OFFICE OF THE STATE AUDITOR

DIANA DIZOGLIO

Official Audit Report – Issued May 27, 2025

MassHire Department of Career Services

For the period July 1, 2022 through June 30, 2023

State House Room 230 ■ Boston, MA 02133 ■ auditor@massauditor.gov ■ www.mass.gov/auditor

OFFICE OF THE STATE AUDITOR

DIANA DIZOGLIO

May 27, 2025

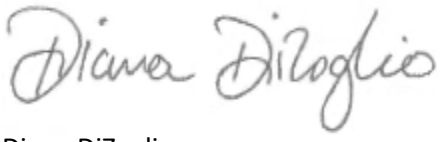
Elizabeth Goguen, Director
MassHire Department of Career Services
Leverett Saltonstall Building
100 Cambridge Street, 5th Floor
Boston, MA 02114

Dear Acting Director Goguen:

I am pleased to provide to you the results of the enclosed performance audit of the MassHire Department of Career Services. As is typically the case, this report details the audit objectives, scope, methodology, findings, and recommendations for the audit period, July 1, 2022 through June 30, 2023. As you know, my audit team discussed the contents of this report with agency managers. This report reflects those comments.

I appreciate you and all your efforts at the MassHire Department of Career Services. The cooperation and assistance provided to my staff during the audit went a long way toward a smooth process. Thank you for encouraging and making available your team. I am available to discuss this audit if you or your team has any questions.

Best regards,



Diana DiZoglio
Auditor of the Commonwealth

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LIST OF ABBREVIATIONS

EOTSS	Executive Office of Technology Services and Security
IT	information technology
MDCS	MassHire Department of Career Services
PII	personally identifiable information
URL	uniform resource locators
W3C	World Wide Web Consortium
WCAG	Web Content Accessibility Guidelines

EXECUTIVE SUMMARY

In accordance with Section 12 of Chapter 11 of the Massachusetts General Laws, the Office of the State Auditor has conducted a performance audit of the MassHire Department of Career Services (MDCS) for the period July 1, 2022 through June 30, 2023.

The purpose of this performance audit was to determine whether MDCS's website, as well as its career centers and JobQuest websites, adhered to the accessibility standards established by the Web Content Accessibility Guidelines (WCAG) 2.1 for user accessibility, keyboard accessibility, navigation accessibility, language, error identification, and color accessibility. Adherence to WCAG helps ensure that all users, regardless of ability, can access the content and functions of MDCS's website.

Additionally, we determined whether MDCS and its career centers have an information classification policy, procedures for disposing information, and a business impact analysis or risk assessment to classify its information systems. We also evaluated whether access to personally identifiable information (PII) is restricted solely to individuals with a legitimate business need. These information technology (IT) governance practices are critical because they form the foundation of a robust security framework, ensuring compliance with data protection regulations and minimizing the risk of unauthorized access or breaches.

Below is a summary of our findings, the effects of those findings, and our recommendations, with links to each page listed.

Finding 1 **Page 26**	The MDCS website is not fully accessible for all Massachusetts residents and users.
Effect	This lack of accessibility not only impacts user experience but also undermines MDCS's ability to provide equitable access and digital inclusiveness.
Recommendations **Page 27**	1. MDCS should implement a policy to review its webpages periodically for WCAG 2.1 compliance. 2. MDCS should collaborate with the Executive Office of Technology Services and Security (EOTSS) to develop a web maintenance schedule to review and update incorrect language tags and improper reflow on a periodic basis (e.g., quarterly or semiannually). 3. MDCS should assign designated staff members to oversee accessibility compliance and website updates.
Finding 2 **Page 27**	MDCS career centers' websites are not fully accessible for all Massachusetts residents and users.

Effect	Common effects of noncompliance with WCAG 2.1 are listed below. • Improper reflow when zoomed in to 200% or 400% can significantly impact users with visual impairments who rely on zoom functionality to read and navigate content. • Broken or faulty hyperlinks limit users from having equitable access to critical information and key online services offered by MDCS. They also increase the likelihood that Massachusetts residents and users may either access outdated or incorrect information or be directed to webpages that no longer exist. • When hyperlinks are not identifiable because of poor color contrast or a lack of other distinguishable visual cues (e.g., underlining, bolding, color differentiation, or hover effects), users may struggle to identify interactable elements within a body of text. This may also result in users missing a hyperlink that could have provided them with important information. • When keyboard accessibility is limited (e.g., users cannot tab through the webpage), those with mobility issues may be unable to access certain features or content. • If users are not informed of errors when inputting data, then they may be unable to identify their errors and retrieve the content they need. This lack of accessibility not only impacts user experience but also undermines MDCS's ability to provide equitable access and digital inclusiveness.
Recommendations **Page 29**	1. MDCS should implement and enforce a policy for its career centers to review their webpages periodically for WCAG 2.1 compliance. 2. MDCS should collaborate with EOTSS and the career centers to develop a web maintenance schedule to review and update their webpages on a periodic basis (e.g., quarterly or semiannually). 3. MDCS should require its career centers to assign designated staff members to oversee accessibility compliance and website updates.
Finding 3 **Page 30**	The MDCS JobQuest website is not fully accessible for all Massachusetts residents and users.

Effect	Common effects of noncompliance with WCAG 2.1 are listed below. • Improper reflow when zoomed in to 200% or 400% can significantly impact users with visual impairments who rely on zoom functionality to read and navigate content. • Broken or faulty hyperlinks limit users from having equitable access to critical information and key online services offered by MDCS. They also increase the likelihood that Massachusetts residents may either access outdated or incorrect information or be directed to webpages that no longer exist. • When hyperlinks are not identifiable because of poor color contrast or a lack of other distinguishable visual cues (e.g., underlining, bolding, color differentiation, or hover effects), users may struggle to identify interactable elements within a body of text. This may also result in users missing a hyperlink that could have provided them with important information. • When keyboard accessibility is limited (e.g., users cannot tab through the webpage), those with mobility issues may be unable to access certain features or content. • Keyboard traps may cause a user with mobility issues to become stuck on certain elements of the webpage. • Webpages without bypass blocks make it difficult for users who rely on screen readers or the keyboard for navigation to jump past repetitive content such as menus, headers, or sidebars and access the main content directly. • Webpages without titles can cause users with a screen reader to lose comprehension of what the webpage is. • A missing or incorrect language tag can create accessibility challenges, particularly for screen readers, which rely on the correct language attribute to provide accurate pronunciation and interpretation of the text. • Interactive elements (e.g., buttons) that lack clear labels may make it difficult for users with screen readers to understand that the content is clickable. This lack of accessibility not only impacts user experience but also undermines MDCS's ability to provide equitable access and digital inclusiveness.
Recommendation **Page 33**	1. MDCS should ensure that its third-party contractor is in compliance with WCAG 2.1. For example, MDCS can request accessibility statements and reports from its third-party contractor to review for compliance. 2. MDCS should work with its third-party contractor to develop a web maintenance schedule to periodically (e.g., quarterly or semiannually) review and update JobQuest webpages that are noncompliant with WCAG 2.1. 3. MDCS should assign designated staff members to oversee the accessibility compliance of all webpages on the JobQuest website.
Finding 4 **Page 34**	MDCS did not have an information classification policy and did not classify its data.

Effect	Not classifying information (e.g., PII or regulated information) hinders MDCS's ability to establish effective policies and procedures for information management and data protection. Without effective data policies in place, MDCS's sensitive data may be more vulnerable to unauthorized access, theft, or misuse. The lack of effective information classification can lead to other challenges, such as legal liabilities, regulatory violations, and MDCS reputational damage, particularly if personal information or data protected by privacy regulations is compromised. Improper management of data can not only harm MDCS, but it could also lead to increased risk and security vulnerabilities for Massachusetts residents who have used MDCS's services. Additionally, if the subsets of data contained in information systems are not properly classified, then the risk that critical systems are left exposed to threats, such as unauthorized use or theft, increases. This can cause MDCS to face challenges in planning for potential threats such as cybersecurity attacks, natural disasters, or fraud.
Recommendations **Page 35**	1. MDCS management should develop and implement an information classification policy to comply with IS.004 and should assign an information custodian in this policy. 2. MDCS should conduct a data inventory and classification assessment of information based on sensitivity, criticality, and regulatory requirements.
Finding 5 **Page 35**	MDCS did not perform a business impact analysis or risk assessment to classify its information systems.
Effect	Without a business impact analysis or risk assessment to classify information systems, the criticality of systems will not be assessed based on the sensitivity of the information stored within them. If vital systems are not classified correctly, then they cannot be protected correctly, whether from cybersecurity threats, natural disasters, or fraud. As a result, MDCS could face challenges in planning for these potential disruptions and may not be able to prioritize IT resources effectively in the event of an emergency.
Recommendations **Page 36**	1. MDCS management should implement a policy to periodically conduct a business impact analysis or risk assessment in order to classify its information systems. 2. MDCS should review these classifications at least annually or anytime a significant system change occurs.
Finding 6 **Page 36**	MDCS did not ensure that access to PII stored within its centralized database was limited to approved personnel members who have business needs to access it.
Effect	Granting personnel members access to PII without requiring formal approval of their business need exposes MDCS to significant risks, such as data breaches. This can lead to identity theft, damaged reputation, or legal liability for MDCS. Each of these risks would have negative impacts on the people whose information is compromised. The introduction of role-based access controls can be used to ensure that users are assigned permissions based on their roles and business need instead of individually assigned permissions on a person-by-person basis. In order to implement role-based access, all information must be classified (see Finding 4) to determine what information is confidential, such as PII, and should only be accessed by certain approved individuals in pertinent roles. Limiting access to PII helps protect the privacy of Massachusetts residents and reduces the risk that their information may be accessed by someone who may mismanage or steal it.

