

Multifamily Scoring Wizard

Minnesota Housing

Management Innovation: Technology

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Entry: Minnesota Housing Multifamily Scoring Wizard **Category:** Management Innovation – Technology

OVERVIEW

Each year, Minnesota Housing and its funding partners allocate approximately \$185 million in deferred loans and \$12 million in 9% Housing Tax Credits to build or preserve over 1,200 homes through a competitive request for proposals process. Funding requests typically exceed available resources by three to one. To distribute financing in a transparent and equitable manner, Minnesota Housing has created a scoring framework that assigns points to projects based on how well a project meets the funding priorities in Minnesota Housing's Strategic Plan. To remain responsive to community's changing housing needs, the scoring framework is updated on a bi-annual basis.

With constant changes to preferences, priorities, timelines, funding types, and funding amounts, we were in urgent need to find a new solution to our scoring process that allowed us to make required changes in an ever shorter amount of time, reduce the chance of errors, enable us to identify/select the most impactful projects for our community, address multiple pain points, and improve the overall user experience.

OUR INNOVATIVE SOLUTION

By working closely with our business partners, leadership, and our end users, we completely re-imagined how our scoring process functioned and was supported.

Using state of the art technology, we transformed a highly complex application that took literally hundreds of hours (800+) to re-design, build, test, and update all the downstream integrations into a highly user-friendly Scoring Wizard that can be effectively and efficiently modified year after year to meet the constantly changing local, state, and federal guidelines. To add icing to the cake, the business can make many of the changes without needing to contact our friendly IT department!

IS REPLICABLE

Knowing the old adage that the only constant is change, we needed to design an application that could be configured to meet the needs of each unique funding round with no maximum limit (Minnesota Housing is currently managing 21 unique funding rounds simultaneously), accommodate two or two million applicants, be easily maintained by the business, and be reused versus rebuilt each and every year. Our solution, built on the Salesforce platform, utilizes multiple, configurable, scalable, maintainable, and reusable main components:

- **Scoring Model** developed to dynamically store all the funding round specific data in separate sub-components, resulting in a highly manageable and reusable system. Simply <u>clone</u> a scoring model from a previous year, make changes as necessary and it is ready to use!
- Scoring Wizard User Interface gives us the ability to set up questions and logic in a series of reusable flows and sub-flows that are specific to the funding round year and guides the user through a set of questions to enter data related to their project structure.
- Rules Engine a set of predefined rules that provide warnings and/or limit the user from entering
 data that would result in awarding/claiming points that they are not entitled to receive. Rules can be
 simultaneously configured and maintained for each individual funding round.

RESPOND TO A MANAGEMENT CHALLENGE OR OPPORTUNITY

If NCSHA had a category for the most complicated Excel spreadsheet ever, we could have submitted our Excel based 39-page Self-Scoring Worksheet built with tens of thousands of lines of VBA code and would

have won in a landslide! Although the system met the needs of the business for many years, we knew that this was not sustainable in the long run. Some of the issues our external applicants, internal users, and our IT staff experienced included:

- Platform Constraints scoresheets being built in Excel required us to send out a new version when
 changes were made or errors were found. (If someone was already in process, they had to start over
 from scratch!)
- Maintaining Multiple Systems and Processes all our processes could not be done in a single system, requiring us to maintain multiple systems and processes. Changes in one system meant changes in others. #DownStreamEffects
- **Compatibility Issues** with no control over users' environments, our users experienced issues related to MS office versioning (older/newer, Windows vs. Mac, etc.).
- Redundant Data Entry not only an inefficient use of time but was also highly prone to errors.
- **No Data Validation** no easy way to only ask for the data that was needed based on the specific details of the project or validate the data entered was accurate and met our requirements.
- Manual Calculations required user to calculate all their own values and redo all their math when any changes were made (Yay Math! Said no one EVER!)
- **Supporting Documentation** users had to upload documentation to support the data they entered and the points they claimed into a separate section of the Portal, with no relationship to the scoring data.
- Overly Complicated Review Process to complete internal reviews and reporting, we had to extract the data from each uploaded Excel worksheet and write this data to a database.
- Lacked Standard Reporting Capabilities due to the complexity, code was required to create reports and letters, which needed to be re-written when even small changes were made.

