

Request for Proposals
SECONDARY MARKETING RISK MANAGEMENT SYSTEM

INTRODUCTION

Through this Request for Proposals (“RFP”), Rhode Island Housing seeks proposals from qualified firms to provide to Rhode Island Housing a secondary marketing risk management system. This system should provide risk management analytics, mark to market capabilities, best execution analysis, loan pooling analytics, loan delivery capabilities to the GSEs and fallout analysis. The following are the basic system requirements: optimization, pipeline management, best execution, loan level best execution functionality, global best execution functionality, decision tables, eligibility rules, data import/export, loan tracking, pooling and delivery capabilities, analysis and reporting capabilities, trade settlement and clearance, accounting, compliance, and servicing valuation.

INSTRUCTIONS

Five (5) originals and five (5) copies of the proposal should be submitted to Rhode Island Housing, 44 Washington Street, Providence, Rhode Island 02903-1721, Attn: Mike Fitzmaurice, Director of Finance. Please also direct a courtesy copy by email to: Elizabeth Cavanna at ecavanna@cfl.rr.com. Proposals should be concise and include all attachments and work samples. Proposals should be presented on business letterhead.

Proposals must be received no later than 5:00 EST p.m. on December 9, 2016.

Respondents are advised that all submissions (including those not selected for engagement) may be made available to the public on request upon completion of the process and award of a contract(s).

SCOPE OF WORK

Please see the Scope of Work provided at Attachment A.

ITEMS TO BE INCLUDED WITH YOUR PROPOSAL

A. General Firm Information

1. Provide a brief description of your firm, including but not limited to the following:

- a. Name of the principal(s) of the firm.
- b. Name, telephone number and email address of a representative of the firm authorized to discuss your proposal.
- c. Address of all offices of the firm.
- d. Number of employees of the firm.

B. Experience and Resources

1. Describe your firm and its capabilities in general terms. In particular, support your capacity to perform the Scope of Work set forth in Attachment A.
2. Indicate which principals and associates from your firm would be involved in providing services to Rhode Island Housing. Provide appropriate background information for each such person and identify his or her responsibilities.
3. Provide a detailed list of references including a contact name and telephone number for businesses for who are currently using your risk management system. Please include all housing finance agencies and housing authorities that use your risk management system.
4. Identify any conflict of interest that may arise as a result of business activities or ventures by your firm and associates of your firm, employees, or subcontractors as a result of any individual's status as a member of the board of directors of any organization likely to interact with Rhode Island Housing.
5. Identify any material litigation, administrative proceedings or investigations in which your firm is currently involved. Identify any material litigation, administrative proceedings or investigations, to which your firm or any of its principals, partners, associates, subcontractors or support staff was a party, that has been settled within the past two (2) years.
6. Describe how your firm will handle actual and or potential conflicts of interest.
7. Identify individuals in your firm with multi-lingual skills, who are available to assist with communication in languages other than English. Please identify the language(s).

C. Technical Capabilities

1. Please complete the questionnaire set forth as Attachment B and include with your RFP response. Attachment B contains technical questions related to your risk management software, and will assist Rhode Island Housing to

determine your firm's capacity to perform the Scope of Work and your proposed software product's fitness for such purpose.

2. In addition to mortgage-backed securities, what other financial instruments does the solution support? (For example, mortgage revenue bonds.)
3. What innovations have been added to the solution in the last two years? What innovations are planned for the solution in the future?

D. Fee Structure

The cost of services is one of the factors that will be considered in awarding this contract. The information requested in this section is required to support the reasonableness of your fees. Please provide estimates for the categories listed based upon your standard implementation plan for similar projects. Please assume no technical expertise in-house at Rhode Island Housing.

Services Costs	Hours	Price
Project Management		\$
Analysis and Set-up of new system		\$
Data conversion strategy, processing and validation		\$
Testing		\$
Power user or System Admin Training		\$
End user Training - at Rhode Island Housing		\$
End user Training - at your site		\$
End user Training - at neutral site		\$
Move to Production assistance		\$
Post Production assistance		\$
Maintenance		
Monthly maintenance costs		\$
Annual maintenance costs		\$
Other : (e.g. additional services/support 3rd party tools)		
		\$
		\$
		\$
Total		\$

E. Miscellaneous

1. Rhode Island Housing encourages the participation of persons of color, women, persons with disabilities and members of other federally and State-protected classes. Describe your firm's affirmative action program and activities. Include the number and percentage of members of federally and State-protected classes who are either principals or senior managers in your firm, the number and percentage of members of federally and State-protected classes in your firm who will work on Rhode Island Housing's engagement and, if applicable, a copy of your Minority- or Women-Owned Business Enterprise state certification.
2. Discuss any topics not covered in this Request for Proposals that you would like to bring to Rhode Island Housing's attention.

