North Carolina Longitudinal Data System:

An Update on Progress

N.C. Department of Information Technology

Annual Report to the N.C. Joint Legislative Education Oversight Committee, N.C. Joint Legislative Commission on Government Operations, and N.C. Joint Legislative Oversight Committee on Information Technology

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July 1, 2024

NCDIT | NORTH CAROLINA DEPARTMENT OF INFORMATION TECHNOLOGY

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Executive Summary

This report provides an update on the development of the North Carolina Longitudinal Data System (NCLDS) across the 2023-24 fiscal year and summarizes the ongoing expansion of the system.

The concept of a state longitudinal data system was first approved by the N.C. General Assembly in 2012 with significant legislative amendments in 2013, 2016 and 2019. The purpose of NCLDS is to link record-level data across state agencies and institutions, support data exchange among those agencies and institutions, and produce information that can be used to guide state decision-making.

Since January 2021, the NCLDS team has made progress in the establishment of a governance structure, development of a guiding strategic plan and execution of the steps outlined in the strategic plan that will result in responsive, coordinated, and responsible data services. In 2023-24, the most important development was NCLDS' **transition into its Pre-Launch Test Phase**. In addition, NCLDS made progress in the development of several supporting data products and services.

For the remainder of 2024 and into 2025, NCLDS' focus will be on using the Pre-Launch Test Phase to test its data governance procedures in **preparation for a full launch in 2025**. In addition, NCLDS will work with external partners to automate the request process and will refine its current enterprise framework to allow it to integrate data from a broader array of state agencies and other partners.

Background

Purpose of this Report

In accordance with N.C.G.S. 116E-4(c), this report provides an update on North Carolina Longitudinal Data System (NCLDS) activities across the 2023-24 fiscal year, along with information about proposed and planned expansions of NCLDS data. The report concludes with tasks that the N.C. Department of Information Technology's Data Division will undertake in 2024-25 to move NCLDS closer to full functionality.

About the North Carolina Longitudinal Data System

The concept of a state longitudinal data system was first approved by the N.C. General Assembly in 2012, with significant legislative amendments in 2013, 2016 and 2019 (N.C.G.S. 116E). Per statute, NCLDS is "a statewide data system that contains individual-level student data and workforce data from all levels of education and the State's workforce." The purpose of NCLDS is to "(1) Facilitate and enable the exchange of student data among agencies and institutions within the State; (2) Generate timely and accurate information about student performance that can be used to improve the State's education system and guide decision makers at all levels; [and] (3) Facilitate and enable the linkage of student data and workforce data." In keeping with this focus on coordination and support, the primary components of NCLDS are referred to now as the North Carolina Longitudinal Data *Service*.

NCLDS is led by an executive director and is governed by an advisory board comprising representatives from each state agency that contributes data ("sector contributors," which currently include the N.C. Department of Health and Human Services, N.C. Department of Public Instruction, N.C. Community College System, University of North Carolina System and N.C. Department of Commerce) and a representative from the N.C. Independent Colleges and Universities, which also will contribute data upon completion of its own longitudinal data system.

Per the enabling statutory language, NCLDS is not a passive data storage utility; instead, its mission is to provide sector contributors and other trusted practitioner and research partners with secure access to cross-sector, longitudinal and linked record-level data in order to help them address the state's most pressing questions via data-informed decision-making, continuous improvement and performance management processes. More specifically, NCLDS is:

- A data exchange and research **strategic partnership** of the sector contributors listed above
- A **process** for linking, de-identifying and packaging cross-sector data from participating longitudinal databases (currently the Early Childhood Integrated Data System, NC SchoolWorks and Common Follow-Up System)
- A **tool** for securely delivering those data to partners, other state entities, researchers and practitioners for research, evaluation, decision-making and reporting
- A **common space** for coordinating cross-sector, longitudinal learning goals for the state

NCLDS is housed in the N.C. Department of Information Technology's Data Division. At the end of 2023, in recognition of NCLDS' growth, maturity and anticipated near-future needs, the Data

Division transferred its Longitudinal and Performance Team—which up to that point had been providing partial support to NCLDS—to the NCLDS business unit to form a new team dedicated solely to managing NCLDS and the other longitudinal projects at the Data Division that directly support NCLDS.

