North Carolina Turnpike Authority

Operations Committee Meeting

July 20, 2023

Providing drivers more choices for their commute

NORTH CAROLINA
Turnpike Authority

Operations Committee

Montell W. Irvin
Operations Committee Chairman

Dr. Pamela Gibson Senegal
Operations Committee Member

Sam Hunt IV
Operations Committee Member

Charles 'Chuck' L. Travis III
Operations Committee Member

Other Board Members

J. Eric Boyette
Chairman of the Board

James 'Jim' Walker
Vice Chair of the Board

Robert D. Teer Jr.
Secretary & Treasurer of the Board

John Adcock
Board Member

Julie Eiselt
Board Member

Opening Comments

JJ Eden
Executive Director

Toll Technology Update

Manish Chourey
Chief Technology Officer

Statewide Roadside Toll Collection System Contract Overview

- Roadside Equipment, Installation, Testing, and Commissioning for AET and Express Lanes.
- Testing Lifecycle will be done for each Project.
- Selection based on annual planning at the sole discretion of NCTA for projects. NCTA may solicit quotes from one or more Vendors.
- Base Contract Term 5 years from Notice of Award - Selection of one or more Vendors (bench).
- Task Order Term
    - ✓ Implementation Phase
    - ✓ 5-year maintenance (after Go live of each Task Order)
    - ✓ Two 3-year Extensions

Statewide Roadside Toll Collection System Procurement – Timeline

Category	Date
✓ RFP Issued	January 20, 2023
✓ Mandatory Pre-Proposal Scope of Services Meeting	February 2, 2023 (1:00 p.m. to 2:00 p.m. EDT).
✓ Proposer Questions Due	February 17, 2023 (4:00 p.m. EDT)
Proposals (Technical and Price) Due	July 27, 2023 (4:00 p.m. EDT)
Notification of Proposers Shortlisted for Oral Presentations	August 25, 2023
Oral Presentations and Interviews	Week September 11, 2023
Ranking of Proposers for Negotiations	End of September 2023
Notice to Proceed / Award of Contract	October 2023

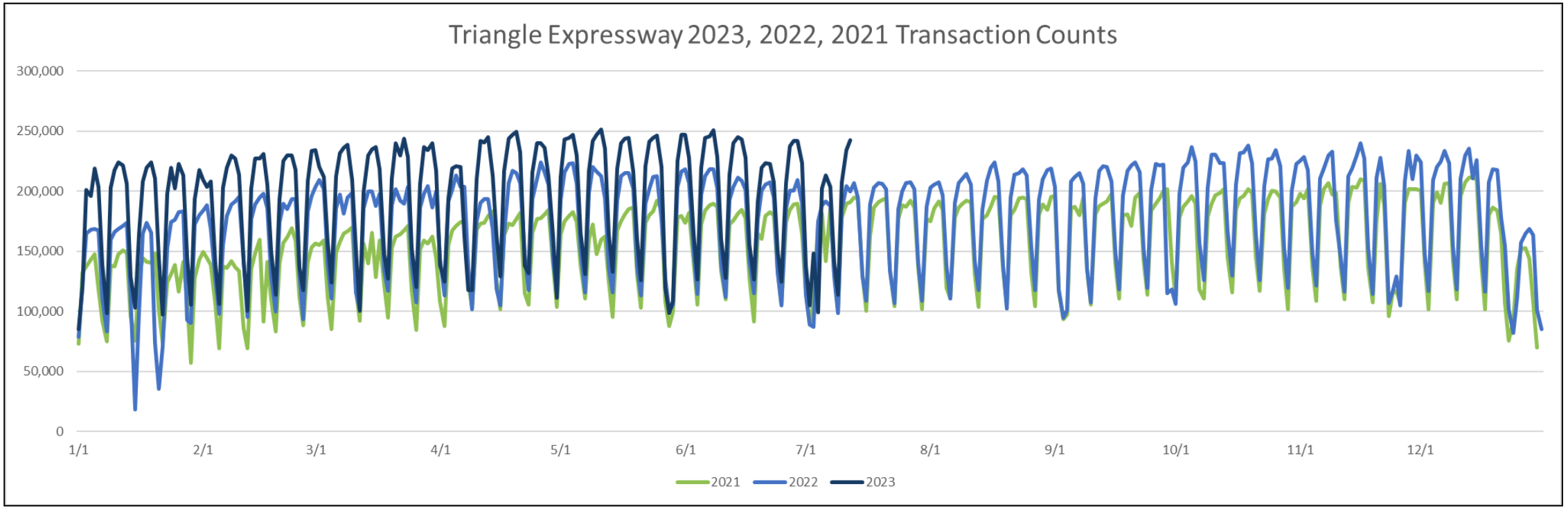
Statewide Roadside Toll Collection System Key Scope of Work

- NCTA to issue Project Scope of Work for each Project Task Order for qualified Vendors to design, test, install, and commission RTCS systems.
- Project Task Orders will include Project Implementation Schedule Milestones (Attachment 11).
- Contractor to provide Transaction Reconciliation Host (TRH) to interface with NCTA OBO/CBOS.
- NCTA Continuous improvement (Dev-Ops) and Change and Release Management process.
- Proven existing solution with a product roadmap.

Triangle Expressway Traffic - Updates

Traffic Increase

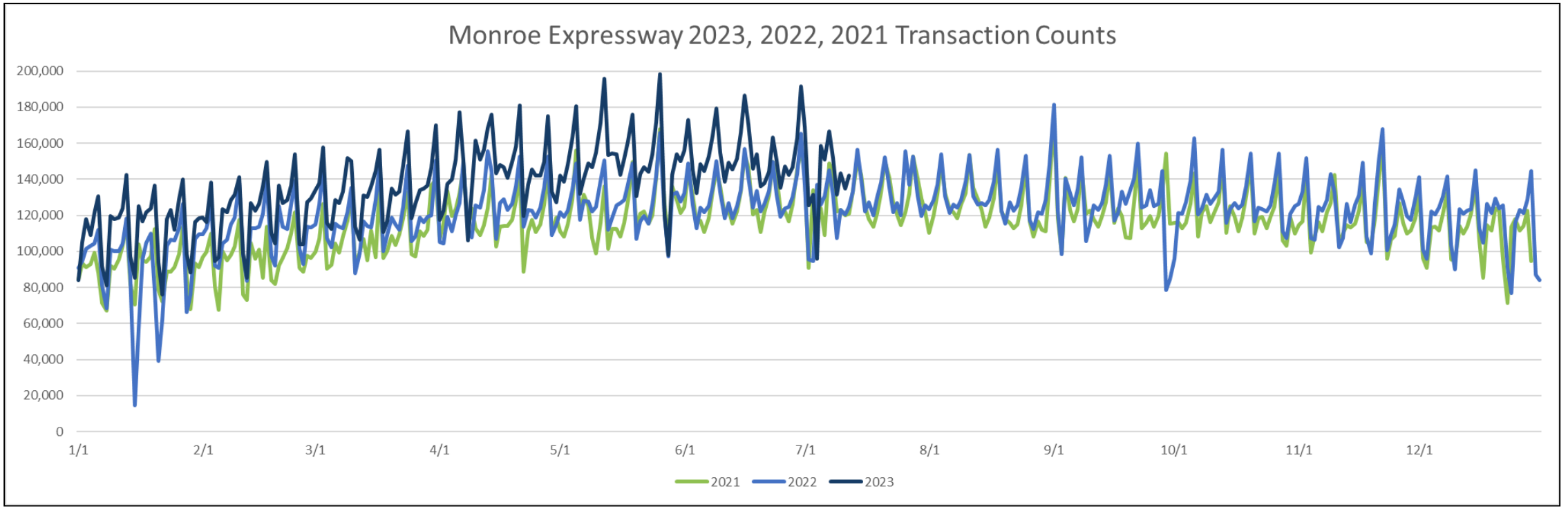
2021 – 2022 Q2 – 12.3%
2022 – 2023 Q2 – 11.1%