F. Certifications

1. Rhode Island Housing insists upon full compliance with Chapter 27 of Title 17 of the Rhode Island General Laws, Reporting of Political Contributions by State Vendors. This law requires State Vendors entering into contracts to provide services to an agency such as Rhode Island Housing, for the aggregate sum of \$5,000 or more, to file an affidavit with the State Board of Elections concerning reportable political contributions. The affidavit must state whether the State Vendor (and any related parties as defined in the law) has, within 24 months preceding the date of the contract, contributed an aggregate amount in excess of \$250 within a calendar year to any general officer, any candidate for general office, or any political party.
2. Does any Rhode Island "Major State Decision-maker," as defined below, or the spouse or dependent child of such person, hold (i) a ten percent or greater equity interest, or (ii) a Five Thousand Dollar or greater cash interest in this business?

For purposes of this question, "Major State Decision-maker" means:

(i) All general officers; and all executive or administrative head or heads of any state executive agency enumerated in § 42-6-1 as well as the executive or administrative head or heads of state quasi-public corporations, whether appointed or serving as an employee. The phrase "executive or administrative head or heads" shall include anyone serving in the positions of director, executive director, deputy director, assistant director, executive counsel or chief of staff;

(ii) All members of the general assembly and the executive or administrative head or heads of a state legislative agency, whether appointed or serving as an employee. The phrase "executive or administrative head or heads" shall include anyone serving in the

positions of director, executive director, deputy director, assistant director, executive counsel or chief of staff;

(iii) All members of the state judiciary and all state magistrates and the executive or administrative head or heads of a state judicial agency, whether appointed or serving as an employee. The phrase “executive or administrative head or heads” shall include anyone serving in the positions of director, executive director, deputy director, assistant director, executive counsel, chief of staff or state court administrator.

If your answer is “Yes,” please identify the Major State Decision-maker, specify the nature of their ownership interest, and provide a copy of the annual financial disclosure required to be filed with the Rhode Island Ethics Commission pursuant to R.I.G.L. §§36-14-16, 17 and 18.

3. In the course of providing goods or services to Rhode Island Housing, the selected respondent may receive certain personal information specific to Rhode Island Housing customer(s) including, without limitation, customer names and addresses, telephone numbers, email addresses, dates of birth, loan numbers, account numbers, social security numbers, driver’s license or identification card numbers, employment and income information, photographic likenesses, tax returns, or other personal or financial information (hereinafter collectively referred to as the “Personal Information”). The maintenance of the Personal Information in strict confidence and the confinement of its use to Rhode Island Housing are of vital importance to Rhode Island Housing. Please include a letter from your president, chairman or CEO certifying that, in the event your firm is selected:

- (i) any Personal Information disclosed to your firm by Rhode Island Housing or which your firm acquires as a result of its services hereunder will be regarded by your firm as confidential, and shall not be copied or disclosed to any third party, unless Rhode Island Housing has given its prior written consent thereto; and

- (ii) your firm agrees to take all reasonable measures to (a) ensure the security and confidentiality of the Personal Information, (b) protect against any anticipated threats or hazards to the security or integrity of the Personal Information, and (c) maintain reasonable security procedures and practices appropriate to your firm’s size, the nature of the Personal Information, and the purpose for which the Personal Information was collected in order to protect the Personal Information from unauthorized access, use, modification, destruction or disclosure; and

(iii) when discarding the Personal Information, destroying it in a commercially reasonable manner such that no third party can view or recreate the information, electronically or otherwise.

These provisions, which implement the requirements of the Rhode Island Identity Theft Protection Act, R.I.G.L. § 11-49.2 et seq., will also be incorporated into the final contract with the selected respondent(s).

4. Please include a letter from your president, chairman or CEO certifying that (i) no member of your firm has made inquiries or contacts with respect to this Request for Proposals other than in an email or written communication to Mike Fitzmaurice at mfitzmaurice@rhodeislandhousing.org seeking clarification on the Scope of Work set forth in this proposal, from the date of this RFP through the date of your proposal, (ii) no member of your firm will make any such inquiry or contact until after December 9, 2016, (iii) all information in your proposal is true and correct to the best of her/his knowledge, (iv) no member of your firm gave anything of monetary value or promise of future employment to a Rhode Island Housing employee or Commissioner, or a relative of the same, based on any understanding that such person's action or judgment will be influenced and (v) your firm is in full compliance with Chapter 27 of Title 17 of the Rhode Island General Laws, Reporting of Political Contributions by State Vendors.

