United States Government Accountability Office

Report to Congressional Committees

September 2014

U.S. CURRENCY

Reader Program Should Be Evaluated While Other Accessibility Features for Visually Impaired Persons Are Developed

GAO-14-823

GAO Highlights

Highlights of GAO-14-823, a report to congressional committees

September 2014

U.S. CURRENCY

Reader Program Should Be Evaluated While Other Accessibility Features for Visually Impaired Persons Are Developed

Why GAO Did This Study

All blind and many persons with low vision are unable to distinguish currency denominations without assistance. The U.S. District Court for the District of Columbia found that Treasury failed to provide meaningful access to U.S. currency to visually impaired persons, and in 2008, ordered Treasury to take steps to do so. The court did not define meaningful access, leaving it to Treasury to choose a course of action. Within Treasury, BEP designs and manufactures currency. GAO was asked to review the progress BEP has made toward meeting the district court's order. In addition, the Explanatory Statement accompanying the Consolidated Appropriations Act, 2014, mandated GAO to report on strategies for minimizing the cost of developing currency with accessibility features.

This report examines (1) the status of BEP's efforts to provide currency that is accessible for visually impaired persons and how BEP is considering costs as part of these efforts and (2) factors that may affect BEP's efforts. To answer these questions GAO reviewed court and BEP documents, and interviewed officials from BEP, the Federal Reserve Board, and the Secret Service as well as representatives from advocacy organizations for visually impaired persons and trade associations for cash-handling companies.

What GAO Recommends

GAO recommends BEP evaluate its currency reader program while it develops a tactile feature in the next redesign of currency. BEP did not take a position on our recommendation.

View GAO-14-823. For more information, contact Dave Wise at (202) 512-2834 or wised@gao.gov.

What GAO Found

The Bureau of Engraving and Printing (BEP) has progressed in making currency accessible through a three-pronged approach it adopted and is considering the costs of its approach as it continues its efforts. BEP has:

- Added large, high-contrast numerals to notes, and it plans to continue to refine these numerals.
- Started to distribute free currency-reader devices that can scan a note and audibly announce its value. However, BEP's plans to evaluate the effectiveness of this new program are incomplete, and without a complete evaluation, BEP cannot determine the program's effectiveness.
- Made limited progress in developing a raised tactile feature on notes, which would provide the ability to determine the note's value by touch. While BEP has narrowed the options of what a tactile feature would look like on a note and how it would be applied, BEP officials stated that challenges developing the feature will delay selecting an option to test until March 2015—over a year behind schedule.

Supplementing these efforts, BEP developed a smartphone app that identifies notes. High-contrast numerals add little additional cost, and BEP estimates it will spend about $35 million on currency readers over 3 years. Cost estimates to produce a tactile feature are preliminary and range widely.

GAO identified three factors that may affect BEP's efforts to complete its three-pronged approach. First, the inclusion of a tactile feature will require a redesign of currency, but it is not known when this will occur. Because BEP makes changes to currency to stay ahead of counterfeit threats, redesign occurs as needed and not at regular intervals. Second, BEP has faced difficulties developing a raised tactile feature, falling behind its internal schedule. Third, senior BEP and Federal Reserve officials told us that they have discussed the Federal Reserve's concerns about the potential cost impact of a tactile feature and whether technological changes since the 2008 court order could provide alternative options to BEP's current approach. BEP officials stated that they have not yet determined how these concerns might be addressed. Advocates for organizations representing visually impaired persons consider a tactile feature to be important and are concerned about the length of time it is taking BEP to provide access to currency.

Large, High-Contrast Numeral and Currency Reader Device

Sources: U.S. Bureau of Engraving and Printing and GAO. | GAO-14-823

Contents

Letter		1
	Background	3
	BEP Has Taken Actions to Make Currency Accessible and Is Considering Costs As It Continues Its Efforts	10
	Three Factors That Could Affect BEP's Current Efforts	20
	Conclusions	24
	Recommendations for Executive Action	25
	Agency Comments	25
Appendix I	Objectives, Scope, and Methodology	27
Appendix II	Comments from the Board of Governors of the Federal Reserve System	29
Appendix III	GAO Contact and Staff Acknowledgments	30
Tables		
	Table 1: Federal Agencies with Responsibilities for U.S. Currency	6
	Table 2: Organizations We Interviewed	27
Figures		
	Figure 1: Differences between Portraits on 1996 and 2013 $100 Notes	7
	Figure 2: Steps Involved in Note Redesign	9
	Figure 3: Timeline of Select Events Relevant to BEP's Efforts to Make Currency Accessible	11
	Figure 4: Select U.S. Notes Showing Changes to Numerals	12
	Figure 5: Currency Reader Device That the Bureau of Engraving and Printing (BEP) Provides to Visually Impaired Persons	14
	Figure 6: Raised Tactile Feature Design and Denominating Pattern Approved for Use in Testing	17

Abbreviations

ACB	American Council of the Blind
ACD	Advanced Counterfeit Deterrence Steering Committee
BEP	Bureau of Engraving and Printing
CQA	Currency Quality Assurance program
ICD	Interagency Currency Design Group
NLS	National Library Services for the Blind and Physically Handicapped
PAC	Program Approval Committee

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
441 G St. N.W.
Washington, DC 20548

September 26, 2014

Congressional Committees

All blind and many persons with low vision[1] are unable to distinguish one denomination of U.S. currency[2] from another without assistance because the notes are uniform in size, texture, and general design. To identify the value of a note, a blind person must rely on a sighted person for help or use an assistive device that can identify a note and signal its value audibly or by vibrating. A person with low vision may likewise require assistance in some circumstances—such as in low lighting—but may be able to identify note denominations in other circumstances. The inability to consistently distinguish the value of notes without external help, according to a 1995 National Research Council study[3] and advocates for the visually impaired, prevents visually impaired individuals from fully participating in society because they cannot independently and confidentially exchange currency, such as when making cash purchases or using public transportation.[4]

The American Council of the Blind (ACB) and two individuals brought suit against the Department of the Treasury (Treasury) in 2002, alleging that it discriminates against visually impaired persons by not providing readily identifiable U.S. currency.[5] In 2006, the U.S. District Court for the District of Columbia found that Treasury failed to provide "meaningful access" to

[1]For the purposes of this report, we refer to blind and low vision persons as visually impaired.

[2] For the purposes of this report, currency refers to paper money, also known as Federal Reserve Notes.

[3]National Research Council of the National Academies, *Currency Features for Visually Impaired People* (Washington, D.C.: 1995). A literature search did not identify a similar but more recent study.

[4]Currency in the form of coins is easier for visually impaired persons to distinguish because of the differences between denominations, such as size, texture, and color.

[5]Specifically, the lawsuit alleged that Treasury violated Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. §794), which prohibits discrimination against people with disabilities in programs or activities receiving federal financial assistance or under any program or activity conducted by an executive agency or the U.S. Postal Service.

