two finalists were chosen. Each winner was given a \$5,000 honorarium and was eligible for accelerated processing benefits, such as development and building permits.

Designs²⁴:

- Fourplex by Architecturally Distinct Solutions prototype, <https://distinctsolutions.ca/ru7/> [plans available upon request], and
- Two-storey detached home by Inhabitat Residential prototype, <http://www.inhabitatresidential.ca/infill-challenge-1-1/>.

Design ownership & copyright: Designers own the plans.²⁵

Cost of designs to city/builder: Designs cost \$4900-5000 to use; builders must contact designers directly to use plans.

Incentives or fast-tracking: Pre-approved designs are exempt from development permits (\$1300), and benefit from an accelerated building permit process through a pre-review process (cut back from months to weeks but with the same fee); designs have a lifespan of about 2-3 years, after which they will no longer be guaranteed.

Outcomes & conclusions —

- 10 submissions with two winning designs
- Good uptake of 20-25 projects so far, pre-approved designs only allowed in RU7 zoned (as of December 2017), but much of this has to be with market forces [James Moore, City of Kelowna].
- Good public response due to community outreach measures
- Pre-zoning RU7 was a major move. The pre-approved designs are in a zone that can promote urban diversity, and is very flexible. The city applied that zone through the contest, and incited new projects so that the message around rezoning and densification was positive [Moore]

Lessons learned

- Approximately 19 out of 20 or so builds have favoured the traditional fourplex option; the other is a better design but the former is more traditional and therefore has greater uptake.
 - “We developed a scheme that consists of 4 entry-level, 2 storey residential units, all with yards. Because the units back on common party walls, we were able to reduce the number of exterior walls thereby reducing construction costs and creating an efficient building design that is simple and efficient to build.” [Matt Johnston, winning designer, Architecturally Distinct Solutions]
- Pre-approved designs have an expiration date on them, after which they are no longer guaranteed by the city. The city hasn’t implemented a fixed number per zone but is keeping an eye out should there be too many or a lack of neighbourhood fit. The fairness part of that is challenging [Moore].

²⁴ Winning designs by 1) Architecturally Distinct Solutions (with Worman and Byron Douglas, Landscape Architect) and 2) Inhabit Residential (team included Shane Baxter, Baxter Design; Robert Fershau, Landscape Architect; Kelly Meyer, Meyer Designs; Christa Kueber, Christa Kueber Design; Shane Styles, Inhabit Residential); both designers provided 4 units.

²⁵ Only the winning designers can issue their designs with an authorization letter outlining that the plan is in keeping with the Infill Challenge design. The authorization letter also outlines any changes made; the City of Kelowna has established a list of changes acceptable while still qualifying for the fast track process. [Matt Johnston, Architecturally Distinct Solutions]

- One of Kelowna's biggest challenges is refining the process. Building and planning departments are used to fine-tuned machines. The city has done some work with applicants to ensure that what they show us makes the process easier [Moore].
- Strongly recommends working with community groups that will be impacted; get their input as it will help inform future pre-approved designs. The City of Kelowna did outreach with a 20 plus person committee which included city staff and key stakeholders. They met six times and conducted education and review and visioning sessions. The group also met with other community groups and did online engagement and held a public event. There was some nimbyism, but not as much as the city initially thought [Moore].
- Promote design excellence. The city received good designs but they could have been better [Moore].
- Think carefully about where you are going to do the pre-approved plans: strategic zoning and location of infill is important [Moore].
- Incentives are huge. The biggest thing a city can do [Moore].
- Fast tracking is limited to a few designs only; we understand the city may expand additional design options within the winning design parameters but allow for different exterior design solutions, for example, modern interpretations of the winning designs [Johnston].

e. Edmonton's Infill Design contest and its design criteria and guidelines

Program name: Residential infill program.

Year(s): 2013-ongoing [see Appendix G for more timeline details].

Lead(s): Trevor Illingworth, planner, City of Edmonton.

Committee(s): Residential infill approvals team, community infill panel, infill compliance team, and infill liaison team.

Problem: Infill will change the city and impact the look and feel of residential neighbourhoods.

Solution: To form a productive conversation around infill. This began with a public engagement process called Evolving Infill in 2013 (which led to a two-year action plan, *Edmonton Infill Roadmap*), and later launched an infill design competition to source prototype ideas to further the dialogue around smaller forms

Pre-approved prototypes: No. (Currently there is no pre-approved design strategy in place. Homeowners/builders must submit an infill development permit, and review guidelines and regulations.)

How they did it: Public consultation followed by an action plan and open ideas competition; architects, architectural technologists, designers, planners, students and creative thinkers among the general public were invited to submit proposals. Judged anonymously. Early online registration fee was \$50, then up to \$100; no registration fee for students.

Process: Public consultation (2013-2014), creation of an action plan (2014-2015), and then a design competition (2016), with an aim "to encourage productive conversations about infill and help the public and development community understand what's possible for infill design." [edmonton.ca]

Designs²⁶:

The four infill design scenarios included:

- Garage or garden suite, retain the existing house,
- Attached housing, semi-detached or rowhouse,
- Single detached house, subdivide the lot in two, and
- Open category, acquire the neighbouring lot.

Design ownership & copyright: Designers own their designs and drawings.

Cost of designs to city/builder: City provided up to \$15,000 in awards including: best in class (\$2000), award of merit (\$1000), best student submissions (best in class, \$2000; award of merit, \$1000). People's Choice awards were based on most online votes with no cash prizes allocated. Designs are not for sale and are not deemed pre-approved.

Incentives or fast-tracking: N/A

Outcomes & conclusions —

- Over 80 submissions, with 12 identified winning designs through the contest
- The competition served to create design ideas and change perceptions of what infill looks like in the city; there is ongoing public consultation and involvement, the competition being just one part of the entire program

Lessons learned²⁷

- Engage early: Participants appreciated the ability to discuss and to provide input on issues early in the process
- Use diverse panels: The needs of developers, community groups and municipal players have to be balanced
- *A Good Neighbour Guide* has helped residents and builders go through the lengthy construction process
- Build support: Work on ensuring that there is broad support internally before going external
- Heritage areas and mature trees can be hot topic issues

²⁶ All design submissions can be found here: <http://www.edmontoninfilldesign.ca/competition-submissions/> and <http://www.edmontoninfilldesign.ca/infill-design-school-program/>. Contest guidelines were as follows: Submissions are to be considered original works of the competitor. The designs and drawings and other forms of representation submitted remain the sole property of the competitors subject to copyright. No direct commission will be awarded to the winners within the context of the competition. The intent is to generate ideas and stimulate discussion. No assumptions should be made that submitted or winning ideas would be implemented in policy, practice or project, either wholly or in part. As this is an ideas competition, it does not entail the actual construction of submitted projects.

