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Accessory Dwelling Unit Pilot Program

Lessons Learned for San Diego Homeowners
October 2021



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EXECUTIVE SUMMARY

This report details the five Accessory Dwelling Units (ADUs) that the San Diego Housing Commission (SDHC) completed in 2021 as part of a pilot program to help San Diego homeowners understand the process related to ADU construction. This includes a list of key takeaways, or “lessons learned,” from the SDHC pilot program that may assist homeowners in their efforts to develop ADUs on their properties.

These takeaways are based upon SDHC’s experience during the pilot program and may not reflect the actual experience of each homeowner because many diverse factors will affect each homeowner’s experience. In addition, the SDHC project team selected five sites with large and/or corner lots. Homeowners may experience challenges of building on smaller lots that are not discussed extensively in this report. This pilot program also occurred during the COVID-19 pandemic, which affected timelines and the cost and supply of materials. Homeowners may or may not experience the same delays.

The following are key takeaways from this pilot program for homeowners as they consider ADU development.

1. Assemble a team of experienced professionals for the design, permitting, and construction of the ADU.

- Homeowners who do not have prior design, development, and permitting and construction experience should select an experienced designer or licensed architect to ensure that the project proceeds according to predetermined design, budget and timelines.

2. Use permit-ready plans.

- Permit-ready plans provide significant cost and time savings during the design phase, as the architect will not need to draft the plans from scratch.
- Permit-ready plans still require architectural services, and the level of work needed depends on the characteristics of the site.
- The SDHC project team worked with the architect to develop four design/building plans that include economical design elements. These will be made available for public use on the City of San Diego’s ADU webpage (<https://www.sandiego.gov/development-services/news-programs/programs/companion-junior-units>) and SDHC’s website (<https://www.sdhc.org/adu>).

3. Consider factors that can significantly impact cost:

- Units smaller than 500 square feet benefit from City of San Diego fee waivers; larger units have higher soft costs (e.g., permit, fees, surveys and studies, etc.).
- When deciding whether to split, or to share utilities between the main home and the ADU, homeowners should consult with their contracted designer or architect to consider the upfront or ongoing costs associated with each option to make an informed decision.

- The cost of splitting utilities may add \$10,000 or more to the project’s budget. Homeowners should work with their architects (who will work with the MEP engineer) to determine if street trenching is needed (i.e., if the existing electrical panel does not have additional capacity to connect to the ADU) as the cost of street trenching may be approximately \$100,000 and may take six months to complete.
 - Alternately, while sharing utilities between the main home and the ADU does not have upfront costs, there may be ongoing costs, such as if a homeowner elects to contract with a third-party utilities monitoring service for ratio utility billing (RUB) services, which is applicable to deregulated utilities such as sewer and water. For the determination of payments for regulated utilities such as electricity and gas, the homeowner and potential resident of the ADU may mutually agree on a payment arrangement.
- Site-specific conditions require additional preparation during the design phase, such as a topographic study to account for the slope of the property. Consideration for property setbacks, the distance between the existing home and the ADU, resident access, and privacy should be studied and planned to avoid significant changes and additional time and cost during the construction period.
 - The cost per square foot can be more than 25-35 percent higher than that of a typical single-family home.
 - Unexpected cost overruns can be avoided with adequate preparation in the predevelopment phase.
 - A contingency reserve of closer to 20 percent of estimated costs is recommended for ADUs.

4. Prepare for factors that can significantly impact the project’s timeline:

- Design phase:
 - Using permit-ready plan sets can reduce the overall time for the architect to prepare the plans for approvals. The architect will make modifications to these plans, as needed, to adapt these to the site.
 - Opting for a *manufactured* home will require minimal input from the homeowner’s architect, reducing the design phase costs and timeline.
- Permitting phase:
 - Homeowners may hire a permit expeditor to help with faster processing of permits.
- Construction phase:
 - A thorough site feasibility study during the design phase will account for site-specific considerations and help avoid unexpected delays and construction changes.
 - Weather and climate will impact the construction timelines.
 - Weather does not affect the assembly (construction) of *manufactured* units because they are created off-site; as a result, timelines are more reliable. Site preparation and unit delivery may still be delayed by inclement weather.

5. Consider *manufactured* units as an option to reduce time and cost per square foot without compromising quality or design.

- Homeowners should determine site feasibility, including any clearance needed for the delivery and installation.
- As with the permit-ready plans, this option includes a limited amount of involvement by the architect, which reduces costs.
- A *manufactured* unit requires the least on-site work and may be completed earlier than *traditional* units.
 - In the pilot program, this was due in part to weather conditions (rain) not affecting the manufacturing of the unit.
- During the selection of a manufacturer, include the same considerations as with selecting a general contractor, such as desired level of construction quality, whether the units are compliant with local building codes, if the units are solar-ready, along with personal preferences for the quality of finishes.
- Site preparation will be the same for *manufactured* units as with *traditional* units.

INTRODUCTION

The State of California (State) and local jurisdictions, including the City of San Diego (City) have facilitated and encouraged the production of Accessory Dwelling Units (ADUs) as a strategy to address the shortage of affordable housing (California Department of Housing and Community Development [HCD], 2020; Chapple et al., 2020; Chapple & Loukaitou-Sideris, 2021).

In September 2017, SDHC published a report, *Addressing the Housing Affordability Crisis: San Diego Housing Production Objectives 2018 – 2028*, that identified ADUs as one of the five main sources of potential additional housing units in the City over 10 years (SDHC, 2017). Through geospatial analysis, the report identified that approximately “2,700 to 5,500 ADUs could be built across the city of San Diego, assuming an uptake rate of detached ADU structures of 1-2 percent by single-family homeowners with sufficient parcel size” (SDHC, 2017, p.22). (Please refer to the Reference section of this document for all references.)

In October 2020, the City revised the Municipal Code regarding ADUs/JADUs to implement the State’s mandate to promote the construction of ADUs (see Chapter 14, Article 1, Division 3 of City of San Diego, Municipal Code). Among other changes, the revised Municipal Code reduced parking requirements, zoning setbacks and fire sprinklers, and waived Development Impact Fees, Facility Benefit Assessment Fees and General Plan Maintenance Fees. The City also implemented a digital plan review process, expedited processing and construction inspection times, and also allowed the use of permit-ready, no-cost building plans from the [County of San Diego](#) and the City of Encinitas [Permit-Ready Accessory Dwelling Unit \(PRADU\) program](#) (see “Permit-ready Plans Sets” section of this document for how to use these plan sets).