NCLDS Advisory Board

Governor Roy Cooper's [Executive Order 249](#) (February 2022) formalized the governance structure for NCLDS by establishing the membership and responsibilities of its advisory board. Current members of the advisory board include:

- N.C. Department of Health and Human Services: Deputy Secretary for Operational Excellence ClarLynda Williams-Devane, as designated by Secretary Kody Kinsley
- N.C. Department of Public Instruction: Superintendent Catherine Truitt (board chair)
- N.C. Community College System: President Jeff Cox
- University of North Carolina System: Senior Vice President for Strategy and Policy Andrew Kelly, as designated by President Peter Hans (board vice-chair)
- N.C. Department of Commerce: Secretary Machelle Sanders
- N.C. Independent Colleges and Universities: President Hope Williams
- N.C. Department of Information Technology: Secretary James Weaver (non-voting)
- Office of the Governor: Governor's Education Advisor Geoff Coltrane (non-voting), as designated by Governor Cooper

The advisory board met twice in 2023-24 (November 2023 and May 2024), with formal transition of chair responsibilities from Superintendent of Public Instruction Catherine Truitt to University of North Carolina System Office Senior Vice President for Strategy and Policy Andrew Kelly (per Executive Order 249) taking place at the conclusion of the May 2024 meeting. Jeff Cox, president of the North Carolina Community College System, was named vice-chair for 2024-25.

NCLDS Committees

The Data Governance and Data Quality committees (like the Governance Board, also described in Governor Cooper's Executive Order 249) continue to meet regularly with NCLDS staff to address strategic plan elements targeted for completion during the current development phase (see *Progress on Phase 3*, above). Each committee's work is supported by several subcommittees:

Governance Subcommittees
- Data availability and access
- Data request review
- Privacy, security and ethical use of data
- Review of results (new in 2024)

Data Quality Subcommittees
- Data lexicon
- Common data elements
- Data matching
- Data quality verification and issue resolution (new in 2024)

Update on 2023-24 Activities

At the beginning of his first year in the position, NCLDS's executive director worked with NCDIT colleagues and the state agencies and organizations that contribute data to NCLDS to develop a **four-phase strategic plan** for operationalizing NCLDS. Several milestones in that Strategic Plan were passed in 2023-24. Accomplishments since July 2023 fall into three categories: *Completion of all Foundational Development Steps (Phase 2)*, *Transition into the Pre-Launch Test Phase (Soft Open)* and *Development of Key Data Products and Services*.

Completion of all Foundational Development Steps (Phase 2)

The NCLDS team and its data partners completed all critical components of Phase 2 of the Strategic Plan by the end of the 2023-24 fiscal year, including:

- Establishment of boards and committees
    - Developed an oversight process for NCLDS data not provided or owned by one of the current primary NCLDS contributors
    - Established two new sub-committees focused on governance and quality oversight of products developed using NCLDS-sourced data
- Development of a strategic plan
    - Identified longer-term NCLDS organizational outcomes
    - Finalized all 5-Year Strategic Plan elements
- Architecture design
    - Completed a critical review of all current data-linking options
    - Determined service design needs for each NCLDS user audience
    - Established technical requirements for NCLDS tools (data selector/project management user interface/tool, etc.)
    - Resolved security requirements for data movement, storage and destruction
- Oversight of governance and data quality
    - Developed standard NCLDS request and review processes
    - Developed a comprehensive data dictionary directly tied to the data request process
    - Established data privacy standards, including statutorily mandated small-cell suppression and redaction rules
- Products, services and outreach
    - Developed a comprehensive public website, including a "Frequently Asked Questions" page that addresses questions about data availability, privacy and security
    - Initiated a series of briefs called *How NCLDS Works* that provide detailed but accessible explanations of various NCLDS services (2023-24 briefs focused on NCLDS' approaches to linking data)

Transition into the Pre-Launch Test Phase (Soft Open)

At the end of the 2023-24 fiscal year, in partnership with all data contributors, NCLDS finalized the standard operating procedures that govern the NCLDS staff's processes for manually

completing every aspect of a data request (automation of some processes are anticipated in 2025 with the development of applications to support NCLDS):

- Receiving variable-level data requests
- Guiding requests through a review process that includes input from all relevant data owners
- Completing all necessary security, privacy and legal documentation and agreements
- Assembling the approved data
- Matching data across data sources via application of available identification elements and methods
- Packaging and securely transmitting data

The establishment of these operating procedures has allowed NCLDS to enter Phase 3 of its Strategic Plan—a Pre-Launch Test Phase (or "Soft Open Phase"). Following the procedures established during Phase 2, NCLDS once again is in the process of testing its new capabilities by allowing a limited number of requesters to submit requests. In addition to testing the official request, approval, data preparation and transmission processes, these requests also are validating NCLDS' privacy, security and legal processes.