²⁷ Taken from best practices guide. See https://www.edmonton.ca/city_government/documents/EvolvingInfillGNG_WEB_apr15_2015_SPREADS.pdf.

6. LESSONS LEARNED & RECOMMENDATIONS

Recommendations for small housing infill programs—

As part of this research, we conducted interviews with experts and professionals in various fields, such as design and construction (wood-framed, modular, container units and tiny houses), city planning and housing, research, and lastly, community engagement (see Preface for all interviewees). Through our discussions on improvements to small housing infill programs, four key recommendations emerged. They can be considered pre-cursors or complementary to a pre-approved design process. They are as follows:

- a. Make it simple for users to build ADUs.

“The challenge with ADUs is that they aren’t developer-driven. They are owned by the property owner and 99% of those seeking to build them aren’t developers. You have to make it easy for homeowners or they won’t do it.”
— Shane Styles, builder and developer, Inhabitat Residential | *Winner of Kelowna’s infill challenge*

Our experts in the US, British Columbia and Alberta are all faced with the same challenge: homeowners acting as both builders and developers, who are often unfamiliar and overwhelmed with city planning and building processes. Thus, they stressed the importance of understanding and developing tools to meet the specific needs of owner-builders.

One way to do this is by creating tools to facilitate leadership in the process and ease of use for applicants. This applies to website instructions, contest briefs, as well as regulations and procedure documentation for the design and construction of infill housing. In the end, delivering *simple* can lead to more ADUs in your community. A good example of this is the City of Santa Cruz’s how-to manual, with foolproof visuals and short snippets of text.

Another great suggestion was to appoint a dedicated staff person to development applications. This approach filters questions through a single stream, and helps to assess what is and isn’t working as the process unfolds. This can provide your city ample opportunity to continuously refine your program, and consequently, reduce staff time and resources.

- b. Integrate a performance-based approach.

By their nature, zoning, bylaws and development codes are prescriptive approaches to shaping municipal housing—defining the size, location, shape, orientation and construction methods involved in building a home. The role of the city, however, is changing, and housing has become a vehicle for more wide-ranging objectives such as affordability, heritage retention and sustainability. In this light, prescriptive pathways may not always be the most effective means of achieving these ends.

Performance-based metrics shape housing by defining the final goal and not the pathway to achieving it. Throughout our interviews, we heard that developers want flexibility to meet city-wide objectives. This leverages their expertise, and ultimately, incents greater innovation. It’s also an approach that greatly aligns with small infill housing. The modest nature of their unit sizes, building methodologies, financial structures and land costs—alongside the owner-developer dynamic—all allow for greater flexibility and more diverse forms.

With this in mind, our experts did share two key points: the importance of communicating your program’s objectives and being clear on how you are defining terms publicly. Your infill program should clearly state what it hopes to achieve to communicate its overall purpose and to track its progress. For instance, housing choice and affordability could be drivers; measurable or smart goals could include total units built over a set period and rental rates for new small homes. In the same vein, clarifying such concepts as *affordable*, *sustainable* or *return on investment* (as it pertains to the homeowner or jurisdiction) addresses any confusion or bias others may have, thus creating an even playing field for your internal and external stakeholders to interpret your approach. In the end, these efforts will help your audiences gain a better understanding of your program and its goals, and how you’ll determine if you have reached them.

- c. Develop an incentive program.

[How has the city profited?] “More density. But the obvious question is who’s living there? If it’s Airbnb, we’ve created more hotel rooms in our neighbourhoods. When we started waiving [system development charges²⁸], it saved the homeowner \$13,000 and now it’s higher [\$17,000-\$20,000]. Now that we’re building hundreds of them, the bureaus are foregoing millions of dollars. We’ll need to look at the loss of revenue. Every time one of those units is built, the system is taxed.”
— Shawn P. Wood, construction waste specialist, City of Portland

²⁸ In the City of Portland, system development charges include water, sewer, transportation and parks.

All our interviewees shared this sentiment: when developing an ADU, builders want to save both time and money. As a result, they suggested investing city resources to develop a robust incentive package that is manageable over the long-term and renewable (through future iterations, if successful) using a combination of the following three incentivizing approaches:

Our first example speaks to incentives that are tied to the actual pre-approved design. Take the City of Kelowna. With plans in hand, a builder is eligible for an expedited development permit in 10 days; without the plans, there is no fast-tracking. By nature, the designs have been vetted by the city and *are* the catalysts for the quicker turnaround.

Secondly, there are incentives that complement the development of ADUs but are separate from the plans themselves. This is the case with the City of Portland. In 2010, it waived all development service charges attached to backyard infill housing, and in doing so, the total number of units built in their community soared.

Let's take a closer look at this example. Through its *Living Smart* permit-ready plans, only 14 units were constructed in Portland. Later, the economy crashed and the program was eventually cancelled (officially in 2013). When the market picked up again, the city saw 35 to 40 units built per year (without plans); and then over 400, once the waived fees were applied. In many ways, these numbers demonstrate a successful program, but at what cost? Shawn Wood's quote (see above) is a bit of a cautionary tale on giving away too much. So how much time and money do you have to save builders or developers to make your program successful, thus ensuring there is enough of a draw or financial incentive that drives more development, without draining city resources? There is, after all, a threshold and fine balance between trade-offs and city performance.

Lastly, there are incentives that are either front or back-loaded. A front-loaded approach waives fees at the beginning, similar to what happens in Kelowna. Whereas back-ended incentives come into play after the development is built, at which point you can assess whether the building has met certain performance-based criteria. For example, upon inspection a developer may be eligible for a full or partial development charge rebate.

Our experts believe that if the incentive package is comprised of diverse time- and cost-saving options, a city won't have to give as much in terms of financial waivers or rebates. Equally, they suggest cities clearly communicate how incentives feed into the greater aspirational or performance goals they are trying to achieve, to bring about more awareness to their infill programs and their general uptake.

d. Develop a public narrative for infill development.

"If you build an ADU for \$250,000 all-in for a 2 bedroom, even with \$0 down, you'd pay \$1,119.09 at 3.5% which includes payment to your principal over a 30-year amortization. In most places, you could rent that out for at least \$1700 a month. Few real estate investments can pay you that."
— Devon Siebenga, president, Honomobo

ADU construction is mainly driven by homeowners seeking to build a detached unit in their backyards as a house for their children, to age in place or to create an income-generating rental unit to contribute to their household income or as a mortgage helper. In this light, our interviewees spoke to the importance of creating a public narrative and communications strategy that leverages the particular motivations of small housing developer-homeowners.