EVALUATION AND SELECTION

A selection committee consisting of Rhode Island Housing employees (the "Committee") will review all proposals and make a determination based on the following factors:

- Professional capacity to undertake the Scope of Work; suitability of proposed software product for the purposes set forth in the Scope of Work
- Proposed fee structure
- Ability to perform within time and budget constraints
- Previous work experience and performance with Rhode Island Housing and/or similar organizations
- Recommendations by references
- Firm minority status and affirmative action program or activities
- Other pertinent information submitted

Rhode Island Housing may invite one or more finalists to make presentations.

In its sole discretion, Rhode Island Housing may negotiate with one or more firms who have submitted qualifications to submit more detailed proposals on specific projects as they arise.

By this Request for Proposals, Rhode Island Housing has not committed itself to undertake the work set forth. Rhode Island Housing reserves the right to reject any and all proposals, to rebid the original or amended scope of services and to enter into negotiations with one or more respondents. Rhode Island Housing reserves the right to make those decisions after receipt of responses. Rhode Island Housing's decision on these matters is final.

For additional information contact: Bernadette Lynch at blynch@rhodeislandhousing.org.

Attachment A

Scope of Work

Rhode Island Housing seeks to implement a risk management software system which will support the agency's efforts in managing its residential mortgage pipeline, TBA and cash sales, and pooling and delivery of mortgage backed securities in the secondary market. The risk management system at a minimum should provide the following functionality:

Risk Management Functionality:

- Hedge/Pipeline Management Tools
 - Ability to provide visibility into the loan inventory (i.e., loan status) at every stage through the loan lifecycle
 - Ability to view statistics at the loan level, pool level, and population level
 - Ability to control the loan inventory by reserving loans for specific investors, instruments, commitments, or pools and to prioritize loans (by profitability, urgency, special features, etc.)
 - Ability to provide analytics on hedge ratios and to conduct position reporting that incorporates the best execution results and loan-level fallout probability
 - Ability to provide exposure/trading reports detailing value at risk, volume at risk
- Interest Rate Shocking Reports
 - Ability to conduct shock analysis to illustrate the impact of interest rate changes under a variety of circumstances
- Mark to Market Capabilities
 - Ability to provide mark-to-market reporting that includes a valuation and summary of each position type
- Automated Fallout Gathering and Analysis
 - Ability to conduct fallout analysis and reporting related thereto, which enables a historical analysis of pipeline to determine each loan's fallout sensitivity to market price movements and the impact of partial fallout due to lock/reservation renegotiations and extensions
 - Ability to produce market volatility trends
- Gain on Sale and Performance Reports
 - Ability to generate trade level, monthly, annual gain on sale and performance reporting
 - Ability to calculate and report daily interest income and profit and loss and incorporate service release premium (SRP) or servicing valuation and other user specified factors in calculating all in price and gain.

Information Management:

- ULDD Import/Export and Early Check and Ginnie Mae Export

- Ability for delivery functions to support standard export files to GinnieNET delivery schedules
- Ability for delivery functions to support standard export files to Fannie Mae and Freddie Mac loan delivery schedules (ULDD Compliant)
- Ability to define field and record level edit checks on the incoming data to ensure only valid records are imported
- Ability for data to be quickly imported and exported in a variety of different file formats
- Ability to define constraints on existing records to prevent overwriting certain records by specifying conditions on those records (e.g., to prevent modification to settled loans)
- Miscellaneous Import/Export Capabilities
 - Ability to import and export loan-level data from loan origination system (LOS), portal or servicing system
 - Ability to export loan sale information, such as pooling, to external agencies (e.g., Fannie Mae, Freddie Mac)
- Data Query Capabilities
- Report Archiving

Best Execution Analysis:

- Best execution for pooling
 - Ability to import/integrate market pricing data (e.g., from Reuters, Tradeweb, Bloomberg, and/or Fannie Mae)
 - Ability to perform "what if" analysis on execution variables to compare valuations in multiple scenarios
 - Ability to employ buy up and buy down grids, price and fee adjustments and servicing values to calculate best all-in values
 - Ability to provide incorporation of pair off cost, roll cost, and contractual obligation, in optimization
 - Ability to provide scenario templates that contain lists of execution choices and for templates to be reused
 - Ability to define best execution functionality at various levels (e.g., attribute, loan, and global)
 - Ability to export best execution and other analyses to Excel
- Rate Sheet preparation and pricing guidance

Trading Functionality:

- Track Cash and MBS Commitment Process
 - Ability to conduct commitment tracking that follows all security forwards and whole loan commitments, over-the-counter and exchange-listed options, and pair-offs
 - Ability to provide tight audit controls to account for all trades
- Trade Blotter capability
- MBS Dealer Margin and Limit tracking

- Ability for investor contracts to maintain a link with pool, whole loans, and their related commitments to track remaining balances on all types of master agreements, contracts, and conversions for agency
- Dealer Notification and Accounting Reports
 - Ability for delivery functions to support 48-hour dealer notifications
 - Ability to generate instruction messages to and acceptance of responses from outside systems for clearing agents
 - Ability to generate general ledger entries for each settlement event
 - Ability to track loan level fees and fees due to investors

Pooling and Shipping:

- Pool MBS and Cash trades
 - Ability to allow/provide a query function to quickly form pools and whole loan deliveries with user-defined simultaneous loan-level filters
 - Ability to keep associated loans together while pooling, pin loans to specific pools, manually remove loans from specific pools, and ability to lock pools
 - Ability to prioritize commitments
 - Ability to provide a comprehensive view of the entire scenario, including pool composition, pool-level statistics, and scenario-level execution value
- Specified Pool finder
- Pool and security designation
 - Ability to control loan inventory by reserving loans for specific investors, instruments, commitments or pools
 - Ability to divide risk position between bond programs and MBS or cash delivery or best efforts execution options
- G-fee reservation management

Attachment B

A. Requirements

RIH		Vendor Response						
ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
	Optimization:							
1	Ability to solve for specified pay ups							
2	Ability to keep associated loans together while pooling							
3	Ability to pin loans to specific pools							
4	Ability to manually remove loans from specific pools							
5	Ability to lock pools							
6	Ability to control the loan inventory by reserving loans for specific investors, instruments, commitments, or pools							
7	Ability to manually adjust loan status							
8	Ability to prioritize commitments							
9	Ability to provide incorporation of pair off cost, roll cost, and contractual obligation, in optimization							
10	Ability to provide decision tables for specifying tabular calculations, such as buy up/buy down grids, adjustments to prices, guaranty fee, and other values							
11	Ability to allow complete control of the behavior of the engine, including priorities at pool and constraint level, ability to pin loans to specific pools, locking pools, etc.							

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ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
12	Ability to provide a comprehensive view of the entire scenario, including pool composition, pool-level statistics, and scenario-level execution value							
13	Ability to create loan commitments based upon user defined search criteria							
14	Ability to automatically allocate in order to reach the user defined commitment target amount, once rules are established							
15	Ability to view loan statistics							
16	Ability to view pool statistics							
17	Ability to view population statistics							
Pipeline Management:								
18	Ability to interface all available Government-Sponsored Enterprise (GSE) information for agency deliveries from origination system							
19	Ability to interface all available GSE information for unlimited loan-level user defined fields from origination system							
20	Ability to automatically record each and every change to a loan's lock-in data							
21	Ability to allow/provide a query function to quickly form pools and whole loan deliveries with user-defined simultaneous loan-level filters							
22	Ability for delivery functions to support standard export files to GinnieNET delivery schedules							
23	Ability for delivery functions to support standard export files to Fannie Mae and Freddie Mac loan delivery schedules (ULDD Compliant)							
24	Ability for delivery functions to support 48-hour dealer notifications							
25	Ability for investor contracts to maintain a link with pool, whole loans, and their related commitments to track remaining balances on all types of master agreements, contracts, and conversions for agency							

RIH Requirements		Vendor Response						
ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
26	Ability to accommodate paperless trading							
27	Ability to track G-fee reservations							
Best Execution:								
28	Ability to integrate market pricing data (e.g., from Reuters, Tradeweb, Bloomberg, and/or Fannie Mae)							
29	Ability to perform "what if" analysis on execution variables to compare valuations in multiple scenarios							
30	Ability to employ buy up and buy down grids to calculate best all-in values							
31	Ability to employ price and fee adjustments to calculate best all-in values							
32	Ability to employ servicing values to calculate best all-in values							
33	Ability to define calculations							
34	Ability to define models							
35	Ability to define eligibility rules							
36	Ability to define optimization variables							
37	Ability to define best execution functionality at various levels (e.g., attribute, loan, and global)							
38	Ability to provide definition on relevant loan attributes and calculations for these attributes through formulas and tables							
39	Ability to provide scenario templates that contain lists of execution choices							
40	Ability for templates to be re-used							
Loan-level Execution Functionality:								
41	Ability to utilize buy up/buy down grids, loan-level adjustments, Service Release Premium (SRP) or servicing valuation and other user-specified factors in calculating all-in price							

