



**Institutional Plan for  
Cossatot Community College of the  
University of Arkansas**

Draft Document | Version 1.1

March 27, 2018

## Table of Contents

Overview .....	2
Objectives .....	2
Community and Outreach.....	3
Cossatot Community College of the University of Arkansas .....	4
CCCUA Student Demographics .....	4
Official Contacts .....	5
Master Timeline .....	6
Module Development and Implementation.....	7
Required Technology .....	7
Technology Support.....	8
Content Delivery .....	8
Soil Science Module Overview.....	9
Forestry Module Overview .....	9
Horticulture Module Overview .....	10
Natural Resources Module Overview .....	10
Supplementary Events and Trainings.....	11
Professional Development Seminars .....	11
Intro to Location-Based Data Workshops.....	12
Annual Partnership Conference.....	13
Ongoing Initiatives .....	14
Employer Advisory Board/Industry Engagement .....	14
Sustainability.....	14

The OPENGATE Institutional Plan is a collaboratively developed guidance document designed to define the assessed needs of each Community College Partner and to provide a timeline for the development and implementation of geospatial education components into existing curriculum. It will also provide key definitions and descriptions of OPENGATE and its supplemental initiatives, which may be used to promote the program.

This document is intended to be a working guide and should be updated and augmented throughout the project at each Partner institution.

## **Overview**

Opening Pathways to Employment through Nontraditional Geospatial Applications in Technical Education (OPENGATE) is a National Science Foundation-funded collaboration among five partner institutions within the University of Arkansas system. The goal of the three-year project is to increase access to education in location-based technologies to prepare two-year college students for employment in a wide variety of industries. The project will develop geospatial technology skill sets in targeted business sectors and emerging industries by augmenting existing programs of study at four two-year institutions with relevant and industry-specific geospatial applications. OPENGATE Partners include UA Community College at Batesville, UA Community College at Morrilton, Phillips Community College UA, and Cossatot Community College UA, and the University of Arkansas Fayetteville. The project's components are designed in close coordination with local employers to facilitate a mutually beneficial relationship between instructional objectives and needed workforce skills.

### ***Objectives***

This project addresses a void in geospatial education and training in Arkansas, drawing upon curricula developed by the national GeoTech Center and defines multiple pathways for individuals to achieve workforce competencies, but with specific focus on 2-year programs. By enhancing the capacities of educational institutions in the region, the project will expand opportunities for education and training to areas of the state that are currently unserved or underserved.

The growing demand for geospatially-capable employees across multiple domains illustrates the need for a workforce that understands and utilizes spatial thinking and analysis, while the rapid evolution and incorporation of geospatial technology into daily life demands a spatially-literate community. Current secondary educational initiatives emphasize comprehension of the patterns and relationships and development of skills in modeling and analysis processes inherently found in geospatial technology. Research indicates student experiences with GIS in the classroom increase interest and motivation, and improve academic outcomes.

The project's efforts will also include a key component at the secondary level by offering professional development to secondary school teachers, highlighting the application and value of geospatial skills but not specifically focusing on their instruction. Such efforts are intended to inform students about the value of geospatial skills and motivate those who are interested to pursue post-secondary education, a critical component of strategic workforce and economic development in predominantly rural regions.

Through expansion of education and training opportunities in geospatial technologies offered at community colleges that serve rural populations, as well as secondary school faculty and students, we can build an accessible educational ladder for a local, technologically-skilled workforce.

### ***Community and Outreach***

Each community college will leverage existing relationships with local industry to create an Employer Advisory Board (EAB) to inform the development of their geospatially-augmented curriculum. Such partnerships will provide essential feedback about employer needs for the developing workforce and facilitate direct interaction between employers, faculty, and students. In addition, this partnership will serve to raise the visibility of geospatial technologies in general and demonstrate their utility in local industry.

Annual Partnership Conferences will facilitate direct interaction between industry, faculty, and students, while promoting awareness of geospatial technologies through outreach to professional and industry organizations, non-profits, and governmental agencies.

Partner institutions will reach out to secondary schools and other educational organizations in their region to foster early awareness of geospatial technologies in support of STEM learning, including hosting professional development workshops for secondary school faculty, EAST Initiative students and facilitators, and annual events to bring secondary school students and teachers to their campus.