On November 15, 2019, the SDHC Board of Commissioners approved the construction of ADUs in the available yard space at five single-family homes SDHC owns and rents as affordable housing. SDHC worked with its nonprofit affiliate, Housing Development Partners, on this ADU Construction Pilot Program. The program goals were:

- To build five ADUs of varying sizes and types, including *traditional* (“stick-built”) and *manufactured* ADUs;
- To document the costs, processes and timelines associated with predevelopment, permitting and constructing each ADU type, and highlight lessons learned and key takeaways for San Diego homeowners interested in building ADUs; and
- To create permit-ready architectural design/building plans that may be available for public use, as permit-ready templates for San Diego homeowners.

SDHC worked with Milo Hama (MJHama, LLC) to analyze elements of SDHC’s experience developing the ADUs. This post-construction report details the results of the pilot program, in accordance with the above goals and includes key takeaways that may help to inform San Diego homeowners who wish to construct an ADU on their property. The four design/building permit-ready plans created through this program will be made publicly available online, through the City of San Diego’s Development Services Division (DSD) website (<https://www.sandiego.gov/development-services/news-programs/programs/companion-junior-units>) and SDHC’s website (<https://www.sdhc.org/adu>) in the near future.

The results of this program, as documented in this report, are primarily intended to aid homeowners in their ability to determine if ADU production is feasible both financially and physically, and if it is, to help homeowners plan effectively for the successful completion of their desired ADU. To this end, the report is organized as follows:

- The Pilot Program
 - Summary of the Five ADUs
 - Overview of ADU Development Phases and Timeline
 - ADU Project Development Team
- Phase 1: Predevelopment
- Phase 2: Permitting
- Phase 3: Construction

THE PILOT PROGRAM

Summary of the Five ADUs

SDHC completed five ADUs, ranging in size from 224 to 1,199 square feet, as shown in Table 1 below. Four of the ADUs were *traditional*, “stick-built” units, and one unit was *manufactured* off-site by the contracted manufacturer. *Traditional* ADUs are constructed on-site and permanently attached to their foundations, whereas *manufactured* ADUs are built at an off-site location and then transported to the site, where they are placed on a permanent foundation.

The City of San Diego allows for the use of “permit-ready,” no-cost design/building plans from the [County of San Diego](#) and the City of Encinitas [PRADU program](#). This means that homeowners can apply for a building permit with these permit-ready plans; however, additional site-specific technical plans and calculations may still be required. To be able to use the permit-ready design plans, applicants must ensure the plans for their proposed project meet the City’s submittal guidelines for obtaining a building permit (see: <https://www.sandiego.gov/planning/programs/housing/newsrelease191119>).

The four building plans that were created for the construction of the four *traditional* ADUs for this SDHC pilot program were developed using the PRADU program’s template plans as a starting point and were modified to each of the four sites and in accordance to the City of San Diego’s Municipal Code requirements.

After completion of the four *traditional* ADUs, the four plan sets were modified from what the pilot program had built, with a simplified foundation system. The simplified foundations will result in lower associated construction costs compared with the plan sets that were built for this pilot program. These building plans are currently under review by the City and once approved, will be made publicly available on SDHC’s website as permit-ready building plans for San Diego homeowners.

Table 1: Summary of the Five ADUs

ADU Type	Size (ft ²)	Overall Cost*	Cost/ft ²
One-Bedroom, One-Bathroom <i>Manufactured</i>	499 ft ²	\$137,875	\$276/ft ²
Studio, One-Bathroom <i>Traditional</i>	224 ft ²	\$116,803	\$521/ft ²
One-Bedroom, One-Bathroom <i>Traditional</i>	499 ft ²	\$176,333	\$353/ft ²
Two-Bedroom, Two-Bathroom <i>Traditional</i>	990 ft ²	\$296,832	\$300/ft ²
Three-Bedroom, Three-Bathroom <i>Traditional</i>	1,199 ft ²	\$342,078	\$285/ft ²

*Includes hard and soft costs (refer to the “Costs” section of this report for a breakdown of each of these costs). Individual costs may vary per project according to site conditions, design and other aspects. These costs are estimates, using the project’s budget, adjusted to reflect costs that a homeowner might expect. The costs assume that the site is relatively flat with clear access to a right-of-way and unencumbered easements; adequate soils for regional standard foundation systems; adequate existing utility capacity and placement on-site to support the proposed ADU. The table does not include costs for: new or improved utility service connections; civil engineering, land surveying, or other specialized consulting that may be required for sites with extensive or sensitive topography; grading; right-of-way; specialized foundation systems; ancillary structures; or site improvements that may be required.

Overview of ADU Development Phases and Timeline

The three sets of figures below show the high-level processes for three different approaches that a homeowner may select from when constructing an ADU:

- 1) Figure 1: using permit-ready design/building plans;
- 2) Figure 2: selecting a *manufactured* unit; and
- 3) Figure 3: creating custom plan sets.

The range in timeline reflects an average timeframe that a homeowner can expect to experience for each of the development phases by the three approaches mentioned above. These are estimated timeframes based on previous SDHC construction projects (see Table 2). Homeowners may consult the City’s permitting website for more information about permitting timelines: <https://www.sandiego.gov/development-services/permits/timeline>. The timelines for each phase are discussed in greater detail in the “Predevelopment,” “Permitting” and “Construction” sections of this report. Further, a homeowner may contract with various parties to complete their ADUs, and this is discussed in the “ADU Project Development Team” section of this report. The figures below assume that a homeowner will work with a designer or licensed architect for the predevelopment and permitting phases and with a general contractor for the construction phase. However, a homeowner may also work with a construction manager during the construction phase (See “Construction” section of this report). The estimated timelines and figures presented in this document assume that homeowners will not experience delays due to COVID-19 that were experienced during this pilot program.

Note that since the pilot program created new design/building plans, using the PRADU program’s existing plans as a starting point, from which only minor modifications were made, it can be seen as a “hybrid” approach, combining processes from Figure 1 (permit-ready plans) with processes in Figure 3 (custom-build plans). While this pilot program did not involve true custom plan sets (i.e., those drafted by an architect from scratch according a homeowner’s design preferences), Figure 3 is included to provide a homeowner with an understanding of the difference in process and time, as compared with permit-ready plan sets and *manufactured* units.

