National Human Services Data Consortium

2019 Spring Conference

Nashville, TN

April 15-17, 2019

Boston's Open Source HMIS Data Warehouse

Jennifer Flynn, HMIS Administrator City of Boston
Lubov McKone, HMIS Analyst City of Boston

Increasing Capacity & Building Connections: **Bridging to the Future**

Boston by the Numbers

- Within the City's CoC 2017-2018:
  - 10,080 Single Adults in ES Annually
    - 1,800 on any given night
    - 493 Chronically Homeless single adults on By Name List
    - 270 Veterans PIT Count
  - 1,715 Families in ES Annually
    - 1,075 on any given night
    - 104 Chronically homeless households
    - 5 Veterans PIT Count
  - 9 HMIS Software installations
  - 30+ Service Provider Agencies using HMIS
  - 700+ Users
  - 98% ES Bed Coverage
  - Street Outreach in HMIS

300 Volunteers join Mayor Walsh to canvas Boston for the Annual Street and Shelter Count.

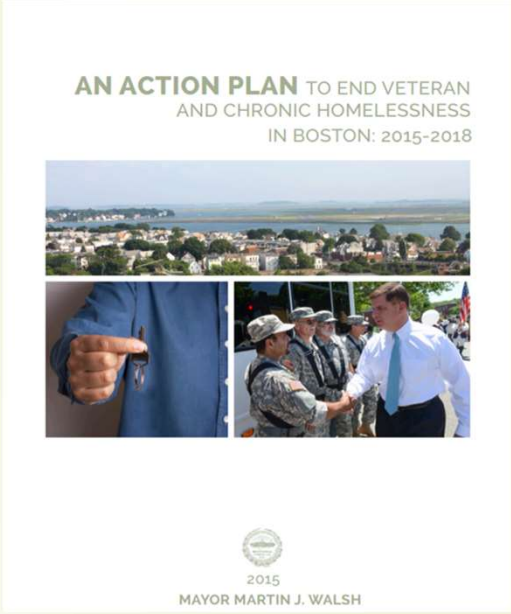
BOSTON'S WAY HOME
MAYOR MARTIN J. WALSH

Boston's Way Home: An Action Plan to End Veteran and Chronic Homelessness in Boston 2015-2018

- End Veteran homelessness by the end of 2015
- End Chronic homelessness by 2018
- System Transformation

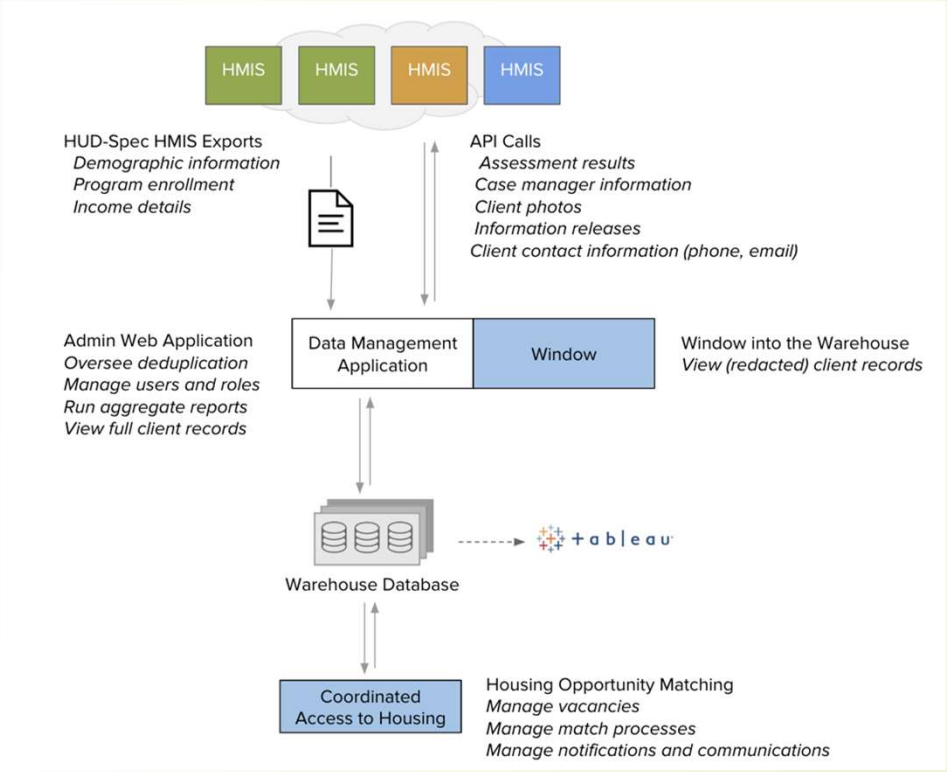
Investments Made in:

- *Front Door Triage*
- *Rapid Re-Housing*
  $2.7M City investment since City FY17
- *PSH Development*
  both "Brick & Mortar" and partnerships especially with Boston Housing Authority
- ***Technology***
  $400,000 City investment
  Open Source HMIS Data Warehouse
  Open Source Coordinated Access Housing Matching System



Boston's Warehouse Structure

- **Open Source, GPLv3**
- Hosted Solution
- Software is Free
- Ruby on Rails
- MS SQL Server/PostgreSQL



What does Open Source Mean?

Free Distribution

Anyone can access the software, free of charge

- No download or licensing fees
- You may need to pay a consultant for setup/maintenance if you do not have a developer in-house

Ability to see and modify source code

You can modify the warehouse to suit your needs, or use as-is

- i.e. adding case conferencing features, custom reports

Ability to share changes

Share your changes back with the original source code

- This gives other CoCs the option to adopt your features if they wish
- Culture of sharing and collaboration vs. siloed custom reports and features

What does Open Source Mean?

An Open Source Product and Community allows us to share Best Practices and new ideas with limited resources as all CoCs strive for the same goal, Ending Homelessness across the country.

What does Open Source Mean for me?
Technical Implementation

You will need:

- **an IT Partner**
  Some options:
  - In-house
  - Partnership with local college or university
  - IT consultant
- **Somewhere secure to host the data**
  - Boston uses AWS
- **To make a "pull request" from the Github**
  - This is always where the most up-to-date version of the warehouse lives
- **To "spin up" the warehouse**
  - With the help of your IT partner
  - Instructions are included in the Github

What does Open Source Mean for me?

Cross-CoC Collaboration

MA-507 Pittsfield/Berkshire, Franklin, Hampshire Counties CoC

- Using full warehouse

MA-504 Springfield/Hampden County CoC

- Using full warehouse
- Built file upload feature
- Added racial equity info to System Performance measures
- Built out Notes function

TX-601 Fort Worth, Arlington/Tarrant County CoC

- Using full warehouse

Boston Healthcare for the Homeless Program

- Using platform for Healthcare Data Sharing project
- Built out Notes function

San Diego

- Using platform to filter and transform data for partnership with Cloudburst

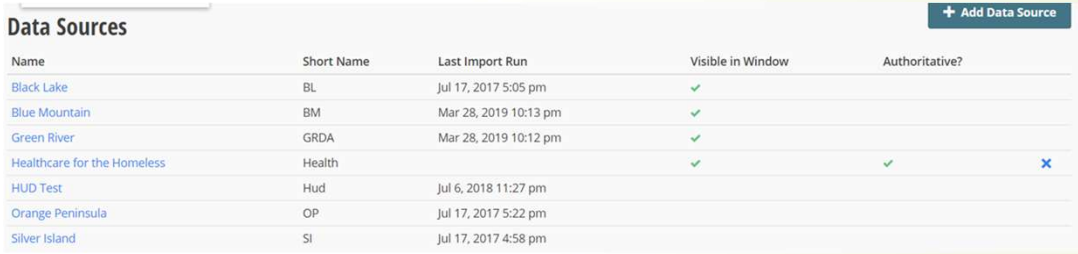
Anthem Indiana and CHIP Indy

- Using platform to share data with Medicaid

Boston HMIS Data Warehouse Demo

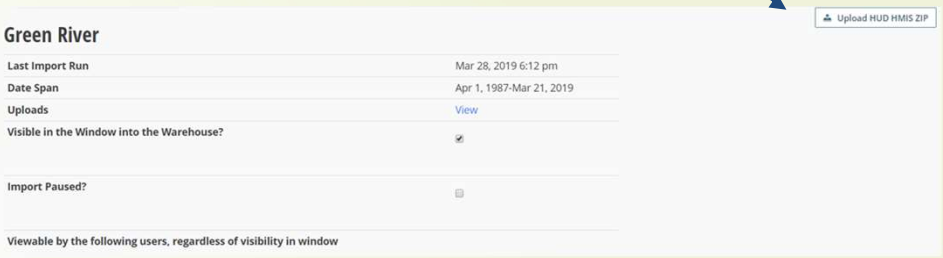
- During the NHSDC presentation, a live demo of the following functionality occurred
- Screenshots of the relevant software features are included for the posted presentation.
- The HMIS Staging environment is the testing and training site which uses anonymized data from our production environment.

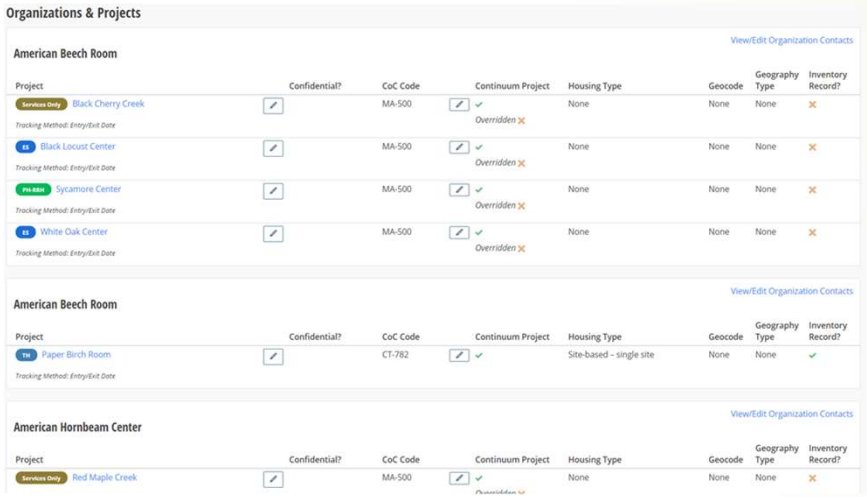
Data Sources



Each individual Front End Software System is its own data source and quick look at last upload.

