

**Kuehn Charitable Foundation**

**Housing Navigator**  
*Technical Assessment*

07/2019



**Green River**

## Introduction

Good information is fundamental to good choices. Few choices influence our lives as much as the place we call home.

This technical assessment examines what it would take to develop the Housing Navigator—a central, comprehensive, up-to-date online resource to find affordable housing throughout Massachusetts. In a state at the forefront of both affordable housing production and technological innovation, such a resource would seem elementary. Yet it does not currently exist. Low- and moderate-income households struggle to find rudimentary information—housing locations, rents, amenities, proximity to public transportation, openings—that market-rate renters access with a few swipes.

This report draws a map toward substantially improving information around housing and thereby, housing choice. During Green River’s discovery process, the case for the Navigator grew ever more compelling. Contrary to assumptions, one of the largest property managers in Massachusetts reported 95% of its waitlists (115 properties out of 121) are open—yet nowhere is that information available. Further, the unfortunate inefficiency of the current system is striking. Housing search staff (estimated at 200 people statewide) reported spending over 50% of their time hunting for property listings – a task the Navigator would simplify into one place.

Finally, and most critically, stakeholders of every type—homelessness advocates, individual tenants, property managers, funders, owners—consistently expressed whole-hearted endorsement for this tool.

Kuehn Charitable Foundation partnered with CHAPA engaging stakeholders to solve this digital divide. Dozens of Steering Committee and working group members, interviewees and focus group participants strengthened the findings here. We thank everyone for their generous contributions of time and expertise as well as Green River’s Ian Kozak and Julie Strothman, who were technologically knowledgeable and mission-dedicated.

KCF is pleased to share these findings. Based on the encouraging reaction thus far, we hope to partner with its many champions, implement the recommendations here and create this critical piece of information infrastructure.

Jennifer Gilbert  
Executive Director, Kuehn Charitable Foundation  
July, 2019

(For updates, please visit [www.kuehncharitable.org](http://www.kuehncharitable.org) or email [jgilbert@kuehncharitable.org](mailto:jgilbert@kuehncharitable.org))

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In February, 2019, the Kuehn Charitable Foundation (KCF) hired Green River to perform a technical assessment of the proposed Housing Navigator web application. The goal of the Housing Navigator project is simple yet ambitious: to maintain a comprehensive, up-to-date inventory of all affordable rental housing projects in Massachusetts, and allow housing seekers to find current openings (waitlists, units, and lotteries). Guided by an existing Product Description drafted by the project's steering committee, our assessment focused primarily on two areas:

- **User experience.** What are the needs of people seeking housing? What are the needs of property owners and managers of affordable units?
- **Data availability.** Where can authoritative lists of housing projects across the commonwealth be obtained? Will property owners provide listing information?

Using surveys, phone interviews, and focus groups, in close cooperation with KCF Executive Director Jennifer Gilbert, we determined:

- There is a high demand from housing seekers (and those people who assist them) to more efficiently locate housing. Understanding and accurately determining eligibility for openings can be difficult.
- Property owners are willing to participate. They are particularly interested in improving market visibility for 80%-120% AMI Workforce Housing Program units, decreasing the number of ineligible applications they must review and process, and making sure waitlisted applicants maintain valid contact information.
- Project inventory data is available and, assuming appropriate data sharing agreements are executed, can come primarily from four or five sources.

As part of this work, we reviewed options for implementation, including existing software solutions – the open source DAHLIA project and the platform developed by Housing Link. Though many, if not all, components of Housing Navigator exist in part in various existing platforms, none combined the necessary administrative tools with a housing seeker interface to rival open market search tools. We estimate that an initial custom software build effort to bring a platform into production within a year at \$300k-\$350k, not including resources for administration and marketing.

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## Current Situation

Currently, while Massachusetts consistently supports a considerable amount of affordable housing production, there is no comprehensive resource for finding affordable housing online.

## Goals

Housing Navigator aims to bring together detailed, current information on affordable housing from across the entire Commonwealth of Massachusetts. It will lead to a more efficient housing search and lease process for both seekers and property owners, and will specifically provide:

- Comprehensive inventory of affordable housing projects
- Comprehensive list of current openings
- Inclusion (and improvements upon) the inventory of barrier-free/accessible units cataloged in MassAccess
- Tools for housing seekers to find appropriate opportunities and understand eligibility
- Tools for property managers to manage listings and attract eligible applicants
- Analyses and (anonymized) data reports for researchers

It will encompass housing from federal, state, and local programs, including Massachusetts Workforce Housing Initiative units, and accessible and barrier-free opportunities. Ultimately Housing Navigator can replace MassAccess, the tool that the Citizen's Housing and Planning Association (CHAPA) maintains for finding accessible, affording housing, and integrate tightly with CHAMP, the common housing application platform for Massachusetts state public housing.

## Metrics of Success

Though the system won't be able to definitively track outcomes for individual housing seekers (since Housing Navigator won't collect information on specific applications), and waitlists can (and often do) remain open indefinitely which masks actual unit turnover rates, several indicators can point to success of the project:

- Volume of users
- Volume of searches
- Volume of saved searches
- Volume of listings
- Volume of "favorited" listings
- Volume of listings where a user has indicated they've applied

Soliciting user feedback directly via outreach and surveys—to housing seekers and property managers—will also help quantify perceptions and performance in the field.

## User Profiles

The five profiles here illustrate the range of users and user needs Housing Navigator will address.

### Very Low Income Home Seeker

Alma is a mother of two minor children. Alma has physical disabilities—her family’s income sources are SSI and inconsistent child support. Alma and her children live with her mother who would like to move to join Alma’s sister in another state. Alma is open to many locations but does not have a car. Alma has 1-2 years to find a new place to live. Alma’s annual income is \$20,000. She speaks English but not as her primary language. She is somewhat comfortable using web-based services and typically accesses them from her phone or at her local library, or the parent-child space at her son’s afterschool program.



### Goals

Find apartment for her & her two children. Open to many locations, as long as they are close to public transportation.

### Pain Points

- Travel to look for housing and to submit applications is extremely difficult, physically
- Difficult to know from newspaper ads if apartment is on first floor or has elevator
- Prefers speaking and reading Spanish

### How Housing Navigator Will Help

- Info about housing all over MA without having to travel
- Interactive income calculator to find likely matches
- Proximity to public transportation
- Accessibility details
- Spanish translation

### What Housing Navigator Will Not Solve (Initially)

- Timeframe for the waitlist

## User Profiles Continued

### Moderate Income Household

Brian is a wellness nurse at an assisted living facility making \$50,000/yr, which is 50% of the median in his community. He and his wife have two high-school age children. She works part-time, increasing the family's income to more than \$70,000/year. Brian frequently works a night shift, but bus service is irregular after 7 p.m. He would like to live within walking distance of his workplace. Brian has some college education, and uses online services and computer based tools constantly in his work.



