SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2023.** Please include this submission form with the electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact Gage Harter.

PROGRAM INFORMATION

County: Chesterfield County, VA

Program Title: Mobility Services Automation

Program Category: Health & Human Services/Information Technology

CONTACT INFORMATION

Name: Robert Cox

Title: Manager - Application Development

Department: Information Systems Technology

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Email: coxro@chesterfield.gov

SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Joseph P. Casey, Ph.D.

Title: County Administrator

Signature:

Mobility Services Automation

Executive Summary /Press Overview of the Program

Chesterfield County Information Systems Technology (IST), in partnership with Citizens Information and Resources (CIR), worked with the Mobility Services' staff to create a highly successful computer platform that targets efficiency, and accuracy that removes the "human error" factor. The purpose was to migrate from the outdated Mobility Services passenger information table that used an Access database into new technology. Updating to current technology would automate the process of creating ridership information lending to history being captured and reports created. The second part of the program was to be able to create the ability to validate payment requests submitted by ride vendors through the new technology. Beginning with the ridership and moving to the invoice reconciliation being done by a computer has been extremely beneficial to the department. The outcome has been successful in every way. Passenger registration is streamlined into a system that must be filled out correctly with the proper information and cautions staff when a rider is in the program to avoid redundancy. This program is not limited by the amount of information it can handle and includes several places to add notes which allows staff to record a history of rider updates. Invoice validation is accurate to the penny checking the costs of the vendor's transportation fees. This system notes errors on the invoices such as: a rider isn't in the system, riding outside the Geo-fence, or is no longer part of the program. Reports can be printed and shared with customers inside and outside the county. The Excel reports help manage the grant funding reimbursements and serve as a guide to the staff in areas of education and marketing to the residents of Chesterfield County.

Program Description

The Chesterfield County Information Systems and Technology (IST) Department worked with the staff of Mobility Services and created a Project Charter Mobility Services Automation in September 2021. IST supplied staff in the form of a Program Manager, two project sponsors, and a business manager that held weekly meetings with the Mobility Manager and two Mobility Program Coordinators to understand the needs of the Mobility Services program. Once the needs were known the creation began from what Mobility Services had (lagging technology) into a program that will be able to expand to meet our needs as we grow our transportation programs. Mobility Services was using an MS Access Database and the

technology that was needed isn't available to purchase through an outside vendor. Chesterfield County IST Department created a system that fit the exact needs and reduced the amount of staff time and "human error" in recording rider information and validating thousands of rider trips before paying an invoice. The program is currently in use and has improved functionality in these areas: rider management, sharing information with vendors, voucher management, invoice history, and creating reports. Staff can extract vendor errors and email them to the vendor to receive corrected invoicing from the same day to a couple of days depending on the size of the invoice. Mobility Services has experienced a great reduction of resource time spent performing manual validation of submitted invoice data by a minimum of 200 hours per month. Mobility Services staff started a "trial" month in October 2022. The program needed very little in the way of changes to be made. November 2022 started using it daily and all are pleased with the latest technology that allows entering a new rider, printing a report, and paying invoices. The ease of use with the new program is nothing short of amazing. The Information Systems Technology staff have created a program that we can use for many years to come. The program will not be overloaded by data. The cost savings to our department is there are no yearly contract fees to pay for expensive upgrades. What began conceptually in September 2021 was completed in October 2022 along with a manual for future users. The program has been in full use since November 2022 and there is nothing but amazement and praise for a product that delivered above and beyond staff expectations.

The Problem

Mobility Services provides transportation to those that reside within Chesterfield County, VA who qualify by age of 60 plus, are disabled, or have low income. Mobility Services has two different programs, and each has its own contract and associated business rules. This includes Access Chesterfield and Access on Demand. There are three main service providers for rides. This currently includes Uzurv, Dependacare, and Roundtrip. Uzurv and Roundtrip provide Access on Demand services and Dependacare provides both. For the Access on Demand program citizens pay a $6 fee directly to the vendor. For the Access Chesterfield program, vouchers (a book of six vouchers costs $36) must be purchased from the County or a distributing agency such as the County Libraries. Before the citizen can ride, they must present a voucher to the vendor.

For a passenger to be eligible for the program they must submit a passenger registration form with documented proof of eligibility. After Mobility Services staff confirm that the resident is eligible the passenger will get a passenger ID card to use when booking a trip. Per defined contracts, the vendor

tracks every ride and keeps an Excel spreadsheet that lists a variety of details about the ride. Vendors send Mobility Services an invoice with the attached trips on a weekly or monthly basis.

For the past two decades, the invoices were being checked by two staff taking up to 16 of their 20 working days per month. The outdated way of checking was by each trip line was verified by Google maps. Staff was using too many hours checking data instead of being able to go out into the community and share this program.

The MS Access database being used was so outdated that it was not able to be updated to meet the Mobility Service's needs. An IST Program Manager and the Mobility Services staff spent a full workday listening to three vendors but none of the products sold would fit the needs. **Mobility Services needed a program that could sustain thousands of registered riders, print reports, show history, and determine if the invoice accuracy was down to the penny for payment.**

Prior to the installment of this program staff would spend upwards of 88 hours to review and process invoices. With this program that time was reduced to twenty-two hours. With nearly a work week of time savings this program has now given staff hours back to answer phones, become part of the community events that educate the public about transportation services, send mail outs to residents of Chesterfield, be creative in marketing, and has given staff time to attend an upcoming national convention to learn more about what other states are doing for their residents in the transportation world. The process improvement that has been allowed has created a space that Mobility can be at the forefront of customer needs and services rather than behind the scenes of billing. This has completely revamped the Mobility Division.

The Solution

Due to the unique nature of this problem, no custom off the shelf software solutions were identified to meet the business requirements. The Chesterfield County IST, Application Development team proposed an in-house, custom-built, cloud hosted solution to be developed and deployed in two phases.

Phase 1 - Replace existing Microsoft Access database functionality

The initial development phase of the Mobility Services Automation application focused on the creation of the core framework components, while replacing the existing capabilities of the antiquated Microsoft Access database which was being used by staff. Key areas implemented within this initial phase include:

New Passenger Registration

The existing Access database supported free text data entry for rider details which often made it difficult to accurately search or report on existing riders. A new user interface was implemented to support consistent collection of user data with sanitized data formatting.

Passenger Search

Previously, attempts to locate rider information required manual searching or writing custom queries with Microsoft Access. The development team created an easy-to-use interface, allowing business users the ability to quickly search for passengers using a few key fields. In addition, an advanced search feature was included to expand the search functionality to support a broader range of search parameters.

Reporting

It was crucial to provide reporting capabilities that met or exceeded the existing functionality. These reports aid the Citizen Information and Resources team in verifying the details and eligibility of the riders.

Data Conversion

All existing data with the Microsoft Access database was thoroughly cleansed and converted to match the new data structures. Years of free-text data entry required multiple iterations and validations to ensure accuracy going forward.

Phase 2 - Support the automated validation of vendor invoices.

The most critical component for the success of the Mobility Services Automation application, was the ability to effectively validate vendor invoices in an automated fashion. With multiple ride program types, in addition to supporting invoice and pricing structures for various vendors; a user configurable solution was developed to map vendor invoice details into a unified platform format. An individual invoice may contain several thousand trips, specifying rider details, pickup/drop-off locations, and trip cost to name a few. In the past, these details were manually verified by CIR staff, which included manually entering each address into Google Maps to verify trip mileage. This process often required 20 hours (or more) of repetitive work. An automated invoice architecture was developed to break this validation into 6 specific automated routines:

1. **Required Fields** – Ensures all required data is present.

2. **Data Accuracy** – Verifies accuracy of the data such as the rider's name specified matches the name within the system for the rider id specified.

3. **Invalid Trip Location** – Validates that the trip was not to specific locations un-allowed by the Mobility program. Example: airports or bus stations.

4. **Address Geolocation and Routing** – Geocodes the pickup and drop-off locations and calculates the trip mileage utilizing a routing API.

5. **Trip Jurisdiction Check** – Ensures that the pickup and drop-off locations are within the supported boundaries for the program.

6. **Trip Cost Check** – calculates the cost for the trip based on supplied details and calculated mileage which is then validated against the billed amount from the invoice.

This automated validation process typically takes less than a few hours to complete for larger invoices, freeing staff to focus on more mission critical tasks. Once complete, staff are easily able to view all trips with validation errors. These issues are verified with the vendor after which either an update for the trip is provided, or the validation error is overridden.