Manual Data Upload





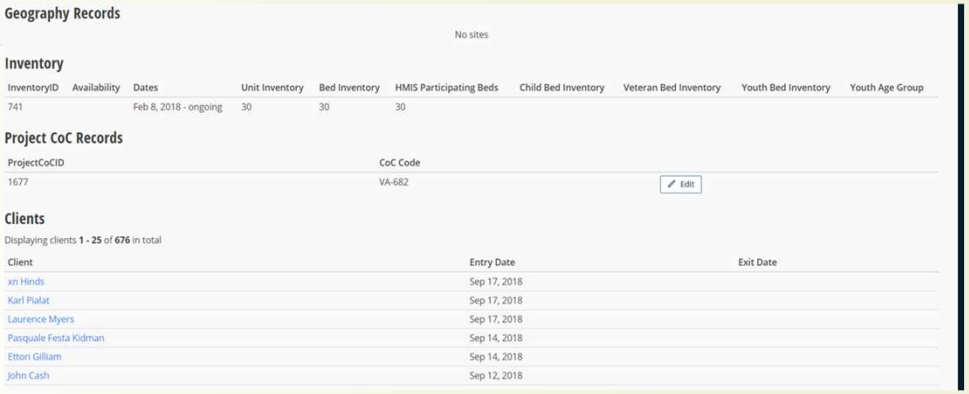
Organization and Program list with high level Project Descriptors.

Data Sources

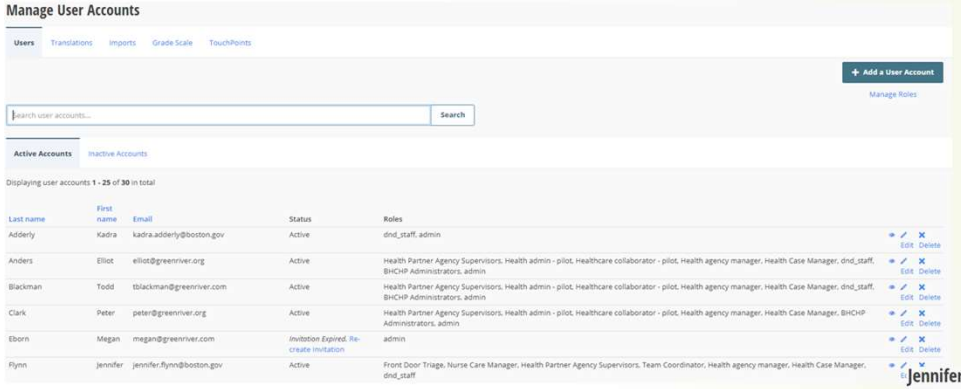
By Project Quick Look

Project Descriptors

Currently Active Client list in program.

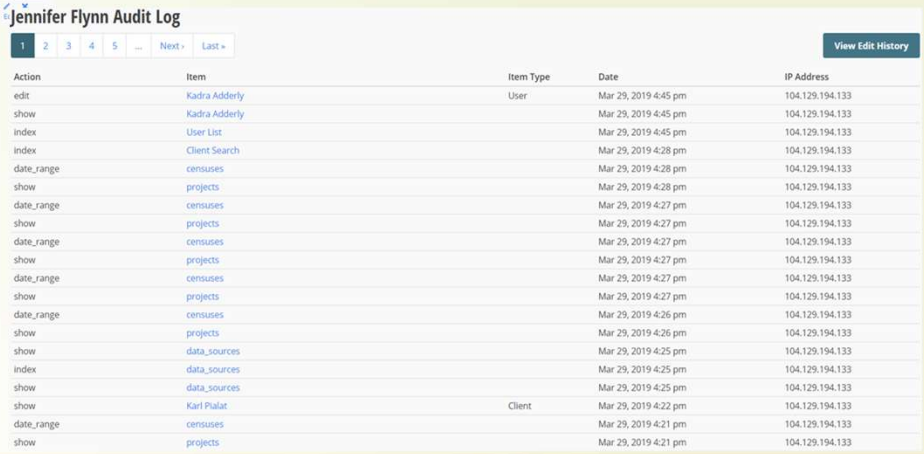


Admin Dashboard



User account management

User Audit logs

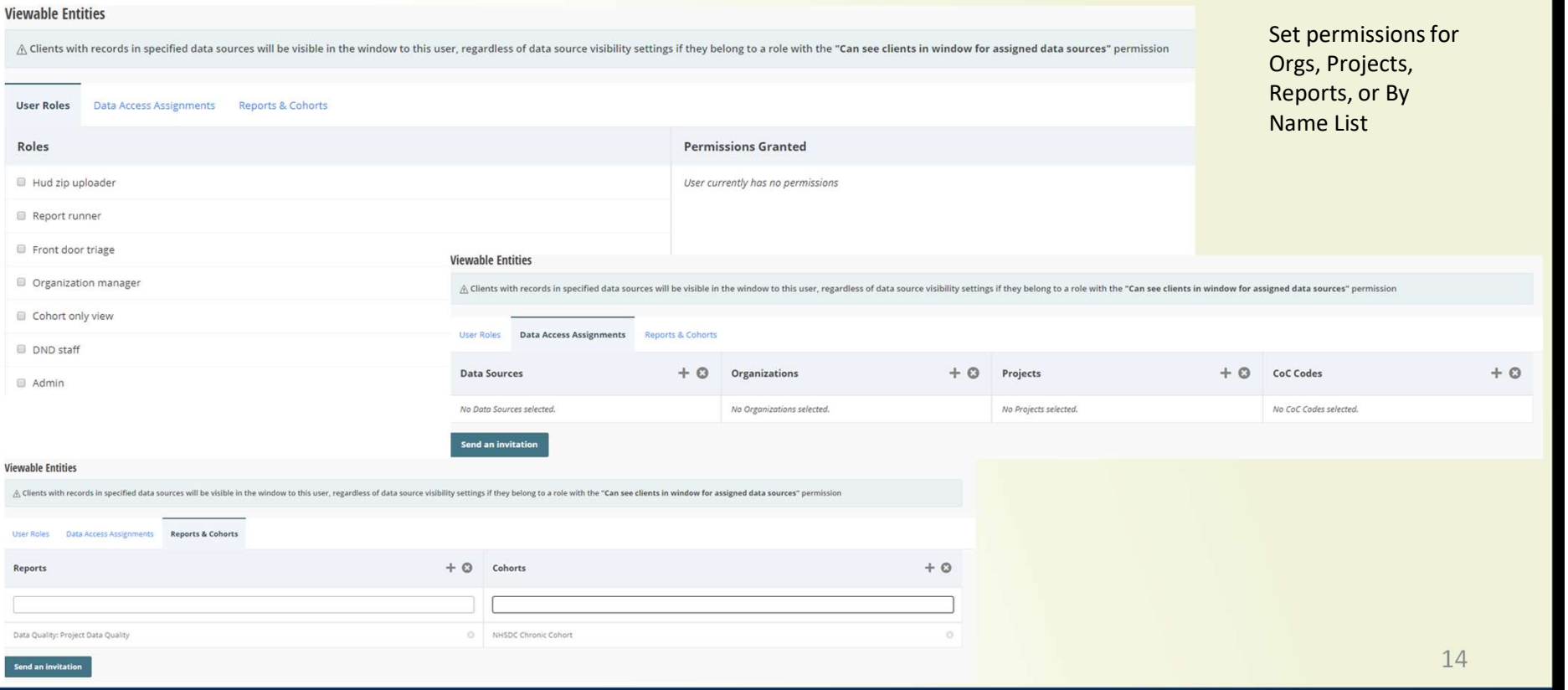


User Roles

Manage Roles and Permissions

Permissions (Administrative Permission)	admin	Cohort only view	dnd_staff	Front Door Triage	HUD Zip Uploader	Organization Manager	Report Runner
Can edit anything super user — This permission grants access to all data sources, organizations and projects, regardless of assignment. This should only be given to administrator level users.	✓	⊗	✓	⊗	⊗	⊗	⊗
Can view clients — Allows access to the non-window view of clients. This should only be given to administrator level users.	✓	⊗	✓	⊗	⊗	⊗	⊗
Can edit clients — Provides the ability to merge clients and make other edits. This should only be given to administrator level users.	✓	⊗	✓	⊗	⊗	⊗	⊗
Can audit clients — Access to see who has looked at or changed a client record. This should only be given to administrator level users.	✓	⊗	⊗	⊗	⊗	⊗	⊗
Can view censuses — Access to the nightly census dashboard, only at the aggregate level	✓	⊗	✓	⊗	⊗	⊗	⊗
Can view census details — Ability to "drill down" on census reports and see who was where on a given day	✓	⊗	✓	⊗	⊗	⊗	⊗
Can edit users — Ability to add and edit user accounts for all users	✓	⊗	✓	⊗	⊗	⊗	⊗
Can edit roles — Ability to add and remove roles and assign permissions to all roles	✓	⊗	✓	⊗	⊗	⊗	⊗
Can audit users — Access to the audit logs for users	✓	⊗	✓	⊗	⊗	⊗	⊗
Can view full ssn — Ability to see the full Social Security Number for clients	✓	⊗	✓	⊗	⊗	⊗	⊗
Can view full dob — Ability to see the Date of Birth for clients	✓	⊗	✓	⊗	⊗	⊗	⊗

User Roles

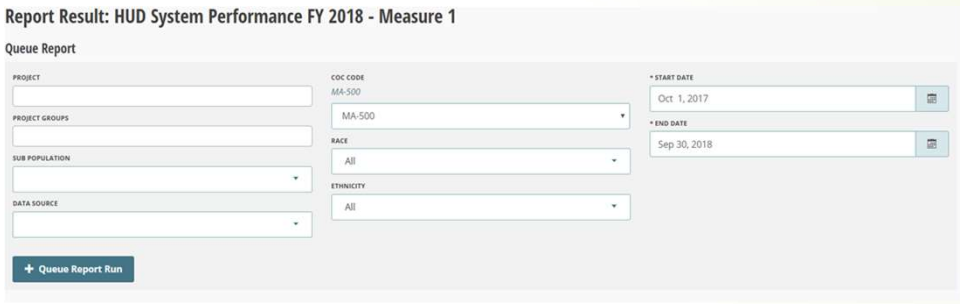


Set permissions for Orgs, Projects, Reports, or By Name List

HUD Reports

CoC Level HDX reports are available for the HMIS Lead. Boston requires all projects to use their front end system for APR and CAPER reporting