U.S. currency to visually impaired persons[6] and, in 2008, the court ordered Treasury to take steps to provide meaningful access.[7] Within Treasury, the Bureau of Engraving and Printing (BEP) designs and manufactures U.S. currency.[8]

The Senate report accompanying the Financial Services and General Government Appropriations Act, included as division E of the Consolidated Appropriations Act, 2014, mandated us to review how BEP can expedite the development, design, testing, and printing of currency with accessibility features. In addition, the Explanatory Statement accompanying the Consolidated Appropriations Act, 2014, mandated us to report on strategies for minimizing the cost of developing currency with accessibility features. Subsequently, Senator Murray asked us to review the progress BEP has made toward meeting the district court's 2008 order. This report examines

(1) the status of BEP's efforts to provide currency that is accessible for visually impaired persons and how BEP is considering costs as part of these efforts, and

(2) factors that may affect BEP's efforts to make currency accessible for visually impaired persons.

To gather information on both objectives, we reviewed agency documents related to BEP's efforts to provide currency that is accessible. Specifically, we reviewed documents related to the 2002 court case and BEP's semi-annual progress reports to the court. We interviewed officials from the three agencies that work together to redesign currency: BEP, the

[6]The Secretary of the Treasury appealed the ruling to the United States Court of Appeals for the District of Columbia Circuit, which affirmed the district court's ruling and remanded the case for the district court to address the request for injunctive relief. *Am. Council of the Blind v. Paulson,* 463 F. Supp. 2d 51 (D.D.C 2006), *aff'd, Am. Council of the Blind v. Paulson,* 525 F. 3d 1256 (D.C. Cir. 2008).

[7]On remand, the district court granted the Council's request for injunctive relief. *Am. Council of the Blind v. Paulson,* 581 F. Supp.2d 1 (D.D.C. 2008). Pursuant to the terms of the district court's October 3, 2008, order, Treasury is required to provide meaningful access no later than the date when the Secretary next approves a redesign for that denomination.

[8]Because BEP is responsible for designing and manufacturing banknotes, we generally refer to BEP throughout this report even though the court order was directed to the Secretary of the Treasury.

Board of Governors of the Federal Reserve System (Federal Reserve), and the United States Secret Service (Secret Service). In addition, to identify and discuss the factors that may affect BEP's approach to make currency accessible for visually impaired persons, we interviewed representatives of four national advocacy organizations for visually impaired persons and four trade associations that represent financial institutions and other companies that use cash-handling equipment, such as ATM manufacturers. We also interviewed Bank of Canada representatives because of their efforts to produce accessible currency. The results of the interviews are not generalizable, but do provide insights regarding efforts to make currency accessible to blind and visually impaired persons. See appendix I for additional information on our scope and methodology.

We conducted this performance audit from February 2014 to September 2014 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.

Background

According to estimates from several sources, approximately 8 to 12 million Americans live with some type of visual impairment, including 300,000 to 1.3 million who are blind.[9] Impairment can range from individuals with limited vision that is not correctable by glasses or contact lenses to those who are not able to perceive objects at any distance.[10] The number of Americans with some type of visual impairment is projected to increase as the population ages. One of the leading causes of vision loss is disease, such as glaucoma, cataracts, and diabetes. Some individuals who suffer vision loss suffer physical ailments; for

[9]A range of estimates and a range of sources for those estimates exist. The sources cited here include the U.S. Census Bureau; ARINC Engineering Services, *Study to Address Options for Enabling the Blind and Visually Impaired Community to Denominate U.S. Currency,* (Maryland, 2009); National Council on Disability; and National Eye Institute.

[10]The meanings of terms such as "visually impaired", "blind", and "low vision" can vary depending on their intended use. For example, the Social Security Administration's definition of visual impairment to determine eligibility for disability differs from a state's definition of eligibility for a driver's license.

example, individuals with diabetes can suffer both vision loss and a loss of feeling in their fingers. Birth defects and accidents also can cause vision loss, and veterans may have vision loss from wounds or trauma.

Currencies of most other countries have characteristics that make their notes accessible to visually impaired persons.[11] Most commonly, countries use different-sized notes and color to distinguish different denominations. Among nine major foreign countries surveyed by economists at the Federal Reserve Bank of St. Louis, eight used those two features in their currency. In addition, all nine used a tactile feature[12] or large, high-contrast numerals, or both. For example, the European Union uses different-sized notes, different primary colors for each denomination, and large numerals. The €200 and €500 notes also include a tactile feature. Canada has incorporated a raised tactile feature in its currency since 2001 and uses different colors and large, high-contrast numerals. Federal Reserve officials we spoke with noted that the existence of accessible features does not necessarily mean these features are effective. For example, they said that they have been unable to identify a tactile feature used by another country that remains effective for the life of the note.

In the Order and Judgment reflecting the court's decision in the ACB lawsuit, the court did not specifically define meaningful access and left it to the discretion of the Secretary of the Treasury as to how to fulfill the requirement of the court order. The court required Treasury to provide meaningful access no later than the date of the next currency redesign for each of the denominations.[13] The order also requires Treasury to submit semi-annual reports so that the court can monitor Treasury's progress. The order remains in effect until Treasury fulfills the requirement.

[11]National Research Council, *Currency Features for Visually Impaired People*.

[12]In the context of currency, a tactile feature is part of a note that allows a person to determine its value by touch.

[13]The need to address counterfeiting threats is the over-riding reason to make changes to currency. Because the nature of these threats is unpredictable, BEP does not redesign currency on a specific schedule.

In 2010, BEP proposed a three-pronged approach[14] consisting of three elements it believes will provide meaningful access to currency: 1) large, high-contrast numerals to allow low vision individuals to determine the denomination of currency, 2) currency readers that can indicate a note's value,[15] and 3) a raised tactile feature to allow visually impaired persons to denominate currency by touch. According to BEP, it chose this approach because no single solution would enable all segments of the diverse visually impaired population to denominate currency with 100 percent accuracy. BEP also stated in a 2010 Federal Register notice on its proposed approach that it would explore emerging technological options to provide access to currency, such as smartphone applications that can act as a currency reader.[16] In 2011, the Treasury submitted its three-pronged approach and a plan to explore emerging technologies to the court. Each of the elements of BEP's approach is discussed further in the next section of this report.

Two elements of BEP's approach—large, high-contrast numerals and a tactile feature—require changes to the design of the currency. Making such changes to currency is a complex and lengthy process, involving three agencies: BEP, the Federal Reserve, and the Secret Service (see table 1).

[14]The Secretary of the Treasury approved the approach on May 31, 2011.

[15]A currency reader is an electronic assistive device that can identify a note's value and communicate it to the user. BEP originally proposed to loan the readers to eligible participants at no cost. The Comptroller General of the United States issued a decision that BEP could use appropriated funds to purchase and distribute the readers at no cost to the visually impaired as part of its compliance with the district court's order to provide meaningful access to U.S. currency. Matter of: Bureau of Engraving and Printing—Currency Reader Program, B-324588, Comptroller General of the United States, 2013 U.S. Comp. Gen. LEXIS 107, June 7, 2013

[16]75 Fed. Reg. 28331(May 20, 2010).

Table 1: Federal Agencies with Responsibilities for U.S. Currency

Federal Agency	Responsibility
Bureau of Engraving and Printing	BEP designs and is the sole producer of U.S. paper currency.
Board of Governors of the Federal Reserve System	As the central bank for the United States, the Federal Reserve has the sole authority to issue currency. The Federal Reserve orders currency from BEP and pays BEP for its currency-related expenses.
U.S. Secret Service[a]	The Secret Service conducts investigations of counterfeiting activities and provides counterfeit-detection training as part of its mission to safeguard the nation's financial infrastructure.

