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Office of the Clerk
U.S. House of Representatives
Washington, DC 20515-6601

June 8, 2020

The Honorable Zoe Lofgren
Chairperson
Committee on House Administration
1309 Longworth House Office Building
Washington, DC 20515

The Honorable Rodney Davis
Ranking Member
Committee on House Administration
1216 Longworth House Office Building
Washington, DC 20515

Dear Chairperson Lofgren and Ranking Member Davis,

As required by Section 502 of House Resolution 756, agreed to by the House on March 10, 2020, I am attaching this initial report about the comparative print project, which is required to meet clause 12 of Rule XXI of the Rules of the House of Representatives.

If you or others on the committee have questions about this report, please do not hesitate to contact me.

Sincerely,



Clerk of the House

Enclosure

Comparative Print Project

As required by Section 502 of House Resolution 756, agreed to by the House on March 10, 2020, the Clerk of the House submits this initial report about the comparative print project, which is required to meet clause 12 of Rule XXI of the Rules of the House of Representatives.

Background

For several Congresses now, the House Rules have called for greater transparency of and accessibility to legislative documents. At the start of the 115th Congress, the Rules also called for more tools to help the Members, staff, and public see changes and differences made between two versions of legislation, as well as changes proposed to be made to current law by a legislative proposal. These provisions, commonly called the Comparative Print provisions, were added as clause 12 of Rule XXI of the Rules of the House of Representatives and as stated in H. Res. 5 (115th Congress) read as follows:

(S) COMPARATIVE PRINTS FOR BILLS OR JOINT RESOLUTIONS CONSIDERED ON FLOOR. — Effective December 31, 2017, in rule XXI, add at the end the following new clause:

“12. (a)(1) Before a bill or joint resolution proposing to repeal or amend a statute or part thereof may be considered, there shall be made available on a publicly available website of the House an easily searchable electronic comparative print that shows how the bill or joint resolution proposes to change current law, showing (to the greatest extent practicable) by appropriate typographical devices the omissions and insertions proposed.

“(2) Before an amendment in the nature of a substitute may be considered if the amendment proposes to repeal or amend a statute or part thereof, there shall be made available on a publicly available website of the House an easily searchable electronic comparative print that shows (to the greatest extent practicable) how the amendment proposes to change current law, showing by appropriate typographical devices the omissions and insertions proposed.

“(b) If a committee reports a bill or joint resolution, before the bill or joint resolution may be considered with text different from the text reported, there shall be made available on a publicly available website of the House a document that shows, by appropriate typographical devices, the differences between the text of the bill or joint resolution as proposed to be considered and the text of the bill or joint resolution as reported.”

The scope of these provisions calls for two distinct types of comparative prints at various points in the legislative process—

- Clause 12(a) calls for a document that illustrates changes and differences made by a legislative proposal to current law. *How does H.R. 123 change the Social Security Act (non-codified law) and 38 USC 321 (positive or codified law)?*
- Clause 12(b) calls for a document-to-document comparison between different versions of bill language. *How does the Rules Committee Print differ from the bill reported from committee?*

The discussion surrounding comparatives prints is not a new one. One of the earliest mentions of adding more comparative prints in addition to the longstanding Ramseyer rule can be found in the Committee on Rules Oversight Plan for the 112th Congress.¹

¹ Page 5 of <https://rules.house.gov/publication/oversight-plan-committee-rules-112th-congress>

“Some of the issues raised during the transition from the 111th to 112th Congress were not yet mature enough to be addressed in this Congress’ rules package. One such issue is the availability of “comparative prints” showing both changes to bills at various stages of the legislative process as well as showing changes to current law proposed by legislation before the House. A number of current Members of the House were previously State legislators where the practice of showing proposed changes as part of the text of bills was commonplace.

While clause 3(e) of rule XIII (commonly referred to as the “Ramsayer” rule) requires a comparative print in committee reports, there is wide acknowledgement that this is insufficient to meet the current needs of Members and the public. The Committee will examine the need for changes in rules and procedures to make comparative prints more widely available at various stages of the legislative process.”