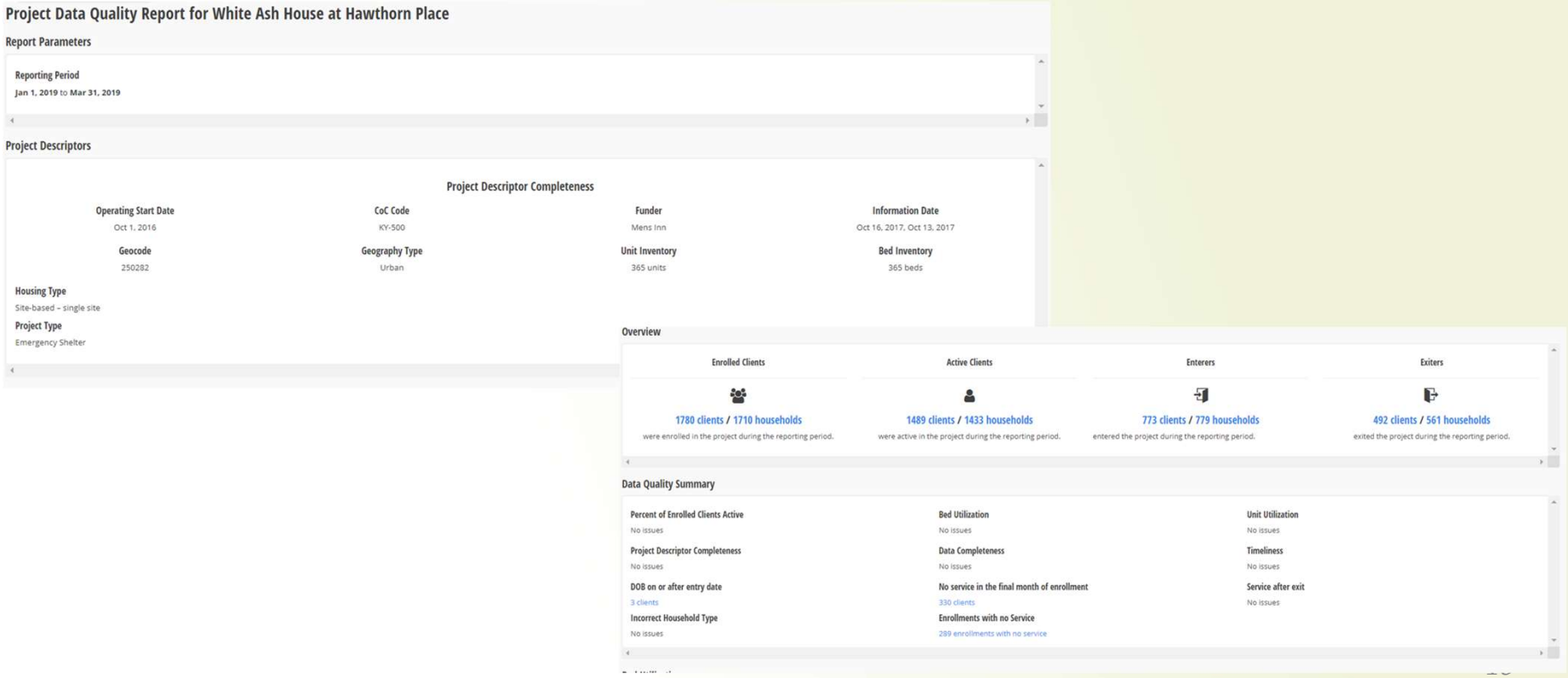
Filters have been added to run the reports by project, by subpopulation or with a racial equity lens.



Reports provided on screen with the option to download the CSV as well as client back up details.

Subpopulations may include Veterans, Youth, Families with children or other locally defined metrics.

Custom reports - Project Data Quality



Project Data Quality Report for White Ash House at Hawthorn Place

Report Parameters

Reporting Period
Jan 1, 2019 to Mar 31, 2019

Project Descriptors

Project Descriptor Completeness

Operating Start Date	CoC Code	Funder	Information Date
Oct 1, 2016	KY-500	Mens Inn	Oct 16, 2017, Oct 13, 2017
Geocode	**Geography Type**	**Unit Inventory**	**Bed Inventory**
250282	Urban	365 units	365 beds

Housing Type
Site-based – single site

Project Type
Emergency Shelter

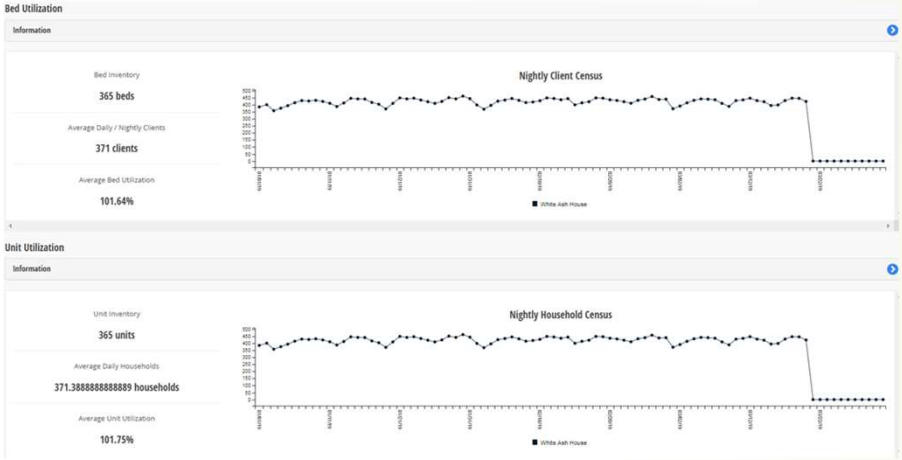
Overview

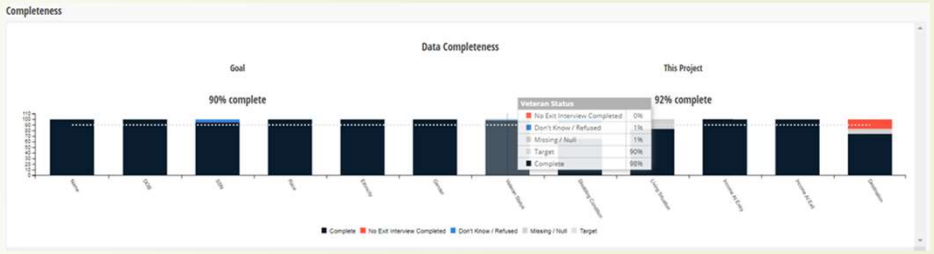
Enrolled Clients	Active Clients	Enterers	Exiters
1780 clients / 1710 households	1489 clients / 1433 households	773 clients / 779 households	492 clients / 561 households
were enrolled in the project during the reporting period.	were active in the project during the reporting period.	entered the project during the reporting period.	exited the project during the reporting period.

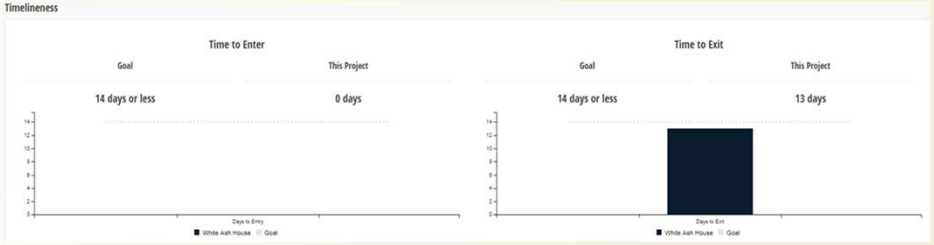
Data Quality Summary

Percent of Enrolled Clients Active	Bed Utilization	Unit Utilization
No issues	No issues	No issues
Project Descriptor Completeness	Data Completeness	Timeliness
No issues	No issues	No issues
DOB on or after entry date	No service in the final month of enrollment	Service after exit
3 clients	330 clients	No issues
Incorrect Household Type	Enrollments with no Service	
No issues	289 enrollments with no service	