RIH Requirements		Vendor Response						
ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
42	Ability to specify package-level parameters that control these calculations for individual packages							
43	Ability to perform "what if" analysis with user specified factors							
44	Ability to define calculations for all-in values							
Global Execution Functionality:								
45	Ability to provide integration of best execution with the optimization engine							
46	Ability to monitor entire scenario, including pool composition, pool-level statistics, and scenario-level execution value							
Decision Tables:								
47	Ability to create decision tables for defining eligibility rules (e.g., maximum loan-to-value [LTV] determination based on loan amount, loan purpose, census track, etc.)							
48	Ability to define baseline numbers and exceptions to these numbers							
49	Ability for exceptions to be defined to use first row that matches, cumulative of all the matching rows, interpolated value, and others							
50	Ability to use single value for matching rows							
51	Ability to use ranges for matching rows							
52	Ability to use rule expressions for matching rows							
53	Ability to define floor and ceiling ranges							
54	Ability to define effective and expiration dates for exceptions							
Eligibility Rules:								
55	Ability for users to define eligibility rule groups							
56	Ability for users to group eligibility rules							
57	Ability for users to re-use established eligibility rules							
58	Ability for users to define effective date, expiration date, or both							

RIH Requirements		Vendor Response						
ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
59	Ability to make rules effective with reference to certain event dates							
60	Ability for decision tables to enable definition of tabular calculations or lookups							
	Data Import/Export:							
61	Ability for data to be quickly imported and exported in a variety of different file formats							
62	Ability for users to map a destination map to a source field							
63	Ability to support lookup-based translation feature to convert the incoming value							
64	Ability to define field and record level edit checks on the incoming data to ensure only valid records are imported							
65	Ability to define constraints on existing records to prevent overwriting certain records by specifying conditions on those records (e.g., to prevent modification to settled loans)							
66	Ability to export Best Execution and other analyses to Excel							
67	Ability to import market data from an external system (e.g., Bloomberg)							
68	Ability to import and export loan-level data from loan origination system (LOS), portal, or servicing system							
69	Ability to import change of loan status information (e.g., closed loan) from LOS							
70	Ability to export loan sale information, such as pooling, to external agencies (e.g., Fannie Mae, Freddie Mac)							
71	Ability to automatically push data to and pull data from an LOS, portal or servicing system							

RIH Requirements		Vendor Response						
ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
Loan Tracking:								
72	Ability to provide visibility into the loan inventory (i.e., loan status) at every stage through the loan lifecycle							
73	Ability to identify loans with special features							
Analysis and Reporting Module:								
74	Ability to conduct Fallout Analysis and reporting related thereto, which enables a historical analysis of pipeline to determine each loan's fallout sensitivity to market price movements and the impact of partial fallout due to lock/reservation renegotiations and extensions							
75	Ability to conduct Position Reporting that incorporates the best execution results and loan-level fallout probability							
76	Ability to provide Mark-To-Market Reporting that includes a valuation and summary of each position type (e.g., At Risk Long; Mandatory Short; Options; Cross-Hedges)							
77	Ability to conduct Sensitivity Analysis that computes new market values of each position and fallout probabilities for each loan to produce "what-if" scenarios on exposure							
78	Ability to conduct Commitment Tracking that follows all security forwards and whole loan commitments, Over-The-Counter and exchange-listed options, and pair-offs							
79	Ability to provide tight audit controls to account for all trades							
80	Ability for the confirmation queue to organize outstanding verbal confirmations and hardcopy confirmations in one place							
81	Ability to conduct Shock Analysis to illustrate the impact of interest rate changes under a variety of circumstances							
82	Ability to provide Exposure/Trading Reports detailing value at risk, volume at risk							

RIH Requirements		Vendor Response						
ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
83	Ability to produce market volatility trends							
84	Ability to conduct cross-market correlation testing							
	Trade Settlement and Clearance:							
85	Ability to generate instruction messages to and acceptance of responses from outside systems for clearing agents							
86	Ability to generate general ledger entries for each settlement event							
	Accounting:							
87	Ability to generate general ledger entries for accounting events							
88	Ability to track fees due to investor for deliveries							
89	Ability to track loan-level fees							
90	Ability to generate loan-level reports for monthly fees due to investors							
91	Ability to calculate daily interest income							
92	Ability to calculate profit and loss entries							
93	Ability to report pair-offs and rolls of mortgage-backed securities (MBS), including margin calls and cash flow issues							
	Compliance:							
94	Ability to provide FAS 133 compliance support							
95	Ability to provide risk policy compliance reporting							
96	Ability to provide FAS 157/159 compliance							
	Servicing Valuation:							
97	Ability to value base and excess servicing rights							
98	Ability to calculate the value of mortgage servicing rights for both the pipeline and for the existing portfolio							
99	Ability to select payoff speeds and discount rates							
100	Ability to provide analysis for prepayment speeds							