ACHIEVES MEASURABLE IMPROVEMENTS IN AGENCY OPERATIONS

From a technical perspective, we spent additional time and effort designing, building, and testing a highly robust and secure system that is easily configurable (#clicksNotCode) by the business users, yet maintainable by our IT staff. Knowing that we ultimately had to deliver a Scoring Wizard that was accessible, efficient, and user-friendly for users of varying technical knowledge using different devices, we used human centered design techniques throughout the design/build process.

- **Guides the user through the scoring process** users enter information about their project and the scoring wizard identifies the points their projects are eligible for based on the information provided.
- Allows user to create multiple test scenarios users may not be sure how claiming certain criteria will impact their score; let them try it a variety of ways!
- Reduces duplicative data entry –Total units, for instance, is used dozens of times. Prior to the Scoring Wizard, the user entered total units separately and did manual calculations for each question. (Enter Once Use Many)
- **Eliminates non-applicable categories** allows us to define dependencies between questions, so if the user is not applying for a particular program or priority, the system will simply hide these non-applicable data fields using dependent and controlling fields.
- **Data validation** our Scoring Wizard rules engine will flag the user to update data that was entered in error. Previously, if the user did not catch the error prior to submission, it would be identified during the internal review and result in a less competitive project that could not be restructured, wasted time, and ultimately frustrated applicants.
 - In-field validation system validates data entered and flags users to make updates.

- Cross question validation allows us to define and easily enforce the combination of units or points that an applicant can apply for.
- Auto-calculates formulas in real-time to reduce complexity and errors. Not sure which value to include in the denominator (Should I use total units or assisted units)? The scoring wizard does the calculations for users. Simply update the total units and the system will update all the calculations automatically and notify you of any resulting validation errors!
- Supporting Documentation are there documents required for certain categories or specific questions? The system allows the business to identify whether files are required to claim certain points, by question or category, and not allow users to submit their scoresheet until these files have been dropped or uploaded!
- **Provides easy access to scoring resources** links to the scoring guide and other valuable resources throughout the scoring wizard when/where needed.
- **Internal review process** allows management to easily assign, manage, and track primary, secondary, and final reviews.
- Reporting and Dashboards what good is a system if you cannot easily combine multiple sources of data together to create professional reports and professional?

How may I help?

BENEFITS OUTWEIGH COSTS

As we all know when building a new tool or application, there is typically a resource investment that must be recouped within the reasonable expected useful lifespan of the tool or application. Although some costs and benefits are easy to evaluate (hard costs/benefits, others are not as easily quantified (soft costs/benefits). Based on project costs, projected ongoing maintenance, and actual/projected benefits, we are expecting our return on investment (ROI) between years two and three.

DEMONSTRATES EFFECTIVE USE OF RESOURCES AND ACHIEVE STRATEGIC OBJECTIVES

If we had an endless stream of resources (time, money, and people), we would not have to choose one project over another. Unfortunately, we live in the real world and therefore need to prioritize what we work on and what we pass on. To facilitate this process, we developed a process to quantify the impact and the cost of potential projects and assign 0 to 20 points based on this value.