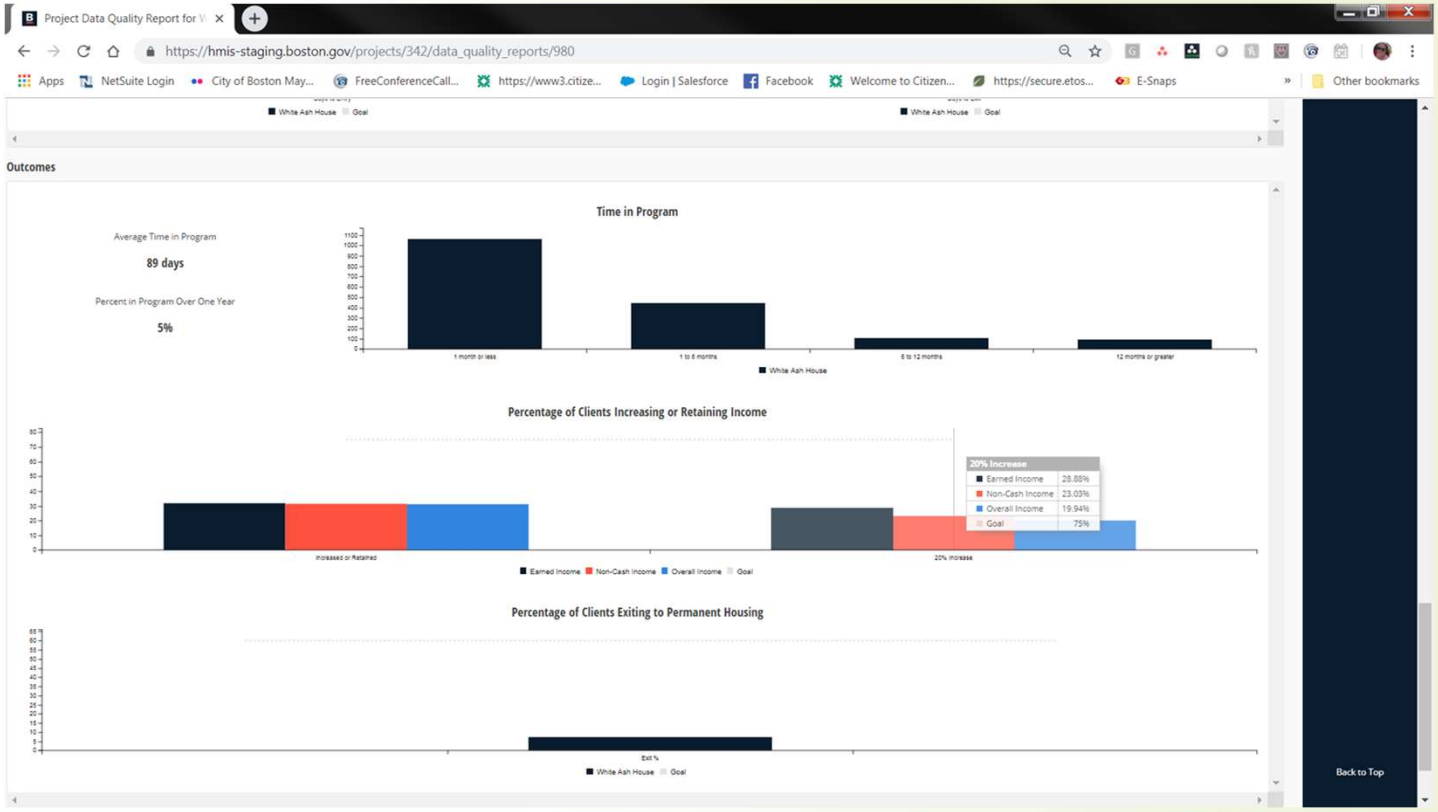
Custom reports - Project Data Quality



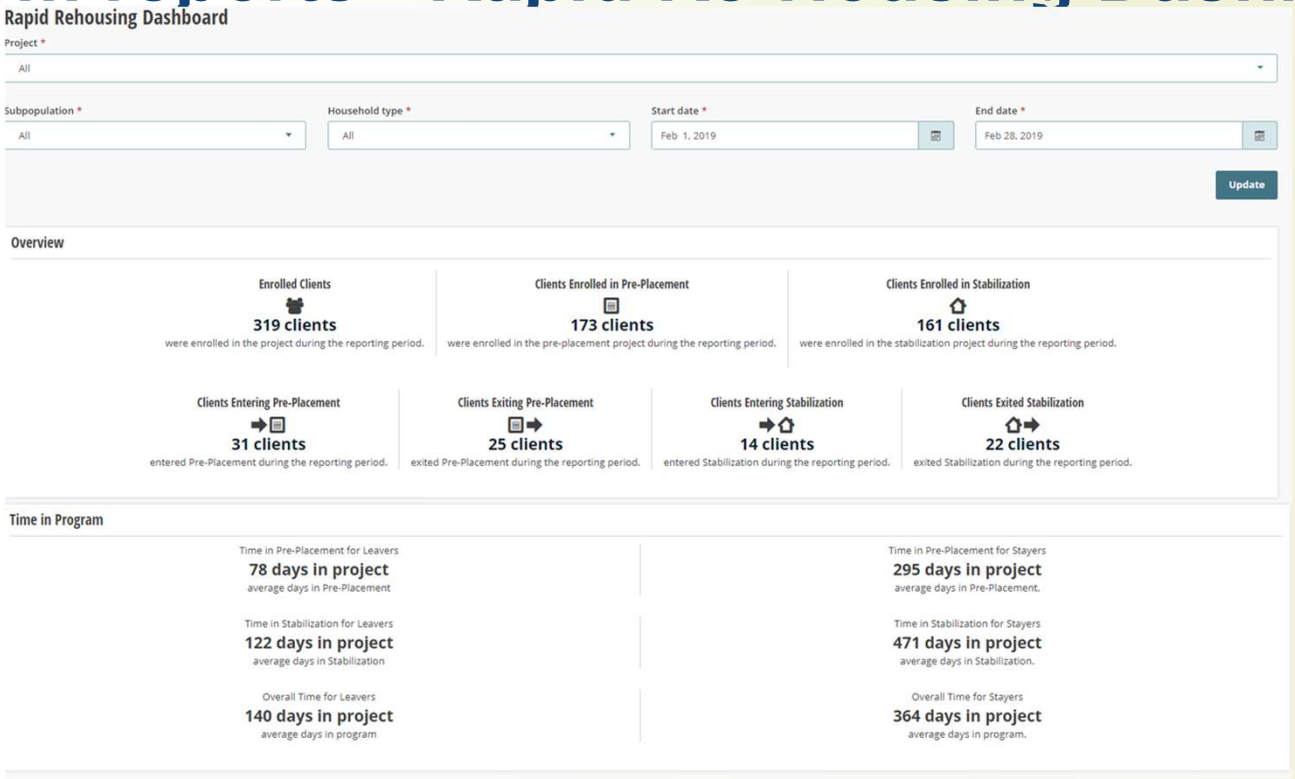




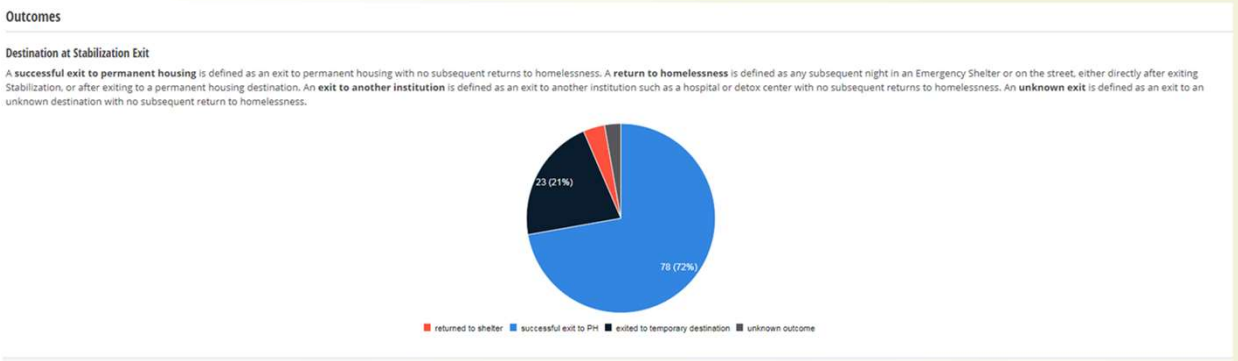
Custom reports - Project Data Quality

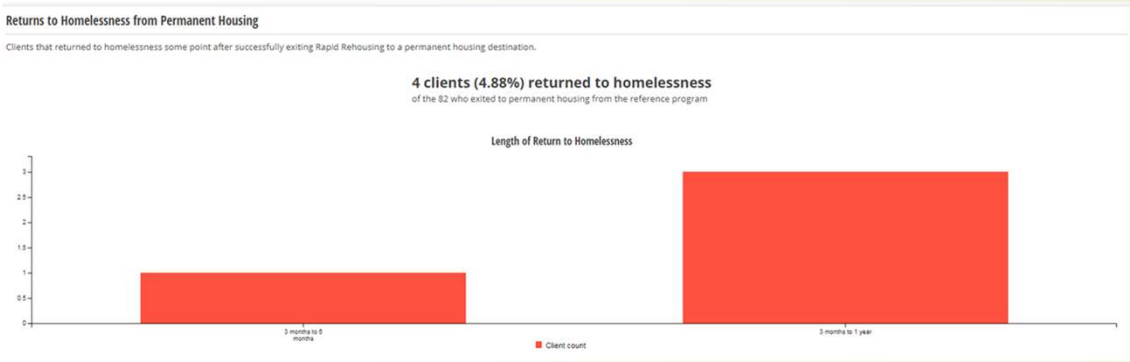


Custom reports - Rapid Re-Housing Dashboard

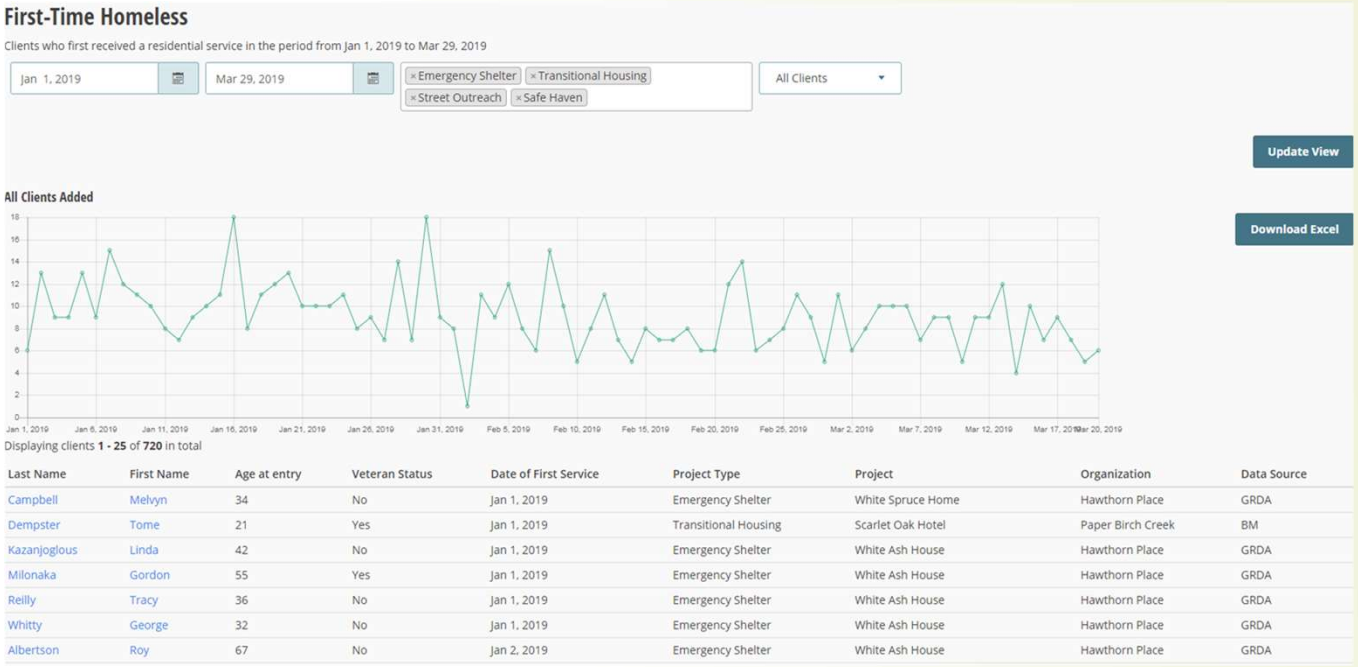


Custom reports - Rapid Re-Housing Dashboard





Custom reports - First Time Homeless



First-Time Homeless

Clients who first received a residential service in the period from Jan 1, 2019 to Mar 29, 2019

Jan 1, 2019 | Mar 29, 2019 | × Emergency Shelter × Transitional Housing × Street Outreach × Safe Haven | All Clients