### Goals

Find apartment for his family within walking distance of his workplace

### Pain Points

- Unaware of inclusionary units available to his family
- Unsure how to calculate income for housing applications as his wife is self-employed and her income varies from month to month

### How Housing Navigator Will Help

- Through a regular web search, Brian will find Housing Navigator and learn about affordable housing available to his family
- Map will show proximity to Brian's workplace
- Optional questionnaire will walk Brian through calculating his family's income
- Notifications will send Brian email when new vacancies or waitlists come up that match his saved search

## User Profiles Continued

### Friend/Relative Assisting a Housing Seeker

Coral has an elderly mother who speaks little English and needs to relocate following the death of her spouse. Coral would like a location near where she works. She would prefer housing that has some services and a welcoming community. Coral is highly-educated, bilingual and adept at using the web on her phone to research and find everything from the books she reads to hotels to items for her own home. She is not expert in housing programs and has limited time to learn.



Coral needs Housing Navigator to work the way other web services she uses typically do, with a complete description of the site, photos, services available, and information regarding eligibility, as well as how worthwhile it is for her to spend time helping her mother apply to various options.

#### *Goals*

Find housing with services and welcoming community for her mother near Coral's workplace.

#### *Pain Points*

- Unfamiliar with affordable housing programs and related terminology
- Wants to be able to learn about housing programs and search for vacancies on her phone
- In searching on MassAccess, has found the information out-of-date, uninviting, lacking photos, and difficult to use
- Unclear whether it is worth applying to properties with long waitlists and lotteries far in the future

#### *How Housing Navigator Will Help*

- Plain language explainer is a quick intro to the basics of affordable housing programs and eligibility
- Housing Navigator is designed for usability on phones

#### *What Housing Navigator Will Not Solve (Initially)*

- Need to know approximate timing of a lottery or waitlist, or chance you have of getting a place

## User Profiles Continued

### Housing Search Worker

Danajha is a housing search worker. She assists housing seekers where one or more family members has HIV or AIDS. Danajha is college-educated and computer savvy. She has a good grasp of various housing programs.

Some of Danajha's clients are relatively simple to match with housing if a search tool could identify housing options. Many of Danajha's clients face greater obstacles in finding housing, including such problems as homelessness, poor credit and no landlord references. She is frustrated that she cannot readily ascertain which units are available for her clients, some of whom also have physical disabilities.



#### *Goals*

Easily search for housing options based on a client's eligibility and specific needs

#### *Pain Points*

- Online listings are often out-of-date
- It is difficult to tell who will be eligible for some properties, e.g. Will they take someone who is undocumented? What is the minimum required income?

#### *How Housing Navigator Will Help*

- Enables home seeker to save their housing history & where they've applied so Danajha doesn't have to help them recreate it
- Accessibility info

#### *What Housing Navigator Will Not Solve (Initially)*

- Over-abundance of "Print this. Mail that." with no online option for applications for many sites and programs

## User Profiles Continued

### Property Owners/Managers

Mike is a property manager for Woods Properties which has 1600 affordable units, the majority of which range from 50% - 120% AMI. Getting these relatively higher income applicants is a huge struggle; many don't even know they're eligible. Woods advertises with flyers at malls where these renters are likely to shop.

Mike is frustrated with the ways affordable housing is in the dark ages in terms of how difficult it is for people to find and apply, compared to how we all perform similar tasks online.



#### Goals

- Market more easily to the target population
- Fill vacancies more quickly
- Have a resource to offer people with other available properties when he doesn't have anything open

#### Pain Points

- Potential higher income applicants do not want to answer the many questions just to sign up for a lottery, and they can't wait 6-12 weeks to be approved by an agency
- Time and money wasted on required advertising in print and on difficult-to-use websites
- Applicants don't understand how some subsidy programs work
- Time wasted when people apply multiple times to the same property

#### How Housing Navigator Will Help

- Automated updates to listings from Mike's property management software
- Interactive income calculator will help make better matches between applicants and properties
- Plain language explainer will increase applicant understanding of funding programs

#### What Housing Navigator Will Not Solve (Initially)

- Multiple applications from one person
- Ability to list details of programs accepted

### Discovery Findings: Inventory Data

KCF Executive Director Jennifer Gilbert provided introductions and arranged meetings to allow us to gather and evaluate sources of affordable housing information. Potential datasets included Massachusetts Department of Housing and Community Development (DHCD) Fair Housing Database, DHCD Subsidized Housing Inventory, DHCD State Public Housing Inventory, DHCD Low-Income Housing Tax Credit List, DHCD/Massachusetts Housing Partnership Local Action Project Database, Citizens’ Housing and Planning Association (CHAPA) Interagency 40B Tracking Sheet, U.S. Department of Housing and Urban Development (HUD) inventory, Boston Metrolist, MassHousing inventory, CHAPA Mass Access, Community Economic Development Assistance Corporation (CEDAC) Preservation List, and CoStar (a commercial real estate data company).

The result is confirmation that **comprehensive data does exist and is maintained**, though not all of it is publicly available. Most sources included location, overall project size, number of total units, and number of affordable units (with the number of bedrooms), and the respective managing organizations work hard to maintain accuracy and scope. The frequency at which the information is updated varies from weekly to annually.

		DATA SOURCES			
		HUD	MHP / MH	DHCD	Local
SUBSIDY TYPES	LIHTC Low Income Housing Tax Credits	Reported as spotty	Reported as spotty	Thorough	Varied
	State Public Housing	Not Available	Not Available	Thorough	Varied
	Federal Public Housing & Federal Assisted	Thorough	Not Available	Reported as spotty	Varied
	40B	Not Available	Reported as spotty	Thorough	Varied
	Local	Not Available	Reported as spotty	Reported as spotty	Thorough

Summary of affordable housing inventory data sources

#### DATA COVERAGE

- ✔ Thorough
- Reported as spotty
- Varied
- Not Available

### Discovery Findings: Search Activities

We conducted focus group information gathering sessions with housing search workers in Boston and Springfield, representing potential users from across the state. These conversations confirmed that though there are many tools available for locating openings, there is no single destination that reliably and consistently provides current vacancy information. Advocates reported using GoSection8 and MetroList, but also commercial sites with no income restriction information, such as Apartments.com and Craigslist. The chart below compares the information and functionality of existing sites.

	(Boston) BPDA	(Boston) BHA	(Boston) MetroList	MassAccess	CHAMP	GoSection8	HUD	MA Housing Navigator
Inventory	✓	✓	✓	✓	✓		✓	✓
Vacancies			✓	✓		✓		✓
Upcoming Lotteries	✓	✓	✓		✓			✓
Wait List Info				spotty				✓
Lottery/Wait List Sign-Up	✓				✓			🔗 links
Eligibility-based search								✓
Unit Accessibility		✓		✓		✓		✓
Get Notifications		✓	✓	✓		✓		✓
Save Search/Faves				✓		✓		✓
Language translation					✓			✓
Automated Data Updates <small>*ensures accuracy</small>		?					?	✓

*Functionality of affordable housing listing sites vs anticipated features of Housing Navigator*

### Discovery Findings: Property Owners and Managers

We met with owners and staff of property management companies, who highlighted challenges they currently face. They emphasized a feeling of inefficiency—that they waste time and money on processes that could be improved—and reported:

- 60 - 70% of waitlists are households that don't meet basic eligibility
- Mandated print ads cost \$7-9k per opening

They also reported that it was difficult to target the 80%-120% AMI population seeking housing:

- Workforce units for moderate income households sit vacant for 30 - 90 days
- Moderate income applicants are hard to find, and need a resource that looks like conventional apartment marketing

## Strengths, Weaknesses, Opportunities, and Threats

The strengths and opportunities of Housing Navigator clearly indicate the value proceeding with the project. Our recommendations, described later in this report, will address the threats, which are participation-related, through ease of use, data sharing agreements, and by providing valuable data insights to stakeholders.

