New Starter Homes

creating a network of highly affordable, detachable, ownable, 'starter,' smart, tiny homes in Portland.

Last updated: 10 December, 2019.

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A proposal and development project originally created in August, 2018 for submission to the Meyer Memorial Trust's "One Million Month Challenge" grant challenge: to create one million months of low-income housing affordability, at lowest subsidy.

Short link: bit.ly/levitatetown

Latest PDF version (Dec 10, 2019).

Alternative titles:

- PAD Initiative: Portland Autonomous Dwellings for affordable & village detached homes.
- LevitateTown: building a network village of movable, smart, affordable starter homes.

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Overview

1. Project Title

The New Starter Home: Building a network of highly affordable, detachable, ownable, 'starter,' smart, tiny homes, using Oregon Tiny House Code and Accessory Dwelling, Campground, multi-family, and village zoning.

2. Project Summary We envision a large-scale development system for flexible, ownable, affordable starter homes built for low-income Oregonians.

Our novel approach centers on low-cost, expandable homes (or modules making up homes) that can be efficiently prefabricated or built on site; lived in or transported to site on standard road trailers; and anchored for long-term use at various types of site, including on residential property as Accessory Dwelling Units, using a standardized foundation and connector design.

Oregon's new draft Tiny House Code[1] suggests an opportunity for this type of low-cost, space-efficient dwelling (400 square feet or less) to be legally developed, both as movable / trailer-mounted units for non-permanent use, and/or as foundation-anchored units for long-term use.

We aim to work with this Code to develop a model for modular detachable homes, foundations, connectors, financing, permitting, and management of low-cost detachable homes, which could be used in and moved between multiple contexts:

1. Detached Accessory Dwelling Units, i.e. backyard cottages.
2. Mobile housing, eg interim villages for the unhoused, seasonal farmworker housing, units allowed on private property under Portland's legalization policy[2], etc.
   (or in jurisdictions allowing Tiny Houses on Wheels as ADUs, such as Fresno, CA[3]).
3. Long-term housing in high-density site use such as a village model (like SquareOne's Emerald Village, shown in next image below), pocket neighborhood, bungalow court, or mobile-home park.

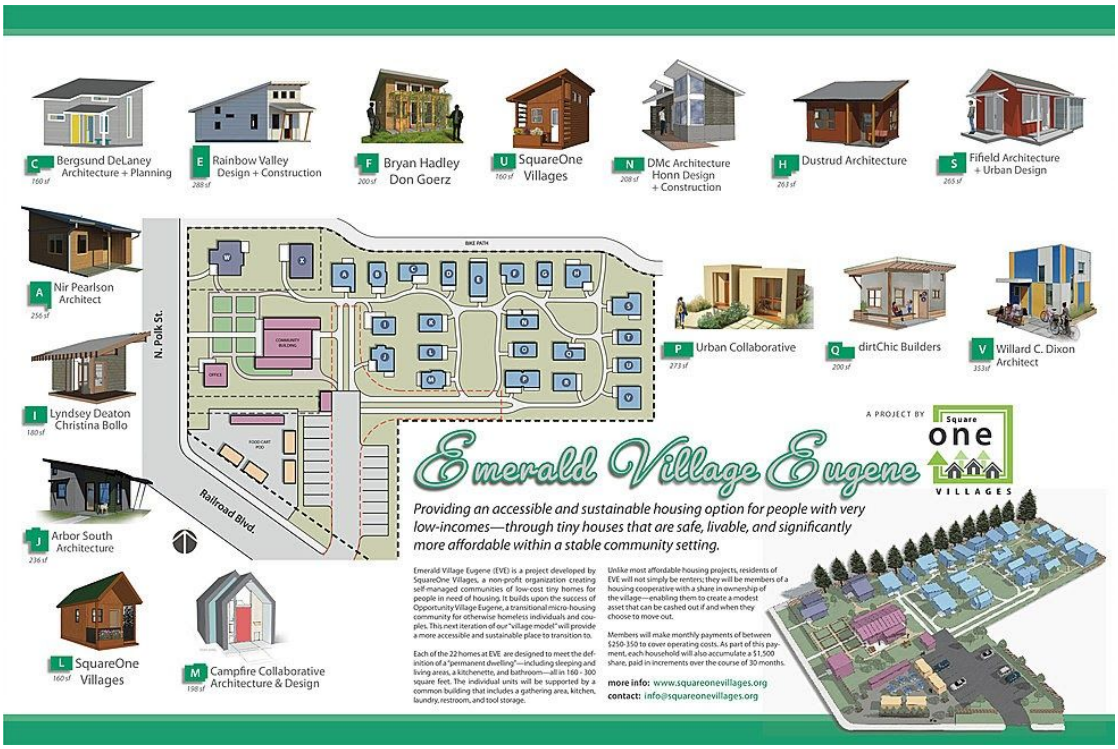
The rationales are similar to what current Portland Planning and Sustainability Commission vice-chair Eli Spivak wrote in "A Legal Path for Tiny Houses on Wheels" (discussion document 2015)[4]:

> *This proposal would legalize a new form of small, safe, low-cost, environmentally-friendly, and discreet housing that furthers important city goals, including:*
> *• Providing affordable rental opportunities for homeless and/or low-income residents requiring little or no public subsidy;*
> *• Supporting extended family and other community living situations that don't always fit*

[1] Oregon Building Codes Division [Aug 1, 2018]
[2] Portland Bureau of Development Services [2017]
[3] American Tiny House Association [2016]
[4] Spivak, "A Legal Path for Tiny Houses on Wheels" (2015).

well within traditional single family homes; and
• Creating opportunities for people to live in the City of Portland with much smaller environmental footprints

[below: SquareOne Villages' Emerald Village, Eugene OR].



Deliverables (see also proposed Project Timeline below):

1. Research reports:
    a. on Oregon Tiny House Code, Accessory Dwellings ordinances, mobile-home park ordinances, village zoning, etc and how these can work together.
    b. Analysis of the vendor and competitor marketplaces: what existing housing products might be used with the proposed system; what competing development models are there (e.g. Dweller startup in Portland, Blokable, Kasita, various Portland ADU developer/designers).
    c. Financial modelling for running a rent-to-own housing network.
2. A Community design process to envision and design prototype units to the code specifications. (building on POD Initiative precedent especially).
3. One or more built demonstration units showing the house and 'Starter Pad' post-style foundation.

Project Location/Geography Served

We propose to focus initially on the Portland area, in order to build upon some unique resources here:

1. The City of Portland's relatively mature and flexible Accessory Dwelling Unit laws and ecosystem.
2. Precedent homeless village projects such as Dignity Village and Kenton Women's Village, which have achieved high levels of official and community acceptance, and useful models such as the "sleeping pod" special building code used in the POD Initiative and subsequently at Kenton.
3. The current de facto legalization of long-term vehicle dwelling on private property, per policy decision of Commissioner Chloe Eudaly.[5] This provides an additional extremely low-cost and flexible deployment possibility.

Meyer "Million Month Challenge" Application narrative questions:

Describe your innovative strategy to achieve 1 million months of housing affordability.

Explain why this approach is innovative or different from currently predominant strategies. If a specific cost-reduction strategy is important to your approach, please describe how you will achieve lower-than-typical costs and what level of savings you aim to achieve (e.g. "We expect to be able to achieve a 15% reduction in hard costs over typical OHCS-assisted projects").