Monroe Expressway Traffic - Updates

Traffic Increase

2021 – 2022 Q2 – 4.0%
2022 – 2023 Q2 – 14.8%

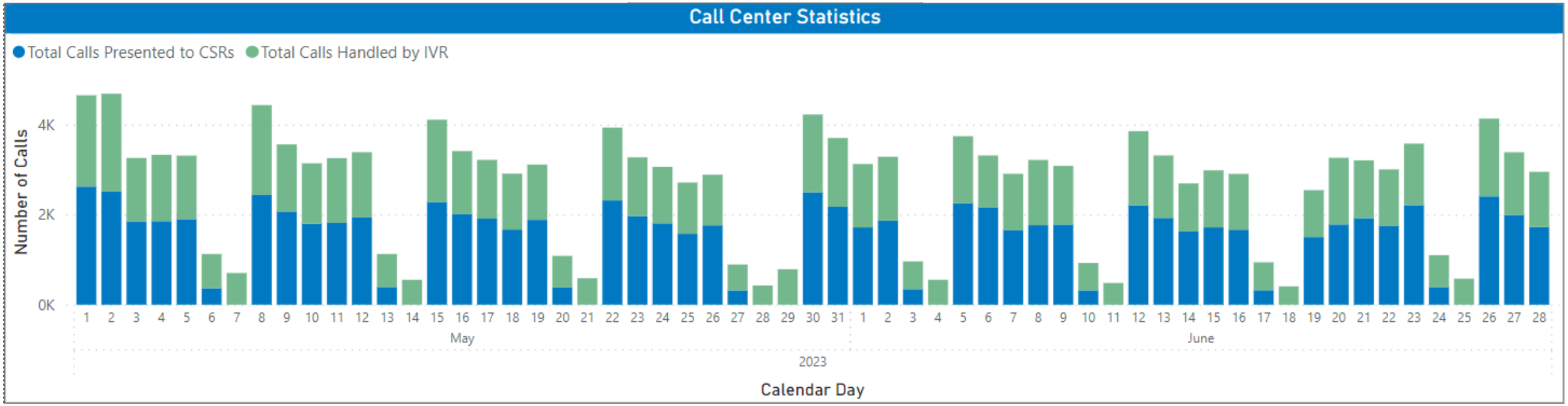


Customer Service Center Update

Angela Queenland
Manager of Customer Service

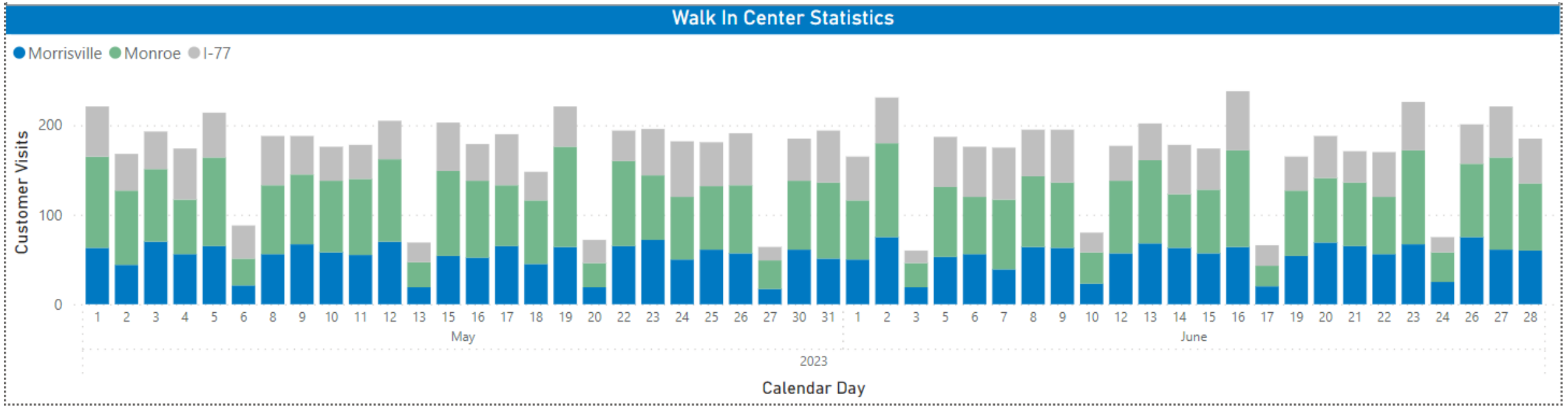
Call Center Statistics

NC Quick Pass Program



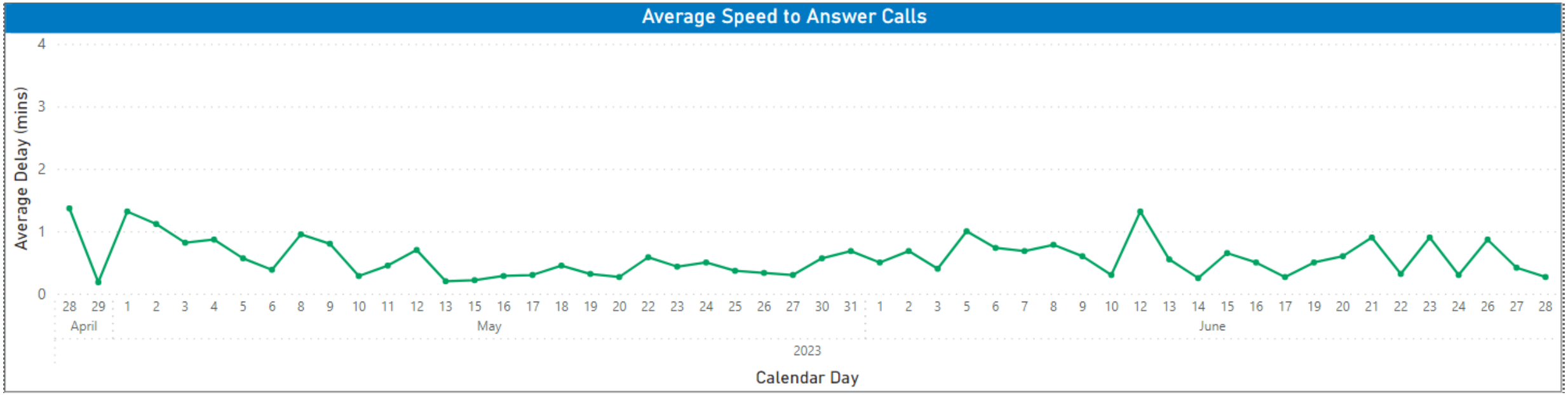
Walk-In Center Statistics

NC Quick Pass Program



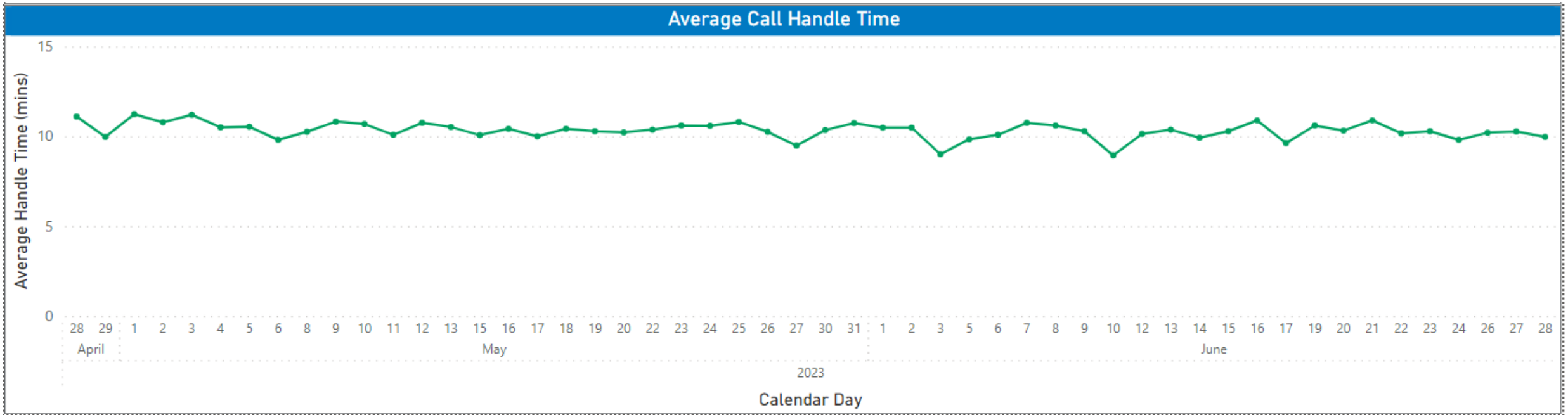
Average Speed to Answer Calls

NC Quick Pass Program



Average Call Handle Time

NC Quick Pass Program



HBCU NC Quick Pass Operations Tour

HBCU Intern and Fellow Tour

NC Quick Pass Operations Center

HBCU Intern and Fellows Tour

NC Quick Pass Operations Center

Marketing & Communications Update

Logen Hodges
Marketing & Communications Director

BOS 2 Update

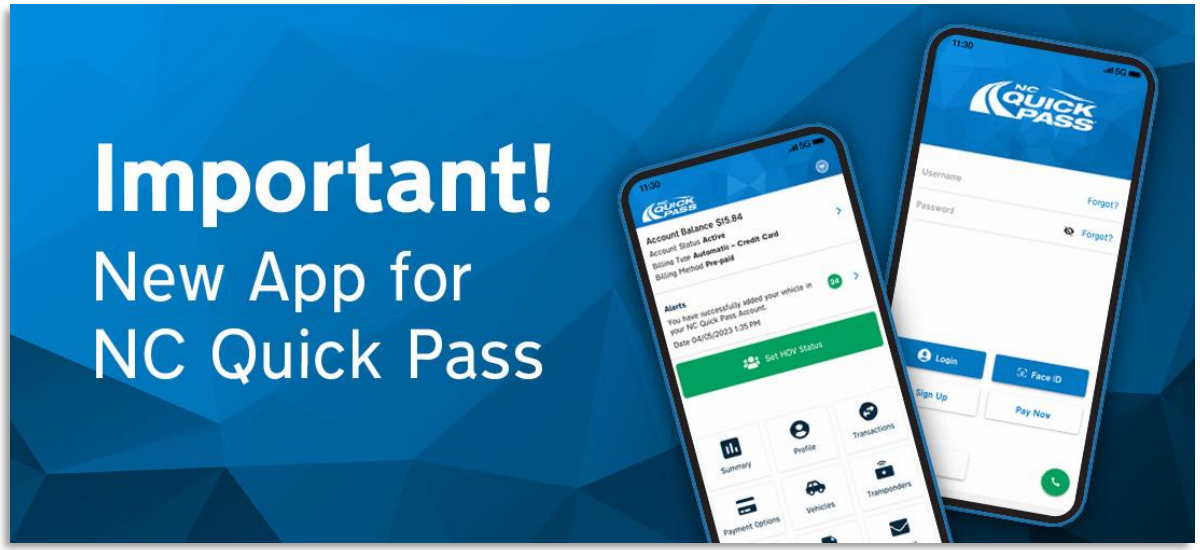
NC Quick Pass App Launch Schedule

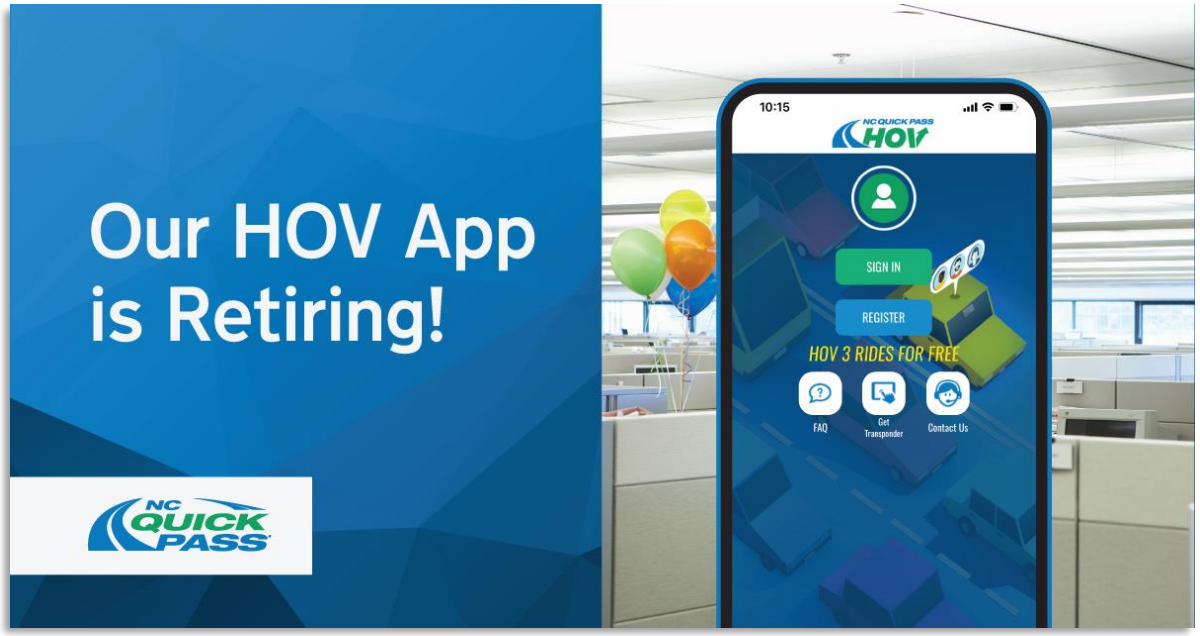
June 28 –

- Email to existing HOV app users
- New app available for download
- HOV website alert
- HOV app alert and functionality
- Email and press release announcement (English & Spanish)