Payment for an invoice cannot be made until all trips have been validated successfully.

Implementation

The Mobility Services Automation project officially kicked off in November 2021, with scoping and discussion with vendors occurring from November through January 2021. The Chesterfield County IST, Application Development team began development in April 2022. During development, a modified Agile delivery methodology was followed, meeting with stakeholders on a weekly basis with progress demonstrated in a non-production environment.

It was determined that a production version of the application would not useable until all components within the existing Access database had been replicated within the new system, therefore, the initial implementation of phase 1 didn't occur until June 2022.

Immediately following the phase 1 implementation, phase 2 development began with parallel efforts for platform stabilization and additional needs within the production environment. Development and

testing completed for phase 2 in October 2022, after which all unpaid invoices were imported and validated through the new system. After several weeks of hands-on use, the project was formally closed in November 2022.

Since the project's completion, additional enhancement requests have been performed including:

- Various reporting needs to support day to day activity as well as grant funding.
- Updates to support new invoice billing requirements.

Cost

This initiative followed Chesterfield County's Project Management Methodology and was structured in a way that allowed for multiple releases and implementations that provided value to the County. Overall management of the initiative was controlled by a project manager and two project sponsors.

Hour of development allotted: up to 630 hours of internal development by the Chesterfield County IST Department. Since this was internally developed no additional funding was necessary.

No contracted maintenance fees on a yearly basis for expensive upgrades. If there is a need staff reach out and put in a work ticket through IST and it is followed up the same day.

Savings for staff time began in October when the new program rolled out. These staff hours have been used toward customer service, education, marketing, and time allowed to think and pursue the next level of transportation changes.

Supplemental Materials:

Attached separately (MobilityServicesAutomationTrainingManual.pdf)

CHESTERFIELD MOBILITY SERVICES TRAINING

Table of Contents

Overview

Chesterfield County Mobility Services provides transportation assistance for citizens that are elderly, have disabilities or are low-income without personal vehicles. Mobility Services has two different programs and each has its own contract and associated business rules. This includes Access Chesterfield and Access on Demand. There are three main service providers for rides. This currently includes Uzurv, Dependacare, and Roundtrip. Uzurv and Roundtrip provide Access on Demand services and Dependacare provides both. For the Access on Demand program citizens pay a $6 fee directly to the vendor. For Access Chesterfield a voucher (Comes in a book of six) must be purchased from the County or a distributing agency such as the Library. Before the citizen can ride they must present the voucher to the vendor.

For a passenger to be eligible for the program they must submit a passenger registration form with documented proof of eligibility. After Mobility Services staff confirm that the citizen is eligible the passenger will get a passenger id and a card that they can be provided to the vendor when using these services. Per defined contracts the vendor keeps track of every ride and keep an excel spreadsheet that lists a variety of details about the ride. Vendors will send Mobility Services an invoice with the attached trips on a weekly or monthly basis.

When the invoice arrives Mobility Services staff must confirm that all trips are valid prior to paying the invoice. This includes a variety of business rules and is currently a lengthy process for the County. This application aims to overcome this by introducing automated validation for trips. The application also allows Mobility Service staff to manage vouchers, passengers, vendors, invoices, and distributing agencies. For a complete summary of the citizen program please visit https://www.chesterfield.gov/170/Mobility-Services.

Passengers

Registering a Passenger

To register for the mobility services program citizens currently fill out a pdf and either fax or mail it in to Chesterfield County. In order to qualify for the program, the citizen must meet the eligibility requirements. After the registration form is received by mobility staff and validated for eligibility the passenger needs to be entered into the mobility services system.

To get started, navigate to the passenger search screen, and then click on Register New Passenger or click on the Register New Passenger option on the left side of the page.
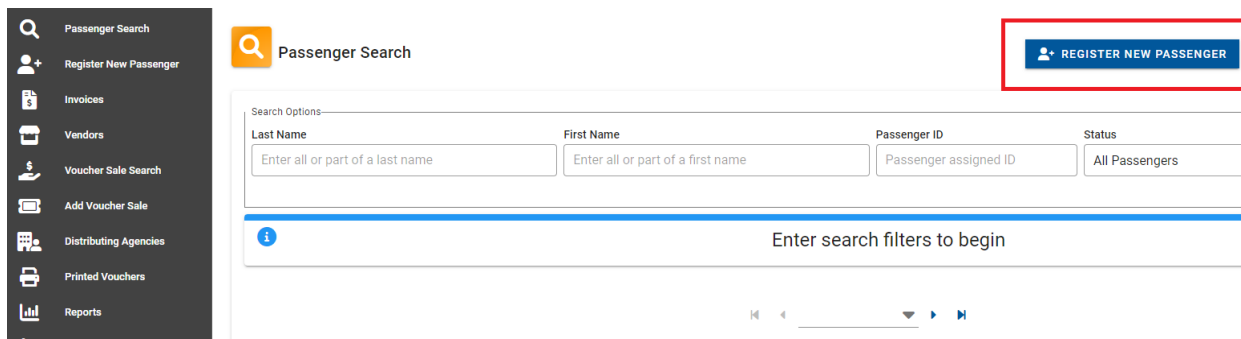
Next fill out the details present on the passenger registration form. Note that several fields are required to save the new passenger. This includes Last Name, First Name, Date of Birth, Gender, Race, and proof of eligibility. First enter the contact information, date of birth, gender, race, and any mobility aids needed to ride. If the passenger Under proof of qualification select which method was used to verify eligibility. Also select which method was used to verify that the citizen resides in Chesterfield County

Mobility Aids

If the passenger requires mobility assistance check the boxes they have specified on their form. Check other if the form indicates another aid that is not listed and type in the value in the other textbox.
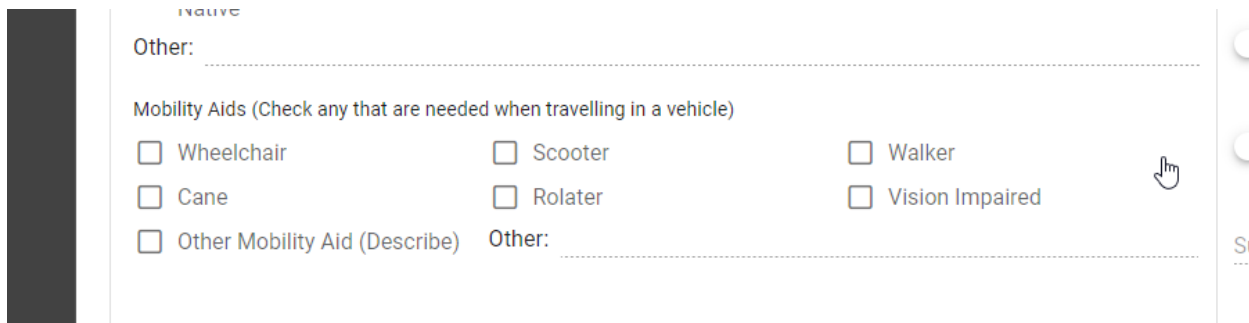
Veteran

If the citizen is a veteran check the veteran switch. This option is not present on the registration form. It is used for tracking purposes only.

Brightpoint

If the citizen takes part in the Brightpoint or John Tyler program check this switch. This option is not present on the registration form. It is used for tracking purposes only.

Proof of Eligibility

In order to register for the program, the citizen must reside in Chesterfield County and **Must meet one** of the following:

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- Be age 60 or older
- Have a disability (temporary or permanent)
- Live in a low-income household

Age 60 or Older

If the passenger registration has the Aged 60 or older checkbox checked click on the Age 60 or older switch. Then select how their age was verified. If none of the options fit the verification method select Other and then type in a method in the Other Proof textbox.

Disabled

If the passenger registration has the disabled checkbox checked click on the Disabled switch. Then select how their disability was verified. If none of the options fit the verification method select Other and then type in a method in the Other Proof textbox.

