GLORIA J. LETT DEPUTY CLERK ROBERT F. REEVES DEPUTY CLERK

Office of the Clerk H.S. House of Representatives Washington, DC 20515–6601

October 15, 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 quarterly 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 quarterly report about the comparative print project, which is required to meet clause 12 of Rule XXI of the Rules of the House of Representatives.

As described in the initial report, the House is building a suite of software programs that will allow House staff (and others) to create on-demand, point-in-time comparative prints for three distinct types of comparisons. 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).

In this report, we will share project updates; describe application features, including one of the key user features, the Toolbox View – the interactive toolbox; and review how we are managing the project.

Project Updates

Stakeholder Engagement

The Clerk and the Legislative Counsel (through the project team and individually) have ensured that stakeholders are engaged in this project through individual conversations, status update meetings, and demonstrations of the system as it is being developed. Since the initial report, we have continued to brief key stakeholders in the House and legislative branch agencies.

Pilot Group

Since the initial report, a small pilot group, 13 individuals from five Committees and 15 staff members from the House Office of Legislative Counsel (HOLC) are engaged with the project team and actively using the beta system. Throughout the pilot group period, we are asking the users about the usability, desirability, learnability, and accuracy of the system. To date, feedback has been positive, constructive, and incredibly useful.

"Just used the program. I had prepared the [changes to existing law comparative print] by hand last night—took me about 45 minutes.

The program did it in 10 seconds—a great improvement."

- House Committee counsel using the system for the first time

¹ https://cha.house.gov/sites/democrats.cha.house.gov/files/documents/Clerk% 20Comparative% 20Print% 20Report.pdf

Toolbox View Feature

The Comparative Print System is designed to display legislative changes in context: how a bill might change current law; how two versions of a legislative proposal are different; or how an amendment proposes to change a bill. Understanding these changes is critical to making decisions on pending legislation. In our system, comparative print results are shown in two ways: an online, dynamic, interactive report and a PDF that can be printed or downloaded to share. Users access these results through a key feature, the Toolbox View.

Let's walk through the Toolbox View as if you are using it. After accessing the system from your browser, you are directed to a "New Report Page" where you select from a drop-down menu the option "How a Bill Changes Current Law." After selecting this report type, you search for a bill that has been pre-loaded in the system, or you upload a PDF or XML file of a bill you have. Then, you click on the submit button to create the comparative print report. Once the report is created, the Toolbox View displays the results.

The Toolbox View displays a set of tabs that allow you to interact with

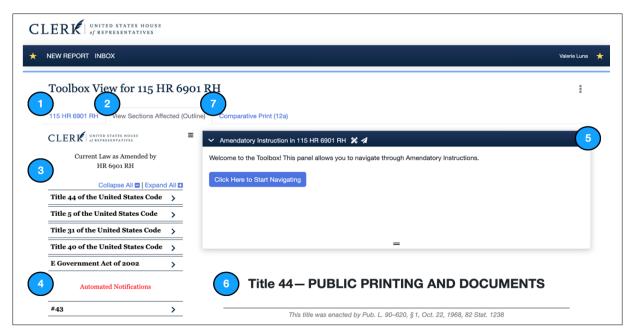
- the original bill you searched for or uploaded,
- individual legislative provisions found in the bill proposal and provisions in the current law (codified or non-codified) that are being amended, and
- the comparative print report in PDF format.

What you see on screen is highlighted in the illustration below. In this illustration, we are looking at a bill from the 115th Congress, H.R. 6901, as reported.

The items in the Toolbox View are the:

- Bill PDF tab showing the bill that was searched for or uploaded
- Interactive Outline tab
- Interactive Outline panel that is similar to a table of contents and part of the Interactive Outline tab
- Automated notifications section
- Individual amendatory instructions and amendments found in the bill that was searched for or uploaded
- Dynamic Report View (In this case, the current law that is being amended plus the changes and differences proposed to be made by the amendments contained in the bill that was searched or uploaded.)
- PDF tab showing the comparative print report in PDF.