August 1 –

- HOV app retirement
- HOV website redirect
- HOV app data migration Begins



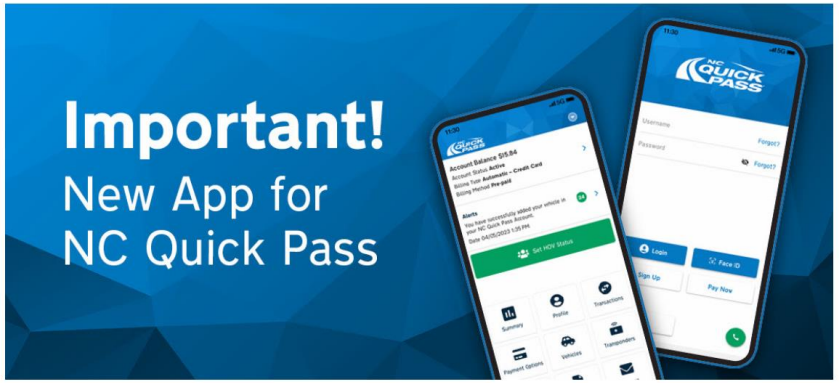


Customer Email Campaign

Email Performance

- 650k Emails Sent
- 75% Open Rate
- 15% Clicks

New App Available for NC Quick Pass Customers



What's new

The **new NC Quick Pass app** is available for download on the **Apple App Store** and through **Google Play**. The NC Quick Pass app allows you to easily manage an account including, ordering a new transponder or adding a new vehicle. The new app can also be used to set HOV status to travel free in the I-77 Express Lanes if the **HOV requirements** are met. Customers without an account now have the option to pay their Bill by Mail invoice with the app. Everything NC Quick Pass in one place!

Download on the App Store GET IT ON Google Play

Old HOV app

The NC Quick Pass HOV app and HOV website will be retired and unavailable for use starting August 1. If you plan your travel far in advance please reschedule those trips using the **new NC Quick Pass app**.

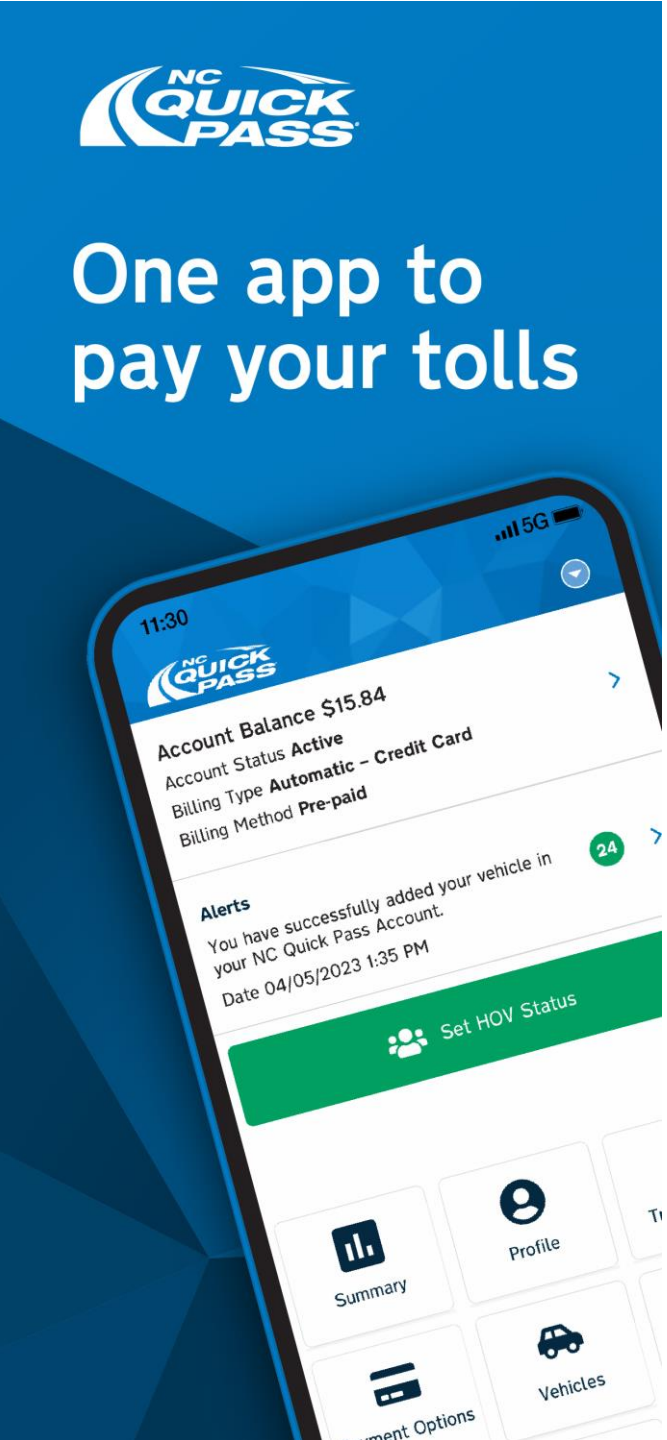
Stay informed

We are excited to bring you another improvement to the customer experience. For the latest information, please visit the **NC Quick Pass app webpage**.

Thank you for your business.

Sincerely,

NC Quick Pass



NC Quick Pass App Statistics

as of 7/14/2023

Apple App Store

- 56K Downloads
- 58% Web Referral
- 26% App Store Search

Google Play

- 15K Downloads
- 76% Web Referral
- 15% Google Play Search

Chief Engineer Update

Dennis Jernigan, P.E.
Interim Chief Engineer

NCDOT HBCU Program Complete 540 Tour

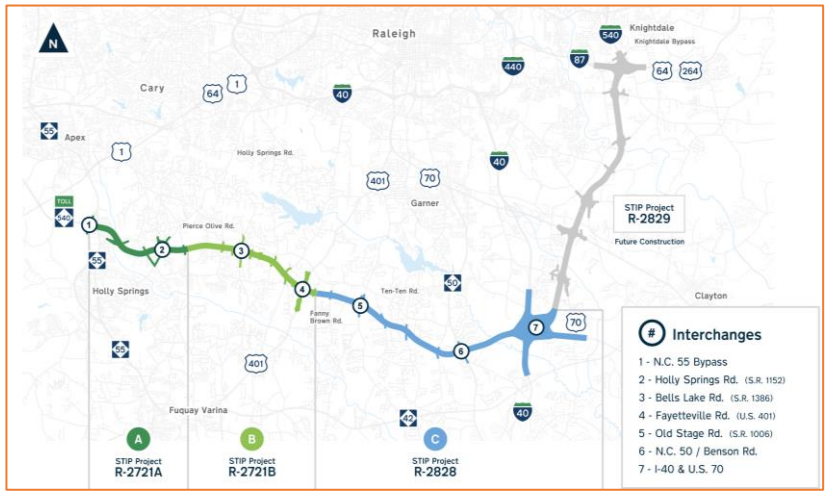
June 20, 2023

- HBCU Interns and Fellows toured Phase 1 of Complete 540
- Included NCTA intern and NCDOT TEA on the tour