Source: GAO analysis. | GAO-14-823

[a]The Secret Service is a component of the Department of Homeland Security.

According to BEP documents, these agencies work together through an interagency governance structure, which includes the following committees:[17]

- Advanced Counterfeit Deterrence Steering Committee (ACD): Comprised of senior-level officials, the ACD is empowered to make recommendations on note design, production, and security to the Secretary of the Treasury, who approves the final currency design.
- Interagency Currency Design Group (ICD): The ICD is chartered to initiate, authorize, and prioritize interagency activities related to note redesign and production. The ICD provides a management framework for the note redesign process and makes recommendations to the ACD.
- Program Approval Committee (PAC): The PAC consists of a subset of ICD members. It is chartered to provide oversight and direction to all note-redesign projects. In that capacity, it reviews and approves recommendations from project teams. It also provides a forum for members to inquire about project details and resource prioritization.

[17]In addition to these committees, a fourth, the Technology Approval Committee (TAC) is chartered to make decisions regarding funding, scope, and timelines on technology development projects. In May 2014, the PAC transferred decisions about the tactile feature to the TAC.

The United States has had two major redesigns of its currency since the 1930s.[18] Each redesign involved changes to a family of notes—the $5, $10, $20, $50 and $100 notes—and included design elements required by statute as well as features to deter new counterfeit threats.[19] Under current law, the Department of the Treasury is not permitted to use appropriated funds to redesign the $1 note.[20] Redesigned notes retained familiar characteristics of the notes they replaced, but included new features or new versions of existing features that make each note distinct. For example, while the size and location of the portrait on a note changed, the portrait is of the same person. Figure 1 shows different versions of portraits on the $100 note.

Figure 1: Differences between Portraits on 1996 and 2013 $100 Notes

Note issued beginning in 1996 | Note issued beginning in 2013

Sources: U.S. Bureau of Engraving and Printing and GAO. | GAO-14-823

[18]By "redesign," we refer to the change in the design of the whole banknote, and not to minor changes BEP occasionally makes, such as to the signature of the Secretary of the Treasury or Treasurer of the United States. The first redesigned family of notes, known as Series 1996, were issued from 1996–2000. The second family of notes, Series 2004, were issued from 2003–2013.

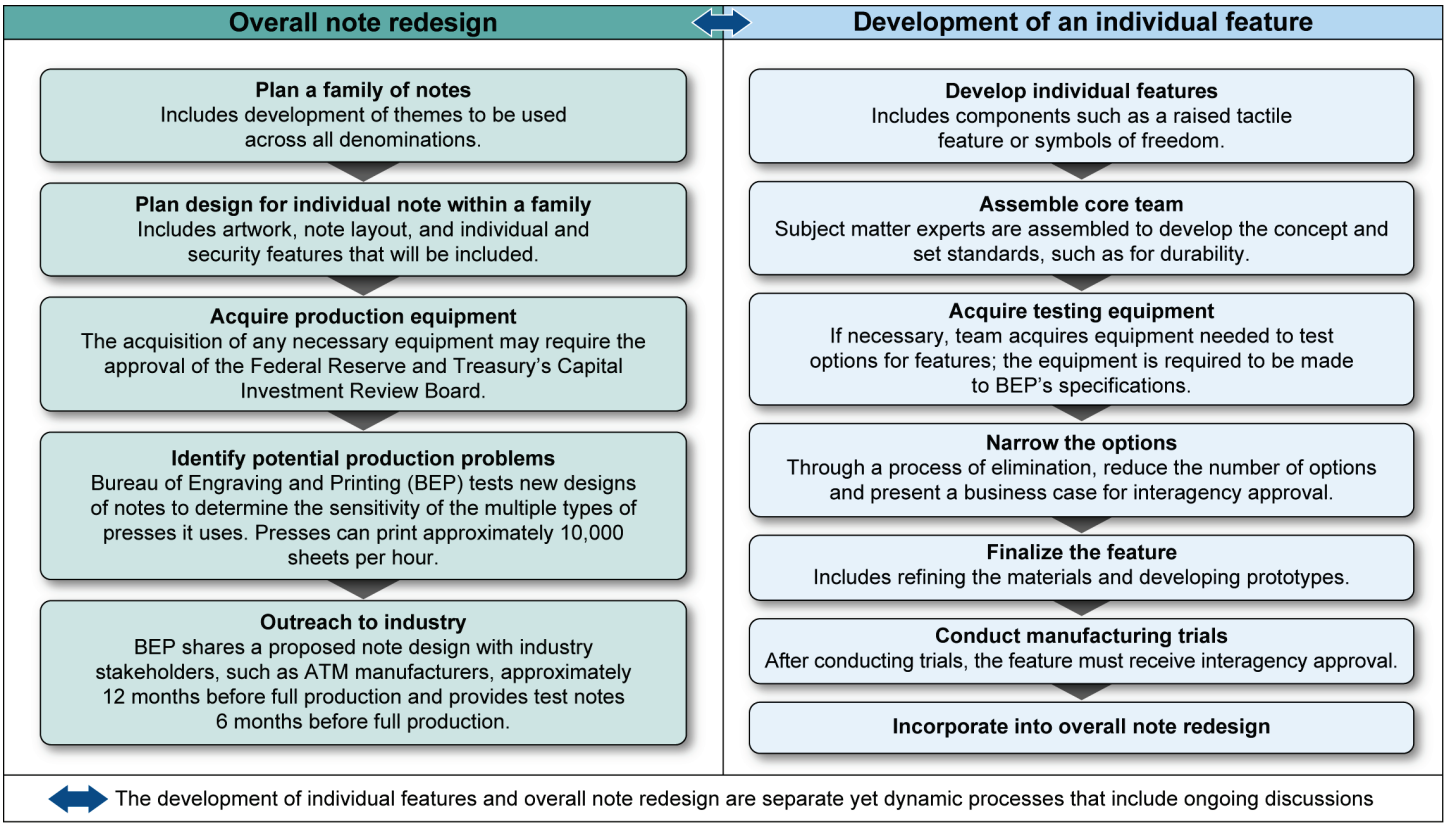
[19]Examples of statutory requirements include that notes must be printed using a specific type of printing plates, must have "In God We Trust," (31 U.S.C. § 5114) and must have a serial number assigned by the Federal Reserve. 12 U.S.C. § 413.

[20]Consolidated Appropriations Act 2014, Pub. L.No 113-76, §113, 128 Stat 5, 191.The 2008 court order excludes the $1 note.

