Audit Report

OIG-20-040

BILL AND COIN MANUFACTURING

Audit of Bureau of Engraving and Printing's Implementation of Security Features and Meaningful Access for the Blind and Visually Impaired into New Note Design

June 30, 2020

Office of Inspector General
Department of the Treasury

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Abbreviations

ACD	Advanced Counterfeit Deterrence Steering Committee
BDP	Banknote Development Process
BEP	Bureau of Engraving and Printing
Board	Board of Governors of the Federal Reserve System
currency	United States Currency
CTO	Currency Technology Office
GAO	Government Accountability Office

ICC	Interagency Currency Committee
IMS	Integrated Master Schedule
JAMES	Joint Audit Management Enterprise System
MOU	memorandum of understanding
Note	Federal Reserve note
OIG	Office of Inspector General
PAC	Program Approval Committee
Secret Service	United States Secret Service
TAC	Technology Approval Committee
TDP	Technology Development Process
Treasury	Department of the Treasury
USCP	United States Currency Program

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Audit Report

June 30, 2020

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Director
Bureau of Engraving and Printing

This report presents the results of our audit of the Department of the Treasury (Treasury) Bureau of Engraving and Printing's (BEP) implementation of security and meaningful access features into Federal Reserve notes (note) through new design processes and governance. This audit was in our fiscal year 2019 Office of Inspector General (OIG) annual audit plan.[1] Our objective was to determine whether BEP is properly implementing security features into the United States currency (currency) as part of its counterfeit deterrence program and incorporating tactile features and high-contrast numerals in future currency designs to improve meaningful access for blind and visually impaired individuals in accordance with requirements approved by the Secretary of the Treasury.[2]

To accomplish our objective, we interviewed personnel from BEP, the Board of Governors of the Federal Reserve System (Board), United States Secret Service (Secret Service), and other relevant stakeholders to gain an understanding of their involvement in new note design, including the development and implementation of security and tactile features. We also reviewed applicable documentation pertaining to new note development including policies and procedures used in program management over new note development, as well as multi-agency governance committee

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[1] *Annual Plan Fiscal Year 2019* (OIG-CA-19-007; issued October 31, 2018)
[2] Security features are counterfeit-deterring features used to authenticate currency. Security features can be both noticeable on the note, without special equipment, as well as covert. Tactile features and high-contrast numerals assist users with the capability to distinguish between note denominations. A tactile feature provides users the means to identify a note's denomination through touch and high-contrast numerals refer to larger and colored numbers that assist in identifying the note's denomination.

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minutes to determine stakeholder involvement and decision making in new note design. In addition, as part of this audit and in response to Congressional concerns, we reviewed the circumstances surrounding Treasury's timeline for unveiling of a new design concept for the $20 note. We conducted fieldwork from June 2019 through February 2020. Appendix 1 provides a more detailed description of our objective, scope, and methodology.

Results in Brief

We found that BEP is implementing security features and incorporating meaningful access for the blind and visually impaired into currency through its newly structured note development governance and processes. These efforts and activities are under the multi-agency effort referred to as the United States Currency Program (USCP).[3]

The current Catalyst series note redesign is the first in which BEP has followed these new structured processes for note redesign.[4] These processes included a Technology Development Process (TDP) implemented during 2013, which is a tailorable process used to develop technologies for inclusion in BEP products; and the Banknote Development Process (BDP) implemented during 2012, which is a multi-step process with phases that, among other things, integrates new security features into the currency design as well as develops design concepts. Although BEP is following these newly

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[3] As discussed further below and in appendix 2, USCP consists of and is governed by the following committees comprised of representatives from Treasury, BEP, the Board and its Currency Technology Office (CTO), and Secret Service: (1) Advanced Counterfeit Deterrence Steering Committee (ACD), responsible for making recommendations to the Secretary of the Treasury for the design, development, production, and issuance of currency, which includes coordinating redesign efforts of its member agencies; (2) Interagency Currency Committee (ICC), responsible for supporting the ACD and overseeing the note development Core teams; (3) Program Approval Committee (PAC), responsible for overseeing note development projects that have significant changes in note designs and overseeing Bank Development Process (BDP) Core teams; and (4) Technical Approval Committee (TAC), responsible for overseeing technology development projects by following the Technology Development Process (TDP) Handbook.

[4] The Catalyst series is the third major redesign of U.S. currency in the last 90 years. See the background section for additional information.

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developed processes, further refinement to the processes' guidance to reflect lessons learned would improve effectiveness in note redesign and development. BEP is also utilizing an Integrated Master Schedule (IMS) to track the progress of BEP's redesign efforts; however, additional detail would be beneficial in identifying issues that may impact the schedule of planned activities of the multiple agencies involved in the note redesign.[5]

We also found that certain members of the Advanced Counterfeit Deterrence Steering Committee (ACD) are not attending committee meetings as was intended by the ACD charter, which in turn, could impact the effectiveness of the ACD. Full collaboration from all multi-agency members is imperative to ensure that stakeholder leadership is kept sufficiently informed on note design. The ACD charter should be updated to ensure members' roles, responsibilities, and current practices are clearly defined and communicated. Additionally, BEP should continue its progress in updating its memorandum of understanding (MOU) with the Board. These updates will ensure that documentation of governance and oversight over note development and production reflects existing practices.[6]

Additionally, based on Congressional interest, we reviewed the circumstances surrounding Treasury's timeline for unveiling of a new design concept for the $20 note. We found that the former Secretary of the Treasury made an announcement in April 2016 proposing release of new $5, $10 and $20 note design concepts during 2020.[7] This announcement was made outside the formal note development governance structure, and without the recommendation of the ACD. We also found that, in May 2016, the

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[5] An IMS is a program schedule which includes the entire scope of effort from start to finish. It connects the sequence of activities or tasks needed to complete the effort and displays how one activity relates or depends on another activity. This schedule has been continually updated for the $10 and $50 Catalyst note redesign.