- Impact (Meets agency strategic priorities, annual time savings (soft costs), Annual cost savings, one-time cost savings, reduce risk, go green, and improved customer experience)
- Cost (Business/IT staff hours, annual costs, one-time costs)

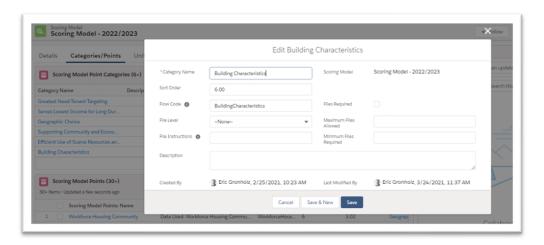
After assigning these impact/cost value, we plot them on a quadrant to determine which projects we should work on and in what order. Based on budget, we try to focus on two (2) strategic projects during the year. The Scoring Wizard is a strategic project because it supports our vision of all Minnesotans living and thriving in a safe, stable home they can afford in a community of their choice.

While we leveraged a powerful software platform, the key to the success of this project was our continued commitment to the co-ownership model between business, technology teams, and external users.

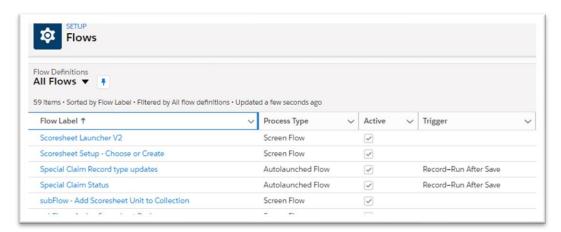
Appendix A: Behind the Scenes Structure

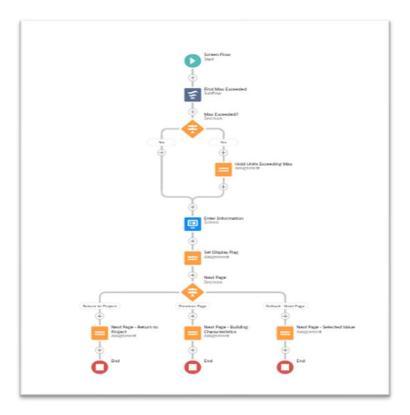
- **Scoring Model** developed to dynamically store all the funding round specific data in separate components, resulting in a highly manageable and reusable system. Simply <u>clone</u> a scoring model from a previous year, make changes as necessary and it is ready to use!
 - Business Team can easily modify items such as the legal disclaimer, categories, questions, thresholds, priorities, points awarded, instructions, etc. without the assistance of our software developers!

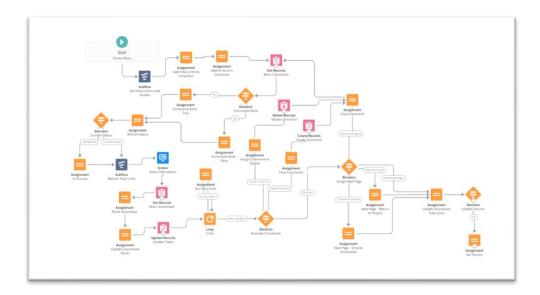




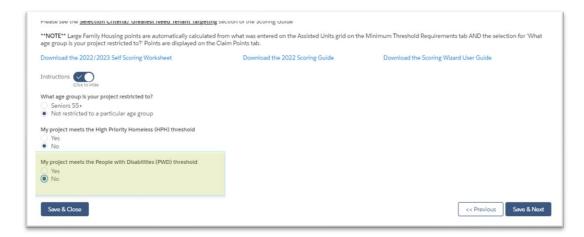
 Software developers can modify the backend code, to modify screen layouts, flows, subflows, logic, etc. for the entire system OR for individual funding rounds!



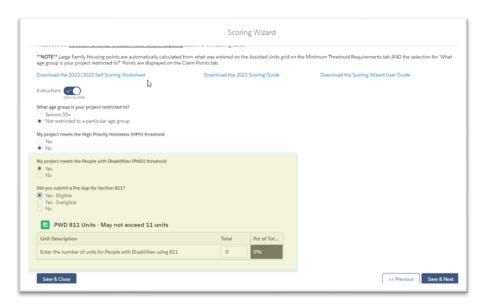




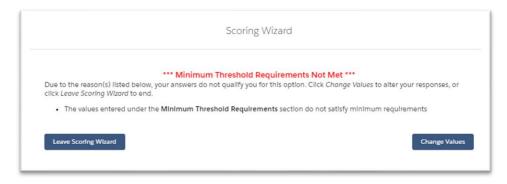
- **Scoring Wizard User Interface** Ability to setup questions and logic, in series of reusable flows and sub-flows, specific to the funding round year, that guides the user through a set of questions to enter data related to their project structure.
 - Hide Non-Related Questions Project <u>DOES NOT</u> include set asides for People with Disabilities



o **Display Related Questions** - Project <u>DOES</u> include set asides for People with Disabilities