BEP has increasingly used distinctive features to enhance a note's appearance and resistance to counterfeiting. For example, BEP added a series of individual features known as symbols of freedom to notes, such as two images of the Statue of Liberty's torch on the $10 note. Security features, like the bell in the inkwell on the most recent $100 note,[21] make it easier for the public to identify an authentic note and are difficult for counterfeiters to reproduce. The development of these individual and security features occurs separately from the overall design of the note, which includes the note layout and artwork. Once the features and the overall design receive interagency approval, they are combined to achieve a final product. The length of time required to redesign a note depends mostly on the length of time it takes to research, develop, and test new security features. For example, BEP spent nearly 10 years developing security features for the most recent $100 note. Developing individual features involves a less rigorous process because BEP does not rely on them for counterfeit protection. The redesign process may also be lengthened if the Secret Service, the Federal Reserve, or industry members, such as banks, identify problems with the test notes they receive before full production. If there is a problem with the test notes, such as if notes do not function correctly in the automated high-speed currency-counting equipment used by the Federal Reserve and many banks, the design of a note would need to be adjusted and resubmitted for interagency review. Although the development of features and the development of the overall design use separate processes, agency officials said that information is shared between the processes on an ongoing basis. Figure 2 describes the steps in the development processes for a redesigned note and an individual feature. The raised tactile feature BEP plans to add to currency is following the process BEP uses for developing an individual feature.

[21]The inkwell security feature contains a color-shifting bell that changes from copper to green as the note is tilted.

Figure 2: Steps Involved in Note Redesign



Sources: GAO analyis of BEP and Federal Reserve information; interviews with BEP and Federal Reserve officials; and GAO. | GAO-14-823

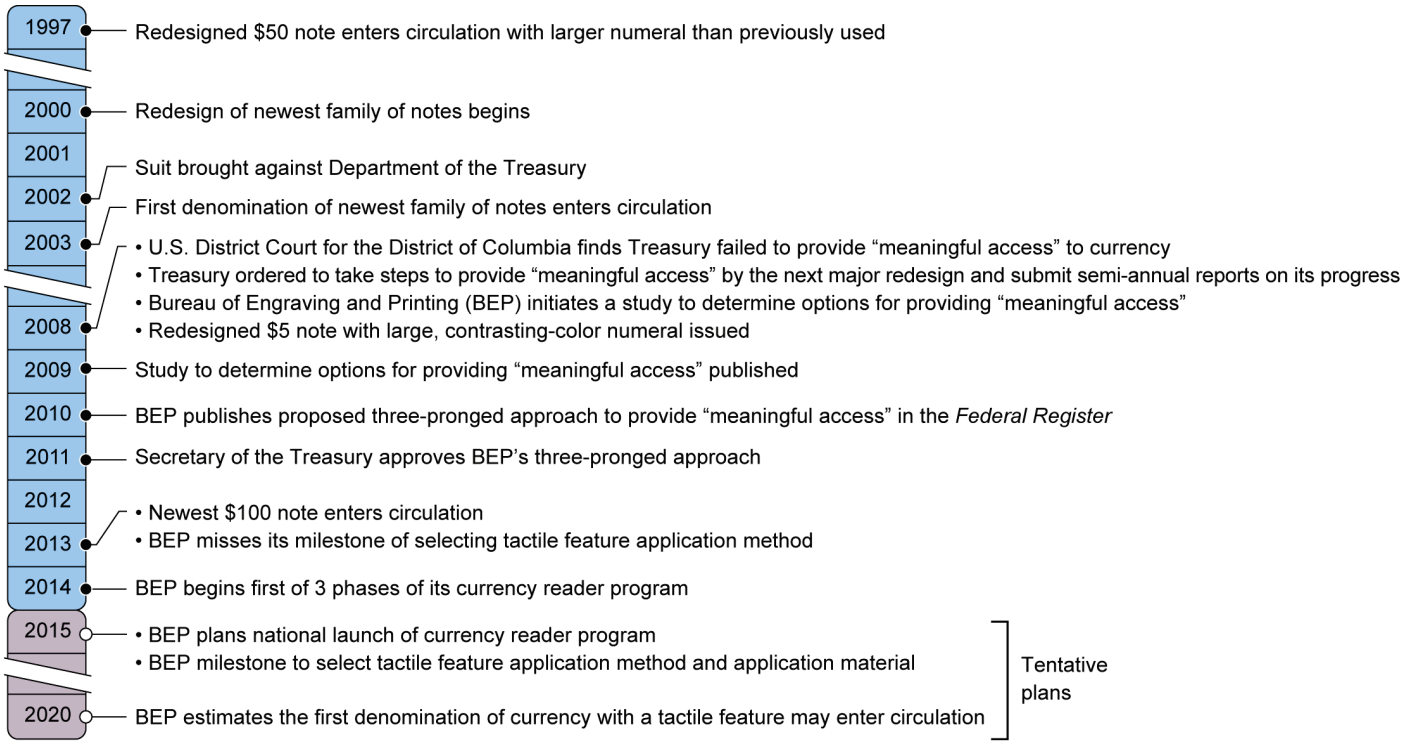
The Federal Reserve determines when newly redesigned notes are placed into circulation based on the needs of the Federal Reserve Banks and depository institutions. As a result, there may be some time between when a redesigned note is produced by BEP and when it enters circulation. After redesigned notes enter circulation, they co-circulate with the previously designed notes for many years because of the notes' longevity. For example, the Federal Reserve estimates that a $5 note remains in circulation for almost 5 years and a $100 note for 15 years. The newest redesigned note, the $100, began entering circulation in 2013.

BEP Has Taken Actions to Make Currency Accessible and Is Considering Costs As It Continues Its Efforts

BEP Has Made Some Progress Implementing Its Three-Pronged Approach

BEP has taken steps to make currency accessible to visually impaired persons, but has not yet fully implemented any element of its three-pronged approach. Specifically, BEP is producing some notes with large, high-contrast numerals, has begun the initial phases of the currency reader program, and is conducting research for a raised tactile feature. In addition to these efforts, BEP has also developed an application for smartphones that can be used to identify the value of notes. According to BEP officials, as of May 2014, they were in the process of design planning activities for the next family of notes. Figure 3 shows a timeline of events related to the court case and currency redesign.

Figure 3: Timeline of Select Events Relevant to BEP's Efforts to Make Currency Accessible



Source: GAO analysis of BEP documents. | GAO-14-823

Large, High-Contrast Numerals

From 1997 to 2008, BEP added larger numerals to the backs of all notes it redesigned except the $1 and $2 notes, and from 2008 to 2013, BEP included even larger, colored numerals in the designs of the $5 and $100 notes. The numerals are primarily designed to allow persons with low vision to independently denominate a note. According to BEP, it will continue to use high-contrast numerals in future currency redesigns and is exploring ways to refine the numerals, including options concerning attributes such as size, color, placement, and background contrast for large numerals. Figure 4 shows notes before and after BEP added larger numerals.

Figure 4: Select U.S. Notes Showing Changes to Numerals

$50 banknote issued beginning in 1990 without large numerals.

$50 banknote issued beginning in 1997 with larger, high-contrast numeral on the lower right corner.

$5 banknote issued beginning in 2008 with large, purple numeral.

$100 banknote issued beginning in 2013 with large, gold numeral.

Sources: U.S. Bureau of Engraving and Printing and GAO. | GAO-14-823

Advocates for visually impaired persons have been circumspect in their response to the addition of large, high-contrast numerals. The representatives stated they are supportive of the numerals because they assist a portion of the visually impaired population. However, the representatives noted that the benefit of large, high-contrast numerals is dependent upon the amount of useful vision a person has and the lighting in the environment. In addition, representatives told us that high-contrast numerals alone are not sufficient to provide visually impaired persons access to currency.