[6] OIG-20-023 *BILL AND COIN MANUFACTURING: BEP Improved Governance and Oversight over Note Development and Production But Challenges Remain*; issued December 31, 2019. The audit report contained the recommendation that BEP update its MOU with the Board.

[7] In June of 2015, the former Secretary of the Treasury had announced a woman would be featured on the $10 redesigned note and unveiled in 2020. The April 2016 announcement identified that Lucretia Mott, Sojourner Truth, Susan B. Anthony, Elizabeth Cady Stanton, and Alice Paul would be honored on the $10 note and that Harriet Tubman's portrait would be on the $20 note.

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former Secretary of the Treasury reported to the U.S. District Court for the District of Columbia that the first note ($10 note) in the currency redesign effort would be delayed from 2020 until 2026 in order to develop the necessary security features. Furthermore, the sequence schedule for note redesign has remained the same since 2016 and the ACD never intended the release of the Catalyst series design in 2020. Historically, only after security features were developed, was the design with the note's image finalized because placement of security features can radically affect the note design. Therefore, the unveiling of the design typically occurs 6 months prior to issuance as part of the public information campaign.

We recommend that the Director of BEP in collaboration, as necessary, with members of the USCP:

1. Continue to improve the BDP and TDP guidance, including refining procedures to reflect lessons learned during its Catalyst note series redesign.

2. Review and implement actions within the IMS program to improve the decision making process and help identify issues that may impact the schedule of planned note redesign activities. This includes ensuring that technical and key milestones are incorporated into the IMS at a detailed level.

3. Ensure the ACD charter is updated in a timely manner, and as needed, to ensure roles, responsibilities, and current practices such as the attendance of ACD monthly meetings by appropriate personnel are clearly defined and communicated to its members.

In a written response, BEP management agreed with our recommendations and outlined planned and taken corrective actions. Specifically, in response to our first recommendation, BEP has developed lessons learned for the early phases of currency redesign. Management believes the pilot of BDP will provide comprehensive lessons learned material for both BDP and the integration of security features, as well as identify modifications to consider for BDP and TDP. During the execution of currency redesign, BEP will also identify improvement opportunities to incorporate into guidance and documentation. In response to recommendation number 2, BEP will revisit the requirements for the

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level of detail, frequency, and milestones to be included in the IMS to improve the decision making process. Lastly, for recommendation number 3, BEP will update the ACD charter, including clarifying the roles and responsibilities of the ACD. Management's response, in its entirety, is included as appendix 3.

Management's response, and corrective actions taken and planned, meet the intent of our recommendations. Management will need to record the estimated date for completing its planned corrective actions as well as the actual date of completed corrective actions in the Joint Audit Management Enterprise System (JAMES), Treasury's audit recommendation tracking system.

Background

Currency Redesign is a Multi-Agency Task Driven by Security

Currency is redesigned primarily to address current and potential security threats. In addition, currency has been redesigned to address functional needs such as providing improved identification for those visually impaired. Redesign requires seeking out and developing technology for new security features. As the complexity of counterfeiting threats has increased due to technology advancements, so has the complexity in and length of time necessary for development of security features.[8]

The ACD is a federal multi-agency group responsible for coordinating counterfeit deterrence activities of its member agencies, including the design, development, production, and issuance of currency. ACD members consist of senior executives from Treasury Departmental Offices, BEP, the Board, and Secret Service. As discussed in further detail below, the ACD's efforts in collaboration with its member agencies through the Interagency Currency Committee (ICC), Program Approval Committee (PAC),

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[8] In addition to deterring counterfeiting, security features facilitate the public's use and authentication of currency, provides accessibility and usability, and maintains public confidence.

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and Technology Approval Committee (TAC) are referred to as the USCP.

Based on the counterfeiting threat posed to each denomination, the ACD provides currency design recommendations to the Secretary of the Treasury.[9] Included among its recommendations is the sequence in which note denominations should be redesigned as well as design concepts that include security features to safeguard against counterfeiters. Each note denomination design, development, and issuance schedule is undertaken individually and completed over the course of several years.

Tentative New Schedule for Next Redesign

In the last 90 years, currency has been significantly redesigned twice. The ACD's policy has been to redesign the note denominations collectively, as part of a family series, in which each note denomination has very similar architecture, but may have different security features incorporated in its design based on the counterfeiting threat posed to each denomination.[10] Historically, the unveiling for each redesigned note occurs 6 months prior to note issuance to allow for public education of new security features.

Figure 1 below displays the last two families of note redesign releases, including those of the New Currency Design series and the NexGen series. Additionally, displayed is the tentative schedule for the next redesign of notes referred to as the Catalyst family.[11]
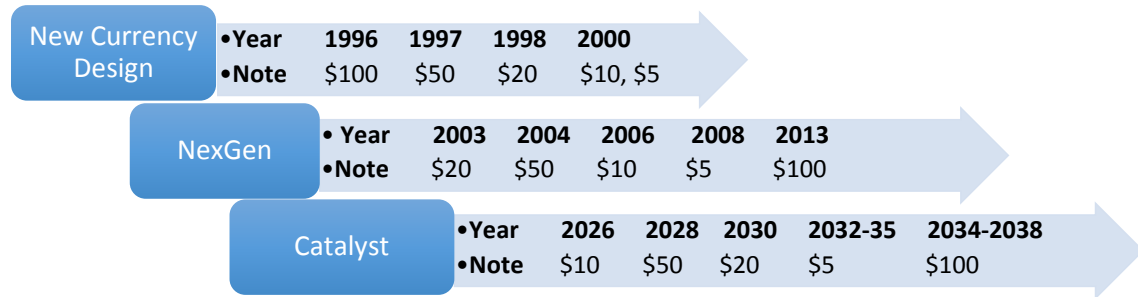
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[9] The Secretary of the Treasury has sole statutory authority to issue currency and determine currency design under the Legal Tender Acts, Act February 25, 1862, 12 Stat. 345; Act July 11, 1862, 12 Stat. 532; Act March 23, 1863, 12 Stat. 709 and; 12 U.S.C. 418, *Printing of notes; denomination and form*.

