A: System

1. Name of system and ESIG™ category for which you are applying

The Sussex County Government Geographic Information office is submitting an application for consideration for the Enterprise Systems category for The Sussex County – DelDOT Permit tracker application.

2. A letter from the executive administrator authorizing submission of the system application (letters must be signed and scanned). – please see attachment

3. One (1) page, or less, summary of what the system accomplishes and why it is exemplary

The Sussex County – DelDOT Permit tracker application accomplishes true inter-agency collaboration within multiple state agencies as well as across multiple levels of government and creates a medium for communication between state and local government in a way never achieved before. This application is the first of its kind in the State of Delaware, not only allowing for open communication between agencies but also is provided in a public site to allow for transparency of government to our constituency.

Sussex County Delaware has experienced a dramatic boom in the construction industry in the last few years and the number of DelDOT (Delaware Department of Transportation) -developer agreements grew as did the number of permits being issued. What was once possible to track in a manual way is no longer feasible. In the past, DelDOT was able to send staff in the field for onsite visits to gauge how many permits were issued by counting footers and aligning them with the phasing plans in the agreements to maintain compliance. As the number of agreements ballooned, Sussex County staff attempted to assist by running reports out of the permitting software to supply this information digitally. The limitations of this manual process were quickly realized; there was no efficient reporting available. Reports are static and outdated as soon as they are run, and the nature of the data sets is dynamic and constantly in a state of change. The reporting is required to be tied to the geography of the area of interest for DelDOT’s agreements which is not possible using the tabular data.

The Sussex County-DelDOT permit tracker solves all these issues by accurately and effectively displaying real time data feeds from both the DelDOT developer agreements which are updated as requirements are met and phases move forward as well as the constant changing state of permit and Certificate of Occupancy (CO) issuance. This application is exemplary for many reasons including the fact that the budget was exactly zero dollars; the only capital used in this project was collaboration, cooperation and leveraging existing technology systems in new ways.

With creativity and collaboration, the Sussex County GIS team was able to shepherd in disparate teams and create an application with a continually growing reach. For this vision to become a reality, it required cooperation from Delaware’s Department of Transportation as well as Sussex County government staff for agreed workflow, process, and policy changes. This also required the Delaware Department of Information and Technology to be on board to assist with users and permissions as well as hosting new content needed to track the DelDOT developer agreement areas.

The categorization of exemplary in an enterprise product can be gauged by the return on the investment and this has been captured in not only the reduction of staff hours to keep projects in
compliance, but in the reduction of out of compliance projects as well as the usefulness of the project for unexpected and ever-growing parties. This application was intended for use in DelDOT’s south district office as well as in Sussex County’s permitting department. Instead, this application is also a daily fixture in Sussex County’s Assessment, Planning and Zoning, Building Code, and Public Works departments. This project has also begun to spawn new projects with other State of Delaware agencies including the Department of Natural Resources and Environmental Control.

4. Three “user testimonials”. – please see attachments

B. Jurisdiction

1. Sussex County, Delaware
3. $278 million budget for FY 2022
4. Todd Lawson, County Administrator, 2 the Cir. Georgetown DE, 19947
5. Megan Nehrbas Sr. GIS Manager, 2 the Cir. Georgetown DE, 19947,
   302-855-1176
   302-853-5889
   mnehrbas@sussexcountyde.gov

C. System Design

1. What motivated the system development?

   The initial motivation for the project took place when buildings were being built and entrances and roadways were not completed to allow for safe travel to and from the buildings. It was discovered soon after problems in the field at development sites and it was quickly realized that County staff were not fully aware of their role and the workflow dependencies within the written agreements and phasing plans. While in theory the process made sense, the difficulty of enforcement of agreements is dependent upon disjointed workflows in a separate agencies. This led to multi-agency communication gaps.

   Finding an efficient and transparent way to capture and track these multiple processes in real time spearheaded the pursuit of this endeavor. There was no efficient way for Sussex County Permitting Department to track where the DelDOT Developer agreements were, nor what phase of the process they were in throughout the county and there was also no efficient way for DelDOT South District Staff to keep track of what permits had been issued in active agreement areas.

   Both pieces of the puzzle are moving targets as they both represent dynamic data sets with constant change and there was no way to stay on top of either side of the equation.

2. What specific service or services was the system intended to improve?
This system created a mechanism for transparency and communication between agencies to ensure developers remained compliant with the number of Sussex County permits pulled at each phase or cycle of their contracted agreement with the Department of Transportation.

