Response Date: May 13, 2022
Completed Date: May 31, 2022

March 29, 2022

MEMORANDUM FOR DOUGLAS O'DONNELL
                    DEPUTY COMMISSIONER, SERVICES AND ENFORCEMENT
                    JEFF TRIBIANO
                    DEPUTY COMMISSIONER, OPERATIONS SUPPORT

FROM: Erin M. Collins
                National Taxpayer Advocate

SUBJECT: Taxpayer Advocate Directive 2022-1: Implement Scanning Technology to
                Machine Read Paper Tax Returns and Address the Paper Return Backlog

TAXPAYER ADVOCATE DIRECTIVE 2022-1

Overview

Since the beginning of the COVID-19 pandemic, the IRS has fallen nearly a year behind in processing paper tax returns. As of March 18, 2022, the paper return backlog stood at nearly 15 million. Most taxpayers receive refunds, so return processing delays have translated directly into refund delays. Refund delays have caused frustration for many and financial hardship for some.

The delays in processing paper tax returns result from the IRS's archaic data intake process. When a paper tax return arrives, an IRS employee must transcribe the data, literally keystroking each number and letter from the return into IRS systems. During the past 20 years, the IRS has periodically explored instituting a modernized process, in line with common state tax agency practice, that involves using scanning technology to convert paper Form 1040-series returns into a digital format so the IRS can process them like e-filed returns. If the IRS had implemented scanning technology, it is unlikely the current processing backlog would exist. Both to ensure the paper processing backlog is resolved within a year and to achieve significant processing efficiencies in the future, the IRS should take immediate steps to implement scanning technology for Forms 1040, Forms 1040-X, and business returns that are filed on paper.

Directed Actions

1. To expedite the processing of tax returns prepared with tax software but filed on paper, I direct the IRS to:

---

     a. Work with tax return software companies over the next 45 days to develop a plan for the companies to voluntarily place 2-D barcodes on returns prepared with their software products during the 2023 filing season and beyond.

     b. Notify me and the tax-writing committees within 45 days if major tax return software companies do not agree to place 2-D barcodes on returns prepared with their software products during the 2023 filing season and beyond.

2. To expedite the processing of handwritten tax returns and returns with barcodes that cannot be read, I direct the IRS to develop a plan to implement optical character recognition or similar technology to automate the processing of these returns by the start of the 2023 filing season or, if that is not feasible, by the start of the 2024 filing season.

Discussion

Magnitude and impact of paper processing delays

The magnitude of the IRS's current return processing backlog is unprecedented. Since the start of the pandemic, tens of millions of taxpayers have experienced delays in receiving their refunds – typically delays of 10 months or more – and there are currently nearly 15 million unprocessed paper returns.[1] These delays harm taxpayers in multiple ways. The most obvious harm is that taxpayers must wait until their returns are processed to receive their refunds. For low-income and middle-income families, these delays can have significant financial impact, and in extreme cases, lead to evictions, utility shutoffs, and the inability to afford food and medicines. In addition, a taxpayer's inability to furnish proof of current filing and a tax transcript may adversely affect loan applications, including applications for mortgages, personal or business loans, and even student financial aid.

Over the past year, the IRS has not made progress in reducing its backlog. As of March 19, 2021, the number of unprocessed original Forms 1040 stood at 4.6 million. As of March 18, 2022, the number had ticked up slightly to 4.7 million.

Processing all paper tax returns and eliminating the backlog should be the IRS's #1 priority.

Current paper tax return data entry process

The IRS has the two oldest information technology (IT) systems in the federal government, dating back to about 1960, and many of its IT systems are in desperate need of modernization. Nowhere is the IRS's antiquated technology more apparent than in the processing of paper tax returns.