NCTA Interns Complete 540 Tour

July 11, 2023

- NCTA Interns toured Phase 1 of Complete 540

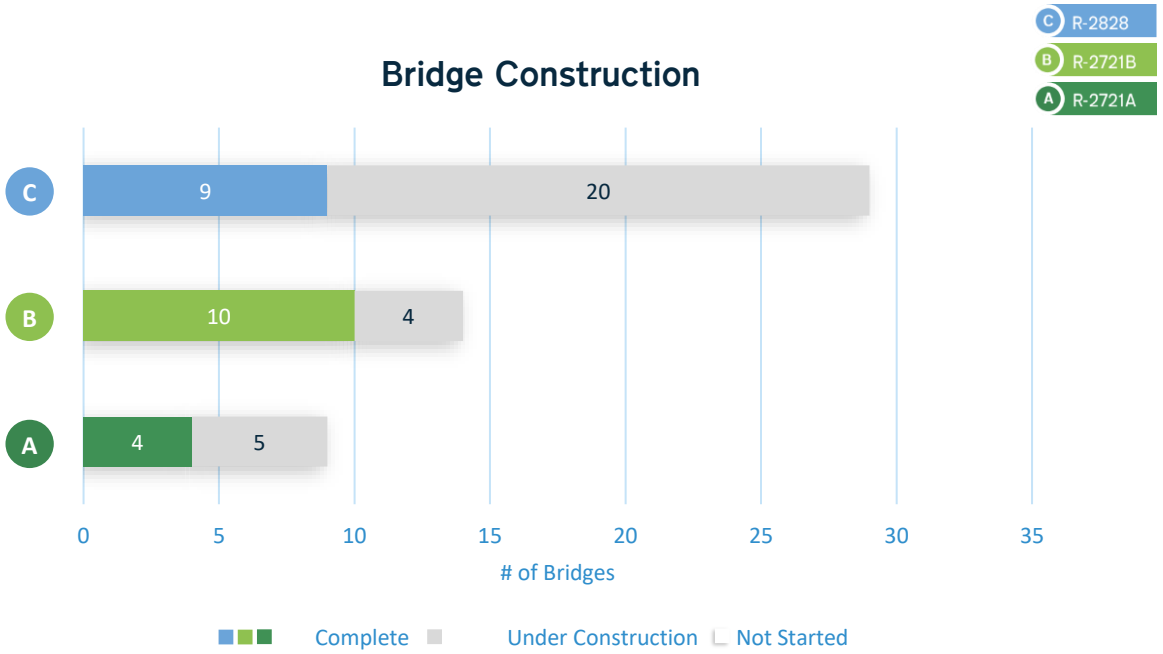


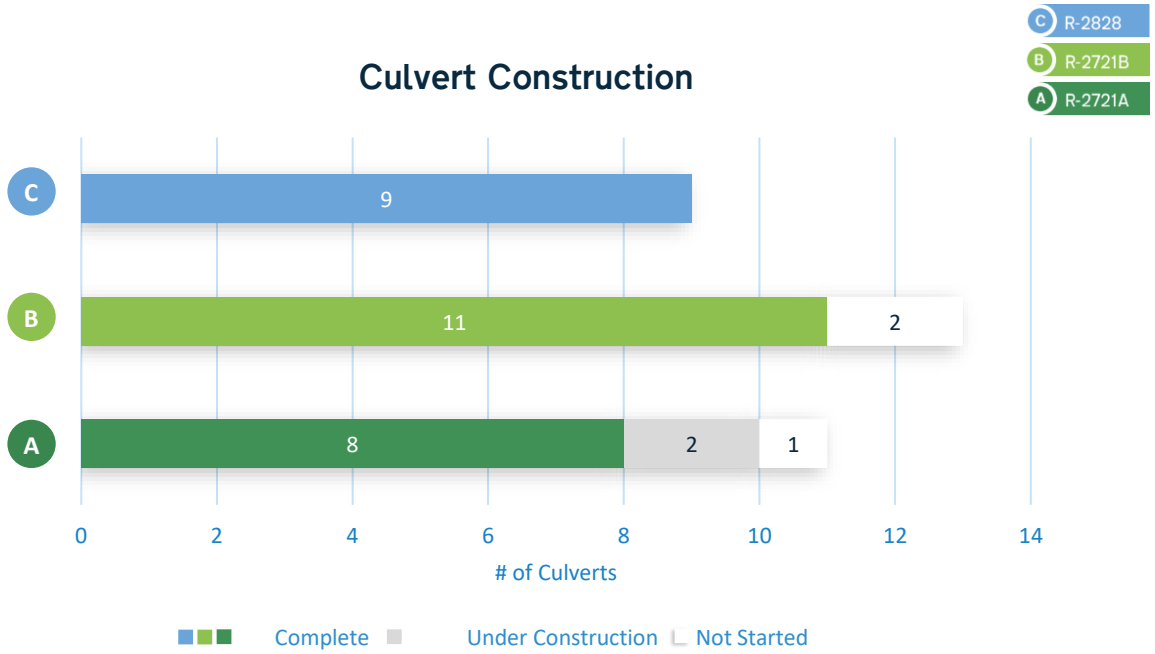
Complete 540 Phase 1

Pierce Olive Road Bridge Opening

Sauls Road Bridge Opening

Bridge & Culvert Construction





Updated 7-10-2023

Toll N.C. 540 Mainline

Old Stage Road Bridge and Concrete Plant

Noise Wall Construction

Turbine-Style Interchange

Complete 540 Openings

- **Sauls Road**
  - June 2023
- **Pierce Olive Road**
  - May 2023
- **Old Stage Road**
  - April 2023
- **West Lake Road**
  - March 2023
- **Relocated Rolling Farm Drive**
  - January 2023
- **River Falls Pedestrian Trail and Culvert**
  - November 2022
- **Sunset Lake Road (1 of 2)**
  - November 2022
- **US-401**
  - November 2022
- **Holland Church Road**
  - September 2022
- **Lassiter Road and Wooded Acres Street**
  - August 2022
- **NC-50**
  - August 2022
- **Deerborn Drive Extension**
  - July 2022
- **New Bethel Church Road**
  - July 2022
- **Kildaire Farm Road**
  - May 2022
- **Johnson Pond**
  - April 2022
- **Fanny Brown Road**
  - November 2021

Activity

North Carolina Department of Transportation
Communications Director Logen Hodges • Edited 5 Jun

Complete 540 – Opening Sauls Road.

Hey Neighbors! On June 2, Sauls Road north of Community Garden Road and south of Pondsedge Trail reopened to traffic. Detour signs and barricades have been removed, and motorists once again have full access to the road.

Construction updates for the Complete 540 project can be found by visiting https://www.ncdot.gov/projects/complete-540/Pages/planned-construction-activities.aspx. If you have any questions, please contact the project team at complete540@ncdot.gov or 1-800-554-7849.

Posted to **Subscribers of North Carolina Department of Transportation in 22 neighborhoods**

4 · 966 Impressions Like 8 Comments Share

North Carolina Department of Transportation
Communications Director Logen Hodges • 3 May

Complete 540 – Opening Pierce Olive Road.

Hey Neighbors,

On or around May 5, Pierce Olive Road between Bamburgh Lane and Olive Tree Lane is scheduled to reopen to traffic. Detour signs and barricades will be removed, and motorists will once again have full access to the road. The reopening of this road is weather dependent.

Construction updates for the Complete 540 project can be found by visiting ncdot.gov/projects/complete-540/Pages/planned-construction-activities.aspx. If you have any questions, please contact the project team at complete540@ncdot.gov or 1-800-554-7849.

Posted to **Subscribers of North Carolina Department of Transportation in 15 neighborhoods**

4 · 467 Impressions Like 1 Comment Share

Complete 540 Phase 2

R-2829B

RFQ Advertisement	November 15, 2022
Statement of Qualifications due from Design-Build Teams	December 20, 2022
Department Announces Short-listed Teams	January 18, 2023
Department Issues Industry Draft RFP to Short-listed Teams	January 18, 2023
First Meeting with Short-listed Teams	February 1, 2023
Department Issues Second Industry Draft RFP to Short-listed Teams	February 15, 2023
Department Holds Statement of Qualifications Debriefs	Week of February 20, 2023
Second Meeting with Short-listed Teams	March 1, 2023
Department Issues Final RFP to Short-listed Teams	March 22, 2023
Technical Proposals and Fuel Usage Factor Chart / Estimate of Quantities Due	August 8, 2023
Sealed Price Proposals Due	August 22, 2023
Technical Presentations by Short-listed Teams	August 23, 2023
Open Price Proposals	August 29, 2023
Department Holds Technical Proposal Debriefs (Pending Contract Execution)	Week of October 2, 2023

NOTE: All dates are approximate and subject to change.

NORTH CAROLINA Turnpike Authority

R-2829A

RFQ Advertisement	February 1, 2023
Statement of Qualifications due from Design-Build Teams	February 28, 2023
Department Announces Short-listed Teams	March 16, 2023
Department Issues Industry Draft RFP to Short-listed Teams	March 16, 2023
First Meeting with Short-listed Teams	April 4, 2023
Department Holds Statement of Qualifications Debriefs	Week of April 17, 2023
Department Issues Second Industry Draft RFP to Short-listed Teams	April 18, 2023
Second Meeting with Short-listed Teams	May 4, 2023
Department Issues Final RFP to Short-listed Teams	May 16, 2023
Technical Proposals and Fuel Usage Factor Chart / Estimate of Quantities Due	September 26, 2023
Sealed Price Proposals Due	October 10, 2023
Technical Presentations by Short-listed Teams	October 11, 2023
Open Price Proposals	October 17, 2023
Department Holds Technical Proposal Debriefs (Pending Contract Execution)	Week of November 27, 2023

NOTE: All dates are approximate and subject to change.

NORTH CAROLINA Turnpike Authority

Complete 540 Phase 2 - Preconstruction Activities

Completed Activities

- Environmental Document
- Section 404/401 Corridor Permits
- Biological Opinion
- Air Quality Conformity
- Final Surveys
- Traffic Forecasts and Analysis
- Service Road Study
- Confirmation of Environmental Mitigation Availability
- Roadway and Structure
- Geotechnical Investigations
- Update Project Cost Estimate
- Refining Preliminary Design
- Developing Pavement Design and Life Cycle Analyses
- Railroad Coordination
- Industry Coordination

Activities Underway

- Advanced Acquisition of Certain Right-of-Way Parcels
- Coordination with Owners of Towers Regarding Needed Relocations
- Planning for Community Water and Sewer Conflict Resolutions
- Planning for Other Long Lead-Time Items
- Utility Coordination
- Developer Coordination
- Refine Plans for Right-of-Way Acquisition
- Design-Build Procurement

2023 Intern Presentations

Travis Feltes, P.E.
Project Engineer

Toll Technology Interns

Ben Scott

Technology Intern

- Graduating Summer 2023
- East Carolina University
- Bachelor of Science
- Information and Computer Technology

Project

Extract, transfer, load process with data using AWS products

Problem and Goal

- Vendors that provide data use different formats and layouts.
- The goal is to unify all data submitted by different vendors so that it can be interpreted and analyzed efficiently on NCTA owned systems.

Schema (72)

View and manage the table schema.