Development of Key Data Products and Services

Development of Key Data Products

NCLDS continued to work on the development of **research-ready datasets**, which are pre-prepared and pre-vetted (i.e., their content will not require additional review when requested), de-identified, linkable datasets comprising each contributor's most commonly requested data elements. Construction of the first two such datasets—one for data that cover the crossover from early childhood to early elementary and one for data that cover transitions from secondary to postsecondary to workforce—began in the second quarter of 2024.

Development of Request Tools

Technical specifications for NCLDS tools designed to automate the request process were developed and shared with NCLDS' external technical partner, and development timelines for these tools were finalized in the second quarter of 2024. Projected completion of the first tool is planned for the second quarter of 2025.

Incorporation of New Data

In preparation for addressing the strategic plan component related to expanding the data elements available to NCLDS, the team continued to onboard data elements needed to more thoroughly address questions about workforce preparation but that are not available to the service via its current partners. In 2023-24, this onboarding continued to focus on data from in-state entities that issue non-degree credentials and licenses.

Priorities for 2024-25

The primary goal for Phase 3 is to transition NCLDS from a limited-access pilot to a fully-available service open to all requesters by or before the end of the second quarter of 2025. This transition will be accomplished by focusing on development in the following three areas.

Projected Activities in Phase 3

With ongoing input from the advisory board, the two formal committees and a steering workgroup, the NCLDS team is on target to complete all Phase 3 tasks by the end of the 2024-25 fiscal year. These tasks include:

- Architecture design
    - Resolution of key cross-sector data-matching challenges
    - Completion of the first iteration of a data selector and project management tool (details below)
- Oversight of governance and data quality
    - Development of a dynamic data dictionary and standardized versions of common elements
    - Identification of data elements targeted for cross-sector consistency in definition and quality
    - Refinement of service design needs for each NCLDS user audience
    - Identification of desired public aggregated data tools
    - Creation of a plan for expanding the data elements available to NCLDS
    - Review and refinement of data privacy standards
    - Completion of training focused on data use ethics
- Products, services and outreach
    - Establishment of a pre-publication review process for all products created using NCLDS data
    - Establishment of publication quality standards
    - Expansion of the library of public-friendly briefs that explain in simple language how to use NCLDS
    - Pursuit of external funding support

Automation of the Data Request Process

Transition to fully open status will depend in part on development of the tools that will support automation of many of the data request fulfillment processes that currently must be completed manually, such as selection of data elements, completion of a data request, review of that request, retrieval of requested data, linkage of requested data, preparation of a data package and secure transmission of that package. NCLDS anticipates that significant progress will be made in 2024-25 in partnership with its external technical partner.

Availability of Practitioner Tools and Products

Another priority ahead of a full launch will be development of NCLDS products and services focused on providing practitioners with the information they need to answer their most pressing data questions. These tools—which NCLDS is calling **Practitioner Portals**—are access-

protected, cross-sector data products tailor-made by NCLDS for practitioner audiences. In 2024-2025, NCLDS plans to partner with one of its primary data contributors on a portal designed to meet the cross-sector data needs of secondary school leaders.

Preparation for Expansion of Available Data

Given that NCLDS' ultimate value will be its ability to help the state to address a wider array of complex cross-sector questions than is possible via current data tools, NCLDS will focus part of its efforts in 2024-25 on working with its current data partners to define the procedures it will follow to recruit and onboard new data contributors from state agencies and other partners outside the education sector, including those listed in [General Statute 116E-5](#) that do not yet participate in NCLDS.

The Promising Future of NCLDS

The completion of NCLDS's foundational data governance and data quality guidelines, along with its transition to a Soft Open Phase and the planned expansion of NCLDS' core products and services, has increased awareness of NCLDS not only among current data contributors but also across other state agencies and organizations that do not yet contribute data to NCLDS. In addition, NCLDS is beginning to receive greater national exposure because of its novel service-focused approach. Successful completion of planned 2024-25 tasks will prepare NCLDS to become a long-term leader—at the state level and nationally—in the preparation, management, and safe and secure distribution of longitudinal data for the improvement of public decision-making at all levels.