Briefly describe the population(s) your model is meant to serve and how your experience with the specific housing-related issues they encounter has informed your proposal.

Whom do we aim to help?

This program is focused on helping extremely low-income (< 30% AMI) and hard-to-house households (disabled, formerly houseless, etc).

The proposal is designed to address a wide variety of situations across Oregon, and to potentially and hopefully support homes / households moving between those situations, to meet needs and opportunities. For example, a New Starter Home in this program might be initially deployed as farmworker housing, or at an interim housing urban village, but be relocated with its occupants to a backyard ADU or permanent village location. Or, being movable and sellable, a resident with equity interest in the unit might sell it in order to help move to a different situation.

The "New Starter Homes" proposal is also significantly informed by my own experiences of the last 6 years in the Bay Area and Mendocino Co., California,, living in a variety of cottage, informal, movable, and self-built homes -- including, during the last two years, in my own modular kit-built structure inside an Oakland "housing hacker" warehouse within which other residents had also built their own small homes.

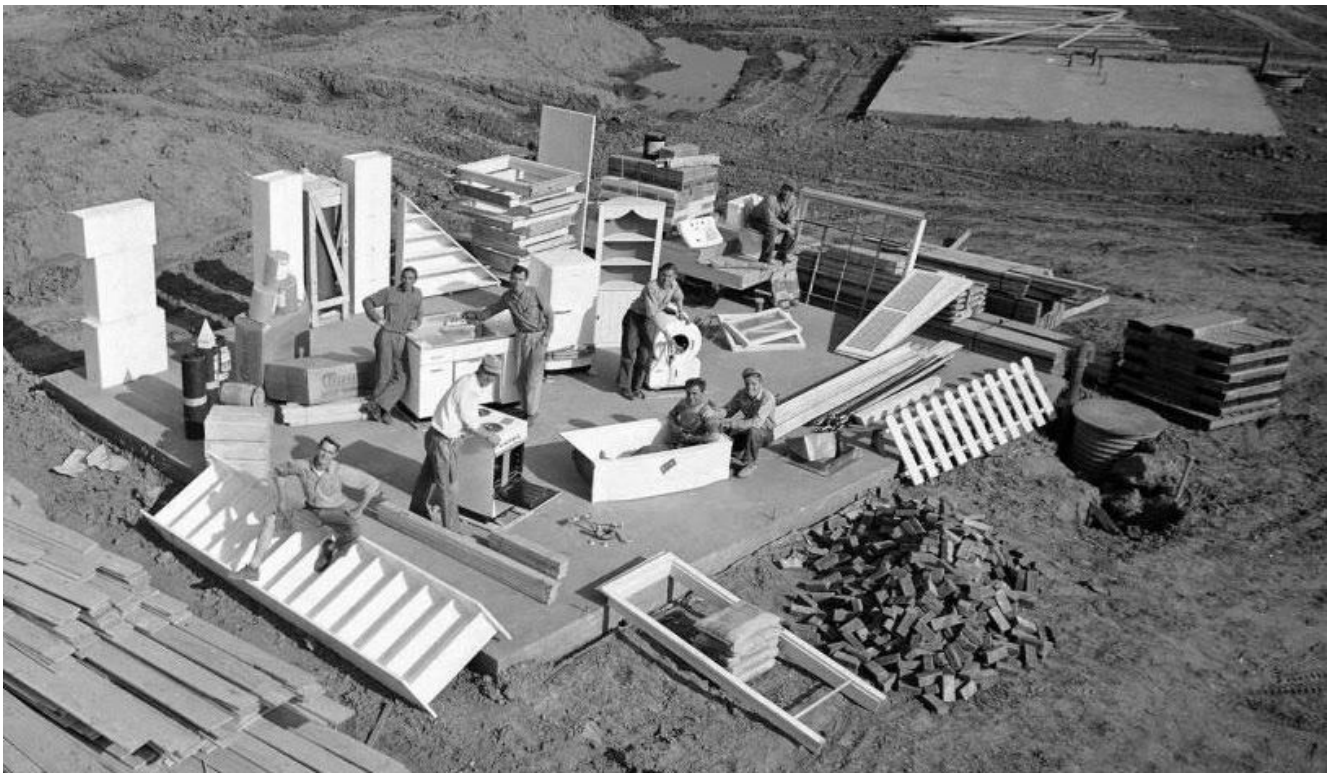
Also, this proposal is informed by my experiences visiting a wide variety of alternative, mobile, manufactured, and village housing sites in Oregon, Washington, California, & Colorado, particularly de-facto permanent sites like Dignity Village and fully permanent sites like Emerald Village, Eugene.

[5] Portland Bureau of Development Services [2017]

From Levittown to LevitateTown

In the proposal we draw on lessons from perhaps the most iconic American 'starter' homes, those in the '**Levittown'** developments built post-WWII by Levitt Homes(see image below). These units were substantially standardized, originally 750 square feet, and designed to be expandable by the owner. They were developed to be affordable on a manageable percentage of average households' income.

Historian Kenneth T. Jackson described the Levitts as,"the family that had the greatest impact on postwar housing in the United States…who ultimately built more than 180,000 houses and turned a cottage industry into a major manufacturing process."[6]



above: construction materials delivered to a Levittown site after foundation poured[7]

Our proposal is motivated by the urgent need for such starter housing today, and how little of it is being produced or is available in high-cost cities like Portland. Also, by the possibilities to meet that need creatively today: by using Tiny House Code, efficient mass-production building like the Levitts did, and land that is relatively inexpensive/available because it is already owned by an homeowner willing to add an ADU, or is small, interim-use, or high-density such as in a pocket-neighborhood/village model.

Because our proposal employs movable units, and a flexible and expandable network rather than single site, we alternately call it "**LevitateTown**" in homage to the Levittowns.

[6] Jackson, Kenneth T. *Crabgrass Frontier: The Suburbanization of the United States*, 1984.
[7] Chantry, 2012.

Program strategies toolkit:

Strategy 1: ensure affordability by covenant

We propose to structure this program to specifically prefer Extremely Low Income households (0-30% AMI) -- where possible, both for ADU host-site owners, and for the Starter Homes residents themselves.

Residents would be asked to contribute a percentage of their reported income - perhaps 30%, which is a common threshhold defining housing affordability. Initial acceptance and ongoing participation in the program might require periodic reporting of assets and income. After initial placement, if the resident/household increased its income beyond the ELI range, they could stay in the program and unit, but their rent contribution would go up proportionately to their income. ("social housing" model).

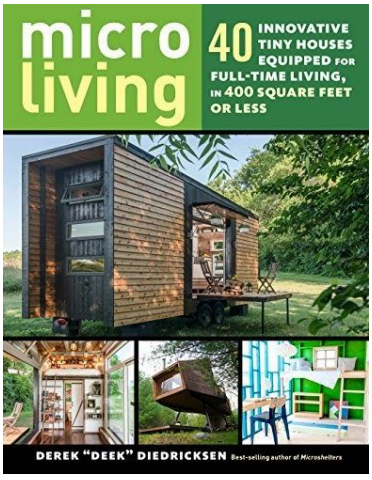
Homeowner participation in the program, including receiving subsidized foundation/utility hook-up pads, and issuance of units, might be limited to or focused on low/fixed-income homeowners.