Filter schemas

#	Column name	Data type
1	transactionid	bigint
2	subscribeid	bigint
3	transactiondatetime	string
4	facility	string
5	tollzone	string
6	lane	bigint
7	vehicleclass	bigint
8	numberofaxles	bigint

Schema (53)

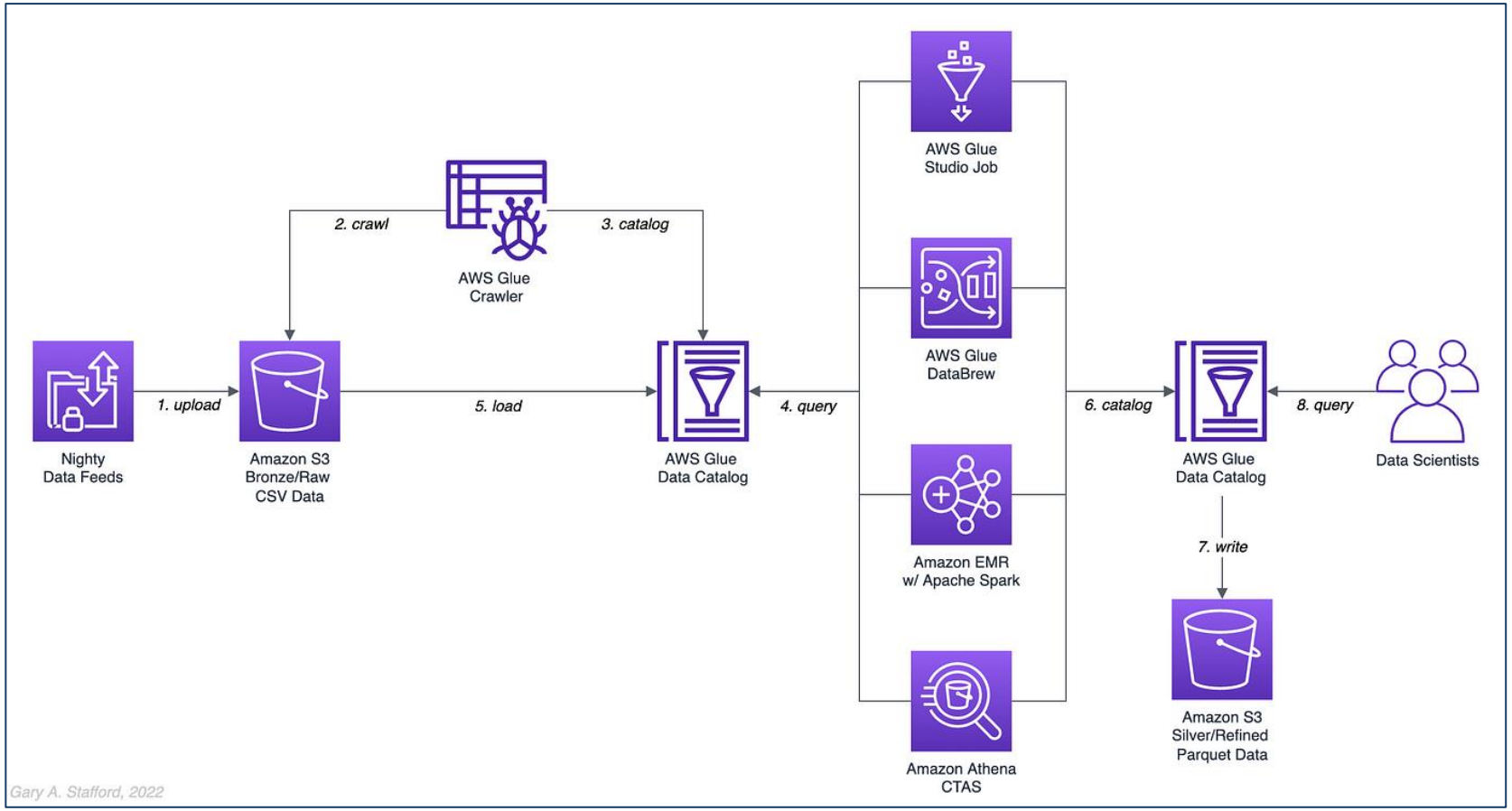
View and manage the table schema.

Filter schemas

#	Column name	Data typ
1	vehicletrxid	bigint
2	plaza	string
3	lane	bigint
4	trxtime	string
5	lanemode	string
6	facilityid	bigint
7	transactionflag	bigint
8	degraded_flg	bigint

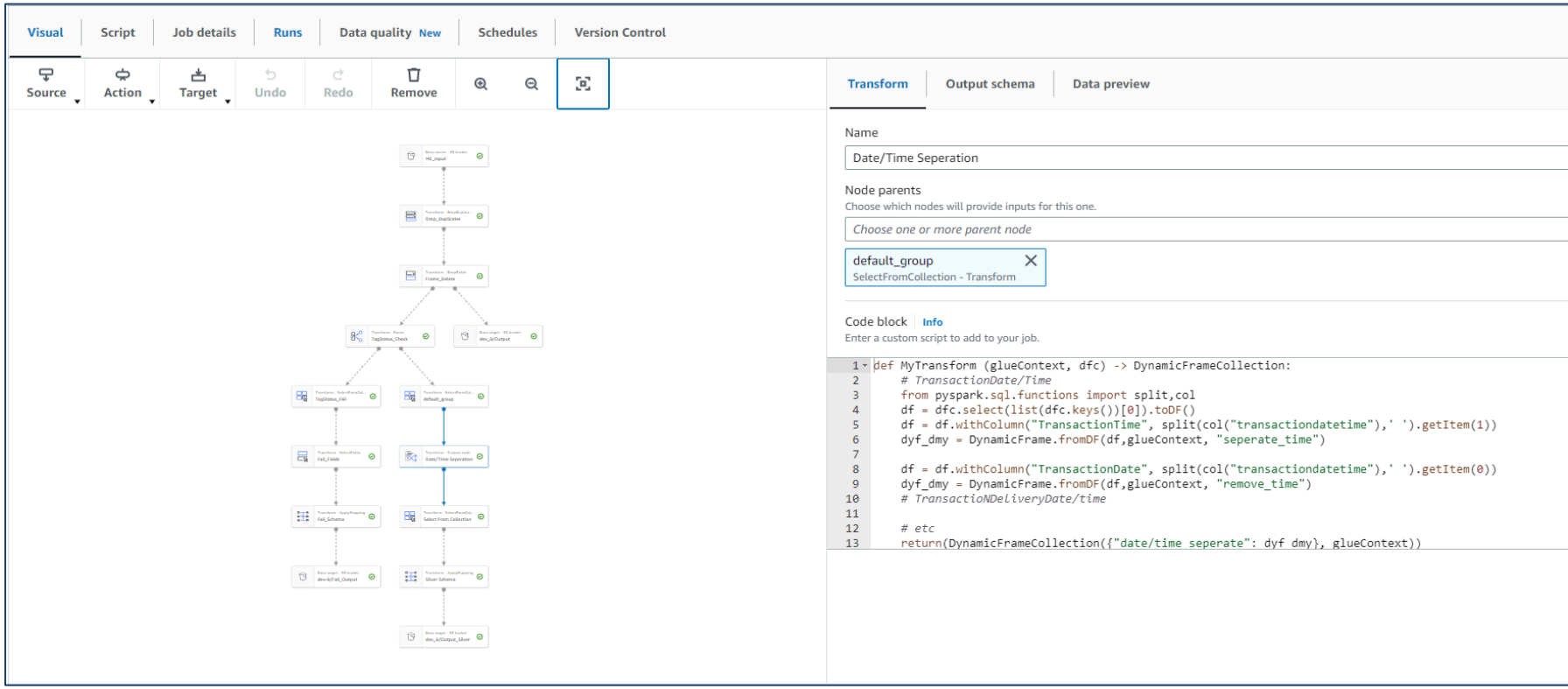
ETL Project

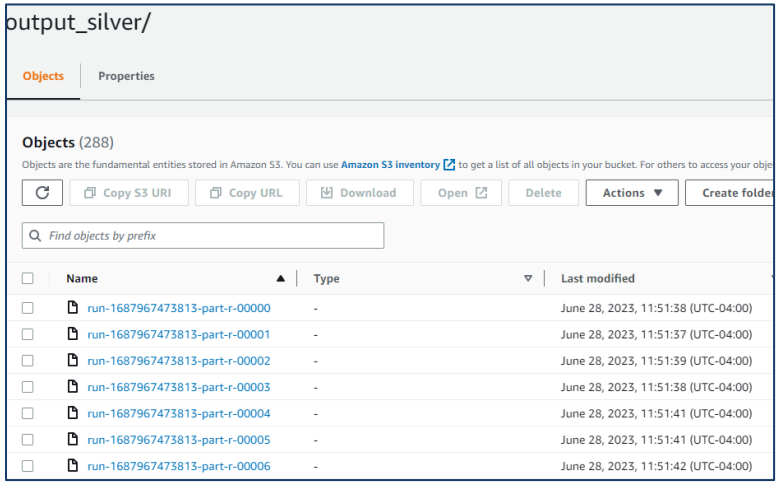
- Raw data is sent to the “input” folder where it is then run through AWS Glue table crawler to form a schematic of the data and placed in the data lake as bronze data
- Data is then transformed using both AWS Glue and Databrew to form clean and readable data.