Recommendations Page 38	1. MDCS should ensure that every user requiring access to PII in the centralized database has their business need reviewed and approved before access is granted. 2. MDCS should implement role-based access. This new process should align with the principle of least privilege, where users should only be given the minimum level of access necessary to perform their job functions. 3. MDCS should review current users' access to determine whether these users have the appropriate approval, and MDCS should perform this review on a periodic basis. 4. MDCS should have users hired before fiscal year 2014 resubmit the database access forms electronically.
Finding 7 Page 39	MDCS did not ensure that access to PII stored at the career centers was limited to approved personnel members who have business needs to access it.
Effect	Granting personnel members access to PII without requiring formal approval of their business need exposes MDCS to significant risks, such as data breaches. This can lead to identity theft, damaged reputation, or legal liability for MDCS. Each of these risks would have negative impacts on the people whose information is compromised. The introduction of role-based access controls can be used to ensure that users are assigned permissions based on their roles and business need instead of individually assigned permissions on a person-by-person basis. In order to implement role-based access, all information must be classified (see Finding 4) to determine what information is confidential, such as PII, and should only be accessed by certain approved individuals in pertinent roles. Limiting access to PII helps protect the privacy of Massachusetts residents and reduces the risk that their information may be accessed by someone who may mismanage or steal it.
Recommendations Page 40	1. MDCS management should implement a strict access control policy requiring formal approval before granting access to PII stored outside of MDCS's centralized database. 2. MDCS should implement role-based access. This new process should align with the principle of least privilege, where users should only be given the minimum level of access necessary to perform their job functions. 3. MDCS should ensure that its career centers review current users' access to determine whether these users have the appropriate approval. MDCS should ensure its career centers perform this review on a periodic basis.

In addition to the conclusions we reached regarding our audit objectives, we also identified an issue not specifically addressed by our objectives. For more information, see Other Matters.

OVERVIEW OF AUDITED ENTITY

The MassHire Department of Career Services (MDCS) is located at 100 Cambridge Street in Boston and was established by Section 1 of Chapter 23H of the Massachusetts General Laws. On August 29, 2018, the Executive Office of Labor and Workforce Development commissioned MassHire as the rebranding for all Massachusetts Workforce Development Systems, renaming the Department of Career Services as the MassHire Department of Career Services. MDCS operates under the direction of its secretariat, the Executive Office of Labor and Workforce Development. Section 1 of Chapter 23H of the General Laws states that MDCS's mission is to "develop, coordinate, and maintain a coherent workforce development system that fills the needs of employers for a skilled workforce and promotes lifelong learning among employees." Website accessibility is also important to achieving MDCS's mission.

In fiscal year 2022, MDCS aided more than 72,000 job seekers (including those seeking unemployment insurance) and supported more than 19,000 companies. In fiscal year 2022, MDCS was granted $33,500,000 in state appropriations and $107,040,983 in federal grants. In fiscal year 2023, MDCS was granted $43,475,000 in state appropriations and $59,141,058 in federal grants. MDCS employed 203 personnel members during the audit period.

Career Centers

According to MDCS management, in order to carry out its mission of maintaining a workforce development system, MDCS oversees 28 physical career centers that job seekers can visit to access its services, 4 of which are focused on assisting youth job seekers. These career centers offer job seekers services and events like career guidance, resume writing, workshops, and trainings. Across the 28 career centers, there are 18 websites in addition to the main MDCS website. All of these career centers use a centralized database operated by MDCS for the storage and sharing of information.

JobQuest

JobQuest is an online service offered by MDCS that serves as a job board that job seekers can use to search for potential employment in Massachusetts. Job seekers can create a profile on JobQuest, which allows them to save jobs to view in the future and match their skills to current job openings. JobQuest also has lists of workshops and trainings that users can sign up for. Workshops include events such as résumé workshops or recruitment fairs, while training courses typically help prepare job seekers for a job.

Massachusetts Requirements for Accessible Websites

In 1999, the World Wide Web Consortium (W3C), an international nongovernmental organization responsible for internet standards, published the Web Content Accessibility Guidelines (WCAG) 1.0 to provide guidance on how to make web content more accessible to those with disabilities.

In 2005, the Massachusetts Office of Information Technology,[1] with the participation of state government webpage developers, including developers with disabilities, created the Enterprise Web Accessibility Standards. These standards required all state executive branch agencies to follow the guidelines in Section 508 of the Rehabilitation Act amendments of 1998. These amendments went into effect in 2001 and established precise technical requirements to which electronic and information technology (IT) products must adhere. This technology includes, but is not limited to, products such as software, websites, multimedia products, and certain physical products, such as standalone terminals.

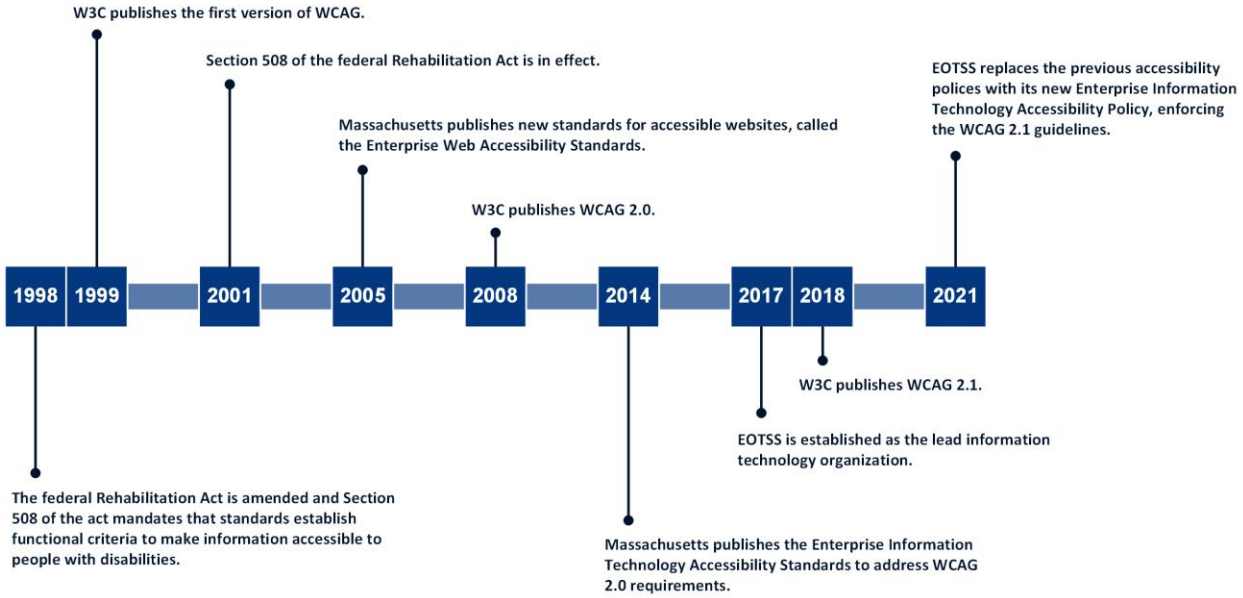
In 2008, W3C published WCAG 2.0. In 2014, the Massachusetts Office of Information Technology added a reference to WCAG 2.0 in its Enterprise Information Technology Accessibility Standards.

In 2017, the Executive Office of Technology Services and Security (EOTSS) was designated as the Commonwealth's lead IT organization for the executive branch. EOTSS is responsible for the development and maintenance of the Enterprise Information Technology Accessibility Standards and the implementation of state and federal laws and regulations relating to accessibility. As the principal executive agency responsible for coordinating the Commonwealth's IT accessibility compliance efforts, EOTSS supervises executive branch agencies in their efforts to meet the Commonwealth's technology accessibility requirements.

In 2018, W3C published WCAG 2.1, which built on WCAG 2.0 to improve web accessibility on mobile devices and to further improve web accessibility for people with visual impairments and cognitive disabilities. EOTSS published the Enterprise Information Technology Accessibility Policy in 2021 to meet Levels A and AA of WCAG 2.1.

1. The Massachusetts Office of Information Technology became the Executive Office of Technology Services and Security in 2017.

Timeline of the Adoption of Website Accessibility Standards by the Federal Government and Massachusetts



While EOTSS establishes standards for executive branch agencies, individual agencies such as MDCS are responsible for ensuring that their IT solutions and web content fully comply with EOTSS's accessibility standards. When publishing digital content to Mass.gov or other platforms, state agencies must comply with EOTSS's Web Design Guidelines, which were published in 2020 based on the federal 21st Century Integrated Digital Experience Act. EOTSS's Web Design Guidelines help state agencies evaluate their design and implementation decisions in meeting state accessibility requirements.