To this end, in early 2017, the Clerk and the Legislative Counsel were directed to work together to propose solutions to achieve the intent and desired outcomes of the new Comparative Print rule adopted by H. Res 5 in the 115th Congress. Two timelines of work were proposed and adopted—an interim solution that met the December 31, 2017, deadline contained in H. Res. 5 adopted on January 3, 2017, and a longer-term solution phased over time and past the December 2017 deadline.

Short-Term Goal

In 2017, the short-term goals were to provide two solutions that could be used and deployed by December 31, 2017. One solution would meet the intent of clause 12(a) and the second would meet the intent of clause 12(b). The deadline was successfully met.

The Clerk and the Legislative Counsel were able to meet this deadline by engaging two existing House vendors.² Separate contracts were awarded in April 2017 and are now closed. Both vendors leveraged existing tools used in the Offices of Legislative Counsel (HOLC) and Law Revision Counsel. All parties were aware of these tools given the Clerk’s IT support for the tools HOLC uses to draft and edit legislation, as well as the collective cross-organizational work through the Bulk Data Task Force and the Legislative Branch XML Working Group.

Vendor A updated existing Ramsayer tools in HOLC to create a comparative print report to meet the requirements of Clause 12(a) of rule XXI of the House Rules. While not required by clause 12(a), the standards of the Ramsayer print are used to show the differences between the two document versions.

The second vendor created a web application that creates a document-to-document comparison print to meet the requirements of Clause 12(b). For Clause 12(b), the standards of the Ramsayer print, as well as industry standards for “track changes,” are used as a basis for showing the differences between the two versions.

Both tools create a PDF version of the required comparative prints for posting on docs.house.gov in compliance with the House Rules. Both tools³ are in use today. At the request of the Speaker, Majority Leader, or the Committee on Rules, HOLC prepares the comparative prints when needed to meet the Rules of the House.

² The vendors will be referred to as Vendor A and Vendor B.

³ Samples on docs.house.gov: <https://docs.house.gov/billsthisweek/20180903/CP-115HR1635IH-COMPARED-CurrentLaw.pdf> and <https://docs.house.gov/billsthisweek/20190401/CP-116HR1585RH-COMPARED-RCP116-9.pdf>.

The expenditures for this phase were \$274,435.00. All costs were incurred by the Office of the Clerk. Subsequent expenditures for maintenance of the Ramseyer and Ramseyer-12(a) portions of the software solution are paid for by HOLC.

Longer-Term Goal

The second timeline the Clerk and Legislative Counsel proposed in 2017 involves a longer-term project that will result in a robust, scalable, and secure web application. This solution will allow all House staff (and others) to create on-demand, point-in-time comparative prints for three distinct types of comparisons, including the two described in the previous section.

These comparative prints illustrate changes between—

- two versions of a bill, resolution, or amendment (document to document comparisons).
- current law and current law as proposed to be changed by amendments contained in a bill, resolution, or amendment to current law (codified and non-codified law).
- a bill or resolution and the bill or resolution as proposed to be modified by amendments (amendment impact).

On August 21, 2018, a two-year contract was awarded to Vendor B. This contract is both current and in good standing.

To date, the project team (vendor staff and House staff) has completed the following:

- demonstrated that natural language processing technology is viable and can be used to read legislative proposals (bills, resolutions and amendments); recognize amendatory language contained in the legislative proposal, retrieve current law provisions; and interpret and execute the instructions contained in the amendment.
- built back-end architecture and related components, including a custom repository for storing the current law dataset (U.S Code and Statute Compilations).
- built an MVP (minimal viable product) illustrating changes to existing law to meet clause 12(a) of Rule XXI of the House Rules.
- added the bill to bill differences from the initial phase to both the backend and front end of the current solution to the MVP (clause 12(b) of Rule XXI of the House Rules).
- built interactive user displays illustrating the differences to help the user further understand the legislative proposals they are reviewing.
- designed and built a user notification system to alert the user if the changes to the existing law cannot be executed because of a drafting error, an error in the current law dataset, or an error in the solution itself. It also alerts the user when an amendment proposed in the bill has already been executed into current law.