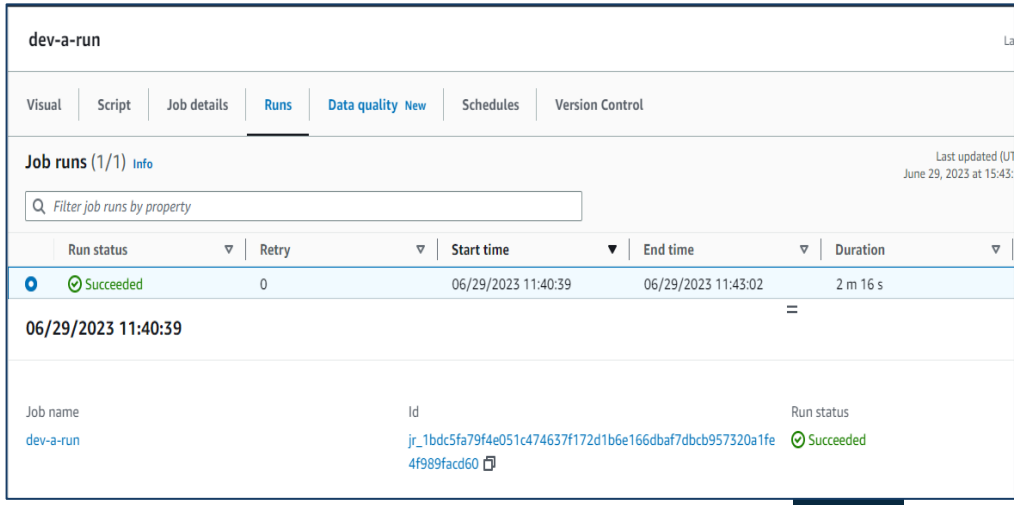


ETL Project AWS Glue

- Transform Raw data/Bronze > Silver > Gold using AWS Glue and Python
- Use of Crawlers to create tables and schematics for data transformations

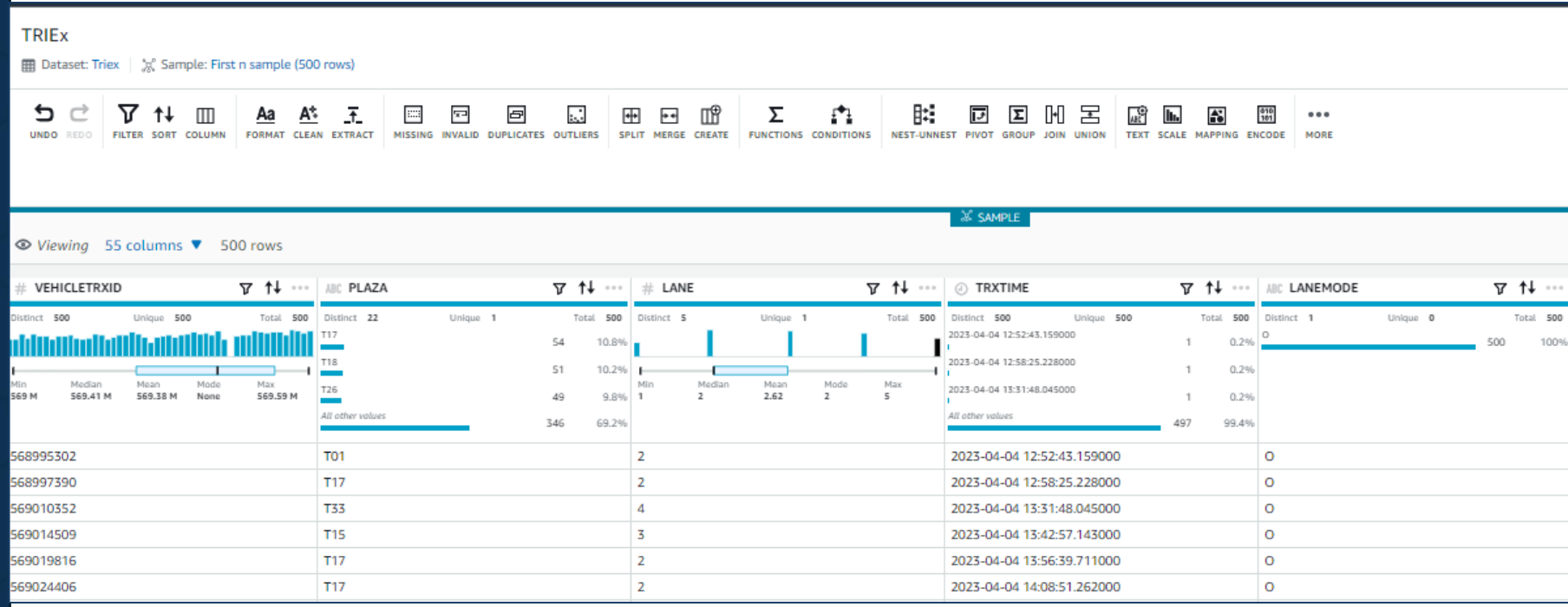






ETL Project AWS Glue (cont)

- AWS Databrew provided visual analysis as well as the ability to modify fields, change value types, and more before the data was saved and sent back into the data lake



Nicholas Clark

Technology Intern

- Graduating Spring 2024
- Clemson University
- Bachelor of Computer Science

Project

Optimizing, debugging, and refactoring the Image Audit Tool

Image Audit Tool

Dashboard

Batch Id 2911	Tot Audits 50	Completed 0	Pending 50
Pass:	Fail:	Reject:	No-Plate:

TRANSACTIONS

280604	Pending
280616	Pending
280629	Pending
280631	Pending
280634	Pending
280647	Pending
280648	Pending
280663	Pending
280665	Pending
280673	Pending
280684	Pending
280687	Pending
280692	Pending
280696	Pending
280697	Pending
280700	Pending
280701	Pending
280702	Pending

PENDING

Pass F2 | Fail F4 | No Plate F8 | Reject F9

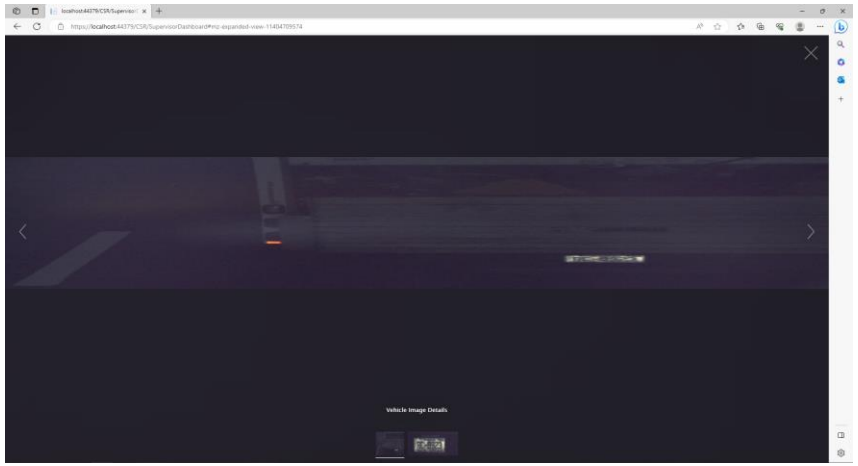
ORIGINAL TRANSACTION DETAILS

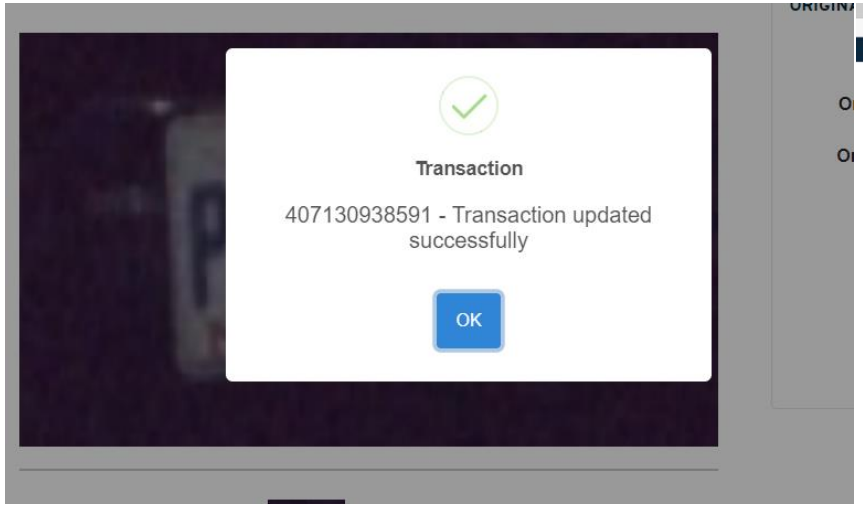
Original Plate :	PWH5114
Original Plate State:	OH
Original Plate Type :	STANDARD
Original Country:	United States
RTCS Trans ID:	160379873
Transaction Date :	3/3/2023 12:00:00 AM
Plaza Agency :	Monroe Expressway

Image Audit Tool: Optimization

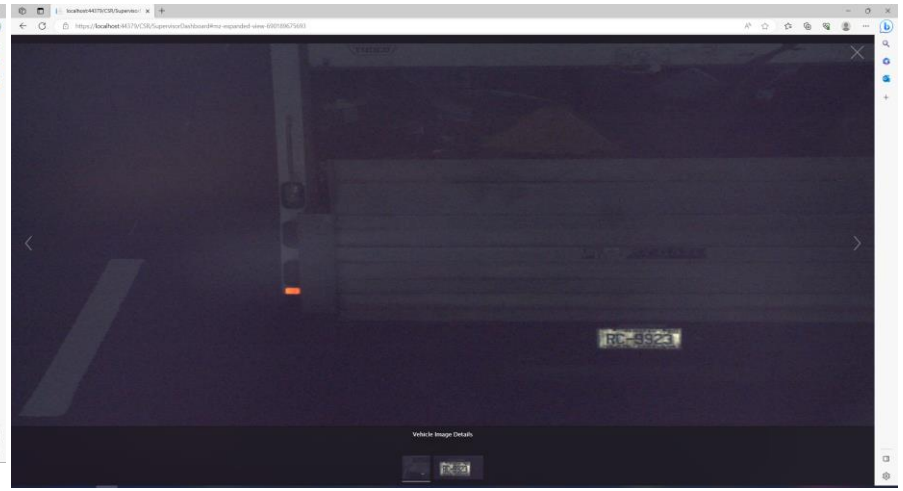
- Made optimizations to the website based on feedback and input from the CSRs and management.
- Fixed issue with magnified/enlarged images.
- Fixed issues with transaction updates and their intrusiveness.