Web Accessibility

Government websites are an important way for the general public to access government information and services. Deloitte's[2] 2023 Digital Citizen Survey found that 55% of respondents preferred to interact with their state government services through a website instead of face-to-face interaction or a call center. Commonwealth of Massachusetts websites have millions of webpage views each month.

However, people do not interact with the internet uniformly. The federal government and nongovernmental organizations have established web accessibility standards intended to make websites more accessible to people with disabilities such as visual impairments, hearing impairments, and others.

2. Deloitte is an international company that provides tax, accounting, and audit services to businesses and government agencies.

The impact of these standards can be significant, as the federal Centers for Disease Control and Prevention estimate that 1,348,913 adults (23% of the adult population) in Massachusetts have a disability, as of 2021.

How People with Disabilities Use the Web

According to W3C, people with disabilities use assistive technologies and adaptive strategies specific to their needs to navigate web content. Examples of assistive technologies include screen readers, which read webpages aloud for people who cannot read text; screen magnifiers for individuals with low vision; and voice recognition software for people who cannot (or do not) use a keyboard or mouse. Adaptive strategies refer to techniques that people with disabilities employ to enhance their web interaction.[3] These strategies might involve increasing text size, adjusting mouse speed, or enabling captions.

To make web content accessible to people with disabilities, developers must ensure that various components of web development and interaction work together. This includes text, images, and structural code; users' browsers and media players; and various assistive technologies.

3. Web interaction refers to the various actions that users take while navigating and using the internet. It encompasses a wide range of online activities, including, but not limited to, clicking on links, submitting forms, posting comments on webpages, and engaging with web content and services in other forms.

Accessibility Features of a Website

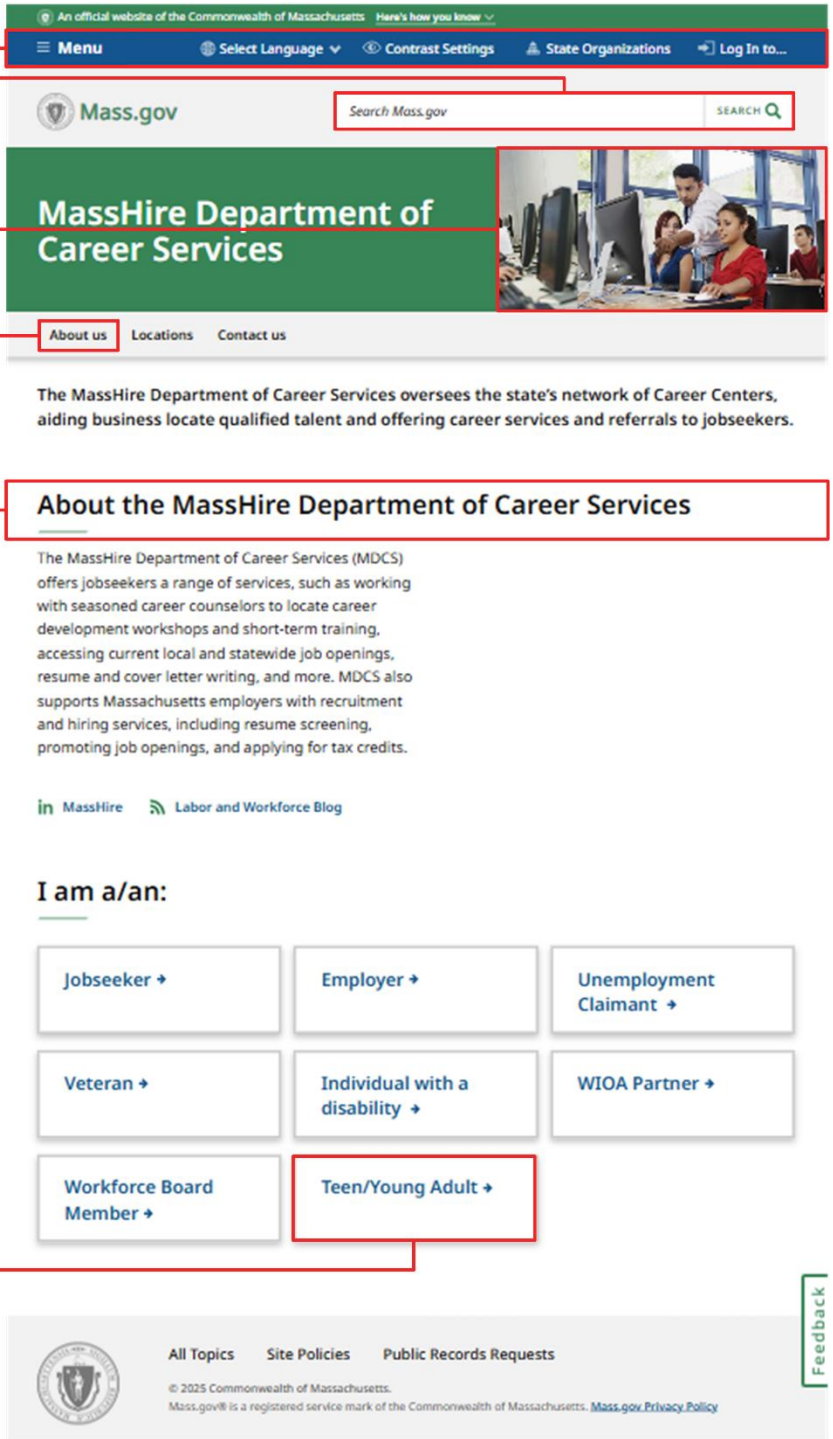
A site's header can appear throughout an entire site and contain links to main content areas

Alternative text should provide a description of an image so screen readers can describe the image

By properly labeling fields where text can be entered, screen readers will read aloud the type of information that a user should enter.

Headings organize web content in a logical manner and allow users to navigate content easily.

Screen reader users and persons with motor disabilities rely in part on the Tab key to navigate between major portions of the website's content.



IT Governance

IT governance refers to the processes that state agencies use to manage their IT resources. EOTSS documents these processes in standards that executive branch state agencies are required to follow. Specifically, Section 2 of Chapter 7D of the General Laws states,

> *Notwithstanding any general or special law, rule, regulation, executive order, policy or procedure to the contrary, all executive department agencies shall, and other state agencies may, adhere to the policies, procedures and objectives established by the executive office of technology services and security with respect to activities concerning information technology.*

IT governance processes include information classification, information disposal, information system classification, and the restriction of information access.

Information Classification Policy

EOTSS's Asset Management Standard IS.004[4] requires that state agencies establish classification or sensitivity levels for all the information in their custody. These classification levels are meant to ensure that information is protected in line with its value. EOTSS's Asset Management Standard IS.004 lists three levels of classification: public, internal use, and confidential.

The public classification involves information that is viewed by the public (e.g., press releases, information on public-facing websites, or advertising for services). The internal use classification involves information that does not reach the level of confidential but should not be viewed by the public (e.g., internal training materials or policies). The confidential classification is the highest level and involves information that should only be accessed by personnel members who need the information to perform their job duties (e.g., personnel performance documentation, personally identifiable information [PII], federal tax information, or passwords). Confidential information is sensitive by nature and could cause damage to the Commonwealth and its residents if it is compromised.

Information Disposal Procedures

EOTSS Asset Management Standard IS.004 requires that all executive branch state agencies establish information disposal procedures for information in their custody. Section 6.4.2.4 of this standard states that each agency must "identify and securely delete stored information that exceeds defined retention

4. The title of EOTSS's Asset Management Standard IS.004 was changed in 2025 to Asset Management Standard IS.015.

periods on a quarterly basis." Information disposal reduces the risk of data becoming compromised by limiting the amount of data that could potentially be stolen. Additionally, specific types of information (e.g., tax data) are subject to state retention schedules with which agency policymakers must comply.

Information System Classification

EOTSS Asset Management Standard IS.004 requires that all executive branch state agencies perform a business impact analysis[5] or a risk assessment[6] in order to classify their information systems. Classifying information systems promotes a consistent approach to risk management and disaster recovery. Information systems classifications are separated into the following four levels:

- low: public information;
- medium: internal use information;
- high: confidential information or business support systems (e.g., email); and
- critical: information with regulatory requirements (e.g., information involving the Health Insurance Portability and Accountability Act or federal taxes).

Information systems contain diverse arrays of data, all of which should be classified in order to better protect the data within. If an information system is not properly classified, the data within can become vulnerable.

Restricting Access to PII

EOTSS Asset Management Standard IS.004 requires that all executive branch state agencies restrict access to confidential information to a narrow subset of personnel members who have a business need to access said information. Specifically, this policy lists PII as confidential information that an agency may have in its custody. Limiting access to PII prevents it from being used in a way that could cause harm to the Commonwealth and its residents, business partners, and customers.

