NOMINATION SUMMARY

Improving the Customer Service Center: MC311 Address Error Report Form & Tracking

Montgomery County Government

Department of Technology & Enterprise Business Solutions

Abstract of the Program

Call-takers for Montgomery County's MC311 customer service center rely on third party software connected to many layers of GIS data to validate each address provided by callers and quickly view pertinent information about each address on their computer screens. With so many data connections, sometimes things go wrong in this system, and users of the platform need an effective way to convey issues discovered to those working with the software and data so they can troubleshoot and record the status as issues are being addressed. Montgomery County's Technology & Enterprise Business Solutions – Geographic Information Systems (TEBS-GIS) Team has implemented a system to collect information on problematic addresses, update progress, and display the collected information for each report. The process starts with a simple online form and produces a database of mappable data that users can then track on an online application, complete with map and filterable data.

The Problem or Need for the Program

Citizens dial 311 in Montgomery County to ask questions about County services at their addresses or to report issues at specific locations. Once their location is identified, Siebel "311" software verifies that the location is within the County's jurisdiction as well as a dashboard of pertinent information about that location, such as which Department of Transportation depot maintains their roadway or on which day of the week recycling is picked up. Behind the scenes, Siebel provides this information about each address by querying Geographic Information Systems (GIS) data that is maintained by TEBS-GIS and serves many other County purposes. Other County departments, including the Department of Transportation (DOT) and Department of Environmental Protection (DEP), also make use of the location data within the Siebel platform to serve citizens in various ways.

Occasionally, addresses or street intersections do not produce the expected results which can inhibit the MC311 customer service representative from providing the caller with accurate and useful information. For instance, a valid address may yield a "Location Not Found" error. Similarly, Siebel may erroneously indicate that the roadway is not maintained by the County when, in reality, it is. Sometimes the report is accurate but was simply not returning what was expected by the Siebel user. In some instances, the root of the problem is an error in the underlying GIS data which then needs to be fixed by the TEBS-GIS staff. Other times, the underlying data is correct but is not accurately displayed on the call taker's screen. In this case, the developer of the scripts that feed the data to Siebel is called on to troubleshoot why that data isn't displaying correctly.

At first, such issues were reported by Siebel users via email to TEBS-GIS. The staff receiving these emails would have to search for necessary information about the issue within what was sometimes casually worded paragraphs, and often had to reply with follow up questions to get the information necessary to troubleshoot the issue. This made information gathering a painstaking process and there was no way to formally track and manage issues. A tool was needed to (1) standardize the reports of problematic addresses in Siebel, (2) track and record progress, and (3) provide updates to those who were reporting the issues.

Description of the Program

To move away from email, TEBS-GIS implemented a simple online form that allowed users to effectively submit issues. Initially, TEBS-GIS did so using the Microsoft Forms software that is packaged with the County's Office 365 suite. While MS Forms helped standardize the information received, the ability to review the submitted data online was limited, and the collected data could only be downloaded in MS Excel format. This made it difficult to review and display data collected from the address reports.

Survey123, an electronic forms software included in the ArcGIS Online platform, is far more robust than MS Forms. In early December 2021, TEBS-GIS recreated the form using Survey123 and then manually entered all earlier reports that had already been submitted.

The Survey123 form for submitted Siebel issues with addresses or intersections can be viewed here.

A main advantage of Survey123 is that the form data is collected into a geographic database. As the software is part of a GIS software suite, Survey123 is geography-aware, and an address or intersection entered in the form automatically produces a point on a map. Once an issue is submitted, a new point appears on an online map along with all the locations previously reported to the system. The person reporting the issue has an option to upload a screenshot or other file that helps explain the issue with their report that will appear in Survey123's displays of the collected data.

Furthermore, ability to review the collected data is improved with Survey123 over the previous MS Forms solution. Survey123 includes a data page for reviewing, searching, and filtering the collected data. Additionally, the underlying geographic data is immediately available for use in other online GIS software in the ArcGIS Online platform, or it can be easily downloaded in various formats that are compatible with GIS software such as ArcGIS Pro.

Survey123 is also easily configured with several types of webhooks and has built-in connectors for both Microsoft Power Automate and Integromat. TEBS-GIS configured a webhook to automatically send an email to TEBS-GIS staff when an issue is reported. This email contains some of the information entered on the form, including the address or intersection reported, a summary of the issue, and contact information. A link to the Survey123 data page for reviewing the reports is also included in the email for the staff's convenience.

TEBS-GIS staff review and manage reported issues on Survey123's data page, which includes an interactive map displaying all submitted reports as well as a filterable table. When the staff clicks on the record for an individual report, a panel on the right displays the details of the selected report, including any uploaded screenshots. Upon logging into ArcGIS Online, the TEBS-GIS staff has the ability to edit the table, which was designed with additional fields that were not displayed on the public online submission form intended to allow TEBS-GIS to log updates regarding the report. As the staff performs the two standard initial troubleshooting steps for each reported location, (1) checking whether the address or intersection yields the expected output in a geocode service and (2) checking whether the address or intersection exists in the underlying GIS data, he records a simple "yes" or "no" in the two corresponding fields for the report in the table. There is also a field where he records whether the report is determined to be an issue with the underlying GIS data or with the app itself. There is another field where the staff can describe any findings or progress concerning the report.