Currency Reader Device Program

BEP began the first of the three phases of its currency reader program in July 2014. In the first phase, BEP distributed free reader devices to eligible persons at the annual conferences of three national organizations for visually impaired persons. In the second phase, to start in September 2014, existing participants of the Library of Congress' National Library Services for the Blind and Physically Handicapped (NLS) are to be eligible to pre-order a currency reader. NLS, through an interagency agreement with BEP, is to determine applicants' eligibility for free readers, process orders, and ship currency readers as a supplement to its existing service of providing braille and audio materials free to qualified participants. For the final phase, BEP anticipates a national rollout of its program in January 2015, with plans to make reader devices available to any eligible person. In June 2014, BEP's Director said he projects distributing between 100,000 and 500,000 readers over 3 years. According to BEP officials, they distributed about 1,600 devices at the three annual conferences.[22]

The reader device, known as the iBill and shown in figure 5, is battery-operated, about 1.6 inches by 3 inches in size, and includes an earphone jack for privacy. To denominate a note, a user inserts a U.S. note of any denomination between $1 and $100 into the slot, under the raised portion of the front of the reader, and presses and releases a button. According to BEP, the reader will identify most notes within one second, although notes in poor condition may require more time.[23] To indicate the denomination of a note, the reader can announce the denomination out

[22]NLS and BEP staff certified applicants' eligibility and provided readers at each conference.

[23]BEP's contract with the supplier requires that the reader successfully denominate notes 98 percent of the time.

loud in English, emit a varying number of beeps and pitches, or vibrate for a varying number of pulses and durations. For example, the reader can indicate a $20 note by announcing “Twenty,” emitting two high-pitched beeps, or vibrating for two long pulses.

Figure 5: Currency Reader Device That the Bureau of Engraving and Printing (BEP) Provides to Visually Impaired Persons

Sources: U.S. Bureau of Engraving and Printing and GAO. | GAO-14-823

According to the BEP Director, the currency reader program is a key part of BEP’s three-pronged approach to provide access to currency, and is designed as the one method that can provide virtually all visually impaired persons with a means to independently denominate notes. BEP projects spending about $35 million on the currency reader program over the next 3 years. The need for currency readers will likely continue for many years because BEP estimates the first note with a tactile feature will not likely be issued before 2020. BEP expects future notes to be issued, as they have historically been, one denomination at a time over several years and expects that notes without tactile features will co-circulate with tactile-enhanced notes for many years.

BEP officials described steps they have taken, or plan to take, to evaluate the currency reader program’s effectiveness. For example, they solicited feedback from the organizations for visually impaired and their members and established a toll-free phone number for people to call with questions or concerns about the program or address issues or problems with devices. While these efforts are useful, they are incomplete because they do not provide BEP information on other aspects of the currency reader program. For example, BEP does not plan to evaluate how well the

program provides visually impaired persons with a means to independently denominate currency. Further, BEP does not plan to evaluate program costs or time frames, even though BEP anticipates spending tens of millions of dollars for many years. According to BEP officials, BEP has been focused on implementing the program instead of evaluating it. GAO's prior work on federal agencies that have used program evaluation for decision making has shown that program evaluation can allow agencies to understand whether a program is addressing the problem it is intended to and assess the value or effectiveness of the program.[24] The results of an evaluation can be used to clarify BEP and others' understanding of how the program does or does not address a problem of interest and to assist BEP in making changes to improve the design or management of an existing program. Without such an evaluation, BEP cannot determine whether the currency reader program is reaching users as intended and providing them with appropriate access to currency.

In general, advocates for visually impaired persons support the currency reader program because it can help some members of the visually impaired community. However, some advocates pointed out that many people who are visually impaired carry several assistive devices, such as a cane or magnification devices. A currency reader requires a visually impaired person to carry an additional device, which can be cumbersome. For example, representatives from one organization stated that it would be difficult for a person to hold a wallet, banknotes, and a currency reader device to determine the denomination of a note. In addition, some advocates told us that because of the time it takes to use a reader, the device does not enable a visually impaired person to identify notes as quickly and easily as a tactile feature. Representatives from two advocacy organizations told us their members had mixed reactions to the currency reader devices distributed at the annual conferences. One group noted problems with some of the devices, such as not reading notes properly and announcing an error message even when it was not being used, while the other group reported that members seemed satisfied.

[24]GAO, *Program Evaluation: Strategies to Facilitate Agencies' Use of Evaluation in Program Management and Policy Making*, GAO-13-570 (Washington, D.C.: June 26, 2013). GAO found that 80 percent of federal managers who had recent program evaluations reported that the evaluations contributed to assessing the program's effectiveness or value.

Raised Tactile Feature

BEP has evaluated a range of potential raised tactile features but has not received final interagency approval for a feature or for its characteristics, such as its shape, denominating pattern,[25] and location on each note. A raised tactile feature is one that is applied to the surface of a note and offers a contrasting feel compared to the surface around it.[26] A BEP core team of subject matter experts has not yet determined how to apply the feature to notes, and it did not meet a key, internal milestone. According to BEP's timeline, selection of the application method, or process it will use to create the raised tactile feature on the surface of the note, was due to be finalized by December 2013. The tactile feature core team researched and analyzed many potential application methods, narrowed the choices to four for further analysis, and recommended one to the interagency PAC based on that further analysis. BEP must receive interagency approval from the PAC on its chosen application method in order to finalize its selection.

The core team presented its recommended application method to the PAC in March 2014, but the PAC did not approve it because of concerns about the analysis used to test and compare the application methods. For example, BEP set a requirement that a raised tactile feature allow a person to accurately identify a note's denomination in less than 30 seconds. The PAC noted, however, that the core team used a different time interval when testing the application methods. The PAC directed the core team to update the requirements for the tactile feature and revise the test methods used to ensure they address the updated requirements. BEP now anticipates selecting an application method by March 2015, which would put it over one year behind its tactile feature development schedule.

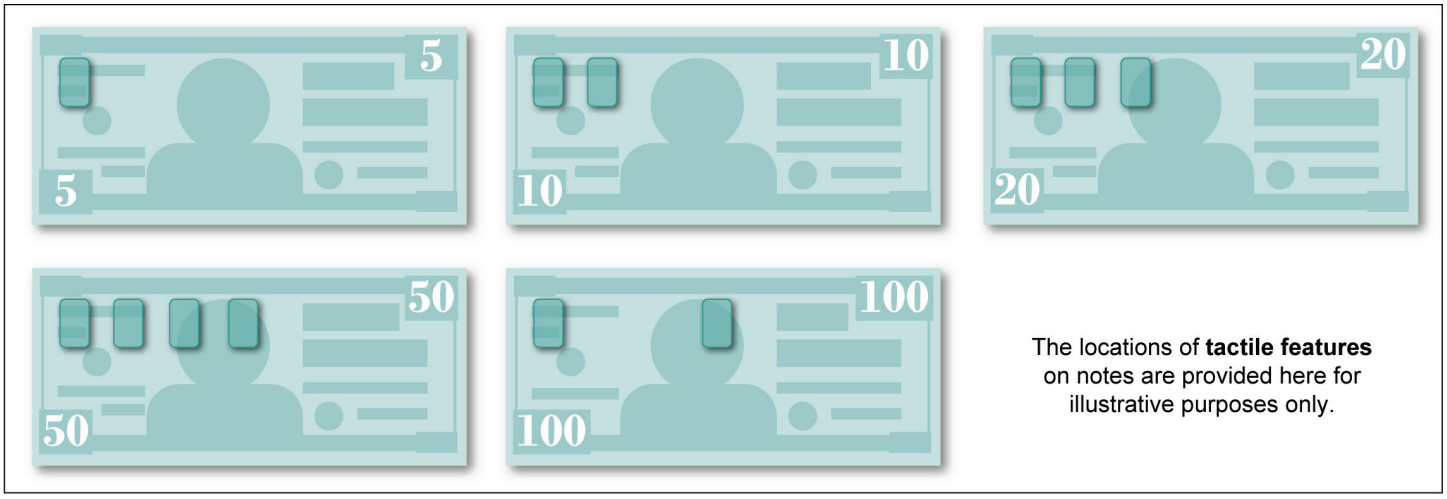
Although BEP has not received final approval for other feature characteristics, it received interagency approval for a design of the tactile feature's appearance and denominating pattern for use in testing and comparing application methods. BEP determined that a raised tactile feature shaped as a 6mm x 4mm rectangle would be highly perceptible to