We heard that internal staff buy-in and coordination was a strong indicator for success. Municipal staff will be responsible for fielding questions, reviewing plans and designs, and inspecting buildings. Jurisdictions that prioritized internal and cross-departmental communications were more successful at offering effective support to owner-builders. It also gives municipal staff the opportunity to identify and voice challenges or inconsistencies regarding the new or revised infill program throughout its development, and in doing so, refine the end-result and improve their own understanding of the program.

Another key recommendation our advisors shared is telling the story around infill housing, and advocating for a broad-based strategy. Explain infill to your community (especially homeowners) and put it in their terms. One designer suggested doing this by answering these pragmatic questions: how does it work, why does it work, why does it matter, where can it be applied, and how can they do it—ultimately showcasing the multiple scenarios or opportunities ADUs can resolve or provide for individual property owners. If the narrative around ADU doesn't exist in your community, could it be why ADU uptake is currently low? Are homeowners, and residents generally, not clear on why they should care? These are points our interviewees suggested exploring.

Lastly, we heard the value in showing infill housing's good face to the public. Consider hosting tours (sponsored by the city or industry stakeholders), workshops and open houses or developing a video, similar to the cities of Portland and Edmonton. These are some ways to draw your citizens into the process and make your program more accessible, visual and experiential, and increase buy-in. We also heard how imperative it is to engage local industry and community partners into the conversation around smaller forms. They have valuable insight to share with you, strong network and a genuine interest in seeing more affordable and accessible housing in your municipality. Both Edmonton and Kelowna were thoughtfully strategic in bringing diverse players to the table around the conversation of infill, which resulted in more public support and program awareness.

Developing pre-approved designs—

In addition to overarching recommendations regarding infill programs, interviewees had specific advice on the development of pre-approved designs. Here is what they shared:

“People are building ADUs and they like the idea of building something small, custom and unique. Would pre-approved designs fly in the face of this? People often want a contemporary design while their main house is more traditional. Ask the public: how wed are we to specific designs, where the specific design is what is pre-approved?”
— Shawn P. Wood, construction waste specialist, City of Portland

Initial assessment

- Know your demographics and ADU end users. Gain a better understanding of your community and who wants to build an ADU and why. Are they wanting to age in place or a house for their children? Do they want a vacation rental or to offer long-term affordable housing options in your community? Are they set on building their own customized home? Ultimately, you want to determine whether pre-approved designs could address their needs and wants.
- Do it, only if it makes sense in your city. Don't feel married to pre-approved plans if they don't suit your community or add value to your bottom line. Design costs are not the major obstacle to ADU uptake; in fact, they are typically less than 10% of the overall cost to construct (on a home valued at \$200,000). Consider running a survey or hosting an open house to measure the appetite for plans, or spending more effort on revising antiquated zoning bylaws or other identified barriers to greater ADU uptake in your municipality.

Designers

- Pay designers fairly. The time involved in creating plans is greater than most money prizes. Make it worth the effort for top firms and professionals to be involved in your project.
- Give back and more. If running a contest, consider ways winning or shortlisted designers can communicate or cross-collaborate with their peers; and make the contest process as public as possible. It's promotion for the artists as well as the city.
- International contests are great for prestige. But if you want plans that can be built, and are structurally sound and set to local codes, narrow down your criteria; and consider working with local designers and engineers.

Plans

- Leverage local experience. Find a company or builder who has already constructed a laneway house in your community that could have mass appeal and be applied in several zones. Buy the design and license it out.
- Standardize your plans. When creating pre-approved designs, use standard dimensions and easy-to-source materials. Not only will these efforts lend to a more affordable final unit, they will help reduce waste throughout the construction of the ADU, which is an added program bonus.
- Be imaginative and collaborate. Partner designers with local builders to create pre-approved designs that leverage industry talents while exploring diverse skill sets and connecting to potential new technologies.
- Keep exteriors simple. Most successful ADUs have a traditional exterior, otherwise they get dated quickly. Put more emphasis on interior spaces.
- Build flexibility into pre-approved plans. Can the house, in terms of its function and use of space, adapt and change over time beyond how it was originally envisioned at the time of construction? For example, could the garage be converted into a living space without the need for a new sprinkler?
- Incorporate green into pre-approved plans. Include structural approval and variations into prototyped designs should the builder wish to use green technologies with weight-bearing issues, such as solar panels, or something simpler such as electric car hookup or a greywater filtration system. This could greatly reduce the cost to incorporating technologies into the house later on and help you meet sustainable targets.

Contest

- Be innovative. In a mature city, residents want diversity of form and function. Consider pushing right to building permit and let the market manage the design process.
- Be iterative in your city. Test out assumptions with the public through a living lab process. For example, develop a building bylaw process through a creative RFP (six months), and then explore a prototypical design process, in-house or through external stakeholders (six to 12 months).
- Lead by example. Apply market forces to a constrained civic process. For example, develop pre-approved designs through an RFP process; go public and get input. Choose the top three designs through a steering committee and aim to build 20 homes over a three-year period. All the while, train other builders in the program and then open the process to the larger market and let it grow organically.

- Explore new ways. Identify all the variables that could hinder the uptake of infill development in your community. If you could do it in a more efficient and less expensive way, explore those options. For example, temporary foundations could drastically reduce construction costs. Consider also collaborating with local lenders to discuss financing opportunities, thus lowering market barriers, for new infill homeowners or builders.
- Test new technology with your community. Implement innovative approaches into infill construction over a year period, like a living lab. Get a sense of what it can do for the community and conscript other to explore the form. Then train city staff on how to implement these new options.
- Keep it real. Make the contest as city-specific and relevant as possible. Provide actual site conditions and set it to your regulations as a way to test assumptions and design criteria.

7. CONCLUSION

a. General conclusion & recommendations

This research points to a few trends:

- Pre-approved designs are often part of a greater system of incentives, creating potential for the city, homeowners and builders to save time, and ultimately, construction costs when building an ADU,
- The greatest ADU uptake is attributed more to city incentives associated with the program than pre-approved designs themselves,
- The use of prototyped architecture is secondary to the city identifying its key drivers at both the city staff and council levels, ensuring its approach falls in line with its greater mandate [City of Portland], and
- Educating industry and the public on the benefits of any ADU program, along with city buy-in, is integral to its success.