UAF OPENGATE staff will provide technical and administrative support and develop resources in geospatial applications throughout the project. Support to partner institutions will include:

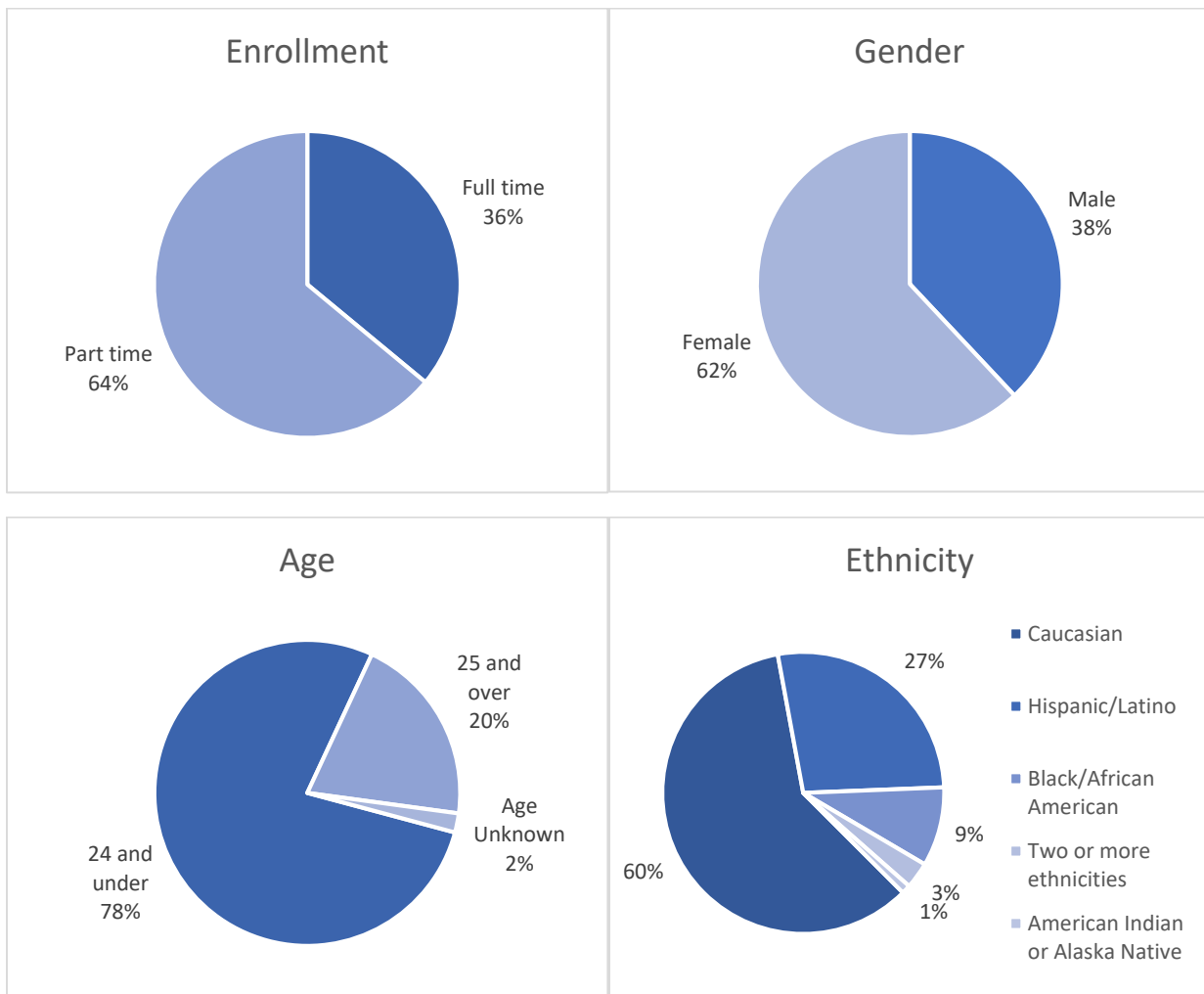
- providing training for faculty on geospatial hardware and software during strategy and development workshops;
- ongoing technical support;
- production of necessary instructional material in draft format for assessment, editing, and comment by Campus Champions, which staff will then revise accordingly;
- assistance with workshops, conferences, and trainings hosted by partner institutions; and
- organizing Partner meetings and convening the annual Partnership Conference.