[10] A family series of notes includes the $5, $10, $20, $50, and $100 notes. The $1 and $2 notes have not been redesigned since the ACD's establishment in 1982 as both notes have not historically been a frequent target of counterfeiters. Additionally, the redesign of the $1 note has been prohibited by the annual Financial Services and General Government Appropriations Act, with the most recent being the Consolidated Appropriations Act of 2020 (Public Law 116-93) signed by the President on December 20, 2019.

[11] The schedule for the Catalyst family of notes represents when the notes are estimated to be ready for production printing rather than the release dates to the public. The Board maintains authority over the issuance and release dates of notes.

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Figure 1- Past Note Redesign and Tentative Redesign Release

| New Currency Design | • Year | 1996 | 1997 | 1998 | 2000 | | |
| | • Note | $100 | $50 | $20 | $10, $5 | | |

| NexGen | • Year | 2003 | 2004 | 2006 | 2008 | 2013 | |
| | • Note | $20 | $50 | $10 | $5 | $100 | |

| Catalyst | • Year | 2026 | 2028 | 2030 | 2032-35 | 2034-2038 |
| | • Note | $10 | $50 | $20 | $5 | $100 |

Source: OIG analysis of BEP documentation

The last note redesigned was the NexGen $100 note. Problems associated with the note's design complexity, a security feature, and printability led to the note being released in 2013, though it was originally scheduled to be released during March 2008. The issues experienced with the NexGen $100 also resulted in a 10-year initiative including BEP and other ACD members to improve governance and oversight over note development and production.[12]
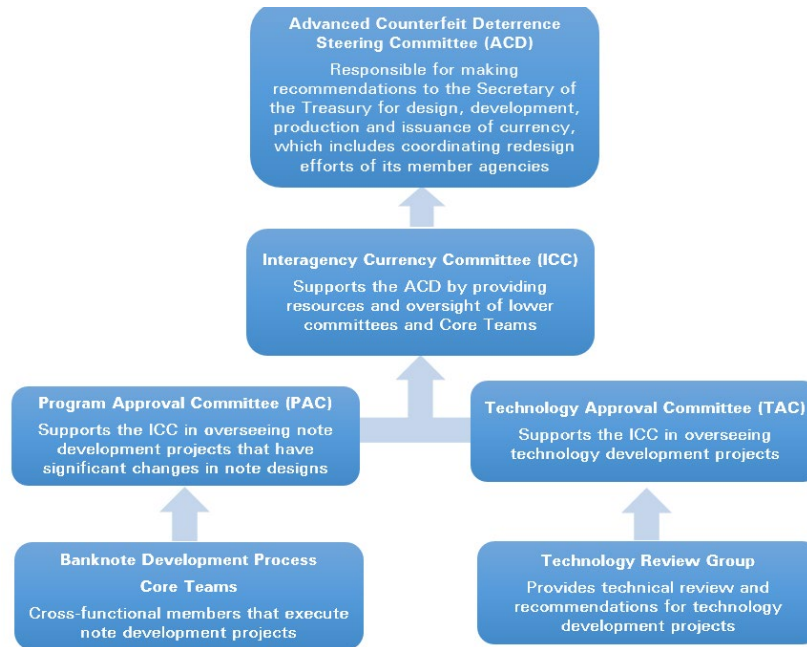
Governance Over Design and Development

Since the problems experienced with the NexGen $100 note, the governance and oversight over note design, development, and production has been strengthened. Figure 2 below displays the multi-agency governance over the USCP. Additional detail on these committees is provided in appendix 2.

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[12] OIG previously reported out on these issues and oversight with *BILL MANUFACTURING: Improved Planning and Production Oversight Over NexGen $100 Note Is Critical* (OIG-12-038; issued January 24, 2012) and *BILL AND COIN MANUFACTURING: BEP Improved Governance and Oversight over Note Development and Production But Challenges Remain* (OIG-20-023; issued December 31, 2019).

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Figure 2 – USCP Governance Structure Multi-Agency Groups

Advanced Counterfeit Deterrence Steering Committee (ACD)

Responsible for making recommendations to the Secretary of the Treasury for design, development, production and issuance of currency, which includes coordinating redesign efforts of its member agencies

Interagency Currency Committee (ICC)

Supports the ACD by providing resources and oversight of lower committees and Core Teams

Program Approval Committee (PAC)

Supports the ICC in overseeing note development projects that have significant changes in note designs

Technology Approval Committee (TAC)

Supports the ICC in overseeing technology development projects

Banknote Development Process Core Teams

Cross-functional members that execute note development projects

Technology Review Group

Provides technical review and recommendations for technology development projects

Source: OIG analysis of BEP documentation

Additionally, as part of the improvement in governance, comprehensive and documented processes over note development were implemented, including the BDP and the TDP. The BDP provides a unified, structured approach that is followed in the planning, developing, and testing to ensure new notes are production ready.[13] Similarly, the TDP provides a structured process in which the research and development of technology projects, such as the development of security features, advance until the projects are thoroughly vetted and can be integrated into the BDP. The governance structure and processes developed for new notes focus on ensuring successful security feature development and integration after a lengthy technical development process. However, not all security features are expected or will be successful and integrated into the BDP. Appendix 2 provides additional detail on the BDP and TDP processes.

