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## OVERVIEW OF HOUSING RESOURCE ALLOCATION STRATEGIES

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In many other regions around the country, the demand for affordable housing is greater than the supply. Wait lists have traditionally been the method of choice for determining who is “up next” to get housing. In order to improve their chances, people in need of housing are often encouraged by staff at multi-service agencies to get their names on as many lists as they can. The result is a myriad of decentralized and unwieldy lists. The individual or family that is next in line may not be the best suited for the unit that is available nor may they have as great of a demonstrated need for housing assistance as others further down the list.

*Resource allocation strategies* that rely on a defined method for housing prioritization have been implemented to address this shortfall. The two most prevalent approaches for prioritizing people experiencing homelessness in the US are the *Chronic Homeless Definition* and the usage of the *Vulnerability Index – Service Prioritization Decision Assistance Tool (VI-SPDAT)*. While not as widely adopted there is a third measure, *Length of Time Persons Remain Homeless*, to be considered. It is important to evaluate the virtues and weaknesses of each, and consider other potential measures, in order to outline a strategic plan that will improve how the community’s limited housing resources are to be allocated going forward.

Properly targeting limited resources to those that demonstrate the highest potential return on investment (ROI) to the community frees up additional resources for those that are next in line. This objective is best achieved when the targeting is done using tools that support both *historical* and *predictive* analysis.

### **Historical Analysis**

A person’s prior experiences with shelters, corrections, and the healthcare system can be used to determine the true financial costs of keeping a person or family homeless. By knowing the costs involved with maintaining this same person or family in housing a cost-benefit analysis can be structured. This is the same premise of the early work of Dennis Culhane, PhD that was recapped well by Malcolm Gladwell when he wrote about “[Million Dollar Murray](#)”<sup>1</sup> which clearly demonstrates that it would be far less expensive, and more humane, to end homelessness for Murray than it would be to perpetuate it.

### **Predictive Analysis**

While Murray clearly needed housing a million community dollars had already been spent by the time this was revealed. To avoid this scenario, regions need to simultaneously house the high utilizers of community resources while also attempting to predict who is likely to be the next Murray. Tools such as the [Vulnerability Index – Service Prioritization Decision Assistance Tool \(VI-SPDAT\)](#) have been established as an attempt to forecast a person’s future service needs based on their unique circumstances.

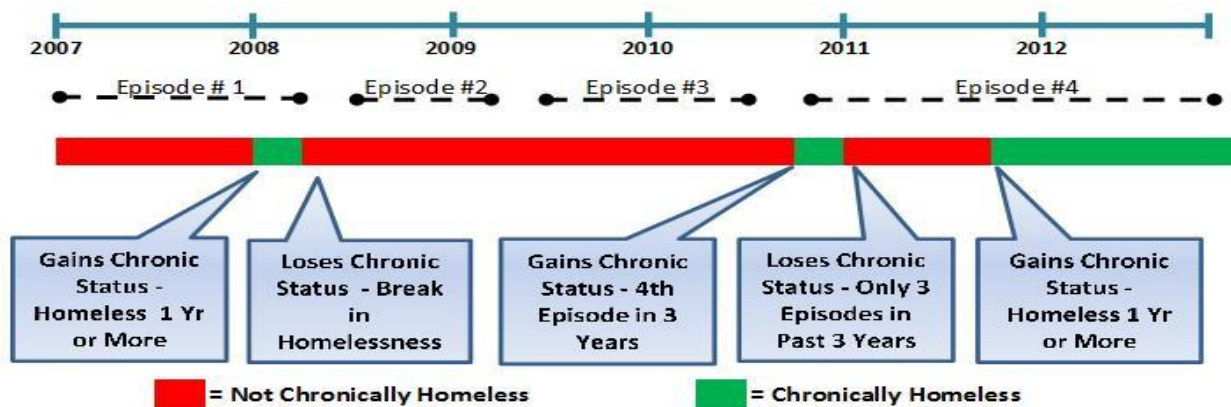
Before outlining a region-specific plan for prioritizing limited housing resources it is important to understand the primary tools and indicators that are currently in use in the United States. The intent of this paper is to provide an overview of these tools and discuss the virtues and weaknesses of each.