## Cossatot Community College of the University of Arkansas

Cossatot Community College of the University of Arkansas is an NCA-accredited two-year institution affiliated with the University of Arkansas System. It has campuses in De Queen, Nashville and Ashdown, Arkansas. Located in the foothills of the scenic Ouachita Mountains, UA Cossatot offers degrees and certificates in more than two dozen fields. The College also offers four Associate’s degrees completely online, and has a roster of more than 60 online courses.

These data were generated using the College Navigator (<http://nces.ed.gov/collegenavigator>). The College Navigator consists primarily of the latest data from the Integrated Postsecondary Education Data System (IPEDS), the core postsecondary education data collection program for the National Center for Education Statistics (NCES).

### CCCUA Student Demographics



All enrollment data, unless otherwise specified, are for Fall 2016. Undergraduates by Age data are for Fall 2015. Report generated February 16, 2018.

## Official Contacts

**Cossatot Community College of the University of  
Arkansas**

183 College Drive  
De Queen, AR 71832  
General information tel: 870-584-4471  
Website: [www.cccua.edu](http://www.cccua.edu)  
UNITID: 106795 OPEID: 02220900

**Steve Cole**  
Chancellor  
870-584-1139  
[scole@cccua.edu](mailto:scole@cccua.edu)

**Ashley Aylett**

Vice Chancellor of Academics  
870-584-1125  
[aaylett@cccua.edu](mailto:aaylett@cccua.edu)

**Barbara Lacefield**  
Division Chair, Professional Studies  
870-584-1217  
[blacefield@cccua.edu](mailto:blacefield@cccua.edu)

**Kelli Harris**

Instructor, Agriculture  
870-584-1218  
[kharris@cccua.edu](mailto:kharris@cccua.edu)

**Laura Riddle**  
Director of Distance Learning  
870-584-1137  
[lriddle@cccua.edu](mailto:lriddle@cccua.edu)

## Master Timeline

A number of specific tasks and deliverables are discussed in this document. The following provides a detailed timeline for each of them.

March 1	UAF will begin publicizing Professional Development Seminars via social media and listserv
March 9	Cossatot Strategy Session
March 12	UAF will contact CCCUA for feedback on Institutional Plan
March 16	UAF will send out draft copies of all UACC partners' Institutional Plans for review prior to webinar
March 26-30	UAF will coordinate a webinar with all UACC partners (time TBD)
March 26	UAF will send CCCUA outline and mockup of Soils and Network Defense Modules
March 30	Deadline for CCCUA to submit comments/edits on Institutional Plan
April 4	Final Institutional Plan approved by CCCUA
April 9	Soils and Forestry Modules progress update/feedback
April 23	Draft of Soils and Forestry Modules available for review
May 7	Soils and Forestry Modules progress update/feedback
May 21	Deadline for feedback on Soils and Forestry Modules
June 1	Soils and Forestry Modules development completed
June 18-19	Soils and Forestry Modules training with instructors
June 20-22	Professional Development Seminar at Cossatot
August	Classroom implementation of Soils and Forestry Modules
September 4	Greenhouse and Natural Resources Modules proposed by UAF, and development timeline reviewed
September 17	Greenhouse and Natural Resources Modules progress update/feedback
October 1	UAF will send CCCUA outline and mockup of Greenhouse and Natural Resources Modules
October 15	Greenhouse and Natural Resources Modules progress update/feedback
October 29	Draft of Greenhouse and Natural Resources Modules available for review
November 2	OPENGATE Partnership Conference
November 12	Greenhouse and Natural Resources Modules progress update/feedback
November 26	Deadline for feedback on Greenhouse and Natural Resources Modules
December 3	Greenhouse and Natural Resources Modules completed
December 17	Greenhouse and Natural Resources Modules training webinar
January	Classroom implementation of Greenhouse and Natural Resources Modules

## Module Development and Implementation

Through a needs assessment and collaboration with Campus Champions at CCCUA, it has been identified that areas with the best initial potential of benefiting from an added geospatial component include:

- Soil Sciences
- Forestry
- Horticulture
- Natural Resources

Using existing syllabi from selected courses in these areas and guided by Campus Champions, two modules will be developed by UAF OPENGATE staff to supplement existing curriculum and introduce an applied geospatial component. Curricular modules will be aligned to the applicable components of the Department of Labor's Geospatial Technology Competency Model (GTCM). Course content and materials may be comprised of short videos, exercises, and/or other resources illustrating real-world application of geospatial technologies in industry and targeting fundamental knowledge, skills, and abilities defined by the GTCM.