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[13] In addition to new note development, the BDP is also followed to address any changes which impact fit, form, and/or function of notes.

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Figure 1 above displays the schedule for the Catalyst $10 note, the first note to be redesigned, with a tentative production ready schedule for 2026. This schedule was developed in 2015. Also in 2015, counterfeiting trends for the $50 NexGen note began steadily increasing. At the recommendation of the ACD, BEP began parallel development of the Catalyst $10 and $50 in August 2017 and the redesign sequence was subsequently revised and approved by the Secretary of the Treasury in 2018. In our 2019 audit report, we identified that BEP had begun the first note redesign using the BDP, that of the Catalyst $10 note.[14] During this audit, we learned that the security features for the $10 note had not been finalized.

Audit Results

Finding 1   **BEP is Implementing Security Features and Meaningful Access for the Blind and Visually Impaired into New Note Designs, but Refinement of Guidance and Additional Schedule Detail Would Prove Beneficial**

We found that BEP is implementing security features and incorporating meaningful access for the blind and visually impaired into the redesign of currency by following new structured processes and governance.[15] However, opportunities exist to improve note development processes and provide stakeholders greater detail for planning. Specifically, BEP needs to (1) refine the procedures to be performed and to reflect lessons learned from the Catalyst family of notes design and; (2) improve its IMS by including additional details

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[14] OIG-20-023

[15] Following an August 2019 court injunction, the U.S. District Court for the District of Columbia agreed with BEP that a tactile feature for the blind and visually impaired and security features cannot be implemented independently of each other and must be developed in tandem. The court also found that BEP had been working in good faith on its currency redesign efforts in compliance with its legal requirements. Public Law 93-112, also known as the Rehabilitation Act of 1973, requires BEP to provide meaningful access for the blind and visually impaired. 12 U.S.C 418, *Printing of notes; denomination and form*, requires BEP to design currency to guard against counterfeiting.

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to help identify issues that may impact the schedule of planned note redesign activities.

Procedures for Processes in Feature and Note Design Development Should be Refined

In a recent audit of BEP, we reported that BEP had improved its processes over note development which included implementing TDP and BDP.[16] In past redesigns, BEP did not have a formal or documented process for developing technology features, designing new notes, or documenting stakeholder requirements.

During our current audit, we found BEP is following the TDP and BDP structured processes for note development which supports BEP's ability to implement new security and raised tactile features in the next redesign of currency. We also found that there is a formal process that documented stakeholder requirements which included documenting security and meaningful access feature requirements. The documentation is to ensure stakeholders' needs are communicated and addressed during the note development. Our review of the requirements document for the current note redesign found that BEP had identified over 300 requirements for the next note redesign of the Catalyst family of notes, of which approximately 30 percent were related to security and meaningful access features.

Overall, BEP officials and other agency stakeholders we spoke with expressed no concerns with processes over security features and meaningful access development and felt the processes followed in the redesign were adequately working. However, as this is the first note redesign using these processes, updating the guidance over the processes will be needed to incorporate areas of improvement or clarification identified through BEP's lessons learned process relating to the Catalyst family. Several BEP officials told us the BDP manual needs to be refined.

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[16] OIG-20-023

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According to a Government Accountability Office (GAO) study on lessons-learned practices, a critical step in any lessons-learned process is the sharing and disseminating of the knowledge gained.[17] This includes the revision of work processes or procedures, and training. We believe that updating TDP and BDP guidance by incorporating lessons learned will improve the effectiveness over and ensure the consistent use of BEP's guidance over its future note redesign and development processes.

BEP's IMS Can be Improved to Better Inform Decision-Makers

In our 2019 audit, we also reported that BEP had developed an IMS. During this audit, we found that redesign activities related to the $10 and $50 note were displayed on the IMS. The BEP official responsible for the IMS told us that the IMS combines major project milestones for security features development, note development, equipment scheduling, new facility construction, and engineering. However, we found that the IMS is still lacking detailed schedules which identify risks and a more defined critical path.[18] We noted that product managers have been using BDP as a detailed plan and activities schedule, but that these schedules have not been built into IMS. The lack of detailed milestones increases the risks of not timely identifying events that impact the schedule and key activities in the redesign effort.

Also, the IMS should incorporate detail for technical and key activities and milestones for each redesign effort. Specifically, as of the time of our audit, the practice is that BEP's IMS manager coordinates and updates the schedules for the various projects throughout the bureau and then subsequently presents these schedules at the ICC and ACD meetings. To create a more complete IMS, BEP program managers in charge of product development, security features, and production equipment should regularly provide

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[17] GAO, *Federal Real Property Security: Interagency Security Committee Should Implement a Lessons-Learned Process* (GAO-12-901; issued September 10, 2012)

[18] GAO defines a program's critical path as the longest duration through the sequence of activities in order to determine the program's earliest completion date that will lead to the project's success. The schedule's risk analysis would be based on the critical path to predict the level of confidence in meeting a program's completion date.

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the BEP IMS manager with more detailed schedules and milestones for incorporation into the IMS.

Furthermore, we were told by some ACD members that they have not seen the critical path clearly presented and the IMS was not useful for informed decision making because it lacked details on critical dependencies and resources relating to testing and production of the new notes. One example given was that the Board's Currency Technology Office (CTO) could run into a situation where it is unable to test notes on a specific machine because that machine was down for scheduled maintenance.[19] We were told that such detail, as equipment maintenance, would identify resource constraints and could be used to identify issues that may impact the schedule of planned note redesign activities.

According to GAO's Schedule Assessment Guide, an IMS should be a reliable schedule that reflects all activities and is defined in detail including the program's critical path.[20] GAO's guide cautions that if the schedule is not planned in sufficient detail or collaboratively by team members and stakeholders, then opportunities for process improvement, such as identifying redundant activities, what-if analysis, and risk mitigation will be missed.

