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Affordable Design

The U.S. Department of Housing and Urban Development sponsors or cosponsors three annual competitions for innovation in affordable design: The Innovation in Affordable Housing Student Design and Planning Competition; the American Institute of Architects – HUD Secretary’s Housing Community Design Awards; and the HUD Secretary’s Opportunity & Empowerment Award, co-sponsored with the American Planning Association. This Cityscape department reports on the competitions and their winners. Each competition seeks to identify and develop new, forward-looking planning and design solutions for expanding or preserving affordable housing. Professional jurors determine the outcome of these competitions.

2018 Innovation in Affordable Housing Student Design and Planning Competition: Whittier Falls in Dover, New Hampshire

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Winning Team: University of Maryland, College Park

Lauren Gilmartin, Daniel Green, Adan Ramos, Nathan Robbins, Sacsheen Scott

Runner-Up Team: University of Colorado Denver

Nora Bland, Adam Buehler, Will Dolenshek, Stacy Ester, Joel Miller

The Jury

M. Scott Ball, Valerie Fletcher, Clayton Mitchell, Kenneth Ogden, John Torti

Introduction

Regina C. Gray

The Innovation in Affordable Housing (IAH) Student Design and Planning Competition invites teams of graduate students from multiple disciplines to submit plans in response to an affordable housing design challenge in an existing home or residential building. Now in its fifth year running, the goals of the competition are to encourage research and innovation in high-quality affordable housing that strengthens the social and physical fabric of low- and moderate-income communities and to foster crosscutting teamwork within the design and community development process. This

brief article includes a recounting of the challenges, solutions, and lessons learned by the first- and second-place student teams and thoughts from the jury on defining innovation in housing design.

The IAH Student Design and Planning Competition is open to graduate students in architecture, planning and policy, finance, and other disciplines. The competition challenges the students to address social, economic, and environmental issues in responding to a specific housing problem identified by a public housing agency.

This year, HUD partnered with the Housing Authority of the City of Dover in New Hampshire, named *Whittier Falls*, to develop this year's challenge: to incorporate innovative design techniques for community engagement strategies for seniors, Veterans, and persons with disabilities for properties managed by the housing authority. The two sites are situated adjacent from one another between Niles and Union Streets. The students submitted site plans involving the construction of 154 units designed specifically for these populations. They were strongly encouraged to go beyond physical improvements and identify ways to improve the provision of community services. The students' ultimate objectives were to explore the sites under construction, ask the housing authority staff probing questions about site-specific issues, and compile useful information to assist with their revised project proposal.

The Niles and Union Court apartments are new construction projects. Niles consists of a total 40 units: 36 one-bedroom units and 4 two-bedroom units. The Union Court building has 30 one-bedroom units. Students were required to address environmental challenges, such as through the use of materials that are durable and resilient during natural disasters and need little maintenance; design approaches to improve the health, safety, and the well-being of residents; and energy- and water-efficient appliances that preserve natural resources and are cost-effective. The nearby Cricket Brook, a tributary that flows year-round, has implications for storm water management. Students were asked to develop mitigation strategies. Finally, central to Whittier Falls' mission is enhancing community connectedness through public spaces. Situated near the construction site is the Seymour Osman Community Center where residents can interact, engage in various neighborhood events, beautification projects, and other recreational activities. Students were strongly encouraged

Exhibit 1

Whittier Falls, the housing authority in Dover, New Hampshire, is the oldest in the state.



to come up with creative approaches for redesigning this building, making it more adaptable to the needs of the residents.

The competition is designed in two phases. In Phase I, a jury of five practitioners that included a planner, builder, and architects evaluated first-round proposals, which teams from approximately 38 universities submitted electronically. From these submissions, the jury selected four finalist teams. In Phase II, the finalist teams further refined their plans—addressing complex issues, incorporating more detail, improving floor plans, and conducting additional analyses following the site visit to Whittier Falls. The site visit enabled the finalists to expand on their original proposal and submit a revised final project. Several weeks after the site visit, all jurors and finalists traveled to Washington, D.C., for the final competition and awards ceremony event at HUD headquarters on April 18, 2018. At this event, finalist teams presented their revised project solutions in front of the jury and an audience. Following the presentations, the jury selected the team from the University of Maryland, College Park as the winner and the team from the University of Colorado Denver, as the runner-up.