Figure 1: Process and Timeline Overview – Permit-ready Plan Sets (Traditional ADU)



Figure 2: Process and Timeline Overview – Manufactured ADU



Figure 3: Process and Timeline Overview – Custom Plan Sets (Traditional ADU)



Timelines are estimated. Individual timelines may vary per project according to design, site conditions, and the make-up of the project development team.

It is also important to note that the timelines reflect the SDHC pilot program’s construction of five units at the same time, and accordingly, homeowners who will likely construct one unit at a given time may experience shorter timelines, such as those associated with construction. For example, during the pilot program, work needed by specific building trade such as framing, plumbing, electrical, drywall, and other specialists, was batched to be completed on the same day, which affected the schedule by a few days. Homeowners will not experience the same scheduling needs. However, costs and timelines associated with the one-bedroom *traditional* and one-bedroom *manufactured* (stated in Tables 1 and 2, respectively) serve as reliable comparables for homeowner as these units were completed according to their own unique schedules.

The pilot program also found that the *manufactured* unit had shorter predevelopment and construction periods. This was because the architect’s input during the predevelopment phase is minimized (i.e., compared with custom-design) and is limited to the development of site plans only. Construction timelines for the *manufactured* unit were also significantly shorter because the site preparation work can begin at the same time that the unit is being built off-site. The manufacturer built and then delivered the unit within 90 days of placing a deposit. By comparison, construction for the studio, two- and three-bedroom units ranged from eight to 10 months.

Table 2: Comparison of Actual and Expected Timelines for the five ADUs by Project Phase

Phase	Timeline (months)	Manufactured	Studio	1BR	2BR	3BR
Predevelopment and Design	Expected	1-2	1-2	1-2	1-2	1-2
	Actual	4	4	4	4	4
Permitting	Expected	6	6	6	8	8
	Actual	6	12	12	12	12
Construction & Installation	Expected	4	3	6	6	6
	Actual	6	9.5	8	8	10

ADU Project Development Team

SDHC’s in-house Project Development Team included a project manager and construction manager, who worked with all other contracted parties, including a general contractor and a licensed architect (DZN Partners, who developed the permit-ready plan sets for the City of Encinitas) for the four *traditional* ADUs, and with a dealer (Crown Pacific Homes) and manufacturer (Cavco Industries) for the *manufactured* ADU. Additionally, during the predevelopment phase, the project’s architect worked with an MEP engineer, a structural engineer, and a Title 24 consultant.

Homeowners without prior design, development and construction experience should contract with a designer or licensed architect of their choosing during the Design Development phase, and may work with their contracted builder/general contractor to assist with oversight of all phases of the project and liaise with all parties. The builder/general contractor may also work with permit expeditors to expedite the permit review process, should a homeowner elect to contract with a permit expediter at an additional cost.

Tip: While architects can also process permitting, their fees are often much costlier than those of contracted builders/general contractors. However, it may be easier from a processing standpoint to find architects who specialize in ADUs, compared with project managers with ADU experience. Similarly, a homeowner may work with a builder/contractor during the permitting process.

Table 3 provides a list of potential project team members and consultants that a homeowner may consider for various phases of the project timeline, as needed. Homeowners may contract directly with any of the consultants, as applicable.

Table 3: ADU Project Development Team

Project Team/ Consultants	Role	Phase
Designer or Licensed Architect	For building design (i.e., floor plan, elevations, materials etc.), plan sets, and site plan improvements. May be required to adjust plan sets as requested during the permit review process.	All phases
Project Manager	Coordinates all phases of the project, including but not limited to: site feasibility, design, permitting, bids, contractor selection, construction monitoring, and other processes.	All phases
Structural Engineer	For foundation and building structure design. A Structural Engineer is usually contracted as a consultant to the architect. Depending on the geotechnical investigation* and findings, the Structural Engineer may design (see City of San Diego Information Bulletin 140: https://www.sandiego.gov/sites/default/files/dsdib140.pdf): <ul style="list-style-type: none"> • Conventional slab on grade; • Post tension foundation (for expansive soil); • Raised foundation (“crawl space”); 	All phases

	<ul style="list-style-type: none"> • Building structure if needed, otherwise may follow conventional framing details; • Retaining walls, if applicable. See San Diego Regional Standard drawing (SDRSD) up to 8'-0" high depending on backfill conditions. <p>*Geotechnical investigations are performed by geotechnical engineers or engineering geologists to obtain information on the physical properties of soil earthworks and foundations for proposed structures and for repair of distress to earthworks and structures caused by subsurface conditions.</p>	
Surveyor	To identify property corners and/or topography of property. May be a Civil Engineer	Predevelopment
Title 24 (California Energy Standards) Consultant	For required energy calculations. The architect typically contracts directly with the Title 24 consultant.	Predevelopment
Storm Water Consultant	If applicable, to prepare a Storm Water Pollution Prevention Plan (SWPPP) for projects that involve over 1 acre of soil disturbance. May be required when the ADU is part of a larger primary dwelling construction project.	Predevelopment
Civil Engineer	For site drainage, retaining walls (if necessary) and wet utilities (water and sewer). <ul style="list-style-type: none"> • The most economical option for water and sewer to the ADU is to connect to the primary dwelling services (e.g., single-family home utilities), if feasible. Otherwise, new services from the water and sewer mainlines in the right-of-way (ROW) are needed and much more costly. 	Predevelopment and during Construction
Geotechnical Engineer	For foundation design considerations that may include: <ul style="list-style-type: none"> • Over-excavation and re-compaction if soil is loose or uncompacted fill • Verifying and mitigating expansive and corrosive soil including: <ul style="list-style-type: none"> ○ Excavate, export, and import non-expansive soil; ○ Post-tension foundation. 	Predevelopment and during Construction (to conduct inspections)
MEP Engineer	For mechanical, electrical, and plumbing designs. The architect typically contracts with an MEP Engineer consultant. Heating, ventilation, and air conditioning (HVAC) considerations may include: <ul style="list-style-type: none"> • A forced air unit (FAU) system for heating only or with optional air conditioning; • An electric or gas wall heater; 	Predevelopment & Construction