# S

## STRENGTHS

- Strong interest from property owners
- Reduce wheel spinning for advocates & property managers
- Reduce frustration and wasted time for housing seekers—one reliable source
- Increase mobility for housing seekers
- Interactive income calculator for improved search results

# W

## WEAKNESSES

- Will not simplify application process yet
- Won't actually make more units available

# O

## OPPORTUNITIES

- Offer insights on Massachusetts inventory, investment
- Reduce # of vacancies sitting empty
- Meet fair housing marketing requirements
- Reduce waitlist sorting time

# T

## THREATS

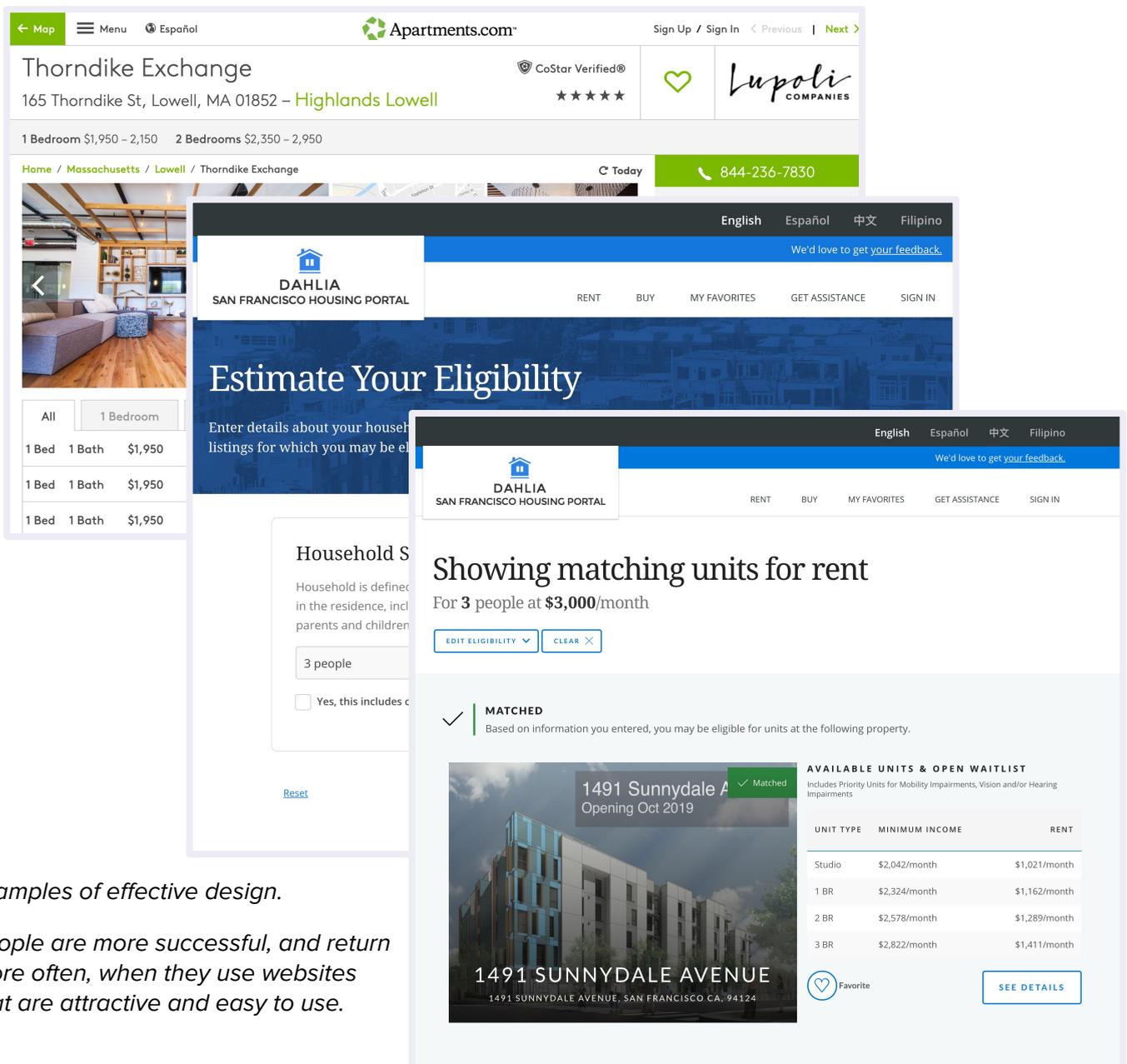
- Dependence on property manager and landlord cooperation for up-to-date listings
- Dependence on government agency cooperation for up-to-date inventory information

## Home Seekers

We identified particular facets—features, functions, and attributes—that potential users consistently identified as important to include in Housing Navigator.

### Attractive, intuitive design

The site's visual design should inspire trust; it should connote organizational and engineering competence, and be an inviting place to seek housing. People we spoke with deemed design especially important to those users eligible for workforce housing subsidy units, since that demographic is likely accustomed to using sophisticated online real estate tools and may be dismissive of a clunky solution. Further, looking for affordable housing can be a demoralizing experience for anyone, and there are many aspects of the process not in the seeker's control; a search tool should support a sense of autonomy and action based on sound information..



Examples of effective design.

People are more successful, and return more often, when they use websites that are attractive and easy to use.

## Home Seekers Continued

### Mobile-friendly

A majority, if not the entirety, of people expected to use Housing Navigator will have access to smartphones. They may not have consistent access to desktops, laptops, or tablets, however, so all site pages and features must be as usable on mobile devices as through traditional web browsers—without any degradation in performance or experience.