Each item is described below.

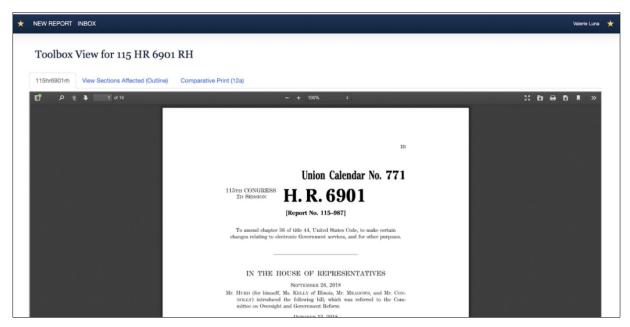


This illustration shows the Toolbox View for "Changes in Existing Law," including the (1) Bill PDF tab, (2) Interactive Outline tab, (3) Outline panel, (4) Automated Notifications section, (5) Amendatory Instructions panel, (6) Dynamic Report View, and (7) Report PDF tab.

Bill PDF Tab

The Bill PDF tab is the first tab on the left, and it displays the original bill you searched for or uploaded. This PDF viewer allows you to search the document, navigate by pages, zoom, print, or download the PDF.

The "How Bill Changes Current Law" report is created from the original bill, so the first tab is that single bill (or resolution). The "Bill to Bill Differences" comparison is created from two bills, so two tabs display the bills being compared.

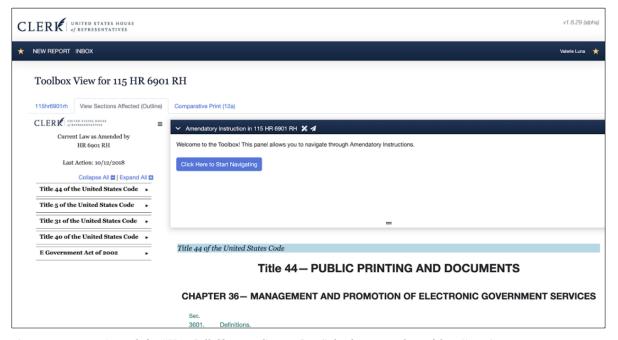


The Bill PDF tab for "Changes in Existing Law" displays the original bill.

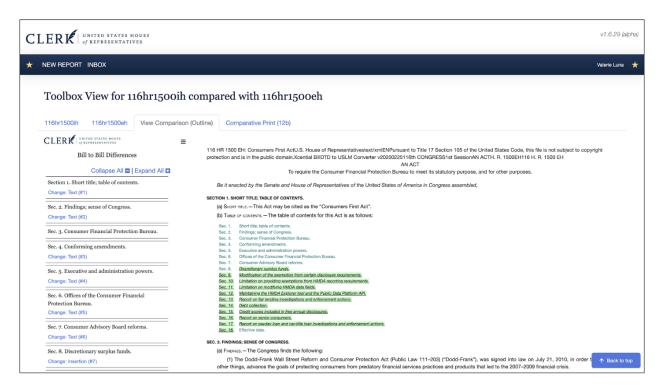
Interactive Outline Tab

The Interactive Outline tab shows a dynamic view of the report, which allows you to explore it in several ways depending on the type of comparison that is being generated. We have specifically designed this tab to provide the user with a better experience when reviewing legislative provisions and understanding bill language and the current law. More details of this tab are described below.

For the "How a Bill Changes Current Law" comparison, the Interactive Outline tab is labeled "View Sections Affected (Outline)." For a "Bill to Bill Differences" report, the tab is labeled "View Comparison (Outline)."



The Interactive Outline tab for "How Bill Changes Current Law" displays an outline of the affected sections.



The Interactive Outline tab for "Bill to Bill Differences" displays an outline of the comparison.