	<ul style="list-style-type: none"> • A mini-split system for heating and air conditioning, either wall- or ceiling-mounted. 	
Fire Sprinkler Contractor	If applicable, may be required if primary dwelling unit has fire sprinkler protection. If required, a Fire Sprinkler Contractor may be contracted to design and build a fire sprinkler system.	Predevelopment & Construction
Construction Manager	Similar to a Project Manager, the Construction Manager will coordinate site feasibility, design, permitting, bids, contractor selection, construction monitoring, and other processes. A construction manager will often act as the field representative for the owner during construction, and will assist in approving work as it is completed by the General Contractor. A homeowner may not require a construction manager, however, the ADU Pilot Program involved both SDHC's own in-house construction and project managers during the development process.	Construction
General Contractor	The general contractor executes construction of the ADU. When a general contractor is used to construct the ADU, the general contractor will be the entity who enters into the prime contract with the property owner.	Construction

In the earliest phase of considering whether an ADU might be feasible for a property, homeowners should consult the City of San Diego's Accessory and Junior Accessory Dwelling Units (ADU/JADU) webpage (<https://www.sandiego.gov/development-services/news-programs/programs/companion-junior-units>) to learn about the applicable ADU regulations and requirements such as:

- ADU Ordinance changes
- Access to the City's Municipal Code (also here: <https://docs.sandiego.gov/municode/MuniCodeChapter14/Ch14Art01Division03.pdf>)
- Building Permit procedures, expected timelines, and submittal requirements
- Additions and Modifications to the California Codes
- Fee Schedules
- Inspections
- ADU-related resources, such as the California Department of Housing and Community Development's Accessory Dwelling Unit Handbook (2020)
- Link to permit-ready ADU plan sets

PHASE 1: Predevelopment

Zoning

The predevelopment phase includes determining if the site is feasible and if the site meets the regulatory requirements for the addition of an ADU on the property per the City of San Diego's zoning regulations and per the community's Homeowner's Association's (HOA) Covenants, Conditions, and Restrictions (CC&Rs), as applicable.

The SDHC Project Development Team confirmed zoning requirements during the site selection stage and then worked with their contracted licensed architect to develop site plans for each of the four *traditional* ADUs. Site plans are those that set that building plan in a site-specific context and are required for all plans, including permit-ready building plans.

Homeowners may refer to the City of San Diego's Information Bulletin 400 (IB 400) for zoning designations, regulations for both single-family zoned and multifamily zoned lots, and for a link to the City's look-up search for the zoning map (see: <https://apps3.sandiego.gov/siteinfoweb/begin.do>). Homeowners may also reserve a virtual appointment with the City's Development Services Department to inquire about zoning requirements (See: <https://www.sandiego.gov/development-services/virtual-appointments>).

Site Feasibility

After determining zoning restrictions, homeowners may work with their designer/architect to determine site feasibility. Site-specific conditions can significantly impact the project's feasibility, costs and timeline. The designer/architect may consider (Hama, 2021):

1. Potential encroachment into side- and rear-yard setbacks, including up to the property line, but must comply with the front and street-side setbacks of the zone.
2. Verification of existing deed restrictions
3. Verification of easements for utilities, neighbor access, etc.
4. Distance from primary dwelling
5. Private or shared outdoor space
6. Parking requirements: As of this writing, parking spaces are not required for ADUs. Replacements for parking spaces are not required for conversion or demolition of an existing garage or carport. If parking is provided, it must be entirely within the property lines.
7. Gradient/Slope: Determine if a retaining wall(s) is required to establish a level building pad, accessible path, and yard.
8. Means of egress (continuous, unobstructed path of travel from ADU to a public way) either private or common with the primary dwelling.
9. Environmentally Sensitive Lands (ESL) containing steep hillsides, sensitive biological resources, coastal beaches, sensitive coastal bluffs, or Special Flood Hazard Areas.
10. Adequate water and sewer services either from existing primary dwelling or new services
11. Coastal Commission involvement
12. Special Planning Districts
13. Severe fire hazard zones may impose building materials and exterior opening limitations

14. Very High Fire Hazard Severity Zone regulation would apply to new structures but not interior improvements. Impact on roofing type, attic ventilation and exterior window & door openings
15. Consider a Preliminary Review from the City (fee based).
16. Access to required wet and dry utility connections, and verification of their capacity to support the demand imposed by the ADU.

The above is not an exhaustive list. Homeowners should consult with their designer/licensed architect as needed throughout the site feasibility process.

The SDHC Project Development Team completed site feasibility analysis for each of the sites and noted no significant differences between the sites for the *traditional* units and *manufactured* ADU, except for the need to determine clearances that would enable transporting the *manufactured* ADU by truck or crane. For this pilot program, a site with sufficient clearance to enable the delivery of the *manufactured* ADU to the backyard by truck and tractor was selected as an economical choice, since the delivery cost was \$3,500 (\$2,000 for transport and an additional \$1,500 for spotting the home on the lot) compared with a \$7,000-\$9,000 cost for using a crane (\$2,000 for transport and an additional \$5,000-\$7,000 depending on the site specifics).

Tip: Homeowners should discuss delivery methods and associated costs with their selected manufacturer well in advance of installation.

SDHC's Project Development Team selected the five properties (i.e., sites) for their relatively large backyards, on corner lots that would provide easy access during construction, and their close proximity to one another for ease of construction management and mobilization. Additionally, to prepare for utilities connection, four of the five selected lots were located close to pad-mounted transformers. The site for the *manufactured* ADU was selected for its vehicle accessibility to the backyard to avoid additional costs that would otherwise be incurred if a crane was needed. Optimal site conditions or non-optimal site will have an impact on overall costs and timelines for all project phases.

Separation of the Site

Homeowners should consult with their designer or licensed architect to consider ways that they can separate the outdoor spaces between the primary unit and the ADU, which may include considerations for decks or patios, fenced yard and separate street access to the respective units.

For this pilot program, the ADUs and the primary dwelling units were separated by a fence, and separate street access was created. The cost of fencing for each of the five pilot program sites was approximately \$4,000. There were no differences in considerations between the sites for the *traditional* units and *manufactured* ADU. Homeowners will also consult with their designer or licensed architect as to how to structure utilities hook-up to the ADU, which is discussed in the "Utilities" section of this document below. There may be exterior design implications depending on the approach, and these considerations should be discussed during the predevelopment phase.