Pre-approved designs on their own do not guarantee greater uptake of an ADU program; they can facilitate a broader conversation around densification and affordable housing, especially when done through a public tool such as a contest or communications strategy with local industry. It begs the question, if cities, with their limited capacity and resources, should develop pre-approved designs (which can have a short lifespan if an expiry date is applied) over a more in-depth policy and incentive package, and long-term engagement plan?

It is worth noting that many cities didn't foresee upcoming statewide code changes or the recession [City of Portland and Santa Cruz], which halted many of their pre-approved projects. Major market changes could disrupt templated plans while broader communication strategies would only add to overall promotion of infill development. As such, it's worth exploring whether there are upcoming events in your community that could impact a pre-approval design process before it has fully launched or matured.

Still, while pre-approved designs alone will not address all barriers to small housing uptake, in the case of Maple Ridge and Nelson, they could:

- Create leadership in design standards and excellence,
- Act as a tool to engage the public on design preferences, and shared values (heritage retention, neighbourhood fit),
- Support greater awareness of the infill program, which could lead to use of the plans, and thus, more ADU units built,
- Assist in communicating the benefits and multi-uses of small housing across zones, and get buy-in from industry stakeholders, and
- Include and test green technologies and alternative foundation types within the pre-approved process, while meeting standards and regulations set by the city.

b. Recommendations for City of Maple Ridge

The City of Maple Ridge's *Official Community Plan (OCP)*²⁹ seeks to improve housing affordability, contribute to densification, increase the variety of housing options and choice—including rental as well as homeownership, and address sustainability. Maple Ridge identified pre-approved designs as a possible way to address the aforementioned drivers.

If Maple Ridge determines it is in the best interest of its programming to pursue pre-approved designs, Small Housing BC has the following recommendations:

The City of Maple Ridge should form an interdisciplinary/departmental working group.³⁰ As a first priority, the group will develop a performance-based criteria/system³¹ and a robust incentive package that could include a long-term affordability component, cost-saving temporary foundation options and waived or reduced processes and fees. Secondly, the city would create a communication strategy to educate and inform staff, industry and the public on infill development and the detached garden suite (DGS) program, more specifically.

Based on its newly devised outcome-based system, a series of pre-approved wood-framed DGS plans (three to five) could be developed—and all in-house. The working group would work in tandem with local builders and designers (through an invite-only RFP or RFQ process), and use a small cohort of DGS owner-builders to streamline the designs

²⁹ See the City of Maple Ridge's *Official Community Plan (OCP)*, <https://www.mapleridge.ca/316/Official-Community-Plan>.

³⁰ Could also collaborate with existing teams, including the city's design advisory panel and social planning advisory committee. See <http://www.mapleridge.ca/124/Advisory-Design-Panel>.

³¹ The OCP states "Maple Ridge is committed to ensuring that bylaws and regulations are current, and responsive to community issues and needs." [OCP, chapter 3-29].

prior to releasing them to the public for input and refinement, and finally, for use. An alternative approach would be to find three existing DGS homes that have already been built in the City of Maple Ridge, that could be easily replicated across zones, and purchase the designs and license them out as pre-approved designs. From the city's perspective, this would require less research and development, time and resources, and the designs could be more easily tailored to meet the new design criteria.

Small Housing BC acknowledges that not every element of this plan needs to be executed at the same time; however, for best results and learning opportunities, it suggests a multi-year approach.

c. Recommendations for City of Nelson

The City of Nelson's planning staff identified affordability and adding more stock as the most important drivers for expanding its current detached secondary dwelling unit (laneway) program.

It is Small Housing BC's belief that templated plans alone are insufficient to ignite the benefits and objectives desired by the City of Nelson. Considering the city's key housing objectives, it is debatable whether pre-approved designs would provide Nelson residents with less expensive housing options, given the variable and high costs of materials and labour in the region, and the diverse topography and aesthetics within the community; from a cost perspective, prototyped plans save little money, and will ultimately tax city resources. Still, Nelson recognizes the benefit of engaging and supporting its local industry and can leverage prototype designs to do this.

If the City of Nelson determines it is in the best interest of its programming to pursue pre-approved designs, Small Housing BC has the following recommendations:

The City of Nelson should create an advisory group of city staff, builders, designers and owners. Together, they will develop a new design criteria, and run a localized invite-only contest or RFP process with the goal of engaging local talent to create a lookbook of ideas that match the diverse aesthetics and topographies in the city; this mechanism will provide a means of engagement between industry and the city, and later the public and the designs, and will promote the infill program.

The top three lookbook designs will be shortlisted through a public or online voting mechanism and developed into a pilot program, whereby a selected group of interested owner-builders will collaborate in the process, and pay for the development of one of the laneway homes on their properties. This living lab will help to refine the pre-approved plans, all the while, promoting infill development in the community and serving as a tool for learning and tracking progress by city staff. It will also provide a public face to infill development, and give local designers and builders the opportunity to collaborate on how to best source regional materials for the builds and prototypes.

During the RFP and living lab development process, the city will also produce an incentive package and a long-term communication strategy that would include open houses, tours, workshops and panel discussions with industry and city staff, to educate the public on the new infill program.

8. APPENDIX

- A. City context
- B. Build forms: Typologies & processes
- C. Case studies, in-depth: Sacramento
- D. Case studies, in-depth: Santa Cruz
- E. Case studies, in-depth: Portland
- F. Case studies, in-depth: Kelowna
- G. Case studies, in-depth: Edmonton
- H. References

A. City context

City of Maple Ridge —

"The demand for single-detached homes will shift in the future due to declining average household size. Many smaller households will consider other ground-oriented units and apartments to meet their housing needs, particularly if housing prices remain high. There will likely be a significant increased demand for apartments and ground-oriented units such as row houses in the coming decades."