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If the passenger registration has the Income checkbox checked click on the Income switch. Then select how their income was verified. If none of the options fit the verification method select Other and then type in a method in the Other Proof textbox.
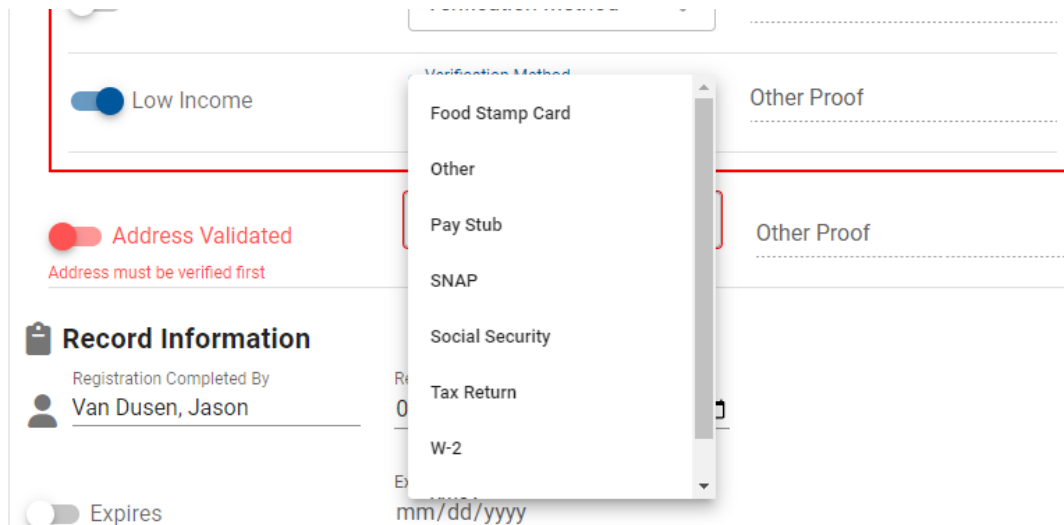
Address Verification

Citizens of this program must reside in Chesterfield County and Mobility Services staff must verify this. Click on the Address Validated switch and select how their residency was verified. If none of the options fit the verification method select Other and then type in a method in the Other Proof textbox.
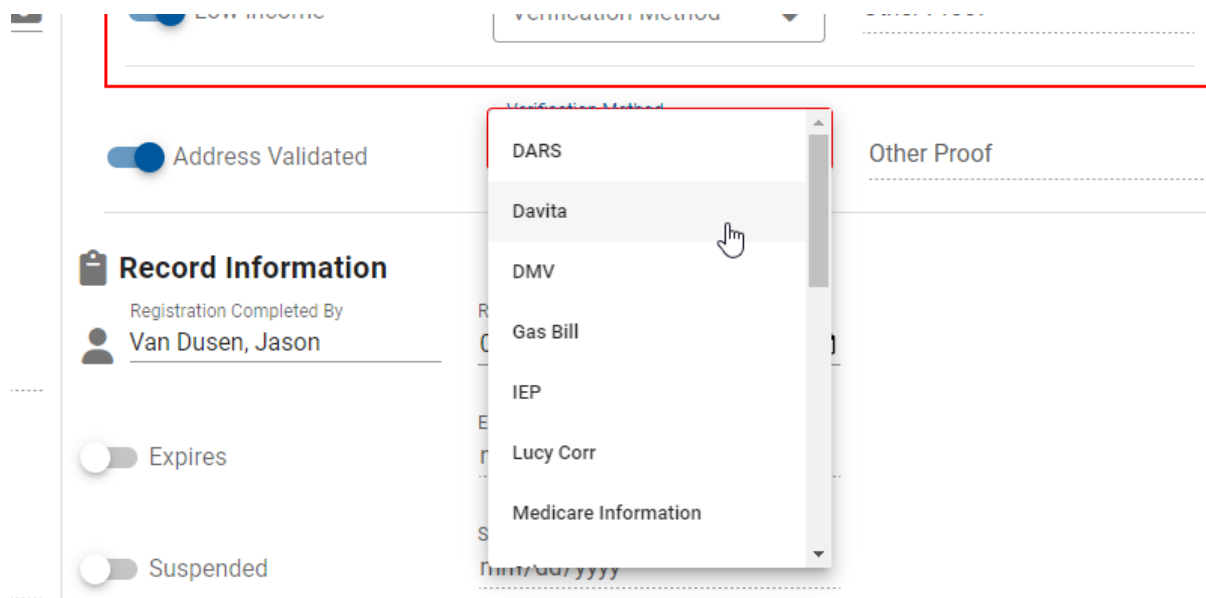
Verification Documents Path

Type in the path to the documents used to verify eligibility. This should be a SharePoint URL or file share.

Alternate Systems

If the passenger has a Pro-Filer ID or some other medical software identifier you will need to enter this information under alternate systems located at the bottom. Click the ADD ALTERNATE SYSTEM button and then select the alternate

system. At the time of go-live Pro-Filer is the only option but this may change over time. Type the Pro-Filer ID in the System Identifier textbox.

Once you have entered all relevant information click the SAVE PASSENGER button at the top right or bottom middle. After the passenger is saved you will be redirect to the details page for the passenger.

Passenger Search

Once a passenger registration is saved into the system you can search for the passenger to update any relevant details. The default page for the application is the passenger search. You can also navigate to the passenger search by clicking on passenger search at the top left. The primary search options include Last Name, First Name, Passenger ID, and Status. There is no search button to initiate a search. Instead, simply start typing or select the needed option to begin your search.

More Filters

If further filtering is needed to find the passenger(s) you are looking for click on the more filters button. This will bring up a dialog where you can search by additional filters which include expired passengers, suspended passengers, race, mobility aid, and MHSS passengers. Click the Apply Filters button to search by the selected filters.

Passenger Details

Once you have found the passenger you are looking for via the passenger search click on the record to view the details and make any needed changes. Click the Save Passenger button to save your changes. Notice that on this view there are two additional tabs. Vouchers and Trips. These tabs indicate which vouchers were sold to the selected passenger and the trips they have taken.

Voucher Sales

Passengers can purchase voucher books from a variety of locations including any Chesterfield County Public Library, the Treasurer's Office, and the Mobility Service Office. There is also a pdf that citizens can mail into Mobility Services with a check. Each voucher is $6 and vouchers come in a book of 6. Voucher sales can be purchased by registered passengers or distributing agencies. To purchase a voucher book for the selected passenger, click on the ADD VOUCHER SALE button at the top right of the screen or click on the Add Voucher Sale link on the left-hand side of the web page.
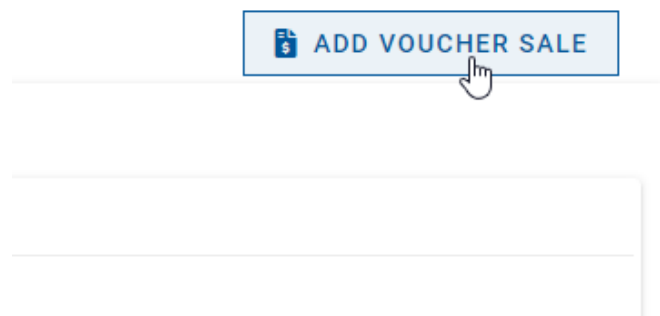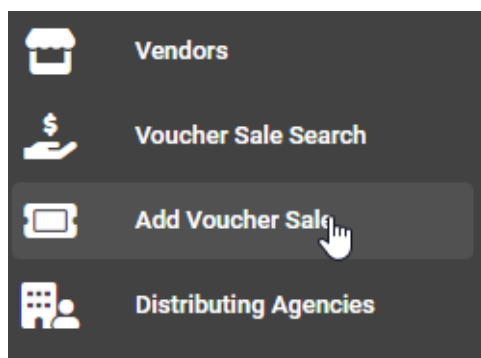
When clicking on the button from the selected passenger the passenger will be automatically selected for you. If you are selling to a passenger leave the sold to switch set to Passenger.

Sold to:

Are you selling a voucher to a passenger or to a distributing agency?

Select passenger to sell a voucher to an invidual or select distributing agency if selling vouchers to agencies such as MHSS or the Library.

Passenger ⬤ Distributing Agency

If the passenger purchased the voucher book(s) directly from Mobility Services leave the distributing agency dropdown empty. However, if the passenger purchases the voucher book(s) from a distributing agency select that agency. If this is a sale to a distributing agency change the switch in the top left section to Distributing Agency. If you clicked on the Add Voucher Sale from the left-hand side the passenger will not be selected. You will need to click on the SELECT PASSENGER button and search for a passenger first. Fill out the details for the purchase such as how they paid, how many books they purchased, and the purchase amount.

