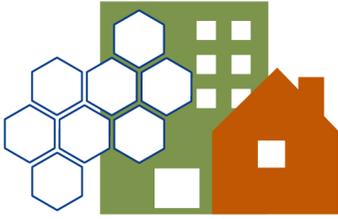




6. System Modeling Assumptions Guide

September 2022



Contents

Introduction	1
Developing Assumptions	1
Envisioning the Ideal System	1
Developing the Project Type Matrix.....	3
Defining Pathways, Including Utilization and Performance ...	3
Estimating Project Costs	4
Documenting Assumptions	5
Using Assumptions to Model an Ideal System.....	6



Introduction

This sixth guide of eight in the **System Modeling Toolkit** helps the facilitator to guide the workgroup through the system modeling core task of developing assumptions about how a community's ideal homeless response system would be configured to be able to end homelessness.

System modeling is built on assumptions about the types of housing, shelter, and services (“projects”) that people experiencing homelessness need to become housed and then maintain housing stability. People experiencing homelessness are not homogeneous in their strengths, vulnerabilities, and needs. An ideal system will have a range of crisis and housing responses.

A system modeling workgroup draws on data and their knowledge of the crisis and housing needs of people experiencing homelessness to develop **assumptions** about how their ideal system should serve people. These assumptions include detailed descriptions of the different **project types** the ideal system needs, estimates of how many households have similar needs (**cohorts**) and so will use various combinations of project types, patterns in how cohorts experience the homeless response system (**pathways**), and projections of the **performance** of these pathways.

A workgroup develops assumptions through conversations about what people experiencing homelessness need, based on workgroup members' experience of what works, observations about gaps in the current set of available projects, information about best and emerging practices from the field, and data about how the system currently performs. The workgroup should document the basis for each assumption it develops, including what data sources it used. The development of assumptions is iterative with feedback from the results generated through Stella M.

System modeling facilitators should use the Step-by-Step description of the modeling process in the [4. System Modeling Facilitation Guide](#) to understand where the various assumptions described below fit.

Developing Assumptions

To develop meaningful assumptions about how the ideal system would serve people experiencing homelessness, it can be helpful to consider a variety of quantitative and qualitative data sources, as described in the [5. System Modeling Data Guide](#). The sections below discuss how a workgroup might move through the process of developing assumptions.

Envisioning the Ideal System

Key Question to Answer: How do we want to serve people experiencing homelessness in our community?



Before the workgroup gets into detailed discussions about project types and pathways, it should start by imagining how an ideal system would serve people and operate. This could include imagining a system with deeply trauma-informed permanent housing appropriate to a household's needs. Or a system that is more equitable and accessible. Or a system that reduces unsheltered homelessness and returns to homelessness.

With this vision, and the values the workgroup developed after their orientation to system modeling (see [4. Facilitation Guide](#)), it is time to start talking about the types of housing, shelter, and services that are needed to meet the crisis and housing needs of people experiencing homelessness. Some of this inventory already might exist in the current system, although in the ideal system they might be changed in various ways (e.g., transitioning shelters from operating 12 hours/day to 24 hours/day, or reducing permanent supportive housing caseloads from 40:1 to 20:1).

Some of the characteristics of an ideal system might not translate into assumptions for system modeling; for example, the workgroup may identify the need to update the coordinated entry assessment process. Still, the workgroup should capture these characteristics of an ideal system as part of the larger plan. [See the system recommendations from the [Los Angeles Older Adults System Modeling](#) for example.]

To help the workgroup systematically discuss their vision of an ideal system, the facilitator might find it helpful to ask questions like those in the table below. The workgroup's discussion should not be limited by the inventory of housing, shelter, and services in the current system; the performance of the current system; or any other challenges with the current system. The focus should be on what could or should be, not what is.

What Would Exist in an Ideal System?	
Housing Problem Solving/ Diversion	How should people experiencing housing instability or imminent homelessness be engaged? Does this look different for different populations? How should people who are not engaging with the current system be served?
Crisis Housing Options	What kind of crisis services would best respond to people's immediate needs without traumatizing them?
Housing Options	What kind of housing options do people need in order to quickly find housing and then maintain it for the long term?