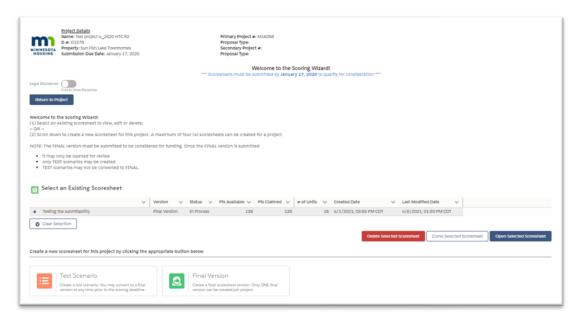


• Rules Engine – A set of predefined rules that provide warnings and/or limit the user from entering data that would result in awarding/claiming points that they are not entitled. Rules can be configured and maintained for each funding round individually.

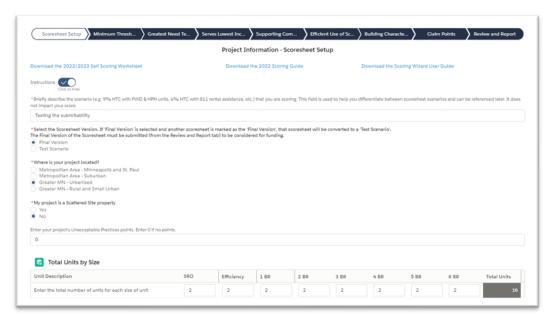


Appendix B: Scoring Wizard Screenshots

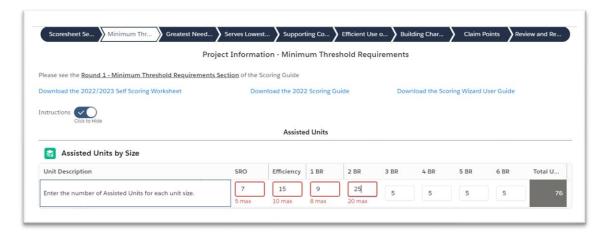
• **Scoring Wizard/Scoresheet Management** – allows the user to select/delete/clone existing scoresheets and create new test/final version.



• **Scoring Wizard/Scoresheet Setup** – prompts the user to manage characteristics that are used through the Wizard for displaying/hiding fields and calculating points.



o In-field validation – system validates data entered and flags users to make updates

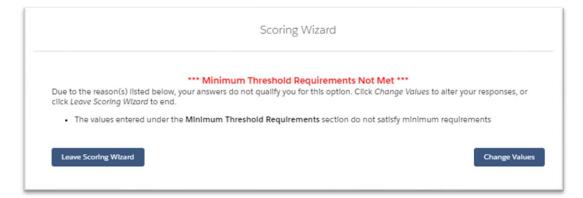


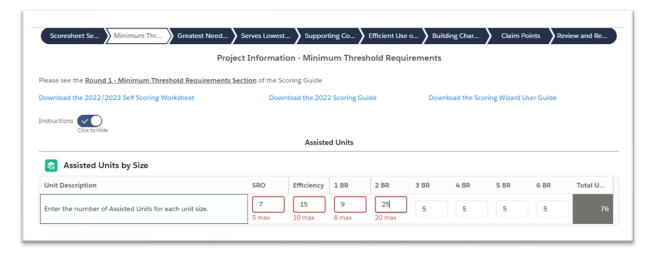
 Cross question validation – allows us to define and easily enforce the combination of units or points that an applicant can apply for.