ANALYSIS OF THE CHRONIC HOMELESS DEFINITION

According to HUD guidelines, to be considered as chronically homeless a person must be: "either (1) an unaccompanied homeless individual with a disabling condition who has been continuously homeless for a year or more, OR (2) an unaccompanied individual with a disabling condition who has had at least four episodes of homelessness in the past three years."<sup>ii</sup>

Chronic homeless determination is most commonly attributed to Housing First campaigns and community-based Ten Year Plans. This definition is widely regarded as the first attempt to identify a cohort of individuals whom are the most frequent users of emergency services on a large scale. Recent changes to the HUD HMIS Data Standards include a question set (3.17) which is intended to assist with the determination of chronic homeless status. The issue is that the question is asked when a client first enrolls into a project. This perpetuates an inherently flawed approach of determining chronic homelessness for a person based on a set date. The section of the rule that requires a person to either be homeless for a year or more, or have four or more episodes in the past three years, requires a longitudinal view of a person's homeless history.

The exhibit below demonstrates how a client can both gain and lose chronic status over time based on the Federal definition. The dashed lines ( - - - ) represent episodes of homelessness, the portion of the timeline shaded in red indicate periods when the client would not be considered to be chronically homeless and areas in green indicated times when he or she would be.



In this example, despite the persistent reliance of the client on the shelter system, he/she is only considered to be chronically homeless for a relatively small portion of the time. What constitutes an "episode of homelessness" is also undefined and left up to the front line staff for interpretation. This too further diminishes the virtues of relying solely on chronic homeless determination as a tool for allocating housing resources.

While gathering self-reported information about a client's chronic homeless status at client entry has its limitations, so does deriving the status off of historical data. This is particularly true for regions where public transportation makes it convenient for a person to also be served in neighboring communities as the historical evidence from the other region may not be factored into the person's homeless history. The solution for this is a regional data warehouse that has a comprehensive account for each person's homeless history.

ANALYSIS OF THE VI-SPDAT

**Vulnerability Index – Service Prioritization Decision Assistance Tool (VI-SPDAT)** “is a pre-screening, or triage tool that is designed to be used by all providers within a community to quickly assess the health and social needs of homeless persons and match them with the most appropriate support and housing interventions that are available.”<sup>iii</sup>

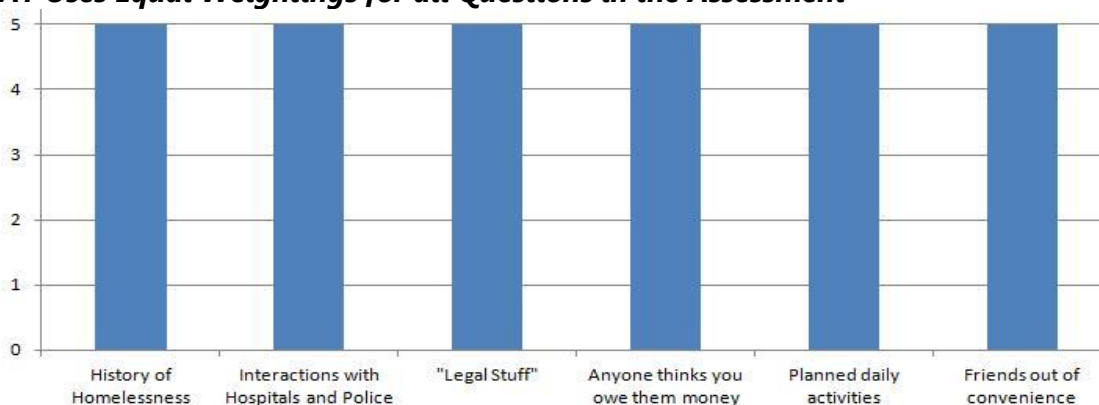
The *Vulnerability Index – Service Prioritization Decision Assistance Tool (VI-SPDAT)* was developed by OrgCode Consulting and has been endorsed by Community Solutions as a common assessment tool to be used in their 25 Cities and Zero: 2016 housing campaigns. A primary benefit of the tool is that it looks at a myriad of factors that may contribute to someone’s inability to obtain and/or maintain housing. Arguably one of the most significant virtues of the VI-SPDAT is that it demonstrates the impact that can be made when communities use a coordinated approach in working towards a clear common goal. It has also been touted by frontline staff in Boston as a relatively effective “quick and dirty” approach to prioritization.