5. In its Glossary of Terms IS.Glossary, EOTSS defines a business impact analysis as "a review that predicts the consequences of disruption of a business function and process and gathers information needed to develop recovery strategies."
6. In its "Special Publication 800-30—Guide for Conducting Risk Assessments," the National Institute of Standards and Technology defines a risk assessment as "the process of identifying, estimating, and prioritizing risks to organizational operations (including mission, functions, image, reputation), organizational assets, individuals, other organizations, and the Nation, resulting from the operation of an information system."

AUDIT OBJECTIVES, SCOPE, AND METHODOLOGY

In accordance with Section 12 of Chapter 11 of the Massachusetts General Laws, the Office of the State Auditor has conducted a performance audit of certain activities of the MassHire Department of Career Services (MDCS) for the period July 1, 2022 through June 30, 2023.

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.

Below is a list of our audit objectives, indicating each question we intended our audit to answer; the conclusion we reached regarding each objective; and, if applicable, where each objective is discussed in the audit findings.

Objective	Conclusion
1. Was MDCS's website in compliance with the Executive Office of Technology Services and Security's (EOTSS's) Enterprise Information Technology Accessibility Policy and the World Wide Web Consortium's (W3C's) Web Content Accessibility Guidelines (WCAG) 2.1 for user accessibility, keyboard accessibility, navigation accessibility, language, error identification, and color accessibility?	**No; see Findings 1 and 2**
2. Was the JobQuest website in compliance with EOTSS's Enterprise Information Technology Accessibility Policy and W3C's WCAG 2.1 for user accessibility, keyboard accessibility, navigation accessibility, language, error identification, and color accessibility?	**No; see Finding 3**
3. Did MDCS do the following to implement certain information technology (IT) governance policies: a. establish classification or sensitivity levels of all information of which it had custody in accordance with Section 6.2. of EOTSS's Asset Management Standard IS.004; b. identify and securely delete stored information that exceeded defined retention periods on a quarterly basis in accordance with Section 6.4.2.4. of EOTSS's Asset Management Standard IS.004; and c. conduct a business impact analysis or risk assessment to determine the classification level of information systems in accordance with Section 6.6.2. of EOTSS's Asset Management Standard IS.004?	**No; see Findings 4, and 5**
4. Did MDCS restrict access to personally identifiable information (PII) to a narrow subset of personnel members who had a business need to access the information in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004?	**No; see Findings 6 and 7**

To accomplish our audit objectives, we gained an understanding of MDCS's internal control environment relevant to our objectives by reviewing applicable policies and procedures and by interviewing MDCS staff members and management. In addition, to obtain sufficient, appropriate evidence to address our audit objectives, we performed the procedures described below.

Accessibility Testing on MDCS's and Career Centers' Websites

To determine whether MDCS's website and the websites of the career centers were in compliance with EOTSS's Enterprise Information Technology Accessibility Policy and W3C's WCAG 2.1 for user accessibility, keyboard accessibility, navigation accessibility, language, error identification, and color accessibility, we took the actions described below.

We reviewed MDCS's website and 5 career center websites from a total of 18 career center websites. The selected career center websites were those of the following institutions: the Bristol Career Center, the Greater Brockton Career Center, the Greater New Bedford Career Center, the Lowell Career Center, and the North Central Career Center.

To determine whether MDCS's and the selected career centers' websites met WCAG 2.1 for user accessibility, we selected random, nonstatistical samples of the following websites:

- MDCS's website: We selected a sample of 60 webpages out of a total population of 842.
- The Bristol Career Center's website: We selected a sample of 5 webpages out of a total population of 18.
- The Greater Brockton Career Center's website: We selected a sample of 10 webpages out of a total population of 28.
- The Greater New Bedford Career Center's website: We selected a sample of 5 webpages out of a total population of 7.
- The Lowell Career Center's website: We selected a sample of 20 webpages out of a total population of 59.
- The North Central Career Center's website: We selected a sample of 10 webpages out of a total population of 39.

We performed the procedures described below on the sampled webpages.

User Accessibility

- We determined whether content on the website was able to be viewed in both portrait and landscape modes.
- We determined whether content on the webpage was undamaged and remained readable when zoomed to 200% and 400%.

Keyboard Accessibility

- We determined whether all elements[7] of the webpage could be navigated using only a keyboard.
- We determined whether any elements on the webpage prevented a user from moving to a different element when using only a keyboard to navigate the webpage.
- We determined whether the first focusable control[8] is a hyperlink that redirects to the main content of the website. The first focusable control is known as either a bypass block or a skip link.

Navigation Accessibility

- We determined whether the website contained a title that was relevant to website content.
- We determined whether there was a search function present to help users locate content.
- We determined whether related hyperlinks allowed navigation to the intended webpage.
- We determined whether headings within websites related to the content of the header's section.

Language

- We determined whether video content found within the website had all important sounds and dialogue captioned.
- We determined whether the language of the webpage was tagged with the correct language attribute.[9]
- We determined whether words that appeared on the webpage matched the language to which the webpage was set.

7. An element is a part of a webpage that contains data, text, or an image.
8. The first focusable control is the first element a user will be brought to on a webpage when navigating with a keyboard.
9. A language tag identifies the native language of the content on the webpage or PDF (e.g., a webpage in English should have an EN language tag). The language tag is listed in the webpage's or PDF's properties. This, among other things, is used to help screen readers use the correct pronunciation for words.

Error Identification

- We determined whether mandatory form fields alerted users if the field was left blank.
- We determined whether there was a label for elements that required user input.
- We determined whether the label was programmed correctly.
- We determined whether there were examples given to assist the user in correcting mistakes (for example, a warning when entering a letter in a field meant for numbers).

Color Accessibility

- We determined whether there was at least a 3:1 contrast in color and additional visual cues to distinguish hyperlinks, which WCAG recommends for users with colorblindness or other visual impairments.

See Finding 1 for issues we identified with MDCS's website. See Finding 2 for issues we identified with the career centers' websites.

JobQuest Website Accessibility Testing

To determine whether the JobQuest website met WCAG 2.1 for user accessibility, we took the actions described below. We inspected the following sample of webpage types from JobQuest's website:

- JobQuest's main webpages: We selected a random, nonstatistical sample of 20 webpages out of a total population of 72.
- Job webpages: We selected a random, statistical[10] sample of 60 webpages out of a total population of 2,424 using a 95% confidence level,[11] a 0% expected error rate,[12] and a 5% tolerable error rate.[13]
- Training webpages: We selected a random, nonstatistical sample of 60 out of a total population of 840 webpages for trainings that had occurred recently or were upcoming at the time of our testing. Training webpages are removed after the training occurs, so there were no webpages available that were active during the audit period.

10. Auditors use statistical sampling to select items for audit testing when a population is large and contains similar items. Auditors generally use a statistics software program to choose a random sample when statistical sampling is used. The results of testing using statistical sampling, unlike those from judgmental sampling, can usually be used to make conclusions or projections about entire populations.
11. Confidence level is a mathematically based measure of the auditor's assurance that the sample results (statistic) are representative of the population (parameter), expressed as a percentage.
12. Expected error rate is the number of errors that are expected in the population, expressed as a percentage. It is based on the auditor's knowledge of factors such as prior year results, the understanding of controls gained in planning, or a probe sample.
13. The tolerable error rate (which is expressed as a percentage) is the maximum error in the population that is acceptable while still using the sample to conclude that the results from the sample have achieved the objective.

- Workshop webpages: We selected a random, statistical sample of 60 out of a total of 2,902 webpages for workshops that had occurred recently or were upcoming at the time of our testing, using a 95% confidence level, a 0% expected error rate, and a 5% tolerable error rate. Workshop webpages are removed after the workshop occurs, so there were no webpages available that were active during the audit period.

On the sampled webpages, we performed the procedures described below.

User Accessibility

- We determined whether content on the website was able to be viewed in both portrait and landscape modes.
- We determined whether content on the webpage was undamaged and remained readable when zoomed to 200% and 400%.

Keyboard Accessibility

- We determined whether all elements of the webpage could be navigated using only a keyboard.
- We determined whether any elements on the webpage prevented a user from moving to a different element when using only a keyboard to navigate the webpage.
- We determined whether the first focusable control is a hyperlink that redirects to the main content of the website. The first focusable control is known as either a bypass block or a skip link.

Navigation Accessibility

- We determined whether the website contained a title that was relevant to website content.
- We determined whether there was a search function present to help users locate content.
- We determined whether related hyperlinks allowed navigation to the intended webpage.
- We determined whether headings within websites related to the content of the header's section.

Language

- We determined whether video content found within the website had all important sounds and dialogue captioned.
- We determined whether the language of the webpage was tagged with the correct language attribute.
- We determined whether words that appeared on the webpage matched the language to which the webpage was set.

Error Identification

- We determined whether mandatory form fields alerted users if the field was left blank.
- We determined whether there was a label for elements that required user input.
- We determined whether the label was programmed correctly.
- We determined whether there were examples given to assist the user in correcting mistakes (for example, a warning when entering a letter in a field meant for numbers).

Color Accessibility

- We determined whether there was at least a 3:1 contrast in color and additional visual cues to distinguish hyperlinks, which WCAG recommends for users with colorblindness or other visual impairments.