Recommendations

We recommend that the Director of BEP in collaboration, as necessary, with members of the USCP:

1. Continue to improve the BDP and TDP guidance, including refining procedures to reflect lessons learned during its Catalyst note series redesign.

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[19] CTO supports the cash processing operations of the Federal Reserve Banks focusing on the automation of physical currency handling and processing equipment systems for high-speed automated authentication, fitness assessment, and the destruction of unfit notes.

[20] GAO, *GAO Schedule Assessment Guide: Best Practices for Project Schedules* (GAO-16-89G; issued December 22, 2015)

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Management Response

Management agrees with our recommendation. Management stated that it has developed lessons learned in detail for the early phases of currency design, some of which are pre-BDP. Management also stated that it is constantly thinking about how to evolve BDP based on what it is finding. Management believes that the pilot will provide the most comprehensive lessons learned material for both the BDP and integration of security features; and that the pilot will identify modifications to consider for both the BDP and TDP. Also, during the execution of redesigns, improvement opportunities will be identified, which will be incorporated into the guidance and documentation.

OIG Comment

Management's response and planned and taken actions meet the intent of our recommendation. Management will need to incorporate the estimated date for completing its planned corrective actions as well as the actual date of completed corrective actions in JAMES, Treasury's audit recommendation tracking system.

2. Review and implement actions within the IMS program to improve the decision making process and help identify issues that may impact the schedule of planned note redesign activities. This includes ensuring that technical and key milestones are incorporated into the IMS at a detailed level.

Management Response

Management agrees with our recommendation. Management stated that it will revisit the requirements for the level of detail, frequency, and milestones to include in the IMS to improve the decision making process.

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Management's response and planned action meet the intent of our recommendation. Management will need to incorporate the estimated date for completing its planned corrective actions as well as the actual date of completed corrective action in JAMES, Treasury's audit recommendation tracking system.

Finding 2   ACD Governance Not Operating As Intended

We found that certain ACD members are not attending committee meetings as was intended by the ACD charter, which, in turn, could impact the effectiveness of the ACD. Full collaboration from all multi-agency members is imperative to ensure that stakeholder leadership is kept sufficiently informed on note design.

ACD Effectiveness Impacted

The ACD charter requires its members to collaborate on developments related to new design and currency. This includes developing strategies and making recommendations to policy level decision makers at Treasury, Secret Service, and the Board, as well as reporting its combined findings and recommendations to the Secretary of the Treasury. To accomplish this, the ACD was designed to include members comprised of senior executives from Treasury's Departmental Offices, BEP, Secret Service, and the Board.

Additionally, while ACD meetings can be attended by other personnel from these agencies, the charter specifically identifies six voting members, which include the following positions:

- Treasury Under Secretary for Domestic Finance,
- U.S. Treasurer,
- BEP Director,
- Board Deputy Director,
- Board Product Director, and
- Secret Service Deputy Assistant Director.

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The charter also specifies that the Under Secretary for Domestic Finance is to chair the ACD. However, the charter allows for the members, with the exception of the U.S. Treasurer and BEP Director, to designate their roles.

From our discussion with ACD meeting participants as well as a review of ACD meeting minutes, we found that there has been a lack of senior executive participation. One ACD member told us that this has resulted in ACD meetings evolving into status update meetings versus meetings in which decisions can be made. As we identified above, the ACD was designed to include executive members from multiple agencies which we believe was to ensure the committee had sufficient authority to make policy decisions for their respective agency and to keep their respective leadership informed on note design. In particular, we found the Treasury Departmental Offices' senior executive participation in the ACD to be lacking over the past several years.

We noted that the position of Under Secretary for Domestic Finance has been vacant since 2014; we also noted that the role of ACD chair had been filled by the Treasurer for several years prior. However, we found that the Treasurer had not been attending ACD meetings over the last several years. We were told by the Treasurer, who was appointed to this position in 2017, that her duties did not include overseeing BEP or serving on the ACD. The ACD charter has not been updated to include this information. The Treasurer departed from Treasury in January 2020. In the absence of the Under Secretary for Domestic Finance and the Treasurer, the BEP Director assumed the ACD chair role and briefs the Secretary of the Treasury on behalf of the ACD.

Governance Charter and MOU Need to Be Updated

As discussed above, BEP and other ACD members went through a 10-year initiative to improve governance and oversight over note development and production. This included both the restructuring of existing multi-agency governance and the creation of new multi-agency committees.

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Currently each committee operates under a charter that identifies the committees' purpose as well as its members' roles, responsibilities and the procedures that are to be followed in order to accomplish the committees' purpose.

Our review found the charters for the ICC, PAC and TAC were updated during our audit to ensure alignment and relevance against current strategy and objectives. Although the ACD charter does not specify a timeline for updates or amendments, it has not been updated for 15 years.[21] As discussed above, the role of the Treasurer has changed. In addition, other roles of members initially assigned may have changed or positions may no longer exist, which necessitates a review and updating of the charter. Additionally, the MOU, which formalizes responsibilities and authorities between BEP and the Board, which is supposed to be reviewed every 5 years to ensure consistency with current practices has not been updated since 2011; however, we found that BEP was in the process of updating the MOU.

We believe that it is a best practice of management to ensure governance charters and MOUs are reviewed and updated on a timely basis. Without updated charters and MOUs, the roles, responsibilities, and current practices may not be clearly defined, described, and communicated to members.

Recommendation

We recommend that the Director of BEP in collaboration, as necessary, with USCP members:

1. Ensure the ACD charter is updated in a timely manner, and as needed, to ensure roles, responsibilities, and current practices such as the attendance of ACD monthly meetings by appropriate personnel are clearly defined and communicated to its members.