Voucher Sale Ranges

Enter the voucher number range for the book(s) they purchased. Enter one new row for each book by clicking on the ADD RANGE button at the top right. Enter the lowest number in the book in the Voucher # From textbox and the highest number in the Voucher # To textbox. If you are selling one voucher enter the same number in the Voucher # From and Voucher # To textboxes. Once you have entered the ranges click the VALIDATE button to confirm that the ranges do not already exist in the system. After clicking this button, the ranges will be checked for duplication and warn you if the voucher sale range has already been used before. You can either fix the numbers for the overlapping ranges or click the IGNORE VALIDATION button.

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Once you click the IGNORE VALIDATION button the row will turn orange indicating that you have elected to ignore this validation error.

Once all information has been entered click on the SAVE VOUCHER SALE button at the top right or bottom middle of the screen.

Passenger Trips

The trips section for a selected passenger is read-only. It is FYI only so that you can see which trips a particular passenger has taken. This can help with researching issues such as determining if a passengers should be suspended. Several of the action buttons on the right-hand side of each trip row will be invisible for this view.
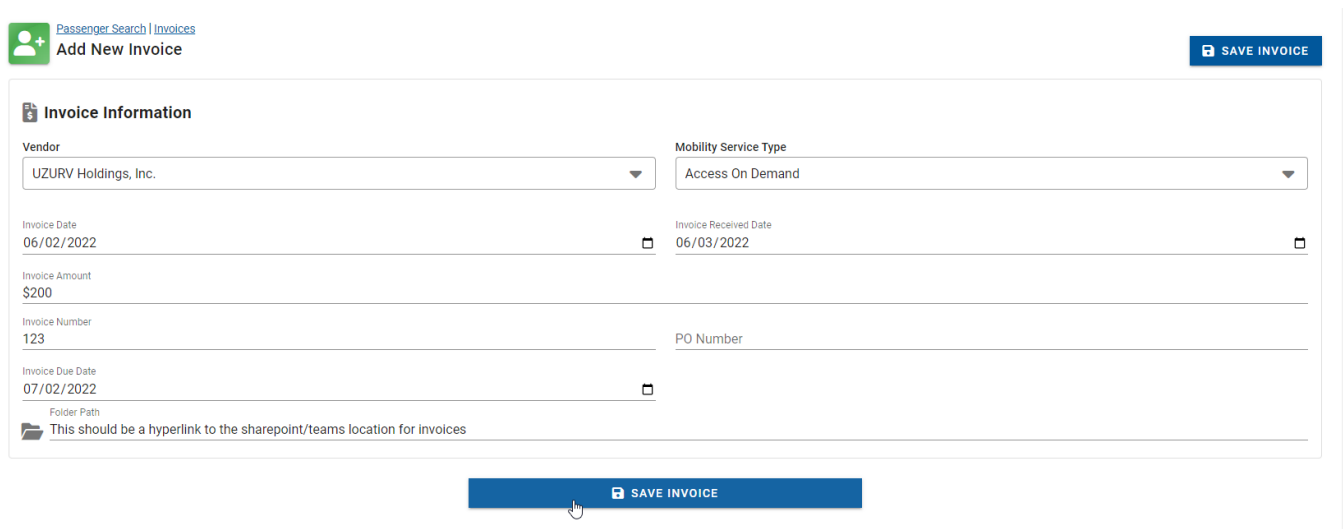
Invoices

On a monthly basis the vendors that provide rides to passengers send an invoice to Chesterfield County to be paid. The vendors are required to include a line item for each passenger ride. In addition, each ride must comply with specific business rules to be paid by the County. If these business rules are not followed the ride can be denied and the invoice is sent back to the vendor for corrections.

Once the invoice is received by the vendor click on the invoices menu option on the left-hand side of the web application to get started. This will load the default search results for invoices. Click on the ADD NEW INVOICE button to start entering the new invoice details.
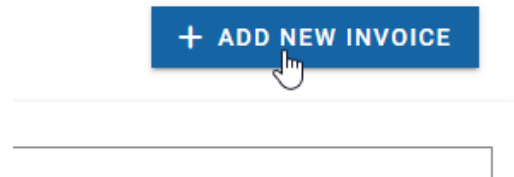
Enter all of the relevant information for the invoice and click the SAVE INVOICE button at the top right or bottom of the screen. Required fields include the vendor, mobility service type (AOD or AC), invoice date, and invoice number.

Invoice Details

After you click the save button you will be redirected to the invoice details web page. On this screen you can make any adjustments to the invoice details needed and you can add invoice trips and invoice credits. Available functionality on the invoice screen will vary based on the status of the invoice.

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Once the trips are validated you can click the EXPORT TRIP ERRORS button to download an excel spreadsheet that lists the errors on each trip. This is useful for providing details to the vendor on what they need to correct.

To validate all of the added trips click on the VALIDATE INVOICE button. This will kick off a variety of validation routines to ensure that each trip is valid for payment.

This toolbar indicates the current status of the invoice. The current status will be underlined have a check in the checkbox icon. If you need to change the status click on the status name.

Click this button to save the basic details about the invoice such as the invoice number or invoice amount.

Home
Invoice Number: 123

[SAVE INVOICE] [VALIDATE INVOICE] [EXPORT TRIP ERRORS]

☐ Delete   ☑ **Active**   Approved   Paid

Version:
Version 1 - 2022-06-02 ▼   📁 NEW VERSION

▦ Details
≣ Summary
🚗 Trips
🎫 Credits

💲 Invoice Information   Status: Active

Vendor   Mobility Service Type
UZURV Holdings, Inc.   ▼   Access On Demand   ▼

Invoice Date   Invoice Received Date
06/02/2022   📅   06/03/2022   📅

Invoice Amount
$200

Invoice Number
123

Invoice Due Date
07/02/2022

Folder Path
📁 This should be a h

☰ File Import History   🔄

File Name: Upload Date: Import Status:
Submitted Uzurv Copy of CCAOD Invoice 0522   9/28/2022 11:08:22   Processing
(003).xlsx   AM

Imported: 281 of 2943
Errors: 0 of 2943

If the vendor has corrected mistakes and you have received an updated invoice you can click the NEW VERSION button to enter the new details and trips. The old version will become read only. You can still revisit the old version by clicking on the dropdown

An invoice has multiple tabs. Click the summary tab to view the high-level information about the types of trips and the status of the invoice. Click the trips tab to view a list of all trips and to add/delete/update trip information. Click the summary tab to view a list of all trips and to add/delete/update credit information.

If you use the import trips option to automatically import an excel spreadsheet this section will provide a status of how many trips were imported successfully and how many failed. If you are waiting on the trips to import click the refresh button to get the most recent

Invoice Versions

If the vendor has corrected mistakes and you have received an updated invoice you can click the NEW VERSION button to enter the new details, trips, and credits. The old version will become read only. You can still revisit the old version by clicking on the dropdown.

On the new invoice version dialog enter the details for the new invoice such as invoice date, invoice received date, invoice amount, and invoice number. Once finished click on the SAVE VERSION button. After the version is saved you will be redirect to the new version. To revisit the old version of the invoice you will need to click on the invoice version dropdown and select it.

Invoice Search

To search for invoices, click on the Invoices option on the left-hand side of the application. This will redirect you to the invoice search screen and automatically load all active invoices. Select from the filters at the top to further refine the invoice you are looking for. You can filter by vendor, date range, and invoice status. Once you have found the invoice you are looking for click on the row to navigate to the invoice details screen.

Invoice Trips

Each invoice will have associated trips that must be validated. To enter trips first select an invoice and then click on the trips tab. To add a trip manually to the invoice, click on the add trip button. To import an excel spreadsheet with a list of trips click the import trips button.
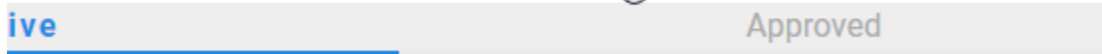
Manual Entry

Click the ADD TRIP button to manually add a trip to an invoice. This is a lengthier process and it is recommended to use the import option. However, this option is helpful if you have just a few trips to enter. A variety of fields are required to enter a trip. This includes a selected passenger, service type, trip date, purpose of trip, pickup address, drop off address, and scheduled pickup time. These are required for the trip validation logic to process the record correctly. vendor notes section is used to document any notes the vendor had about the trip. For example, the passenger was not abiding by ride policies or the passenger used a certain mobility aid. The staff notes section is used to document anything relevant about the processing of the trip. After entering the trip details click the SAVE TRIP button at the bottom right. The

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Trip Import

The faster method to entering trips into the system is by using the trip import option. To get started select an invoice and then click on the trips tab. Then click the IMPORT TRIPS button. Note that this button may be unavailable depending on the status of the invoice. Select a .xlsx file to upload and then click the IMPORT TRIPS button. Note that the .xlsx file must be less than 5 MB. If you need to get under this size be sure to delete any unnecessary pictures or diagrams from the file.