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ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
101	Ability to hedge mortgage servicing risk							
102	Ability to analyze foreclosure risk							
	Miscellaneous:							
103	Ability to provide help desk support to RIH business users							
104	Ability to support intraday cycling of data import and risk management processes							
105	Ability to schedule processes and run in an unattended manner							
106	Ability to override hedge recommendation							
107	Ability to integrate with loan servicing system to import and export loan-level information (e.g., unpaid principal balance [UPB], interim interest, etc.)							
108	Ability to support Uniform Loan Delivery Dataset (ULDD) requirements							
109	Ability to perform data scrubbing							
110	Ability to filter out irrelevant data							
111	Ability to sort data							
112	Ability to e-mail reports from within solution							
113	Ability to produce file-ready PDF copies of reports							
114	Ability to log activity, such as error messages, user sign-ons, etc., for audit purposes							
115	Ability to import, evaluate and export information used by others in the processing cycle to minimize information issues, such as Early Check, note pre-certifications process, and auto-population of special feature codes							
116	Ability to assign users to groups for shipping, pooling, risk management, etc.							
117	Ability to generate and view SQL syntax							
118	Ability to perform production/profitability analysis on products and booked loans							

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ID	Description	Functionality currently utilized by other clients?	Standard functionality?	Configurable functionality? (at no additional cost)	Customizable functionality?	Additional charge for customizable functionality	Planned enhancement? (detail timing in comments)	Comments
119	Ability to provide Analytics on option value comparison							
120	Ability to provide Analytics on hedge ratios							
121	Ability to prioritize loans (by profitability, urgency, etc.)							
122	Ability to remove allocated loans from the pool automatically							
123	Ability to remove allocated loans from the pool manually							
124	Ability to manage trades/securities							
125	Ability to archive loans for future use							
126	Ability to select settlement date on screen using pop-up calendar							
127	Ability to transmit data to an outside source for trading							
128	Ability to detect invalid data							
129	Ability to produce rate sheets							
130	Ability to produce a report on loan changes (historical)							
131	Ability to allocate loans to trades							
132	Ability to adjust the balance of the trade against the adjustments made to the loans							
133	Ability to unwind hedge							
134	Ability to track loan-level profit margins							
135	Ability to divide risk position between bond programs and MBS or cash delivery or best efforts execution options							

B. Technical Questions

ID	RIH Question	Vendor Response
Service Offering and Technical Support Please provide responses to the following requests or questions regarding your service and support.		
1	What service level agreement (SLA) do you offer to customers to guarantee a level of optimal service? Please explain your support options.	
2	Do you offer, at a minimum, technical support between 7 a.m.–7 p.m. EDT/EST Monday through Friday? What do you offer for after hours and weekend support?	
3	Do you have documented procedures for contacting technical support and trouble escalation? If so, please provide.	
4	Do you allow multiple RIH technical support associates to contact your technical support? If so, do you have a limit?	
5	Does your licensing model allow multiple concurrent users?	
6	Does your licensing model support entitlement for multiple non-production environment(s) for development, testing, and training scenarios?	
7	Do you have recommended business continuity and disaster recovery strategy for your product, and do you make this available for your clients to leverage? Please explain.	
8	Do you have a disaster recovery plan? Please share with RIH, including your alternative DR site(s) and what is applicable to your customers.	
9	How do you communicate and provide, in advance and at least on a quarterly basis, documentation for planned releases of new patches and product releases? This should include minor and major releases.	
10	How do you provide updated documentation for applying software updates and system requirements with maintenance releases?	
11	How do you alert your customers of any high-severity or security-related patches?	
12	What is your provided method for submitting requests for enhancement and bug fixes? How will you notify clients of the status?	
13	Do you require pre-approval before we install any patches to our end users?	