See Finding 3 for issues we identified with the JobQuest website.

IT Governance Testing

We took the following actions to determine whether MDCS established IT governance policies and procedures over the areas listed below.

Information Classification Policy

To determine whether MDCS's information classification policy met the requirements of Section 6.2 of EOTSS's Asset Management Standard IS.004, we interviewed knowledgeable MDCS staff members and requested MDCS's information classification policy. We learned that MDCS did not have an information classification policy in place during the audit period.

See Finding 4 regarding MDCS's information classification policy.

Information Disposal Plan and Procedures

To determine whether MDCS's information disposal procedures met the requirements of Section 6.4.2.4. of EOTSS's Asset Management Standard IS.004, we interviewed knowledgeable MDCS staff members and requested MDCS's information disposal plan and procedures.

Business Impact Analysis or Risk Assessment to Determine Information System Classification

To determine whether MDCS conducted a business impact analysis or risk assessment in accordance with the requirements of Section 6.6.2. of EOTSS's Asset Management Standard IS.004, we interviewed knowledgeable MDCS staff members and requested the MDCS business impact analysis or risk assessment used to determine the classification level of MDCS's information systems. We were informed that MDCS did not conduct a business impact analysis or risk assessment to determine the classification level of its information systems.

See Finding 5 regarding MDCS's business impact analysis and/or risk assessment.

Restricted Access to PII

To determine whether MDCS and the career centers restricted access to PII to the narrow subset of personnel members who had a business need to access the information in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004, we took the actions described below. We reviewed MDCS and 10 career centers from a total of 28 career centers. The 10 career centers selected were those of the following areas: Berkshire, Greater Brockton, Boston, Cape and Islands, Framingham, Holyoke, Merrimack Valley, Metro North-Woburn, North Central, and North Shore Youth Center.

We requested that knowledgeable MDCS staff members identify personnel members on the MDCS employee list who had access to MDCS's centralized database. We then requested that knowledgeable staff members at each of the selected career centers identify personnel members on each of their employee lists who had access to MDCS's centralized database. If a user was listed on both the MDCS employee list and one of the career centers' employee lists, we included them only in the population for MDCS.

Additionally, for the career centers that stored PII outside of the centralized database, we requested that knowledgeable personnel members at these career centers identify the personnel members on their employee lists who would have had access to it.

We organized our sample consisting of MDCS and the career centers into two subsections. The first subsection contained MDCS and the Greater Brockton Career Center, which only store data in MDCS's centralized database. For this first subsection, we conducted one test, which involved our inspection of

user authorization forms for access to the MDCS centralized database. The second subsection contained the career centers that stored data in both MDCS's centralized database and their corresponding career center. For the second subsection, we conducted two tests. First, we inspected user authorization forms for access to MDCS's centralized database, and then we inspected authorization forms for access to PII stored at the corresponding career center. We selected random, nonstatistical samples for the populations below, except for the Boston Career Center, the Metro North–Woburn Career Center, and the North Shore Youth Center. For the Boston Career Center and the Metro North–Woburn Career Center, we selected a random, nonstatistical sample for the first test and tested the whole population for the second test. For the North Shore Youth Center, we tested the whole population for the first test and selected a random, nonstatistical sample for the second test.

First Subsection: MDCS and the Greater Brockton Career Center

- MDCS:
    - We inspected the database approval forms for a sample of 35 employees with access to MDCS's centralized database, from a population of 200 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.
- Greater Brockton Career Center:
    - We inspected the database approval forms for a sample of 10 employees with access to PII in MDCS's centralized database, from a population of 26 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.

Second Subsection: Other Career Centers

- Berkshire Career Center:
    - We inspected the database approval forms for a sample of 10 employees with access to MDCS's centralized database, from a population of 26 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.
    - Berkshire Career Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's centralized database. Instead, we inspected general confidentiality forms signed at hire for a sample of 5 employees with access to PII stored outside of MDCS's centralized database, from a population of 12 employees.

- Boston Career Center:
    - We inspected the database approval forms for a sample of 10 employees with access to PII in MDCS's centralized database, from a population of 22 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.
    - Boston Career Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's centralized database. Instead, we inspected general confidentiality forms signed at hire for the one employee with access to PII stored outside of MDCS's centralized database.
- Cape and Islands Career Center:
    - We inspected the database approval forms for a sample of 5 employees, from a population of 17 employees with access to PII in MDCS's centralized database, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.
    - Cape and Islands Career Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's centralized database. Instead, we inspected general confidentiality forms signed at hire for a sample of 10 employees with access to PII stored outside of MDCS's centralized database, from a population of 23 employees.
- Framingham Career Center:
    - We inspected the database approval forms for a sample of 10 employees with access to PII in MDCS's centralized database, from a population of 24 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.
    - Framingham Career Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's centralized database. Instead, we inspected general confidentiality forms signed at hire for a sample 10 employees with access to PII stored outside of MDCS's centralized database, from a population of 32 employees.
- Holyoke Career Center:
    - We inspected the database approval forms for a sample of 20 employees with access to PII in MDCS's centralized database, from a population of 52 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.
    - We inspected the user access forms for a sample 10 employees with access to PII, from a population of 24 employees with access to PII stored outside of MDCS's centralized database,

and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.

- Merrimack Valley Career Center:

  - We inspected the database approval forms for a sample of 10 employees with access to PII in MDCS's centralized database, from a population of 38 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.

  - Merrimack Valley Career Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's centralized database. Instead, we inspected the general confidentiality forms signed at hire for a sample of 20 employees with access to PII stored outside of MDCS's centralized database, from a population of 54 employees.

- Metro North-Woburn Career Center:

  - We inspected the database approval forms for a sample of 5 employees with access to PII in MDCS's centralized database, from a population of 18 employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.

  - Metro North-Woburn Career Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's centralized database. Instead, we inspected general confidentiality forms signed at hire for all three employees with access to PII stored outside of MDCS's centralized database.

- North Central Career Center:

  - We inspected the database approval forms for a sample of five employees with access to PII in MDCS's centralized database, from a population of eight employees, and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.

  - North Central Career Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's centralized database. Instead, we inspected the general confidentiality forms signed at hire for a sample of five employees with access to PII stored outside of MDCS's centralized database, from a population of eight employees.

- North Shore Youth Center:

  - We inspected the database approval forms for all four employees with access to PII in MDCS's centralized database and verified that the employees' access to PII was approved in accordance with Section 6.2.1. of EOTSS's Asset Management Standard IS.004.

  - North Shore Youth Center management informed us that they did not have an authorization process for personnel members to be granted access to PII stored outside of MDCS's

centralized database. Instead, we inspected the general confidentiality forms signed at hire for a sample of five employees with access to PII stored outside of MDCS's centralized database, from a population of nine employees.

See Finding 6 regarding MDCS's authorization process for access to PII. See Finding 7 regarding the career centers' authorization processes for access to PII.

We used a combination of statistical and nonstatistical sampling methods for testing and did not project the results of our testing to any corresponding populations.

Data Reliability Assessment

Web Accessibility

To determine the reliability of the site map spreadsheets we received from MDCS and each of the five additional career centers, we took the following actions. We interviewed MDCS management, interviewed knowledgeable MDCS staff members, and checked that variable formats (e.g., dates, unique identifiers, or abbreviations) were accurate. Additionally, we ensured that there was no abbreviation of data fields, no missing data (e.g., hidden rows or columns, blank cells, or absent records), no duplicate records, and that all values in the data set corresponded with expected values.

To determine the completeness and accuracy of MDCS's and each career center's site maps, we took the following actions:

- MDCS: We selected a random sample of 20 uniform resource locators (URLs)[14] that could be accessed independently from the MDCS site map and traced each to the corresponding webpage, checking that each URL and webpage title matched the information on the MDCS website. We also selected a random sample of 20 URLs from MDCS's website and traced each URL and webpage title to the site map.
- Greater Lowell: We selected a random sample of 10 URLs that could be accessed independently from the site map and traced them to the corresponding webpage, checking that each URL and webpage title matched the information on the website. We also selected a random sample of 10 URLs from the website and traced each URL and webpage title to the site map.
- Bristol, Greater Brockton, Greater New Bedford, North Central: We selected a random sample of five URLs that could be accessed independently from the site map and traced them to the corresponding webpage, checking that each URL and webpage title matched the information on the website. We also selected a random sample of five URLs from the websites and traced each URL and webpage title to the site map.

14. A URL uniquely identifies an internet resource, such as a website.

JobQuest Web Accessibility

To determine the reliability of the spreadsheets of the main JobQuest webpages, jobs webpages, workshops webpages, and trainings webpages received from MDCS, we took the following actions. We interviewed MDCS management, interviewed knowledgeable MDCS staff members, and checked that variable formats (e.g., dates, unique identifiers, abbreviations) were accurate. Additionally, we ensured that there was no abbreviation of data fields, no missing data (e.g., hidden rows or columns, blank cells, absent records), no duplicate records, and that all values in the data set corresponded with expected values.