Building Design

Homeowners may build an ADU through various methods, as discussed earlier (See pages 3-4 for a comparison of three types). This pilot program constructed four traditional ADUs and one *manufactured* ADU through a dealer and manufacturer.

Costs vary according to the degree of services needed by the designer/architect, since each of these options will require their support to varying degrees. Table 4 outlines the role of the licensed architect (or designer) and associated architectural costs that homeowners should consider based on their budgets. Designers' fees may be lower than those of licensed architects, and architectural fees will vary. Homeowners may wish to explore each of these options and obtain quotes to make an informed decision and one that is appropriate for their budgets.

For the *manufactured* unit, the homeowner will need to submit site plans with their permit application. For this pilot program, which is standard practice that homeowners can expect, the manufacturer prepared the building plans, and the architect prepared the site plans (at a cost of \$2,500 per Table 4). Also, as shown in Table 4, the architectural costs were affected by the size of the unit—ranging from more than \$4,000 for the studio *traditional-build* to close to \$8,000 for the three-bedroom *traditional-build*. Larger units and lots with unique site conditions may be more complex in design, which requires additional time by the architect. Homeowners may experience lower costs if they elect to use a permit-ready building plan, and conversely, higher costs if they elect to work with an architect on a custom designed ADU.

Table 4: Role of Designer/Architect and Cost by ADU Type for Building Design

ADU Type	Designer/ Licensed Architect's Role	Architect's Cost* Actual
One-Bedroom, One-Bathroom <i>Manufactured</i>	Create site plans, unless prepared by the manufacturer	\$2,500
Studio, One-Bathroom <i>Traditional</i>	Modify permit-ready plans	\$4,097
One-Bedroom, One-Bathroom <i>Traditional</i>	Modify permit-ready plans	\$6,303
Two-Bedroom, Two-Bathroom <i>Traditional</i>	Modify permit-ready plans	\$7,940
Three-Bedroom, Three-Bathroom <i>Traditional</i>	Modify permit-ready plans	\$7,990

**Costs are based on the actual architectural fees from the project. However, rates along with the extent of work needed, will vary for homeowners.*

Additional considerations to the building design include aspects that contribute to the ADU's compatibility to the existing neighborhood. An experienced designer or architect will consider potential impacts to the existing neighborhood, how the design might affect property values, and visual and aesthetic compatibility with the primary dwelling as well as with the surrounding neighborhood. For this

pilot program, the ADUs were designed to fit with the primary home and within the style of the neighborhood context, such that the external design details mirrors those of the primary home in addition to any external building finishes (e.g., siding, stone-cladding). The primary home was considered in the determination of the scale and size of the ADUs, which do not exceed the size of the primary home and are one story with access separation from the primary residences.

Other site-specific conditions that will require additional preparation during the design phase include a topographic study to account for the slope of the property, consideration for property setbacks, the distance between the existing home and the ADU, resident access, how utilities will be connected (see “Utilities” section below), installation of solar panels (see “Permitting” section of this document) and privacy. These should be studied and planned to avoid significant changes (and additional time and cost) during the construction period.

Utilities

Utilities include electricity and/or gas (regulated), domestic water and sanitation lines (deregulated). Homeowners should work with their architect to determine whether or not to split utilities between the main home and the ADU, which is costlier upfront, or to share utilities between the ADU and primary dwelling, which is a cost-effective approach from a construction standpoint but may have operational costs once the ADU is available to rent.

The SDHC Project Development Team began the process of working with the gas and electric utilities providers at the onset of the project, in anticipation of potential delays per prior experience with other projects. The pilot program’s general contractor submitted plans to San Diego Gas and Electric (SDG&E) that showed interconnections to the electrical grid. Homeowners who are owner/builders may also complete the plans and submit to their gas/electric utilities provider.

While the intention was to split utilities for all five units in the pilot program, utilities were split for four of the five units and shared for one of the units due to unforeseen construction costs and schedule delays. This site would have required street trenching to split utilities. This cost of street trenching would have increased the budget in excess of \$100,000 and would have extended the schedule by more than six months. The budget and schedule could not support this option; therefore, the project team opted to share utilities between the ADU and primary dwelling unit at this site. Where utilities are shared between the main home and the ADU, utility billing will also be shared. Homeowners should consider how to arrange separate payments for utilities if they intend to rent out the ADU. For the pilot’s ADU, SDHC contracted with a third party utility management company to determine the payments for sewer and water usage through ratio utility billing (RUB). The third party utility management company collect an administration fee for each bill cycle.

Tip: The need for street trenching may also be required if it is determined during the predevelopment phase of the project’s site feasibility study (conducted by an MEP engineer or electrician) that the current home’s electrical panel does not have sufficient capacity for the addition of an ADU.

Additionally, the pilot program incurred unexpected costs due to supply-chain issues related to the COVID-19 pandemic. For all five ADUs, this required relocation of the primary dwelling unit’s electrical panels to

obtain gas service for the ADU. This was a workaround to resolve the specific supply chain issue related to material shortages and the local utility company’s limitations with relocating existing gas services. This cost required an additional \$10,000 per site to relocate panels, with additional time for the associated permit process. Homeowners may not encounter these additional unforeseen costs and timelines. This additional cost is not included in Table 1.

PHASE 2: Permitting & Fees

Permitting Process and Requirements

Homeowners and their designer/architects should thoroughly review the *Municipal Code* and *Submittal Requirements* sections of the City of San Diego’s ADU webpage for permit submittal requirements and processes, including the City’s Development Services digital review process (see: <https://www.sandiego.gov/development-services/news-programs/programs/companion-junior-units>). The permitting process includes: intake (11-18 business days); plan review (timeline varies); permit stamp transfer (2-7 business days); and permit issuance (7-20 business days) (City of San Diego, Development Services Division, 2021).

The pilot program’s ADUs did not include solar photovoltaic systems (“solar panels”), as this requirement came into effect after the permits for this program were submitted. Homeowners should consult with their designer or licensed architect about how to meet solar panel requirements. (See the City of San Diego’s Bulletin 301 for how to obtain a permit for installation of Solar Photovoltaic Systems, <https://www.sandiego.gov/sites/default/files/dsdib301.pdf>)

Table 5 outlines the permitting timeline (both expected and actual) and actual costs for permitting and fees for each of the five ADUs in the pilot program. The COVID-19 pandemic and the Development Services Department’s physical relocation at the time of plan review affected the time needed to obtain approval. Homeowners should not expect to experience the delays experienced during this program.