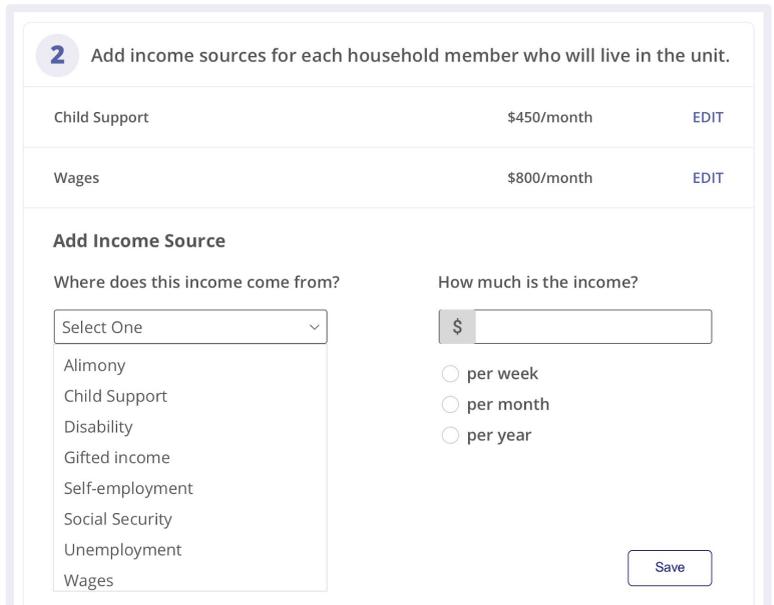
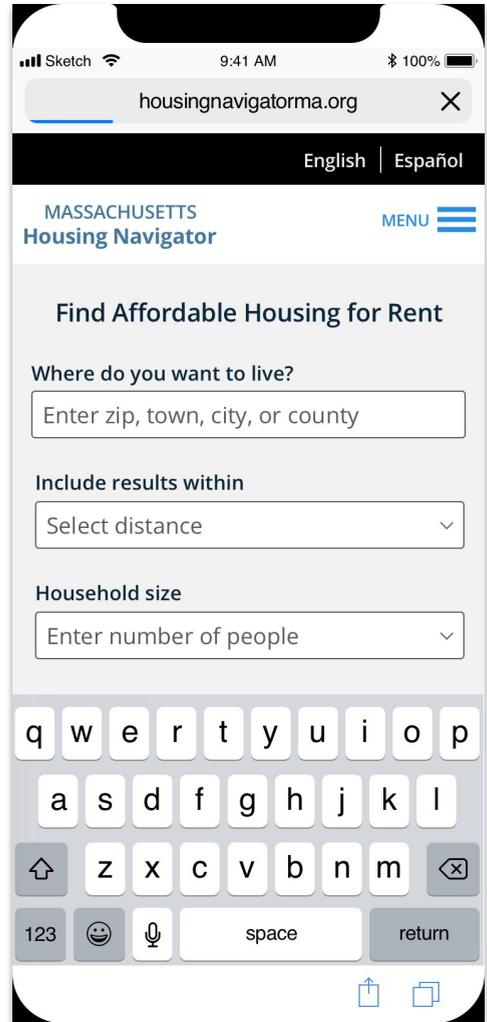
### Explainers, Eligibility Filters, and Income Calculators

Property managers, owners, and affordable housing seekers alike complained consistently and vociferously about eligibility: many applications for vacancies are denied because the applicants do not meet eligibility requirements. This is frustrating for the housing seekers and property managers, since both waste time and effort.

One challenge applicants face is accurately calculating (and/or reporting) their income, and both under- and over-reporting can impact eligibility. Often applicants fail to include self-employment income (such as from Uber or Lyft) and child support payments.

Housing Navigator should not block the visibility of listings based on income, but rather provide a mechanism to help people accurately calculate their total estimated household income - and see which listing they likely are eligible for.

Similarly, the array of federal, state, and local affordable housing programs, both mobile and project-based, available is large. Trying to explain the details of each is complicated, and can quickly overwhelm users. Rather than try to provide specific information on each program, the site can instead focus on providing clear, per-vacancy eligibility information.



Sketch of an interactive income calculator

**Home Seekers Continued**

*Increased Mobility*

Having statewide listings will make it possible for people to look outside their initial target location. Currently, the effort required to acquire print ads from neighboring towns makes people unlikely to find listings. One property manager noted: “All of our properties in Boston are way over-subscribed but then out towards Worcester, much less so—so this could give people a way to see what's available without literally having to go to every city and town.” Easy-to-use statewide listings will help large employers recruit employees, by making it easier for candidates to find affordable housing nearby.

*Sketch of filter within a radius of your target location*

*Facilitate applications, record-keeping*

As most applications are paper, housing seekers don't have an automatic digital record of their applications. Many we spoke with reported not receiving confirmation of receipt for applications. Their address may change, and without good record-keeping, they won't know who to contact with updates. Housing Navigator can provide the means to mark openings with an 'applied' status, so a user can keep track of which listings they've acted on. The site can also send periodic emails reminding housing seekers to update contact information, again specifically at places where they've applied.

Unit Type	Minimum Income	Rent
1 BR	\$34,350	\$1013
2 BR	\$41,250	\$1216

*Sketch of listing screen with option to mark a listing as 'already applied'*

## Home Seekers Continued

### *Tune Searches to Timeline & Get Notifications of New Listings*

Housing Navigator can offer search filters to base results on the timing of availability: Do you need something that is available now, or are you looking to the future and want to see waitlists? The site can also offer settings to receive email reminders when there are new listings—either for all new listings, or only for those that match saved search criteria.

**When do you need to move?**

Availability Status

Select status ▼

- Any
- Available Now
- 30 days
- 60 days
- 90 days
- 180 or more days

Waitlist open?

Yes

No

*Sketch of filters to target availability to your timeframe*



Get an email whenever a new listing or lottery is posted

---

**Send notifications for:**

- All Listings
- All Lotteries
- Saved Search: Springfield 2 bedrooms
- Saved Search: Worcester 2 bedrooms

*Sketch of email notifications settings*

### *Thorough Listing Details*

Staff from other affordable housing applications indicated the importance of listing details such as: accessibility features, pet policies, distance to public transportation, nearby schools, good photos, parking, smoking policies, amenities, and property manager contact information.

## Property Owners & Managers

### *Strong Interest*

Twenty-three property managers, convened by the Greater Boston Real Estate Board, representing over 35,000 affordable units, participated in a two-hour focus group discussion about Housing Navigator. They expressed high interest for the project. One manager asked if they should start budgeting for subscription now, while another wanted to know if Navigator might offer a premium pricing tiers, with the highest level offering top-level placement of listings.

### *Benefits*

Property managers were keenly interested in the promise of increased reach: particularly better visibility of listings for people in the 80-120% AMI range.

Property managers were also interested in the potential to increase applicant eligibility accuracy. They reported wasting a lot of time reviewing applications that did not meet the basic criteria of a listing. They also liked the idea of Housing Navigator sending reminders to housing seekers to update their contact information (though cautioned against managing waitlist-specific communications, since property managers are legally liable to pursue contacting applicants). They pointed to the volume of ineligible applications, along with then not being able to find applicants when an unit opened, as contributing factors to long waitlists with low yield rates

Property managers were also excited to have a resource to refer housing seekers to when they themselves have no current openings. “People get very upset when they hear there is nothing available.”

### *Ease of Use is Critical to Ensure Trustworthy, Up-to-Date Listings*

Medium-to-large-size owners primarily use the same property management software, Yardi, RealPage, or MRI. Housing Navigator can make maintenance low-to-no effort by updating listings automatically via connection to property management software.

Manual listings will also be possible. We learned from Housing Link’s experience that when listings are manual, it is very easy for them to quickly become out-of-date. Housing Link removes all listings after five days with no updates. Before five days elapse, a reminder email prompts property managers to update their listings if, in fact, they should remain active.

### *Support for Affirmative Fair Marketing Plans*

Housing Navigator can provide help with fair marketing plans, especially if the state were to adopt the site as an acceptable alternative to print advertisement requirements. Print is no longer the best mode to ensure accessibility to all people. Housing Navigator could potentially support and integrate with Affirmative Fair Marketing Plan workflows:

- Integrate openings/lotteries with MassDocs process
- Generate pre-filled plan templates for submission
- Provide visibility for upcoming lotteries
- Track future inventory availability

## Housing Navigator Staff

Green River and Jennifer Gilbert spoke with staff at Massachusetts' [CHAMP](#), CHAPA's [MassAccess](#), New York City's [HousingConnect](#), Minnesota's [HousingLink](#), and San Francisco's [DAHLIA](#). There is an organization and administrative team behind each online tool, and though the staffing level varies, everyone emphasized the importance of that support. Based on these conversations, as well as our experience developing successful software, we offer the staffing and feature recommendations below.