In addition, we selected a random sample of 20 URLs that could be accessed independently from each of the spreadsheets and traced them to the corresponding webpage, checking that each URL and webpage title matched the information on the JobQuest website. We also selected a random sample of 20 URLs from JobQuest's website and traced each URL and webpage title to the site map to ensure that there was a complete and accurate population of URLs on the site map.

IT Governance

To determine the reliability of the employee lists we received from MDCS and each of the 10 career centers, we took the following actions. We interviewed MDCS management and knowledgeable MDCS staff members, and checked that variable formats (e.g., dates, unique identifiers, abbreviations) were accurate. Additionally, we ensured that there was no abbreviation of data fields, no missing data (e.g., hidden rows or columns, blank cells, absent records), no duplicate records, and that all values in the data set corresponded with expected values.

To determine the completeness and accuracy of MDCS's and each career center's employee lists, we took the following actions:

- MDCS: We selected random samples of 10 employees from MDCS's employee list and traced their names to CTHRU, the Commonwealth's statewide payroll open records system. We also selected a random sample of 10 employees who were listed as MDCS employees on CTHRU and traced their names back to MDCS's employee list.
- Holyoke and Merrimack Valley: We selected random samples of 10 employees from each employee list and traced their names to pay stubs at the career centers. We also selected random samples of 10 employees from the pay stub records and traced their names back to each employee list.

- Berkshire, Boston, Cape and Islands, Framingham, Greater Brockton, Metro North-Woburn, North Central, and North Shore Youth Center: We selected random samples of five employees from each employee list and traced their names to pay stubs at the career centers. We also selected random samples of 5 employees from the pay stub records and traced their names back to each employee list.

Based on the results of the data reliability assessment procedures described above, we determined that the site maps and employee lists we obtained during the course of our audit were sufficiently reliable for the purposes of our audit.

DETAILED AUDIT FINDINGS WITH AUDITEE'S RESPONSE

1. The MassHire Department of Career Services website is not fully accessible for all Massachusetts residents and users.

Some of the MassHire Department of Career Services' (MDCS's) webpages do not comply with the Web Content Accessibility Guidelines (WCAG) 2.1. During our testing, 1 out of the 60 webpages we tested experienced a loss of functionality viewed at 200% or 400% zoom. This issue can significantly impact users with visual impairments who rely on zoom functionality to read and navigate content.

Additionally, 1 out of the 60 webpages we tested (a different webpage than above) did not have a language attribute that matched the webpage language. This mismatch can create accessibility challenges, particularly for screen readers that rely on the correct language attribute to provide accurate pronunciation and interpretation of the text. This lack of accessibility not only impacts user experience but also undermines MDCS's ability to provide equitable access and digital inclusiveness.

Authoritative Guidance

WCAG 2.1 states,

> *Success Criterion 1.4.10 Reflow[15] (Level AA)*
>
> *Content can be presented without loss of information or functionality, and without requiring scrolling in two dimensions for:*
>
> *Vertical scrolling content at a width equivalent to 320 CSS pixels*
>
> *Horizontal scrolling content at a height equivalent to 256 CSS pixels*
>
> *Except for parts of the content which require two-dimensional layout for usage or meaning.*
>
> *Success Criterion 3.1.1 Language of a Page (Level A)*
>
> *The default human language of each Web page can be programmatically determined.*

Reasons for Issue

MDCS management stated that MDCS does not routinely review the accessibility of various website links. Issues are reviewed and corrected following notification of problems by a customer or end user. This was

15. WCAG 2.1 defines proper reflow as "content [that] can be presented without loss of information or functionality, and without requiring scrolling in two dimensions" when zoomed in or resizing a page.

reportedly due to the sheer volume of websites and the limited staff members assigned to this function because of budgetary restraints.

Recommendations

1. MDCS should implement a policy to review its webpages periodically for WCAG 2.1 compliance.
2. MDCS should collaborate with the Executive Office of Technology Services and Security (EOTSS) to develop a web maintenance schedule to review and update incorrect language tags and improper reflow on a periodic basis (e.g., quarterly or semiannually).
3. MDCS should assign designated staff members to oversee accessibility compliance and website updates.

Auditee's Response

Modernizing the MassHire online system has been a priority for the Executive Office of Labor & Workforce Development (EOLWD) and MDCS. In fact, the Massachusetts Workforce Agenda, released on March 18, 2024, identifies four key focus areas: (1) Talent Attraction and Retention; (2) Talent Development; (3) Leadership by Example; and (4) Workforce System Infrastructure. The fourth pillar, workforce system infrastructure is evidence of the priority. In recognition of this, in November of 2024, EOLWD and MDCS, partnered with the Executive Office of Technology Services and Security (EOTSS) to officially launch a system modernization project that will ultimately replace MDCS's current online system.

Throughout this modernization, EOLWD/MDCS will collaborate with EOTSS to revise internal policies and procedures to ensure compliance with Web Content Accessibility Guidelines and other Commonwealth standards. Built into this process will be a periodic review of language and accessibility standards to ensure continued compliance.

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.

2. The MassHire Department of Career Services career centers' websites are not fully accessible for all Massachusetts residents and users.

The career centers' websites are not fully accessible. We determined that all five of the career centers' websites contained webpages that were not accessible in accordance with WCAG 2.1 for user accessibility, keyboard accessibility, navigational accessibility, language, error identification, or color accessibility. We tested webpage samples consisting of 5 Bristol, 5 New Bedford, 10 Brockton, 10 North Central, and 20 Lowell career center webpages. During our testing, we identified webpages that contained sections that had improper reflow when zoomed to 200% or 400%, broken hyperlinks, hyperlinks without sufficient

contrast, keyboard navigation issues, and forms without error identifications. Common effects of noncompliance with WCAG 2.1 are listed below.

- Improper reflow when zoomed in to 200% or 400% can significantly impact users with visual impairments who rely on zoom functionality to read and navigate content.
- Broken or faulty hyperlinks limit users from having equitable access to critical information and key online services offered by MDCS. They also increase the likelihood that Massachusetts residents and users may either access outdated or incorrect information or be directed to webpages that no longer exist.
- When hyperlinks are not identifiable because of poor color contrast or a lack of other distinguishable visual cues (e.g., underlining, bolding, color differentiation, or hover effects), users may struggle to identify interactable elements within a body of text. This may also result in users missing a hyperlink that could have provided them with important information.
- When keyboard accessibility is limited (e.g., users cannot tab through the webpage), those with mobility issues may be unable to access certain features or content.
- If users are not informed of errors when inputting data, then they may be unable to identify their errors and retrieve the content they need.

This lack of accessibility not only impacts user experience but also undermines MDCS's ability to provide equitable access and digital inclusiveness.

We tested 5 Bristol, 5 New Bedford, 10 Brockton, 10 North Central, and 20 Lowell career center webpages. The table below details the results of our testing.

Career Center Web Accessibility Testing

Success Criterion	Bristol Instances of Noncompliance	New Bedford Instances of Noncompliance	Brockton Instances of Noncompliance	North Central Instances of Noncompliance	Lowell Instances of Noncompliance
1.4.10: Reflow	0	0	0	10	1
2.4.5–2: Multiple Ways	2	0	10	2	20
1.4.1: Use of Color	5	0	4	10	20
2.1.1: Keyboard	0	5	0	0	20
3.3.1: Error Identification	0	0	0	0	5
Total Instances of Noncompliance	7	5	14	22	66

Authoritative Guidance

WCAG 2.1 states,

> *Success Criterion 1.4.10 Reflow (Level AA)*
>
> *Content can be presented without loss of information or functionality, and without requiring scrolling in two dimensions for:*
>
> *Vertical scrolling content at a width equivalent to 320 CSS pixels*
>
> *Horizontal scrolling content at a height equivalent to 256 CSS pixels*
>
> *Except for parts of the content which require two-dimensional layout for usage or meaning.*
>
> *Success Criterion 2.4.5 Multiple Ways (Level AA)*
>
> *More than one way is available to locate a web page within a set of web pages except where the Web Page is the result of, or a step in, a process.*
>
> *Success Criterion 1.4.1 Use of Color (Level A)*
>
> *Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.*
>
> *Success Criterion 2.1.1 Keyboard (Level A)*
>
> *All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints.*
>
> *Success Criterion 3.3.1 Error Identification (Level A)*
>
> *If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text.*

Reasons for Issue

MDCS management stated that MDCS does not routinely review the accessibility of various website links. Issues are reviewed and corrected following notification of problems by a customer or end user. This was reportedly due to the sheer volume of websites and the limited staff members assigned to this function because of budgetary restraints.

Recommendations

1. MDCS should implement and enforce a policy for its career centers to review their webpages periodically for WCAG 2.1 compliance.

2. MDCS should collaborate with EOTSS and the career centers to develop a web maintenance schedule to review and update their webpages on a periodic basis (e.g., quarterly or semiannually).

3. MDCS should require its career centers to assign designated staff members to oversee accessibility compliance and website updates.

Auditee's Response

See response 1. Additionally, MDCS will continue to collaborate with EOTSS and local career centers to support compliance with the latest WCAG standards. This will include a periodic review of all career center websites to ensure consistency with regard to language and website accessibility.