Table 5: Permit Processes, Time, and Cost by ADU Type for Building Design

ADU Type	Expected Time	Actual Time	Cost for Permits and Fees
One-Bedroom, One-Bathroom <i>Manufactured</i>	6 months	6 months	\$3,585.00
Studio, One-Bathroom <i>Traditional</i>	6 months	12 months	\$6,173.00
One-Bedroom, One-Bathroom <i>Traditional</i>	6 months	12 months	\$6,153.00
Two-Bedroom, Two-Bathroom <i>Traditional</i>	8 months	12 months	\$13,636.00
Three-Bedroom, Three-Bathroom <i>Traditional</i>	8 months	12 months	\$14,509.00

For the pilot program, the architect contracted with a permit expeditor who was responsible for submitting all permits, monitoring progress, and for liaising with the architect to address adjustments needed by the City during the permit review phase. The permit expeditor submitted five separate permit application packets to the City's Development Services Department. Approval of the site plan for the *manufactured* unit was completed significantly sooner, within six months of submission, compared with the four *traditional* units, which took 12 months to complete.

During the permitting phase, the SDHC Project Team regularly followed up with the permit expeditor to ensure that the process met its timelines and that adjustments and corrections were addressed in a timely manner. The effectiveness of a permit expeditor is directly related to the responsiveness of the architect and their ability to respond to the City's requests, such as producing additional drawings, if needed, which may take several weeks or months.

Homeowners may consider working with any one, or some combination of, the following project contributors for the permitting process (Hama, 2021):

- ✓ **Permit Expeditors** to submit plans for permitting and track progress. These expeditors have extensive prior permitting experience and a deep understanding of the plan review process and can help move the plan through the City review process. Expeditors charge an hourly rate (typically \$100/hour) and typically have a maximum cost of \$1,000.
- ✓ **Designer or Licensed Architect/Engineer (A&E)** to submit plan documents for permitting. Architects are experienced with the process and can help guide and inform the homeowner. A&E fees may be similar to an expeditor's fee.
- ✓ **General Contractor** to submit plans for permitting and track progress, if hired during pre-construction. They are also experienced with the permitting process.

- x Whereas a project manager may work closely with an architect/designer and/or permit expeditor, they do not typically have the expertise necessary to assist and track the plans through the permitting process.
- x Similarly, the homeowner may also submit their plans directly online. However, this is not recommended, as the system and feedback produced by the City's Development Services Department are tailored to the expertise of construction professionals.

Additionally, *manufactured* homes have specific requirements that must be met to be installed in California. One of these requirements is that the plan set must bear the insignia of approval issued by the California Department of Housing and Community Development (HCD). For this program and as standard practice, the manufacturer provided the HCD-approved plan sets. Similar to a *traditional* ADU, the placement and site improvements associated with the ADU require City of San Diego review and permit approval. To this end, the project's architect placed the unit plans on the site plan and showed utility connections. Homeowners can expect their project's architect to show the placement of utilities on the site plans as well.

Site-specific site improvement plans may be required for permit-ready plans and for custom design ADU building plans. Site Improvement plans may include, but not be limited to (Hama, 2021):

1. Grading permit
 - a. Exceptions: grading below finished grade of the building; grading for retaining walls; excavated material disposed off-site at a legal disposal site
2. Retaining wall permit
 - a. Required if slopes are higher than 3 feet above top of footing, supports surcharge loads (e.g., walkways, driveways, structure footings, fences, etc.), or if slope is steeper than 1.5 feet (horizontal) to 1 foot (vertical).
 - b. An over-the-counter plan review may be available if the design conforms to City's Information Bulletin 221.
3. Fence permit:
 - a. Required for fences at or above 7 feet high.
 - b. If the planned fence is 7 feet high or less and conforms to the City's Information Bulletin 222 (IB-222), a permit may not be required.

The project's architect/designer will consider all of the above requirements and any additional requirements, such as those relating to the Coastal Overlay Zone, fire hazard zones, and many other requirements when preparing and submitting plans for permit approval.

Tip: As part of the permitting process, new addresses were generated for the ADUs. This is standard practice, and homeowners can expect the same.

Permit & Utility Fees

As shown in Table 5 above, the cost of permitting and fees for the pilot program's *manufactured* unit was significantly lower (\$3,585) compared with the other four *traditional* units. Among the four *traditional* units, the permitting and fee costs for studio and one-bedroom units were also significantly less (\$6,173 and \$6,153 respectively), compared with the two- and three-bedroom units (\$13,636 and \$14,509 respectively). In part, the large differences in costs are due to the City's fee waivers for ADUs with an area of less than 500 square feet.

The following is a list of fees that can affect the costs for permitting; however, this is not an exhaustive list. Homeowners should consult with their architect/designer and visit the City's ADU webpage (see: <https://www.sandiego.gov/development-services/news-programs/programs/companion-junior-units>):

1. Standard Plan check and building permit fees. Refer to Information Bulletin 501 (IB 501);
2. Water and sewer fees;
3. School fees apply if ADU area is over 500 square feet (see IB 146);
 - a. Contact the school districts directly to verify the fee.
4. If ADU area is under 500 square feet:
 - a. Development impact fees (DIF) are waived.
 - b. Regional Transportation Congestion Improvement Program Fees (RTCIP) are waived.
 - c. General Plan Maintenance Fee (GPMF) is waived.
5. If utilities will be split between the primary residence and the ADU, utility connection fees will apply.

6. Gas and electric (SDG&E) fees apply for new or upsized services.

PHASE 3: Construction

Once permits are approved, the project can move into the construction phase, which begins with site preparation.

Site Preparation

The following is a list of site preparation items for *manufactured* ADUs, all of which the pilot program's manufacturer completed:

- ✓ Verify access and maneuvering constraints from the street through the property to the final placement location of the *manufactured* ADU. If immovable physical constraints prohibiting ground access, the *manufactured* home vendor may have to crane the unit to set, at an additional cost.
- ✓ Verify that the manufacturer and installer included the required on-site foundation work, utility connections, and the placement or assembly of the home. If this was not completed, the homeowner will need to contract this work with a contractor.
- ✓ Homeowner will need to provide or contract for the site improvements, such as concrete or pavers pads/walks/decks, fencing and landscaping.