By contrast, Accessory Dwelling Units currently in Oregon are usually created by and help build wealth for high-income, high-education households; and the units average $1250-1500/month **[ref. needed],** so are not usually providing deeply affordable housing].

Restrictions on who could host or inhabit New Starter Homes would, ironically, echo but invert -- for inclusionary and social justice purposes -- the Levittown's worst aspect, their racially restrictive covenants:

> *"As well as a symbol of the American Dream, Levittown would also become a symbol of racial segregation, due to Clause 25 of the standard lease agreement signed by the first residents of Levittown, who had an option to buy their homes. This "restrictive covenant" stated in capital letters and bold type that the house could not "be used or occupied by any person other than members of the Caucasian race."*[8]

Strategy 2: use small, and self-buildable and prefabbable units



i) Small:
Inherently affordable housing: being limited to 400 square feet, which is smaller than most dwellings in Oregon and the U.S., these units would tend to be inherently affordable, in that a) less materials (even if high-end) and labor would be required in their construction, b) utility and maintenance costs are lower, c) higher-income households tend to seek larger dwellings so there is less market competition for smaller units.

[8] *Wikipedia, "Levittown."*

At up to 400 square feet, we could argue that units like these are fairly comparable to the original 750sf Levittown homes. Given that these tiny houses are primarily aimed at singles and couples, vs 3-5 person families at Levittown. Also, given many ways which new technologies and practices make households require less home space: for example, wide variety of goods and services available on-demand, pervasive off-site storage facilities, shorter average tenure in housing (< 2 years for rentals); space-efficient digital media and newer appliances (eg wall-mounted flatscreen, vs cabinet tv and music center).

[above: the two models offered at the first Levittown, in NY: Colonial, and Ranch].

ii) Prefabbable:

Potentially, many *existing* unit designs could be employed in or adapted to this system - if the unit is Tiny House Code compatible, and there is a possible way to make the unit trailerable and/or anchorable. For example: units from SquareOne Villages permanent sites e.g. Emerald Village; or Panoramic Interests' 'MicroPAD' unit; or units from Blokable, Kasita, Dweller, Stuart Emmons, or the manufactured-housing makers' tiny-house lines. Or, as generated by a open community design process as successfully used by Village Coalition for the POD Initiative.

There are also many tiny-house plans available free or low-cost. See for example Derek "Deek" Diedricksen. *Micro Living: 40 Innovative Tiny Houses Equipped for Full-Time Living, in 400 Square Feet or Less* (forthcoming October 2018, pictured above).

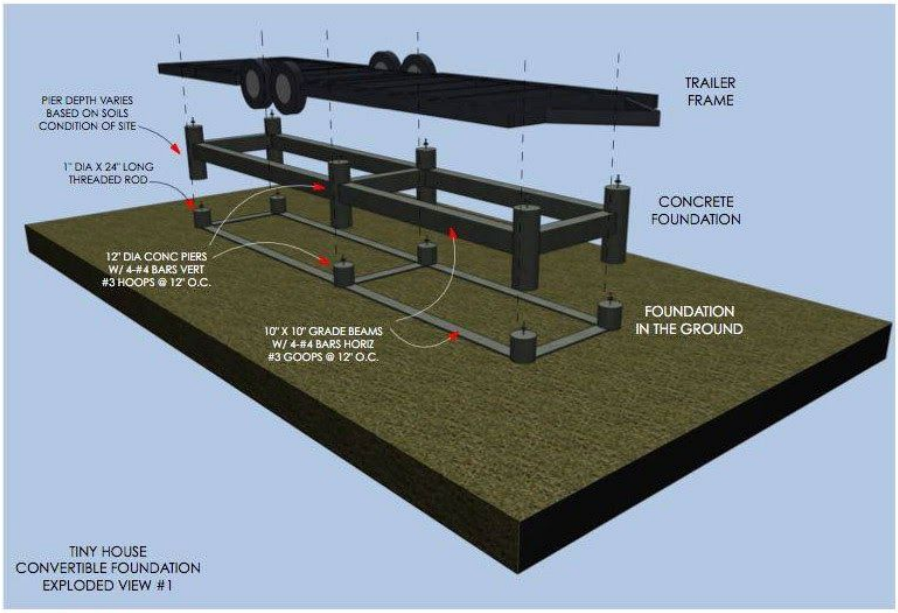
Strategy 3: use movable and anchorable units

We propose an approach where homes (or component modules for them) may be used and transported on standard road trailers, but may also be moved onto and anchored to a permanent foundation, for long-term, building-code-compliant use; and may be later unanchored and moved. See "Tiny house convertible foundation" diagram below, and section g), for more on this point.

The detachability and mobility has a number of possible benefits, independent of each other:

1. Off-site prefabrication for efficiency.
2. House may be separately owned, rather than e.g. being owned by the ADU site homeowner.
3. Resident may move a unit from or to another site, e.g. from an interim village or another city.
4. Site owner does not have to pemanently commit to the house being there. This allows use of interim sites, and much lowers the commitment/risk for ADU site homeowners.

[below: tiny-house convertible foundation design, by David Ludwig]



This approach is unusual in offering a "movable, but permanent" option: secure housing that can be permanently owned by the resident, or build equity towards owning a different home; but which yet can move between locations, or expand, as the household's needs evolve.

Conventional mobile, i.e. manufactured housing is usually owned by the resident, and in theory is relocatably, but in practice these homes are rarely moved, for several reasons:

1. It typically costs many $1000s to move a unit, which most mobile-home park (or "manufactured-housing park") residents cannot afford.

2. In recent decades, creation of new mobile home parks has been largely restricted in urban areas across the US, and they are increasingly redeveloped for other uses, so available places for mobile-home residents to move to are very scarce in most areas.
3. Mobile home parks today typically only accept mobile homes compliant with the 1978 HUD unit standards, and many especially poorer residents have units which don't comply.

Nonetheless, manufacturing housing is **the most common form, de facto, of affordable housing in the US**, and some urbanists today such as Nolan Gray (see References) observe that it offers many useful patterns for relatively dense urban housing. The historical advantages and perils of its use in the US are important topics to understand, in proposing any type of relocatable and/or prefabricated housing today. See Wallis [1991], *Wheel Estate*, and Sullivan [2018]. *Manufactured Insecurity*.

Making the house movable allows efficient off-site production, and opens up a wide variety of of normally unutilized sites for hosting a unit: such as sites planned for eventual development, as with the Kenton Women's Village in Portland; or ADU sites of homeowners not able or willing to commit to a permanent unit there.

One model/inspiration for this movable/anchorable approach is the San Francisco "**Earthquake cottages**" (or shacks), around 5000 of which were built for displaced residents just after the 1906 earthquake.

They were erected and lived in on public land, offered to residents on rent-to-own terms, and many were over time, as intended, moved to other sites for permanent housing or commercial use, often built up and around. Some are still in use 110 years later.

[below: San Francisco "earthquake cottage" being moved from public to private site by owner, ca 1906].

New Starter Homes, like the earthquake cottages, are particularly aimed at the most dispossessed and needy. They could support, say, residents in villages developed by the Village Coalition or Square One Villages, becoming long-term anchored housing, there or elsewhere or as ADUs. The could also be individually ownable by resident, or could be partially owned via being in a village that is set up as Limited Equity Cooperative; etc.