### Required Technology

#### ***Blackboard***

Blackboard is a teaching support tool already utilized throughout the University of Arkansas System. The UAF OPENGATE staff will collaborate with you to add modules to your Blackboard class.

#### ***ArcGIS Online***

ArcGIS Online is an online, collaborative web GIS from ESRI ([www.esri.com](http://www.esri.com)) that allows you to use, create, and share maps, scenes, apps, layers, analytics, and data.

Currently ESRI software has the largest share of the commercial GIS market and is a key skill requirement for many employers. Nonetheless, we will ensure that basic concepts and methods are covered in a non-proprietary setting (i.e. open-source software solutions) so that students have knowledge of the other software options available that their future employers may adopt.

Use of ArcGIS Online only requires that students have access to a supported web browser and capable internet speeds. Information on supported browsers, minimum system requirements, and frequently asked questions is available at <https://doc.arcgis.com/en/arcgis-online/reference/browsers.htm>. This option has been selected to minimize the technical and computer administrative loads at the college.

The UAF OPENGATE staff will set up organizational accounts for each community college. A point of contact within each institution should be assigned for establishing and removing account access for community college users. This person(s) will coordinate with UAF on administration of their organizational account.

Educational use of ArcGIS Online is permitted through the existing statewide higher education licensing system; however, should not be used for research purposes (i.e. externally funded grants).



## Technology Support

UAF OPENGATE staff will also support Campus Champions with technical training in geospatial technologies needed to integrate this augmented curriculum into the classroom. A two-day training will be conducted at each Community College to familiarize instructors with the developed modules. UAF will provide continual support throughout the integration process, including in-person assistance during class presentation of the module during the Fall 2018 semester.

## Content Delivery

One 3-hour module will be created for each class receiving augmented curriculum. These modules will include three components:

- 1) An introduction to basic geospatial terms and concepts;
- 2) Intermediate terms and concepts designed to integrate basic knowledge with topic-specific material; and
- 3) A project-oriented exercise designed to facilitate the use of acquired geospatial knowledge into existing coursework.

Resources and teaching-aids for these components will include:

- Short video lectures (3-7 minutes in length) focused on the key principles/methods for specific learning objectives. Each video lecture will be accompanied by a text transcription, and copies of all visual materials providing content for a range of learning styles as well as students with visual or auditory limitations;
- Blackboard assessment components including online quizzes tied to specific learning outcomes; and
- Step-by-step technical application tutorials that lead to the completion of a project using ArcGIS Online tools and resources.

## Soil Science Module

Course:	Soil Science
Course Description:	This course covers the classification and properties of soil – physical, biological, and chemical .It will cover the effects on soils by fertilizers and other treatments, planned or unplanned.
Offered:	Fall 2018
Description of proposed module:	Soils, with emphasis on using SSURGO data to identify area soils and compare with results of soil samples collected by classroom exercises
Development Timeline:	<p>March 9 - Module proposal and timeline review at in-person visit</p> <p>March 12 - Progress update/Touch base for feedback</p> <p>March 26 – Module outline overview</p> <p>April 9 - Progress Update/Touch base for feedback</p> <p>April 23 - Module available for review with most components developed</p> <p>May 7 - Progress Update/Touch base for feedback</p> <p>May 21 - Deadline for feedback on module</p> <p>June 1 - Module completed</p> <p>June 18-19 Module Training</p> <p>Fall 2018 - Classroom Implementation</p>

## Forestry Module

Course:	Forestry
Course Description:	This course will examine basic forestry definitions, historical factors in U.S. forest history, forest flora and fauna, forest management, the relationship between forest resources and human uses, and case studies.
Offered:	Fall 2018
Description of proposed module:	Using geospatial tools to estimate stand value (price per board foot) using a combination of hands-on forestry measurement techniques and spatial data collection.
Development Timeline:	<p>March 9 - Module proposal and timeline review at in-person visit</p> <p>March 12 - Progress update/Touch base for feedback</p> <p>March 26 – Module outline overview</p> <p>April 9 - Progress Update/Touch base for feedback</p> <p>April 23 - Module available for review with most components developed</p> <p>May 7 - Progress Update/Touch base for feedback</p> <p>May 21 - Deadline for feedback on module</p> <p>June 1 - Module completed</p> <p>June 18-19 Module Training</p> <p>Fall 2018 - Classroom Implementation</p>