The IRS's submission processing function evokes images of what data transcription looked like in the 1960s – prior to the information age. Employees manually move paper returns through multiple processing stations, including "code and edit," and transcribe all paper tax returns. The

---

[1] As of March 18, 2022, the paper backlog includes 4.7 million original individual income tax returns, 4.9 million original business tax returns, 1.3 million returns that the IRS has not yet been able to classify, 2.6 million amended individual income tax returns, and 1.2 million amended business tax returns.

Code and Edit team prepares returns for input into the IRS computer system by the Transcription unit. Transcription consists of keystroking each digit and each letter on the return. For a moderately complex return, several hundred digits may need to be transcribed. For longer returns with more forms and schedules, the number of digits may approach or exceed 1,000 digits.

Last year, the IRS received nearly 17 million paper Forms 1040, over 4 million Forms 1040-X, and millions of paper business returns.[2] (Forms 1040-X are generally processed like paper returns even when submitted electronically.) In the aftermath of office closures and social distancing requirements necessitated by the pandemic, IRS employees were not able to work through the increasing backlog of inventory. In addition, data entry errors were common. About 22 percent of transcribed returns last year contained data transcription errors.[3] Data transcription errors often lead to math error notices that require taxpayers to respond if they disagree with the adjustments. With correspondence processing taking more than six months last year, affected taxpayers experienced a second significant processing backlog.[4]

Currently available machine-reading technology

Fortunately, there are two types of scanning technology that would allow the IRS to "machine read" paper returns and reduce the need for manual data entry. Scanning technology would speed return processing, substantially reduce or eliminate transcription errors, and enable the IRS to reassign employees from data entry jobs to other positions, ultimately saving tens of millions of dollars in labor costs. There are currently two leading types of scanning technology: (i) 2-D barcoding and (ii) optical character recognition (OCR).

2-D Barcoding and 20 years of IRS indecision

When a customer buys a product at a grocery store or a pharmacy, the product is typically marked with a barcode that can be scanned at the checkout line. Similarly, when a taxpayer prepares a tax return using tax return software, software companies generally can place a 2-D barcode on the return that encodes the return data in a machine-readable form. The IRS could then scan the barcode – like the supermarket or pharmacy does – and convert the data into a digital form that would allow the IRS to process the return like an e-filed return.

2-D barcoding technology is well established. In 2002 – fully two decades ago – we reported that 17 states were using 2-D barcoding for returns prepared with tax return software but filed on paper, and we recommended the IRS consider doing so as well.[5] At the time, the IRS disagreed with our recommendation to incorporate 2-D barcodes onto Forms 1040, stating that doing so would undermine the goal of transitioning taxpayers to e-filing.[6] In 2003, however, the IRS had begun working with tax return software developers on a 2-D project for other tax forms, and the

---

[2] As of March 18, 2022, the IRS had at least 4.9 million original paper business returns and 1.2 million amended paper business returns waiting to be processed.

[3] IRS response to TAS information request (Sept. 16, 2021) (data through August 2021).

[4] *See* National Taxpayer Advocate 2021 Annual Report to Congress 16 (average cycle time to work individual correspondence was 199 days in fiscal year 2021) and data sources cited therein.

[5] National Taxpayer Advocate 2004 Annual Report to Congress vol. 1, at 89, 101 (Most Serious Problem: *Electronic Return and Filing Preparation*), https://www.taxpayeradvocate.irs.gov/reports/2004-annual-report-to-congress.

[6] *Id.* at 105.

IRS has implemented 2-D barcoding for certain forms, including Schedules K-1.[7] In 2014, the IRS reversed its position regarding 2-D barcoding for Forms 1040, requesting that Congress provide it with authority to require taxpayers who prepare their returns with software but file them on paper to print their returns with a scannable 2-D barcode.[8] In 2018, the House-passed version of the Taxpayer First Act contained a provision to require 2-D barcoding.[9] By that time, the IRS had changed its position again. We have been told the IRS requested the provision be removed from the legislation to give it flexibility to adopt alternative scanning technologies like OCR. Congress removed the provision from the final version of the Taxpayer First Act that was enacted,[10] but the IRS still has not implemented any type of scanning technology for Forms 1040.