[25]A denominating pattern is a consistent approach used to provide easy identification of each denomination of currency.

[26]Before deciding to include a raised tactile feature as part of its three-pronged approach to make currency accessible, BEP considered and rejected other tactile options for banknotes, including varying the size of each denomination, notching their edges, and punching holes.

touch, compared to a range of other shapes.[27] BEP also determined the pattern that would be used on each denomination, as shown in figure 6, but not where the feature would be located on a note.

Figure 6: Raised Tactile Feature Design and Denominating Pattern Approved for Use in Testing



Source: GAO. | GAO-14-823

Advocates for visually impaired persons told us that a tactile feature would allow visually impaired persons to quickly determine the value of each note without assistance and decrease their vulnerability in many situations. Representatives from ACB said that physical changes to a note, such as a tactile feature, are a sure way to provide independence for visually impaired persons. In July 2014, ACB passed a resolution reiterating the importance of not delaying the production of currency that is accessible to visually impaired persons.

Emerging Technological Options

In addition to the three-pronged approach approved by the Secretary of the Treasury, BEP developed an application (app) for Apple's iOS operating system and contributed to the development of an app for Google's Android operating system. According to BEP, the Apple iOS app was intended to immediately provide a segment of the visually impaired population with a means to independently denominate notes, while a

[27]Bureau of Engraving and Printing, *White Paper Regarding Meaningful Access to U. S. Currency for Blind and Visually Impaired Individuals* (Washington, D.C., June 27, 2013).

tactile feature was being developed. Officials stated that BEP will maintain the app as long as it continues to be used.

In 2010, BEP developed an Apple iOS operating system app, called EyeNote, which is available as a free download. Because of technology changes to smart phones, BEP released a new version in 2013. In the newest version, once the downloaded app is launched, the app continually scans for a note and can identify any denomination between $1 and $100 using either the front or back of the note. It either announces the denomination in English or Spanish or announces the denomination by varying a number of beeps or vibration pulses, depending on the device used. For example, a $20 note is announced as five vibrations on the Apple iPhone. As of August 2014 the app has been downloaded over 18,000 times. BEP also worked with the Department of Education on the development of a comparable free app for the Android operating system, called IDEAL Currency Identifier, which was released in 2012 and updated in 2014.

Advocates for visually impaired persons said that while smart phones and therefore smart phone applications can be useful, they are not widely used among all groups of visually impaired persons, in part because of their high cost. Some representatives said that as with the currency reader device, an app is not beneficial in all situations and still requires the user to take the time to open the app, scan the note, and hear the app's announcement.

BEP Is Considering Costs As It Implements Its Three-pronged Approach

We identified examples of how BEP considers costs and ways to manage them as it implements its three-pronged approach and pursues emerging technologies to provide access to currency for visually impaired persons. BEP is in different stages of implementing each element of its approach, and cost is considered in different ways for each.

Large, High-Contrast Numerals

According to BEP officials, including large, high-contrast numerals to previous note designs added almost no cost to BEP, and the officials anticipate the same for the next redesign. There was no additional cost for special inks because BEP used the same inks that were already incorporated into other features.

Currency Reader Program

BEP leveraged existing resources to manage costs for the currency reader device program. For example, in 2013, it signed an agreement with the NLS to determine eligibility and fulfill orders for currency readers. NLS has an existing process for qualifying blind and visually impaired

individuals for eligibility to receive free braille and audio material and an established infrastructure for processing customer orders and for warehousing and shipping materials to individuals. BEP estimates that the cost of the services provided by NLS will be approximately $1.8 million through the end of fiscal year 2015. BEP also took steps, when purchasing currency readers, to constrain costs or limit the risk of excess cost. For example, BEP conducted an open solicitation to ensure a competitive procurement and sought to purchase commercially available reader devices. BEP's 3-year fixed-price contract to purchase readers, which sets a per-unit cost for each year, provides flexibility in the number of devices BEP orders because it does not know the exact number of currency readers needed. The contract also requires the supplier to provide the readers in packaging ready for shipping that meets all U.S. Postal Service standards for "Free Matter," so BEP does not incur additional cost to prepare or ship the devices.[28]

Raised Tactile Feature

Because BEP has not determined how it will apply a tactile feature to notes, it does not have final current estimates of the costs to produce currency with a tactile feature. Instead, BEP developed cost estimates for each of the four potential tactile feature application methods it was considering.[29] According to BEP, most of the internal costs for a new feature like the raised tactile feature are associated with acquisition and modification of needed manufacturing equipment. Estimates for these non-recurring costs range from $1.1 million for one application method to about $85 million for each of the other three.[30] Estimates for recurring costs of each application method range from $9.7 million to $14.4 million annually.

BEP also sought to estimate potential costs to the Federal Reserve and cash-handling industry, including armored carriers, banks, and banknote

[28]Pursuant to statute, certain matter mailed for or sent by the blind and other handicapped persons who cannot use or read conventionally printed material may be mailed free of postage. See 39 U.S.C. §§ 3403, 3404, and 3405

[29]In addition to cost, BEP evaluated the durability, usability, and risk of each application method.

[30]One application method costs significantly less than others because BEP could use its existing equipment.

equipment manufacturers.[31] However, BEP was not able to do so because it found that the potential costs to the Federal Reserve and industry are dependent on the height of the tactile feature, which has not been determined. BEP obtained information from the ATM industry on the potential impact of an added tactile feature. The industry estimated a range of $1.3 billion to $1.8 billion for non-recurring equipment changes to ATMs and a range of $600 million to $3.4 billion for increased annual transportation costs.[32] A representative of the ATM industry told us that the industry cannot make reasonable estimates until BEP announces the specific height and application method of the tactile feature. However, banking and ATM industry representatives also said that they will accommodate changes to currency if they are provided sufficient time to prepare.

Emerging Technological Options

In addition to the costs for its three-pronged approach, BEP has additional costs for the development and maintenance of its EyeNote app. BEP contracted with a developer for the initial development and project management of the EyeNote. Officials stated that the cost of the first version of the app was $550,000 and the newest version was $250,000. BEP will pay an annual maintenance cost of approximately $35,000 to the developer beginning in December 2014.

