



Mayvue's Testing Evolution

Raising the Bar for a Better BrM Experience















2025 Bridge Management User Group Meeting
Providence, RI | September 9-10, 2025

Our Proven Approach

Before BrM 7.0, the Mayvue team had completed 14 releases in 13 years.

BrM 7.0 was unique and unprecedented:

- Over 1.5M lines of code in 14 months
- Overhaul of the inspection features
- Removal of technical debt
- New database structure
- SNBI compliance
- AASHTOWare OpenAPI integration
- Migration script process (NBI -> SNBI data)

 PONTIS 5.1.2 Conversion to NBE/BME Multiple File Uploading Bridge Quick Select Health Index	 BrM 5.3 Error Check Pre-Script Default Data Script Load Rating Module	 BrM 6.4 Redesigned Multimedia Module Enhanced Mapping Program Optimizer Updates Optimizer Log Enhancements
 BrM 5.1.3 Conversion to NBE/BME Risk Assessment Logic Crystal Reports Improvements Caching Issues	 BrM 6.0 BrR Integration Improved Reports & Mapping NBE Import Benefits Usability	 BrM 6.5 LCCA Optimization Module Optimization Queues New Reports
 BrM 5.2.1 Conversion to NBE/BME Multiple File Uploading Bridge Quick Select	 BrM 6.1 Varying Costs to Actions Network Policies Rules Lifecycle Policies Benefits Page	 BrM 6.6 Critical Findings User Certifications Funding by Project Allocation Analytical Tools
 BrM 5.2.2 Element Relationships Health Index	 BrM 6.2 Program Comparison Tool Enhanced Login Page 23 Metric Report-As of Date	 BrM 6.7 NBI Conversion Profiles Ancillary Assets Module Visual Dashboard Editor Request for Action
 BrM 5.2.3 Conversion to NBE/BME Database Connectivity New Reports Increased DB Access	 BrM 6.3 NBI Deterioration Profiles Multi-Asset Action Definitions Inspection Assignment Scheduled Tasks	

What Happened?

- The BrM 7.0 release fell short in terms of quality for many. Too many bugs reached the users.
- The timeline for the delivery of BrM 7.0 was very aggressive.
 - Work Plan Signed: 7/6/2023
 - 100% Dev Complete: 9/12/2024
- Our traditional testing approach wasn't enough.
- Mayvue didn't look to make excuses...
We started making improvements.



