

SOURCE JUSTIFICATION FORM

Bureau of Procurement

The objective of this form is to capture all relevant documentation an Agency may have to assist the Department of General Services ("DGS"), Bureau of Procurement, in expediting the source justification review process. This form must be completed electronically, signed, and submitted with all relevant documentation to DGS. If a question is neither mandatory nor applicable, please indicate "N/A". Please use standard terminology and define acronyms.

SECTION A

1. Agency Name:	Game Commission		
2. Procurement Description: This description will appear on the eMarketplace website for public viewing	The Game Lands Forest Management Modeling project will be an enhancement of the Inventory Manager web application that supports the Commission's Comprehensive Management Planning process.		
Materials Description:			
Services Description:			
3. Materials Shopping Cart # or Services SPR#	12757888	Estimated Cost:	\$10,001 - \$50K
		Initial Contract Term:	11 mos.
		Renewals:	Will run concurrent with
4. Supplier - Name:	Woodland Solutions Group		
Full Address:	1430 Kings Crown Rd, Woodland Park, CO 80863-9156		
Contact Name:	Jim Schriever		
Telephone:	719-246-9795	FAX:	
E-mail:	jschriever@woodlandsg.com		
SRM Supplier #:	549389		
5. Delivery or service location:	2001 Elmerton Avenue, Harrisburg, PA 17110-1515		

SECTION B

<input checked="" type="checkbox"/> 1. Sole Source: Only known source - Not available from another supplier.
<input type="checkbox"/> 2. Material/Repair/Maintenance: Material or service MUST be compatible with existing equipment. Documentation must be provided from the manufacturer.
<input type="checkbox"/> 3. Used Equipment: Value set by 2 independent 3rd party appraisals.
<input type="checkbox"/> 4. Professional Expert: Describe in detail in Section C.
<input type="checkbox"/> 5. Exempt (Law): A federal or state statute or regulation exempts the procurement from the competitive procedure. Any applicable information precluding the procurement from competitive procedures must be attached.
<input type="checkbox"/> 6. Feasibility: Clearly not feasible to award the contract on a competitive basis.

SOURCE JUSTIFICATION FORM

Bureau of Procurement

SECTION C

1. Describe the unique features of this procurement that prohibit a competitive environment. If applicable, attach a Statement of Work ("SOW").

The software that needs to be supported and maintained was developed by this vendor under the name of Mason, Bruce, & Girard & these developers, now known as Woodland Solutions Group, will continue to provide production support, modifications, and fixes as required by the PGC WHM Forestry team. I will attach the original SOW.

2. Document and attach the research that has been conducted to date to verify the supplier is the only known source.

The original project was vetted through PGC IT experts as to the viability of bidding the work out to other vendors. Due to already owning the then MB&G software and the vendors proposed cost it was determined that any bid process would not allow for cost savings due to additional exhaustive scoping and it would not be able to be accomplished in the critical time allotted.

3. Does the supplier utilize distributors, dealers, resellers, etc.? If "Yes," please identify.

NO

4. Are there compatibility requirements or compliance requirements with a warranty or service agreement? If "Yes," please explain.

Yes, all work must be within Woodland Solutions Group's Inventory Manager web application.

5. How has the material or service been procured in the past? Please provide previous source justifications, contracts, & PO's for this material or service.

PO #4300499024

6. If procured through the IT ITQ process, please provide original \$ amount and contract period of order. Is this the final phase of the project?

N/A

7. If this is an upgrade, addition, alteration, etc., to an earlier procurement, please describe in detail.

This new PO is for hours to provide production & development support of WHM Forestry software, which houses forest inventory & field data collection. Enhancements to customized software application developed under previous PO's.

8. What are the consequences of not approving this procurement?

Inability for the Agency to efficiently & effectively manage its forest resources on State Game Lands resulting in potential revenue losses.

9. If timing is a factor, what is the time factor and why?

It needs to be completed & implemented prior to Comprehensive Plan updates in order to project revenue production from timber assets.