As part of the annual monitoring review performed by the MDCS Field Management & Oversight team, we will review local areas to ensure the career centers are following the determined scheduling (e.g., quarterly or semiannually) and any other required updates.

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.

3. The MassHire Department of Career Services JobQuest website is not fully accessible for all Massachusetts residents and users.

MDCS's JobQuest website is not fully accessible. We determined that JobQuest contained webpages that were not accessible in accordance with WCAG 2.1 for user accessibility, keyboard accessibility, navigational accessibility, error identification, or color accessibility. We tested samples consisting of 60 workshops webpages,[16] 60 trainings webpages, 60 jobs webpages, and 20 JobQuest main webpages. See the table below for exceptions noted in each category. During our audit, we identified webpages that contained sections with improper reflow when zoomed to 200% or 400%, broken hyperlinks, hyperlinks without a secondary identifier, keyboard navigation issues, elements that trapped focus, and buttons that did not have a label. Additionally, some of these webpages did not contain a bypass block as the first focusable control, webpage titles, or language tags. Common effects of noncompliance with WCAG 2.1 are listed below.

- Improper reflow when zoomed in to 200% or 400% can significantly impact users with visual impairments who rely on zoom functionality to read and navigate content.

- Broken or faulty hyperlinks limit users from having equitable access to critical information and key online services offered by MDCS. They also increase the likelihood that Massachusetts

16. Each workshop offered on the JobQuest website has its own webpage to which a user can navigate in order to view information about that workshop. Workshops include events such as resume workshops or recruitment fairs.

residents may either access outdated or incorrect information or be directed to webpages that no longer exist.

- When hyperlinks are not identifiable because of poor color contrast or a lack of other distinguishable visual cues (e.g., underlining, bolding, color differentiation, or hover effects), users may struggle to identify interactable elements within a body of text. This may also result in users missing a hyperlink that could have provided them with important information.
- When keyboard accessibility is limited (e.g., users cannot tab through the webpage), those with mobility issues may be unable to access certain features or content.
- Keyboard traps may cause a user with mobility issues to become stuck on certain elements of the webpage.
- Webpages without bypass blocks make it difficult for users who rely on screen readers or the keyboard for navigation to jump past repetitive content such as menus, headers, or sidebars and access the main content directly.
- Webpages without titles can cause users with a screen reader to lose comprehension of what the webpage is.
- A missing or incorrect language tag can create accessibility challenges, particularly for screen readers, which rely on the correct language attribute to provide accurate pronunciation and interpretation of the text.
- Interactive elements (e.g., buttons) that lack clear labels may make it difficult for users with screen readers to understand that the content is clickable.

This lack of accessibility not only impacts user experience but also undermines MDCS's ability to provide equitable access and digital inclusiveness.

We tested 60 workshops webpages, 60 trainings webpages, 60 jobs webpages, and 20 JobQuest main webpages. The table below details the results of our testing.

JobQuest Web Accessibility Testing

Success Criterion	Workshop Instances of Noncompliance	Training Instances of Noncompliance	Job Instances of Noncompliance	Main Website Instances of Noncompliance
1.4.10: Reflow	0	0	0	1
2.4.5–2: Multiple Ways	0	4	0	1
1.4.1: Use of Color	60	60	60	2
2.1.1: Keyboard	0	0	0	2
2.1.2: No Keyboard Trap	0	0	60	1

Success Criterion	Workshop Instances of Noncompliance	Training Instances of Noncompliance	Job Instances of Noncompliance	Main Website Instances of Noncompliance
2.4.1: Bypass Blocks	0	0	0	5
2.4.2: Page Titled	60	60	60	16
3.1.1: Language of Page	60	60	60	15
3.3.2–2: Labels or Instructions	0	60	0	0
Total Instances of Noncompliance	180	244	240	43

Authoritative Guidance

WCAG 2.1 states,

Success Criterion 1.4.10 Reflow (Level AA)

Content can be presented without loss of information or functionality, and without requiring scrolling in two dimensions for:

Vertical scrolling content at a width equivalent to 320 CSS pixels

Horizontal scrolling content at a height equivalent to 256 CSS pixels

Except for parts of the content which require two-dimensional layout for usage or meaning.

Success Criterion 2.4.5 Multiple Ways (Level AA)

More than one way is available to locate a web page within a set of web pages except where the Web Page is the result of, or a step in, a process.

Success Criterion 1.4.1 Use of Color (Level A)

Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.

Success Criterion 2.1.1 Keyboard (Level A)

All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints.

Success Criterion 2.1.2 No Keyboard Trap (Level A)

If keyboard focus can be moved to a component of the page using a keyboard interface, then focus can be moved away from that component using only a keyboard interface, and, if it requires more

than unmodified arrow or tab keys or other standard exit methods, the user is advised of the method for moving focus away.

Success Criterion 2.4.1 Bypass Blocks (Level A)

A mechanism is available to bypass blocks of content that are repeated on multiple web pages.

Success Criterion 2.4.2 Page Titled (Level A)

Web pages have titles that describe topic or purpose.

Success Criterion 3.1.1 Language of a Page (Level A)

The default human language of each Web page can be programmatically determined.

Success Criterion 3.3.2 Labels of Instructions (Level A)

Labels or instructions are provided when content requires user input.

Reasons for Issue

MDCS management stated that MDCS does not routinely review the accessibility of various website links.

Issues are reviewed and corrected following notification of problems by a customer or end user.

Recommendations

1. MDCS should ensure that its third-party contractor is in compliance with WCAG 2.1. For example, MDCS can request accessibility statements and reports from its third-party contractor to review for compliance.

2. MDCS should work with its third-party contractor to develop a web maintenance schedule to periodically (e.g., quarterly or semiannually) review and update JobQuest webpages that are noncompliant with WCAG 2.1.

3. MDCS should assign designated staff members to oversee the accessibility compliance of all webpages on the JobQuest website.

Auditee's Response

See response 1. Additionally, MDCS is working with a third-party contractor to develop a plan to align JobQuest with WCAG 2.1. MDCS will work with its contractor to develop a web maintenance schedule to periodically review and update JobQuest webpages that are found to be noncompliant with the standards.

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.

4. The MassHire Department of Career Services did not have an information classification policy and did not classify its data.

MDCS revealed to us in interviews that it did not have an information classification policy and did not establish classification levels for its information assets (e.g., confidential, internal use, or public), leaving sensitive data without a clear framework for protection and management.

Not classifying information (e.g., personally identifiable information [PII] or regulated information) hinders MDCS's ability to establish effective policies and procedures for information management and data protection. Without effective data policies in place, MDCS's sensitive data may be more vulnerable to unauthorized access, theft, or misuse.

The lack of effective information classification can lead to other challenges, such as legal liabilities, regulatory violations, and MDCS reputational damage, particularly if personal information or data protected by privacy regulations is compromised. Improper management of data can not only harm MDCS, but it could also lead to increased risk and security vulnerabilities for Massachusetts residents who have used MDCS's services.

Additionally, if the subsets of data contained in information systems are not properly classified, then the risk that critical systems are left exposed to threats, such as unauthorized use or theft, increases. This can cause MDCS to face challenges in planning for potential threats such as cybersecurity attacks, natural disasters, or fraud.

Authoritative Guidance

EOTSS's Information Asset Management Standard IS.004 states,

> *6.2. Information Classification*
>
> *The classification or sensitivity level of all information must be established to ensure that appropriate measures are taken to protect the information commensurate with its value to the organization and the legal restrictions on its dissemination.*

Reasons for Issue

MDCS was not aware of the requirement to issue an information classification policy separate from but based on Section 6.2 of EOTSS's Asset Management Standard IS.004.

Recommendations

1. MDCS management should develop and implement an information classification policy to comply with IS.004 and should assign an information custodian[17] in this policy.

2. MDCS should conduct a data inventory and classification assessment of information based on sensitivity, criticality, and regulatory requirements.

Auditee's Response

EOLWD is in the process of developing a comprehensive data framework and related governance strategy that will apply to all MDCS data. MDCS will classify its data in accordance with the EOLWD policy when finalized.

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.

5. The MassHire Department of Career Services did not perform a business impact analysis or risk assessment to classify its information systems.

MDCS management revealed to us in interviews that they did not perform a business impact analysis or risk assessment to classify their information systems. Information systems should be classified as low, medium, high, or critical, depending on the use of the system and the information it contains.

Without a business impact analysis or risk assessment to classify information systems, the criticality of systems will not be assessed based on the sensitivity of the information stored within them. If vital systems are not classified correctly, then they cannot be protected correctly, whether from cybersecurity threats, natural disasters, or fraud. As a result, MDCS could face challenges in planning for these potential disruptions and may not be able to prioritize information technology (IT) resources effectively in the event of an emergency.

Authoritative Guidance

EOTSS's Asset Management Standard IS.004 states,

> *6.6.2 Commonwealth Agencies and Offices must conduct a business impact analysis or a risk assessment to determine information system classifications for their information assets.*

17. Information custodians are responsible for assigning appropriate classification levels to information in their custody.

Reasons for Issue

MDCS management stated that they have classified the information system but have yet to document it anywhere or conduct a business impact analysis or risk assessment corresponding to it. Additionally, the system has not been reclassified in 5 to 10 years because there have not been any significant changes. MDCS management stated that they do conduct risk assessments, but that these are related to fiscal areas and not IT systems.