After this initial review of the data, the TEBS staff forwards the necessary information as appropriate either to staff who maintain the GIS data or, if determined to be an app issue, to those who develop the scripts that connect Siebel to the GIS data. When updates are received from these other TEBS staff, the

comments for the report are updated again. If everything goes well and the issue is resolved, the "Status" field for each report is updated from "awaiting resolution" to "resolved."

While the submission form is public, TEBS-GIS keeps the Survey123 data page in a location where an ArcGIS Online password is required to view it. County staff outside of the GIS Team who work directly with Siebel have been given "Viewer user type" accounts on the County's ArcGIS Online platform. As the name implies, these logins entitle them to view but not edit content. With their logins, they can access Survey123's data page, view the map, filter records, and generate reports.

However, the need to log in to another system as well as interpreting the data page within Survey123 can be a bit overwhelming for those not acquainted with ArcGIS Online or GIS in general. TEBS-GIS has created (and as of this writing is still putting finishing touches on) a publicly viewable dashboard that displays information relevant to the County's Siebel stakeholders in a more straightforward, helpful way. This dashboard application was created using ArcGIS Online's Experience Builder application for creating a variety of robust web apps. As Experience Builder is also part of the same ArcGIS Online software suite as Survey123, TEBS-GIS staff logged in with their ArcGIS Online credentials automatically can connect their work in Experience Builder to the report data collected using Survey123 and any maps created within the platform that access it.

The publicly viewable dashboard can be viewed here.

The dashboard includes helpful ready-to-use filters for reports of different statuses, reports classified as data or app issues, and recent reports. When a report is selected, a carefully designed panel on the right displays the information collected on the report in a format that is much easier to read than that on the Survey123 data page. A second page linked via the top menu buttons provides links and other information helpful when reporting a problematic address or intersection.

The Cost of the Program

Preparing the form in Survey123, entering previously collected data, configuring the webhooks for automated emails, and providing Viewer-type accounts for five non-GIS staff required approximately three workdays from one TEBS-GIS staff member. The easier-to-read dashboard created in Experience Builder required close to two days to develop and the second page providing helpful references for Siebel users will take another two days.

ArcGIS Pro desktop software and the suite of online GIS software that includes Survey 123 and Experience Builder are existing technology being used at the County so there was no additional cost incurred in using these components. They are provided to all the County's GIS users via the County's three-year agreement with ESRI. Sub-category costs for these two items are not readily available from ESRI.

The Results/Success of the Program

Since April 2021, Siebel users had already reported 29 problematic addresses or intersections using the original form created with Microsoft Forms by the time the Survey123 form was implemented in early December 2021. At that time, the MS Forms data was exported to an Excel spreadsheet and copy/pasted manually into the new Survey123 form. As of mid-February 2022, ten additional problematic addresses and intersections have been entered via the new form. Five staff outside of TEBS-

GIS have been given “Viewer user type” accounts on the ArcGIS Online platform so they can view the Survey123 data page. Stakeholders in the Siebel platform have expressed thanks for this new tool.

Because the reported addresses and intersections are immediately added to a geographic database and mapped, the additional geographic view of the data can help identify unique issues with the Siebel/GIS workflow.

In February 2022, TEBS-GIS staff noticed that several addresses and intersections with still unresolved app issues were clustered in a rural area of the County. The reports for these locations indicated that Siebel was not even returning “Location Not Found,” but rather was not responding at all to the entered address or intersections. TEBS-GIS staff downloaded the data collected with Survey123 in a GIS format and took a closer look using the desktop software ArcGIS Pro. He sampled many other addresses in the vicinity and recorded whether or not each yielded a response in Siebel. It became clear that the problematic locations were confined to a specific, well-defined area. The staff compared that area with several existing layers in the County’s GIS database and determined that all addresses and intersections entered into Siebel which are within the County’s Ten Mile Creek Special Protection Area are failing to yield results in the Siebel system.

As the above issue was discovered close to the time of this writing, staff who work with Siebel are still working to understand what is causing this to happen so they can rectify it. However, it is apparent that this huge geographic clue to the problem was identified far more easily because the submitted data was collected into a geographic database using the Survey123 form.

Worthiness of Award

This project leverages software already available to the County’s GIS users to provide easy ways (1) for the County’s Siebel users to report problematic addresses and intersections in a standardized format, (2) for the TEBS-GIS team to track troubleshooting steps regarding these reports and to record findings, and (3) for all parties to view the reports and progress towards solutions.
As described above, only two-and-a-half months after implementation, the unique geographic view of the reports offered by the suite of GIS products used has already allowed the team to identify an unusual issue in a specific geographic area that is interfering with the work of MC311 call takers and other Siebel users.

Supplemental Materials

Supplemental material (a PDF document) has been prepared and attached.