— Excerpt, City of Maple Ridge's *Official Community Plan (OCP)*, 2014

- Within Greater Vancouver Area
- Population is 82,000⁺ (2016)
- Property values on the rise
- The city is pursuing a more contained and densified urban environment (principle 28, Maple Ridge's OCP, 2014³²)
- Many seniors in the area, so aging in place is an important component; families are moving into the area too
- Growing interest from community to build infill housing to allow intergenerational living in both urban areas and in rural zones (acreages) across Maple Ridge
- The community values a wide range of housing choices that provide a variety and mix of housing type, density, lot size, character, tenure, and affordability (principle 29, OCP); housing choice is critical to meeting the diverse needs of current and future residents of Maple Ridge—special needs, singles, young families and an aging population (principle 37, OCP)
- The community recognizes that heritage value must not be lost as enhancements to existing neighbourhoods, including infill and other activities to strengthen neighbourhoods, occur in the future (principle 32, OCP)
- Values the protection of agricultural land reserve (ALR)

City of Nelson —

"This plan outlines a sustainable alternative for residential growth, by calling for a mix of smaller lot sizes, increasing the supply of sensitive residential infill, adding multi-unit residential dwellings within the City's neighbourhoods, and directing higher density, mixed use growth to the Downtown and Waterfront areas. [...] It is generally recognized that the supply of developable land is limited, municipal infrastructure and services should be utilized efficiently, and smaller lots and multi-unit residential development can provide more affordable housing options, as well as requiring less energy. Ensuring that new multi-unit residential development within existing neighbourhoods is designed to respect existing views and be compatible with the scale and character of adjacent buildings, structures and landscaping is critical to its integration. The design and 'fit' of new development and higher density housing in residential areas is a high priority to Nelson residents who want to maintain the integrity of the established neighbourhood character."

— Excerpt, City of Nelson's *Official Community Plan*, 2013³³

- Situated in the West Kootenay region
- Population is 10,200⁺ (2016)
- Limited land area, with diverse topography and terrain
- Encourages residential infill by permitting smaller lot sizes and laneway homes within all residential neighbourhoods (objective no. 15, Nelson's OCP, 2013)
- Wants to provide a diversity of housing options that are appealing, attainable and affordable [over the long-term] to all citizens, of all ages, abilities and income levels (objective no. 04, OCP)
- The city's current housing policy is interested to explore bylaw changes to allow the subdivision of large lots to create small lots, and explore the development of prototypes as demonstrations as recommended by the *Low Carbon Path to 2040: Community Energy and Emissions Action Plan*³⁴
- Wants to support the local economy and maintain the community's heritage and character

³² See the City of Maple Ridge's *Official Community Plan*, <https://www.mapleridge.ca/316/Official-Community-Plan>.

³³ See the City of Nelson's *Official Community Plan*, <https://www.nelson.ca/DocumentCenter/Home/View/227>.

³⁴ See the City of Nelson's *Low Carbon Path to 2040: Community Energy and Emissions Action Plan*, <http://www.nelson.ca/192/Low-Carbon-Path-to-2040-Community-Energy>.

B. Build forms: Typologies & processes

Wood-framed ADUs —

In this context, wood-framed accessory dwelling units (ADUs) are structures that are built on site (or site-built). Most infill homes use wood-framing, with some builders offering prototype designs as well.

This built form allows for the most customization, tailored to the homeowner's needs, and a greater capacity higher quality finishes and greener components due to choice. They are also the only built form that can be constructed by an owner-builder, should they be acting as the developer too.

Pricing will vary and greatly depends on exterior and interior finishes, the builder/developer and location. Strictly looking at construction numbers province-wide, a 600- to 800-square-foot wood-framed unit ranges anywhere from \$120,000 to \$200,000. The unit will also come with an additional \$60,000 to \$80,000 in project costs, which could include infrastructure, fencing, foundation and landscaping; these costs are, however, applicable to all built forms. As the home gets bigger, though, the construction cost doesn't necessarily increase exponentially. A 1200-square-foot home on a slab-on-grade foundation may only add \$35,000 more to the budget (as compared to a 800-square-foot home), with an extra two weeks of work added to the construction schedule [Jake Fry, Smallworks].

A site-build, if well planned, could be completed in 16 weeks but typically takes five to six months across the province—that's from breaking ground to occupancy (assuming building permits are secured) [Fry]. That said, these projects are susceptible to delays and other factors such as the weather, labour (availability and reliability), reliance on municipal permitting, inspections, servicing (which can pause progress, especially in more remote areas) and inexperienced project leads. Other inherent challenges include: neighbourhood disruption, noise, labour working outside in changing weather conditions, which can, as noted, impact the timeline and costs.

Modular, prefabricated & container units —

These terms are often used interchangeably but modular is the process and not the product or design aesthetic. It's a way to build a project. Prefabricated is then something built off-site to specific specifications, which is later transported to the lot and assembled on-site. Prefabricated and container units fall under the Canadian Standards Association CSA-A277 rating³⁵, which is 100% compliant with the BC Building Code.

Prefabricated units can be from wood or metal. [Horizon North constructions are 98% wood-framed.] While container units are made out of shipping containers that were previously used for transporting goods. They are then retrofitted for permanent living. (Note: The steel in containers can be traced to its original use.) Both types can be placed on a temporary or permanent foundation.

The modular industry already uses prototype designs in their process. However, perfecting the system requires a lot of investment and business development. One way to develop a modular pre-approved plan would be to work alongside several municipalities to create a design that could be replicated across jurisdictions; this option would create the most financial sense for a prefab builder to develop suite of city-wide units. Otherwise, modular is still expensive, ranging anywhere from \$300-350 per square-foot [Kadence line, Horizon North³⁶]. Two ways that could reduce cost would be to add a crawl space foundation or put the structure on a temporary foundation, making the asset movable and reconfigurable, should the main house be sold or torn down.

There is a great range between modular builders and their product lines. Horizon North can produce a single box (500-square-feet) in 90 to 120 days, with another 25 days for manufacturing. From factory to site, roughly 145 days plus about 270 hours for on-site scoping and installation. In total, a four to five-month turnaround. If flooring and other products are readily available, best case scenario would be three months. That includes all inspections.

There is a lot of flexibility in this form. For one, it saves time in terms of construction. The real limits are the budget, what can be delivered and what can be transported. Installation challenges could include the truck not being able to access the lot, power lines and wires (both which can be rerouted or go subsurface for a while), and whether there is laneway access, if any. None of these scenarios would stop the project completely but would add more time and cost to it.

³⁵ For more on CSA standards, see the Manufactured Housing Association of British Columbia's report, *Purchaser's Guide to Factory-Built Homes*, <http://www.mhabc.com/pdf/purchasers-guide.pdf>.

³⁶ Honomobo builds container-based modular solutions. It produces a 425-square-foot one-piece home for \$120,000 (M1 model); it is 14-feet wide by 34-feet long. The M2 is \$182,000 and 840-square-feet. The M3 is \$250,000 and 1360-square-feet (launching in spring 2018). Their highest selling model is the H04, a 2-bedroom 700-square-foot space that sells for \$195,000. Units take about 6 weeks to construct plus a week maximum for the install; the M-series will take half the time [Devon Siebenga, Honomobo].