The winning student teams and members of the jury shared their thoughts about the competition. The students reflected on the biggest challenges the team faced and how they attempted to address them, opportunities to learn from mistakes, their concept of *innovation*, elements observed that provided value to the design of the project, and any tradeoffs that had to be made to get a feasible site plan. Jurors shared the elements of the winning site plans that represented innovative solutions and address whether the proposed solutions could be implemented at Whittier Falls and possibly replicated at similarly situated sites.

The Winning Team: University of Maryland, College Park

Lauren Gilmartin, Daniel Green, Adan Ramos, Nathan Robbins, and Sacsheen Scott

The award-winning site plan from the University of Maryland, College Park, called *Beacon Crossing*, is a proposal for new construction totaling \$30 million to create livable units for seniors and persons with disabilities. The main features of the plan include an updated functional space for the existing community center and includes a YMCA, a food co-op, and a new community garden with a greenhouse that provides food throughout the year. The three pillars embodied in the project are to (1) *Enhance* access to community supportive services, to (2) *Create* community that is connected whereby social interaction and resident engagement are encouraged, and to (3) *Improve* the health and well-being of all those living in the community. The team's proposed design emphasizes social interaction, expanded open space for recreation, and a common area where residents can gather. Also noteworthy is the integration of green, sustainable materials throughout the community, such as a new purification system that reuses gray water and stormwater runoff.

The student team's reflections on the competition experience follow.

On the concept of innovation: The Maryland team struggled with how to identify innovation in their plan, but as one student put it, “working with limited resources to create something that is greater than the sum of its parts” captures how the students approached this task. The innovation

Exhibit 2

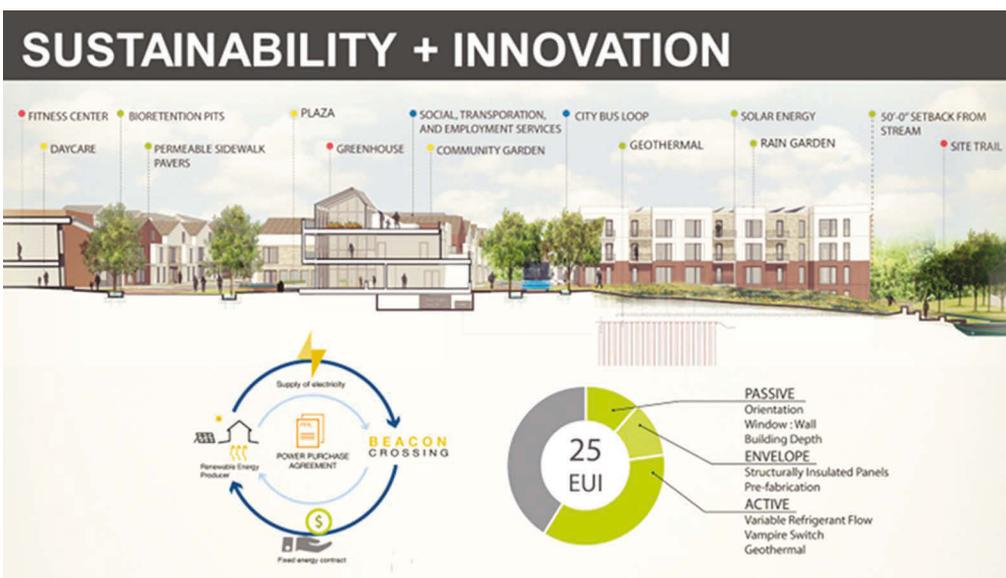
An aerial view of Maryland's *Beacon Crossing* plan for the Whittier Falls community.



comes when addressing how to deal with the social isolation that many seniors experience, according to the housing authority's analysis. The challenge, then, would be to create a space that would encourage more interaction—a communal space where residents could gather and engage in a variety of activities that would give the residents a sense of purpose. For example, an abundance

Exhibit 3

Maryland's plan to incorporate sustainable materials into an innovative design.