After you submit the file it will take several minutes for the import to complete. To check on the status of the file import click on the Details tab and review the file import history section on the right-hand side. This will indicate how many records have been imported and whether they are imported successfully. If you're trying to check this in real-time you may need to click the refresh button get an updated status.

Searching for trips

The invoice trip tab provides a variety of filters to limit the list of trips that you see. You can filter by a particular ride identifier or the current status of a trip. For example, if you only want to see those trips that failed validation you can click on the Validation Failed (not overridden) option to filter trips to just those that are currently in that status.

Updating Trips

To adjust an existing trip, locate the trip on the invoice trips tab and click on the eye icon to load the trip details.

Make any adjustments needed and then click the SAVE TRIP button. Note that the imported values are listed directly below each trip value for your reference.

The original imported values are listed directly below each control for your reference.

Trip Route
To view the trip route, click on the black route icon. This will load the route in google maps in a separate window.

Re-Validating a trip
If you would like to validate a single trip click on the green checkbox icon to initiate validation for the trip.

Click on the VALIDATE TRIP button to confirm that you would like to proceed.

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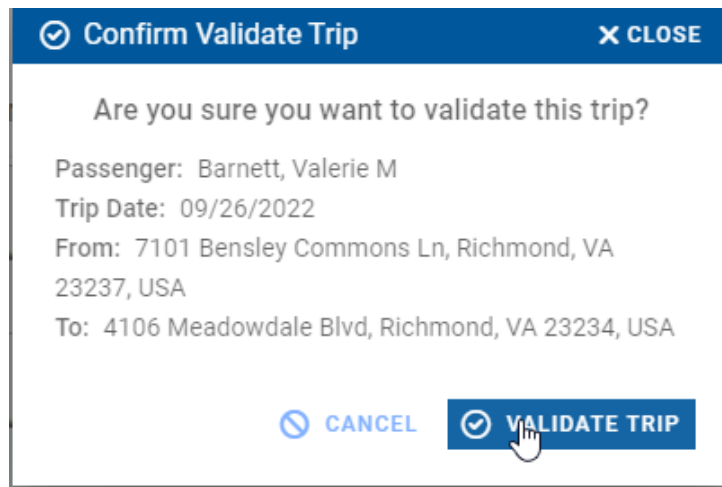
Validating An Invoice

After you have added all of the trips associated with the invoice it is time to validate that all trips can be paid. A trip must comply with a variety of business rules prior to being accepted. To validate the invoice, click the VALIDATE INVOICE button at the top right of the selected invoice. Note that this button may not be available in all invoice statuses and is only available for the current invoice iteration.
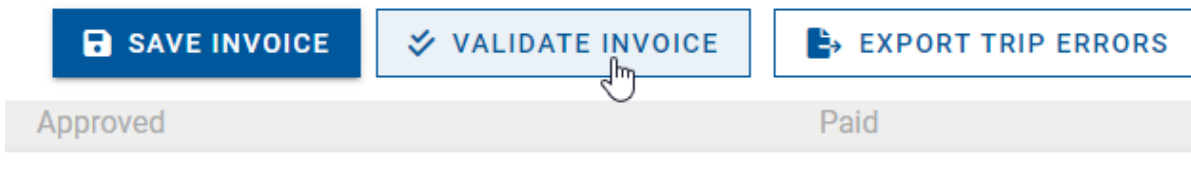
After clicking the button, a dialog will appear that summarizes the number of trips that need to be validated and a label will indicate whether or not the total invoice amount currently equals the total trip cost. You can select whether or not you wish to validate all trips or just those with failed validations. After reviewing these details click the CONFIRM button to continue.
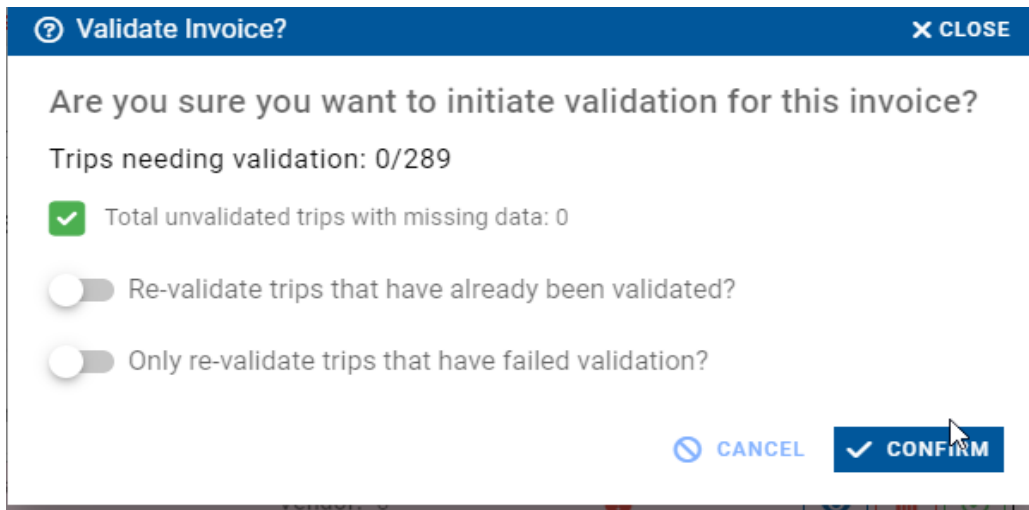
After clicking confirm the status of the invoice will change to preparing validation and it will take a few minutes for all trips to be validated. Refresh the page to get an updated status. When the validation is complete click on the trips tab and review each trip. If the trip has a green background color this means that the trip passes all of the defined business rules. If the trip has a white background color and displays a loading graphic it is still being validated. If the trip has a red background color then the trip did not pass validation. Click on the row to review further details as to why it failed. If necessary you can ignore the validation and let the trip pass. To do this click on the IGNORE button. You will need to click the button for each validation error. If you elect to ignore validation the row will turn a light blue. Assuming that all trips have either passed validation or are marked to ignore the invoice can move forward to the next status. Click on the Approve status option at the top to change the status of the invoice.

Invoice Statuses

Deleted

If the invoice is no longer needed you can set the status to Deleted by clicking on the delete option in the status bar at the top of the selected invoice. This will open a dialog confirming that you wish to proceed. Click the CONFIRM button to change the status to deleted. Note that this is a soft delete and the record will still exist. If you wish to change the status back to active click on the Active label.
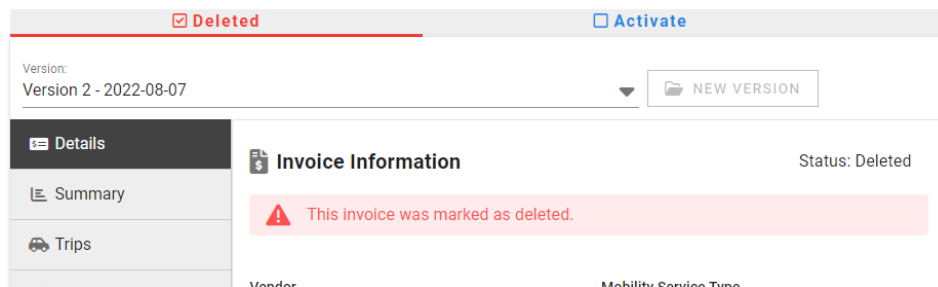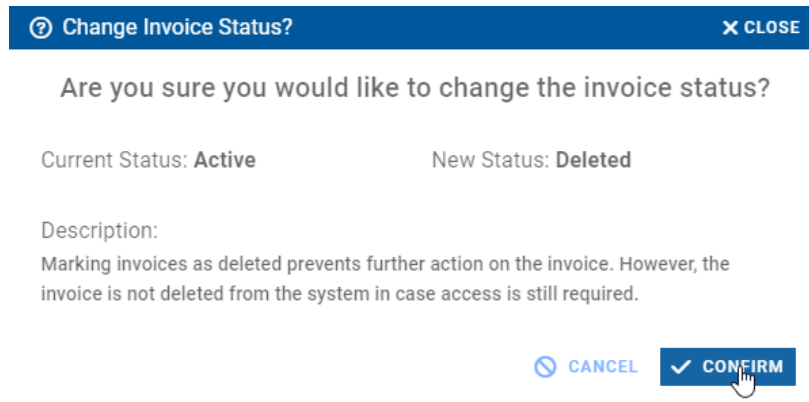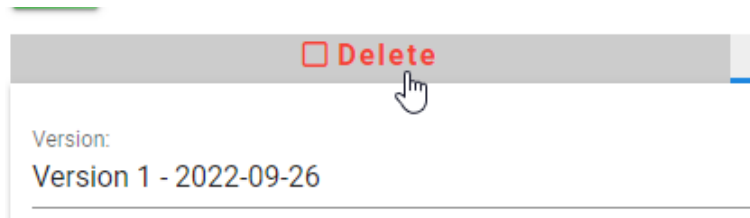
Active

To set the status of an invoice to active click on the active option in the status bar at the top of the selected invoice. This will open a dialog confirming that you wish to proceed. Click the CONFIRM button to change the status to active. When an invoice is set to active the invoice details can be modified. In addition, trips can be added, deleted, and validated. During this status you need to add all trips that are associated with the invoice and validate them.