Tiny houses —

Tiny homes are on the smaller end of small housing. Typically, they are less than 400-square-feet, and are either built on a flat deck (chassis) or build off-site and then placed on a temporary or permanent foundation. Tiny house construction is no different than that of a traditional house. It is built with a wood frame (although metal can be used too, as well as metal cladding). Tiny houses have all the basic amenities of a larger dwelling; however, unlike a travel trailer, it is meant for permanent living and can be a moveable asset if on wheels or on a temporary foundation.

Several components to a tiny house make it non-conforming with the BC Building Code. This includes loft areas, ladders, egress, and door width and compost toilets (if off-grid), among others. That said, two CSA standards apply to tiny houses: CSA-Z240 (RV-rating) and CSA-Z241 (park model)³⁷.

Many tiny house builders work from templated designs and in a shop. This allows for more stable costs and estimates for the client, and greater efficiency in terms of material use and less waste. It would be worth exploring whether CSA could approve prototyped tiny house designs, and at what cost.

The construction time on a tiny house will depend on the bells and whistles of the design. That said, a unit that is 10-foot wide by 30-foot long would take approximately three months to build [Ben Garratt, Tiny Healthy Homes]; this would include all inspections, including framing, envelope (wiring, plumbing and mechanical) and the final one. Total construction cost is roughly \$100,000 to 120,000 depending on final finishes and interior. Current demand is for larger units with two-bedrooms and over 400-square-feet (a 10 by 42-foot unit). A similar unit would cost \$100,000, and includes a trailer which runs about \$15,000 [Seth Reidy, Nelson Tiny Houses]. Base models, however, typically around \$60,000.

³⁷ See <http://www.mhabc.com/pdf/purchasers-guide.pdf>.

C. Case studies, in-depth: Sacramento

Process & timeline —

- March 2006: Pre-approved infill house plan program is approved by city council
- 2009: Upgrade plans to comply with bylaw changes to Title 24, in effect 2010
- 2009: Grant from Sacramento Municipal Utility District (SMUD) to upgrade and expand the program to include energy efficient options, then a second grant from Sacramento Housing and Redevelopment Agency (SHRA) to develop many small lots (also took into consideration accessibilities and building to universal design guidelines for mobility/other accessibility considerations)
- January 1, 2011: New state building codes in effect (new mandatory California Green Building Standards Code or CALGreen requirements etc.)
- 2011: Pre-approved infill house plan program available to county
- 2013: Registered house plans approved by planning and design commission
- January 1, 2017: New state-wide ADU laws in effect

Policy & process implementations —

Zoning changes, setbacks, listed by programs, committees involved, bylaws & dates enacted, if available. Implemented post-prototype designs or through the pre-approved design process.

Note: New ADU laws (California). Three bills were passed, with more changes in effect as of January 2017.

- Parking
 - SB 1069 reduced parking requirements to one space per bedroom or unit. The legislation authorizes off-street parking to be tandem or in setback areas unless specific findings such as fire and life safety conditions are made. SB 1069 also prohibits parking requirements if the ADU meets any of the following:
 - Is within a half mile from public transit,
 - Is within an architecturally and historically significant historic district,
 - Is part of an existing primary residence or an existing accessory structure,
 - Is in an area where on-street parking permits are required, but not offered to the occupant of the ADU, and
 - Is located within one block of a car share area (2017).
- Junior ADUs
 - AB 2406 (chapter 755, statutes of 2016) creates more flexibility for housing options by authorizing local governments to permit junior accessory dwelling units (JADU) through an ordinance. The bill defines JADUs to be a unit that cannot exceed 500-square-feet and must be completely contained within the space of an existing residential structure. In addition, the bill requires specified components for a local JADU ordinance. Adoption of a JADU ordinance is optional (2017).

References —

New Pre-Approved Infill House Plans - Report to Design Commission, July 20, 2011
http://sacramento.granicus.com/MapView.php?view_id=286&clip_id=2727&meta_id=369077
Summary of Recent Changes to ADU Laws (California)
<http://www.hcd.ca.gov/policy-research/docs/SummaryChangesADULaws.pdf>
http://www.housingfinance.com/policy-legislation/sacramento-calif-sacramento-pilots-pre-approved-plan-program_o

D. Case studies, in-depth: Santa Cruz

Process & timeline —

- Winter 2002: *Executive Summary for Expanding Housing Options for the City of Santa Cruz* published, with small scale, infill development, ADUs, recognized as a major option
- 2002: ADU ordinance passed, expanding on original ordinance from 1984
- 2002-2003: Seven architects designed seven prototypes (500-square-feet) specific to a variety of site needs
- 2003: ADU manual and prototype plan sets published along with a loan program (with Santa Cruz Community Credit Union and Community Ventures Inc.)
- 2003: AB1866 signed by Governor of California meaning “development of an ADU cannot be prohibited if it meets development standards.”³⁸
- 2004: National Environmental Protection Agency awards Santa Cruz’s infill housing program with the National Award for Smart Growth Achievement
- 2005: Santa Cruz’s ADU program receives national awards from the American Planning Association and American Institute of Architects
- September 5-October 2005: As part of a Women Venture project in partnership with Habitat for Humanity, an ADU is used as part of training for women to gain housing construction skills
- 2014: Minimum size of an ADU lot is reduced from 5000 to 4500-square-feet (2017 California state law permits ADUs on properties of any size in single-family residential zones if the property is within the existing developed footprint)

ADU ordinance regulations —

Setbacks for detached ADUs are as follows:

- The side-yard and rear-yard setback for detached single storey structures containing an accessory dwelling unit shall not be less than three feet in accordance with the Uniform Building Code, and the distance between buildings on the same lot must be a minimum of 10 feet,
- Accessory units higher than one storey shall provide side yard setbacks of five feet and rear yard setbacks of ten feet,
- If any portion of an accessory dwelling unit is located in front of the main building, then the front and side-yard setbacks shall be the same as a main building in the zoning district, and
- Accessory dwelling units are not eligible for variances to setbacks.

Building height and stories:

- A one-storey detached accessory dwelling unit shall be no more than 15 feet in height (2014),
- A one and one-half to two storey detached accessory dwelling shall be no more than 22 feet in height measured to the roof peak,
- An attached accessory unit may occupy a first or second storey of a main residence if it is designed as an integral part of the main residence and meets the setbacks required for the main residence, and
- If the design of the main dwelling has special roof features that should be matched on the detached accessory unit, the maximum building height of the accessory dwelling unit may be exceeded to include such similar special roof features subject to review and approval of the Zoning Administrator.