There are however limitations to the VI-SPDAT. The VI-SPDAT relies on self-reported data and is yet another assessment to be completed. Rather than relying on empirical evidence, people can respond with whatever answers will get them the highest score. The primary issue for regions that receive HUD funding is that this scoring cannot be looked at in isolation. According to HUD guidance,

*“Communities choosing a tool such as the VI-SPDAT that assigns a score to each person assessed might find persons receiving the highest score do not necessarily meet the highest priority according to the Prioritization Notice. In such cases, HUD expects the CoC to use the assessment tool as a starting point but use the guidelines of the [Prioritization Notice](#) to establish a single prioritized list.”<sup>iv</sup>*

The scoring itself also needs to be refactored. The assessment is broken up into twenty sets of questions with one point potentially awarded for each. This implies that all factors that impact a client’s ability to find and maintain housing should be treated as exactly equal. Case in point, if a client who just became homeless a week ago is asked “Do you have any friends, family or other people in your life out of convenience or necessity but you do not like their company?” and responds “yes” then one (1) point is added to their VI-SPDAT score. Another person whom has been homeless for over two years but does not have any friends out of convenience or necessity will be given the same one (1) point score. In essence, the two people experiencing homelessness would be ranked exactly the same.

**The VI-SPDAT Uses Equal Weightings for all Questions in the Assessment**



PREVENTING ILLNESS AND DEATH THROUGH HOUSING

Attempting to prevent illness and death, and the significant costs for the healthcare system from ongoing intensive care services, should be of significant importance to communities. To this end, the VI-SPDAT looks for the presence of a variety of medical conditions that are commonly attributed to the homeless whom have died. The tool relies on client self-reporting and does not account for whether the condition is being treated or not. Studies show that these conditions could potentially be prevented from occurring in the first place by focusing on housing those whom have been homeless the longest.

The VI-SPDAT is largely founded on the study [Risk Factors for Death in Homeless Adults in Boston](#)<sup>v</sup> conducted by Dr. Stephen Wang and Dr. James O’Connell of Boston’s Healthcare for the Homeless. The research involved an extensive process of medical chart reviews and found that there was a list of specific medical illnesses which the homeless cohort tended to have a higher prevalence of than their peers in housing. While the presence of these conditions is an indicator of higher risk of mortality, Dr. Jim O’Connell has stated that *“as more studies become available, I believe that the length of time homeless will be the single most important predictor of premature mortality”*.

According to a December 2011 study conducted by UK non-profit Crisis entitled *Homelessness: A Silent Killer*<sup>vi</sup>, the average age of death of a homeless person is 47 years old and even lower for homeless women at just 43, compared to 77 for the general population. This is backed by yet another cohort study conducted in Glasgow which found that after 5 years 1.7% of the general population and 7.2% of the homeless population had died.<sup>vii</sup> A separate study found that homeless people with mental health conditions have a greater than double risk of developing serious or fatal cardiovascular disease over 30 years than people of the same age and gender with no risk factors for the disease.<sup>viii</sup>

Findings released within the National Survey of Homeless Veterans in 100,000 Homes Campaign Communities, shown below, suggest that individuals who remain homeless for longer periods of time are more likely to develop serious health conditions.<sup>ix</sup>

| Condition            | Veterans homeless less than 2 years | Veterans Homeless 2 years or more |
|----------------------|-------------------------------------|-----------------------------------|
| Frostbite            | 5.4%                                | 12.5%                             |
| Liver Disease        | 6.8%                                | 11.4%                             |
| Heart Disease        | 15.8%                               | 18.8%                             |
| HIV/AIDS*            | 3.6%                                | 2.5%                              |
| Emphysema            | 6.1%                                | 9.6%                              |
| Hepatitis C          | 10.6%                               | 18%                               |
| Tuberculosis         | 4.4%                                | 8%                                |
| Mobility Limitations | 26.3%                               | 36.2%                             |

This research supports the HUD Prioritization Notice guidance to rely on chronic homeless status and length of time homeless before looking at scores from the VI-SPDAT and other assessments. There are multiple approaches to determine length of homelessness and the approach to use will likely depend on both the need and the accessibility of data.