Original





Optimized



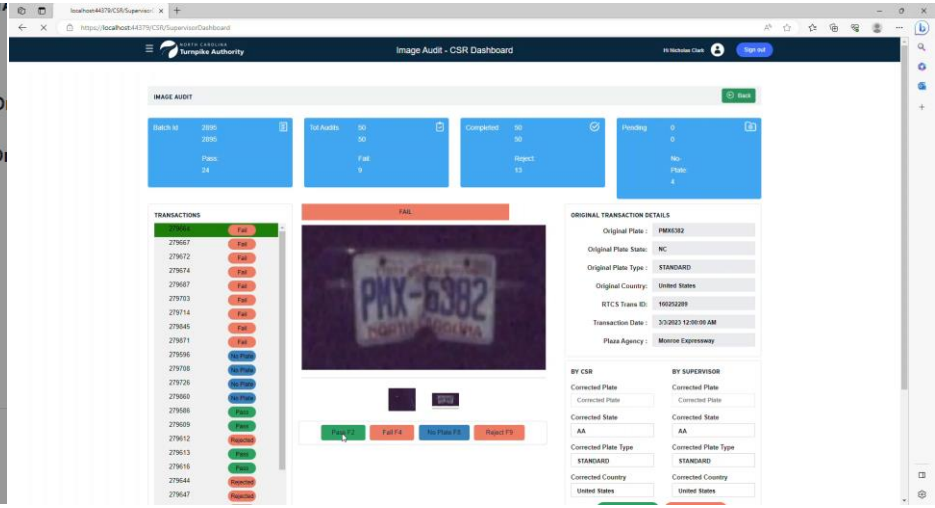
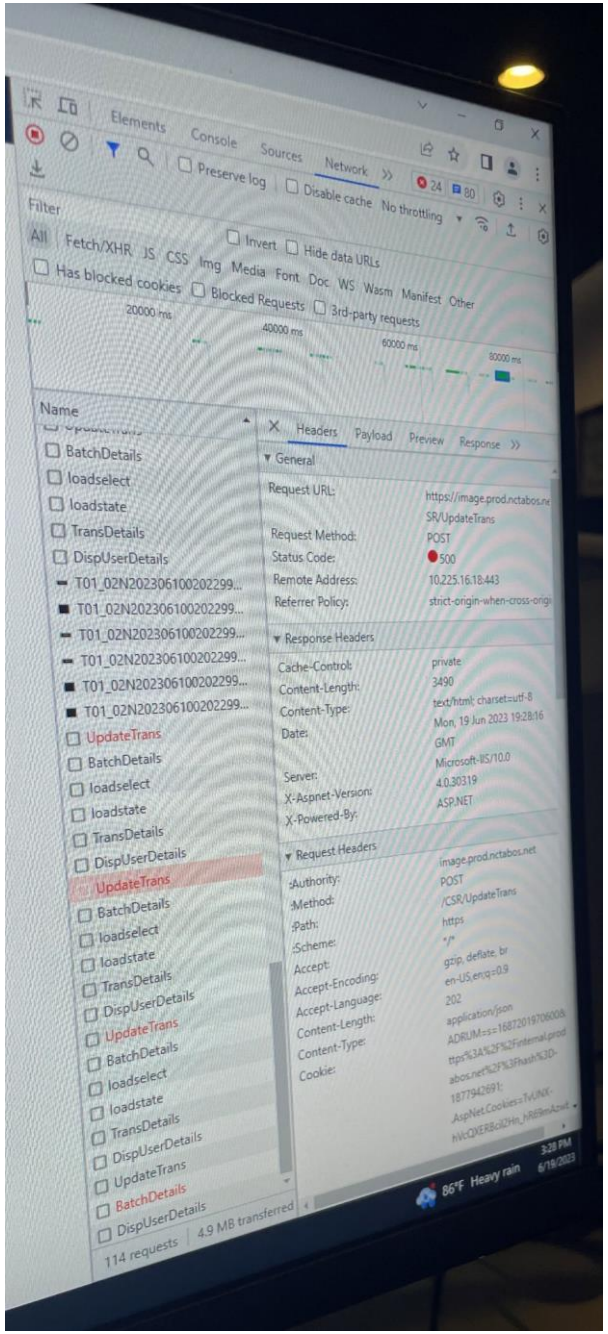


Image Audit Tool: Debugging

- Worked with Charity and other CSRs to debug issues that were occurring with the current version.
- Bad slowdown, transaction skipping, login failures, and new version updates.



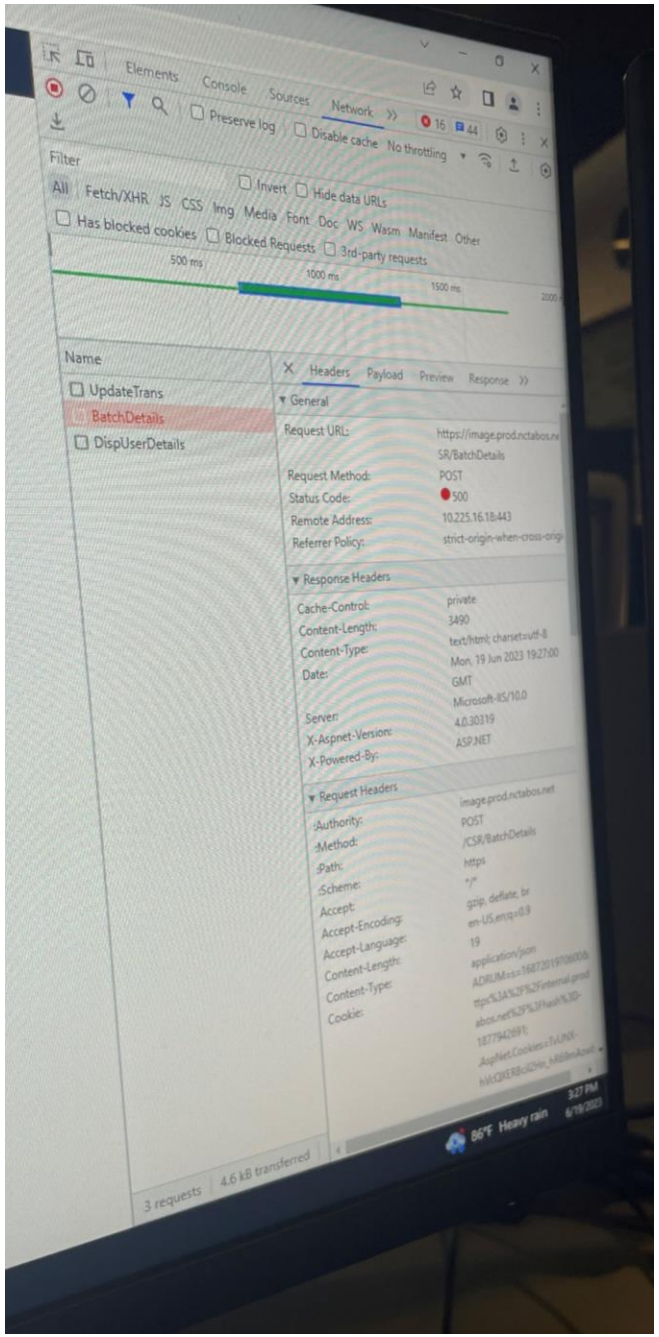
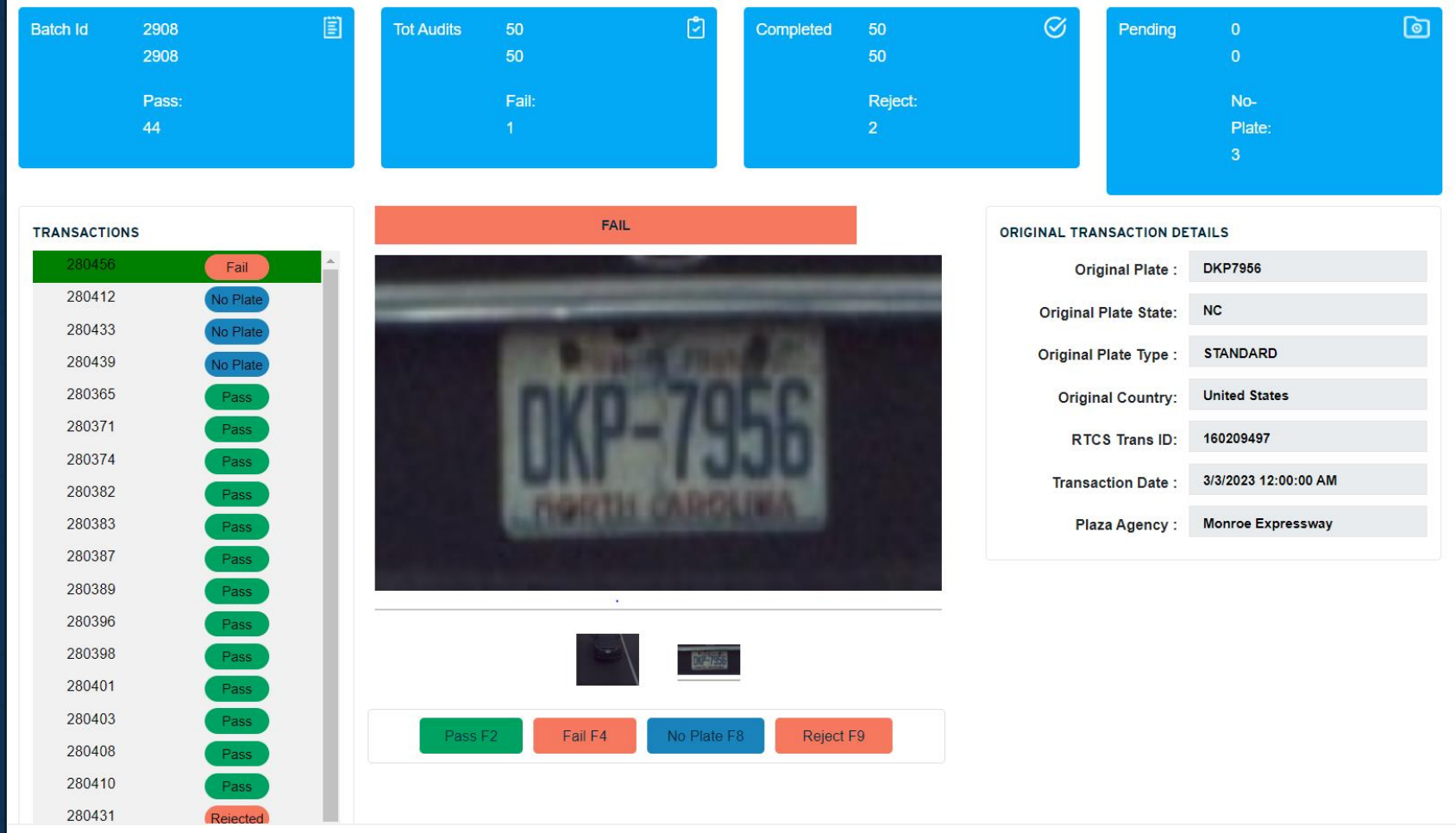
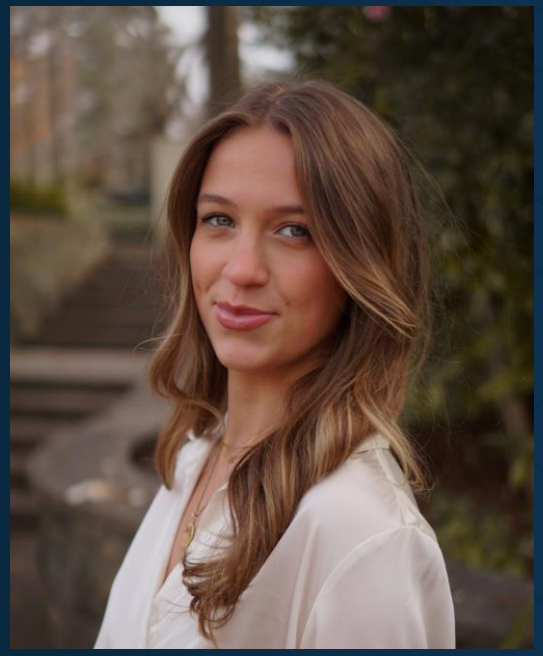


Image Audit Tool Refactoring

- Overhauled the header values and how the backend system receives them.