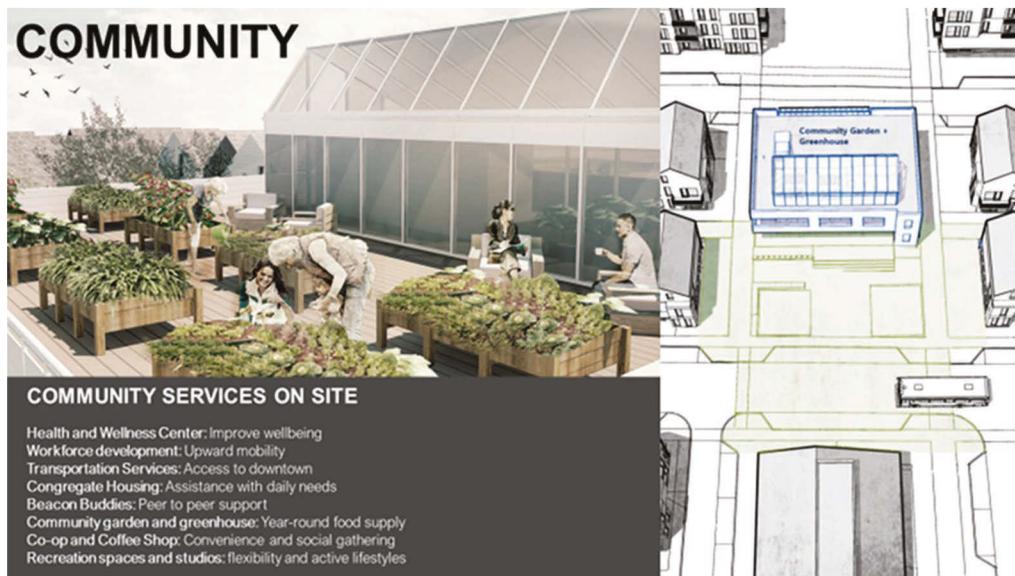


of research is available on the benefits of green infrastructure and mental health. The students, therefore, designed spaces that would enhance health and wellness, creating walkable bicycle paths and a 12-foot-wide pedestrian bridge over the Cricket Brook waterway. The green walkways offer opportunities for the residents to collaborate on beautification projects. The buildings are situated facing each other and the courtyard so that resident interaction naturally occurs.

On the buildings: The theme of Maryland's plan includes two apartment buildings and clusters of smaller townhomes, with the clusters creating micro-communities that contain co-living or shared spaces within the units. The team proposed three stages for construction: stage one is the creation of 210 studio, one-, and two-bedroom apartments targeted to mixed-income families; stage two involves the development of 240-unit townhomes and the community center with the YMCA, which is specially designed for persons with disabilities and seniors; and stage three features 302 additional townhomes that incorporate universal design concepts and use prefabricated modular construction with structural insulated panels (SIPS). All stages of the project include both passive and active design approaches that minimize energy consumption, such as solar heating, buffer spaces and double facades, and high-performance windows.

Exhibit 4

To enhance community living, the Maryland team plan includes a health and wellness center and a food co-op.

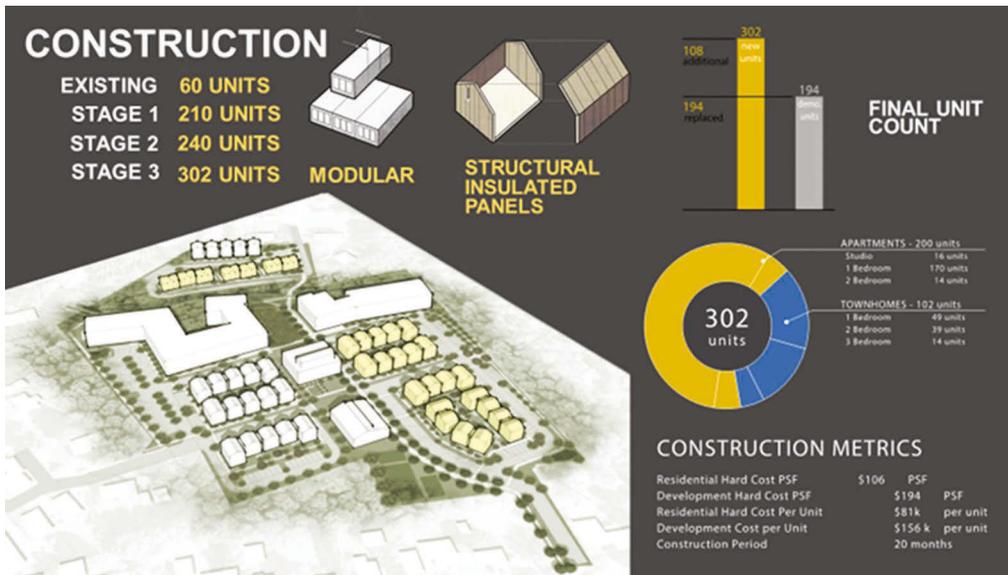


On innovation: According to some of the Maryland students, in thinking holistically at the broad conceptual level, the team had to make various tradeoffs, the most notable of which was sacrificing a certain level of detail to ensure the big ideas were incorporated into every aspect of the design. To preserve affordability, the project would be developed in phases as described previously—converting 214 of the public housing units through the Rental Assistance Demonstration (RAD) program and proposing additional units subsidized through the Section 811 program. Additionally, the students flirted with variations in site configuration to accommodate the new affordable

housing units while also preserving open space for recreation and resident interaction. The project was financed through the Home Loan program and with funds through the Community Development Block Grant (CDBG) program. The team utilized the 9 percent and 4 percent tax credits as well to promote mixed-income goals; it proposed a commercial ground lease to help finance the co-op and the YMCA. Finally, investments in energy efficiency through a “power purchase” would yield a 30 percent reduction in utility costs per unit.