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 ANALYSIS OF THE LENGTH OF TIME PERSONS REMAIN HOMELESS
 

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**Length of Time Persons Remain Homeless (HUD System Level Performance Measure)**

*Definition:* The HUD definition of *Length of Time Persons Remain Homeless* is calculated using HMIS data and is a count of days each person in emergency shelter or safe haven projects were served during the reporting period.<sup>x</sup> Length of time persons remain homeless is the first of the *System Level Performance Measures* touted within Opening Doors.

*How to Calculate:* HUD has released the [System Performance Measure HMIS Programming Specifications](#) which articulate the business rule to use for this. This measure differs from the "Pillow Count", described on the following page, which details the total number of bed nights within a set reporting period.

*When to Use:* This measure is helpful for substantiating the average bed utilization, within the region, of shelter guests since 10/1/2012.

*Disadvantages to this Approach*

- The average LOS will tend to rise over time as current long stayers will artificially have their homeless experience truncated by HUD's "lookback stop date" of October 1, 2012.
- The current programming specifications allow poor data quality to persist by accommodating for it. For example, if a person exits to permanent supportive housing (PSH) yet he or she has a record from an emergency shelter that suggests he or she is still at the shelter then the report writer is to use the day before the entry date into PSH as the exit date from shelter. While on the surface this seems acceptable, it allows for the report findings to be inconsistent with findings from other reports that do not have similar logic in place. The ideal solution here would be to fix the underlying data issue with the assistance of [Overlapping Episode Reports](#), [Destination at Exit Audit Reports](#), and edit checks within the HMIS system itself that prevent clients from being enrolled in both an emergency shelter project and a permanent supportive housing project simultaneously.
- Since the length of time homeless prior to the client's enrollment in a project (from question 3.17 of the HUD HMIS Data Standards) is to be added to the client's shelter enrollment then this LOS calculation is reliant on self-reported information. If this information is to be used for prioritization then there is a risk that clients may "game the system" by overstating the length of their homelessness.

**Total Length of Time since First Becoming Homeless**

Despite the name, the *Length of Time a Person Remains Homeless* described in the HUD System Level Performance Measures will often not be an accurate reflection of the overall duration of a person's homeless experience. Providence College Professor of Sociology, Eric Hirsch, PhD, explained the issue well when he asked "What does length of stay in a shelter matter if the person goes back to the street? Or to another shelter?"

Time spent sleeping on a friend or relative's couch or in another region would also not be included within this calculation. For this reason, we would suggest a separate calculation for the *Total Length of Time since First Becoming Homeless* if the intent is to determine how long a person has had to live without stable housing situation.

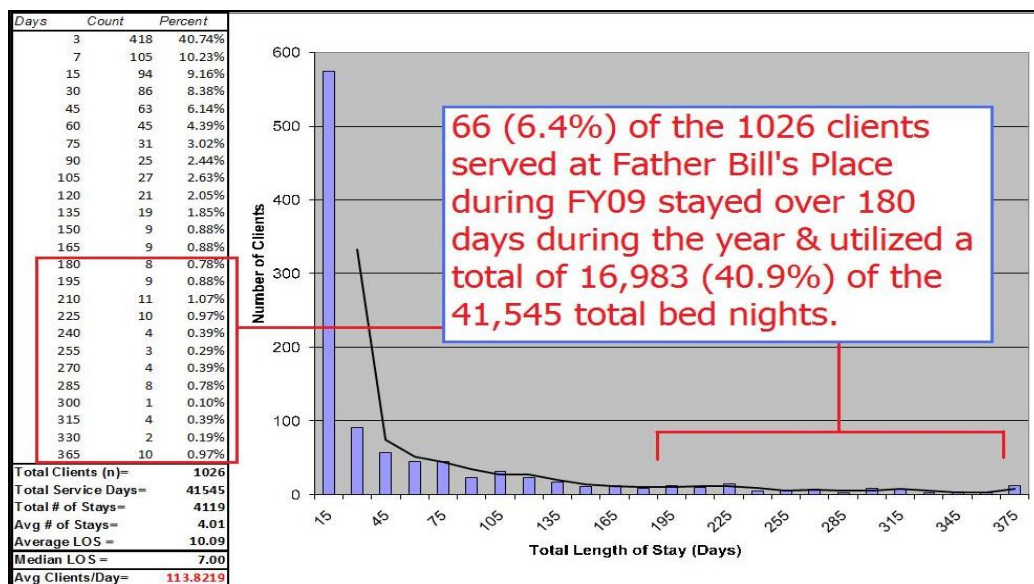


*How to Calculate:* This would be calculated based on the first date a person ever presents him or herself to the homeless system.