Outline Panel

On the left side of the Outline tab, the Outline panel presents a dynamic outline to navigate the report, similar to a table of contents.

For "How a Bill Changes Current Law," the Outline panel shows the list of laws amended, in the order that they first appear in the bill. This means the first law that is amended is listed first, followed by the second law being amended, and so forth. All amendments impacting a particular law are gathered together and illustrated in the order they would be executed, regardless of the order they are presented in the bill.

For "Bill to Bill Differences," the Outline panel shows the outline of the new or revised version of the bill. In both cases, the lowest level of the legislative hierarchy shows the change.²

In our "How a Bill Changes Current Law" example, H.R. 6901 RH (115th Congress) is a 14-page bill that amends Titles 44, 5, 31 and 40 of the United States Code, as well as section 207 of the E-Government Act. When this bill is processed in "How Bill Changes Current Law," the Outline panel lists the five affected laws. In the application, you can click the chevron (▼) to navigate each law to find the provision which is being impacted by the amendment in the bill.

The Outline panel for "Bill to Bill Differences" also shows a hierarchy. Instead of the hierarchy of laws, it is the hierarchy of the new bill (the second document selected or uploaded). Similar to "How a Bill Changes Current Law," the deepest level of the hierarchy shows where there is a change between the two

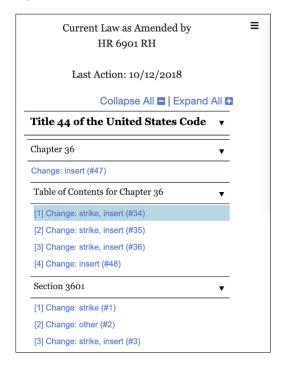
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² The basic hierarchy in the U.S. Code is Title, Chapter, Section, Subsection, Paragraph, Subparagraph, Clause, Subclause, Item and Subitem. In a non-codified Act, the basic hierarchy is Title, Section, Subsection, Paragraph, Subparagraph, Clause, Subclause, Item, Subitem. Appropriations bills have a different hierarchy.

bills. This change may represent a renumbering, a change in the heading, or changes in the text or sections that are wholly inserted, deleted, or moved.

Automated Notifications

In "How Bill Changes Current Law," there is a list of automated notifications in the left panel of the Interactive Outline (below the Outline panel). This feature provides information about amendments that could not be carried out automatically by the system. This feature provides a critical quality assurance check while a bill is in draft stages, as well as when considering the re-introduction of a piece of legislation.





The left panel of the Interactive Outline displays automated notifications for any amendments that cannot be carried out automatically.

The four reasons why an amendment contained in a bill proposal cannot be carried out (executed) automatically are:

- Error in drafting (e.g., typos, misspellings, incorrect citations).
- Error in the current law dataset (e.g., not updated, not complete, or missing).
- Error in the system (e.g., the amendment instruction is not supported).
- Amendment proposed in the bill has already been executed into current law.



An example message that a user may receive via the automated notifications feature.

With this feature, the goal is to provide enough information with the automated notifications so you can independently research why the amendment failed to execute automatically. There are certainly cases where an amendment may fail automatically but could still be executed manually.

Over time, with improvement to the current law repository (contained in the system), the number of automated notifications will be reduced.

Below are five of the ten automated notifications currently in the system.