We anticipate a need for “outward-facing” marketing and general communication staff: to raise awareness of the site for housing seekers, to maintain good relationships with the organizations and staff who provide data, to expand the number of property management companies and independent owners sharing their listings, and to help sustain funding.

There is also a need for more technically oriented support staff. Though a goal of Housing Navigator is to minimize the human effort necessary to keep the site up to date, success will still require involve administrative and technical tasks. Someone must grant access to property managers, and offer friendly assistance when a listing doesn't appear correctly; keep an eye on external data feeds, and follow-up when something goes amiss; provide appropriate data exports when needed; make sure vacancy listings are tied to the right underlying project inventory record; and so on.

The software must provide the tools necessary for support staff to perform their tasks. These will include:

- Tracking automatic updates to project inventory data. We anticipate Housing Navigator will rely on periodic data load routines (such as pulling CSV export files from an FTP server) to consume inventory records from government agencies and organizations. These routines likely will be automated, but an administrator will need a way to monitor status and see alerts if a problem arises.
- Manually uploading project inventory data. In the case where an automated import cannot be established (and/or the frequency of updates does not warrant the cost of engineering an automated process), an administrator can populate and upload an Excel template.
- Making edits to uploaded project inventory data. An administrator will need the ability to edit specific records to correct omissions, remove duplicates, verify geolocation, standardize project name formatting, and so on.
- Managing the association between project inventory data and vacancy listings. The software should try to automatically link openings from property managers and owners to underlying project records - relationships that will be useful for reporting and analysis. We anticipate, however, based on the vagaries of the available data (and echoed by comments from CHAPA and HousingLink staff), that an administrator will need to assign or confirm some matches.

## Housing Navigator Staff Continued

- Creating user accounts (sending login invitations, setting permissions) for property managers (and fellow administrators).
- Configuring data feed connection from property management software (to automatically receive vacancy posts).
- Manage non-English text translations. The initial phase of the Navigator assumes the site will support English and Spanish. Should Housing Navigator expand to be available in other languages, an administrator should have the ability to update translated text without involving a programmer.
- Manage individual listings. Though property managers ideally will manage their own listings, an administrator will need the ability to edit them as well (for example in the case of errors, when offering technical support, or when needing to take something down).
- Ability to post training videos and other help information, both for housing seekers and property managers.

Though the tools to support these "back office" operation do not need the visual appeal of other components of the platform, they very much need to work well, and allow Housing Navigator staff to perform their jobs as efficiently as possible.

**Policy Makers, Funders, Researchers**

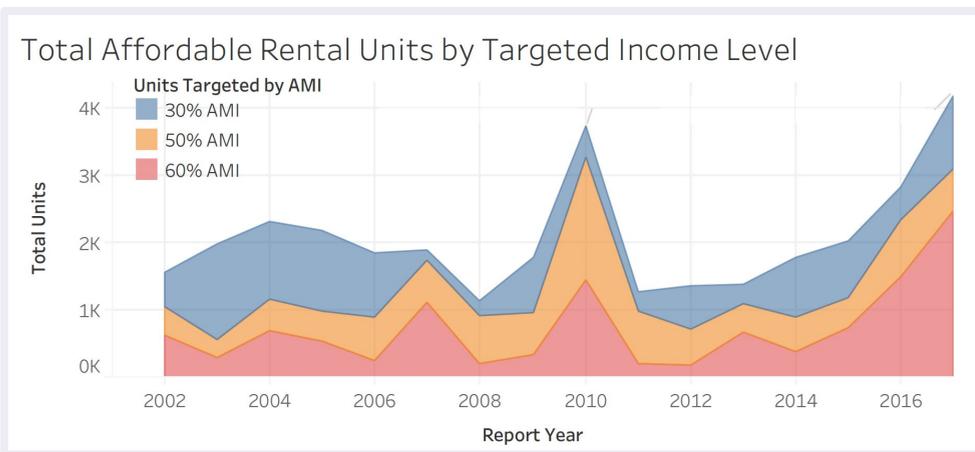
*Inventory Questions Would Finally Have Answers*

Without a comprehensive inventory database, it is currently impossible to answer important basic questions about the Commonwealth’s affordable housing inventory:

1. How many affordable units and vacancies are there, and how many in particular locations?
2. What sizes are the units?
3. Where are people looking for housing? How many bedrooms do they need?
4. How many units are available for the elderly and for those needing accessibility?

Housing Navigator will be able to provide answers to questions of demand and need, supporting decision-making by policy makers and funders, and analysis by researchers.

HousingLink provides monthly data-driven briefings that, taking analysis another step forward, look at trends in rent and vacancy. While not within the first-phase functionality outlined for the Navigator, the data collected could support third-party organizations who wish to examine deeper questions of housing affordability.



**Income Required to Rent a Home in March 2019**



Figures are based on the common landlord screening requirement that an applicant must earn 2.5 times the rent in income.

ONE BEDROOM	TWO BEDROOM	THREE BEDROOM
<b>\$2,750</b>	<b>\$3,825</b>	<b>\$3,875</b>

**Vacancy Distribution by Building Type<sup>1</sup>**



APARTMENT

Mar 2019	69%
Mar 2018	71%



SINGLE FAMILY HOME

Mar 2019	10%
Mar 2018	9%



OTHER  
(Condo, Duplex, Townhome)

Mar 2019	21%
Mar 2018	20%

*Screenshots of HousingLink’s monthly briefings*

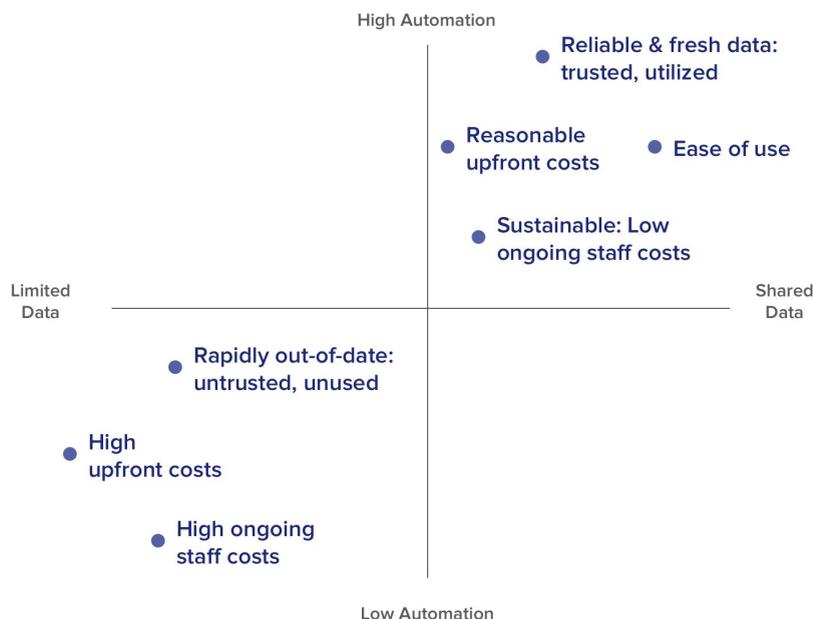
## Data Sharing and Automation

A common refrain of housing seekers is that there is no single, trusted affordable housing site: a place where a user can trust that vacancies posted are actually available, can trust the description of vacancies are accurate, and can trust that the overall list of vacancies is comprehensive.