Update View

Download Excel

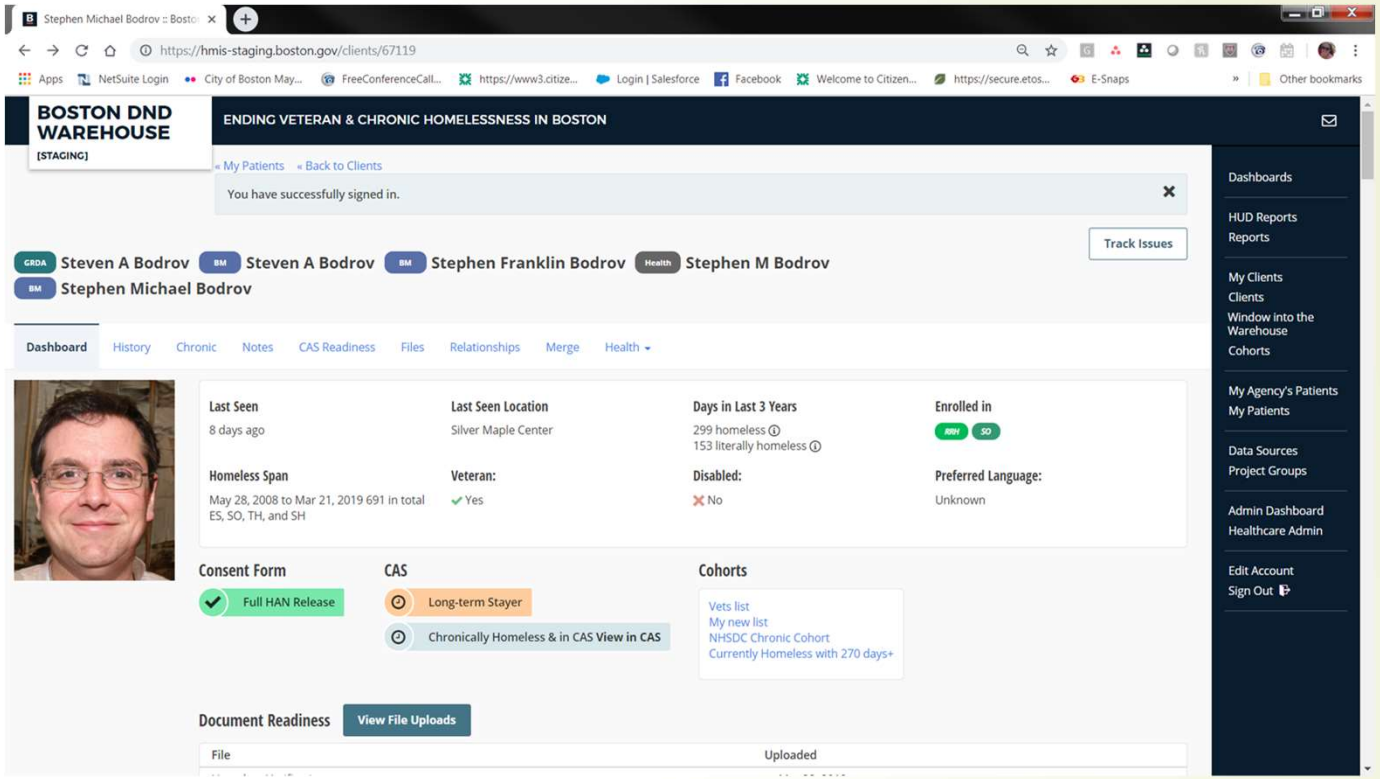
All Clients Added

Displaying clients **1 - 25** of **720** in total

Last Name	First Name	Age at entry	Veteran Status	Date of First Service	Project Type	Project	Organization	Data Source
Campbell	Melvyn	34	No	Jan 1, 2019	Emergency Shelter	White Spruce Home	Hawthorn Place	GRDA
Dempster	Tome	21	Yes	Jan 1, 2019	Transitional Housing	Scarlet Oak Hotel	Paper Birch Creek	BM
Kazanjoglous	Linda	42	No	Jan 1, 2019	Emergency Shelter	White Ash House	Hawthorn Place	GRDA
Milonaka	Gordon	55	Yes	Jan 1, 2019	Emergency Shelter	White Ash House	Hawthorn Place	GRDA
Reilly	Tracy	36	No	Jan 1, 2019	Emergency Shelter	White Ash House	Hawthorn Place	GRDA
Whitty	George	32	No	Jan 1, 2019	Emergency Shelter	White Ash House	Hawthorn Place	GRDA
Albertson	Roy	67	No	Jan 2, 2019	Emergency Shelter	White Ash House	Hawthorn Place	GRDA

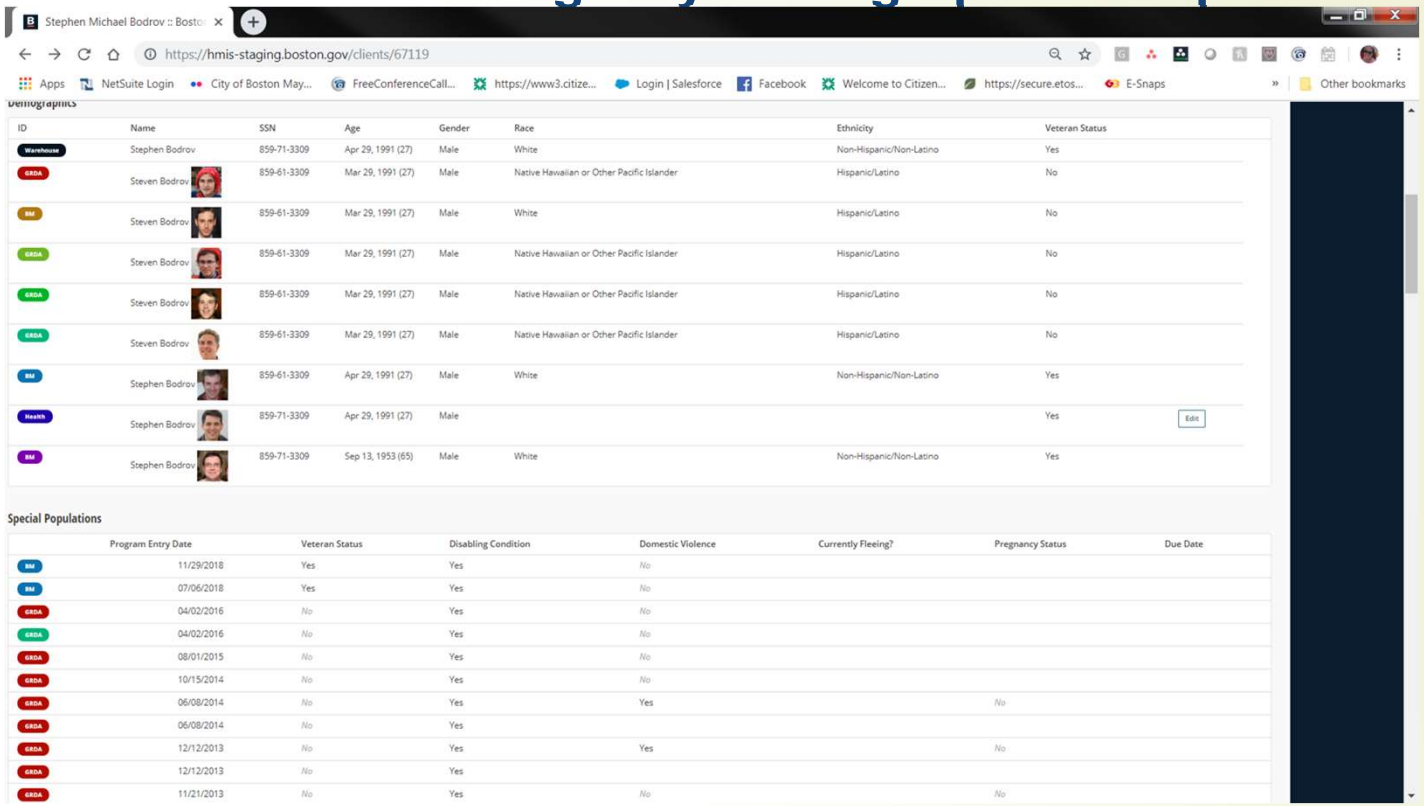
This report pulls all clients who have had an outreach contact, emergency shelter bed, or transitional housing for the very first time during the reporting range. These clients may have received support services or other assistance previously.

Client Dashboard



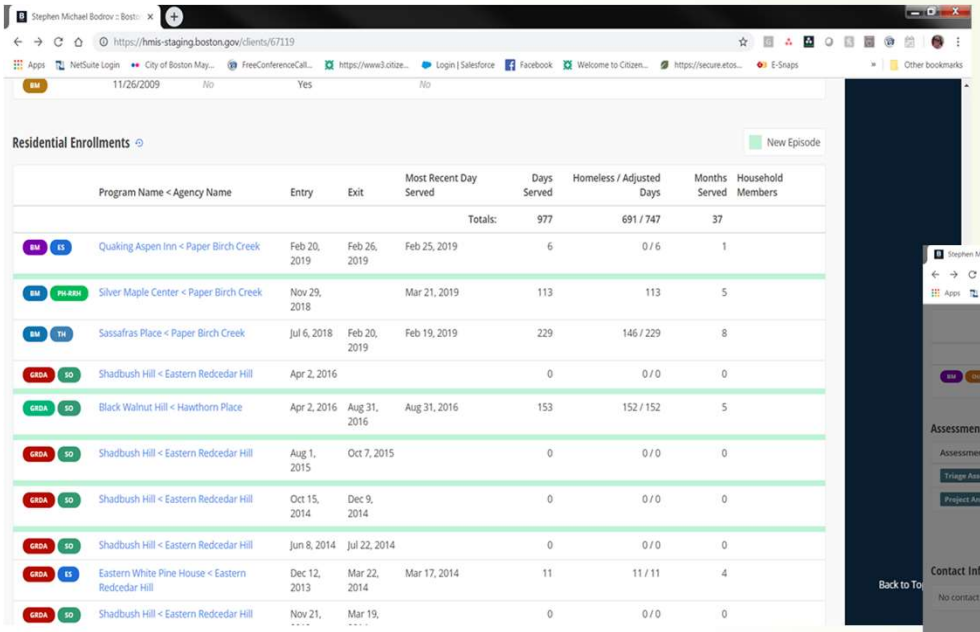
This Administrator view is a full 360º view of clients across the CoC. Providers who are part of the *Boston Homeless Assistance Provider Network* have access the "Window into the Warehouse". This window is a read only pared down view that is expandable to the provider with ROIs

Client Dashboard - Agency Demographics & Special Populations



The surprising thing we have found is the updating of client demographic information when the information is available across providers. They may see that others use William instead of Billy, or update that typo in a Date of Birth.

Client Dashboard - Enrollments & Assessments

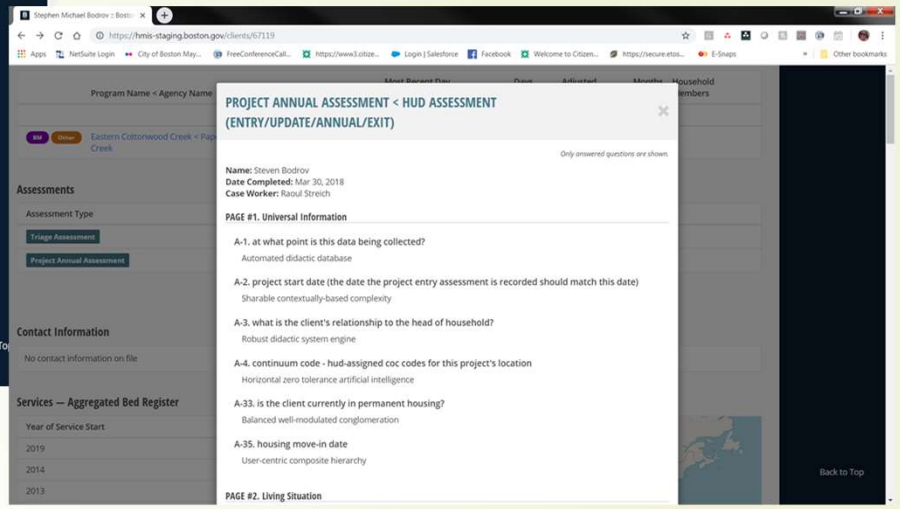


Residential Enrollments

	Program Name < Agency Name	Entry	Exit	Most Recent Day Served	Days Served	Homeless / Adjusted Days	Months Served	Household Members
				Totals:	977	691 / 747	37	
BM ES	Quaking Aspen Inn < Paper Birch Creek	Feb 20, 2019	Feb 26, 2019	Feb 25, 2019	6	0 / 6	1	
BM PH-RRH	Silver Maple Center < Paper Birch Creek	Nov 29, 2018		Mar 21, 2019	113	113	5	
BM TH	Sassafras Place < Paper Birch Creek	Jul 6, 2018	Feb 20, 2019	Feb 19, 2019	229	146 / 229	8	
GRDA SO	Shadbush Hill < Eastern Redcedar Hill	Apr 2, 2016			0	0 / 0	0	
GRDA SO	Black Walnut Hill < Hawthorn Place	Apr 2, 2016	Aug 31, 2016	Aug 31, 2016	153	152 / 152	5	
GRDA SO	Shadbush Hill < Eastern Redcedar Hill	Aug 1, 2015	Oct 7, 2015		0	0 / 0	0	
GRDA SO	Shadbush Hill < Eastern Redcedar Hill	Oct 15, 2014	Dec 9, 2014		0	0 / 0	0	
GRDA SO	Shadbush Hill < Eastern Redcedar Hill	Jun 8, 2014	Jul 22, 2014		0	0 / 0	0	
GRDA ES	Eastern White Pine House < Eastern Redcedar Hill	Dec 12, 2013	Mar 22, 2014	Mar 17, 2014	11	11 / 11	4	
GRDA SO	Shadbush Hill < Eastern Redcedar Hill	Nov 21,	Mar 19,		0	0 / 0	0	