Communications Intern



Meah Osborne

Communications, Marketing and Graphic Design Intern

- Millers Creek, NC
- North Carolina State University
- December 2023 Graduate
- Communications, Public Relations, Business Administration

Projects

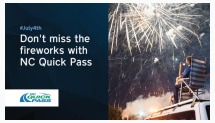
1. Creative and Internal Trainings
2. Complete 540
3. Social Media Calendar
4. NC Quick Pass App Ad Campaign

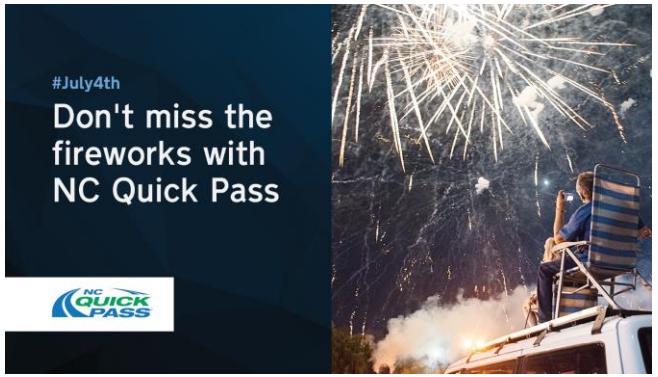
Creative and Internal Trainings

- Graphic Design
- Technical Writing
- Presenting
- Workplace Best Practices

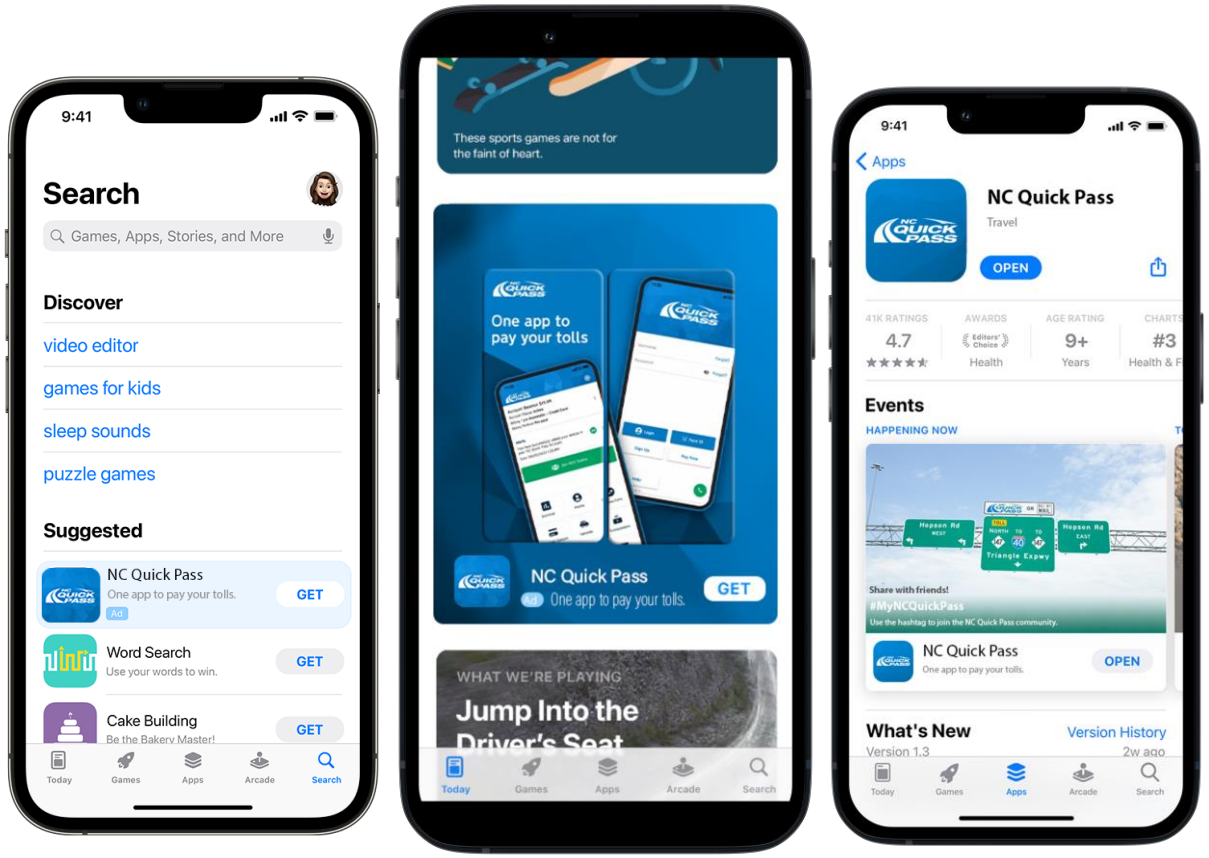
Complete 540

Social Media Calendar

Posting Date	Platform	Subject	Content	Creative	Hashtag/Tags
July 3	RT: Twitter	Independence Day	Going on a trip for the Fourth of July? Save time and money traveling with a #NCQuickPass transponder and start the holiday off right!		#July4th #NCQuickPass
July 4	Twitter	Independence Day	Wishing you a happy Fourth of July!		#4thofJuly



NC Quick Pass App Ad Campaign



NC Quick Pass App Ad Campaign

Construction Intern

Thomas Smith

Construction Engineering Intern

- Junior at North Carolina State University
- Class of 2025

Projects

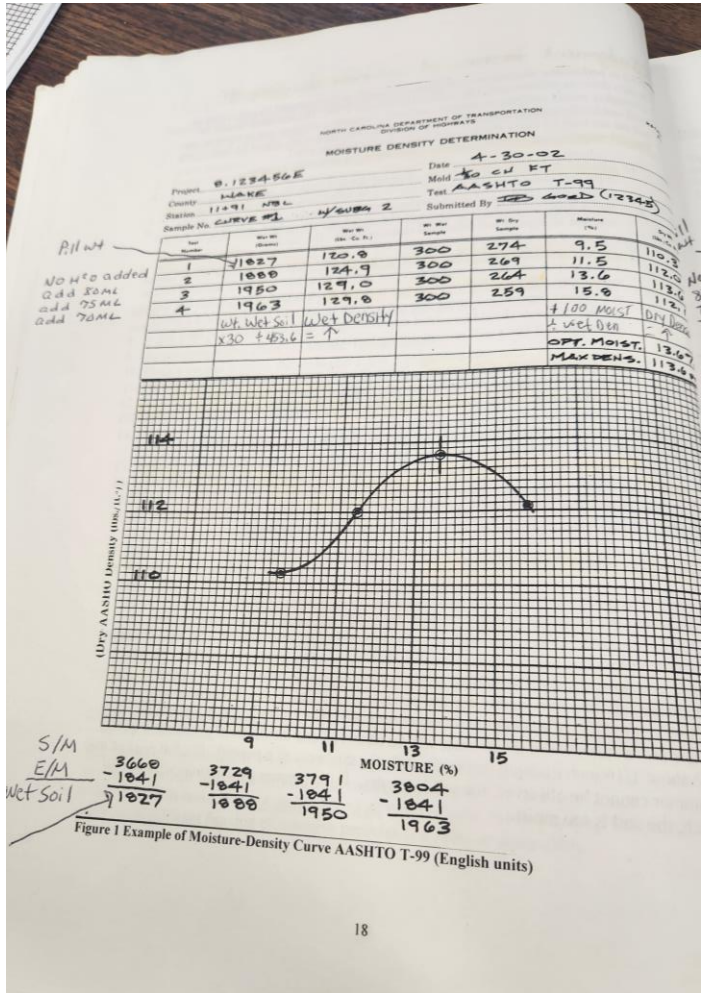
1. Drainage
2. Soil
3. Concrete
4. Lighting
5. Structures
6. Leaning Tower

Drainage

- Learned the basics of drainage systems and how they are installed
- Learned multiple aspects of trench safety

Soil

- Conducted a variety of tests to find various soil factors such as soil density, optimum moisture content, and moisture density curves
- Learned the importance of soil density and how to achieve optimum density through various mechanical means



Concrete

- Discussed and practiced performing various testing techniques to assess concrete including slump, chace, and air pot tests
- Learned the basics of when and how concrete should be poured based off of time and other environmental conditions

Lighting

- Learned how to read electrical and lighting plans
- Dealt with multiple conflicts of interest while observing the construction of lighting systems

Structures

- Learned how to read structure documents and correlate plans to rebar structures
- Learned how to effectively communicate with foremen and supers

Leaning Tower

- Lots of things can go wrong in the field. An important thing I've learned, is how to handle these issues when they come up.

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Thank you!