Site Preparation for a *traditional* unit will be performed by the contractor, who will complete requirements laid out in the site plan.

Construction Monitoring

In this phase, a homeowner may work with their designer/architect, along with the contractor, if the homeowner is not an owner-builder. A homeowner may select from various options for monitoring construction, ranging in costs from highest to lowest, such as an architect, a project manager with construction experience, or a homeowner with adequate experience and time may do this on their own. If the project team properly executes the site planning, design and permitting steps, construction challenges should be limited, and the homeowner can anticipate the process to move relatively smoothly.

As SDHC is a government entity, the pilot program's Project Team may differ from that of a homeowner's project team. For the construction phase, the pilot program's Project Team consisted of the project manager, construction manager and general contractor (who also had a construction manager), and architect (who contracted with an engineer and other consultants). The architect, engineers and consultants performed quality control inspections, responded to Requests for Information (RFIs), reviewed and approved technical submittals, and ensured that each ADU was delivered by the contractor as designed—which are all common course of construction processes.

Construction

A homeowner may be an owner-builder who completes construction on their own. As an owner-builder, the homeowner can hire trade contractors directly. This approach may save on construction labor and administration costs, but requires additional coordination and considerable expertise and construction experience.

Alternately, homeowners may hire a general contractor (GC) by soliciting bids or quotes for the project. Contacting with a GC entails the following phases and options (Hama, 2021):

1. Select a construction delivery method:
 - A. **Design-Bid-Build:** After the project is designed, the homeowner will solicit bids from GCs (no less than three bids) and contract with the GC of their choice in accordance with the design drawings.
 - B. **Design-Build:** The homeowner will select a GC by requesting proposals and negotiating a contract. The GC will be responsible for both the design and construction of the project.
 - C. **Design-negotiate-build:** After the project is designed, the homeowner will select a GC of their choice to submit and agree on a proposal. The homeowner and GC will negotiate the cost.
2. After selecting a delivery method and finding a contractor, different types of contracts are available for consideration when hiring a GC or subcontractors are as follows:
 - A. **Lump Sum Contract:** Based on a defined scope of work in accordance with the plans for an agreed cost.
 - B. **Unit Price Contract:** Based on the project's estimated quantities and their unit price.
 - C. **Cost Plus Contract:** Where the homeowner pays for all labor and material plus a fee to the GC, usually a percentage or fixed amount. Usually when the scope of work, labor, materials and/or equipment are indeterminate or highly uncertain. Requires complete and accurate record keeping.

Whether proceeding as an owner-builder or hiring a GC, homeowners without prior construction experience should hire a construction manager to oversee the contractors before, during and after the construction process. A construction manager would typically manage the following project components (Hama, 2021):

1. Water and electrical usage unless they are obtained directly from the utilities at an added cost to the project.
2. Soil testing and inspection of the building pad area, building foundation and retaining wall excavations and backfill.
3. Construction material special inspections, as applicable, including prefabricated shear wall assemblies, high strength concrete (3,000 PSI or greater), retaining wall construction, shear nailing etc. Engineered design will determine requirements;
4. Home Energy Rating System (HERS) verifications, to perform field verification and diagnostic testing required for demonstrating compliance with the Energy Code. Title 24 report will identify HERS verification requirements.

Construction Site Management

The following is a list of key checklist items that must be considered as part of site management (Hama, 2021).

- ✓ Construction equipment:
 - During the predevelopment phase, the project team evaluates access to the building area for construction equipment and takes into account sites that are smaller or present other physical challenges.

- ✓ Storing materials:
 - Plan a material staging area for material stored on-site.
 - Plan remote storage, as needed.
 - Consider any material supply-chain shortages and long lead times.
 - Materials should be out of the way of construction and secured.

- ✓ Disposing of materials or construction debris:
 - On-site dumpsters for construction debris in the City of San Diego have a recycling requirement of 65 percent to receive a full refund of a deposit collected at permit issuance.

- ✓ Account for site security and the safety of residents, tenants and the public:
 - Unless the property is fenced, it is recommended to install temporary fencing around the work zone. If the perimeter of the home is fenced, the project team may consider fencing between the primary dwelling and the work zone for the safety of residents and guests.
 - Consider installing a security system and/or hiring a security service. This can be considered on a site-by-site basis to ensure security and safety of the construction site.

Insurance During Construction

Homeowners are encouraged to obtain the following insurance certificates and clauses, and to secure these before starting any work on the property (Hama, 2021). They come at additional costs:

- ✓ Builders Risk Insurance by the homeowner or general contractor.
- ✓ General Contractor and all Subcontractors should have general liability, commercial auto, and worker's compensation insurance.
- ✓ Homeowner should be named as an additional insured on General Contractor's and Subcontractor's general liability and workers compensation certificate of insurance (COI).

Temporary Utilities Services During Construction

The following is a list of temporary utilities services needed during the construction period, as the additional use of electricity and water may add to the homeowners' utilities charges during the construction period (Hama, 2021). A homeowner's general contractor (incorporated as part of the contractor's fees) may arrange these services. Otherwise, a homeowner can arrange for the delivery of services by contacting a rental company directly.

- ✓ Electrical service for tools and equipment:

- Contractors can use electrical from the primary residence outlets or panel. In instances where the home is occupied by tenants, a credit to the electrical bill should be considered.
- A portable generator or request for temporary services from SDG&E are other potential solutions.
- ✓ Water used for grading, trenching or retaining wall backfill work:
 - Contractors can use water from the primary dwelling or a construction water meter on a fire hydrant obtained through the City water department.
- ✓ Sanitary Facilities:
 - A temporary toilet and handwashing station, furnished and serviced weekly (at minimum) by a service vendor, is needed.

Changes During Construction

Homeowners can expect the need for slight modifications from initial plans once construction occurs. For this pilot program, site-specific conditions required changes and additional coordination after construction began. For example, site slope conditions at the studio and three-bedroom sites required the project team to work with the architect to adjust and resubmit drawings to the City for approval. This process added 60 days to the project schedule. As such, homeowners should include a topographic survey at the predevelopment phase (design phase) to inform foundation and retaining wall locations on sites with moderate slopes.

