

Dynamic Capacity Modeling

Alaska Housing Finance Corporation

Special Needs Housing: Combating Homelessness

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Bean’s Café, one of 25 non-profits partnering with Alaska Housing Finance Corporation (AHFC), was allocated 175 program slots to house persons experiencing homelessness. Since inception, they have helped over 230 people and still have the capacity to help at least 30 more without exceeding their initial budget. This isn’t bad math, this is the power of Dynamic Capacity Modeling (DCM), a new, innovative way AHFC is combatting homelessness.

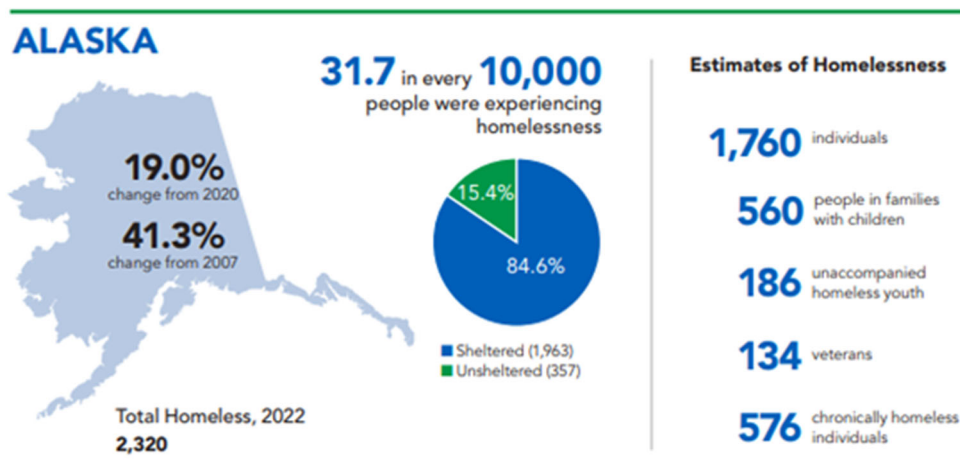
An Innovative Approach

Picture an electric vehicle (EV), the first thing that it needs is to charge. This would represent the initial funding budget and allocation of slots. The potential range of the car, or how far the initial charge will take you, depends greatly on how you drive, the topography of the trip, and the various built-in efficiencies designed to preserve or extend the charge. These variables are calculated behind the scenes, leaving the driver with one simple metric: the remaining range. This is what Dynamic Capacity Modeling does for our partners.

Utilizing readily available technology, AHFC has created a system that optimizes our partner’s ability to help people escape homelessness. The system maximizes the number of people our partners can help while incentivizing them to remain under budget. There is some complicated math involved, and a lot of behind-the-scenes activity provided by the system, but similar to an electric vehicle the only thing the grantee has to worry about is the range, or rather the number of available slots, prominently featured on their dashboards. A number that, for Bean’s Café, has been increased 50%.

National, State, Local Need

According to the 2022 Annual Homelessness Assessment Report (AHAR) from HUD, there are over 580,000 people estimated to be experiencing homelessness nationally. For context, the entire population of Alaska is just over 730,000 based on the latest census count. The AHAR estimates Alaska’s homeless population to be around 2,300.



<https://www.huduser.gov/portal/sites/default/files/pdf/2022-AHAR-Part-1.pdf>

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Between the limited housing supply, the pandemic, and the increase in short-term vacation rentals, the number of people experiencing homelessness has been increasing. Alaska has unique challenges that exacerbate the issue such as expensive shipping costs for building materials on top of an already short construction season. Furthermore, for several months every year, the weather can be life-threatening for anyone without shelter. With such a geographically large state (some of which isn't on a road system) and lethal conditions in winter, it is critical to maximize our resources statewide. Dynamic Capacity Modeling, and the technology underpinning it, has been invaluable to our efforts to shelter as many unhoused Alaskans as possible.