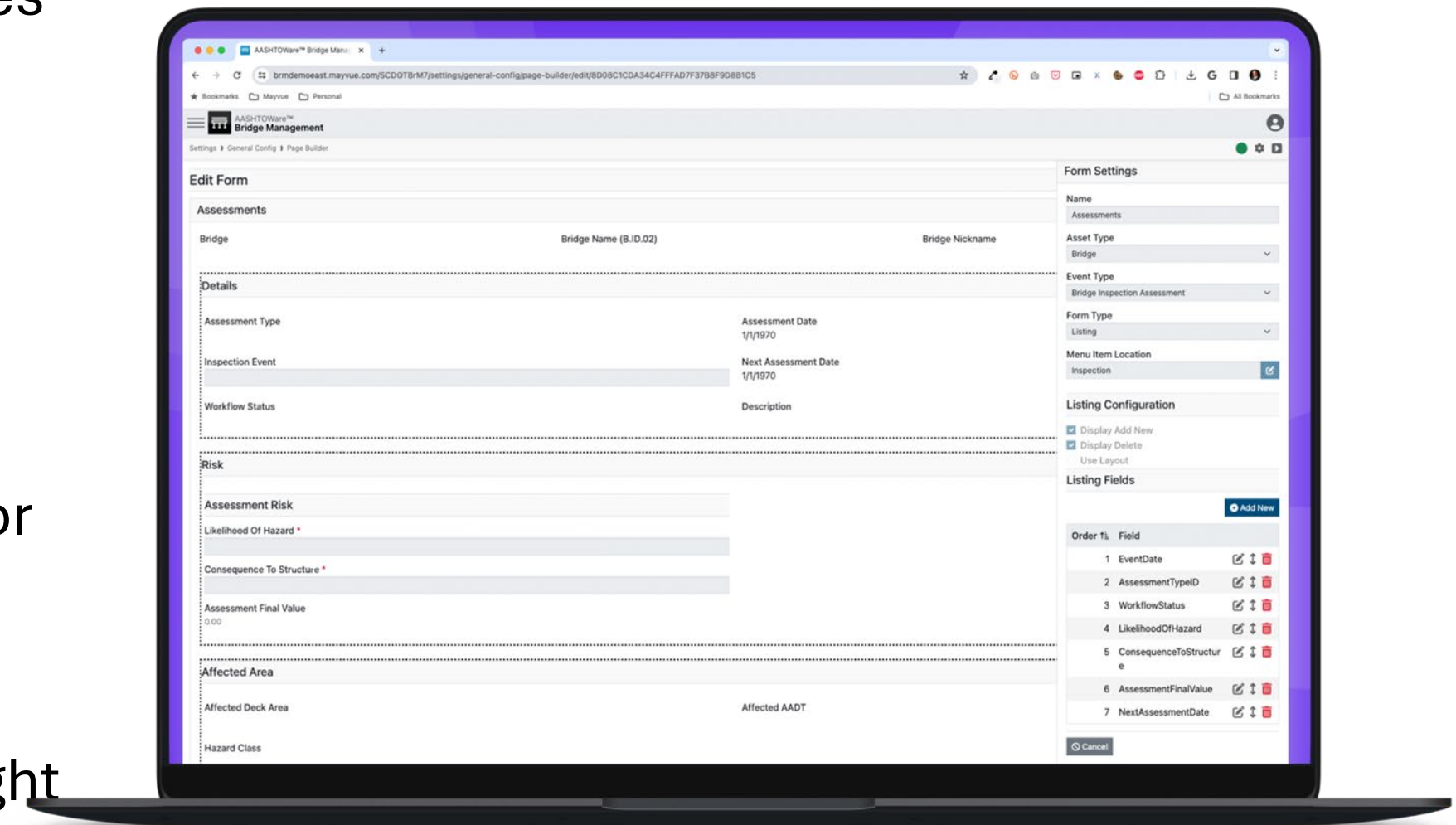
How Did We Respond?

- Mayvue discussed the end-user experience with agencies that adopted BrM 7.0 and took time to self-reflect.

Our findings include:

- The migration process was a challenge.
- The data changed a LOT.
- The software contained too many bugs.
- The traditional testing approach proved insufficient for the size and scale of the release.

Quick action was needed because BrM 7.1 release was right around the corner.



What was Learned about Testing?

Despite having proven testing processes and excellent quality-related scores, Mayvue needed to adapt and improve its testing approach.