ID	RIH Question	Vendor Response
14	Please explain your company's Quality Assurance practices. Are these practices incorporated into your System Development Lifecycle?	
15	What is the number of dedicated QA staff and roles for performing QA tasks?	
16	Please provide a copy of your most recent SOC 2 –SSAE 16 report.	
17	Do you have documented QA testing methods, automated and manual? If so, are you able to provide a copy for RIH's review with your product release?	
18	Do you provide a refined and documented test plan with testing results?	
19	Do you provide a method for your customers to access updated product documentation and knowledgebase, including user guides, online knowledge articles, and administration guides? <ul style="list-style-type: none"> • Please provide samples of your reference/support documentation. • How will RIH easily obtain your most recent documentation? 	
20	Do you have available courses and training materials for your product?	
21	What are included with your maintenance services?	
22	RIH seeks a good partnership with the vendor. What steps would your company take to grow this partnership? Discuss your "service after the sale."	
23	How many technical support staff members are dedicated to the East coast region? How many contacts will be provided to RIH?	
System and Security Please provide responses to the following request or questions regarding your solution.		
24	What types of Enterprise Architecture integration, Services Oriented Architecture, or Web Services technologies do you support with your product?	
25	Please provide your current product architecture and future roadmap. <ul style="list-style-type: none"> • What is the recommended architecture for your solution? • Are there any plans to change the application architecture in the near future to newer technology? 	

ID	RIH Question	Vendor Response
26	Please provide your recommended high available system architecture to support business continuity and disaster recovery, including clustering, load balancing, failover strategy, etc.	
27	Is your product supported on a virtualized environment for production and non-production use? Which virtual technology or technologies and releases are certified and supported?	
28	Please provide your recommended <u>hardware</u> and <u>software</u> requirements for all of the server and client components to run your product. Please include any details regarding 3 rd party components and/or integration add-ons.	
29	Do you design your product with a Graphical User Interface (GUI) that is deemed user-friendly and follows standard interface design? Please explain.	
30	Does your product support leap years, all time zones, daylight savings time, and a date/time format of MM/DD/YYYY HH24:MI:SS?	
31	<p>Please explain the design of your product to handle identity and access management, including:</p> <ul style="list-style-type: none"> • authentication and authorization method(s), such as SAML standard • user repository • password enforcement • application security • user provisioning 	
32	<p>Is your product designed to support true Windows Integration and LDAP/ADS security? Please explain.</p> <ul style="list-style-type: none"> • Does it require updates to Active Directory schema and do we need deploy ADAM? • (If applicable) Does the authentication extend to database and web service connections? • (If applicable) Does the web service run in an application pool, which runs under 	
33	Please provide a workflow diagram of the systems processing workflow. Please provide a brief overview of the systems functionalities and features. What is inherent to the system, What additional features are offered to clientele?	

ID	RIH Question	Vendor Response
34	How many places do you have to administer security?	
35	Does your product allow more than one system administrator into the system at one time? Please explain further.	
36	Does your product provide the ability to limit/enable product functionality at the group and/or user levels? Please explain.	
37	How does your product provide capability to audit and log administrative changes?	
38	What version(s) of SQL server does your product support?	
39	Does your product require the use of a SQL Server system administrator (SA) login? Please explain the use of SQL roles within your product.	
40	Is your product compatible with ODBC and either OLEDB or ADODB? If needed can systems DSN be used instead of user DSN?	
41	Do you make the data dictionary and data model available to your customers in order to understand the data structure for ease of reporting needs?	
42	What reporting functionality comes with your product offering? Do you support SSRS if so what versions?	
43	Do you incorporate or offer add-ons to support decision support or data analytics? Please explain.	
44	Do you have an internal mechanism for supporting bulk data exchange? If so, what external (3rd party) tools or utilities do you provide and/or support?	
45	What API interfaces is provided with your product to Black Knight? Or any LOS system?	
46	Do you have documentation to show how missing data are represented in databases and how null fields are stored? Please provide or explain. What are the system's ability to produce specific file types? Provide documentation.	
47	How do you handle zero-length or empty date/time values?	
48	What is your database indexing strategy? Do you store any data in heaps? Do you require BLOB storage? Please provide an overview of storage options for the information within the system, for both SAAS and hosted.	

ID	RIH Question	Vendor Response
49	Does your system support referential integrity at the database level?	
50	Do you encrypt database connection definitions? Please explain.	
51	Does your product maintain an audit history (who did what and when) of records created, modified, or deleted? Please explain.	
52	Does your system support data-level encryption? If so, to what grain?	
53	Does your product leverage a non-standard collation? If so, why?	
54	Does your product come with a secure method or a minimum 256-bit (or higher if available) encryption on all data transmission? Please explain or provide documentation.	
55	What applicable security-related laws does your product comply for RIH's awareness?	
56	<p>What management and monitoring features are available with your product? Is there the ability to monitor your product and/or service, including any of the below mechanisms? Please explain.</p> <ul style="list-style-type: none"> • SNMP, WMI, Service Monitors, or any other methods 	
57	Does your product allow the ability to send out alerts or SNMP traps when events occur? If so, are the alerts configurable? Can additional alerts be added?	