Strategy 4: Make homes usable across a variety of site, zoning, & tenure situations

By employing OR Tiny House Code that both supports mobile housing and allows incorporation in Building Code, our "starter homes" could work in a wide variety of site and zoning situations, and a wide variety of households and life phases.

- Accessory Dwelling codes.
- Campground zoning - sometimes used by interim villages.
- Multifamily (*cough* multi-unit) - used e.g. for Emerald Village, Eugene.
- Portland RIP (Residential Infill Program) for redeveloping residential sites with potentially more units.
- Mobile home sites.
  (note, Portland has just created a new Manufactured Housing zoning type, aiming to protect the city's 56 mobile-home parks and 3000 residents from displacement pressure. One of our research strands should be to explore how this, and other cities' mobile-home situations, may work together with New Starter Homes model).

Strategy 5: allow options to site-build, trailer in, or crane in

A crane would generally work in all cases to deploy a prefabbed unit, but they are expensive to hire, require expert operators, may require street closure that annoys neighbors, and they are relatively scarce -- i.e. it could be hard to scale up to the desired deployment rate with them.

For various reasons it may in cases be advantageous to build on site, or be possible to deliver a unit (or perhaps modules constituting or extending a unit) by ordinary road trailer. We propose to use a "tiny house convertible foundation" -- see section g) below for explanation -- which enables a trailer-mounted unit to be rolled directly over the foundation, and lowered onto a connector structure.

Strategy 6: use standardized, post foundations, independent of unit design

A key factor in Levitt Brother's success, as with other mass post-war builders like Joseph Eichler and Henry Doelger in the Bay Area, was a highly efficient, "mass production" system using economy of scale in supplies and methods. For example, Levitt houses used mobile, specialized teams that did one part of the process and quickly moved from site to site.

We are proposing a similar strategy for foundations: to design a low-cost, standardized foundation system which could be put in on many sites by specialized teams/contractors, in advance or and independent of the units put onto them. We hypothesize (pending further study and development of OR Tiny House Code) that this could be done with foundation posts, rather than a full foundation slab, which is both cost-effective and flexible in terms of handling different site conditions/slopes.

For example, the full standard 'PAD' foundation might cover an area of 20x20', i.e. the 400sf maximum allowed by Tiny House Code. Rather than a continuous concrete slab, however, it might comprise 12 concrete posts at approximately 10' spacing (2 groupings of posts, each 3 x 2 = 6 posts), which could be could be submerged below ground level until used. Initially, perhaps an 8x20

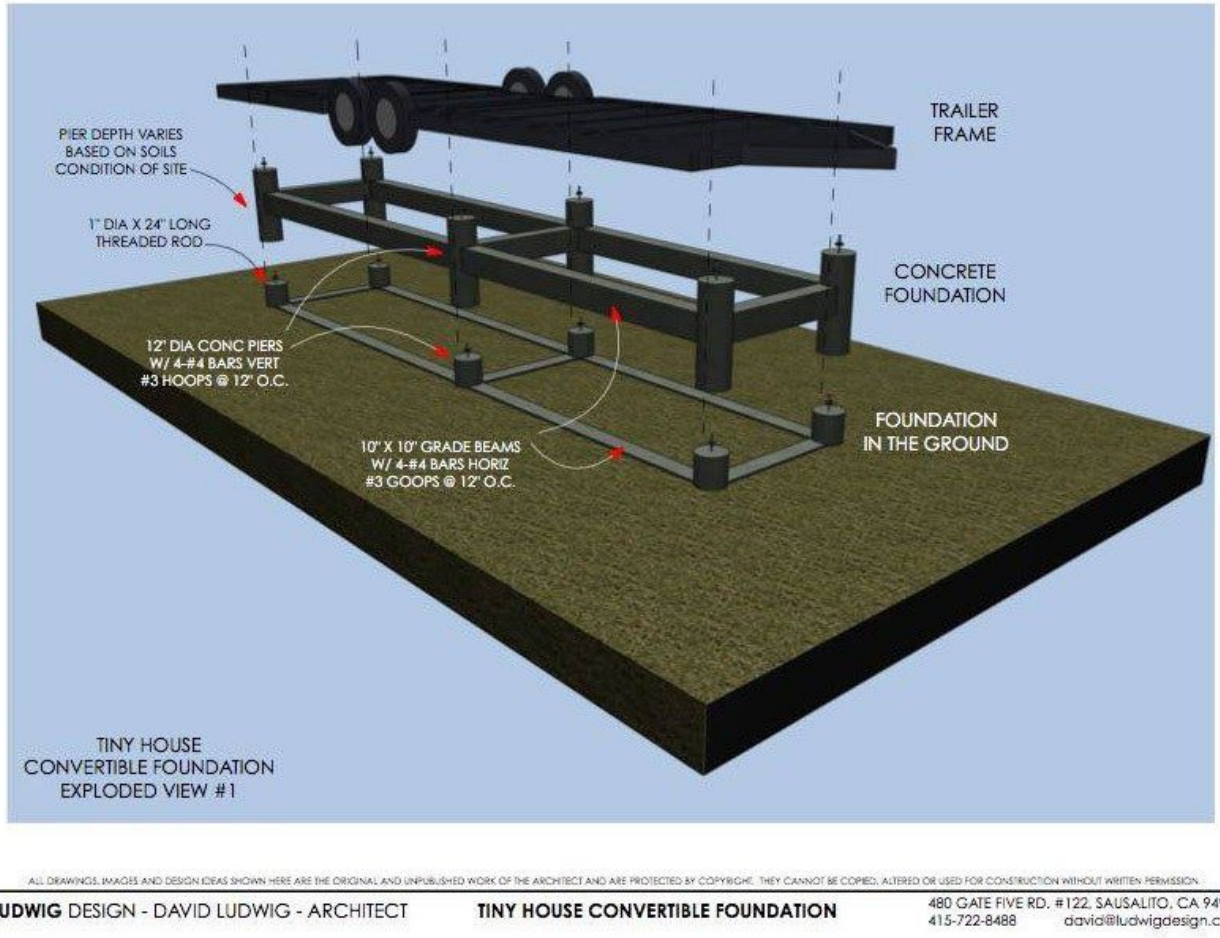
trailerable unit is deployed, and only 1/2 of the foundation posts are uncovered and connected to. Some or all of the remaining posts might be later uncovered and used for, say a deck structure, or to deploy and join a new home module for expanding the home.

Also, part of all of the unit might later be removed, and the foundation posts under it recovered, so the space could be reused e.g. for a lawn or garden.

Structures of various designs and sizes may be connected to the same standard foundation. They just need to either:

A. be designed to fit the standard post connector locations (and their structural capacity); or
B. utilize a *connector* structure designed to securely interface between the unit's connection points and the foundation posts. So, for example, New Starter Homes program might source tiny-home units or plans from other vendors, which weren't themselves designed for it; but we could design and fabricate a connector to use those units on our foundations.

[below: example design for a "tiny house convertible foundation", enabling a trailer-mounted home to roll onto and then be anchored to a permanent foundation. From David Ludwig, Architect, Sausalito].