3. What, if any, unexpected benefits did you achieve?

A pleasant surprise throughout the process was identifying and understanding additional groups that could benefit from seeing this information. It has now been expanded into Utility permitting and Utility Billing departments at Sussex County as well as the Planning and Zoning and Building Code groups.

Another benefit was increased communication and collaboration of these departments in multiple agencies. This has streamlined overall workflows and productivity in the building and development process.

4. What system design problems were encountered?

QA/QC of datasets provided a challenge since there was not an easy mechanism to pull out the permitting information, making sure that the results we were seeing were accurate was time consuming and difficult. It was also a challenge to make sure we truly understood each data characteristic, who was entering it and what did it mean. Determining what data sources were already in existence for feeding the dashboard, which data sources needed to be created from scratch and which would require workflow modifications for inclusion.

The greatest challenge for this effort was making sure the correct stakeholders and subject matter experts were available to clarify this information. Early on assumptions were made based on a table field being labeled CO but as it turned out that was not in fact indicative of a CO-Certificate of Occupancy being issued so we had to regroup and locate the appropriate files and expose them to the GIS. Munis is a large and complex system and making sure we were tying the correct information to the feeds proved challenging but not insurmountable.

5. What differentiates this system from other similar systems?

We are not aware of similar systems in our region.

D. Implementation

1. What phases did you go through in developing the system?

Problem identification.

Administrative buy in phase where we pitched the pilot project and were granted access to all support staff and subject matter experts

Discovery sessions with DelDOT South Regional Office and internal Sussex County departments, Assessment (Permitting), Planning and Zoning, Building Code, and Public Works.
Reaching out and meeting with the Delaware Department of Information and Technology Location Intelligence team to garner buy in and technical support as we moved forward. We knew that we at the County would not be able to grant GIS Usernames, permissions, create new layers or share items without technical support from the state.

After identifying the main data layers that would be required, we held a tabletop exercise with DelDOT, DTI and Sussex County GIS Staff to assist in creation of the new DelDOT Agreement Area layer. They continued to populate this layer while County staff worked towards creating a permit layer for consumption that met all requirements of permit type and project codes that were of interest to DelDOT agreement enforcement staff.

Now that we had access to the two main layers of interest, neither of which existed prior to this project, we were ready to create a mechanism to easily make sense of the information.

ArcGIS Dashboard provided an appropriate platform to consume the multiple data feeds and create meaningful analytics of the dynamic and constantly changing and refreshing information. This was the first time that all stakeholders at all agencies could fully grasp not only how many agreement areas were in the County, but also had instant awareness of exactly how many areas were over their permitted counts and in violation, all at an instant glance. The true power of this data is that it is maintained in real time. The dashboard is updating as permits are pulled and the agreement areas are updating as phases are met and modified by DelDOT staff.

2. Were there any modifications to the original system design? Why? What?

With the pilot, we had to use a specific tool called the ‘summarize within’ tool in order to provide the counts within the agreement areas as a field in order to generate the at a glance colors to show permit technicians if an area was approaching the delDOT thresholds. We thought perhaps when the system was hosted by the state of Delaware that they might be able to utilize additional tools in their ELA or perhaps we would need to make the argument to purchase a tool. Fortunately, a staff member at DTI was able to create a script to solve this.

E. Organizational Impact

1. What user community does the system serve and how?

It is a public facing application that all concerned citizens can access. Our department has tracked usage and statistics since its inception and found it to be heavily utilized by Sussex County staff in the Permitting Office, Planning and Zoning Division, the Assessment Division, Building Code, Utility Billing and Public Works.

2. What are the ultimate decisions/operations/services being affected? If appropriate, provide a few examples including, but not limited to: screen input/output forms, paper products, or other descriptive graphics.

All parties are in compliance with enforcing the agreement areas. When the dashboard initially launched there were 34 agreement areas out of compliance. This number quickly shrank to 20 as staff
members were able to pinpoint and contact developers quickly. This led to DelDOT being able to focus efforts and contact these parties to bring their projects into compliance.

3. **What were the quantitative and qualitative impacts of the system?**

The first questions in discovery sessions were: how many of these are there? where are they? How many are out of compliance? These were not questions that were easily answered. This project facilitated the first concise and comprehensive geospatial view of noncompliant developments and thus provide the guidance to direct DelDOT staff more efficiently.