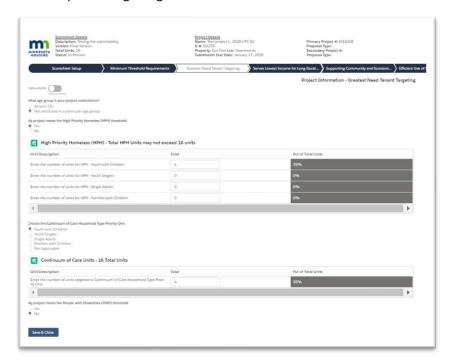
• Scoring Wizard/Minimum Threshold Requirements – helps ensure GL(1) that the projects meet our agency priorities and preferences as identified for the funding round.



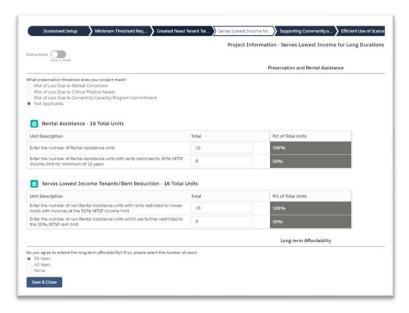




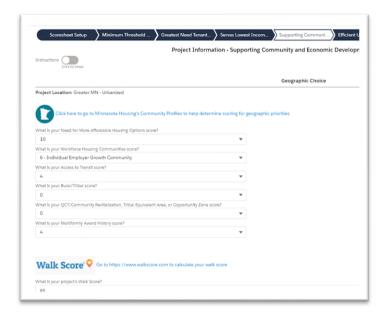
• Scoring Wizard/Greatest Need Tenant Targeting – the user enters data about how their project serves tenants experiencing the greatest need.



• **Scoring Wizard/Serves Lowest Income for Long Durations** – the user enters data about how their project provides new or maintains existing rental assistance.



• Scoring Wizard/Geographic Choice – using our Minnesota Housing's Community Profile ArcGIS map, the user can enter data to help determine scoring for geographic priorities.



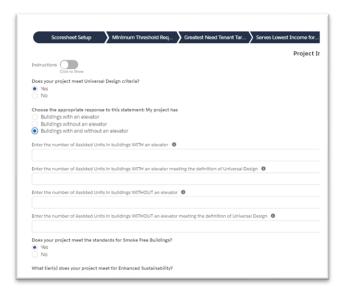
• Scoring Wizard/Supporting Community and Economic Development – allows the user to provide data to demonstrate how their project supports the community economic development initiatives.



• Scoring Wizard/Efficient Use of Scarce Resources and Leverage – allows us to assess the project's financial readiness to proceed.



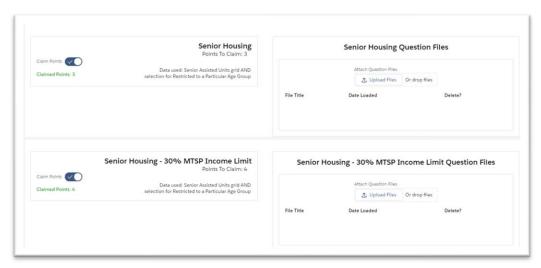
• Scoring Wizard/Building Characteristics – allows us to assess the project's building characteristics, such as, Universal Design, supporting Smoke Free Buildings, and meeting the Enhanced Sustainability criteria.



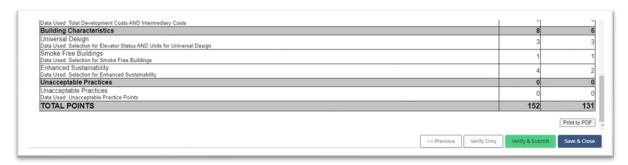
• **Scoring Wizard/Claim Points** – displays all the points the applicant is potentially qualified for by category and individual criteria.