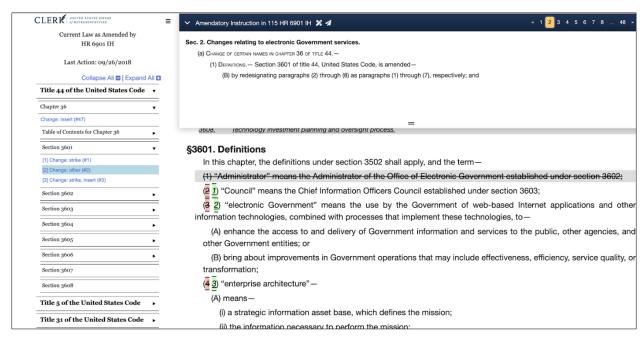
AUTOMATED NOTIFICATIONS	WHAT IT MEANS
The Act being amended could not be found.	The system does not have the Act (current law) or there
	is a user error in the citation of the Act.
This amendment could not be executed	The system has located the act but could not find the
programmatically.	text to apply changes to.
The provision of the Act could not be found.	Citation Notice: Could not find provisions to amend:
	[human readable identifiers]
The range of provisions could not be found.	System can't find the range of sections/subsections
	listed.
The amendment could not be executed.	Error with content submitted.

Amendatory Instructions Panel

The Amendatory Instructions panel is available in "How Bill Changes Current Law" at the top right of the Outline tab. It displays the amendment as contained in the bill proposal, along with the amendatory instructions.

In the illustration below, subparagraph (B) of Section 2 (a)(1) of the bill contains an amendment that is proposing to redesignate paragraphs (2) through (8) in Section 3601 of Title 44 of the U.S. Code.

In the top right corner of the Amendatory Instructions panel, there is an ordinal list corresponding to the amendatory phrase contained in the proposed bill (in the order they appear in the bill). In our example, H.R. 6901, as reported (115th Congress), there are 48 provisions proposing to amend current law.



The Amendatory Instructions panel displays an amendment as contained in the bill and the amendatory instructions. This illustration shows the second amendatory instruction to H.R. 6901, as reported (115th Congress).

You can review the amendments contained in the bill or the current law it is proposing to amend in multiple ways:

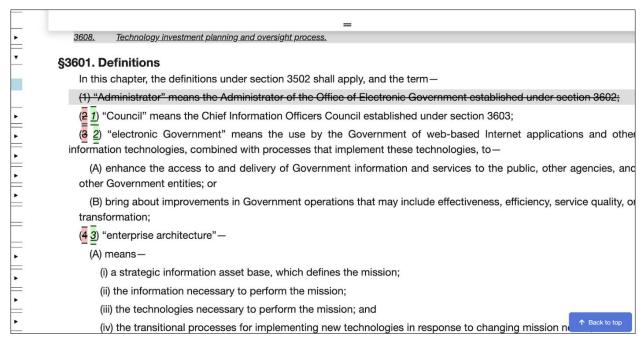
- By moving through the amendment in bill order by clicking on the list in the Amendatory Instructions panel,
- By clicking on an amendment in the Outline panel, or
- By clicking on the change in the Dynamic Report View (see below).

These three navigation options help the user gain better understanding of how the amendments contained in the bill impact current law.

Dynamic Report View

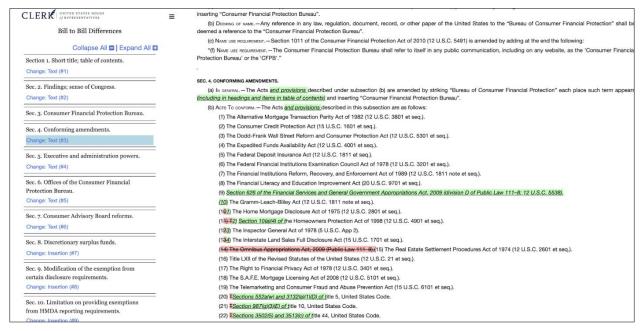
The Dynamic Report View is in the lower right of the Outline tab in the Toolbox View; this is the comparative print. For "Changes in Existing Law," it displays the text of the laws, one after the other, with styling to show inserted or stricken text. It is patterned after the current Ramseyer report required to be in all Committee reports accompanying bills and resolutions reported to the House (clause 3 of Rule XIII of the House Rules).