Under the Hood

Dynamic Capacity Modeling is made possible through the use of widely available technologies such as Airtable (workflow, automation and data warehousing) and Bubble (front end user experience) among others. These tools allow for the rapid development of the system as program designs evolve in real-time.

Dynamic Capacity Modeling utilizes complex formulas and conditional logic while drawing from multiple live datasets. This gives DCM the ability to selectively turn on/off or override specific pieces of the dynamic model as needed, all while keeping separation between 25 agencies, several distinct source budgets, and maintaining optimal data management.

All the individual complexities on the back-end are hidden under the hood, so to speak, and are translated into intuitive visual elements for our partners, allowing them to focus on providing critical services to Alaskans. Utilizing real-time data specific to the partners, restrictions are implemented to ensure agencies do not exceed their capacity.

This simplified view shown to the partners removes the tedium and stress of them needing to forecast the budgets to figure out which and how many individuals or families they can help. Additionally, the system records and stores all the information during intake tying the finances to the client and tailoring the services to the needs of the individual. If, for example, they drop out and return later, their file, along with their budgets, can be reactivated right where they left off. The slot counter will adjust accordingly.

Dynamic Capacity Modeling frees our partners to do the job they are most passionate about: helping people escape homelessness. It also helps them avoid another frustration: math. Case managers are able to immediately connect a person in need with their program, eliminating the concern over resource management. Removing the need to recapture and reallocate funds saves AHFC and our partners months of time. Time where people in need would not be receiving aid.

Roadmap to Success

One of our partners in Kodiak, a small island community in Southeast Alaska, recently expressed their amazement at the effectiveness of the Dynamic Capacity Modeling. The number of people they see in the shelter has dropped by over half. A major benefit of DCM is it tells our partners exactly how many people they can serve in real-time. If they enroll a client and that client requires a higher lease than expected, the system will reflect that by reducing the available slots until there

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is enough leftover funding to add the slot back.

With AHFC automating this complicated task for our partners, they're able to help those in need unencumbered by worry about resources. More than that, the budgeting model aligns incentives. Our partners know that any leftover funds will be cycled back into their overall slot count. The more efficient and effective they are with helping people, the more people they can help.

An example of this working involved a person who was self-sufficient until a fire displaced her. Suddenly, she found herself experiencing homelessness in a small community with a smaller housing supply. Eventually, she went to the local shelter seeking help. For most homelessness programs, she would not have qualified. With the real-time data available to our partner, this woman was housed almost immediately in a long-term apartment. She was also able to address all her basic necessities that had been lost in the fire. This person, like several before her, will likely exit the program early with funds left on the table. DCM will take those funds and add them to the rest of the remaining budgets to be used for the next person in need releasing our partner from worrying saved funds will be reallocated elsewhere.

Eco(nomically)-Friendly

Dynamic Capacity Modeling addresses homelessness in a novel way. Rather than giving our partners large budgets for specific categories, we have tied the budgets to the individuals. The software system we have developed is essential to make this possible. DCM is what makes it so effective. AHFC allocates slots to our partners and backs into the total program budget based on those slots. For example, 25 slots would equal a total budget of \$605,000 broken out across three categories: Stabilization, Move-in, and Rent Relief. As clients come into the program, they have different levels of need. Through DCM those needs, specific to the individual, can be addressed. Where there is less need for one client, the remaining funds can be used for another. Additionally, if a grantee averages lower expenditures than expected, those savings are immediately translated into additional slots.

A secondary benefit to this method of budgeting is that AHFC is able to better identify needs. A slot is only added once each category has enough leftover funds available to support it. That means there could be two budgets with enough funding for a slot, however, if that third category is still below the minimum threshold, the system will not add one. This shows AHFC which budgets are being underutilized or where we need to add funding to a budget category. What we have identified is needs are significantly dependent on the area served or primary clientele. The outcome is an ability to tailor the program to match the needs of individual partners or areas. Furthermore, cycling funds back through the system removes any financial punishment for a client exiting early. This encourages partners to help those in the greatest need along with those who only need a small hand up.