10. List any other information relevant to the acquisition of this procurement here or as an attachment.

N/A

SOURCE JUSTIFICATION FORM

Bureau of Procurement

11. For requests > \$100,000, has the supplier signed cost or pricing data certification and is the pricing breakdown attached?

N/A

SECTION D

IMPORTANT*: The printed names on this form shall constitute the signatures of these individuals. Agencies must insure that these individuals review the completed form and give their consent to apply their printed name on this form. No handwritten signatures shall be required in order for the form to be considered "signed" by those individuals whose names appear in the signature section of the form.

Shopping Cart Contact Person (Person whom DGS will contact regarding the Shopping Cart):

Name:	Teri Hoover	P-Group:	270	Date:	08-02-23
Title:	Administrative Assistant	Telephone:		Fax:	

Agency Contact Person: Person in your agency that DGS can contact for additional information, etc.

Name:	Paul Weiss	Title:	Forestry Program Manager	Date:	08-02-23
Telephone:		Fax:		Email:	paweiss@pa.gov

Approving Authority (Agency Head or Deputy reviewing and approving this request): Approving Authority connotes approval of the source justification and the cost or pricing data certification.

Name:	<i>Daniel Dunlap</i>	Title:	Admin Director	Date:	8-3-23
Telephone:		Fax:			

Additional Approvals (if required by Agency):

Name:		Title:		Date:	
Telephone:		Fax:		Email:	
Name:		Title:		Date:	
Telephone:		Fax:		Email:	
Name:		Title:		Date:	
Telephone:		Fax:		Email:	
Name:		Title:		Date:	
Telephone:		Fax:		Email:	
Name:		Title:		Date:	
Telephone:		Fax:		Email:	

Fire Management										
Late-Successional										
Reserved										
Total Acres										
% of Total Acres										

Initial User Input

Before running the default model, the user will be able to provide input on planned fire and late-succession management that will not be calculated directly by the system, including:

- ~~Fire Management - Percent of new Fire Management units requiring a preparatory treatment;~~
- ~~Mixed-Succession Management - Percent of new Mixed-Succession acres requiring preparatory treatment~~
- ~~Late-Succession Management - Percent of newly identified Late-Succession Management acres do you plan to treat in the next 5 years?~~

There will not be any defaults for these two values. Users can refer to the acres in the **Current Conditions** table to help guide their inputs for these two values.

Default Model

After the initial user input has been supplied the system will run the model using default Sustainable Treatment Rates (STR). STRs correspond to the rotation lengths for Mixed-Succession acres and the return intervals for Fire Units and Late-Succession Management acres. Default STRs will be developed for all forest types and used by all users for the default model run. Users will be able to modify these STRs after the default model run (see modified model section below).

Algorithm

1. The model will step through a series of time steps that are evenly placed 10 year windows (e.g., 0-9 years, 10-19 years, etc.) starting at 0 and extended to the maximum rotation length or return interval (whichever is longer) for all stands in the current selection.
2. At each time step, the model will iterate through each management type and forest type
3. For each time step, management type and forest type, the model will attempt to produce the appropriate acres in the youngest age class (0-9 years) based on the STR for that forest and management type. The model will produce acres by removing them from available acres for that forest and management type in different age classes.
4. For Mixed-Succession Management, acres will be considered 'available' if they fall within an age class that is greater than the minimum age for treatment (default value is 80% of rotation length). Mixed-Succession Management acres that are above the minimum age for treatment but below rotation length will only be considered if they are in excess of the STR for that forest type.
5. For Fire Management and Late-Succession Management, acres will be considered 'available' if they fall within an age class that is greater than the return interval for that forest type.
6. Acres will be selected from the available acres using a uniform pattern. This means that acres will be uniformly removed from all available age classes (rather than from the oldest age classes or the age classes with the largest amount of acres).