Housing Navigator will ultimately succeed only if it becomes a trusted resource. That success requires two core conditions be met:

- The data behind the site must be thorough and up-to-date
- The site must be intuitive enough that home seekers and property managers alike are confident they can fully utilize its capabilities

Maintaining current inventory and vacancy data will be a significant challenge. Though we believe we have successfully identified the necessary sources for the information - and achieved informal consent from several of those sources to cooperate with sharing it for the project - the precise mechanism of moving data into Housing Navigator is still to be determined. HousingLink bemoaned the staffing effort required to gather vacancies (from existing lists and from property managers); CHAPA told a similar story about gathering information on accessible opportunities in Massachusetts.



A goal of Housing Navigator is to leverage technology as much as possible to help with data integration processes. A property manager will be able to login to Housing Navigator and manage each of their vacancy listings; a Housing Navigator administrator will be able to login and create a new housing project record in the inventory database. Yet, both of those operations can potentially be done automatically: the site could receive details of a new vacancy directly from a property manager's software platform. And it could download a weekly export file of housing projects from funding agencies. The technical engineering effort to implement these types of solutions is obviously more than relying on human data entry only. Long term, as noted in the chart above, maximizing automation is what will likely allow the site to be sustainable and reliable.

Existing Platforms

HousingLink

Part of Green River’s scope was to review existing tools that might support some or all of the functionality required for Housing Navigator. HousingLink is an obvious option, as it is the only platform we know of that includes a statewide project inventory database in addition to vacancy listings. The software is a custom application created and maintained by the HousingLink organization, which includes many tools for administrators (to manage inventory data, for example), property owners/managers, and housing seekers. HousingLink was willing to share their code, and was interested in exploring a technical collaboration. Ultimately, however, the HousingLink software represents a legacy platform fine-tuned to the needs of its Minnesota stakeholders and users. The software would likely require significant updates to support the current vision for Housing Navigator—effort which would likely exceed starting from a blank slate.

The image displays two screenshots of the HousingLink web application. The top screenshot shows the 'Streams' search interface with various filters for funding source, categories, and groups served. The middle screenshot shows a regional map of Minnesota with several locations marked. The bottom screenshot provides a detailed view of a property, including its address, funding details, and a list of 14 known property addresses.

**Property Detail: Minnetonka Mills Townhomes**

Multiple addresses listed at bottom of page

**Funding Categories**  
 Public Housing  
 Subsidized-Other  
 Tax Credit (LIHTC 9%)

**Property Information**  
 Year Built:  
 Building Type:  
 Groups Served:  
 Total Units: 30  
 Affordable Units: 28

**Affordable Units by Bedroom**  
 2 BR: 7  
 3 BR: 15  
 4 BR: 7

**Units by Area Median Income \***  
 30%: 28

\* AMI units are estimated because they were not provided, and have been set to the least restrictive AMI for the largest number of units.

**Known Property Addresses**

1	11330 Minnetonka Mills Rd	Hopkins
2	11338 Minnetonka Mills Rd	Hopkins
3	11342 Minnetonka Mills Rd	Hopkins
4	11348 Minnetonka Mills Rd	Hopkins
5	11352 Minnetonka Mills Rd	Hopkins
6	11360 Minnetonka Mills Rd	Hopkins
7	11364 Minnetonka Mills Rd	Hopkins
8	11370 Minnetonka Mills Rd	Minnetonka
9	11374 Minnetonka Mills Rd	Minnetonka
10	11380 Minnetonka Mills Rd	Minnetonka
11	11390 Minnetonka Mills Rd	Minnetonka
12	11400 Minnetonka Mills Rd	Minnetonka
13	11406 Minnetonka Mills Rd	Minnetonka
14	11396 Minnetonka Mills Rd	Minnetonka

**Funding Dates & Programs**  
 First known closing: 4/26/1996  
 Most recent closing: 7/1/1997  
 Earliest estimated expiration: 4/26/2026  
 Last Activity: New Construction

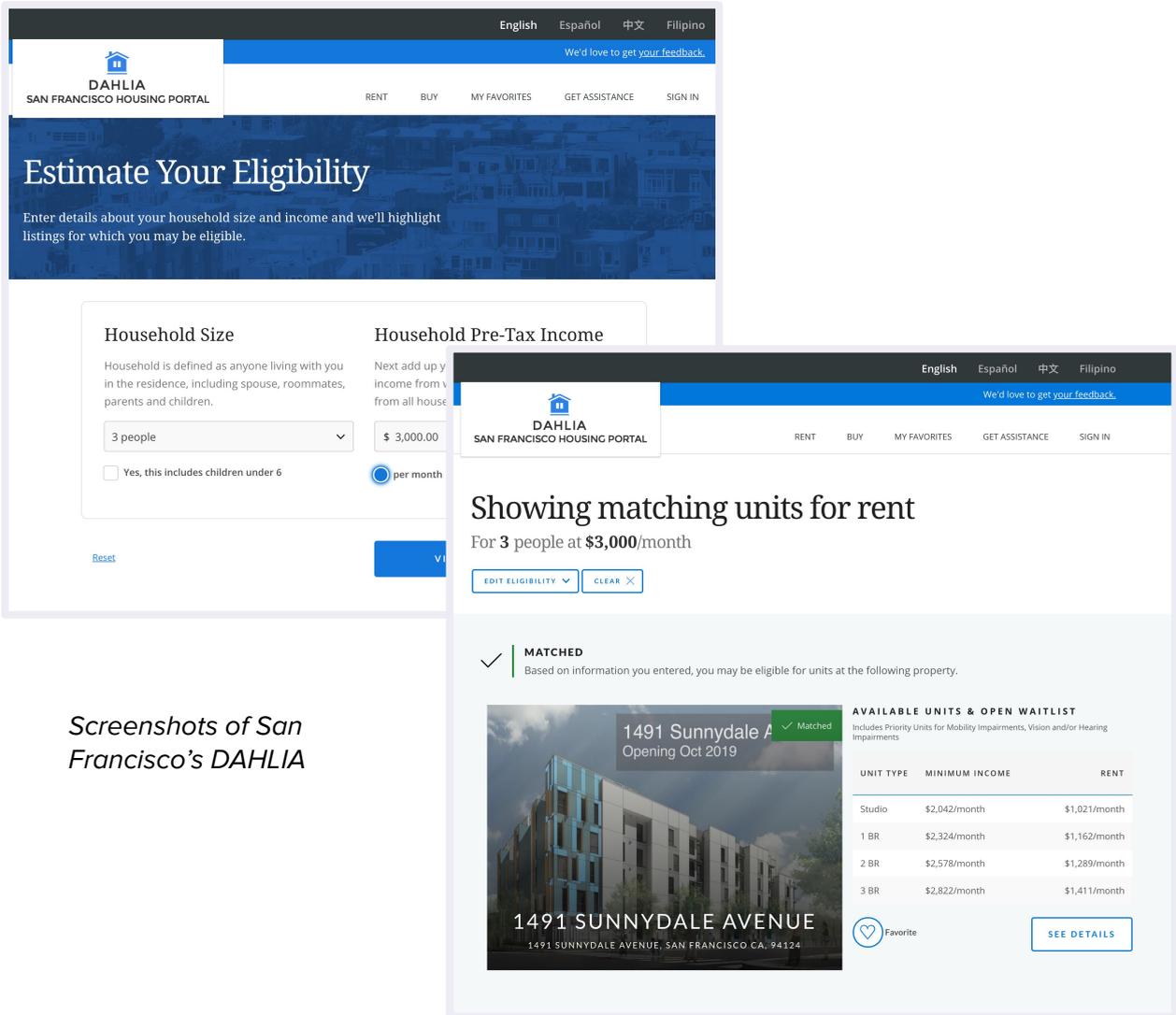
**Known Property Identifiers**  
 HousingLink: 5123  
 MHFATC9: D0993  
 HUDLIHTCS: MNA19970095  
 HUDPH: MN00200009