Exhibit 5

To make the plan more feasible, the Maryland students introduced a phased construction project that blends various types of housing using modular construction and structural insulated panels.



In summary, Maryland’s overall approach to this project was to create an identifiable neighborhood with multiple building types and incorporation of green components designed primarily to enhance mobility, accessibility, and social engagement for older residents and persons with various disabilities.

The Runner-Up Team: University of Colorado, Denver

Nora Bland, Adam Buehler, Will Dolenshek, Stacy Ester, Joel Miller

The University of Colorado Denver (UCD) team was selected as the runner-up this year. The jury lauded the team’s plan as highlighting the central importance of accessible design that addresses health and wellness and connectivity to the larger Dover community. The students presented on the plan’s major themes, which were creating easy access to public amenities through the encouragement of multimodal options and promoting walkable places throughout the development. The social aspects of the project were most impressive, according to the judges, incorporating design strategies that improve mental and emotional well-being, and pointing to research confirming that connections to the outdoors and other people lessens boredom, combats loneliness, and contributes to a greater sense of community. For the students, the concept of innovation involved shifting the

paradigm from a central focus on creating a more livable space to a functional space for seniors and persons with disabilities. In other words, the students said that they wanted to build a place not only for people to live, but to create a space for the community to thrive. Thriving communal living means the incorporating the use of innovative technologies that are adaptable to changing lifestyles, whereby residents can live and age in place in a community setting.

Exhibit 6

The UCD plan, *Allied Living*, emphasizes the importance of connecting residents to the outdoors.



The University of Colorado Denver (UCD) students also presented a plan for new construction on the site. The plan, called *Allied Living*, centers on the concepts of Connectivity, Wellness, Inclusivity, and Experience. *Connectivity* means creating public spaces that are flexible and adaptive to community needs and improve access and mobility for a community's residents. For the UCD team, the proposal includes a designated open space for Pedestrian Zones, a dog park, outdoor activity areas, and a new transportation hub with a bus shelter, access to paratransit, and electric vehicle recharging stations. *Wellness* emphasizes design for people, the planet, and prosperity—what students referred to as the Triple Bottom Line approach that stresses the important connection to nature and the outdoors by incorporating garden areas throughout the development, a greenhouse, a commercial kitchen in the shared community dining and event areas, and space for a local farmers' market. The team also proposed a loop trail around all buildings and an indoor fitness room that is easily accessible for all residents.

To address *Inclusivity*, the UCD plan offers a variety in building and units types, incorporating modular construction and phasing, and including convertible ADA-compliant¹ units to

¹ The 2010 American Disabilities Act (ADA) revises the historic 1991 ADA's federal guidance for implementing Titles II and III standards for accessible design which apply only to new construction. To learn more about the 2010 ADA updated guidance, visit: <https://www.ada.gov/regs2010/2010ADASTandards/Guidance2010ADASTandards.htm>.

Exhibit 7

The greenhouse allows residents to become directly involved in beautification and green projects. There is some empirical evidence that these types of activities create a sense of communal belonging.



Exhibit 8

The cornerstone of the UCD plan is the integration of nature and green elements throughout the grounds to enhance the living experiences of residents.



adapt accessible design features to the particular needs of residents with a variety of physical impediments. All buildings integrate gathering spaces strategically throughout the structure. The *Experience* concept relies on the use of innovative technologies that create a sense of belonging. For example, the students were excited about the prospect of using digital floor projection and colored wayfinding that enhances movement throughout the buildings. Other features, such as the winding trails created from repurposed brick and pathways that incorporate rain gardens and bioswales, were meant to encourage residents to experience improved living through the use of nature, horticulture, and opportunities to engage in physical activities.