*When to Use:* A primary intent for this measure is to track how effectively regions can move people back into stable housing. This measure might also be used in regions whereby for region

**Cumulative Length of Homeless Episodes (AKA "Pillow Count")**

Housing those that tend to be the most frequent users of shelters frees up significant shelter capacity. Analysis conducted at Father Bill's Place in Quincy, MA found 66 clients out of 1024 served in FY09 (6.4%) had stayed for over 180 nights. These clients utilized a total 16,983 total bed nights out of the total bed nights provided to all guests of 41,545. *This constituted a staggering 40.8 percent of the total bed utilization.*



*How to Calculate:* The "pillow count" is derived by counting the total number of nights a client's head hits the pillow in any emergency shelter within the region during a reporting period.

*When to Use:* This measure is well suited for identifying users that are heavily reliant on the local shelter system. This measure can be helpful when attempting to free up beds and other resources by housing those who use them the most.

*Disadvantages of the Approach:* An issue with relying on the *Pillow Count* for prioritization purposes is that it tends to rank those who tend to reside on the streets lower than those who tend to reside in shelter. Shelters are a more controlled environment in that staff members are more likely to see their target client population than their counterparts in street outreach. The shelter environment is currently more conducive to the gathering of data. Street outreach workers are currently required to perform their work with clipboards and pens during the day and then key in the information gathered into a HMIS system at a later point in time. Conversely, shelter staff can enter in the data as they work with each client.

RECOMMENDATIONS FOR THE IMPLEMENTATION OF PRIORITIZATION MEASURES

**The concept of scale needs to be taken into account** when attempting to integrate measures of different types and versions. For example, the scale should remain consistent regardless of the version of the VI-SPDAT assessment. The version most regions have worked with is on a twenty (20) point scale however [version 2<sup>xi</sup>](#) is on a seventeen (17) point scale. Unless adjustments are made to account for the change in scale the clients who were assessed with version 1 would have a tendency to be prioritized higher than clients who are assessed with version 2.

**Existing data needs to be used wherever possible.** There is no need for client-self reporting of homeless history, or usage of the medical care system, if actual data can be used. There are a multitude of factors that can weigh into a person’s medical vulnerability that can only be gleaned from having access to the actual medical history. The cost information that is vital to return on investment (ROI) calculations, and the social impact bonds that rely upon them, are best sourced from the system that is accountable for paying for those costs.

As an example, data from the Homeless Management Information Systems (HMIS) from a region, or across regions, can be used to prioritize clients. The image below is from a [Housing Prioritization Report](#) run for the City of Boston in support of the [Mayor’s Challenge to End Veteran Homelessness](#). This report ranks clients according to their overall usage of the regional shelter system and the number of contacts they have had with street outreach workers. Refer to the [HUD Notice on Prioritizing Persons Experiencing Chronic Homelessness](#) for details on the formal HUD guidance which the logic within this report is largely based upon.

**Housing Prioritization Report**

| # | First Name | Last Name | Organization      | Program                     | Leaver / Stayer | Gender | Disabled? | Vet? | Episodes | Total Bed Nights |
|---|------------|-----------|-------------------|-----------------------------|-----------------|--------|-----------|------|----------|------------------|
| 1 |            |           | Pine Street Inn   | Outreach - Project NeiahBOR | Stayer          | Male   | Yes       | Yes  | 3        | 1835             |
| 2 |            |           | Pine Street Inn   | Mens Inn                    | Stayer          | Male   | Yes       | Yes  | 1        | 1086             |
| 3 |            |           | Pine Street Inn   | Shattuck Emergency Shelter  | Stayer          | Male   | Yes       | Yes  | 1        | 1086             |
| 4 |            |           |                   |                             |                 |        |           |      |          |                  |
| 5 |            |           | Homeless Services | Long Island Shelter         | Stayer          | Male   | Yes       | Yes  | 1        | 1057             |

**Look beyond the region.** A person’s history of homelessness often extends beyond the region where he or she currently resides. Case in point, the metro-Boston area has five Continuums of Care (Boston, Quincy, Balance of State, Somerville, and Cambridge) that are interconnected by the Red Line subway service. To address this, the data from all nearby regions should be compiled in a centralized data warehouse so that a longitudinal picture of each person’s housing history can be constructed.

