CA COMPILATION OF ATIP RBDG No. 04-039-452803441 PROJECT PERFORMANCE ACTIVITY REPORTS

Task 1: Identify and analyze business opportunities (biomass feedstocks, suppliers & service providers, access to capital, workforce training)

July-Sept. 2019: (90% complete) Extensive progress was made on inventory of biomass in the multi-county region of the Central Valley. The California Environmental Protection Agency, through the State Water Resources Control Board, has provided permit data on CAFOs and other animal production facilities. Data has been collected on several other categories, such as ag wastes (crop), woody biomass, wood and byproducts, tree-nut residues, citrus residues, non-citrus residues, municipal solid wastes, yard trimmings, and extensive data on food wastes. A GIS database has been developed to provide the geospatial relationships of these residues. Work continues with the regional economic development authorities in the region to identify all service providers who do or could participate in advancing the bioeconomy.

Oct. – December 31, 2019: (95% complete) Previously, we reported on extensive progress on obtaining data for the inventory of biomass in the multi-county region of the Central Valley. This included tables from (a) the California Environmental Protection Agency, through the State Water Resources Control Board, on permitted CAFOs and other animal production facilities; (b) CalRecycle data on municipal solid wastes (MSW), including sewage sludge and other biomass materials accepted at landfill and biomass operations across the state, and (c) food waste estimates from US EPA, nationwide, for individual establishments including correctional facilities, educational institutions, food manufacturers and processors, food wholesale and retail, healthcare facilities, hospitality industry, and restaurants and food services.

All of these tables contained facility-specific data but were not in a format that would allow direct geospatial arrangement. During this reporting period we completed georeferencing each facility (conversion of physical addresses to latitude / longitude coordinates). All have been incorporated into the geographic information system (GIS) database, which is referenced and illustrated below.

We also have acquired the "billion ton study" (BTS) dataset from U.S. Department of Energy that includes estimates for available biomass, aggregated by county, for several other categories such as some ag wastes (crop), citrus residues, non-citrus residues, tree nut residues, other woody biomass, wood and byproducts, municipal solid wastes, yard trimmings, etc. We also have initiated conversations with commodity associations and the Agriculture Commissioners in each county to identify additional public data that would identify site-specific biomass sources (e.g., tree nut residues from shellers/hullers).

In this reporting period, Fresno County provided their data on "service providers" for our inventory. Work continues with the regional economic development authorities in the region to identify all service providers who do or could participate in advancing the bioeconomy.