Strategy 7: offer rentable, ownable, or rent-to-own homes

Strategy 8: create a network of sites and participants

This approach is different in aiming to build a 'network' both for residents and units. We envision over time developing a growing number of sites that are built and permitted to allow these starter homes to be sited, and offering program participants opportunities to move their home to a new location if it better suited their needs and wishes. Also, we conceptualize the homes as a managed 'fleet' of units, which might not only be moved but be bought back from residents, sold to homeowners, replaced/upgraded, or individually funded by donors, investors, or crowdfunders. This allows flexibility, and lowered risk for program participants.

We propose to offer resident participants an assurance that:

1. A site will be available for them for the life of the program, i.e. even if their original site is interim or may be withdrawn by an ADU homeowner;
2. They may sell any acquired equity, up to the total value of unit, upon leaving the program.

Residents may stay in a unit even if their income increases above 30% AMI, but their rent is set as a percentage of income (say, 30%) and would increase.

Strategy 9: facilitate incremental building and expansion, by modular design

We propose to use modular, extensible home designs, which could allow residents to incrementally build their homes, for example from a 160sf tiny-house-on-wheels type design (8x20') to a 320sf (16 x 20') double-module unit.

This echoes another practice of Levitt Homes: the "expansion attic":

> *"Returning to the Levitt Homes firm after war's end, Bill Levitt persuaded his father and brother to embrace the utilitarian system of construction he had learned in the Navy. With his architect-brother, Alfred, he designed a small one-floor house with an unfinished 'expansion attic' that could be rapidly constructed and as rapidly rented to returning GIs and their young families."*[9]

With the buried-post foundation approach (see section g) above), a full set of posts might be installed on site (for full 320-400sf house), but only a portion uncovered and used, if a smaller unit placed there.

The small scale, ownability, and dweller-empowering ethos of New Starter Homes is intended to encourage diversity and creativity in how they are built and adapted. Even with a standardized foundation, low size limit, and possibly prefabricated designs, there can still be wide range for dweller control. In this regard as well, the example of Levittown's 'homogeneous' housing is instructive:

> *"As the first and one of the largest mass-produced suburbs, Levittown quickly became a symbol of postwar suburbia. Although Levittown provided affordable houses in what many*

[9] Wikipedia, "Levittown, New York."

residents felt to be a congenial community, critics decried its homogeneity, blandness, and racial exclusivity...Today, "Levittown" is used as a term to describe overly sanitized suburbs consisting largely of identical housing....Oddly enough, although Levittown is remembered largely for its homogeneity, the majority of houses in Levittown have by now been so thoroughly expanded and modified by their owners that their original architectural form can be somewhat difficult to see; however, with diligent observation, several original examples can still be seen today."[10]

Financial analysis

d. How would you describe the potential impact of this approach on housing affordability for the category you selected above? You are encouraged to include a "target" or goals statement breaking down your approach to 1 million months, such as "Create 4,200 new multifamily units that will be affordable to families at or below 60% AMI for 20 years, with a public subsidy of no more than $30,000/unit."

We could get to 1 million months of affordability with a target of deploying 1,700 units over ten years (ramping from 1 up to 340 units/year, for average of 170/year), and those units remaining in use for, on average, 20 more years. So, 25 years total use on average. (units could and likely would remain in use much longer, this is just a conservative estimate for analysis).

Focusing just on the Accessory Dwelling use case for these New Starter Homes (NSH): Portland has an estimated 116,000 single-family lots on which an ADU could be deployed. (per study of Commissioner Chloe Eudaly's office.[11] The target of 1,700 units would therefore be met by deploying one unit on about 1.5% of eligible lots. Portland official ADU count is about 2% of lots now, and for comparison, in Vancouver BC, over 40% of single-family lots have one or more ADUs.

1,700 units x 25 years avg deployment x 12 months/year x 2 households/unit = 1 million months.

There are two households per unit, because we aim for the ADU to both be affordable to its residents, and for the pad rent to provide housing affordability to a low-income homeowner on whose lot the home is placed.

We estimate an average monthly rent to homeowner of $400, and roughly estimate that this could be paid with the fair market rent that 30% AMI housholds in Portland could afford at 30% of gross income:

[From Portland Housing Bureau https://www.portlandoregon.gov/phb/article/684577:
30% AMI for 2018 for Portland-Vancouver-Hillsboro MSA:
$17,100 for 1 person
$19,560 for 2 person

30% of this is $427.50 for 1-person household, or $489 for 2-person.]

[10] Ibid.
[11] [Monahan 2017]

If resident candidates were accepted who had a range of incomes, 0-30% AMI, then on average it would of course be lower than the 30% threshhold. On the other hand, since we propose "social housing" style rent contribution, a fixed percentage of household income, we might expect to get a > 30% AMI contribution from some portion of residents as their incomes rise and they stay in the units.

We estimate $40,000 cost per home for unit, standard foundation, and utility connections. We assume development fees will be waived, according to current Portland "SDC Waiver for ADUs, with Conditions" policy deed-restricting the unit against short-term rental (STR) use. [see City of Portland, June 27, 2018].

1,700 units * $40,000 = total unit production costs $68,000,000

Let's roughly guess 30% additional overhead not yet included would be needed to manage this program

=> **$88,400,000 total**, or $88.40 per month of affordability achieved.

However, note that in the expected outcome of the program, participants would acquire equity in their units over time, unlike in conventional rental affordable housing. They may choose to sell the partial or full equity back to the program upon exiting a unit, or may sell it to others. This accumulated liquid equity could be accounted for as an asset generated by the New Starter Homes program, offset against the public subsidy put in. Due to the potential high degree of resident-0wner "sweat equity" and self-investment into these homes, this asset value could be very high compared to the public investment made, and compared to the depreciated value of conventional housing that might alternatively have been funded with that investment.

Proposed Project Timeline

February 2019
Kickoff public event. Team meetings of team and advisors
Assess current or projected need for working space. If needed, begin seeking workspace.

Begin research reports:

A. OR Tiny House Code, mobile-home park ordinances, village zoning, etc and how these can be worked with.

B. Analysis of the vendor and competitive marketplace: what existing housing products might be used with the proposed system; what competing development models are there (e.g. Dweller startup in Portland, Blokable, Kasita, various Portland ADU developer/designers).

C. Financial modelling for running a rent-to-own housing network, particularly as intersecting with Portland ADU market. potentially contract this out].

Set up design challenge for units and foundation/connector systems.

March 2019.
organize and begin use of workspace, if applicable.
Launch design challenge.

May 2019
Complete research reports a).
Identify demo site to implement test foundation/connector and unit design.

June 2019
gather Design Challenge entrants for charette.
Complete research report b).

July 2019
public presentations of 1st charette outcomes.
Award funds for implementation of demo unit(s); Teams/vendors begin unit construction.
Finalize prototype standardized foundation/connector
Complete research report c).

August 2019
implement 1st prototype foundation and connector.

September 2019
deploy 1st prototype unit(s), both mobile and anchored, at demo site.
Organize public unveiling event and public viewing of site.

October 2019
gather program stakeholders to review models, learnings.
Publish and publicize study findings so far, in local / state / national media, and local outreach. Invite round 2 proposals for units and foundation/connector designs.

November 2019
refine financial modeling for rent-to-own network, based on research and prototyping.

December 2019
gather, review, award, share Round 2 proposals for units and foundation / connector designs.