It is also important to know where a person originated from and if he or she still has support in that area. The housing wage for a one bedroom in Boston at fair market rent is \$23 per hour whereas it is \$10.58 in Pittsfield, MA.<sup>xii</sup> If a homeless person came from Pittsfield, and would like to move back there, then that may be a more viable solution than attempting to find sustainable housing for him or her within the City of Boston.

**Apply machine learning algorithms to the data** rather than relying on scoring models where all factors are treated as equals. For example, with the VI-SPDAT a client is assigned a full point (5% of their overall possible

prioritization score) if he or she lends cigarettes to someone else. The same scoring is assigned for factors such as length of homelessness that might be considered to be of greater importance. Machine learning algorithms used by tools such as [IBM's Watson](#), [Google's Prediction API](#), and [Amazon Machine Learning](#) are well suited for identifying corollary relationships and determining their significance. In this case, they could be used to review a large set of potentially pertinent data and ascertain if the lending of cigarettes has a smaller or larger bearing on a person's ability to maintain housing within the region than the 5% score currently being assigned.

**Adopt mobile technologies to better connect those living on the street with outreach workers.** The data quality for street outreach programs is notoriously poor. This is both a factor of the clients being served and the lack of effective tools to support the capture of data at the point of service. Mobile app technology can address this and should be considered as part of a regional response to understanding and addressing homelessness.

## CONCLUSION

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Studies suggest that length of time a person remains homeless the greater the risk is of that person dying. Studies also demonstrate that the health care costs for those who become seriously ill while homeless are significant. Relying on client self-reported data is prone to error and the process itself is time consuming for staff. Based on these factors, it is our recommendation that communities adhere to the HUD Prioritization Notice and rely primarily on chronic homeless status and the cumulative length of time homeless. Coordinated case management meetings can and should be used for special circumstances that may warrant a person to be housed ahead of others that have been homeless for a longer period of time.

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- <sup>i</sup> Gladwell, Malcolm (February 2006) [Why Problems like Homelessness May be Easier to Solve than to Manage](#), The New Yorker
  - <sup>ii</sup> [Defining Chronic Homelessness: A Technical Guide for HUD Programs](#), Office of Community Planning and Development Office of Special Needs Assistance Programs, September 2007
  - <sup>iii</sup> [The Vulnerability Index - Service Prioritization Decision Assistance Tool \(VI-SPDAT\)](#), Community Solutions and OrgCode Consulting, Inc., July 2014.
  - <sup>iv</sup> [Prioritizing Persons Experiencing Chronic Homelessness FAQs](#), US Department of Housing and Urban Development
  - <sup>v</sup> Stephen Wang, MD, James J. O'Connell, MD (1998) [Risk Factors for Death in Homeless Adults in Boston](#)
  - <sup>vi</sup> [Homelessness: A Silent Killer](#), December 2011, Crisis
  - <sup>vii</sup> Morrison, David Stewart (2008) [Homelessness and deprivation in Glasgow: a 5-year retrospective cohort study of hospitalisations and deaths](#). MD thesis, University of Glasgow.
  - <sup>viii</sup> Agnes Gozdzik, MD (2015) [Homeless people with mental illness have higher 30-year risk of serious cardiovascular disease](#), St Michaels Hospital
  - <sup>ix</sup> [National Survey of Homeless Veterans in 100,000 Homes Campaign Communities](#), July 2013, Community Solutions
  - <sup>x</sup> [System Performance Measures: An introductory guide to understanding system-level performance measurement](#), July 2014, US Department of Housing and Urban Development
  - <sup>xi</sup> [VI-SPDAT Version 2 and Family VI-SPDAT Version 2](#), Org Code Consulting and Community Solutions
  - <sup>xii</sup> [Out of Reach 2015](#), National Low Income Housing Association