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[21] The ICC, PAC and TAC charters are supposed to be updated every 3 years and were last updated in 2019.

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Management Response

Management agrees with our recommendation. Management stated that it will update the ACD charter, including clarifying the roles and responsibilities.

OIG Comment

Management's response and planned action meet the intent of our recommendation. Management will need to incorporate the estimated date for completing its planned corrective action as well as the actual date of completed corrective actions in JAMES, Treasury's audit recommendation tracking system.

Other Matter

Proposed 2020 Note Redesign Impacted By Security Feature Development

As part of this audit and in response to Congressional concerns, we reviewed the circumstances surrounding Treasury's timeline for unveiling of new design concepts for the $20 note. We found that the former Secretary of the Treasury made an April 2016 announcement proposing the release of the $5, $10 and $20 note designs in 2020. This announcement was made outside of the note development governance structure and without the recommendation of the ACD.

We also found that, shortly thereafter in May 2016, the former Secretary of the Treasury reported to the U.S. District Court for the District of Columbia that the first note in the redesign effort, the $10 note, would be delayed from 2020 to 2026 in order to develop the necessary security features and incorporate a tactile feature. Additionally, we confirmed that the design concept for the $20 note will not be released in 2020, as this note has not yet entered the BDP where the design concept is finalized. Rather, the current plan is for the $20 note to be production-ready in 2030.[22]

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[22] The Board has the overall decision authority to determine a note's production-ready date and what date a note will be issued into circulation.

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To elaborate, as noted above, the primary reason for redesigning currency is security against counterfeiting, and multiple agencies are involved in the design and approval for new currency. The primary mechanism to protect currency is security features, which is the greatest factor in the timeline of note development. It takes time to develop security features and there is no guarantee the security feature will work until testing and design are complete. It can take 6 to 10 years to bring a security feature to completion as there are multiple factors involved, including acquiring and implementing equipment needed to test the security features and production equipment to implement the new security feature into a note. Historically, only after security features were developed, was the design with its image finalized as placement of security features can radically affect the note design. The unveiling of the design typically occurs 6 months prior to issuance as part of the public information campaign.

In June 2015, the former Secretary of the Treasury announced that the redesigned $10 note would feature a woman and was expected to be unveiled in 2020.[23] Additionally, while historically the Secretary of the Treasury had relied on BEP's advice, input from the public would be relied upon to help guide the design for the next redesign of currency.

In the months following the Secretary's announcement, discussions about the next redesign with the Secretary and during ACD committee meetings focused on making it clear that the concepts under development were only concepts and would not be designs until the final stages of the BDP. The recommendation was made to not mention issuance dates or give any definitive timelines. BEP also communicated to the former Secretary of the Treasury that any images released to the public would not be viable options for future design consideration due to the security risk this would present.

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[23] The 2020 date was based on when BEP had previously anticipated releasing the first redesigned denomination containing a tactile feature stemming from the U.S. District Court ruling that the Secretary of the Treasury take such steps as may be required to provide meaningful access to currency for blind and other visually impaired persons.

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In April 2016, following public input for new note design concepts, the former Secretary of the Treasury announced that BEP had been directed to accelerate plans for the redesign of the $5, $10 and $20 notes and anticipated that the final concept designs would be unveiled in 2020. Additionally, the former Secretary of the Treasury publicized, based on input from the public, the notes would be redesigned to include:

- historic events at the Lincoln Memorial on the $5 note;
- Lucretia Mott, Sojourner Truth, Susan B. Anthony, Elizabeth Cady Stanton, and Alice Paul on the $10 note and;
- Harriet Tubman's portrait on the $20 note.

However, ACD members told us that accelerating the redesign process and unveiling design concepts in 2020 was problematic and opposed by the ACD as it put a huge risk on the USCP. Specifically, the design concepts and unveiling schedule developed under the direction of the former Secretary of the Treasury were completely outside the note development governance structure and currency design expertise and without the recommendation of the ACD. In fact, the $20 note was not even being considered for redesign at that time by the ACD.[24] With that said, it was questionable whether the concepts proposed could even be manufactured since a significant amount of work was needed to complete the security features.

Shortly after, in May 2016, the former Secretary of the Treasury submitted a supplemental status report to the U.S. District Court for the District of Columbia in which the Secretary identified, among other things, that a significant amount of time was required to conduct research and development in order to develop the necessary security features for the next redesign of the currency, which would result in delaying the development and production of the next redesign beyond the anticipated 2020 date.[25] The first note

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[24] In March 2016, the planned sequence for redesign by denomination was the $10, $5, $20, $50 and $100.

[25] A 2008 U.S. District Court Order of the District of Columbia and Judgement mandated that the Treasury provides status reports every six months on its meaningful access implementation into currency.

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incorporating the security features, which was the $10 note, were expected to be production ready no later than 2026; however, this was subject to revision based mostly on security and technological advancement.

As discussed above, BEP follows a structured process in developing security features where features are vetted by the TDP, and if successful, are advanced into the BDP and integrated into the note's design. It is during the BDP process that a note's concept design is finalized. During our audit, we found that only two denominations are in the BDP process.

Our review found that since 2013, the $10 note is the first note in the redesign sequence. Since that time, the sequence of note redesign was changed once. In 2018, based upon a security threat assessment, the sequence was changed and the $5 note and the $50 note sequence were switched. Figure 1 above displays the current sequence and schedule for the next redesign of notes. The $10 and the $50 notes were the only notes in the BDP during our audit and neither of the notes had its concept design finalized.