Formatted: Strikethrough

Commented [KH1]: Paul to support update/clarification of these initial inputs. May need more granularity (e.g., herbicide vs. cutting)

Formatted: Strikethrough

Formatted: Strikethrough

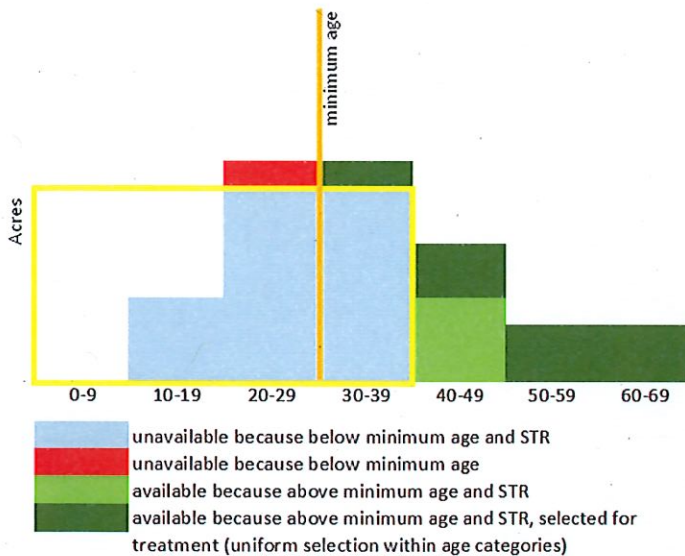
Commented [JS2]: PAGC best practices and workflows; user guides

Commented [KH3]: Review/discuss this with Paul

Commented [KH4]: Will need forester buy in on this. May want to support some treatment below the return interval

- After the acres have been reallocated from older age classes to the youngest age class (0-9 years) the model will advance one time step. This process includes promoting all acres in all management and forest types to the next age class, leaving the first age class (0-9 years) empty again. At this point the iteration is complete, and the model resumes at step 1 above.

The graphic below depicts a single forest type of Mixed-Succession Management with a short rotation length (e.g., Aspen). The rotation length in this example is 40 years and is shown below by the width of the yellow box. The height of the yellow box will be the STR, or the number of acres that would need to be reset in each model step (10 years) to achieve a balanced distribution of age classes within the rotation length. As can be seen in this graphic, the initial distribution of acres is not uniform among age classes, and 25% of the acres are older than the rotation length. In the first-time step, the model will reallocate acres from older age classes to the youngest age class (0-9 years) in a simulation of treatments. Acres will be selected from the dark green cells, which are uniformly distributed from the available acres. The acres in blue are not available because they are either too young, or below the STR, or both. The acres in red are not available because they are too young (below the minimum age, which in this example is set to 75% of rotation length and below the default value of 80% of rotation length).



The results of the default model will be presented in tables showing total acres per age class for each management type and forest type for each time step in the model run. Users will be able to see the total acres that would need to be treated across all types in order to meet the default rotation lengths /

return intervals, as well as the acres that would need to be treated within each management type and forest type. The model would alert the user if STR for Mixed-Succession could not be met due to lack of availability of acres caused by minimum harvest age constraint.

Additionally, the model will use the Initial Inputs, including the percent of new Fire Management units requiring a preparatory treatment and the percent of newly identified Late-Succession Management acres that the user plans to treat, to calculate the additional Fire Management and Late-Succession Management acres that would need to be treated within each time period.

Combined, these results will indicate the level of effort, in terms of treatment acres for each management type, that would need to be treated to meet the STRs for all selected acres. It should be noted that treatment acres for the different management types will be kept separate, rather than combined, due to the differing level of effort per acre associated with the different treatment types.

Additional User Input

After the initial model run and review of the results, users will be provided with an opportunity to modify a limited subset of parameters to perform sensitivity change analysis within the model.

Specifically, users would be able to:

- Mixed-Succession forest types
 - Alter (increase/decrease) the rotation length/return interval of any forest type
 - Reduce the minimum age for treatment (default is 80% of rotation length) for Mixed-Succession forest types
- Late-Succession, Fire Management
 - Alter (increase/decrease) the return interval of any forest type
- ~~Set their target treatment acres for each management type (Mixed-Succession, Late-Succession, Fire-Management)~~

Commented [KH5]: Will need some constraints, and highlight all changes, especially those that are significant (e.g., can't change more than 50%, highlight in red if changed more than 25%, highlight in bold any change from default). Support comments for all changes from default.