Assessments

Assessment Type	Collection Date	Location	Staff
Triage Assessment	Feb 8, 2018	Triage	Virgie Aufderhar
Project Annual Assessment	Mar 30, 2018	99 Tier 1 PRA (E1)	Raoul Streich



PROJECT ANNUAL ASSESSMENT < HUD ASSESSMENT (ENTRY/UPDATE/ANNUAL/EXIT)

Only answered questions are shown

Name: Steven Bodrov
Date Completed: Mar 30, 2018
Case Worker: Raoul Streich

PAGE #1. Universal Information

A-1. at what point is this data being collected?
Automated didactic database

A-2. project start date (the date the project entry assessment is recorded should match this date)
Sharable contextually-based complexity

A-3. what is the client's relationship to the head of household?
Robust didactic system engine

A-4. continuum code - hud-assigned coc codes for this project's location
Horizontal zero tolerance artificial intelligence

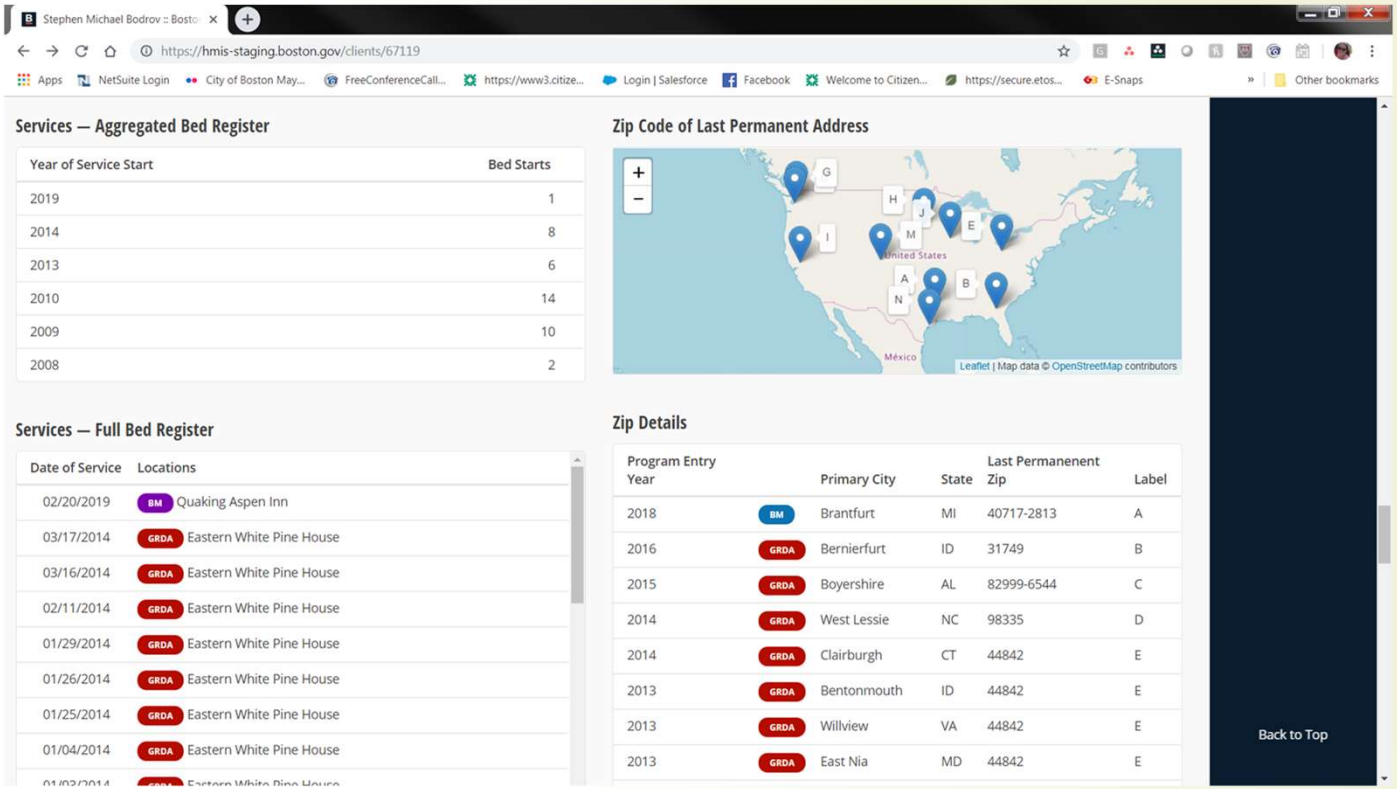
A-33. is the client currently in permanent housing?
Balanced well-modulated conglomeration

A-35. housing move-in date
User-centric composite hierarchy

PAGE #2. Living Situation

With ROI, the assessment data can be accessed,
without ROI it shown that the assessment was taken.

Client Dashboard - Bed Nights



Client Dashboard - Income & Disability

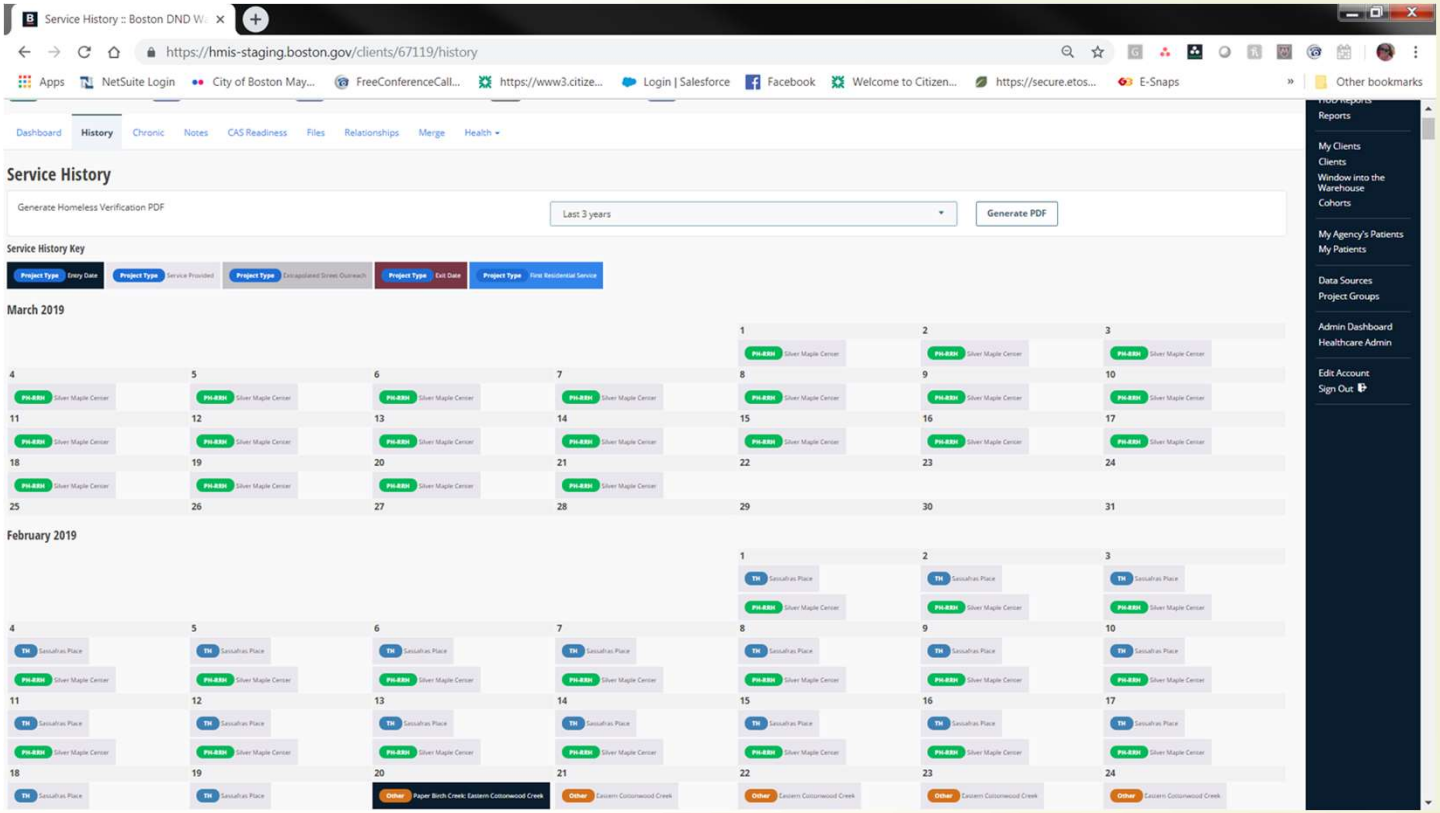
Income and Benefits

	Program Entry Date	Collection Date	Source	Amounts	Total	Collection Stage
BM	11/29/2018	Nov 29, 2018	VADisabilityService	$1589.00	$1589.00	Project entry
BM	07/06/2018	Jul 6, 2018	VADisabilityService	$1569.00	$1569.00	Project entry
BM	07/06/2018	Aug 6, 2018	VADisabilityService	$1569.00	$1569.00	Update
BM	07/06/2018	Feb 20, 2019	VADisabilityService	$1569.00	$1569.00	Project exit
GRDA	06/08/2014	Jun 8, 2014	SSDI	$1200.00	$1200.00	Project entry