Any trip that fails validation must be reviewed. If validation errors exist with the list of trips you can email these to the vendor to be corrected. To do this click the EXPORT TRIP ERRORS button to download a spreadsheet with the list of errors. If the vendor sends a new version of the invoice with trips back you must first create a new version of the invoice before proceeding.

If the vendor only sends back a new cover page simply update the invoice amount on the invoice details tab and correct trips as needed to get the invoice to balance. The invoice must balance to move to a status of approved. If you created a new version import the trips again. For both scenarios validate the trips again. If all trips are green the invoice is ready to move to a status of approved. If the invoice has errors that you do not agree with and you wish to bypass the error you can click the ignore button on the trip. Once all trips are either validated or set to ignore validation and the invoice is balanced (meaning the invoice amount is equal to the sum of all trip costs) you can then set the status of the invoice to approved.

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Approved

To move to a status of approved the invoice must balance and all trips must be validated. The invoice amount must equal the sum of all trip costs. If the invoice does not balance you will see a little red padlock next to the approved status. In addition, if you hover over the padlock it will provide a tooltip that explains that the trip cost total does not equal the invoice amount.

Once you have this corrected by updating trips or updating the invoice amount the padlock will go away. The approve may also be disabled if you have not validated your trips yet. Once all trips are validated and the invoice is balanced you can click on the Approve text to set the status of the invoice to approved.
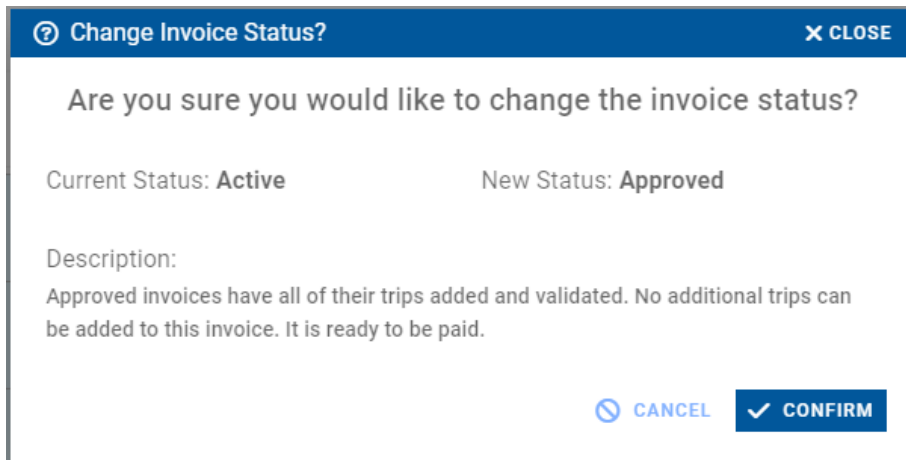
Once the invoice is in a status of approved you can add/delete credits. This is the only allowed feature in this status. After you added any credits and the invoice is ready to be paid you can click on the paid button and finalize the invoice. After this action no further changes to the invoice are allowed.

Paid

The final status for an invoice is paid. In order to set the status of an invoice to paid the invoice must balance, all trips must either be validated or the validation must be ignored, and any credits must be entered. After all of this information has been entered and the invoice has been paid through the accounting software (Currently One Solution) you can set the status of the invoice to paid. Once this occurs no further changes are allowed on the invoice. This is by design for auditing purposed.
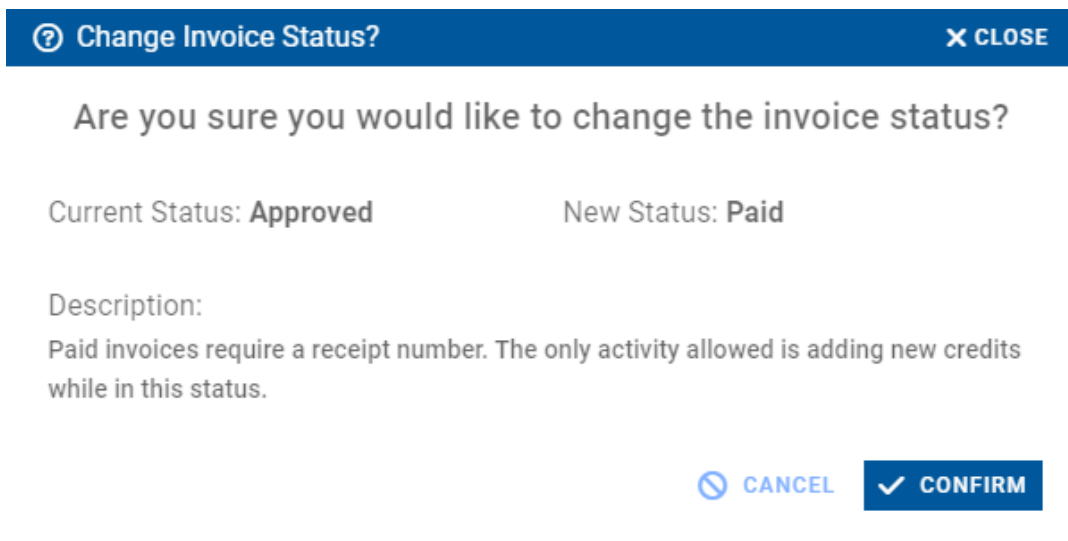
Validation Routines

When you click the VALIDATE INVOICE button a series of validation routines are started. These run in a certain order and will take a few minutes to complete. If any validation issues arise this will display on the trips tab.

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Click the expand icon on a trip to view the validation errors. All errors will be listed in this section.

If you know that the error can be ignored click the IGNORE button. Type in a reason and click SAVE VALIDATION.

✔ Required Fields

❗ **Data Accuracy**: Data accuracy errors found   🖋 IGNORE

Validation Rule	Message
Check required fields	
Passenger	
Voucher ID	
Zero Miles Zero Cost	

1. **Required Fields**

   Checks and confirms that the trip has all of the required fields needed to perform validation. If any of these fields are missing the trip will be marked as invalid and you will need to review the trip to determine if the vendor should be contacted or if you would like to ignore the validation error.

	Required Field Validation Routine			
Order	Rule	Validation	Access Chesterfield	Access On Demand
1	Address From	Must have a value	✔	✔
2	Address To	Must have a value	✔	✔
3	Vendor Cost	Must have a value	✔	✔
4	Vendor Miles	Must have a value	✔	✔
5	Passenger ID	Must have a value and the value must be a number.	✔	✔
6	Rider Name	Must have a value	✔	✔
7	Ride ID	Must have a value	✔	✔
8	Trip Service Type (Ambulatory/Wheelchair)	Must have a value	✔	✔
9	Trip Type (Employment, Medical, Personal, School, Other)	Must have a value	✔	✔
10	Trip Date	Must have a value	✔	✔
11	No Show Indicator (True/False)	Must have a value	✔	✖
12	Cancelled Indicator (True/False)	Must have a value	✔	✖
13	No Voucher Indicator (True/False)	Must have a value	✔	✖

14	Late Indicator	Must have value	✓	✗
15	Full Price Indicator	Must have value	✓	✗
16	Denied Indicator	Must have value	✓	✗

2. Data Accuracy

After the required field validation runs a data accuracy routine check to see if the values for certain fields match the expected values we need to validate the trip. For example, does the rider name specified match the passenger name associated with the passenger ID provided.