Screenshots of HousingLink’s software platform

Existing Platforms Platforms Continued

DAHLIA

The City of San Francisco's DAHLIA platform is an intriguing resource. It is open source, and therefore free to use, and represents literally millions of dollars in user research and software development. It presents well visually, and has an appealingly simple yet powerful interface for finding vacancies. We see an opportunity to use the search interface approach, and possibly the actual code, of DAHLIA for Housing Navigator. It is not, however, a viable core platform on which to build all of Housing Navigator. First, is designed to run off of San Francisco's Salesforce database, and further, it is designed to support the full application process for inclusionary and affordable units within the city.



Screenshots of San Francisco's DAHLIA

Commercial Software

There are local and national for-profit companies (e.g. HousingWorks.net and Haven Connect) that provide affordable housing listing and waitlist services. There are also commercial platforms for property managers (e.g. RentCafé). None of these address the full scope of features that Housing Navigator aims to deliver. All of them would require some customization (which may or may not be possible). Finally, while all are likely complementary, all are owned by companies whose mission is a different focus than KCF's.

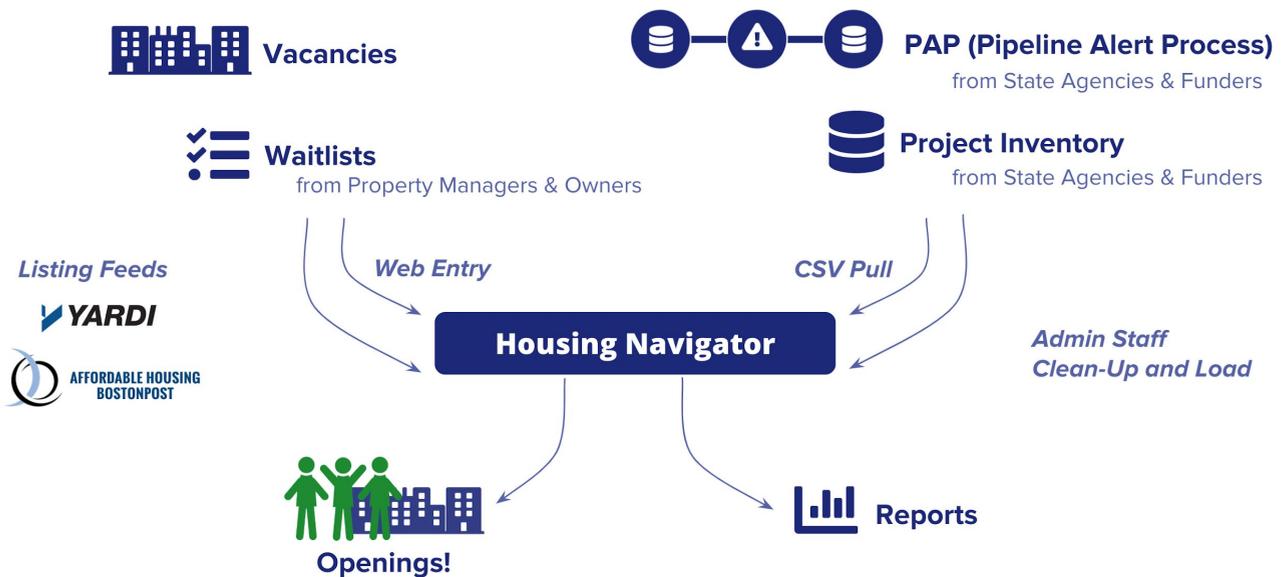
## Custom Software

Developing Housing Navigator as a custom, unique software platform has the following benefits:

- Compelling visual design
- Optimized workflows for Massachusetts' inventory data and existing processes
- Infinite customization to meet evolving user needs
- Allocation of resources on areas that have specific high demands
- Integration with other resources (such as CHAMP)
- Incorporation of existing solutions (such as DAHLIA's search interface design)

Though a developing a unique platform can seem like a panacea, custom software does not come without potential pitfalls. Beyond a hefty initial capital investment, software requires ongoing attention just to maintain existing functionality. With a custom platform, the burden of basic maintenance (such as underlying software library updates, security patches, minor bug fixes) isn't shared by multiple users and handled automatically by a vendor—it must be secured and paid for.

That said, the data flow requirements of Housing Navigator are not likely to be met by any existing platform. A new platform can be built to align with existing affordable housing financing and marketing processes in the state. The software needs to efficiently support a flow of inventory data and vacancy data, and be able to associate them together. As illustrated below, It could then support an early notification mechanism (labeled with the placeholder text "Pipeline Alert Process") for when a new housing project was in the works.



