**Document Compare Program**
**Virginia Division of Legislative Automated Systems**

The Document Compare program is a user-friendly application that was developed in-house at the Virginia Division of Legislative Automated Systems. It performs an automated comparison of legislative drafts, bills and resolutions at various stages, and code sections. The user is able to pull up two documents and do a side-by-side rich text comparison to determine the differences via highlighting. The user can further compare paragraphs by using the drag-and-drop feature. Should the document contain underlines or strikethroughs or inserted or removed paragraphs, the program has the ability to consider these elements in its comparison algorithm, whether created in html, xml, or Microsoft Word track changes. The user can also choose to ignore any character formatting and perform a straight text compare instead.

This program has been instrumental in streamlining the bill review process and has created tremendous efficiencies for the legislative review staff by reducing errors and manual reading time. For instance, it allows a drafter or editor to immediately focus on the differences between a substitute draft and an original bill or to compare bill text with the code section database to ensure there is no dropped or inappropriately added language. Documents for comparison can be pulled from multiple years of legislative drafts, introduced bills and resolutions, and acts of assembly.

This Document Compare program solves problems that are unique to legislative drafting. To the best of our knowledge, no other "doc compare" application offers the level of functionality and number of sophisticated features as this customized system does.

**Quotes from users**

"…THIS IS LIFE CHANGING (and yes, I meant to shout that)! The new attorneys have no idea how good they have it not having to read all of these bills out loud! Thank you, thank you, thank you!"

"I have to say I LOVE Doc Compare. Not just for updating summaries but also if someone hands you a complicated substitute that you've never seen before and you're trying to figure out how it differs from the original in a time crunch. It's working great!"

"The editing office is also finding this tool extremely useful in multiple applications. We use it so much that I'm starting to forget how we managed without it."

**Technical summary**

The program was developed in-house by one of our programmers after researching several off-the-shelf options and discovering they would not meet our business needs.

All of the comparison tools used in the program are written in JavaScript, technically the Document Compare program uses the "Levenshtein distance" to ascertain the closest paragraphs for comparison purposes. It then continues to use a JavaScript-based algorithm to perform the actual comparisons.

The server side is used for loading the documents in the form of Bills, Code Sections, and other Legislative Documents via a web service.

During the actual comparison, the variations of text formatting need to be addressed to achieve the desired compare results (e.g., <u>the</u>, looks the same as <u>t</u><u>h</u><u>e</u> when rendered in HTML). To accomplish this, each document is first converted into a Unicode version before performing the compare, thus resulting in a more accurate comparison.

The final result allows the user to perform an automated comparison of legislative drafts, bills and resolutions at various stages, as well as code sections.