Formatted: Strikethrough

Modified Model

After the optional additional user input has been applied, the modified model could be run to produce an updated set of results tables.

- Where rotation lengths or return intervals have been increased, it is expected that the treatment acres per time period would decrease.
- Where the minimum age for treatment is reduced, the model may more quickly achieve a state of balance among age classes because it has more flexibility to reallocate acres to the first time period (0-9 years). As an example, in the graphic above, if the minimum age for treatment was reduced from the default of 80% to 50%, the red cell would be available for reallocation. In some scenarios this can prevent a case where the STR cannot be achieved at particular model time steps due to lack of available acres that meet the age constraints.

The user may iterate multiple times by adjusting the Additional User Inputs and re-running the model until the desired model parameters are achieved.

Report Generation

The final model results can be used to generate a report that includes the input parameters including the search parameters, the current conditions, the rotation lengths and minimum treatment age for Mixed-Succession Management forest types, the return interval for Late-Succession and Fire Management forest types. The report would also show the results including the tables described above and STR acres by management type and forest type. Where a user provided target treatment acres for each management type (Mixed-Succession, Late-Succession, Fire Management) they would be included as well. The reports would be displayed on screen and there would be an option to print or save to PDF [and Excel file formats](#).

Tasks

To complete this work, MB&G will complete the following tasks:

1. Clarify the requirements for the GLC Tool including the description described above, as well as the user interfaces, algorithm steps, output tables and reports
2. Identify 3 pilot areas for use in algorithm development and testing
 - a. PAGC Pilot Testing Team
 - i. Mark [N.](#)
 - ii. Paul [W.](#)
 - iii. Field Lead???([Dan H.](#))
3. Implement and test the software
 - a. Develop the data connections to the Stands layer and the query interfaces for selecting stands
 - b. Develop the user interface for displaying initial conditions and completing the modeling workflow
 - c. Develop the results table(s)
 - i. Verifying that model results match the expected results for the 3 pilot areas
 - d. Develop the user interface for adding updated user inputs
 - e. Develop the reports that are generated from model results

* *Assumes multiple release cycle (e.g. pre-alpha; alpha, beta, release candidate, Go-Live)*

4. Document all aspects of the GLC Tool use and results
 - a. Training and User Guides led by PA Pilot Testing Team

Commented [KH6]: Use 'milestones', perhaps link to payment schedule

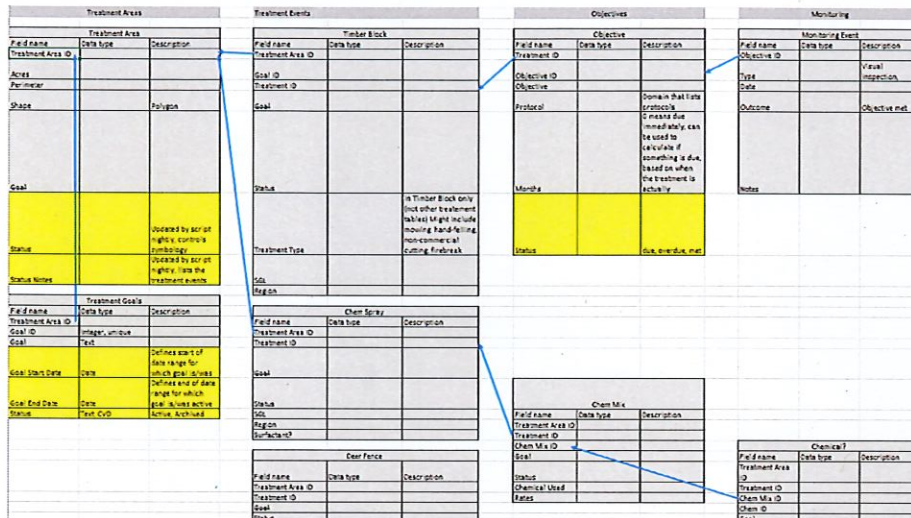
Enhance MobileMap for Managing Cover Type and Treatment Data