Like most of the teams in the competition, the UCD students found the financial modeling required for this competition a most complicated but worthwhile learning experience. The “proforma” financial statement developed by the team included the leveraging from a Special Needs Program Loan, HOME Capital subsidy, and a deferred developer fee. To help with the financing, the project utilized the 4- and 9-percent Low Income Housing Tax Credits and a private activity bond. To generate revenue and reduce operating costs, the team proposed a Solar Cooperative program that they felt was a creative approach for balancing the goals of energy reduction and preserving affordable housing.

Thoughts from the Jury

M. Scott Ball, Valerie Fletcher, Clayton Mitchell, Kenneth Ogden, and John Torti

The jury for the 2018 IAH Student Design and Planning Competition faced the difficult task of deciding which of the four outstanding student site plans best exemplified an innovative design. The members were asked specifically to consider how well the student teams successfully and convincingly addressed the following critical elements—

- The aspects of the site design that are innovative but that meet the needs of low-income seniors and persons with disabilities.
- The way in which the proposed design interacts with the existing physical site.
- The innovative approaches that were employed in developing the design relative to the restrictions or opportunities presented by the site.
- The innovative energy efficiency, water conservation, and renewable energy strategies that were incorporated into the design.
- The innovative approaches that were employed to integrate the design that complements the existing cultural and ethnic neighborhood context.
- The planned services and activities designed to improve the quality of life for the population served.
- The way in which the project will be financed, including the innovative financing solutions for leveraging and establishing partnerships.
- The way in which the proposed design integrates innovative practices.

After eliminating two of the four presentations, the jurors emphasized that the deciding factor would be how well the student teams identified and discussed innovation in their site plans. Although understanding neighborhood context and the needs of the residents is important, the concept of innovation would be greatly emphasized here. After narrowing the competition down to the University of Maryland and the University of Colorado teams, the jury set about identifying elements of the site plans they thought were particularly innovative while keeping an eye on the critical elements listed previously.

Defining innovative design was not an easy task, but the discussions offered some insight into what the jury considered the essence of innovation: is the design element new or groundbreaking? Is the approach to problem solving something that is untried or unexpected? Is the design concept “out of the box,” defying or challenging generally accepted techniques? Does the approach introduce a new and creative technology that is functional and applicable to human needs? Both teams were lauded for balancing energy-efficient technologies and durable building materials and concerns with preserving affordability. The winning teams paid careful consideration to the perspective of the residents and how their proposals respond specifically to the needs of the population while appreciating the historical and cultural character of the community.

The University of Maryland team’s submission highlighted the community garden with a greenhouse as examples of innovative design and as a solution for encouraging resident engagement, as well as preserving water resources in the community. Other standout innovative features that members of the jury noted were the incorporation of Health and Wellness Center and enhanced recreation spaces to promote physical fitness and good nutrition. Similarly, the jurors identified various aspects of the University of Colorado Denver’s *Allied Living* plan that they noted as particularly impressive: the incorporation of a transportation hub that provides a variety of mobility options, including a bike and walking path and a traffic island; creatively using public space by reducing parking and increasing density; combining units, where feasible, to acknowledge extended family settings; and making effective use of existing buildings and infrastructure, such as the Passive House and a water infiltration system that addresses issues with the nearby creek. The jurors noted that both teams placed a high value on the importance of enhancing social capital through creative use of space that respects the cultural norms of a community. For their thoughtful attention to detail and presentation of new, forward-looking ideas for transforming this small Dover neighborhood into a viable, livable community, the jurors concluded that both the University of Maryland and the University of Colorado students were well deserving of the 2018 IAH student design award.

Acknowledgments

The U.S. Department of Housing and Urban Development (HUD) thanks the award-winning student teams from the University of Maryland, College Park and the University of Colorado-Denver, for sharing their thoughts and for all the hard work they put into their submissions for this year’s competition. We also thank the contributions from the remaining two teams that were selected to participate this year: the University of Texas at Austin and the Pratt Institute. HUD

greatly appreciates the 2018 Innovative Affordable Housing jury members' dedication and hours devoted to the awards selection process. Finally, HUD thanks Steven Winter Associates for planning and logistics efforts, the work that made this year's competition a success, and the notes and writings that made a valuable contribution to this piece.

Postscript

The competition is thoroughly documented on the web.

To learn more about the award: <https://www.huduser.gov/portal/challenge/about.html>.

To read about the 2019 award guidelines: <https://www.huduser.gov/portal/sites/default/files/pdf/2019-IAH-Competition-Guidelines-final.pdf>.

To learn more detail about the winning submissions: https://www.huduser.gov/portal/challenge/past_competitions.html.