Data Accuracy Validation Routine				
Order	Rule	Validation	Access Chesterfield	Access On Demand
1	Trip Date	Must have a value that is not null	✓	✓
2	Mobility Service Type	Must have a value that is not null	✓	✓
3	Vendor Cost	Must have a value that is not null	✓	✓
4	Vendor Miles	Must have a value that is not null	✓	✓
5	Vendor Miles	If the vendor miles are zero the trip cost should be zero as well.	✓	✗
6	Vendor Miles	Mileage cannot be greater than the max mileage configured in the system	✓	✓
7	Vendor Trip Type	Must have a value that is not null	✓	✓
8	Scheduled Pickup Time	Must have a value that is not null when there is vendor cost greater than zero	✓	✗
9	Arrived Pickup Time	Must have a value that is not null when there is vendor cost greater than zero	✓	✗
10	Passenger ID	Must have a value that is not null and must exist in our database as a registered passenger.	✓	✓
11	Passenger ID	The passenger name must match the registered passenger in our database.	✓	✓

12	Passenger ID	The passenger cannot be expired, suspended, or inactive on the date of the trip.	✓	✓
13	Voucher Number	If the trip charge is greater than zero and no show, no voucher, and cancelled are all false a voucher number is required.	✓	✕
14	Ride ID	The ride ID cannot be the same for multiple trips.	✓	✓
15	Late	If the driver is more than 15 minutes late the late indicator should be set to True.	✓	✕

3. Forbidden Addresses

The forbidden address validation checks to ensure that the to or from address is not a forbidden location such as the airport. This check only occurs for trips that are not for employment. You can configure forbidden address by clicking on configuration on the left-hand side of the web application.

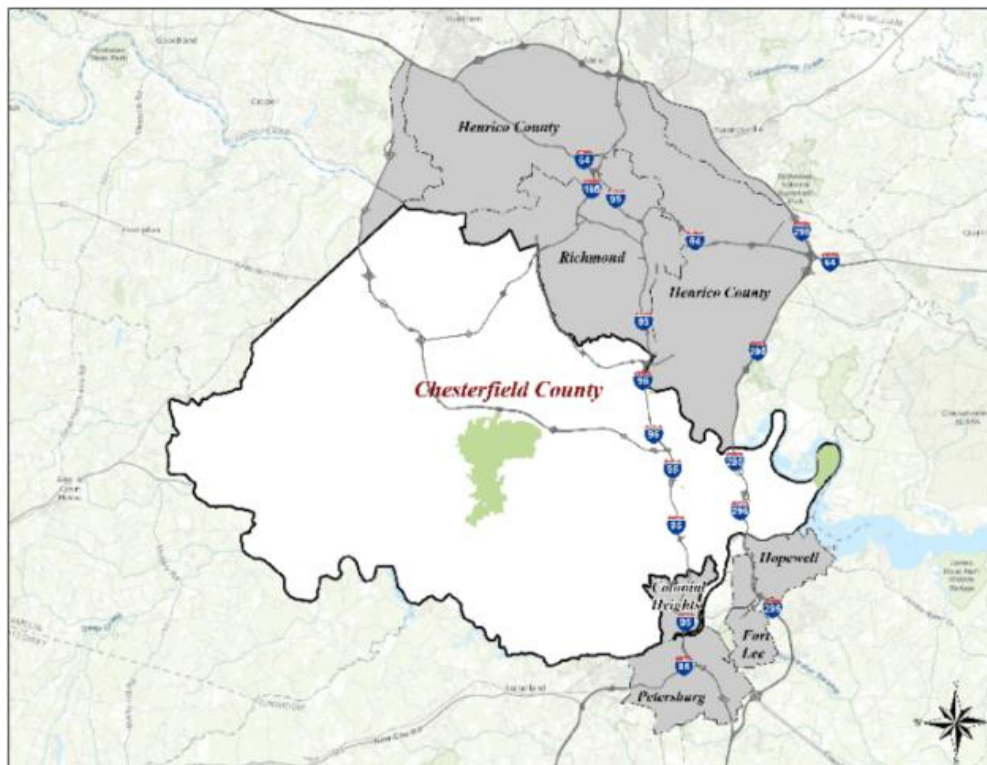| Forbidden Address Validation Routine				
Order	Rule	Validation	Access Chesterfield	Access On Demand
1	Vendor Cost	Must have a value that is not null	✓	✓
2	Vendor Trip Type	Must have a value that is not null	✓	✓
3	Address From	Must have a value that is not null	✓	✓
4	Address From	If the trip type is not employment the address from cannot be a forbidden address location	✓	✓
5	Address To	Must have a value that is not null	✓	✓
6	Address To	If the trip type is not employment the address to cannot be a forbidden address location	✓	✓

4. Mileage/Routing

The Mileage/Routing validation checks for a few fields that are required and then attempts to geocode and route the trip. If this success the mileage is calculated for the cost validation routine.

	Mileage/Routing Routine			
Order	Rule	Validation	Access Chesterfield	Access On Demand
1	Vendor Cost	Must have a value that is not null	✓	✓
2	Mobility Service Type	Must have a value that is not null	✓	✓
3	Address From	Must have a value that is not null	✓	✓
4	Address To	Must have a value that is not null	✓	✓
5	Trip Geocoding	The trip must geocode to be valid	✓	✓
6	Mile Calculation	The trip must be able to be routed	✓	✓

5. Jurisdictions

The jurisdiction validation checks for a few fields that are required and then attempts to determine if the address from and to are inside the allowed trip area identified in the map below.

Jurisdiction Validation Routine				
Order	Rule	Validation	Access Chesterfield	Access On Demand
1	Vendor Trip Type	Must have a value that is not null	✓	✓
2	Mobility Service Type	Must have a value that is not null	✓	✓
3	Address From	Must have a value that is not null and that is geocoded.	✓	✓
4	Address To	Must have a value that is not null and that is geocoded.	✓	✓
5	Address From	Must be in allowable area (See map above)	✓	✓
6	Address To	Must be in allowable area (See map above)	✓	✓

6. Cost

The cost validation routine calculates the cost for a given trip based on the trip route and the configured rates for the vendor used. It then determines if the calculated cost is less than the submitted vendor cost. If the cost is less than the vendor cost the trip is marked as invalid. Access Chesterfield uses a flat per trip charge whereas Access on Demand uses a mileage range or fixed mile charge.

Mileage/Routing Routine				
Order	Rule	Validation	Access Chesterfield	Access On Demand
1	Vendor Cost	Must have a value that is not null	✓	✓
2	Mobility Service Type	Must have a value that is not null	✓	✓
3	Trip Service Type	Must have a value that is not null	✓	✓
4	No Show Indicator	Must have a value that is not null	✓	✗
5	Cancelled Indicator	Must have a value that is not null	✓	✗
6	Cancelled Indicator	If the cancelled indicator is set to True the vendor cost must be zero.	✓	✗
7	No Voucher Indicator	Must have a value that is not null	✓	✗
8	No Voucher Indicator	If the no voucher indicator is set to True the vendor cost must be zero.	✓	✗
9	Route Mileage	Must have route mileage to calculate cost. Access	✗	✓

		Chesterfield uses a fixed cost.		
10	Late Indicator	If the late indicator is set to True the vendor cost must be zero.	✓	✕
11	Calculated Cost	Must have a calculated cost that is equal to or greater than the vendor cost.	✓	✓

Assuming that all validation routines pass for a given trip the trip will be displayed with a green background color on the invoice trips tab.

Invoice Summary

To see a summary of the trip validations and cost calculations click on the Invoice Summary tab for a selected invoice. The top validation summary section displays the validation status for all trips on the invoice. The bottom trip summary section lists trip counts, mileage, and cost by trip service type. It also lists trip counts and cost for certain indicators such as trips that were late or no shows. To download the invoice summary screen as a report, click the download report button to the right of the trip summary heading.

Invoice Summary

Validation Summary

Click the DOWNLOAD REPORT button to export the invoice summary information to an Excel spreadsheet.