## Horticulture Module

Course:	Horticulture
Course Description:	Basic principles underlying the propagation, production, and handling of horticultural crops are taught in this course. Topics of discussion will range from indoor houseplants to commercial production of fruit and nut trees, vines and berries.
Offered:	Spring 2019

Description of proposed module: Using location-based data to support customized plant siting recommendations for customers purchasing plants at the UACCC greenhouse.

Development Timeline:

- September 4 - Module proposal and timeline review
- September 17 - Progress update/Touch base for feedback
- October 1 - Module outline overview
- October 15 - Progress Update/Touch base for feedback
- October 29 - Module available for review with most components developed
- November 12 - Progress Update/Touch base for feedback
- November 26 - Deadline for feedback on module
- December 3 - Module completed
- December 17th (Week of) Module Training Webinar
- Spring 2019 - Classroom Implementation

## Natural Resources Module

Course:	Natural Resources
Course Description:	This course will study the conservation and multiple uses of renewable natural resources, including water, forest, range, wildlife and recreation, history or forest and range use, and its present status.
Offered:	Spring 2019

Description of proposed module: Using spatial data to help locate opportunities for recreational hunting and fishing.

Development Timeline:

- September 4 - Module proposal and timeline review
- September 17 - Progress update/Touch base for feedback
- October 1 - Module outline overview
- October 15 - Progress Update/Touch base for feedback
- October 29 - Module available for review with most components developed
- November 12 - Progress Update/Touch base for feedback
- November 26 - Deadline for feedback on module
- December 3 - Module completed
- December 17th (Week of) Module Training Webinar
- Spring 2019 - Classroom Implementation

## Supplementary Events and Trainings

### Professional Development Seminars

Through the OPENGATE project, [opengate.cast.uark.edu](http://opengate.cast.uark.edu) the Center for Advanced Spatial Technologies at the University of Arkansas offer professional development seminars for secondary school teachers on the introduction of geospatial technologies in secondary schools. Participants will learn how to access and utilize existing data in a variety of formats through free online mapping and analysis tools used to create interactive materials that augment existing learning objectives and lesson plans.

Draft lesson plans will be provided to the participants. After the workshops, projects and lesson plans will be further developed by teachers to ensure that projects are scalable and locally relevant, and placed online for use by others. Eligible participants may receive stipends based upon satisfactory completion of workshop milestones.

#### **Content**

Seminars include the following topics:

- Introduction to Geographic Information Systems (GIS) and key spatial concepts
- Creating and maintaining a free ESRI Education organization account
- How to take advantage of existing resources to enhance your classroom
- Types of data, how to find them and how to use them in GIS
- Using analysis functions to encourage critical thinking
- Building and sharing interactive maps and mapping applications
- Demonstration of Collector or Survey123 for ArcGIS

#### **Result**

By the end of the seminar, participants will have completed at least one supplemental exercise resulting in the creation of a draft lesson plan aligned to relevant standards for use in their classroom.

Participants will be asked to provide feedback about the seminar itself and the use of created materials in the classroom environment via a survey emailed to them after the completion of the professional development seminar.

#### **Timeline**

March 1	Begin advertising and enrollment
June 20-22	Professional Development Seminar
November	Follow-up with seminar attendees for outcomes and reflections

#### **Commitments**

- CCCUA: Provision of lab facilities where training will be hosted.
- CCCUA: Assistance in advertising and promotion efforts targeting local secondary schools, with support from advertising materials created by UAF OPENGATE staff.

- UAF: Renewal of ADE-approved status, and provision of stipends to participants where eligible/applicable.
- UAF: Provision of seminar instruction and materials.
- UAF: Ongoing provision of technical and pedagogical support to participants through email, phone, and online resources.