• **Scoring Wizard/Uploading Supporting Documentation** – allows the user to upload supporting documentation for internal users to review.



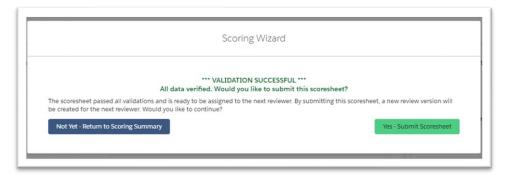
• Scoring Wizard/Data Validation – Verify Only OR Verify and Submit.



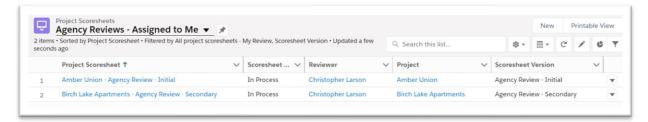
• **Scoring Wizard/Data Validation Page** – helps ensure that all data has been entered and criteria has been met.



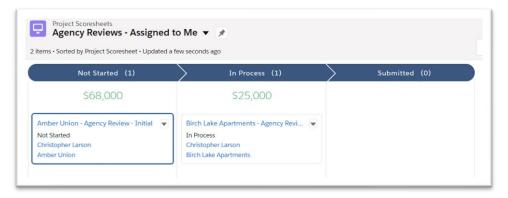
• Scoring Wizard/Submission Process – everyone needs positive feedback!



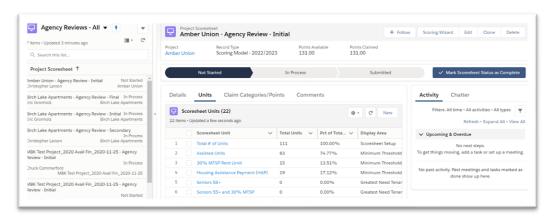
Scoring Wizard/Review Process – List View



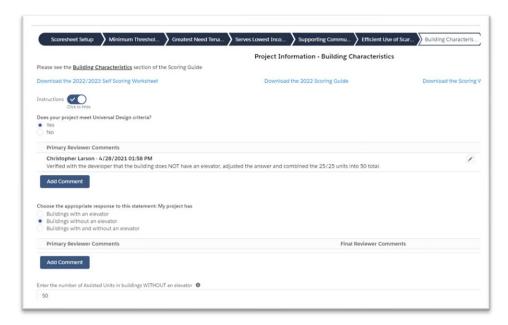
• Scoring Wizard/Review Process – Kanban Board



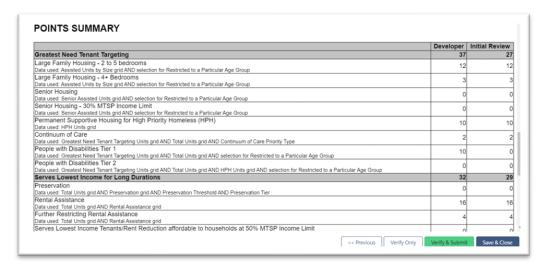
Scoring Wizard/Review Process – Console View



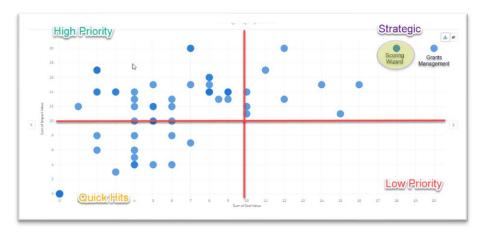
• Scoring Wizard/Review Process – Change/history tracking and comments



• **Scoring Wizard/Review Process** – Point comparison allows the reviewer to see how their changes compare to the developer and the other reviewer(s)



• **Prioritization Process** – magic quadrant for prioritizing projects based on cost/impact



• **Dashboards and Reporting** – what good is a system if your users don't have easy access to report on the data and display it in an impactful way with professional dashboards?