Thus, *20 years* after more than one-third of states were already using 2-D barcoding, *18 years* after the National Taxpayer Advocate initially recommended it for Forms 1040, *8 years* after the Treasury Department requested that Congress provide the IRS with the authority to mandate 2-D barcoding, and *4 years* after Congress sought to grant that authority and the IRS changed its position, the tax system finds itself in a crisis that might not exist, at least to this degree, if 2-D barcoding or similar technology had been implemented.

Based on TAS's analysis, 50%-60% of the individual income tax returns submitted on paper and processed over the last two years were prepared with tax return software and would not need to be transcribed if 2-D barcodes were added. While the IRS has announced plans to work through the backlog before the end of 2022, it is not clear it will be able to do so. Implementing 2-D barcoding for paper returns filed beginning in January 2023 will serve as an insurance policy against a continuing backlog next year by reducing the influx of new paper returns that require transcription. Even if the IRS does manage to work through its backlog this year, 2-D barcoding will reduce processing time and costs in future years, which will allow the IRS to reassign some submission processing employees to perform other work.

Legal and timing considerations

To make 2-D barcoding work, software companies must place barcodes on paper-filed returns and the IRS must program its systems to read the barcodes. To implement 2-D barcoding by January 2023, the IRS must take immediate steps.

The IRS Office of Chief Counsel recently advised that the IRS lacks the authority to *require* tax return software developers to place barcodes on paper-filed tax returns.[11] However, the advice said the IRS may *request* that tax return software developers incorporate scannable barcodes on

---

[7] *See* IRS.gov, Two Dimensional Bar Coding for Schedules K-1 is the Preferred Method, https://www.irs.gov/e-file-providers/two-dimensional-bar-coding-for-schedules-k-1-is-the-preferred-method (last visited March 22, 2022).
[8] Department of the Treasury, *General Explanations of the Administration's Fiscal Year 2015 Revenue Proposals* 227 (March 2014), https://home.treasury.gov/system/files/131/General-Explanations-FY2015.pdf.
[9] Taxpayer First Act of 2018, H.R. 7227, 115th Cong. § 2304 (2018) (as passed by the House, Dec. 20, 2018), https://www.congress.gov/bill/115th-congress/house-bill/7227/text.
[10] Taxpayer First Act, Pub. L. No. 116-25, 133 Stat. 981 (2019).
[11] IRS Office of Chief Counsel, PMTA 2022-02, *Program Manager Technical Advice: Authority to Mandate Tax-Software Developers to Embed Two-Dimensional Barcodes on Returns and Forms or to Incorporate Two-Dimensional Barcodes on Returns and Forms that the IRS Designs and Issues* (Dec. 17, 2021), https://www.irs.gov/pub/lanoa/pmta-2022-02.pdf.

paper-filed returns created with their software. The advice stated: "States, for example, have asked [software developers] to do this with respect to state returns, explaining that they will be able to advertise faster refunds to their customers who choose to paper file. The IRS could facilitate software developers that voluntarily adopt barcodes by providing standards and technical assistance to them, which many states also do with respect to state returns." If the software companies decline to incorporate scannable codes, which seems unlikely considering the collaborative relationship they have with the IRS, the advice said the IRS has the authority to design forms with scannable codes and make them available directly to taxpayers on IRS.gov.

Even though the 2023 filing season is nine months away, time is of the essence to develop technical standards and give tax return software developers time to incorporate them. The IRS might also need to revise its forms to allow sufficient space for a barcode, although it may be simpler if the barcode is printed on a separate page. For these reasons, I direct the IRS to immediately begin discussions with the software industry to request that companies place barcodes on 2022 returns filed during the 2023 filing season and, if software companies decline, to notify Congress within 45 days so Congress can decide whether to impose the requirement through legislation.