February 1, 2020
deliver Year 1 summary reports to Meyer Trust and other stakeholders.

PAD Initiative design challenge

Create a community open design process for many teams to design units to these specifications — as done successfully with the POD Initiative, units designed to Portland's special "sleeping pod" building code.

Building on POD Initiative, but instead of PDX "sleeping pod" code, using proposed OR Tiny House Code plus Portland ADU code and village / pocket-neighborhood zoning possibilities. Also exploring how to potentially use, for such housing, funding sources such as Portland or Metro housing bonds, homelessness funding, and Section 8 vouchers.

The initiative could pick a site or several to make a specific program, like POD Initiative did with Hazelnut Grove.

'PAD' might be for Portland Autonomous Dwelling? alluding to:

- earlier "autonomous house" ideas: (i.e. off-grid eco-housing, Brenda and Robert Vale's 1975 book *The Autonomous House*);
- see Appendix 2: sustainability, resiliency, emergency needs: extending to off-grid homes;
- detachability,
- empowerment of residents;
- structural foundation 'pads' as in proposal.

Potential funders/investors

We imagine a primary funder/partner to help pilot and develop the New Starter Homes model, platform, implementation. Along with and after that, we propose a "multidirectional platform" model of potentially allowing many parties to participate, especially as funders/investors.

This is an idea behind real-estate funding platforms like Crowdrise.

Also, was proposed in an early concept proposal **Housecloud** [McCormick 2014]: (aka AirbnbX, Affordbnb):

> *"AirbnbX / HouseCloud is a trusted marketplace for property owners, housing developers/investors & agencies, and residents, to find, site, design, build, invest in, and manage affordable/accessory dwellings.*

To develop it along these lines as an open platform, we conceptualize New Starter Homes as potentially an independent organization, which supports core services such as code/standards development, dwelling unit / foundation / connector design, mapping of potential sites, and establishing model contracts.

Around that core of services, various parties might use New Starter Homes [...]

City of Portland housing bond, 2016 $260M
$258.4 Million approved November 2016
first solicitation for funding proposals was in April 30

Metro (Portland regional government) 2018 $650M bond
In 2018, voters approved a $652.8 million affordable housing bond measure to create permanently affordable home.
first project funding award were announced mid 2019.

Potential obstacles

1. We have not yet market-tested the proposition of putting small detachable ADUs and standardized foundations and connectors on home lots. While our intuition and experience with housing suggests this could be quite appealing to both property owners and home seekers, this is a hypothesis needing to be tested.

2. For this approach, we would need to either source compatible units, or perhaps design them and develop production capacity to produce them locally. Also, we would need to design very efficient, standardized approaches to laying foundation pads and utility connections (as was the approach of Levitts). These are significant design challenges, and possibly significant capital investment to set up production facilities. On the other hand, the production complexity of small, prefab units is relatively low and uses well-known technologies; and local production is an opportunity to create employment and involvement for low-income program participants.

Who are key team members and/or partners in this work? Briefly describe the role of each in your approach.

Tim McCormick - Houslets, Portland - proposal author and Project Lead
Mark Lakeman - Communitecture, City Repair Project, Portland - Project Manager
Andrew Heben - SquareOne Villages - Eugene - advisor.
John McCormick, AIA, AICP - retired architect & planner, Portland - advisor.

Appendix 1: other Accessory Dwelling programs for low-income or houseless, or movable homes

see: YIMBYwiki > Accessory Dwelling Units > "Affordable ADUs" section

> "Movable ADUs"

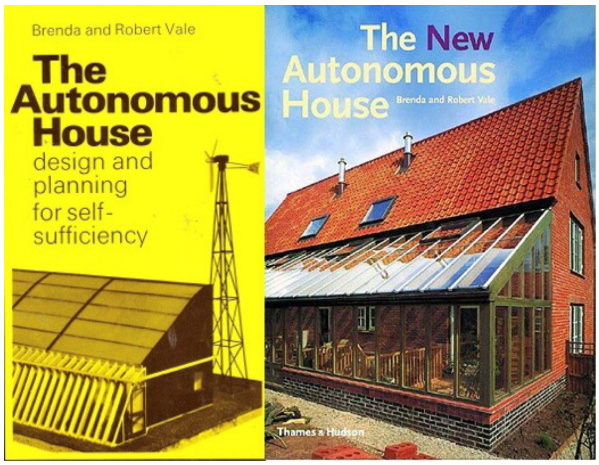
Appendix 1b - Notes, etc

[below: Caravan Tiny House Hotel, Portland. An example of tiny houses now anchored to foundations with utility hookups; also, of putting many units on a small lot similar to a single-family lot].

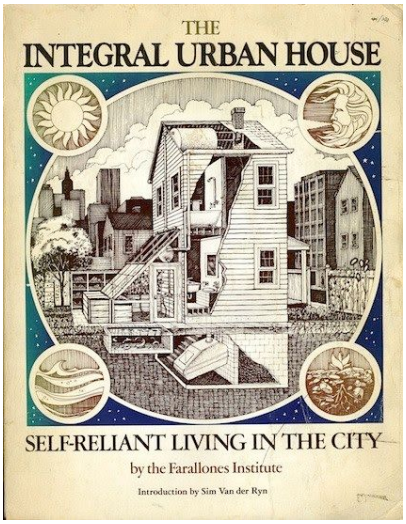
Conceivably, a city might require/incent basic 'PAD' type foundation foundations on yards of all new detached houses;

Appendix 2: sustainability, resiliency, emergency needs: extending to off-grid homes

from: McCormick. "The New Urban Autonomous House." Nov 2017 / Sept 2018[12]:



> *"Could urban off-grid houses make sense, even be helpful for addressing cities' housing shortages? In a sense, there are already many of them: like the RVs that many people live in for low cost or convenience ....*
>
> *"Why not see the value in people being able to more autonomously and at low cost live next to services/work as they wish? perhaps part of the time or short-term. Or, in using part of the US' pervasively and freely available parking area for an urgently needed alternate purpose? In letting more housing be 'agile', deployable rapidly and perhaps impermanently, to help deal with the fact that our conventional planning and housing systems are evidently not handling well the change rate here, which has enormous cost economically & socially & environmentally?*



> *"Of course, freely parked RVs have issues of social (non)acceptability, possibly incurring costs to local governments and neighbors without producing tax revenues, etc. And most people probably have no conception that an urban dwelling unit is possible or practical without permanent, conventional grid connections for power, water, waste, etc. While I and others, on the other hand, think it's increasingly not only possible, but often may be better for reasons of ecology, environment, & autonomy. Many people have worked on developing this for decades* [see Brenda & Robert Vale, 1975/2000; and Integral Urban House, Berkeley 1982, both at right]*, with the tiny-house movement picking up the torch.*
>
> *How might we explore models that address these concerns and possibilities?"*