In response to Congressional concerns relating to the timeline for unveiling the design concept of the $20 note in 2020, we found the sequence of the redesign of the $20 has remained the same since 2016 and the announcement of a 2020 release was not endorsed by the ACD. The $20 note has not yet entered the BDP where following the current note development process its design concept will be finalized.

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We appreciate the cooperation and courtesies extended to our staff during the audit. If you wish to discuss this report, you may contact me at (617) 223-8638 or Ken O'Loughlin, Audit Manager, at (617) 223-8624. Major contributors to this report are listed in appendix 4. A distribution list for this report is provided as appendix 5.

/s/
Sharon Torosian
Director, Manufacturing and Revenue

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Appendix 1: Objectives, Scope, and Methodology

The objective of our audit was to determine whether the Bureau of Engraving and Printing (BEP) is properly implementing security features into the currency as part of its counterfeit deterrence program and incorporating tactile features and high-contrast numerals in future currency designs to improve meaningful access for blind and visually impaired individuals in accordance with requirements approved by the Secretary of the Department of the Treasury (Treasury). The scope of our audit covered the time period from 2012 during which time the Banknote Development Process (BDP) was implemented through February 2020.

To accomplish our objective, we performed the following activities during audit fieldwork from June 2019 through February 2020:

- Conducted interviews with BEP personnel to gain an understanding of the processes over security features and meaningful access development and involvement in multi-agency governance that includes the Advance Counterfeit Deterrence Steering Committee (ACD). This included BEP's Director, and officials from its Product Design and Development Directorate, Office of Strategy and Project Management, Office of External Relations, and Office of Counsel.

- External to BEP, we conducted interviews with stakeholders to gain an understanding of their involvement with new note governance and development. This included officials from the Board of Governors of the Federal Reserve System (Board) Division of Reserve Bank Operations and Payment Systems as well as its Currency Technology Office. We also interviewed representatives from the United States Secret Service.

- Reviewed applicable laws and regulations pertaining to future currency designs.

- Reviewed applicable documentation from BEP that included:
  - Memorandum of Understanding between BEP and the Board;
  - Multi-agency governance committee charters;

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Appendix 1: Objectives, Scope, and Methodology

   o Standard operating procedures pertaining to the Banknote Development Process (BDP) and Technology Development Process (TDP);

   o Meeting minutes and presentations of the ACD and Interagency Currency Committee for calendar years 2012 through 2019;

   o Integrated Master Schedules for February 2018, March 2019, July 2019, and November 2019; and

   o Other security feature development reports in 2018 and 2019 and meaningful access development reports submitted on behalf of the Secretary of the Treasury to the U.S. District Court for the District of Columbia from 2015 through 2019.

- Reviewed various Secretary of the Treasury announcements and press releases.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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Appendix 2: Additional Background

United States Currency Program

The United States Currency Program (USCP) is comprised of the senior executives from Treasury Departmental Offices, Bureau of Engraving and Printing (BEP), Board of Governors of the Federal Reserve System (Board), United States Secret Service (Secret Service), and Board Currency Technology Office (CTO) and is responsible for overseeing currency redesign and production. The programs used for redesign include the Technology Development Process (TDP) to develop security features and the Banknote Development Process (BDP) to integrate security features in a note design that is fully-developed and tested before issued to the public.

Figure 1: USCP Governance Groups

Entity	Roles and Responsibilities	Members
Advanced Counterfeit Deterrence Steering Committee (ACD)	• Federal multi-agency group established in 1982 by the U.S. Department of the Treasury (Treasury) to coordinate the counterfeit deterrence activities. • Develops and monitors plans for the redesign of Federal Reserve notes (notes) and makes redesign recommendations to the Secretary of the Treasury to safeguard the notes against counterfeiters. • All lower committees and working groups report up to the ACD for approval and recommendations.	Treasury Departmental Offices, BEP, Board, Secret Service, and CTO
Interagency Currency Committee (ICC)	• Operates under the authority and in support of the ACD by providing executive oversight of the lower committees that oversee new note development and new technological feature projects. • Monitors counterfeit threats and recommends design changes to the ACD. • Decisions of the group are made by consensus. In the event that no consensus is reached, viewpoints are presented to the ACD for final decision.	BEP, Board, Secret Service, and CTO
Program Approval Committee (PAC)	• Oversees note development projects and ensures they follow the prescribed BDP manual. • Monitors and reviews project status and ensures that business objectives and requirements are met by serving as the gatekeeper between BDP phases.	BEP, Board, Secret Service, and CTO

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Appendix 2: Additional Background

	• Under the direction of the ICC, provides guidance and decisions to product and project managers on BDP Core Teams for new note development Projects.	
Technology Approval Committee (TAC)	• Oversees and guides the execution of activities implemented by the ICC to develop new and innovative technological features. • Monitors and reviews project status and ensures that business objectives and requirements are met by serving as gatekeeper throughout the TDP. • Provides guidance to the Technology Review Group (TRG) and other working groups to ensure ICC directives are met.	BEP, Board, Secret Service, and CTO
BDP Core Team	• In support of the PAC, cross-functional teams that execute note development projects through the BDP phases. • Prepares for phase-end reviews, oversees extended teams, and communicates issues to the PAC on a monthly basis.	BEP, Board, Secret Service, and CTO
Technology Review Group (TRG)	• In support of the TAC, provides technical review and recommendations for projects and technology development efforts. • Not a decision-making group, but informs the TAC that advancement to the next phase of the TDP is warranted.	BEP, Board, Secret Service, and CTO

Source: OIG analysis of BEP documentation.

Technology Development Process (TDP)

Implemented in 2013, TDP is a research and development process used to develop innovative note features for new currency technology and security needs. It is a multi-phased process that subjects each feature to testing and approval. Features that meet the demands of this process are integrated into the new note's design and into the BDP phases that subject it to final production testing. The process is governed by TAC that manages projects to develop technologies for input to the BPD.