Optical Character Recognition Technology

OCR is a newer technology with different advantages and disadvantages compared with 2-D barcoding. The main advantage is that it can be used to machine read *all* paper returns, including returns prepared by hand. The main disadvantage is that it is less accurate. For example, a "1" and a "7" may look similar, so OCR may read the digit incorrectly. However, OCR technology should still be more accurate than manual data transcription because an employee not only will have the same difficulty distinguishing between the "1" and the "7" but also will hit the wrong key by mistake from time to time. Last year, as noted, IRS employees made transcription errors on about 22 percent of paper returns.

In discussions with state tax agencies, we have been told that some states use both 2-D barcoding and OCR. Where a return is prepared with software and a barcode can be applied, the barcode provides near 100 percent accuracy. Where a return is not prepared with software or if a barcode cannot be read (*e.g.,* where a taxpayer's toner cartridge ran low or the barcode has smudged), OCR is used, and despite its slightly lower accuracy level, it still reduces the need for manual data transcription and eliminates errors attributable solely to human error in hitting the wrong key.

The IRS recently conducted a pilot to test the usefulness of certain OCR software. We understand it may require additional time to identify and refine OCR or similar product that meets its needs. Therefore, I direct the IRS to develop a plan to implement OCR technology that machine reads handwritten returns and returns without readable barcodes by the start of the 2023 filing season or, if not feasible, by the start of the 2024 filing season.

Procedural Requirements

Delegation Order No. 13-3 grants the National Taxpayer Advocate the authority to issue a Taxpayer Advocate Directive (TAD). A TAD may be issued to (1) mandate administrative or procedural changes to improve the operation of a functional process or (2) grant relief to groups

of taxpayers (or all taxpayers) when its implementation will protect the rights of taxpayers, prevent undue burden, ensure equitable treatment, or provide an essential service to taxpayers.[12]

Reasons for foregoing a proposed TAD

Although a proposed TAD is generally issued before a TAD, the National Taxpayer Advocate may issue a TAD without first issuing a proposed TAD if she determines that a problem is immediate in nature and a delay in addressing it would have a significant negative impact on taxpayers.[13] The foregoing discussion illustrates the magnitude and severity of the challenges taxpayers who filed paper returns are facing due to return processing and refund delays.

Response and action dates[14]

Please respond to this TAD by May 13, 2022, and state whether you plan to implement the directed actions, plan to implement alternative actions that will achieve the same objective, or decline to take the directed actions. If you need more time to respond, I will grant a reasonable request to extend the response deadline, but not beyond the 90-day period provided in IRC § 7803(c)(5)(A).

The TAD procedures require that if you modify or rescind this TAD, you must provide a detailed written explanation of the reasons.[15]

If you are complying with this TAD, I request that you provide a detailed plan to incorporate scanning technology for the 2023 filing season by May 31, 2022.

cc: Charles P. Rettig, Commissioner of Internal Revenue
       Kenneth Corbin, Commissioner, Wage & Investment Division
       Nancy Sieger, Chief Information Officer
       Bridget Roberts, Deputy National Taxpayer Advocate
       Rosty Shiller, Division Counsel/Associate Chief Counsel (National Taxpayer Advocate Program)

---

[12] Internal Revenue Manual (IRM) 1.2.2.12.3, Delegation Order 13-3 (formerly DO-250, Rev. 1), Authority to Issue Taxpayer Advocate Directives (Jan. 17, 2001).
[13] *See* IRM 13.9.1.3.1(2), TAD without a Proposed TAD (Oct. 8, 2020).
[14] If the IRS does not honor a TAD in a timely manner, IRC § 7803(c)(2)(B)(ii)(VIII) requires the National Taxpayer Advocate to identify the TAD in her Annual Report to Congress.
[15] IRM 13.9.1.3(4), The TAD Process (Oct. 8, 2020).