Policy & process implementations —

Zoning changes, setbacks, listed by programs, committees involved, bylaws & dates enacted, if available. Implemented post-prototype designs or through the pre-approved design process.

Starting with garage units, the city removed the covered parking requirement to facilitate garage conversions.

→ Specifications

- Minimum lot size: 4500-square-feet (2014)
- Max square footage: The floor area of an ADU shall not exceed 10% of the lot area up to a maximum of 1,200-square feet. The floor area for accessory dwelling units attached to the principal single family dwelling shall not exceed 50% of the existing habitable floor area of the principal single family dwelling and not exceed the maximum ADU floor area allowed for the lot (2017)

³⁸ See <http://www.hcd.ca.gov/policy-research/docs/2016-12-12-ADU-TA-Memo.docx.pdf>.

- Open space allowance: The site plan must provide adequate open space and landscaping that is useful for both the accessory dwelling unit and the primary residence. Open space and landscaping provides for privacy and screening of adjacent properties.
- Parking requirements: One parking space is to be provided for each bedroom. Parking for the accessory unit is in addition to requirements for the primary residence.

Exception: No parking shall be required for the accessory dwelling unit if any of the following instances occur:

- The accessory dwelling unit is located within one-half mile of Metro Station,
 - The accessory dwelling unit is located within a historic district,
 - The accessory dwelling unit is located entirely within the existing single-family dwelling or within an existing accessory structure, and
 - When there is a car share vehicle located within one block of the accessory dwelling unit (2017).
- Occupancy: Owner-occupancy is required, however, an adult member of the property owner's immediate family for whom the property owner has court-appointed conservatorship may occupy one of the units. An ADU owner-occupant may apply to the city council to vacate his unit and rent both units on the property (main unit and ADU) for a period of two years with a possible third year allowed by the planning director (2014)
 - Neighbours: A notice of application shall be sent to the immediately adjoining neighbours (2003)
 - Green Building Standards: New ADUs (not conversion of existing space) shall be required to meet green building prioritized permit processing. Conversion of existing space into an ADU is required to meet minimum green building points plus 15 additional points. (2014)
 - Sprinklers: No fire sprinklers are required for an ADU if the existing single-family residence does not provide them or they are not required (2017)

References —

City of Santa Cruz ADU development program webpage: <http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/programs/accessory-dwelling-unit-development-program>
 New ADU ordinance changes 2014, 2015, 2017: <http://www.cityofsantacruz.com/home/showdocument?id=59310>
 UC Berkeley Institute of Urban and Regional Development Conference and seminar material:
<https://escholarship.org/uc/item/7j8588vk>

E. Case studies, in-depth: Portland

Process & timeline —

- 2004: Contest is launched (runs for six months)
Two-phase jury including a panel of experts, displayed for public comment too
 - 50 winners were awarded for design excellence and merit, published in a full-colour monograph
 - Second phase, more locally focused, took 20 of the 50 winners and reproduced them in *The Portland Catalogue of Home Designs for Narrow Lots* (December 2004)
 - Two of the winning designs were made into permit-ready plans, available to the public at zero cost; worked alongside architects to fix drawings into viable construction plans; one is 1400-square feet, the other is 1532-square feet
- December 2004: Reception open to the public at the American Institute of Architects gallery
- October 2006: Construction begins on five units using the permit-ready designs
- In 2007: The recession hit and staff was pulled in new directions, and the bureau was split
- Between 2007 and 2010: 14 units were built
- In 2013: The Living Smart program was officially written off the books

Policy & process implementations —

A blanket exception was given to all components with regard to the two permit-ready plans that were non-compliant from a code standpoint.

References —

https://www.huduser.gov/portal/casestudies/study_101711_1.html
https://extension.ucdavis.edu/sites/default/files/living_smart.pdf

F. Case studies, in-depth: Kelowna

Process & timeline —

- June 2015: Kelowna city council first endorsed the overall strategy for the infill challenge
- Spring/summer 2015: A community panel was assembled and met twice; working with the panel, staff created the rules of the infill challenge competition and defined the criteria against which submissions would be evaluated
- November 2015: A memorandum on the progress of the competition was provided to council
- November 12, 2015: The Infill Challenge competition officially opened
- January 11, 2016: The competition closes, ten submissions were received from interested parties throughout the province; each submission is reviewed for general compliance with the BC Building Code. Where deficiencies were found, an opportunity was provided to make the necessary revisions
- March 1, 2016: The first meeting of the evaluation committee was held; the committee shortlisted three of the ten submissions for further review, with comments and suggestions were provided to the three shortlisted submissions
- April 6, 2016: A second and final evaluation committee meeting was held where the committee decided on the final two submissions to recommend as winners to council

Their approach —

- Contest submission requirements:
 - Must be a new (to Kelowna) form of sensitive infill housing not presently permitted under current City of Kelowna zoning bylaw No. 8000 regulations,
 - Must be designed on the basis of a single lot having a width of 15 metres and a depth of 37 metres, and having lane access only,
 - Must not exceed a maximum density of four (4) units per parcel described in 5.3.1(b),
 - Must provide adequate off-street parking, and
 - Must meet all applicable standards of the current BC Building Code.

Policy & process implementations —

Zoning changes, setbacks, listed by programs, committees involved, bylaws & dates enacted, if available. Implemented post-prototype designs or through the pre-approved design process.

- Zoning details
 - New RU7 Zone: "The purpose is to provide a zone for infill development of a maximum of four dwelling units on selected properties with lane access in the central city." (Stratification is allowed in Kelowna.)
 - New design guidelines implemented after the competition
- Subdivision regulations
 - The minimum lot width is 7.5 metres, except it is 9.5 metres for a corner lot
 - The minimum lot depth is 37.0 metres
 - The minimum lot area is 277.5 m², except it is 350 m² for a corner lot
- Development regulations
 - The maximum site coverage is 45% and together with accessory buildings, driveways and parking areas, shall not exceed 55%
 - The maximum floor area ratio is 0.8
 - The maximum height for residential buildings is the lesser of 8.0 metres or 2 storeys
 - The maximum height for accessory buildings or structures is 4.8 metres
 - The minimum site front yard is 4.0 metres
 - The minimum site side yard is 1.2 metres except it is 3.0 metres from a flanking street. For lots 17.0 metres or wider, the minimum site side yard is increased to 2.0 metres. Side yards are not required for semi-detached housing on a lot line that has a party wall
 - The minimum site rear yard is 0.9 metres
 - Detached dwelling units must be separated by a minimum distance of 2.0 metres
- Density regulations
 - Residential density shall be based on the width of the lot
 - For lots narrower than 13.5 metres in width, up to two dwellings are permitted
 - For lots between 13.5 metres and 15.0 metres in width, up to three dwellings are permitted
 - For lots greater than 15.0 metres wide, four dwellings are permitted