Description

PGC plans to use hierarchical database schema within ArcGIS Portal to maintain data on cover types and treatments. While hierarchical databases are typical for managing complex data, they can pose challenges for mobile applications as the relationships between tables must be traversed when accessing or collecting data. Esri supports related tables via Relationship Classes, which define the primary key/foreign key relationships between tables. ArcGIS Collect supports Relationship Classes and thus allows users to collect data into hierarchical data models. MobileMap currently does not support Relationship Classes, although it does support a specific hierarchical data model – the cruise data model. In this hierarchical data model the relationship between stands, plots, trees and logs is defined via MobileMap settings. While this works fine for the cruise data model, it is not a generalized approach

that can be used for all hierarchical data. The deliverable for this task will be to extend MobileMap to support Relationship Classes. This will enable MobileMap to support field data management for Cover Type and Treatment Data.

The graphic below shows a high-level, simplified data model for Treatments. Arrows indicate the direction and primary keys/foreign keys of the table relationships.



Tasks

To complete this work, MB&G will complete the following tasks:

1. Clarify the requirements for adding Relationship Class support to MobileMap
2. Add functionality to read and store Relationship Classes when they are found in any feature service
3. Add user interface components to display related (child) records as a list
4. Add user interface components to collect and edit related (child) records
5. Test these enhancements with Cover Type and Treatment feature services published by PGC
6. Provide documentation on how to collect and manage Cover Type and Treatment using MobileMap
7. Implement an automated process to update one or more attributes (e.g., Status, Status_Notes) of Treatment Area polygons with attribute(s) from children Treatment Event records (e.g., Timber Blocks, Chem Spray, etc.). This will enable the symbology (e.g., color) of the Treatment Area to reflect the status of one or more of its Treatment Events.

CONSENT TO ASSIGNMENT

Mason, Bruce & Girard, Inc., an Oregon corporation (“**MBG**”), has entered into a Separation, Stock Repurchase and Release Agreement (the “**Agreement**”) with Jim Schriever (“**Schriever**”), pursuant to which, among other things, MBG will assign and delegate the Contract (defined below) to Schriever or his designee, effective as of the closing of the transactions contemplated by the Agreement (the “**Transaction**”). The Transaction is expected to occur in the first half of 2022 (the “**Closing Date**”).

This Consent to Assignment (this “**Consent**”) is being delivered to Pennsylvania Game Commission (“**Counterparty**”), pursuant to the terms of the agreement identified on Exhibit A (the “**Contract**”), to obtain Counterparty’s consent to, and approval of, the Transaction, and its waiver of any notices required in connection with, and any rights it may have to terminate the Contract as a result of, the Transaction.

Counterparty hereby consents to the assignment and delegation of the Contract (ITQ 4400025898, Vendor 0000549389) by MBG to Schriever’s designee, Woodland Solutions Group LLC, a Colorado limited liability company (“**WSG**”), effective upon the Closing Date, and acknowledges that no further notice to, or consent from, Counterparty is required with respect to such assignment and delegation. Counterparty further agrees that the Transaction will not constitute a breach of or default under the Contract, and Counterparty waives any rights Counterparty may have under the Contract to terminate, amend or otherwise modify the Contract due to the Transaction.

MBG will also provide all data files related to the above referenced contract as of the Closing Date.

Please return the signed Consent to MBG via email at mlester@masonbruce.com as soon as possible. We appreciate your prompt attention to this matter. If you have any questions, please do not hesitate to contact me at mlester@masonbruce.com.

Very truly yours,

Mason, Bruce & Girard, Inc.

By: 
Michael L. Lester, President

ACKNOWLEDGED AND CONSENTED TO:

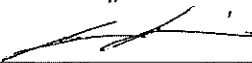
PENNSYLVANIA GAME COMMISSION

By: _____
[Name, Title]

Date: _____, 2022

ACKNOWLEDGED AND CONSENTED TO:

WOODLAND SOLUTIONS GROUP, LLC

By: 

Signer ID: NYMRBVJ1R7...
[Name, Title]

Date: April 04, 2022