Data flow diagram of Housing Navigator

## Custom Software Continued

### Open Source

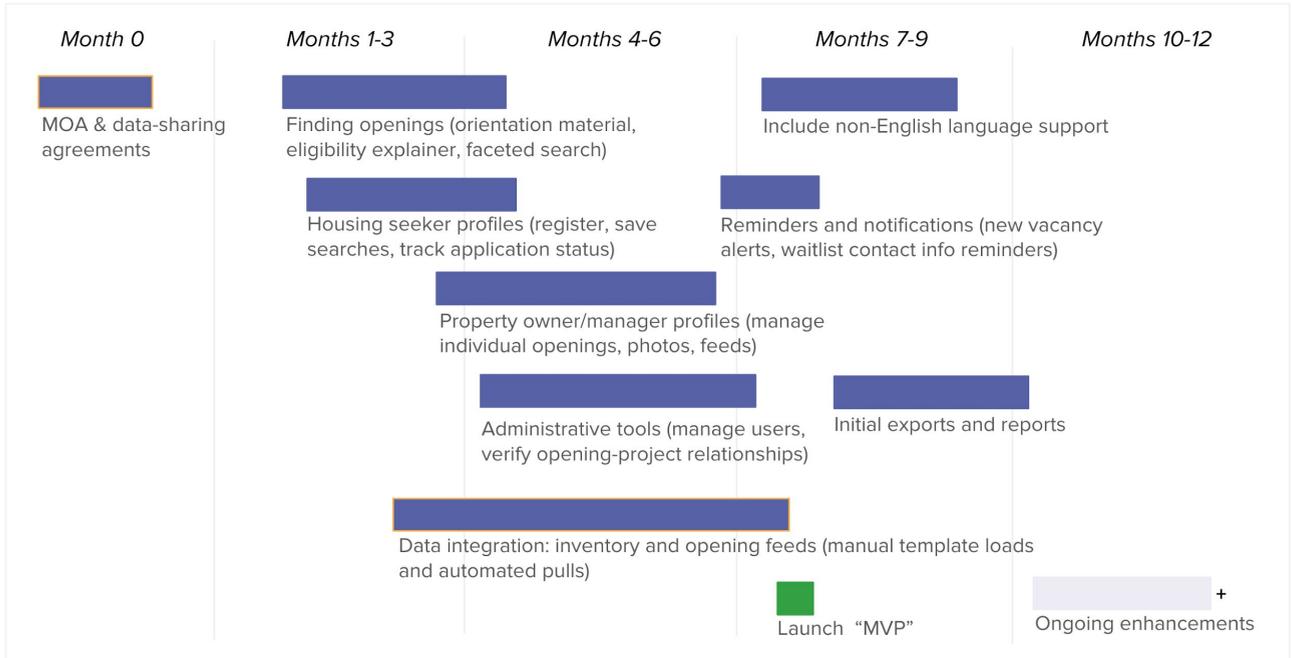
A custom software solution requires an ongoing, indefinite support commitment. Creating custom software is essentially building a platform owned by a single organization, and the burden of maintaining the underlying system—routine code library upgrades, security patches, performance monitoring, bug fixes—must be accounted for in addition to a plan for new features and ongoing general improvements.

Though we recommend never starting a custom software project without the expectation of owning all future maintenance, releasing the software code under an *open source* license lays the foundation for a more broadly shared technology resource. An open source license could allow other organizations to adopt the platform without paying license fees or royalties, but compel them in turn to contribute back any improvements they make. The license model thereby can promote cooperative adoption, where multiple organizations use and benefit from the software, and where those organizations' respective investments in the platform go directly into improving the technology rather than covering license fees.

Both the Commonwealth of Massachusetts and the City of Boston actively support open source software models, and the homeless information warehouse and coordinated access to housing platforms we have developed for them are released publicly under the GNU General Public License (version 3, <https://www.gnu.org/licenses/gpl-3.0.html>).

### Custom Software Continued

Part of Green River's charge was to draft a potential timeline for building the Housing Navigator technology platform. We identified core components and development tasks, and the likely calendar time necessary to complete a viable, initial version is shown below.



*Custom platform development schedule*

Success relies on a few key dependencies; pieces we believe are obtainable, but will likely pose challenges. First, by definition, the site requires accurate, extensive data. Those organizations that have accurate project inventory information, and the property owners and managers who have vacancy information, must agree to share their data. Further, their commitment must be ongoing and consistent—not just to send data along sporadically, but agreeing to the effort necessary to establish an automated data exchange process whenever possible.

We estimate the work effort required for the initial release outlined above at around 65 person-weeks. That represents effort from a software development firm (design, development, and testing, along with associated project management), but does not include branding, marketing, and the necessary work the organization that ultimately "owns" the project will need to contribute.

## Conclusion

Thank you for the opportunity to work on this feasibility investigation with Kuehn Charitable Foundation! We believe Housing Navigator is an ambitious, yet achievable project. Early concerns that statewide project inventory data did not exist anywhere, and that property managers might not support the project, turned out to be unfounded. Still, challenges remain:

- Inventory data acquisition, quality, and updating requires ongoing cooperation with various agencies
- Property manager and owner participation requires some return on investment
- The site must be marketed, and adopted by users; broad and accurate listing coverage will help
- The project must be economically sustainable long term

As only the second state-level resource with comprehensive affordable housing listings, the platform will be an inspiration for other states. Housing Navigator will be able to make a significant difference in the pain and inefficiency caused by the convoluted, scattered nature of the current situation, ultimately getting more people housed, more simply.

If there is any additional information we can provide, please let us know.

## Inventory

We investigated the following sources of affordable housing project information. For many of them, we exchanged emails, phone calls, and collected a brief survey on what each organization tracks.

1. City of Boston/MetroList
2. Massachusetts Housing Partnership (MHP)
3. MHP/40BList
4. MassHousing
5. Massachusetts Department of Housing and Community Development (DHCD)/State Public Housing
6. DHCD/Rental Voucher Program
7. DHCD/Bureau of Rental Assistance
8. DHCD/Subsidized Housing Inventory List
9. DHCD/Fair Housing Database
10. DHCD/Low Income Housing Tax Credit (LIHTC) list
11. DHCD/Housing and Community Development
12. U.S. Department of Housing and Urban Development (HUD)

## Interviews with Managers of Affordable Housing Apps

We met with people who manage other affordable housing applications.

1. Barry Roeder, DAHLIA San Francisco Housing Portal
2. Sue Speakman-Gomez, Minnesota HousingLink
3. Maritza Crossen, CHAPA's MassAccess
4. Amy Stitely, Massachusetts DHCD's CHAMP

## Focus Groups

We conducted a focus group (in Boston on 5/9/2019) with housing search workers with 11 attendees from the following organizations:

- AIDS Action Committee
- Boston Center for Independent Living
- Citizens' Housing and Planning Association (CHAPA)
- Community Teamwork
- Emmaus Family Shelter
- EMPath
- Metro Housing, Housing Consumer Education Center
- South Middlesex Opportunity Council (SMOC)

We conducted a second focus group (in Springfield on 5/13/2019) with housing search workers with 12 attendees from ServiceNet/Greenfield Family Inn, Stavros, and Wayfinders.

We conducted a focus group (in Boston on 5/20/2019) with property management companies with 21 attendees from:

- American Property Team
- Avalon Bay
- Boston Land Company
- Corcoran Management
- Equity Property Management
- First Reality
- First Resource Management
- Maloney Properties
- National Development
- Peabody Properties
- Schochet Companies
- Trinity Property Management
- Wingate
- WinnCompanies

## Steering Committee

A Product Description (December, 2018) from the Housing Navigator Steering Committee guided this assessment. Participants in the Steering Committee and their affiliations (provided by KCF) include:

- Rachel Heller, CHAPA, co-convener
- Jennifer Gilbert, KCF, co-convener
- Janelle Chan, DHCD and Karen Bresnahan, DHCD
- Howard Cohen and Nancy Hogan, Beacon
- Maritza Crossen, CHAPA
- Hector Cruz, Winn
- Joe Flatley, MHIC
- Judith Jacobson, POAH
- Chrystal Kornegay, Rachel Madden and Anne Marie MacPherson, Mass Housing
- Judith Liben, Mass Law Reform Institute
- Courtenay Loiselle, Mass Rehab
- Matt Rouser, DND
- Laura Shufelt and Clark Ziegler, MHP
- Lynne Wallace, Wayfinders