- Where a site has access to a lane, vehicular access is only permitted from the lane; otherwise, vehicular access may be taken from the front yard, or where a property has two street frontages, access shall be taken from the street frontage which is not the front yard

References —

Webpage on Infill and RU7 Zone: <https://www.kelowna.ca/our-community/planning-projects/current-planning-initiatives/infill-housing-and-ru7-zone>

CMHC case study: <https://www.cmhc-schl.gc.ca/en/inpr/bude/agpl/upload/intensification-through-collaboration-kelowna.pdf>

Best practices guide:

https://www.kelowna.ca/sites/files/1/docs/related/infill_challenge_best_practices_guide_spread.pdf

G. Case studies, in-depth: Edmonton

Process & timeline —

- November 2013 -June 2014: Evolving Infill (public engagement process)
- August 2014: Edmonton's Infill Roadmap launched (two-year work plan with 23 actions towards infill)
- 2015: Edmonton Urban Design Awards adds and infill category
- 2015: Residential Infill Approvals Team launched (six planners plus one principal planner)
- January 24 and 27, 2015: Held infill tour and workshop in collaboration between the City of Edmonton, City Region Studies Centre, Infill Development in Edmonton Association and Stantec
- Early 2015: *Infill & Drainage* guide launched
- February 2015: Planning academy launches new infill course
- March 2015: *Evolving Infill Good Neighbour Guide* is released
- January 2016: The infill action insight group (now renamed community infill panel) bi-monthly meetings begin (13 members selected from 70 applicants)
- 2016: Edmonton Infill Design Competition launches (March-October 2016)
- March 2016: Infill compliance team launched (two community standards peace officers and a development compliance officer), created a construction postcard that is now included in development permit mail-outs, on the website and handed out by enforcement officers during inspections
- May 2016: Launched Infill website on City of Edmonton Website, *Worksite Code of Conduct* written (guidelines for contractors and subcontractors)
- June 2016: Construction site management acknowledgement form is developed that outlines best practices for builders when working on infill projects
- Summer 2016: *Residential Infill Construction Guide* is released
- August 2016: Infill liaison team is launched (two principal planners)
- September 2016: *Landscaping: Residential Requirements and Incentives* and *Protecting Your Trees During Construction* brochures are created
- May 29, 2017: Changes made to report *Mature Neighbourhood Overlay*
- August 18-September 1, 2017: Flag lot pilot

Contest details —

- Contest timeline
 - March 3, 2016: Registration opens
 - March 3-April 20, 2016: Early registration
 - May 1: Open for submissions
 - May 31: Registration closes
 - August 31: Submission deadline
 - Mid-late September: Jury review plus one to two-weeks of online voting for the People's Choice awards
 - October 20, 2016: Design awards gala
- Jury
 - David Murray, professional advisor, architect
 - Larry Beasley, juror, planner
 - Anne Cormier, juror, architect
 - Ken Greenberg, juror, urban designer
 - Shafraaz Kaba, juror, architect
 - Brigitte Shim, juror, architect
- Submissions
 - Graphic submission (up to two Arch D boards)
 - Written description (maximum 500 words)
 - Images (minimum five main images on the boards to be submitted individually)
 - Publication release form
 - Proof of academic standing for students

Policy & process implementations —

Zoning changes, setbacks, listed by programs, committees involved, bylaws & dates enacted, if available. Implemented post-prototype designs or through the pre-approved design process.

- Municipal programs

- 2013-present: Evolving Infill
 - 2014: Infill Roadmap, plus two-year work plan with 23 Actions towards infill
 - September 1, 2017: Revised *Mature Neighbourhood Overlay* report, outlining design regulations for older neighbourhoods with tree-lined streets
- Bylaws that were changed:
 - BYLAW 17116 (April 2015): Reduced barriers to developing garden and garage suites, reduced the required width for single detached housing in RF1 Zoned lots from 39.3 feet to 25 feet.
 - BYLAW 17277 (October 2015): Lot grading plans required for all infill development
 - BYLAW 17672 (June 2016): Added landscaping requirements for low density residential development and created incentives for preserving existing trees and shrubs
 - Community Standards BYLAW 17678 (June 2016): Amended to restrict construction noise, increase fines for non-compliance and add detail to existing construction nuisance regulations
 - Traffic BYLAW 17679 (June 2016): Amended to increase fines for construction-related offences such as materials stored on sidewalks and roadways
 - BYLAW 17727 (August 2016): Increased privacy screening regulations, updated window placement and alignment requirements

References —

Edmonton Infill website <https://www.cityofedmontoninfill.ca/>
Flag lot Infill document: <https://www.cityofedmontoninfill.ca/public/download/documents/42650>
 Edmonton *Infill Competition* Brief: <http://www.edmontoninfilldesign.ca/wp-content/uploads/2016/04/Infill-Design-Competition-Brief-v7.pdf>
 The Infill Action Conversation Toolkit
 RF1 (single detached residential zone) and *Garage & Garden Suite Zoning Changes* handout: https://www.edmonton.ca/city_government/documents/PDF/GarageGardenSuites_InfillInEdmonton_2015.pdf
What is Zoning? Booklet: https://www.edmonton.ca/documents/What_is_Zoning_Final.pdf
How to Respond to a Land Development Application booklet: https://www.edmonton.ca/city_government/documents/Respondto_Land_Development_Application.pdf
Mature Neighbourhood Overlay Regulations illustrations booklet: <https://www.cityofedmontoninfill.ca/public/download/documents/16599>.
Mature Neighbourhood Overlay educational video series: <https://www.youtube.com/watch?v=HV8mMhBGgik>

H. Additional references

Other references used but not cited in the body of this report:

<http://mrsc.org/Home/Stay-Informed/MRSC-Insight/July-2014/What%E2%80%99s-Not-to-Like-%E2%80%93-Pre-Approved-Plans-Offer-Fast.aspx>

<https://mountainhousingcouncil.files.wordpress.com/2017/10/santa-cruz-lessons-learned.pdf>

<https://www.multihousingnews.com/post/how-to-design-affordable-small-lot-housing-in-urban-areas/>

<https://iurd.berkeley.edu/wp/2011-02.pdf>

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