A GIS database has been developed to provide the geospatial relationships of these various inventories; screenshots of some of those layers are provided below to illustrate the extent and specificity of the data.
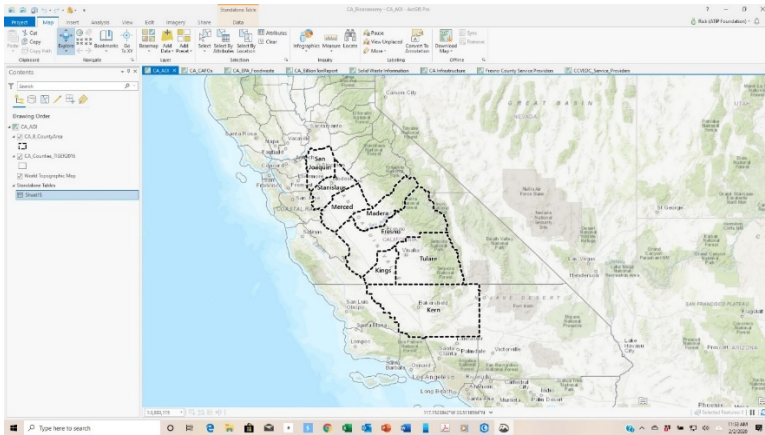
The eight-county region of the California Central Valley. Although this project technically includes only the counties of Merced, Madera, Fresno, and Tulare, all 8 counties are engaged to facilitate regional rural economic development.
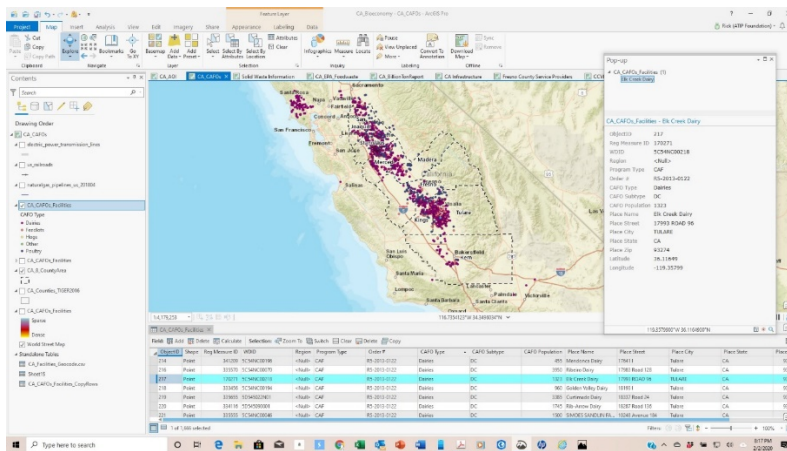
Screenshot of ArcGIS database of CAFO facility type, showing example in the attribute table (below map) and point data box of Elk Creek Dairy, in Tulare Co.
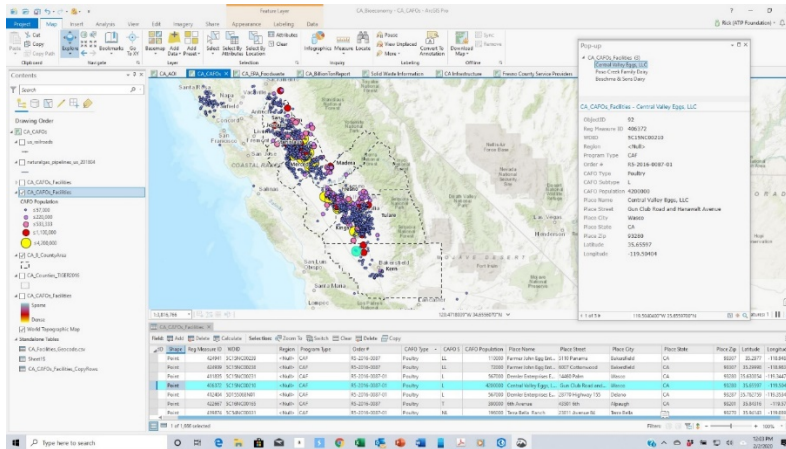
Screenshot of ArcGIS database of CAFO populations by CAFO operation. CAFO facility types were shown in previous screenshot. This map shows size of operations (number of animals). Larger numbers typically reflect poultry operations; an example is highlighted in the attribute table, its position is highlighted on the map, and details of the operation are shown in the data point info box. Number of animals by animal type can be used to calculate wastes using NRCS 2012 data (subsequent reporting period).
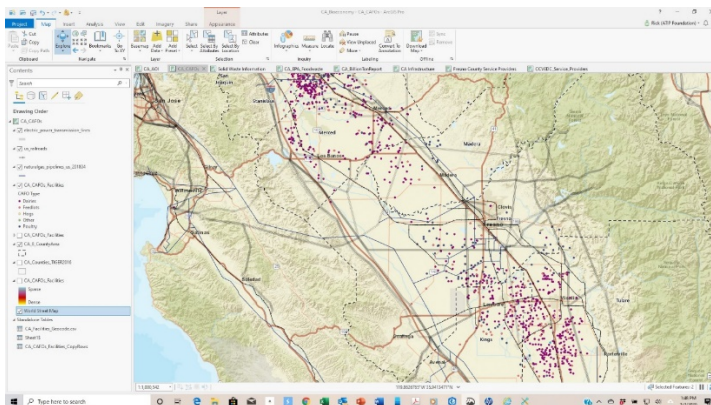
CAFO facilities in relationship to natural gas pipelines, electric transmission lines, roads and railways. This geospatial infrastructure information is critical to decision making of corporations assessing how they might participate in advancing the bioeconomy by converting biomass (any source) to bioenergy and useful products/co-products. For example, a digester facility producing biofuel would need to add their biogas to the natural gas pipeline.