Natural Language Processors

There are two main challenges to showing changes to current law as proposed by amendments in a bill—finding provisions in Federal law and interpreting amendatory instructions.

- Finding a particular provision in current law can be difficult as there is
 - no single unified code,
 - legislation is drafted to several sources to include
 - the U.S. Code,

- the Statutes at Large,
- a set of Statute Compilations,⁴ and
- other law, such as the Revised Statutes of the United States, the Uniform Code of Federal Evidence, and the Tariff Tables
- Interpreting amendatory instructions is difficult due to
 - variations in the English language, and
 - the complicated nature of some of the amendatory instructions

To address these challenges, the project team compiled a current law dataset stored in a custom repository solution and developed natural language processors to do the work of recognizing, interpreting, retrieving, and executing the amendatory language contained in the legislative proposal.

Natural language processing (NLP) is the problem domain of interpreting human languages by computers. Conceptually, English presents multiple ways to express ideas, which contains style, ambiguity, and changes over time. This is true for the English used to draft legislation. NLP is different from pattern matching technologies. Pattern matching can handle multiple phrases by skipping some words, but the skipped words might be important. Building an NLP system with the semantics specific to federal law and federal legislative drafting is key to having a system that is smart, accurate, and flexible from the beginning and can become smarter over time.

The foundation of the NLP system in the comparative print solution was built by analyzing 28,014 bills and resolutions, and within those documents categorizing 284,094 phrases, 606 key words, and 4,910 unique phrases.

Figure 1 is an excerpt of text from a bill. For these three simple amendments, the NLP must

- recognize the current law being amended (marked in red). It is paragraph (1) of subsection (b) within Section 704 of the Homeland Security Act of 2002.
- recognize and interpret the amendatory language (marked in blue).
- retrieve the text of paragraph (1) from a current laws database.
- execute the three amendments to the text of paragraph (1) and return the material so it can be displayed to the user.

⁴ The Office of the Legislative Counsel of the U.S. House of Representatives maintains a corpus of Statute Compilations of public laws that either do not appear in the U.S. Code or that have been classified to a title of the U.S. Code that has not been enacted into positive law.

Section 704 of the Homeland Security Act of 2002

(6 U.S.C. 344) is amended—

(1) in subsection (b)—

(A) in paragraph (1)—

(i) by inserting “, including with respect to leader development and employee engagement,” after “policies”;

(ii) by striking “and in line” and inserting “, in line”; and

(iii) by inserting “and informed by best practices within the Federal government and the private sector,” after “priorities,”;

Figure 1

Currently, the NLP portions of the tool are performing very well and with a high degree of accuracy when the current law provisions are available in the current laws database.

User Experience and User Interfaces

The project team is using human-centered design principles. Human-centered design is the discipline of placing people and their behaviors at the center of the problem-solving process. To design the user interface screens, the project team met weekly with staff in HOLC to listen and learn how they read and interact with the law and legislative drafts. Meetings specifically focused on the user experience began in June 2019 and ran until the fourth quarter of 2019. Participation was encouraged and all of HOLC was invited to attend the meetings. HOLC staff input and continued feedback to this day are ensuring that the product features and functions have direct and immediate usability, learnability, and desirability for all expected House users. The project team has done this iteratively, through an agile development process, and they look forward to continuing this work with the upcoming pilot group.

Stakeholder Engagement

Throughout the project, the Clerk and the Legislative Counsel (through the project team and individually) have ensured that stakeholders are engaged in this project. This is done through individual conversations, status update meetings, and demonstrations of the product as it is being developed. Most recently, a series of meetings were held in January and February with staff from the Committees on House Administration, Rules, and Appropriations, and the Select Committee on the Modernization of Congress. The Clerk and Legislative Counsel (through the project team and individually) have also met with

Representative Posey and members of his staff as he is the original sponsor of clause 12 of Rule XXI of the Rules of the House of Representatives.

Next Steps

Pilot group

As of the writing of this report, we have identified 13 individuals from five (5) committees who have agreed to participate in the first stage of a pilot group. Kick-off meetings will be scheduled for the week of June 8.