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Appendix 2: Additional Background

Banknote Development Process (BDP)

BEP implemented the BDP in 2012 to be used as a multi-step process with phases to integrate new security features, build design concepts, receive input from stakeholders, obtain interagency approval, and test the product in a production setting. The manual provides guidance and criterion to move projects to the next step, and allows for a unified, standard approach to plan and execute banknote development change initiatives which impact fit, form, and/or function of US banknotes. The process is governed by the cross-organizational PAC that manages projects to produce a fully developed and production-ready banknote.

Meaningful Access

BEP is involved in an ongoing effort to comply with a 2008 U.S. District Court for the District of Columbia ruling that U.S. banknote design violates Section 504 of the Rehabilitation Act because individuals with visual impairments lack a means to denominate currency.[26] The court order requires that Treasury provide meaningful access for the blind and visually impaired in its next banknote family redesign, but does not specify steps or methods required to provide such access to U.S. currency.

Following the ruling, in 2009, BEP's consultant performed a study of meaningful access options, and found that no one method could fill the need for the entire blind and visually impaired community. Hence in 2011, the Secretary of the Treasury approved a three-pronged approach to allow for individuals with visual impairments to denominate currency, as follows:

1. Raised, tactile feature

   - Expected to provide users with a means of identifying each banknote denomination via touch. The tactile feature that has been chosen will be a raised hollow rectangle.

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[26] Public Law 93-112, also known as the Rehabilitation Act of 1973, requires BEP to provide meaningful access for the blind and visually impaired.

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Appendix 2: Additional Background

2. High contrast numerals

- Provides users large high contrast numerals and different colors to each denomination that it is permitted by law to alter. This method was previously implemented in the redesign beginning in 1997, and will continue to be incorporated into future redesigns.

3. Currency Reader Program

- Provides a banknote-reading device ("iBill") to all eligible U.S. citizens and national residents. The device is free-of-charge and was launched in 2014.

- BEP developed banknote reader applications for iPhone (EyeNote) and Android users (IDEAL Currency Identifier) which use text-to-speech technology to denominate U.S. currency.

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DEPARTMENT OF THE TREASURY
BUREAU OF ENGRAVING AND PRINTING
WASHINGTON, D.C. 20228

Director

June 16, 2020

Ms. Sharon Torosian
Director
Office of Inspector General
Department of the Treasury
Boston, MA 02110

Dear Ms. Torosian:

We have reviewed the Department of the Treasury, Office of Inspector General's (OIG) draft audit report entitled "Audit of the Bureau of Engraving and Printing's Implementation of Security Features and Meaningful Access for the Blind and Visually Impaired into New Note Design." We appreciate the hard work that went into this audit and the creation of this report and the finding that the Bureau of Engraving and Printing (BEP) is implementing security features and incorporating meaningful access for the blind and visually impaired into currency. We are pleased that the auditors recognized that sequence schedule for note redesign has remained the same since 2016 with the first new note in the series, the $10 note, scheduled for 2026. Please find our management response to the audit recommendations below.

Finding 1 – Recommendation 1:

We recommend the Director of the Bureau of Engraving and Printing (Bureau/BEP) in collaboration, as necessary, with members of the United States Currency Program (USCP) continue to improve the Bank Note Development Process (BDP) and Technology Development Process (TDP) guidance, including refining procedures to reflect lessons learned during its Catalyst note series redesign.

Management Response

BEP agrees with the recommendation and has developed lessons learned in detail for the early phases of design (SALT) some of which are pre-BDP. Since we are fairly early in the BDP, we don't have detailed lessons learned for activities that have not yet occurred. We are constantly thinking about how to evolve the BDP based on what we are finding (i.e., incorporating more activities around the aesthetic design). We also believe that the pilot will give us the most comprehensive lessons learned material for both the BDP and the integration of security features. It's likely that the pilot will identify modifications to consider for both the BDP and TDP. Improvement opportunities will also be identified during the execution of the redesigns and they will be incorporated into the guidance and documentation.

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Appendix 3: Management Response

Finding 1 – Recommendation 2:

We recommend the Director of the BEP in collaboration, as necessary, with members of the USCP review and implement actions within the Integrated Master Schedule (IMS) program to improve the decision making process and help identify issues that may impact the schedule of planned note redesign activities. This includes ensuring that technical and key milestones are incorporated into the IMS at a detailed level.

Management Response

BEP agrees with the recommendation and will revisit the requirements for the level of detail, frequency, and milestones to include in the IMS to improve the decision making process.

Finding 2 – Recommendation 1:

We recommend the Director of the BEP in collaboration, as necessary, with USCP members ensure the ACD charter is updated in a timely manner, and as needed, to ensure roles, responsibilities, and current practices such as the attendance of the ACD monthly meetings by appropriate personnel are clearly defined and communicated to its members.

Management Response

BEP agrees with the recommendation to update the Advanced Counterfeit Deterrence (ACD) Steering Committee charter, including clarifying the roles and responsibilities of the ACD.

We appreciate the opportunity to respond to the formal draft report.

Sincerely,

Leonard R. Olijar
Digitally signed by Leonard R. Olijar
Date: 2020.06.16 14:40:27 -04'00'

Leonard R. Olijar
Director

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Appendix 4: Major Contributors to This Report

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Appendix 5: Report Distribution

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Secretary
Deputy Secretary
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Office of the Deputy Chief Financial Officer, Risk and Control
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Bureau of Engraving and Printing

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Office of Management and Budget

OIG Budget Examiner

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Inspector General
Director, United States Secret Service

U.S. Senate

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U.S. House of Representatives

Chairman and Ranking Member
Committee on Financial Services

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Subcommittee on Monetary Policy and Trade

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