For example, if one of the values the workgroup developed for the ideal system is that *people are quickly assisted to find housing*, then a current average length of stay in shelter of nine months is not consistent with that value. The workgroup would need to imagine a system with sufficient housing resources so that people could move into housing quickly. (The planning for the transition from the current system to the ideal system is addressed later in the system modeling process. First, the workgroup should focus on the ideal system.)



Once the workgroup has discussed what should be included in the ideal system, they can consider where the current system is adequate and where there are gaps. Finally, this imagining of the ideal system should not consider only *what* services or resources are provided, but also *how* they are provided. What does quality emergency shelter or rapid rehousing mean? How are these programs measured to determine both success and equity?

Developing the Project Type Matrix

Key Questions to Answer: What is the set of project types that are needed in our ideal homeless response system? What are the key characteristics of each project type?

The workgroup must determine what set of project types are needed to make an ideal system, sufficient to meet the crisis and housing needs of the cohorts they are modeling for. What are the key characteristics of each project type (and their estimated costs, if that is part of the modeling process). This set of projects could include existing types that already operate in the community as well as new project types. In modeling an ideal system, existing projects might be updated to better meet people's needs (e.g., changing a 12-hour shelter to a 24-hour shelter with services).

The workgroup can document this information in the [Project Type Matrix](#), which is intended to be a living document to guide planning and implementation efforts. It can help funders understand what to fund and providers understand what they are expected to deliver. It also helps ensure the Continuum of Care (CoC) measures outcomes of similar programming in a consistent way.

Defining Pathways, Including Utilization and Performance

Key Question to Answer: How will cohorts move through our ideal system, from an initial access point to permanent housing? What combinations of project types (pathways) should be available in our ideal system? What percentage of people will need to use each pathway?

As a first step in thinking about how people will be served by combinations of crisis and housing services, some communities develop a map of their ideal system. The map does not need to be fancy or computerized. It can be drawn out on a whiteboard or a flip chart, or created by arranging sticky notes on a conference table. If the modeling process is being done virtually, then the workgroup can use various programs and web-based services such as Prezi, Jamboard, Miro, or Microsoft's PowerPoint or Publisher. The goal of this collaborative activity is to produce a visual representation of the ideal system to help in identifying the pathways the workgroup will need to develop assumptions for.

Using the map of the ideal system and its understanding of the different [cohorts of people experiencing homelessness](#), the workgroup defines the combinations of crisis and housing project types that each cohort would use in an ideal system. Once these pathways are defined, the workgroup estimates what portion of households would use



each pathway and how long a typical household would stay on average in each project along that pathway, both while homeless and once housed. The workgroup estimates the percentage of households in each pathway exiting to permanent housing and the percentage of households exiting the pathway that will return to homelessness in the following year.

The workgroup documents the assumptions it used in the creation of each pathway, including who the pathway is intended to serve, the data used to develop the pathway, and any context or rationale for its development.

Estimating Project Costs

Key Questions to Answer: How much will each project type cost? How much will our ideal system cost?

The cost of different types of housing and services are often critical factors in finalizing a system model and planning for implementation. Understanding the cost of the projects proposed for a system is important as a feasibility check for the model. It also is a powerful advocacy tool for political leadership and policy makers, who often want to know how much it will cost to address homelessness in their community.

Current system costs can be gathered from contract and budget documents and from conversations with organizations currently operating projects in the homeless response system. CoCs can pull this information from program budgets, CoC applications, and invoices to build out the landscape of current program costs. At the same time, conversations with organizations about cost estimates using the project type characteristics documented in the Project Type Matrix can assist the systems modeling process by not only providing data, but also providing insight into current operations and challenges surrounding costs that are difficult to learn through documentation.

Different project types will have different cost expectations and ways of calculating them. Crisis housing programs such as emergency shelter or transitional housing might best understand cost as *per night, per bed*. Permanent supportive housing or rapid rehousing programs might operate on a yearly budget. As data is collected on these programs, it is best for system modeling to align all cost estimates on a *per unit/bed* basis based on an annual budget. Additionally, different organizations budget the same costs in different cost categories; for example, administrative overhead might be allocated across all programs or not included at all.