Across the state, AHFC has partnered with 25 non-profits to address homelessness in Alaska. We have allocated budgets for 2,425 households and since February 2022, 2,214 households have been enrolled in the program. Our grantees, however, have the capacity to serve, at minimum, 589 more households experiencing homelessness without increasing the program budgets. Thanks to Dynamic Capacity Modeling, when we do increase those budgets, we will be able to identify where the funds will go the furthest.

THINGS TO KNOW ABOUT DYNAMIC CAPACITY MODELING



THERE ARE THREE BUDGET CATEGORIES:



Stabilization Funds:
\$8,000.00 for stabilizing the client.



Move-In Funds:
\$3,000.00 for moving the client into long-term housing.



Rent Relief:
\$13,200.00 to cover 12 months of rent relief.

LIKE AN INITIAL CHARGE, DYNAMIC CAPACITY MODELING STARTS WITH BEGINNING BUDGETS. THOSE BUDGETS ARE PER INDIVIDUAL AND EACH PARTNER IS ALLOCATED A SPECIFIC NUMBER OF SLOTS.



However, as with an electric vehicle, how you drive can increase or decrease that initial range/slots. As funds are not expended, they are used to "recharge" the three budget categories. Once all three have been fully recharged, a new slot opens. The range increases!

THE COMPLICATED MATH AND BUDGETING ALL HAPPENS BEHIND THE SCENES ALLOWING OUR PARTNERS TO FOCUS ON THE IMPORTANT PART, HELPING INDIVIDUALS ESCAPE HOMELESSNESS

The flexibility afforded to our partners by this system is invaluable. They don't have to get wrapped up wondering if they are over-extending themselves. It is an abundance mindset over a scarcity one while still incentivizing efficiency. They have one metric to worry about and it is the number of slots remaining. This allows them to help everyone who qualifies rather than focusing on specific subpopulations.



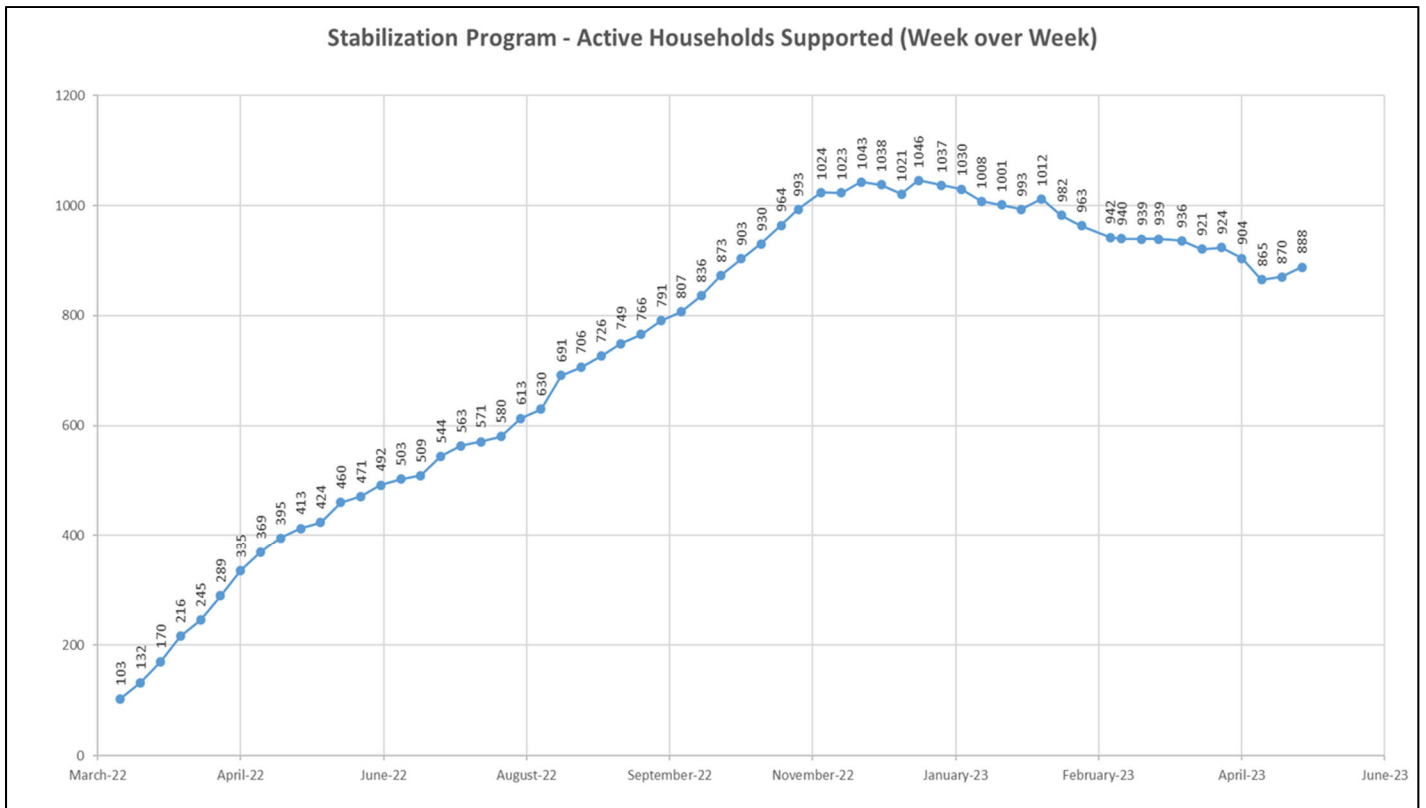
This low-barrier, individually focused model of budgeting is revolutionary in the homelessness space.