Disability Types

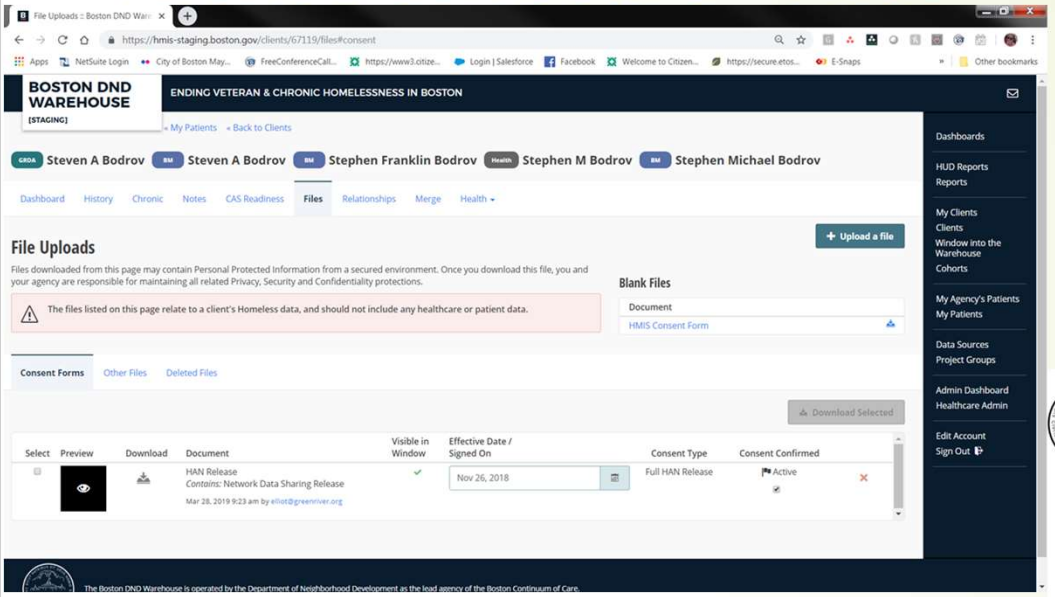
	Program Entry Date	Substance Abuse	Mental	Physical	Developmental	HIV/AIDS	Chronic Health Condition	Indefinite and Impairs?
BM	11/29/2018	Alcohol abuse	*No*	Yes	*No*	*No*	*No*	Not Specified
BM	07/06/2018	*No*	*No*	*No*	*No*	*No*	*No*	Not Specified
GRDA	04/02/2016	Alcohol abuse	*No*	*No*	*No*	Data not collected	*No*	✔ Yes
GRDA	04/02/2016	Alcohol abuse	*No*	*No*	*No*	Data not collected	*No*	✔ Yes

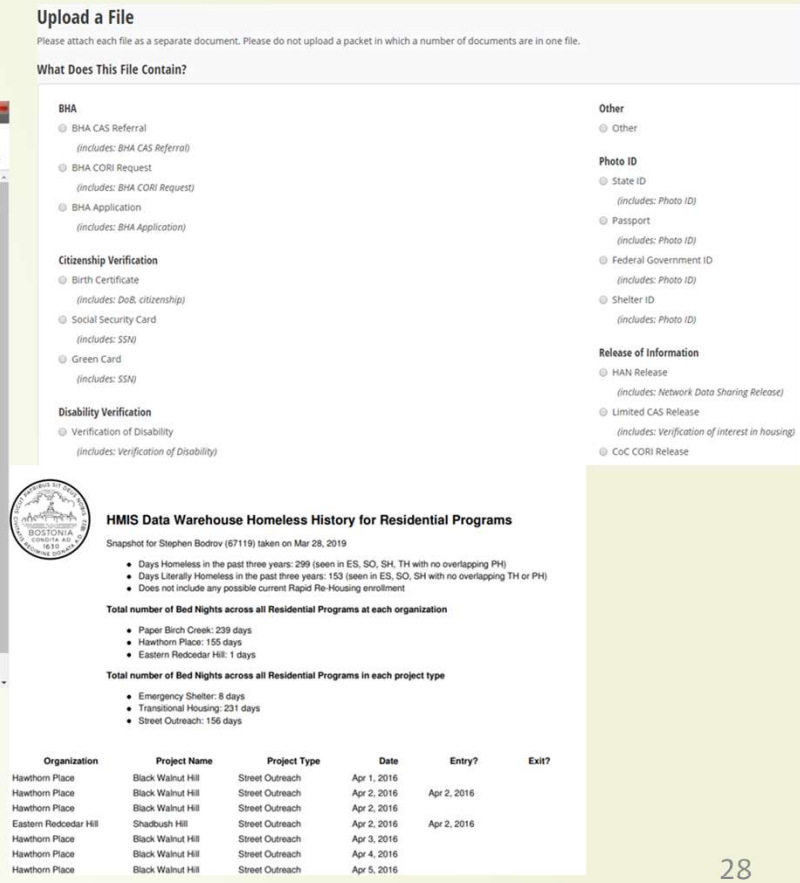
Client Dashboard - History (Calendar of Services)



An invaluable tool to find clients when a housing opportunity is available. Providers can communicate and provide alerts for when the client comes back for services.

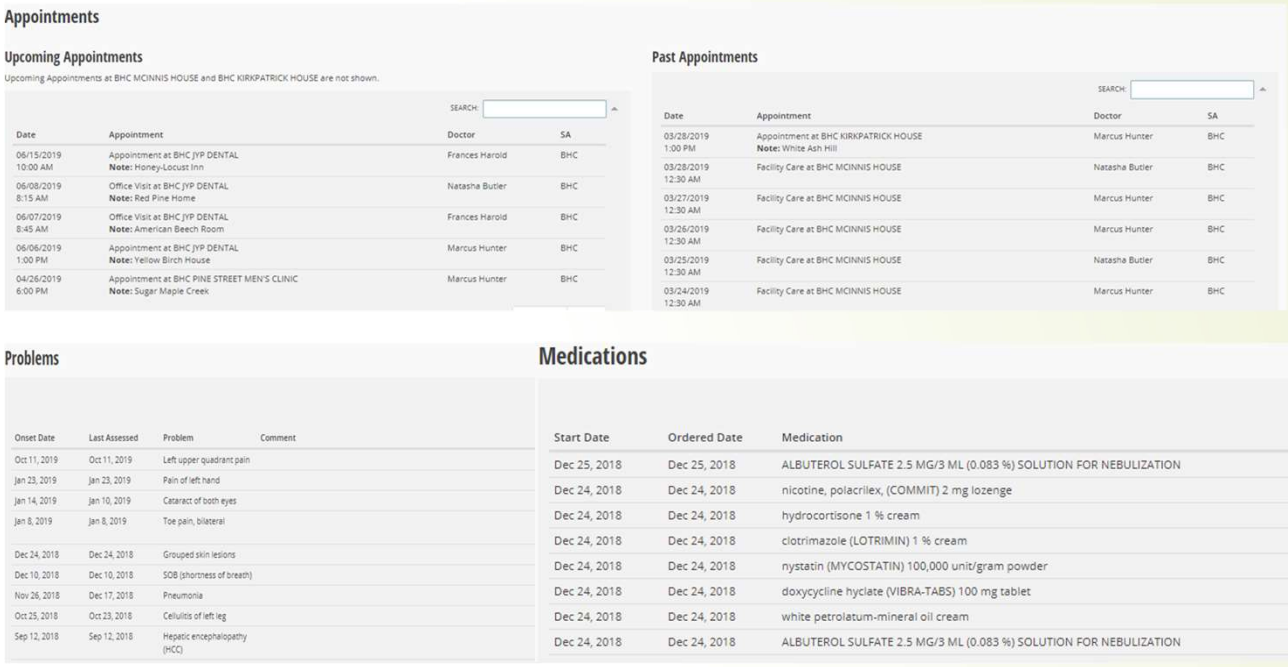
Client Dashboard - Files





Without an ROI, files are only available to the person who uploaded it, others can see that a file type is available. With a ROI, users can download files. Clients no longer need to run around to get all their documentation together.

Client Dashboard - Health



Appointments

Upcoming Appointments

Upcoming Appointments at BHC MCINNIS HOUSE and BHC KIRKPATRICK HOUSE are not shown.

SEARCH:

Date	Appointment	Doctor	SA
06/15/2019 10:00 AM	Appointment at BHC JYP DENTAL **Note:** Honey-Locust Inn	Frances Harold	BHC
06/08/2019 8:15 AM	Office Visit at BHC JYP DENTAL **Note:** Red Pine Home	Natasha Butler	BHC
06/07/2019 8:45 AM	Office Visit at BHC JYP DENTAL **Note:** American Beech Room	Frances Harold	BHC
06/06/2019 1:00 PM	Appointment at BHC JYP DENTAL **Note:** Yellow Birch House	Marcus Hunter	BHC
04/26/2019 6:00 PM	Appointment at BHC PINE STREET MEN'S CLINIC **Note:** Sugar Maple Creek	Marcus Hunter	BHC

Past Appointments

SEARCH:

Date	Appointment	Doctor	SA
03/28/2019 1:00 PM	Appointment at BHC KIRKPATRICK HOUSE **Note:** White Ash Hill	Marcus Hunter	BHC
03/28/2019 12:30 AM	Facility Care at BHC MCINNIS HOUSE	Natasha Butler	BHC
03/27/2019 12:30 AM	Facility Care at BHC MCINNIS HOUSE	Marcus Hunter	BHC
03/26/2019 12:30 AM	Facility Care at BHC MCINNIS HOUSE	Marcus Hunter	BHC
03/25/2019 12:30 AM	Facility Care at BHC MCINNIS HOUSE	Natasha Butler	BHC
03/24/2019 12:30 AM	Facility Care at BHC MCINNIS HOUSE	Marcus Hunter	BHC