## Intro to Location-Based Data Workshops

One-day training sessions focusing on an introduction to location-based data will be offered by UAF OPENGATE staff, in conjunction with community college faculty. These workshops will be open to any interested community college student, faculty or staff member, as well as to local EAST Initiative students and facilitators.

The workshops will both increase EAST student and facilitator knowledge of geospatial technologies, and serve as a recruitment tool, as EAST high school students are potential participants in community college programs.

The EAST (Environmental and Spatial Technology) Initiative ([www.eastinitiative.org/](http://www.eastinitiative.org/)) is a project-based, service-learning oriented program that provides students with high-end technology available in the most progressive fields in the world. Geospatial tools are a key component of the EAST technology tool kit.

### Content

- Workshop topics may include:
- Introduction to Geographic Information Systems (GIS) and key spatial concepts
- Types of data, how to find them, and how to use them in GIS
- Building and sharing interactive maps and mapping applications
- Demonstration of Collector for ArcGIS

### Timeline

TBA	Begin advertising and enrollment
TBA	Intro to Location-Based Data Workshop
TBA	Follow-up with workshop attendees for outcomes and reflections

### Commitments

- CCCUA: Provision of lab facilities where training will be hosted.
- CCCUA: Assistance in advertising and promotion efforts, with support from advertising materials created by UAF OPENGATE staff.
- UAF: Provision of workshop instruction and materials.
- UAF: Provision of ongoing technical support to workshop participants.

## Annual Partnership Conference

The 2018 OPENGATE Partnership Conference is open to students of all ages, instructors of all levels, and personnel from all industries. The conference is the latest in a series of events designed to increase awareness of the need for geospatial training for students entering or currently in the workforce. It will provide opportunities to learn about and explore geospatial technologies, as well as network with other interested professionals.

### *Program (tentative)*

9:15 AM	Registration
9:45 AM	Welcome
10:00 AM	Presentations by Community Colleges
11:00 AM	Presentations by Community Colleges
12:00 PM	Luncheon Speaker
1:00 PM	Break/Demos and Networking
1:30 PM	EAST School Project presentation, with introduction by EAST Staff
2:00 PM	Presentations from Industry Partners
3:00 PM	Cool Stuff/Open Source Software and Free Data

### *Timeline*

October 12	Abstract submission (title, presenter, topic)
November 1	Deadline for attendee registration
November 2	Partnership Conference

### **Commitments**

- CCCUA: Assist in advertising and promotion efforts targeting local secondary schools, with support from advertising materials created by CAST
- CCCUA: 10-15 minute presentation outlining how OPENGATE is being implemented at their institution
- CCCUA: 10-15 minute student-led/group presentation about a geospatial project (current or future) implementing skills they have learned through their experience with the augmented curriculum
- UAF: Planning and execution of conference, including securing of venue, production of advertising materials, coordination, etc.
- UAF: Securing topically relevant speakers and programming as relates to OPENGATE goals and community college-specific interests

## Ongoing Initiatives

### Employer Advisory Board/Industry Engagement

Each community college partner should create an Employer Advisory Board (EAB) by soliciting participation from local industry. The involvement of the EAB should inform the development of the augmented curriculum at each community college through providing input on the location-based skills and knowledge they will be seeking in the up and coming workforce.

#### **Goals**

Continue to expand EAB with members from local industry who ideally have existing relationships with the community college, such as participating in job fairs.

Involve and engage local industry by inviting them as guest lectures and demonstrations.

#### **Commitments**

Each community college will communicate with their EAB and summarize EAB inputs for the annual report, to be delivered by May 31, 2019 for inclusion in the final OPENGATE project report.

### Sustainability

The strategic plan for expansion and ongoing initiatives should include objectives that address the following:

- Increasing the awareness of the utility of geospatial applications in industry and the opportunities they provide for continued collaboration between educational institutions and employers;
- Highlight existing geospatial certifications at undergraduate and graduate institutions in the U of A System, providing a clear and sustainable path for students seeking additional education and technical certification;
- Assess the value of the initial module development and identify additional candidates and instructor interests in the community college; and
- Interact with the Employer Advisory Board and local employers to evaluate the value added by geospatial technology education modules, and use feedback to improve content and direction.

#### **Commitments**

Each community college will create an institutional strategic plan for expansion and ongoing initiatives, to be delivered by May 31, 2019 for inclusion in the final OPENGATE project report.