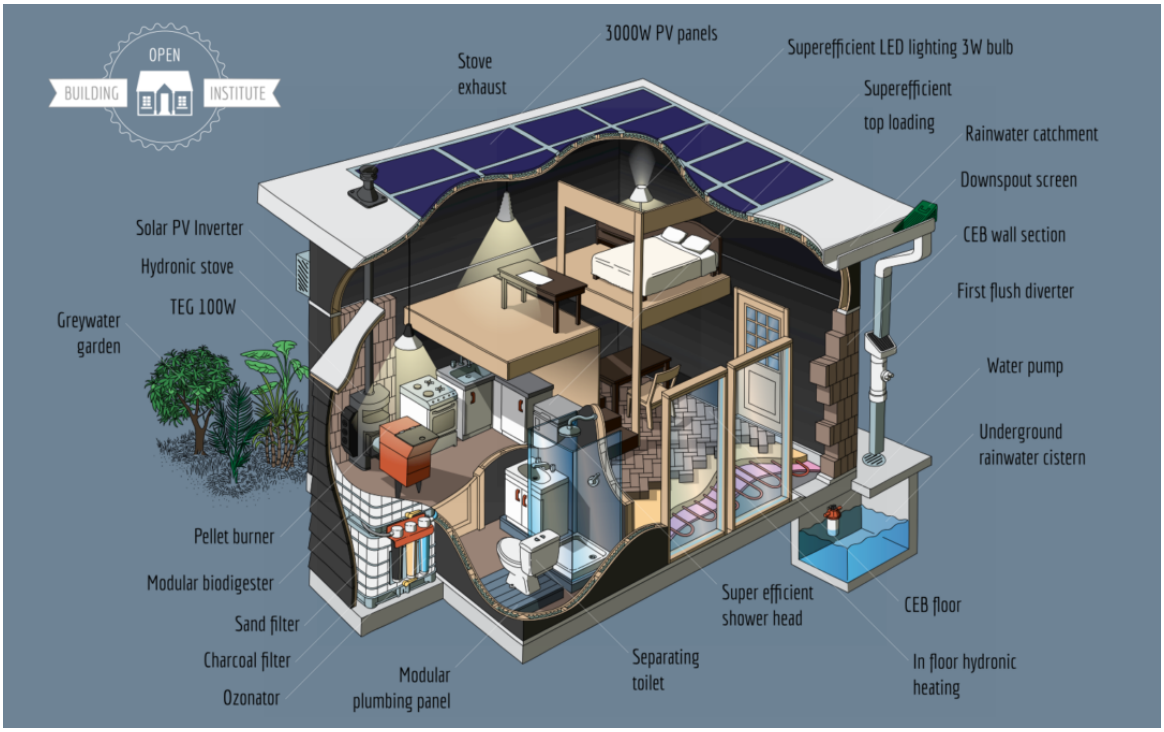
also related, from an August 22 post in The Village Collaborative group:

> *"Lately I've become increasingly interested in housing that anticipates, and helps address, possible massive climate-change- and natural-disaster- driven disruptions. Particularly, what might be done in the Pacific NW, which a) is predicted to receive a large influx of population due to climate change making other areas of US and world less habitable; b)*

[12] McCormick, November 2017.

could be hit any time by a mass post-earthquake exodus from adjoining California (population 40M, vs Oregon's 4.2M), and c) could be hit anytime by an even larger earthquake from the nearby Cascadia Fault offshore (see "The Really Big One" by Kathryn Schulz, 2015).

"What would we do if, say, 100,000 Californians arrived in Portland over the next month after a massive quake? Or, if The Big One on the Cascadia Fault knocks out most bridges, larger older buildings, energy and water/sewer infrastructure in western Oregon, for several years? Or just, less abruptly, accelerating climate-change disruption causes Portland's already high in-migration rate to keep accelerating, year after year, when there is already significant housing shortage and a fast-emptying construction pipeline (i.e. planned units)?



[above: Open Building Institute's "$25,000 Open Source, Modular, Eco-Home"]

"Or to look at it more positively, how might we shape our housing, and city and state, to best welcome and afford opportunity to climate / disaster / disruption refugees? and align this with local goals and values and aspirations of inclusivity, justice, sustainability, civic health, leadership in green urbanism?

"How about, say, Portland groups leading development of sustainable, change-resilient, off-griddable housing prototypes -- PAD House? Portland Autonomous Dwelling -- which might be used here and elsewhere. A Portland product, like the Portland Loo now used across the US and Canada (http://portlandloo.com/) ?

See also:

Bruder, Jessica (2017). *Nomadland: Surviving America in the Twenty-First Century*.

Rosen, Nick (2010). *Off the Grid: Inside the Movement for More Space, Less Government, and True Independence in Modern America*.

References / Bibliography

Adamson, Paul, and Marty Arbunich. *Eichler: Modernism Rebuilds the American Dream*. 2002. Google Books preview.

American Tiny House Association [2016]. "Fresno is the First City in the Country to Approve Tinys on Wheels in Residential Neighborhoods." January 20th, 2016.

Bliss, Laura. "Portland's 'Granny Flats' Get an Affordable Boost." *CityLab,* Mar 12, 2018.
[on the ADU startup Dweller, begun by former Portland Development Commission director Patrick Quinton].
https://www.citylab.com/equity/2018/03/portlands-granny-flats-get-an-affordable-boost/555083/.

> *"There are an estimated 2,000 ADUs completed in Portland, sitting on less than 2% of home lots, the most in the country. But as many as 116,644 properties—nearly half of taxable lots—could be 'ADU friendly,' according to an analysis done by Portland State Univ. As companies like Dweller and others (including Cover in California, Blokable in WA state) try to bring down upfront building costs through prefab- rication, Quinton believes a total of 10-20k ADUs could be a good goal for the city."*

Bruder, Jessica (2017). *Nomadland: Surviving America in the Twenty-First Century*.

Chanay, Jessica, Nishant Desai, Yuxuan Luo, and Davaadorj Purvee. "An Analysis of Homelessness & Affordable Housing, Multnomah County, 2018." July 31, 2018 (revised version). Portland State University School of Business MBA Capstone Project, Prepared for Oregon Harbor of Hope. (Revised version July 31, 2018).
https://pamplinmedia.com/documents/artdocs/00003616728975-0644.pdf.

Chantry, Erin. [2012]. "The Legacy of Levittown." *Helmofthepublicrealm.com*, October 15, 2012. (discussing Kushner, David. Levittown: Two Families, One Tycoon, and the Fight for Civil Rights; with images from University of Illinois at Chicago.

City of Portland. "City Council Extends the SDC Waiver for ADUs, with Conditions." Community notification, June 27, 2018 https://www.portlandoregon.gov/bds/article/689356.

Diedricksen, Derek "Deek". *Micro Living: 40 Innovative Tiny Houses Equipped for Full-Time Living, in 400 Square Feet or Less*. (forthcoming, October 30, 2018). Amazon preview.

Gray, Nolan. "The Urbanist Case for Trailer Parks." *CityLab,* JUL 26, 2018.
"There's a form of housing that's affordable, provided by the market, and reasonably urban. The only problem is that it's illegal. Have you heard the good news about trailer parks? My latest in @Citylab: https://www.citylab.com/equity/2018/07/the-urbanist-case-for-trailer-parks/566123/.

Gray, Nolan. "Reclaiming 'Redneck' Urbanism: What Urban Planners Can Learn From Trailer Parks." *Market Urbanism,* April 21, 2016.
https://marketurbanism.com/2016/04/21/reclaiming-redneck-urbanism-what-urban-planners-can-learn-from-trailer-parks/.

Heben, Andrew. *Tent City Urbanism*. (2014).