The resulting comparative print document may be very large depending on the number of amendments contained in the bill. So, while scrolling through the document is possible, it is often more useful and a better experience to use the links in the Outline panel and the Amendatory Instructions panel for navigation. In addition, the highlighted regions of the text in the Dynamic Report View are clickable, to scroll the application to the corresponding change. There is a button in the bottom right corner of the Dynamic Report View that allows you to scroll to the top of the document.



The Dynamic Report View (isolated) for "Changes to Existing Law" displays the text of the laws and formatting for inserted or stricken text.

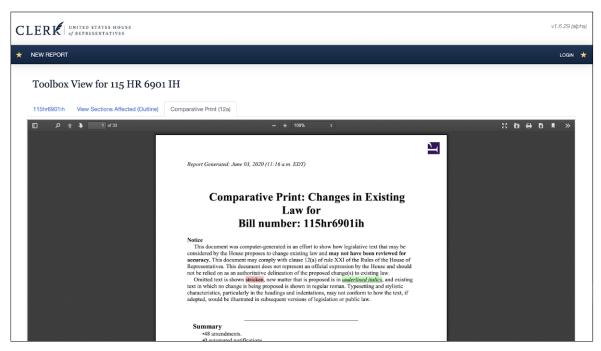
In "Bill to Bill Differences," the Dynamic Report View shows the new document (the second document selected or uploaded), along with highlights showing changes from the first bill. Stricken text is shown with strikethrough and a red background, and inserted text is underlined with a yellow background. Inserted and stricken blocks (e.g., a whole section) have a light green or red background, respectively.



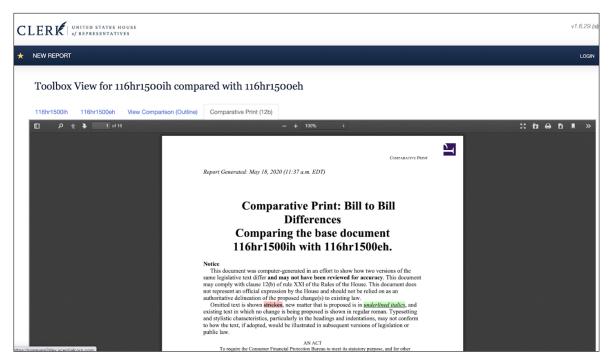
The Dynamic Report View (isolated) for "Bill to Bill Differences" displays changes from the first bill in highlighted, underlined, and stricken text.

Report PDF Tab

The Report PDF tab, which displays the comparative print report, is the last tab in the Toolbox View. This PDF viewer allows you to search the document, navigate by pages, zoom, print, or download the PDF. Shown in the illustrations are a temporary version of the final reports in PDF.



The Report PDF Tab for "How Bill Changes Current Law" displays the comparative print report.



The Report PDF Tab for "Bill to Bill Differences" displays the comparative print reports

In summary, the Toolbox View offers more than a "paper on screen" comparative print. We are pleased with the results so far and look forward to hearing feedback as it is used.

"How an Amendment Impacts the Bill" Comparison

One of the three comparisons is "How an Amendment Impacts the Bill." The project team is currently working on the first release of this application. This work includes migrating the current AIP (amendment impact program) from HOLC to Clerk servers and connecting it to the front end of the comparative print system. The display of the amendments and the comparative print will be similar to the "How Bill Changes Law" and "Bill to Bill Differences" features described above. We plan to release the initial version of this feature to the pilot group by the end of the year.

Bill Viewer Feature

A new feature that is being added to the system is a Bill Viewer. This smart reading tool will allow users to search or upload a single bill document and view it using the Interactive Outline. The Bill Viewer is a necessary feature to ensure that staff continue to review, analyze, and understand the entire bill proposal. Simply looking at the changes proposed to current law contained in the bill or seeing differences between two versions does not give the reader a full understanding of the underlying proposal. The free-standing provisions are as important as the provisions amending current law. This new feature, along with the three comparison prints, will provide House Members and staff a set of powerful tools to examine bills, resolutions, and amendments. We plan to release the initial version of the Bill Viewer feature to the pilot group by the end of the year.