C. Software as a Service (if applicable)

Please provide responses to the following additional requests or questions if you offer a SaaS solution.

ID	RIH Question	Vendor Response
58	How do you handle the priority of releases for bug fixes or feature enhancement requests for each of your customers?	
59	Within the past 12 months, what is the number of major incidents reported from your customers?	
60	<p>Is your product hosted on your own data center or hosted on a service provider's data center?</p> <ul style="list-style-type: none"> • What classification or tier level does your data center fall under? • Are your data centers multi region and located in the US? • Please provide additional information regarding the hosted data center design. 	
61	How do you ensure the highest level of availability (network clustering, load balancing, named support engineer, etc.)? Please explain.	
62	How do you provide effective management and monitoring methods to secure your network traffic and manage priority traffic across multiple client networks? Please explain.	
63	How do you provide or make available for customers to have monthly access, performance measurement and reports? Please provide a brief overview (with examples) of reports and /or dashboards produced with the system.	
64	Is your product configured for optimal performance and response at all times, including peak use hours with other customers? How will a customer obtain this baseline or the tracking of this measurement? Please provide MTBF and MTTR.	
65	Please explain your backup policy, including full and/or incremental backups of each customer's data. How will a customer obtain periodic reports of data backup statuses?	
66	What is your stated policy for data retention? Does it differ per customer?	

ID	RIH Question	Vendor Response
67	Do you provide a secure method for RIH to periodically receive a complete backup copy of its data? Is there an additional cost for this service?	
68	Do you provide a mechanism for data exchange/integration with other RIH systems? Please explain.	
69	Do you allow RIH to test new releases before going live for production use? Please explain. Do you permit us to defer releases if so for how long?	
70	<p>Do you provide to your customer a separate non-production environment for testing purpose without development work?</p> <ul style="list-style-type: none"> • If yes, is this permanently available like the production environment or as needed basis only? • Is there an additional cost to maintain the test environment? 	
71	Is your SaaS model through a web browser using HTML or through a vendor-provided software client? Please explain or provide documentation.	
72	Do you provide user access to the system with full functionality, security, and printing from any Internet connection and compatible web browsers? How about access for mobile devices?	
73	Are your web components on a secure site? Please explain.	
74	Do you store all sensitive data for authenticating the user, including passwords, using a minimum of 256-bit encryption? Please explain.	
75	Do you obfuscate production data, especially sensitive data, prior to loading into non-production environment? Please explain how	
76	Within the past 12 months, have you had a problem with any customer data breaches?	

D. Implementation and Support

Please respond to the following requests or questions regarding your professional services for solution implementation.

ID	RIH Question	Vendor Response
77	Please explain your implementation approach and activities. Do you have a de-conversion strategy?	
78	Please explain the typical team make-up, skill set, and required time from your side and on RIH's side.	
79	What is a baseline timeframe to implement the solution successfully? Please explain the activities and duration involved.	
80	Do you provide a proof of concept implementation? Will you be able to provide this service prior to RIH committing to the investment of procuring the solution? Please explain.	
81	Do you provide the professional services directly or will we go through a channel partner for implementation? Please explain.	
82	If the channel partner has to reach out to vendor technical support during implementation, does the partner have a different service level agreement with the vendor directly? Please explain.	
83	If a channel partner provides the implementation, will RIH obtain ongoing technical support through the partner? Please explain.	
84	Will the implementer perform the implementation onsite or remotely? <ul style="list-style-type: none"> • Will there be a dedicated tech assigned directly to us during the life of the implementation? • If the solution contains multiple modules, will the same tech be installing and configuring all modules or will there be a different assigned tech per module setup? 	
85	How do you go about helping RIH for production readiness?	
86	What is the flexibility in the implementation hours? Please explain the range of hours that are covered under a statement of work and the off hours that RIH will have to pay extra.	

ID	RIH Question	Vendor Response
87	Will the implementation include knowledge transfers or technical training for RIH support staff? How will you go about ensuring that this is successful for RIH?	
88	Are there any specific training needs that would be recommended or required before turning the final release over to RIH?	
89	As part of the professional services, what materials will you provide to RIH?	
90	What training services do you offer for end-users as part of the newly deployed release?	
91	Please explain your service level post-deployment, including any escalation procedure and availability of the implementer to RIH.	
92	Does your solution require ongoing professional services engagement to implement future upgrade maintenance successfully?	