Three Factors That Could Affect BEP's Current Efforts

Currency Is Redesigned to Prevent Counterfeit

According to senior Federal Reserve and BEP officials, currency redesign primarily occurs in response to counterfeit threats and does not occur at specific intervals. As a result, it is unknown when the next redesign will occur. The ACD makes recommendations to the Secretary of the Treasury on when to redesign currency based on counterfeit threat

[31]The information on costs is based on preliminary information from the Federal Reserve's Cash Product Office and a 2014 survey of Federal Reserve Banks, banknote equipment manufacturers, depository institutions, and armored carriers.

[32]According to BEP documents, a tactile feature could potentially increase the height of stacked currency. Transportation costs for ATMs could increase because ATMs would hold fewer notes and need to be refilled more frequently.

analyses; the Secretary has the sole authority to approve note design. The Chair of the Federal Reserve determines when a redesigned note will be placed in circulation. In a 2013 report submitted to the court, BEP estimated that a new note with a tactile feature would commence circulation in 2020. In 2014 testimony, the BEP's Director stated that a note with a tactile feature would not be introduced before 2020. However, Federal Reserve officials stated that the date has not received interagency approval.

BEP's need to address identified counterfeit threats could affect the redesign process. BEP officials told us they are continuously developing security features to stay ahead of counterfeiters. As previously discussed, the length of time for redesign is, in part, dependent on sufficient security features approved through the interagency process. Large, high-contrast numerals and a tactile feature are not considered security features that would be used in response to counterfeit threats.

Representatives from organizations that advocate for visually impaired persons expressed concern about the length of time it is taking BEP to provide access to currency. Specifically, during the court case, Treasury stated that currency redesign occurs approximately every 7 to 10 years. Because the court order was issued in 2008, the advocacy representatives expected the next redesign of currency to be issued beginning in approximately 2015 to 2018. There is no approved date for the introduction of redesigned currency with a tactile feature.

BEP Has Experienced Challenges Developing a Raised Tactile Feature

Why Can't a Tactile Feature Be Added Now?

A tactile feature is only effective if it is perceptible, meaning that it is easy to differentiate it from the texture of the area around the feature. There is no space on any current denomination that would suffice to provide the perceptibility. Because banknotes already include some raised printing and have overt and covert security features, the introduction of a tactile feature could interfere with the other features. As a result, the introduction of a tactile feature would require a major currency redesign.

Source: GAO analysis of BEP documents and interviews with BEP officials. | GAO-14-823

BEP has faced difficulties developing a raised tactile feature, and it has fallen behind its estimated schedule. Developing a durable-raised tactile feature has proved challenging internationally and for BEP. A 2009 study BEP commissioned showed that the tactility of features used by several other countries diminishes over time as the notes circulate.[33] BEP has not developed a raised tactile feature before, so it had to create an internal structure and process for testing and evaluating potential features. Officials stated that BEP had to test some options for application methods externally because it did not have the equipment. This lack of equipment lengthened the time to make a recommendation on an application method. As discussed previously, BEP did not make a recommendation until 3 months after its milestone date of December 2013. According to BEP, it now anticipates finalizing an application method, which is needed to move forward on a tactile feature, by March 2015.

BEP has had challenges in the past with the design and production of new features, challenges that have led to significant changes to BEP's processes. Specifically, in 2010 BEP began producing the new $100 note, which included, among other new features, a plastic 3-D security ribbon woven into the paper. This composite of paper and plastic is unlike any other denomination of U.S. currency. After full production began, BEP officials found creases in some of the notes. The creasing occurred on a sufficient number of notes that BEP suspended production 9 months after it had started. Testing found that there were several contributing factors, including the paper's moisture content, the amount of recycled material in the paper, and the amount of time between paper manufacture and printing. However, BEP did not discover these problems until over a year after the problem occurred. The Treasury Inspector General determined that BEP did not sufficiently validate its ability to produce the notes in normal production, which may have identified technical problems earlier. Instead, the creasing issue was not discovered until BEP had produced 1.4 billion notes, including an unknown quantity of defective notes. The problem delayed the issuance of the $100 note by 2 years and was resolved with assistance from the currency quality assurance program (CQA). This program, which is funded by the Federal Reserve, seeks to prevent the types of problems that arose with the $100 note through formal development programs for note design, which include interagency

[33]ARINC Engineering Services, *Study to Address Options for Enabling the Blind and Visually Impaired Community to Denominate U.S. Currency* (Maryland: 2009).

reviews. The development of the tactile feature is one of the pilot projects under the CQA program.

BEP and Federal Reserve Officials Have Discussed Federal Reserve Concerns about the Current Approach

BEP has indicated that the Federal Reserve has raised concerns about its current three-pronged approach to provide access to currency for visually impaired persons. While the three-pronged approach has been approved by the Secretary of the Treasury, who is on record as still pursuing this approach, the court order does not require this or any other specific approach. The Secretary has discretion over how to comply with the court order and could modify the current approach. Senior BEP and Federal Reserve officials stated, however, that Treasury and BEP would need to consult the Department of Justice to determine whether any revised approach would satisfy the requirements of the court order. ACB would also retain the ability to challenge whether a modification continues to comply with the court order.

Senior BEP and Federal Reserve officials told us that they have discussed the Federal Reserve's concerns about the potential cost impact of a tactile feature and whether the extent of technological changes since the 2008 court order could provide alternative options to its current approach; however, they remain committed to providing access through their three-pronged approach. Specifically, senior BEP and Federal Reserve officials told us they have discussed whether high contrast numerals, a currency reader program, and the EyeNote smartphone app—without including a raised tactile feature on currency—could meet the requirements of the 2008 court order. Federal Reserve officials expressed concerns about the potential cost impact of a tactile feature on those who handle large amounts of currency, including banks and ATM manufacturers. They stated that meaningful access should be provided in a way that meets the needs of visually impaired persons while being mindful of cost. However, senior BEP and Federal Reserve officials also stated that they are committed to providing meaningful access to currency, and in June 2014, the BEP Director reiterated that the development of a durable tactile feature is a priority for the agency. Furthermore, senior BEP officials stated that BEP would need to take multiple steps before it could consider altering the current approach. For example, the officials said that BEP would have to fully implement its currency reader device program to understand the efficacy of the program. They also said that BEP would need to collect data on the production requirements and costs of a raised tactile feature. BEP officials clarified that while there was a discussion of the option to provide

access to currency without adding a tactile feature, no decision has been made.

Advocates for visually impaired persons have concerns about excluding a tactile feature. Most advocates we spoke with told us that high-contrast numerals, a currency reader, and a smart phone app are beneficial to some, but these efforts are not as important as a tactile feature. According to these advocates, a tactile feature is the most effective method to allow a visually impaired person to denominate currency independently and quickly. In July 2014, one advocacy organization passed a resolution stating that a currency reader device program should not be a replacement for a tactile feature.

Conclusions

The visually impaired community is diverse, and there is no single way to ensure access to currency for all visually impaired persons. In recognition of this diversity, BEP developed a three-pronged approach to make currency accessible to visually impaired persons. In particular, BEP has incorporated high-contrast, large numerals on some denominations of notes, and plans to continue incorporating them in future redesigns; it has launched the initial phase of its currency reader program; and it has been developing a tactile feature to be incorporated in the next family of redesigned notes. In addition, BEP has created a free currency reader smartphone app, which is currently available.