Additionally, the project team, along with the stakeholders, are discussing what smart-reading capabilities we can add to the Bill Viewer that will allow users to interact with and discover important items contained in the proposal. Think of it as an intelligent find. In the Toolbox View, items such as defined terms, effective dates, and short titles can be listed in the Interactive Outline, which allows the user to see the bill's contents at a glance. With one click, the user could go to the matter (location) in the bill.

Current Law Repository

Until this project, there was no central location for an up-to-date, electronic, machine-readable repository for current law and all the matters that Congress can amend. The comparative print system will serve as this central location, and there is much work to do to make the repository complete, robust, and flexible.

On the federal level, there is no single unified code like some of our state legislatures have or other national parliaments. When amending current law, federal legislation is drafted to several sources including the positive Titles of the U.S. Code, the Statutes at Large, and named Acts from the HOLC Statutes Compilations dataset.³ At this time, the "Changes in Existing Law" application will illustrate changes to the U.S. Code, the current Statute Compilations, and some Statutes at Large. The technological foundations of the current system, combined with experience from HOLC and others, make it possible to create a strong current law repository that can fully meet the requirements of the House Rules with regard to comparative prints, address effective dates enacted into law, temporal challenges, and other matters. Not only will we be able to reduce the automated notifications mentioned earlier to zero, but Members and staff will potentially have all of the current law in one centralized location.

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³ https://uscode.house.gov; https://www.govinfo.gov/app/collection/comps

In the coming months, the project team will improve the HOLC Statutes Compilations dataset. This effort will include:

- Analyzing the current data set and identifying gaps in data, duplicates, and other data anomalies.
- Continuing the design of a modern repository for laws, including possible technical reorganization.
- Processing existing data to fix errors found during the analysis.
- Modelling temporal and controlling versions, such as the storage of different versions of the law, including U.S. Code release points and Compilations updates.
- Tracking effect dates and enactment dates.
- Providing continued support of the Statute Compilations in United States Legislative Markup (USLM) format and building on the work done by the Government Publishing Office's Statute Compilations in USLM project.
- Building support for short titles in the current law database.

Project Management

The project team continues to use agile methodologies to complete this work, which allows for the continued refinement of the requirements and helps ensure that the House obtains a product that meets its needs.

In addition, the project team is collaborating with users. We continue to hold weekly meetings with HOLC staff and other potential users. While we have regular group of staff who meet weekly, we often invite all of HOLC to attend meetings. On October 2, we held an online, HOLC-wide meeting, and about one-third of the office staff participated in the meeting. Staff are excited about this system.

Roles and Responsibilities

Defining the roles and responsibilities that are needed to fully support this application is key. We continue to use the chart below to guide our discussions. The project team has agreed that some features of the system would only be made available to users after they receive training.

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

Project Funding

Currently, the project is funded with fiscal year 2020 funds from both the Office of the Clerk and the Office of the Legislative Counsel. As discussed in the initial report, FY21 funds have been requested. The project team is composed of contractors and Clerk, HOLC, and other House staff.

Related Projects

As mentioned in the initial report about adopting standardized formats for legislative documents transmitted to the Committee on May 11, 2020, this project utilizes documents formatted in XML—both USLM and the first-generation schemas.⁴ The current project transforming Statute Compilations directly impacts this project.

Next Steps

The project team will continue working on tasks mentioned in this report, as well as the initial report. We are excited about this project and the solution we are building. We see its potential impact on how staff complete their work and understand current law and legislative proposals. We will continue to update the Committee and stakeholders about the progress of this project. In 2021, we expect to release a beta version of the system House-wide.

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 $^{^4\} https://cha.house.gov/sites/democrats.cha.house.gov/files/documents/Adopting\%\,20Standardized\%\,20Formats\%\,20for\%\,20Legislative\%\,20Documents.pdf$