International Code Council [Washington, D.C.]. *2018 International Residential Code (IRC)*

- *Section R104.11 Alternative materials, design and methods of construction and equipment.*
  Allows for a chassis/trailer being incorporated into a suitable foundation to meet the intent of the code.

- *Appendix E: Manufactured Housing Used As Dwellings.*
  focuses on approved ways to mount a chassis/trailer to a code approved foundation for manufactured housing.
- *Appendix Q: Tiny Houses.*

Jackson, Kenneth T. *Crabgrass Frontier: The Suburbanization of the United States*, 1984.

Law, Steve. "Picture Tiny Houses in Big Numbers: Legalizing them could spur more affordable housing,ease gentrification and displacement." Portland Tribune, April 20, 2017. https://pamplinmedia.com/pt/9-news/354859-234173-picture-tiny-houses-in-big-numbers.

Los Angeles [City of], Department of City Planning [2018]. "Proposed Accessory Dwelling Unit Ordinance (CPC-2016-4345-CA Exhibit A)." November 29, 2018.

Ludwig, David. "Design for a convertible foundation for Tiny House on Wheels." post to Portland Tiny Houses group on Facebook, August 17, 2016

Ludwig, David. "Convertible foundation: additional images." port to Portland Tiny Houses, August 19, 2016.

McBride, Stewart. "Farming the asphalt jungle." The Christian Science Monitor, April 4, 1980. https://www.csmonitor.com/1980/0404/040454.html. [on the Urban Integral House, Berkeley].

McCormick, Tim [2014]. "HouseCloud: A platform to help create, manage, and find affordable/accessory dwellings." Proposal document, December 2014. bit.ly/housecloud-proposal.

McCormick, Tim [2015a]. "How might we put affordable housing on disused & small sites in San Francisco?" Medium, November 3, 2015

McCormick, Tim [2015b]. "Tiny Houses for the Homeless in San Francisco?" *Medium,* 18 Nov 2015.

McCormick, Tim . "The New Urban Autonomous House." *Medium,* November 2017, updated August 2018.

Meyer Memorial Trust [2018b]. "Meyer sets lofty housing target: the 1 Million Month Challenge.'" June 18, 2018. https://mmt.org/news/meyer-sets-lofty-housing-target-1-million-month-challenge).

____. [2018]. "Request for Proposals: Meyer's 1 Million Months Challenge: Innovations in Affordable Housing Design, Finance and Construction."

Monahan, Rachel. "As Many As 116,644 Portland Lots Could Host Granny Flats." *Willamette Week*, March 18, 2017. https://www.wweek.com/news/2017/03/18/as-many-as-116644-portland-lots-could-host-granny-flats/.

[State of] Oregon, Building Codes Division [Sept 20, 2018]. "2018 Oregon Reach Code." https://www.oregon.gov/bcd/codes-stand/Documents/reach-18reachcode.pdf.

Peterson, Kol. *Backdoor Revolution: The Definitive Guide to ADU Development. (2018).*

[City of] Portland Bureau of Development Services [2017]. "City to allow RVs, tiny homes on wheels on private property with conditions." October 16, 2017.

Reynolds, Julia. "Urban Homesteading: The Integral Urban House." Mother Earth News, November/December 1976.

https://www.motherearthnews.com/homesteading-and-livestock/urban-homesteading-zmaz76ndztak. *"Once a Victorian mansion, The Integral Urban House has been converted into a model of self-reliant living."*

Rosen, Nick (2010). *Off the Grid: Inside the Movement for More Space, Less Government, and True Independence in Modern America*.

Sanchez-Moyano, Rocio, and Carol Galante. "Small Houses, Big Impact: Accessory Dwelling Units in Underutilized Neighborhoods." Terner Center for Housing Innovation, August 03, 2016. http://ternercenter.berkeley.edu/blog/small-houses-big-impact-making-the-case-for-accessory-dwelling-units-in-und.

Spevak, Eli, et al. "A Legal Path for Tiny Houses on Wheels." discussion document, 2015. http://www.orangesplot.net/wp-content/uploads/2016/05/Legal-path-for-tiny-houses-10.4.15.pdf.

SquareOne Villages. "Oregon's newly proposed tiny house code." August 1, 2018. https://www.squareonevillages.org/single-post/2018/08/01/Oregons-newly-proposed-tiny-house-code.

Sullivan, Esther. *Manufactured Insecurity: Mobile Home Parks and Americans' Tenuous Right to Place*. University of California Press, 2018. Amazon preview.

Tiny House Build. "Tiny House Appendix Q". [tracks news regarding adoption of International Residential Code (IRC) Appendix Q, Tiny Houses. https://tinyhousebuild.com/code/.

Wallis, Allan D. *Wheel Estate: The Rise and Decline of Mobile Homes*. (Oxford University Press, 1991; reissued by Johns Hopkins University Press, 1997).

Vale, Brenda; Vale, Robert (1975). *The Autonomous House*. New York, N.Y.: Universe Books. ISBN 0-87663-254-1.

Vale, Brenda; Vale, Robert. (2000). *The New Autonomous House*. New York, N.Y.: Thames & Hudson Ltd. ISBN 0-500-34176-1.

Van der Ryn, Sim, with Helga Olkowski, Bill Olkowski, and Farallones Institute. *The Urban Integral House: Self Reliant Living in the City*. Sierra Club, 1979; Farallones Institute 1982.

Wikipedia. "Levittown, New York". accessed August 10, 2018.

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Wayne Stewart - retired civil engineer; former chair, Portland Design Commission, Portland.

Document history

10 September 2019
"Appendix 1: other Accessory Dwelling programs for low-income or houseless, or movable homes" now points to YIMBYwiki > Accessory Dwelling Units page where these topics will be maintained.
Added to Acknowledgements: Nathan Ho, San Jose Mayor's Senior Advisor for Housing.

4 September 2019:
- reformatting/layout: increased Normal Text style to 11pt; redoing 1st page as more of a cover/title page, moved Table of Contents to 2nd page.
- added notes on ADU subsidy/financing programs in San Mateo County, Santa Clara County / City of San Jose.
- added info on possible revision of City of Los Angeles ADU ordinance to allow movable units / tiny homes on wheels.

19 August 2019
Added references Law [2017], and to Eli Spevak [2015] "A Legal Path for Tiny Houses on Wheels." other edits.

25 Feb 2019
moved "PAD Initiative" into main title. Emphasized this section in TOC. Various other edits.

10 Oct 2018
shifted footer to header. Created footer section, began adding footnotes for references in text.

5 Sept 2018
added to references: McCormick, “How might we put affordable housing on disused & small sites in San Francisco?” (Nov 5, 2016).

27 August
- added footer and page numbering.
- added to Appendix 2: Off-grid.

25 August
- added "Appendix 2: extending to off-grid homes" and related references.
- added Version History section to help people see how doc has evolved, and see what's new since they previously saw it.

24 August 2018 (TM):
- Reformatted doc for much better PDF output: customized Normal style with increased line spacing etc.
- edits throughout based on proofreading printed version.
- added placeholder Section 7: Extending to off-grid housing.
- in Financial Analysis, cut program cost in HALF, because I realized we might count each ADU unit as creating affordability both for its resident and for a low-income homeowner on whose lot the home is added.

14 August 2018: version submitted to Meyer Trust for the 1 Million Month Challenge.