It is useful to create broad categories general enough for any program to be able to document its costs. An example with four categories is provided below; it would need to be edited to best capture the way projects are funded in a community.

- **Operations**—all costs related to running the program including providing a location for services staff to work from and operating a building providing shelter or housing. Typical operations costs are rent, utilities, insurance, maintenance and repairs, payroll for staff, property taxes, security, and supplies.



- **Rental Assistance**—all costs related to assisting a household to lease housing. Typical rental assistance costs are security and utility deposits, rent, moving costs, landlord incentives, and rental arrears.
- **Services**—all costs related to providing case management or supportive services to households enrolled in a program. Typical services costs are payroll for case management, intake and outreach as relevant to the program, transportation for staff and clients, computers and phones for staff, and contracted services such as legal assistance.
- **Administrative**—all costs related to the functioning of an organization that are not program specific. Often administrative costs are allocated across all the programs an organization operates. Typical costs are management staff, IT, audit, accounting, and legal.

A few questions for a workgroup to ask when engaging with organizations about their costs:

- Do participants receive housing, health care, or other services essential to the project that are not reflected in your project budget?
- What is the true cost, beyond what might be allowable from a specific funding source, to operate your programs effectively?
- How would project costs increase from current costs if you were to better serve people not being adequately assisted in the current system; for example, by providing longer rental assistance or more intensive housing navigation services to households that have high barriers to housing?

Often the project types that a workgroup develops for its ideal system expand beyond what is currently available in the community's homeless response system, to add new or different crisis, housing, and services activities. To estimate costs for the ideal system, a workgroup can start from current system costs and adjust them as indicated by the project types (e.g., reduce caseload sizes, which will increase services costs for each person served in a project). Stella M allows for a percentage annual cost increase to adjust help estimate future costs more accurately.

Documenting Assumptions

Workgroups will use many sources of information to develop assumptions. It will be hard to remember the basis for each decision later when results are being reviewed or the system model is being updated in a couple of years. It is important to document the reasoning behind each assumption and the data used to develop it. Documenting the data source, methodology, adjustments, and decisions will keep the system modeling process moving forward. Documentation is vital to explaining the final model and later updating it over time.



Using Assumptions to Model an Ideal System

Once the workgroup has developed assumptions about project types and pathways, the facilitator can input the assumptions into Stella M. For more information about how to input the assumptions and the calculations Stella M uses to produce system modeling results, see the [7. System Modeling with Stella M User Guide](#). Typically, the initial set of assumptions will need to be revised when the workgroup sees the first results from Stella M—that is, the development of assumptions is iterative.

The table below outlines how the project type and pathway assumptions are entered into Stella M.

	Element	Description	Stella M Input Field
Project Type Attributes	Project name	Unique project type name.	Project Type Name
	Project type description	Brief sentence or two defining project, population served, support services, outcomes.	Project Type Description: optional field in the Project Type page, when a new project is created.
	Populations and subpopulations	HUD-defined household types and the intended population to be served by the project type.	Household Type: optional field in the Project Type page, when a new project is created. The workgroup can use the Project Type Description and Notes fields to document assumptions about which cohorts within a household type are intended to be served by a project type.
	Essential program elements / service model	Description of project characteristics including crisis services, housing assistance, and supportive services.	Notes: optional field in the Project Type page, when a new project is created.
	Cost per unit	Annual cost per unit of service for the project type.	Cost per Unit: optional field in the Project Type page, when a new project is created.
Pathway Attributes	Timeframe / Average length of participation or stay	How long on average a household is expected to remain in the project.	Number of Days Served in Each Project Type: required field in the Pathway page for numbers of days while homeless and number of days once housed.
	Outputs/outcomes measures	The expected performance of the project type: exit to permanent housing and returns to homelessness after exit.	Percentage of Households Expected to Exit to Permanent Housing; Percentage of Households Expected to Return to Homelessness after Exit: optional fields on the Pathway page.