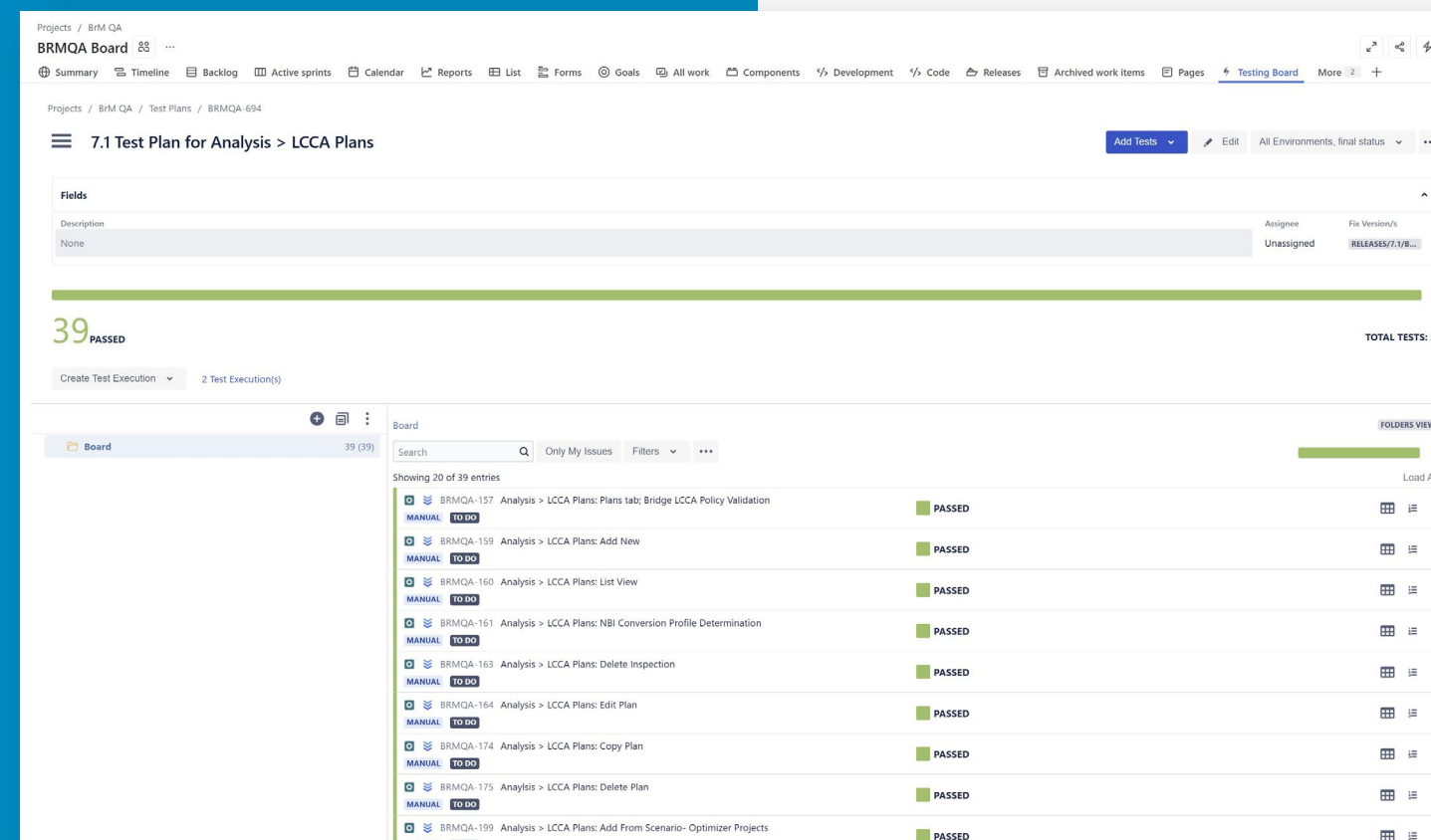
- Mayvue needed to evolve its testing approach to provide an improved experience and high-quality results in a short turnaround.
- Mayvue was too dependent on the Beta Testing TAG.
- Mayvue needed more testing horsepower.

Lesson Learned: Testing Processes

- Mayvue reviewed all testing processes.
- Test cases need to be more clear, precise, and repeatable.
- Release readiness / code freeze adherence is a must.

Immediate Actions Taken:

- Mayvue implemented a new tool (Xray) for building and managing test cases.
- Code freeze adherence was followed for BrM 7.1. No last-minute changes allowed under any circumstance.
- Senior QA analysts now author all test cases and validate reported bugs, while QA analysts focus on executing the test cases and report findings.