Subsequently downstream effects of this new set of information lead to agreements between organizations to reword the verbiage of agreements. There were real issues with the inclusion of holding COs in agreements. This led to an undue burden on individual families that were unable to move into their homes until they were granted their COs; however, those families had no control over the developer completing their agreement. The pinch was felt by the wrong party. This rightly resulted in the language of future developer agreement areas being adjusted and the condition to hold COs was agreed to only be used on nonresidential projects.

The county Engineering division also changed verbiage on the notice to proceed documents out of public works department to indicate a project needed to complete DelDOT compliance prior to being granted permission to pull permits. This system allowed for the permitting divisions in both building permits and utility permitting to all see if a project was in compliance before issuance to keep all teams on the same page and aid in enforcement.

4. **What effect has the system had on productivity?**

On the DelDOT side, initial workflows included regular site visits to confirm construction and estimate permits pulled by counting footers in a residential project. The need for site visits is drastically reduced when accurate permit numbers are available.

On the County side, accurate permit numbers were not easily generated because of the inability to report accurately which permits were within the area of interest for DelDOT. Permit reports could only be pulled by a project name; however, some agreement areas are phased or are not consistent otherwise with a project name the county had available for reporting. It was required to combine the physical boundaries of the DelDOT area of interest with the physical locations of the permits being pulled in order to accurately report on permit allocation within a DelDOT agreement area. This is done easily and at a glance now.

5. **What, if any, other impacts has the system had?**

It impacted other departments that were not initially considered in the scope. The best example of this is the future collaboration plans with another Delaware state agency in the Department of Natural Resources and Environmental Control. Once this product was made public and presented jointly by Sussex County and Delaware Department of Transportation (see video), Sussex County was contacted by the Tax Ditch Right of way team. There are similar concerns associated with any form of permanent structure being placed within the right of way creating maintenance concerns as well as environmental and drainage concerns. While this was not within the scope of the initial project, the Sussex County
Geographic Information Office is beginning to implement other projects similar to this to help foster better communication and efficiency in other agencies as well.

6. How did the system change the way business is conducted with and/or service delivered to clients? Give specific examples comparing the old way with the new.

The first solution during the interim timeframe while discovery sessions were occurring was to set up an email distribution group to try to streamline communications between agencies. During the first 90 days that Sussex County GIS were added to the email chains there were 300+ emails sent back and forth. Each one of these emails required some action to be taken whether it was to pull permit reports, hold permits, release permits, all of which were time consuming manual processes. In the first 90 days of go live of the dashboard the number of emails sent was reduced to 30. This was an instant measurable marker of success for this project.

Occasionally due to some extenuating circumstance, DelDOT would enter into further conditions or agreements with developers which were unknown to county staff. Moving forward, when such agreements or conditions are enacted DelDOT updates the notes and thresholds within the application so all parties can clearly see why a threshold is different or was updated from the initial written agreement. The other huge customer service benefit of having this information public involves the workflow of developer permit runners. It was not uncommon for a runner to come to the county building to try to pull permits only to be turned away when it was identified that there was non-compliance. Now that the dashboard is public, developers and their staff also know exactly where they stand and what steps need to be taken before coming to the county building to apply for permits.

F. System Resources

1. What are the system’s primary hardware components? Give a brief list or description of the hardware configuration supporting the system.

There was no required hardware for the system specifically. The GIS systems and permitting systems were already in place we used GIS software to pull information together from disparate systems.

2. What are the system’s primary software components? Describe the primary software and, if a commercial package, any customizations required for the system.

Sussex County, Delaware Department of Transportation as well as Department of Technology and Information had access to ESRI ArcGIS software.

For this project the County utilized SQL views from the permitting application (Tyler’s product Munis) and converted them into GIS Services.

DelDOT was able to utilize their ArcGIS online organization (DelDOT Gateway) to create user accounts for the DelDOT South District Staff allowing the ability to create and edit their hosted feature layer agreement boundaries.

Finally, the final iteration of the ArcGIS dashboard that was collectively designed and built was hosted by the Department of Technology and Information in a HUB site for public consumption.
3. What data does the system work with? List and briefly describe the database(s).

DelDOT’s newly created Agreement Areas polygon layer
Sussex County’s newly created Permit Point layer
Sussex County’s parcel layer (polygon)

4. What staff resources were required to implement the system? (i.e., report approximate staff and consultant time as FTE’s)

Timeline included 6 months of intermittent meetings, interdepartmental collaboration, testing, development and design to go live.