Site Inspections

During the course of construction, a City site inspector will inspect the contractor’s work through regular on-site inspections until construction is complete. The person managing construction (either the homeowner, if owner-builder, or the project’s contractor) will need to call the City to schedule inspections following the list of required inspections indicated on the inspection card that is provided at permitting. As a result of the inspections, items on the approved plans may require a field change if these are deemed unacceptable by the City site inspector assigned to the project. If this occurs, this change would trigger a construction change, which would require the approved plans to be modified by the designer/architect and submitted to the City for review, causing additional delays to the project schedule.

Construction Timeline and Costs

Table 6: Hard Construction Costs and Timelines by ADU Type

ADU Type	Expected Timeline	Actual Timeline	Cost of Construction & Utilities
One-Bedroom, One-Bathroom <i>Manufactured</i>	4 months	6 months	\$128,495*
Studio, One-Bathroom <i>Traditional</i>	3 months	9 months	\$102,435
One-Bedroom, One-Bathroom <i>Traditional</i>	6 months	8 months	\$157,574

Two-Bedroom, Two-Bathroom <i>Traditional</i>	6 months	8 months	\$264,669
Three-Bedroom, Three-Bathroom <i>Traditional</i>	6 months	10 months	\$307,288

**Includes specific costs for manufactured units in addition to the cost of construction and utilities: manufacturing of the unit, installation and preparation, and delivery of the manufactured ADU.*

The pilot program’s actual construction timelines exceeded the expected timelines, as stated in Table 6. The significantly longer delays for the studio and three-bedroom units are attributed to the additional site-specific work needed due to slope conditions, construction changes that required modifications to the approved plans and the required review and approval for the modifications, as well as material delays due to COVID-19, which were discussed earlier. Rain during the construction period also caused delays in digging, inspections and pouring of concrete. Costs are discussed in greater detail in the subsequent section of this report.

COST: Summary of Hard and Soft Costs

Construction costs include soft costs—such as City permit and fees, surveys and studies, engineering costs, and architectural costs—and hard costs—such as the cost of construction for the *traditional* units and the cost of manufacturing, installation and delivery for the *manufactured* unit. Table 7 provides a breakdown of the total cost by soft and hard costs for the construction of the five ADUs in the pilot program.

Table 7: Total Construction Costs by ADU Type

	<i>Manufactured</i> /1BA 499 ft ²	Studio/ 1BA 224 ft ²	1BR/1BA 499 ft ²	2BR/2BA 990 ft ²	3BR/3BA 1199 ft ²
Soft Costs					
<i>City Permits and Fees</i>	\$3,585	\$6,173	\$6,153	\$13,636	\$14,509
<i>Alta Surveys & Topo</i>	\$725	\$2,561	\$3,939	\$6,617	\$7,682
<i>Engineering Costs</i>	\$2,570	\$1,537	\$2,364	\$3,970	\$4,609
<i>Architectural Costs</i>	\$2500	\$4,097	\$6,303	\$7,940	\$7,990
Hard Costs					
<i>Construction, Utilities</i>	\$29,000	\$102,435	\$157,574	\$264,669	\$307,288
<i>Manufacturing</i>	\$49,995	N/A	N/A	N/A	N/A
<i>Installation & Prep</i>	\$44,500	N/A	N/A	N/A	N/A
<i>Delivery</i>	\$5,000	N/A	N/A	N/A	N/A

Cost per Square Foot	\$276	\$521	\$353	\$300	\$285
Total Construction Costs	\$137,875	\$116,803	\$176,3323	\$296,832	\$342,078

Note: The costs in this table reflect estimated costs that a homeowner may incur for each of the unit types. Individual costs may vary per project according to site conditions, design and other aspects. These costs are estimates, using the Project’s budget, adjusted to reflect costs that a homeowner might expect. The costs assume that the site is relatively flat with clear access to a right-of-way and unencumbered easements; adequate soils for regional standard foundation systems; adequate existing utility capacity and placement on-site to support the proposed ADU. The table does not include costs for: new or improved utility service connections; civil engineering, land surveying, or other specialized consulting that may be required for sites with extensive or sensitive topography; grading; right-of-way; specialized foundation systems; ancillary structures; or site improvements that may be required.

For this pilot program, soft costs accounted for approximately 20-30 percent (includes contingency) of the total construction costs, and hard costs accounted for the remaining 70-80 percent of the total costs. The highest soft costs involved the cost of permitting and City development fees, especially for the units that were greater than 500 square feet, as discussed earlier.

In addition to referring to the estimated costs in Table 7, homeowners should also include a contingency reserve that provides a financial “buffer” as part of their project budget for unexpected costs. The recommended contingency reserve for a typical single-family home construction is 10 percent of the total estimated construction costs. However, a contingency reserve of between 15 percent and 20 percent is recommended for ADU construction.

ADUs include the same features and infrastructure as a typical house, but within a smaller footprint. As such, the cost per square foot can be more than 25-35 percent higher than that of a typical single-family home. The pilot program’s smallest unit, the studio *traditional* (224 square feet), costs the highest per square foot compared with the largest unit, the three-bedroom *traditional* (1,119 square feet) – \$521/square foot compared to \$285/square foot, respectively. The *manufactured* unit in the pilot program cost the lowest per square foot. Although the studio *traditional* unit cost less overall compared with the *manufactured* unit, it was less than half of the size of the *manufactured* unit.

The number of bathrooms and the selection of finishes (such as the type and quality of cabinets, faucets, flooring, and other elements) will impact the overall cost. The cost per bathroom can vary according to how the utilities are connected and where they are located, types of finishes (tile), and the selection of shower and tub types. Homeowners should work with their designer or architect to understand what options are available and associated costs.

Site-specific conditions such as those related to the topography of the site, decision to split utilities, design type, desired size, and the selection of finishes will impact the overall cost. Homeowners can expect to estimate these costs during the design phase, in consultation with their contracted vendors (designers, licensed architect, other), and make decisions in accordance with their budget.

With *manufactured* units, the delivery and installation time is typically shorter than the construction time for *traditional* units; however, there may be additional costs if the site requires a more robust foundation for proper installation. Homeowners should also consider the lead time required for the design and fabrication of the *manufactured* ADU in advance of delivering and installing the home. Manufacturing can range from 30-90 calendar days before the ADU can be delivered.

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