This pilot group is purposely limited to a small number of committee staff so the project team can properly support the pilot group. Lessons learned from this pilot will

- help guide future tasks and priorities, particularly the type of training that will need to be provided to users.
- help define roles and responsibilities between the Clerk's office, HOLC, and CAO's office.
- elicit feedback on the current and future features of the application.
- identify additional project opportunities and risks.

Additionally, this pilot group will help us reach the goal of deploying the application to all committees by the end of the calendar year and deploy House-wide during the 117th Congress. We anticipate adding additional committee staff and the rest of the committees to the user base as the year progresses.

Remaining Work for 2020

Work to be completed in 2020 includes the following:

- refining output and user interfaces for changes in existing law and bill to bill differences, including improving the natural language processors and automated notifications.
- deploying the application to Clerk servers.
- continuing to ensure that the application is secure.
- developing the log-in services that will control authorization and access to the application.
- migrating the AIP (amendment impact program) from HOLC to Clerk servers and connecting it to the front end of the application.
- continuing to analyze changes needed to the current law dataset to improve the comparisons.
- releasing the first beta version to a small pilot group (and continuing a phased approach to include all committees in the pilot group).
- defining remaining roles and responsibilities.

Defining the roles and responsibilities that are needed to fully support this application is key to fully supporting this application in order to deploy it House-wide. At this time, we are using the chart below to guide our discussions. As the year progresses, the project team will continue to analyze and make recommendations in this area. Again, working with the pilot group will aid in forming anticipated recommendations.

Roles and Responsibilities	Clerk	HOLC	CAO
Maintain the compare.house.gov system (software, hardware, related components)	X		
Maintain the files/content of the current law dataset		X	
Maintain data exchange components	X	X	
Maintain XML schemas (maintained by the Legislative Branch XML Working Group, which is co-chaired by Clerk staff)	X	X	
Receive and route user calls to the appropriate staff	X	X	X
Answer technical helpdesk calls (access, log-in, etc.)	X		TBD
Answer content-related calls (What is this comparison showing me? What is the current law?, etc.)	TBD	TBD	TBD
Provide access to the application to users	TBD	TBD	TBD
Training	TBD	TBD	TBD

Current Funding

On August 21, 2018, a two-year contract was awarded to Vendor B. This contract is current and is in good standing. Both the Office of the Clerk and the Office of the Legislative Counsel have contributed funds to pay for this contract work. To date, \$1,365,078.60 has been spent. Remaining funds include \$253,921.00 of obligated funds. Additional funds for related work will be obligated in June 2020, pending all required approvals. These remaining funds will be used to pay for remaining work (as outlined above) and maintenance of the application until future funding (FY21) is approved and available.

FY21 Funding Request

As outlined in her March 3, 2020 testimony before the Legislative Branch subcommittee of the Committee on Appropriations⁵, the Clerk has requested FY 2021 funds for the following high-level tasks:

- deploying the application to a wider user base.
- improving the current law repository that drives the accuracy of the Changes in Existing Law comparative print.
- providing for refinement of the user interfaces through enterprise-wide customer experience interviews and workshops.
- developing the back-end components as stand-alone features so comparisons can be done automatically (and be made available to docs.house.gov, Congress.gov, and govinfo.gov).
- ensuring production-ready infrastructure, maintenance, and support.
- training application support team for house-wide support.

Related Projects

As mentioned in the required report on United States Legislative Markup (USLM) transmitted to the committee on May 11, 2020, this project utilizes documents formatted in XML—both USLM and the first-generation schemas. The current project work transforming Statute Compilations has a direct impact on the comparative print application being built.

⁵ <https://docs.house.gov/meetings/AP/AP24/20200303/110533/HHRG-116-AP24-Wstate-JohnsonC-20200303.pdf>

Future Quarterly Reports

In subsequent quarterly reports as required by H. Res 756, we intend to describe the project team in more detail, report on activities of the user group, and describe the user notification and interactive outline features in the application. We also intend to describe in more detail the current law repository and the features we are building in the application that will address the temporal nature of the law and legislation. This feature will allow users to view changes to current law and past versions of the law. This will also allow users to see changes proposed to be made by a bill on a particular date (for example, an introduction date of January 3, 2018) as well as the current date of today.