While these are positive steps, there is no date set for the introduction of a tactile feature, and it will be at least several years until there is a tactile feature on U.S. currency. Even when a tactile feature is introduced, notes with a tactile feature will co-circulate with notes that do not have a tactile feature. As a result, U.S. currency without a tactile feature will be in circulation for many years. Given this time frame, it is important for the currency reader program to be an effective interim step to provide access to currency for visually impaired persons.

BEP has taken some initial steps to evaluate the effectiveness of the currency reader program, a key component of its three-pronged approach; however, these efforts do not provide BEP with complete information about important parts of the currency reader program such as how well the program provides visually impaired persons with a means to independently denominate currency. Program evaluation is a critical strategy that can allow agencies to understand whether a program is addressing the intended problem, to assess the value or effectiveness of the program, and to make changes to improve the design or management

of an existing program. Without a complete evaluation of the program, BEP cannot determine whether the currency reader program is reaching users as intended and providing them with appropriate access to currency. The lack of knowledge means that BEP may not be in the best position to make any necessary adjustments in the deployment of the next 2 phases of a program that will be needed for many years.

Recommendations for Executive Action

To determine the extent to which the currency reader program provides assistance to visually impaired persons while a tactile feature is being developed and integrated into the next currency redesign, we recommend that the Director of the Bureau of Engraving and Printing take the following action:

- Evaluate the currency reader program to include facets such as how well the program provides visually impaired persons with a means to independently denominate currency.

Agency Comments

We provided a draft of this report to BEP, the Federal Reserve, and the Secret Service. BEP did not take a position on our recommendation. The Federal Reserve provided written comments, reproduced in appendix II, in which it stated that it is important for visually impaired persons to have access to U.S. currency. BEP and the Federal Reserve also provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the Bureau of Engraving and Printing, The Board of Governors of the Federal Reserve System, and the United States Secret Service. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-2834 or wised@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.

David Wise
Director
Physical Infrastructure Issues

List of Congressional Committees

The Honorable Patty Murray
Chairman
Committee on the Budget
United States Senate

The Honorable Tom Udall
Chairman
The Honorable Mike Johanns
Ranking Member
Subcommittee on Financial Services and General Government
Committee on Appropriations
United States Senate

The Honorable Ander Crenshaw
Chairman
The Honorable José Serrano
Ranking Member
Subcommittee on Financial Services and General Government
Committee on Appropriations
House of Representatives

Appendix I: Objectives, Scope, and Methodology

The objectives of this report are to examine (1) the status of the Bureau of Engraving and Printing's (BEP) efforts to provide currency that is accessible for visually impaired persons and how BEP is considering costs as part of these efforts, and (2) factors that may affect BEP's efforts to make currency accessible for visually impaired persons.

To obtain information on our objectives, we reviewed relevant documentation and written reports as discussed below. We also interviewed officials from federal government entities directly involved in the design and production of U.S. currency. We also spoke with representatives from advocacy organizations representing blind and visually impaired persons, trade associations from industries that would be affected by changes to U.S. currency, and the Bank of Canada as shown in table 2.

Table 2: Organizations We Interviewed

Federal government	Bureau of Engraving and Printing
	Federal Reserve Board of Governors
	United States Secret Service
Advocacy organizations	American Council of the Blind
	National Federation of the Blind
	Blinded Veterans Association
	National Council on Disability
Industry trade associations	American Bankers Association
	Independent Community Bankers of America
	National Automatic Merchandising Association
	ATM Industry Association
Other government	Bank of Canada

Source: GAO analysis. | GAO-14-823

We selected the stakeholders for each group based on different criteria. We selected four advocacy organizations that had nationally representative membership and were part of BEP's outreach efforts to visually impaired persons. We selected four industry trade associations for companies that handle currency frequently, such as banks and vending machine manufacturers. Specifically, we selected associations with nationally representative membership. We selected the Bank of Canada, which is the central bank for Canada, because it incorporated a tactile feature on its currency and established a currency reader program; BEP officials reached out to Canadian officials specifically about these

efforts. The results of the interviews are not generalizable, but do provide insights regarding efforts to make currency accessible to blind and visually impaired persons.

To obtain information on both of our objectives, we reviewed BEP documents related to BEP's efforts to provide currency that is accessible and interviewed officials from the BEP. We reviewed documents related to the 2002 court case and BEP's semi-annual progress reports to the court. We interviewed officials from the Board of Governors of the Federal Reserve System (Federal Reserve), and the United States Secret Service (Secret Service).

To identify and discuss factors that may affect BEP's efforts to make currency accessible for visually impaired persons, we reviewed documents and interviewed officials from BEP and the Federal Reserve. We also interviewed representatives of 4 national advocacy organizations for visually impaired persons and 4 trade associations that represent financial institutions and companies that use cash handling equipment, such as ATM manufacturers. We interviewed Bank of Canada representatives on its efforts to produce currency that is accessible to visually impaired persons and its currency reader device program.

We conducted this performance audit from February 2014 to September 2014 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.

Appendix II: Comments from the Board of Governors of the Federal Reserve System

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D.C. 20551

LOUISE L. ROSEMAN
DIRECTOR
DIVISION OF
RESERVE BANK OPERATIONS
AND PAYMENT SYSTEMS

September 5, 2014

Ms. Lorelei St. James
Director, Physical Infrastructure
U.S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Ms. St. James:

Thank you for the opportunity to comment on the GAO's draft report entitled *Reader Program Should be Evaluated While Other Accessibility Features for Visually Impaired Persons are Developed.* The Federal Reserve believes it is important for visually-impaired persons to have meaningful access to United States currency. We agree with the report's recommendation that the BEP evaluate the effectiveness of its currency reader program in meeting this objective. As noted in your report, there are a variety of means and evolving technologies that could assist the visually-impaired denominate currency. The Federal Reserve will continue to work with the BEP to evaluate and recommend solutions that effectively meet the needs of the visually-impaired community at a reasonable cost to the public more broadly.

We have provided technical comments to the draft report under separate cover.

Sincerely,

Email: Louise.Roseman@frb.gov
Phone: (202) 452-2789 • Fax: (202) 452-2746

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Dave J. Wise, (202) 512-2834 or wised@gao.gov

Staff Acknowledgments

In addition to the contact named above, John W. Shumann (Assistant Director), Amy Abramowitz, Ana Ivelisse Aviles, Melissa J. Bodeau, Swati Deo, David Hooper, SaraAnn Moessbauer, Joshua Ormond, Monica Savoy, Teresa Spisak, and Travis Thomson made key contributions to this report.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website (http://www.gao.gov). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to http://www.gao.gov and select "E-mail Updates."

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, http://www.gao.gov/ordering.htm.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on Facebook, Flickr, Twitter, and YouTube. Subscribe to our RSS Feeds or E-mail Updates. Listen to our Podcasts. Visit GAO on the web at www.gao.gov.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Website: http://www.gao.gov/fraudnet/fraudnet.htm
E-mail: fraudnet@gao.gov
Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, DC 20548

Please Print on Recycled Paper.