Lesson Learned: Dependency on Beta Testing TAG

- Historically, beta testing yielded significant participation and findings over the years.
- Beta testers have a significant day-to-day responsibilities.
- Mayvue had grown too dependent on the Testing TAG's findings.
- Data points:
 - 136 user-reported bugs for 7.0 vs. 507 Mayvue-reported bugs.
 - 1 user-reported bug for 7.1 vs. 662 Mayvue-reported bugs
 - ~150 user reported 7.0 bugs since its release.

Immediate Actions Taken:

- Mayvue spent thousands of additional hours beta testing and regression testing BrM 7.1.
- Mayvue called upon ALL team members to assist with testing the BrM 7.1 release.
- Mayvue addressed every 7.0 bug submitted by the user community after release, while overhauling the BrM management modules and delivering direct API calls.
- BrM 7.1 was released on time in August 2025 with immediate, positive feedback from the user community.

Lesson Learned: More Horsepower Needed

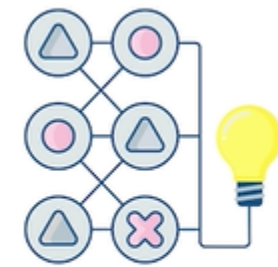
- Analysis showed Mayvue needed to increase QA velocity to ensure comprehensive coverage and provide ample time for regression testing.
- Mayvue finished QA at the end of the development cycle without a hard freeze, leaving limited time to regression test and/or address issues found.
- Last minute additions to a release creates issues and impacts quality.

Immediate Actions Taken:

- Mayvue added 3 additional QA resources between BrM 7.0 and 7.1's release, increasing throughput significantly.
- Mayvue will maintain a higher QA to dev ratio as part of its new testing approach.
- Mayvue has refined its development schedule for BrM 7.2 (in progress) to ensure additional weeks are available for regression testing.

Current Testing Status

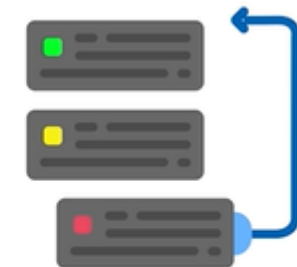
- BrM 7.1 was released to the user community in August 2025, completing the overhaul of the new BrM software.
- Changes to the testing approach are paying dividends... ask the states that have migrated.
- Mayvue's testing changes are staying, and there's additional changes coming in areas such as installation and other testing needs.



Network-wide
Optimizer



Life Cycle
Cost Analysis



Modeling
Configurations



Projects

Mayvue's New Testing Approach: Better Experience, Better Outcomes

Recap: Mayvue's new approach includes updates to our people, processes, and the BrM software:

- People
 - Mayvue will maintain the increased QA to dev ratio.
 - Mayvue restructured QA management and QA responsibilities.
 - Other disciplines will regression test prior to release (good practice).
 - Mayvue completes 'beta testing' and Testing TAG completes 'User Acceptance Testing' (UAT)
- Processes
 - Xray will be used as our QA tool going forward.
 - Freeze periods will remain firm / unmovable.
 - New installation tool coming for BrM 7.2
- Product (BrM)
 - Major data migration efforts will not be required...one time pain.
 - Mayvue will need to test for ADA findings as well in the future.



Mayvue's Testing Evolution Continued

- Mayvue is working to be more data-driven for testing and quality metrics.
 - Example 1: Determine bugs per lines of code as opposed to more general thoughts/feelings about a release.
 - Example 2: Statistical reporting on internal findings during regression testing.
- Mayvue has implemented test-driven development on a small scale and is completing a cost-benefit analysis that it will be discussing with the Task Force.
- BrM 7.2 testing includes a more traditional approach to user testing.
- Mayvue may recommend onsite user acceptance testing for larger BrM releases, which has been highly successful in the past.



Mayvue's Quality Pledge

We promise to:

- Find and resolve issues before users.
- Evaluate testing processes to raise the bar for a better BrM experience.
- Continue to deliver on time and above user expectations.
- If/when issues are found, quickly resolve them in coordination with the Task Force.

Questions





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