	Count	Amount		Count	Amount		Count	Amount
Ambulatory Requested	277		Wheelchair Requested	12			289	
Ambulatory Passenger	132		Wheelchair Passenger	12			144	
Ambulatory Miles	1304.75		Wheelchair Miles	184.57			1489.32	
Ambulatory Aid	0	$0.00	Wheelchair Aid	0	$0.00		0	$0.00
Ambulatory Canceled	129	$0.00	Wheelchair Canceled	0	$0.00		129	$0.00
Ambulatory Denied	0	$0.00	Wheelchair Denied	0	$0.00		0	$0.00
Ambulatory Late	0	$0.00	Wheelchair Late	0	$0.00		0	$0.00
Ambulatory No Voucher	7	$0.00	Wheelchair No Voucher	5	$0.00		12	$0.00
Ambulatory No Show	16	$96.00	Wheelchair No Show	0	$0.00		16	$96.00
Ambulatory Full Price	125	$4,558.75	Wheelchair Full Price	7	$255.29		132	$4,814.04
Ambulatory Billed Sum	141	$4,654.75	**Wheelchair Billed Sum**	7	$255.29		148	$4,910.04

Invoice Credits

After an invoice has been sent back to the vendor for corrections the vendor may provide Chesterfield County with a credit. Invoice credits are not used with all vendors. Some vendors simply update the cover page with a new invoice amount whereas others will include the credit. To add a credit to an invoice the invoice must be set to active. Click on the credits tab and then click the ADD INVOICE CREDIT button. Type in the credit number, credit date, and the credit amount. Then click the SAVE CREDIT button. This will add a new row to the invoice credits grid. In addition, the credit be used in the calculation that determines if the invoice is balanced. The invoice must balance to move to the approved status.

Vendors

To add a new vendor, click on the Vendors hyperlink on the left-hand side of the web application. Then click the ADD VENDOR button.

Enter the vendor name, address, phone number, and contact information. Select the type of rides that the vendor performs under ride types. These ride types are critical for validating invoices because the mileage rates will need to be configured for these types. These rates are then used to validate the invoices for this vendor. After you enter are all of the vendor information click the SAVE VENDOR button.   You will be redirected to a vendor details screen that includes some additional tabs. At this point you can configure rates, PO numbers, and map invoice import columns.

To update an existing vendor, return to the vendors screen by clicking on the vendors hyperlink on the left-hand side of the web application. Then left click in the row of the vendor of interest. This will load the vendor details screen for that vendor.

Vendor Rates

In order for the trip validation logic to correctly work the vendor rates must first be configured. Click on the rates tab to configure the mileage costs associated with the vendor contract. There are three different types of rates. This includes Access Chesterfield, Ambulatory, and Non-Ambulatory. The Access Chesterfield program uses a flat rate for the trip and charges for no shows. Access on Demand has Ambulatory and Non-Ambulatory rates. These rates can be based on a mileage range or a per mile charge. To use a per mile charge, click on the User Per Mile Charge switch. Type in all of the rates for the vendor and then click the SAVE VENDOR RATES button.

Vendor Column Mapping for Importing Trips

This system is designed to allow users to import all trips from an excel spreadsheet. In order for this to work correctly the system needs a link between the expected column name and the column name the vendor will be using in the spreadsheet you import. For example, for the Address From field if the vendor will call that column Location Start then you will need to configure this column label on the vendor invoice mapping tab as Location Start. Some fields are required to be mapped and they are labeled with a red required label. You will need to map Access on Demand and/or Access Chesterfield depending on which services the vendor provides. Any incorrect mappings may result in the trip import process failing.

Vendor PO Numbers

Each year the vendor assigns a new PO number. To expedite the process of adding a new invoice you can add the current PO number to the PO Numbers tab. The system will automatically populate this value when you add a new invoice. Click on the ADD PO NUMBER button to add a new row. Then enter the PO Number, mobility service type (AOD or AC), start date, and end date. Click the SAVE PO NUMBERS button to save your changes.

Distributing agencies

Distributing agencies provide voucher books to citizens. A passenger can buy a voucher book from Chesterfield County directly or via a distributing agency. To add a new distributing agency, click on the Distributing Agencies hyperlink on the left-hand side of the web application. Then click on the ADD DISTRIBUTING AGENCY button. Type in the name of the agency, address, registration date, and contact information. Select the record type information and type in any comments needed. Then click the SAVE DISTRIBUTING AGENCY button to save your changes.

To update an existing Distributing agency, click on the Distributing Agencies hyperlink on the left-hand side of the web application. Click on the row that you would like to update. This will redirect you to the distributing agency details screen.

The distributing agency details screen includes a voucher sales tab. When selling a voucher book to a distributing agency you will need to use this tab or click on the Add Voucher Sale hyperlink on the left-hand side of the web application. Click the ADD VOUCHER SALE button and then fill in the details for the sale. Make sure that the Distributing Agency checkbox is checked in the sold to area for the voucher sale. Vouchers can be sold to a passenger or a distributing agency.

Printed Vouchers

The printed vouchers screen is used to keep track of what voucher numbers have already been printed. This helps to ensure that duplicate vouchers are not printed again. To add a new range of voucher numbers, click the ADD PRINTED VOUCHER button. Fill in the Voucher from # and To # and the print date. If the County is also printed duplicates select Yes and enter the From # and To # for the duplicated range. Click ADD PRINTED VOUCHER to save your changes.

🖨 **Printed Vouchers**

<div style="text-align: right">+ **ADD PRINTED VOUCHER**</div>

Print Date	Voucher From #	Voucher To #	Duplicate	Duplicate # Start	Duplicate # End	
08/13/2020	989,001	999,998				DELETE
08/13/2020	900,000	913,000				DELETE
09/12/2019	877,001	889,000				DELETE
07/24/2019	865,001	877,000				DELETE
03/19/2019	841,001	865,000				DELETE
11/14/2018	792,001	841,000				DELETE

🖨 **Printed Vouchers**

Voucher From #
989002

Voucher To #
989008

Print Date
02/02/2022

Includes Duplicates?
No

Voucher Duplicate From #

Voucher Duplicate To #

✓ ADD PRINTED VOUCHER   ⊘ CANCEL

Print Date	Voucher From #	Voucher To #	Duplicate	Duplicate # Start	Duplicate # End	
08/13/2020	989,001	999,998				DELETE

Configuration

This application provides the user with some options to configure how certain processes works. This includes adding forbidden addresses cannot travel to/from and mapping words that the vendors users in their excel spreadsheets to words that the application can convert during trip imports. To use these options, click on the Configuration hyperlink on the lefthand side of the web application. Then click the OPEN button to proceed.

Forbidden addresses

To add a new forbidden address, click the ADD FORBIDDEN ADDRESS button at the top right.

Type in the address that a trip cannot originate from and then click the SAVE button. Be sure to not include City, State or Zip.

Vendor input mappings

When the vendors provide the trip Excel spreadsheet to Mobility Services staff they may use different words to mean the same thing. For example, they may have the word "Wheelchair Van" or "Wheelchair. The system needs to have a record that both of these equal a service type of Non-Ambulatory. Therefore, any possible variations must be entered so that the file import process can complete successfully. To add a new mapping click the ADD INPUT MAPPING button at the top right. Select the data field, the code, and the interpreted text. Then click the SAVE INPUT MAPPING button.

Configuration Values

The Mobility Services application includes configuration values for certain functionality such as the cost for a voucher book and the maximum miles a vendor can travel for a trip. These configuration values can be changed as needed. To change a configuration value, click on the Configuration hyperlink on the left-hand side of the web application.   Then click the OPEN button under Configuration Values.

Next find the configuration value you need to change and click the EDIT button. Click the SAVE button when you are done with the change. Note that decimal values must have between 0 and 2 decimal places to save correctly.

Passenger Search | Configuration
Configuration Values

Configuration Name	Configuration Value Type	Configuration Value	
COST-MATRIX-BUFFER-MILES	Decimal - Decimal value with 2 digits of precision (10,2)	2	EDIT
COST-PER-VOUCHER-BOOK	Decimal - Decimal value with 2 digits of precision (10,2)	36	EDIT
MAX-TRIP-MILES	Decimal - Decimal value with 2 digits of precision (10,2)	50	EDIT
PER-MILE-BUFFER-MILES	Decimal - Decimal value with 2 digits of precision (10,2)	2	EDIT

Address Replacements

The Mobility Services application includes the ability to replace trip address values when a trip is imported. For example, "emancipation highway" could be swapped with "Route 1". This helps with geocoding addresses correctly. To add replacement values click on the Configuration hyperlink on the left-hand side of the web application.   Then click the OPEN button under Address Replacements.

Next click the ADD ADDRESS REPLACEMENT button to add a new value to replace. Type the Value to Replace and the New Value. Then click the save button.