Recommendations

1. MDCS management should implement a policy to periodically conduct a business impact analysis or risk assessment in order to classify its information systems.
2. MDCS should review these classifications at least annually or anytime a significant system change occurs.

Auditee's Response

See response 4. MDCS will continue to partner with EOLWD to implement the required recommendations to ensure full compliance. This will include a related business impact analysis and risk assessment.

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.

6. The MassHire Department of Career Services did not ensure that access to personally identifiable information stored within its centralized database was limited to approved personnel members who have business needs to access it.

MDCS did not ensure that access to PII inside of the MDCS centralized database was limited to personnel members with a business need to access it. Specifically, 2 out of 35 randomly sampled employees at MDCS did not have an authorization form approving their access to the MDCS centralized database and 1 out of 10 randomly sampled employees from the Framingham Career Center did not have an authorization form approving their access to the MDCS centralized database.

Additionally, MDCS could not locate any user authorization forms submitted before fiscal year 2014, and therefore, could not provide documentation that users with access granted in fiscal year 2013 or earlier had been approved. Before fiscal year 2014, MDCS required employees to submit authorization forms for access to the centralized database in a hardcopy format, rather than electronically. When the process changed in fiscal year 2014, MDCS did not require current users to resubmit the appropriate

documentation in the new format. Also, MDCS did not periodically review current users' access to determine whether these users were authorized to access the database.

Granting personnel members access to PII without requiring formal approval of their business need exposes MDCS to significant risks, such as data breaches. This can lead to identity theft, damaged reputation, or legal liability for MDCS. Each of these risks would have negative impacts on the people whose information is compromised.

The introduction of role-based access controls can be used to ensure that users are assigned permissions based on their roles and business need instead of individually assigned permissions on a person-by-person basis. In order to implement role-based access, all information must be classified (see Finding 4) to determine what information is confidential, such as PII, and should only be accessed by certain approved individuals in pertinent roles.

Limiting access to PII helps protect the privacy of Massachusetts residents and reduces the risk that their information may be accessed by someone who may mismanage or steal it.

The table below details the results of our testing.

Overall Results Testing Completed	Number of Approved Employees	No User Authorization Form on File	Hired Before Fiscal Year 2014*	Sample Size
MassHire Department of Career Services	18	2	15	35
Berkshire Career Center	10	0	0	10
Boston Career Center	9	0	1	10
Cape and Islands Career Center	5	0	0	5
Framingham Career Center	9	1	0	10
Greater Brockton Career Center	9	0	1	10
Metro North-Woburn Career Center	5	0	0	5
North Central Career Center	5	0	0	5
North Shore Youth Center	3	0	1	4
Merrimack Valley Career Center	10	0	0	10
Holyoke Career Center	20	0	0	20
Total	103	3	18	124

* These personnel members submitted their authorization forms prior to fiscal year 2014. Forms submitted prior to fiscal year 2014 were submitted physically instead of electronically and could not be located by MDCS.

Authoritative Guidance

EOTSS's Asset Management Standard IS.004 states,

> *6.2.1. Confidential — organization or customer information that if inappropriately accessed or disclosed could cause adverse financial, legal, regulatory, or reputational damage to the Commonwealth, its constituents, customers, and business partners.*
>
> *Except as required by law, confidential information must be access-restricted to a narrow subset of personnel who have a business need to access the information. Examples may include but are not limited to:*
>
> *6.2.1.1. Personally Identifiable Information (PII)*

Reasons for Issue

MDCS management stated that they could not locate MDCS's centralized database authorization forms for three of the personnel members, but they were able to provide a human resources user access form. If a user does not log into the database for 90 days, then their access is automatically revoked. However, there is no formal process in place to regularly review user access once it has been granted. The only way a user's access is manually revoked is if an email requesting termination is received. Additionally, MDCS management stated that before fiscal year 2014, MDCS was using hardcopy submissions of the authorization forms to approve access and could not locate the hard copies. In fiscal year 2014, MDCS switched to electronic versions of the forms.

Recommendations

1. MDCS should ensure that every user requiring access to PII in the centralized database has their business need reviewed and approved before access is granted.
2. MDCS should implement role-based access. This new process should align with the principle of least privilege, where users should only be given the minimum level of access necessary to perform their job functions.
3. MDCS should review current users' access to determine whether these users have the appropriate approval, and MDCS should perform this review on a periodic basis.
4. MDCS should have users hired before fiscal year 2014 resubmit the database access forms electronically.

Auditee's Response

See Response 1. This is a priority for MDCS and a primary driver of the modernization efforts. As part of system modernization, MDCS will implement a multi-tiered authorized access management

system based on necessary functions, including a periodic review of user access to determine whether these users have the appropriate approval. . . .

MDCS will review user access to ensure that all users have formal authorization to access the database; as part of a comprehensive policy review built into the new system, MDCS intends to build in an automated annual review process.

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.

7. The MassHire Department of Career Services did not ensure that access to personally identifiable information stored at the career centers was limited to approved personnel members who have business needs to access it.

MDCS did not ensure that access to PII stored at the career centers was limited to personnel members with a business need to access it. Berkshire, Boston, Cape and Islands, Framingham, Metro North-Woburn, North Central, Merrimack Valley, and North Shore Youth Center all require employees to sign general confidentiality agreements when they begin working at their career centers, but do not have a process for authorizing a user's access to PII stored at their career centers.

Granting personnel members access to PII without requiring formal approval of their business need exposes MDCS to significant risks, such as data breaches. This can lead to identity theft, damaged reputation, or legal liability for MDCS. Each of these risks would have negative impacts on the people whose information is compromised.

The introduction of role-based access controls can be used to ensure that users are assigned permissions based on their roles and business need instead of individually assigned permissions on a person-by-person basis. In order to implement role-based access, all information must be classified (see Finding 4) to determine what information is confidential, such as PII, and should only be accessed by certain approved individuals in pertinent roles.

Limiting access to PII helps protect the privacy of Massachusetts residents and reduces the risk that their information may be accessed by someone who may mismanage or steal it.

Authoritative Guidance

EOTSS's Asset Management Standard IS.004 states,

> *6.2.1. Confidential — organization or customer information that if inappropriately accessed or disclosed could cause adverse financial, legal, regulatory, or reputational damage to the Commonwealth, its constituents, customers, and business partners.*
>
> *Except as required by law, confidential information must be access-restricted to a narrow subset of personnel who have a business need to access the information. Examples may include but are not limited to:*
>
> *6.2.1.1. Personally Identifiable Information (PII)*

Reasons for Issue

MDCS management stated that although all of the career centers are required to follow MDCS guidelines for maintaining their data, each of them has their own process and policies. All career centers use MDCS's centralized database but can also store additional data in other locations specific to each career center. MDCS does not keep track of the additional locations at which the career centers are storing PII and has not implemented an access control policy for the career centers.

Recommendations

1. MDCS management should implement a strict access control policy requiring formal approval before granting access to PII stored outside of MDCS's centralized database.
2. MDCS should implement role-based access. This new process should align with the principle of least privilege, where users should only be given the minimum level of access necessary to perform their job functions.
3. MDCS should ensure that its career centers review current users' access to determine whether these users have the appropriate approval. MDCS should ensure its career centers perform this review on a periodic basis.

Auditee's Response

See Response 1. This is a priority for MDCS and a primary driver of the modernization efforts. As part of system modernization, MDCS will implement a multi-tiered authorized access management system based on necessary functions, including a periodic review of user access to determine whether these users have the appropriate approval.

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.

OTHER MATTERS

The Bristol Career Center website was unable to be accessed for an extended period of time.

The Bristol Career Center's website was unable to be accessed in August 2024.

Website downtime can cause a significant problem for individuals wishing to use the services of the Bristol Career Center and increases the likelihood that Massachusetts residents may not be able to engage with the career center. This can lead to users missing the opportunity to receive assistance with resume writing, find job fairs, and sign up for career seminars.

Authoritative Guidance

The Web Accessibility Initiative's Web Content Accessibility Guidelines 2.1 state,

> *Success Criterion 2.4.5 Multiple Ways (Level AA)*
>
> *More than one way is available to locate a web page within a set of web pages except where the Web Page is the result of, or a step in, a process.*

Reasons for Issue

When we tried to access the Bristol Career Center's website, we received a notification stating that the server was unable to process the request.

Recommendations

1. MDCS should implement and enforce a policy for career centers to review their webpages periodically to ensure that they are able to be accessed by Massachusetts residents and other potential users.
2. MDCS should have the career centers assign designated staff members to oversee accessibility compliance and website updates.

Auditee's Response

> *See response 2. MDCS will implement a policy for career centers requiring them to review their webpages regularly to ensure that webpages are consistently able to be accessed by Massachusetts residents and other potential users.*
>
> *Once a schedule is determined through policy, MDCS' Field Management & Oversight team will review career center webpages during its annual review to ensure compliance.*

Auditor's Reply

Based on its response, MDCS is taking measures to address our concerns regarding this matter.