Problems

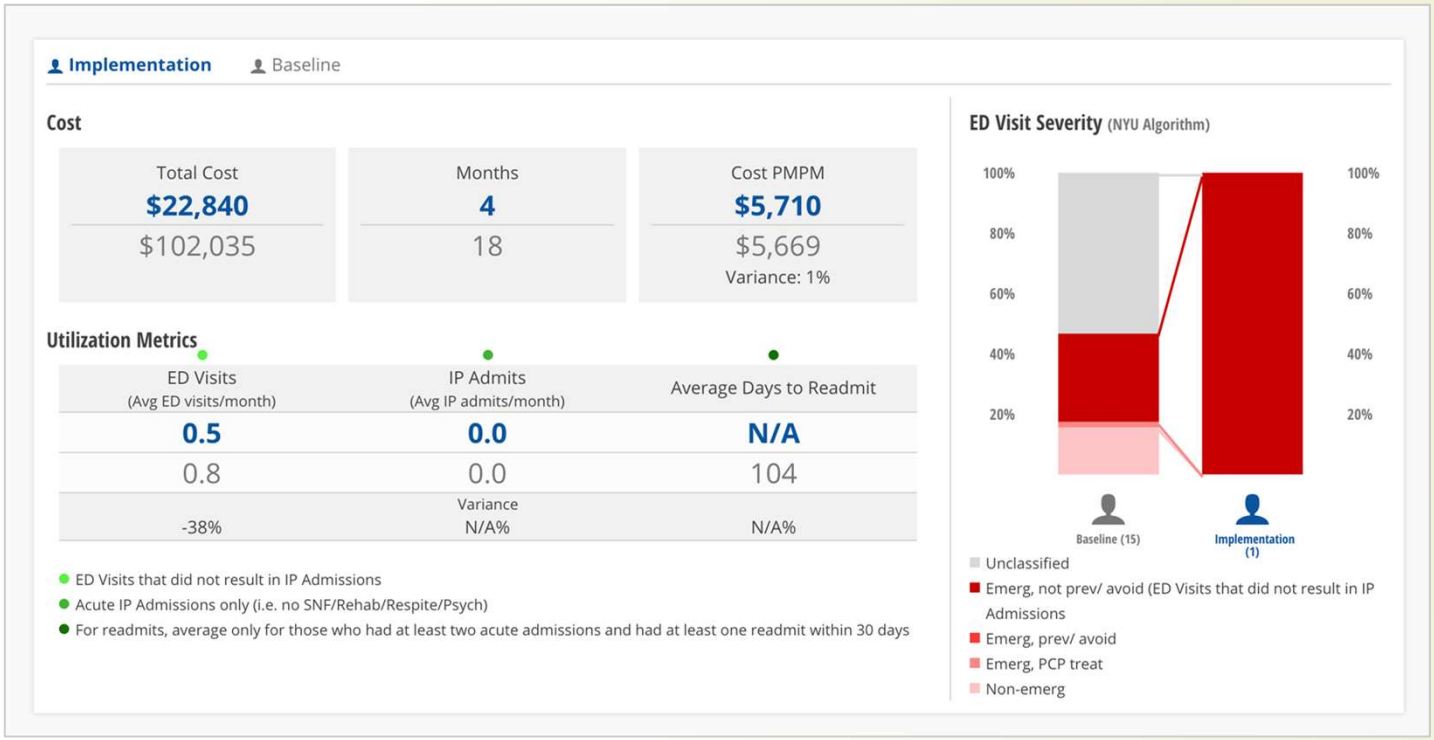
Onset Date	Last Assessed	Problem	Comment
Oct 11, 2019	Oct 11, 2019	Left upper quadrant pain	
Jan 23, 2019	Jan 23, 2019	Pain of left hand	
Jan 14, 2019	Jan 10, 2019	Cataract of both eyes	
Jan 8, 2019	Jan 8, 2019	Toe pain, bilateral	
Dec 24, 2018	Dec 24, 2018	Grouped skin lesions	
Dec 10, 2018	Dec 10, 2018	SOB (shortness of breath)	
Nov 26, 2018	Dec 17, 2018	Pneumonia	
Oct 25, 2018	Oct 23, 2018	Cellulitis of left leg	
Sep 12, 2018	Sep 12, 2018	Hepatic encephalopathy (HCC)	

Medications

Start Date	Ordered Date	Medication	Instructions
Dec 25, 2018	Dec 25, 2018	ALBUTEROL SULFATE 2.5 MG/3 ML (0.083 %) SOLUTION FOR NEBULIZATION	
Dec 24, 2018	Dec 24, 2018	nicotine, polacrilex, (COMMIT) 2 mg lozenge	Apply 1 lozenge to mouth or throat or every two hours as needed smoking cessation
Dec 24, 2018	Dec 24, 2018	hydrocortisone 1 % cream	Apply to right arm and right neck/pannus twice daily
Dec 24, 2018	Dec 24, 2018	clotrimazole (LOTRIMIN) 1 % cream	Apply to rash on abdomen and scalp twice daily
Dec 24, 2018	Dec 24, 2018	nystatin (MYCOSTATIN) 100,000 unit/gram powder	Apply to pannus and skin folds twice daily
Dec 24, 2018	Dec 24, 2018	doxycycline hyclate (VIBRA-TABS) 100 mg tablet	Take 100 mg by mouth 2 (two) times daily Take 1 tab bid x 2 days then d/c
Dec 24, 2018	Dec 24, 2018	white petrolatum-mineral oil cream	Apply to left lower leg two times daily
Dec 24, 2018	Dec 24, 2018	ALBUTEROL SULFATE 2.5 MG/3 ML (0.083 %) SOLUTION FOR NEBULIZATION	

A pilot program with Boston Healthcare for the Homeless, electronic medical record data and MassHealth (Medicaid) billing data is available along with homeless history and services.

Client Dashboard - Health



Emergency department utilization analysis by patient. A goal of the initial pilot project was to reduce emergency service costs.

Cohorts - By Name List & Case Conferencing Functionality

[STAGING]

Cohorts

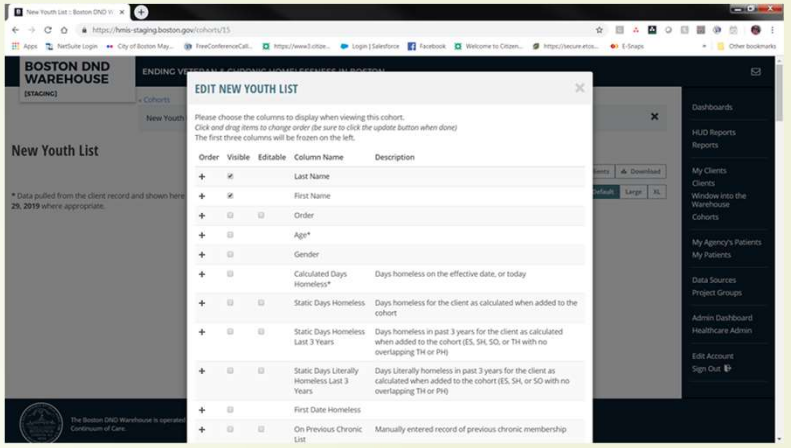
Edit Cohort Columns

Cohorts | Inactive Cohorts

Search by cohort name... | Search | Filter | Sort

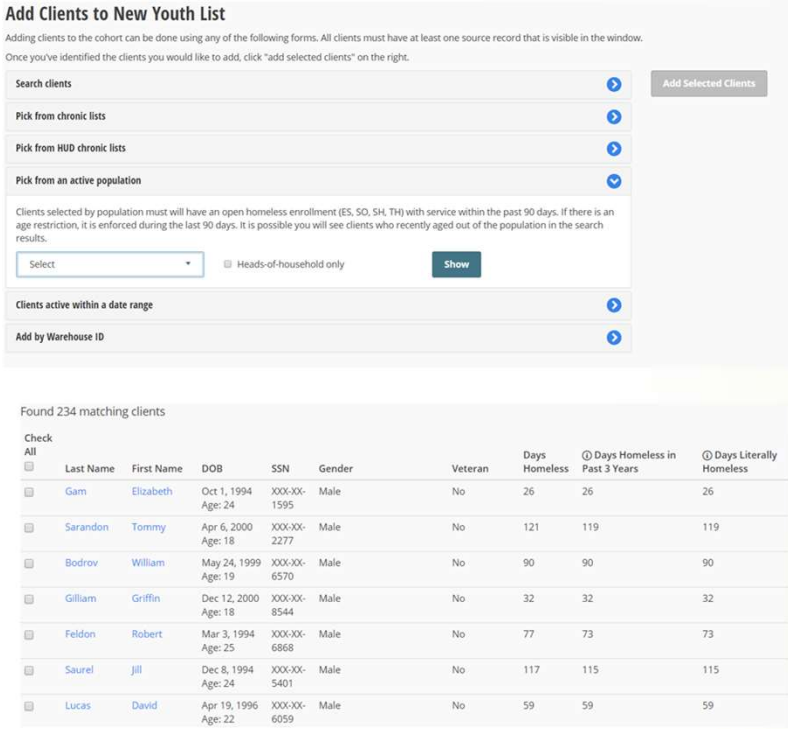
Name | Effective Date | Clients | Create Cohort

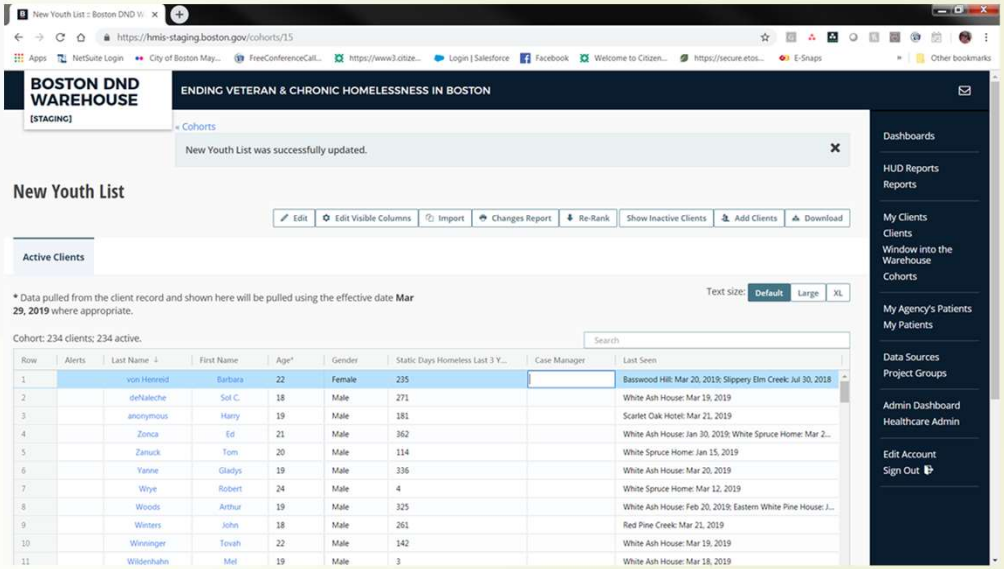
Name	Effective Date	Visible on Client Dashboard?	Visible in CAS?	Clients
Chronic 2018	Jan 30, 2018	✓	✓	10
Cohort Training	Aug 16, 2018	✓	✓	0
Currently Homeless with 270 days+		✓	✓	298
My new list		✓	✓	533
NHSDC Chronic Cohort	Sep 14, 2018	✓	✓	47
Primary list	Jan 31, 2018	✓	✓	17
RRH	Feb 1, 2018	✓	✓	67
Vets list		✓	✓	54
Your By-Name list		✓	✓	144
Youth Test	Feb 1, 2018	✓	✓	125



The warehouse has the ability to auto generate By Name Lists (Cohorts) directly from the data with the specific parameters, subpopulations, or other CoC specific criteria.

Cohorts - By Name List & Case Conferencing Functionality





These lists are used weekly, for more info on how the Cohorts are used, please check out the **From Bednights to Cohorts to Housing** presentation by my colleague Ian Gendreau also at the 2019 Spring Conference

Thank you and Happy Spring!!!

Jennifer Flynn, HMIS Administrator
jennifer.flynn@boston.gov

Lubov McKone, HMIS Analyst
lubov.mckone@boston.gov