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Visual Aids:

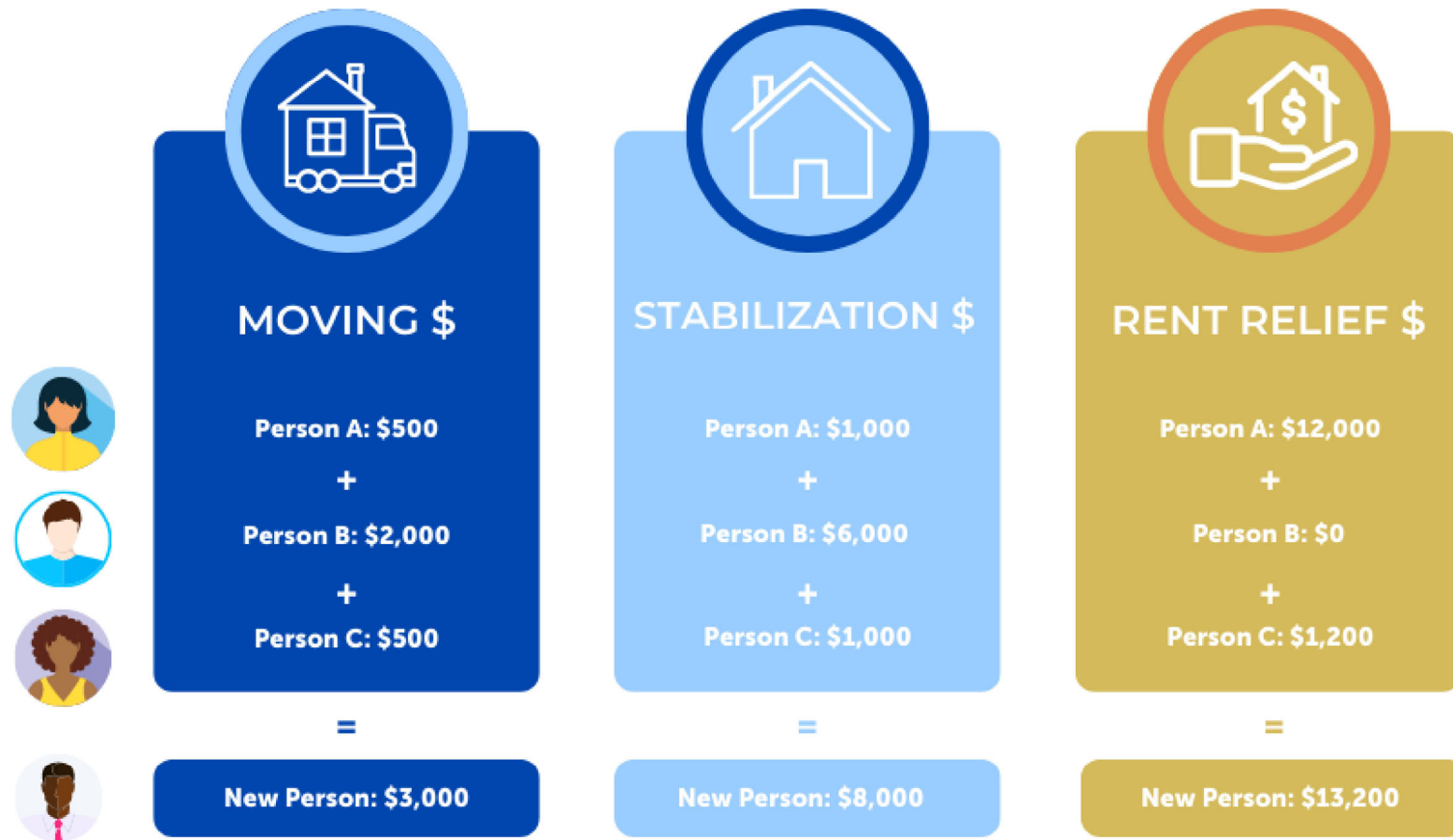
Community	# Max Clients	# Clients Enrolled	# Remaining Slots	Dynamic Active
Anchorage	175	240	33	✓
Bethel	25	10	15	
Kodiak	75	50	29	✓
Anchorage	50	64	1	✓
Anchorage	50	53	0	✓
Kenai	50	49	0	✓
Anchorage	100	83	28	✓
Fairbanks	100	109	25	✓
Fairbanks	200	128	82	✓
Craig	75	43	38	✓
Anchorage	50	46	21	✓
Petersburg	50	24	26	