Main resources:
Sussex County Staff -GIS (3) project management, programmer and application designer and developer
DelDOT Staff (3) South District Public Works Engineer, South District Public Works Manager, Subdivisions Manager
DTI: GIS (2) App GIS Applications Support, Enterprise Data Management

Required for discovery sessions and requirement gathering staff from the following groups:
Sussex County: Permitting, Assessment, Planning and Zoning, Building Code, Public Works, Utility Permits, Information Technology, Administration
DelDOT: South Coastal, Planning, Administration

5. Comment on anything unusual about the resources used to develop your system, such as data, software, personnel, and financing.

The most unusual aspect of the entire process was witnessing the realization throughout teams of the critical dependencies between agencies. The different agencies were not fluent on these dependencies and in some cases unaware of the dependencies all together. This was true for not only agency to agency but in some cases interdepartmentally within one agency as far as downstream effects. The discovery sessions and requirements gathering stages created opportunities for open dialog around processes that interconnected in ways that were not fully understood in the past. We continue to meet as new circumstances arise. We have since incorporated planning areas and are working our way upstream to incorporate DelDOT planning and Sussex County Planning and Zoning to ensure we begin to capture important information as early in the project life cycle as possible. This system will continue to evolve as it makes its way from reactive to proactive.
May 31, 2022

URISA ESIG Award Coordinator
701 Lee St., Suite 960
Des Plaines, IL 60016

Dear Award Coordinator:

On behalf of the Sussex County Council, it is my pleasure to authorize the submission of the Sussex County-De.DOT permit tracker application for consideration in the Urban and Regional Information systems Association (URISA) Exemplary systems in Government (ESIG) Award.

The Sussex County – De.DOT Permit Tracker (the Tracker) application accomplishes true inter-agency collaboration within multiple state agencies and levels of government. The Tracker creates a medium for communication between state agencies and local government in a way never achieved before. This application is the first of its kind in the State of Delaware, not only allowing for open communication between agencies but also by providing the public with a site to allow for transparency of government to our constituency.

As such, the County Council strongly supports this application for the Urban and Regional Information systems Association (URISA) Exemplary systems in Government (ESIG) Award and appreciates your sincere consideration.

Sincerely,

Todd F. Lawson
County Administrator
May 19, 2022

By email to: mnehrbas@sussexcountyde.gov

To Whom it May Concern:

Re: Testimonial Request for Permit/HUB GIS Project

Please could I share a short user testimonial in relation to the Sussex County Permit/HUB GIS Project now in use within the Building Code, Planning & Zoning, and Permitting divisions of Sussex County.

This initiative was led by the Mrs. Nehrbas of the Geographic Information Office and has modernized the way in which Building Permit data is collected, stored, and presented. The new real-time digital format is, in my opinion, light years beyond our previous paper-based systems.

Staff within the Planning & Zoning Department may now see an at-a-glance status of each subdivision, and see the implementation of each subdivision on a parcel by parcel basis. Prior to the implementation of this system, this task had to be completed individually by hand.

Convenience aside, the financial savings in staff-time alone have made this initiative well worth the time spent by the Geographic Information Office, and others, in implementing it.

Please feel free to contact me at the number above with any questions.

Sincerely,

Jamie Whitehouse, AICP
Director, Planning & Zoning Department

CC. Megan Nehrbas, Senior Manager of Geographic Information Office
As the Permit Coordinator for Sussex County Building Permits, our office was looking for a way to enhance communication and manage approvals between Sussex County and Del DOT. As a solution, Megan Nehrbas and her team developed the DelDOT – Sussex County Building Permit Tracker. Megan was extremely knowledgeable and continued to modify the dashboard until it met all our expectations. This dashboard is now a primary application in our day-to-day process. Not only has this enhanced communication but has enabled multiple organizations to utilize one platform which has created consistent data being shared. Previously, we had multiple email threads back and forth between organizations. The information from email correspondence was then being entered into a spreadsheet for staff use. This created mass confusion and was not updated in real time which led to incorrect information being shared. The dashboard allows all organizations to have the most updated information at their fingertips. This would not have been possible without Megan and her team.

Danielle Lones
Permit Coordinator
Sussex County Government
Program: DelDOT – Sussex County Building Permit Tracker  
Name: Matt Schlitter  
Title: South District Public Works Engineer

The new Permit Tracker program has been a major benefit to my staffs operations in tracking and organizing off-site entrance agreements and construction. This program has increased the efficiency of our section as it has reduced countless hours of tracking projects and correspondence associated with each individual project.

Thanks,
Matt Schlitter  
South District Public Works Engineer  
302.853.1340 (Office)