A view of current partners' slot counts. We have the ability to turn Dynamic Capacity Modeling on or off depending on need. For the majority, DCM has led to exceeding initial capacity.



Graph showing active households utilizing Dynamic Capacity Modeling. As we move through the second year and the initial clients reach the end of their aid or exit the program, we see the numbers stabilizing.

Alaska Housing Stabilization and Recovery

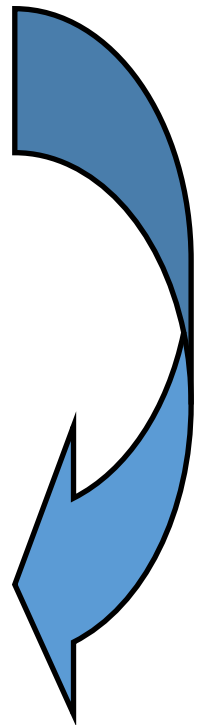
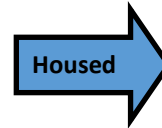
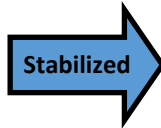


With dynamic budgeting, spots will be reopened based on budget availability in three separate categories:
a) Funds for moving expenses b) Stabilization funding c) Rent Relief funding.

As people exit your program, once enough money is remaining in your budget a new person can be added. In the example below, there are three individuals with different moving, stabilization and rent relief budgets remaining.

When each of the remaining funding totals of \$3,000 for moving, \$8,000 for stabilization and \$13,200 for rent relief are met, there is now enough money to add a new person to the program.

Dynamic Capacity Budgeting Explained...With Marbles!



Successful Exit with leftover funds/Anyone exited with leftover funds



Once all jars have met or exceeded minimum amount

Leftover Stabilization



\$7,500.00
\$8,000.00

Leftover Move-in



\$4,500.00
\$3,000.00

Leftover Rent Relief



\$15,200.00
\$13,200.00