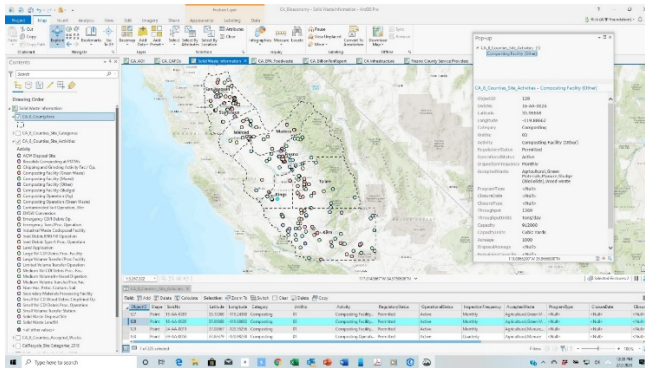
Biomass sources related to Municipal Solid Wastes sites are shown in map. Content box on left shows activity categories, highlighted in map and attribute table is an example of composting facility in Kings County accepting various listed wastes accepted (agricultural, manure, sludge biosolids, and wood waste).
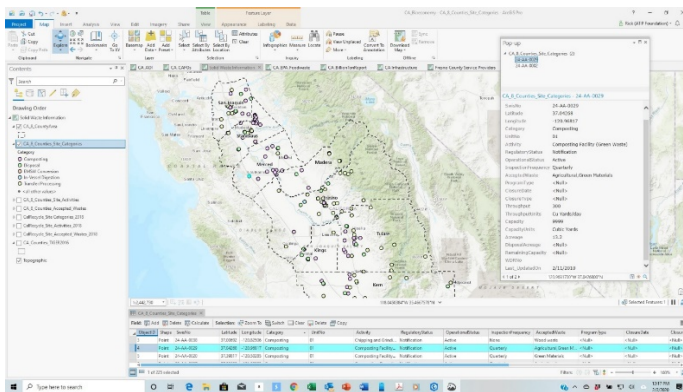
Biomass sources related to Municipal Solid Wastes sites are shown in map. Content box on left details that layer displays categories of facilities. Highlighted in map and attribute table is an example of composting facility that accepts only agricultural wastes and green materials. This example, and the MSW example in the previous screenshot reflect important data differentiating type of facility; such information is important for prospective corporations for targeting specific biomass feedstock sources compatible with their specific technologies.
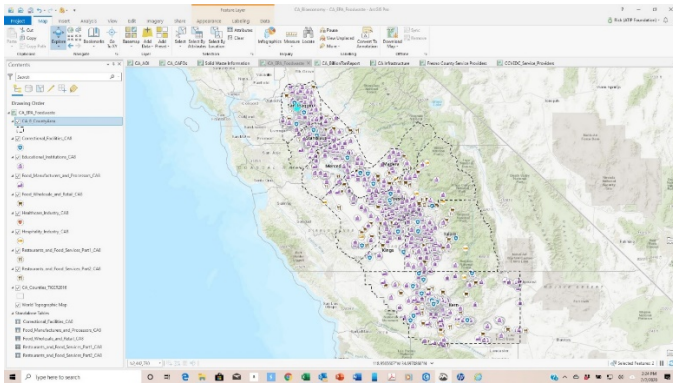
Inclusion of EPA's food waste database shows layers by specific category of facility. This enormous set of Excel files was geocoded and added to our CA Bioeconomy database. See Table below for number of entries.

California Central Valley (8 counties) Entries in EPA Food Waste Database by Category	
Category	Number of establishments with tonnage of food waste estimated
Correctional Facilities	55
Educational Institutions	1,669
Food Manufacturers and Processors	801
Food Wholesalers and Retailers	2,952
Healthcare Industry	68
Hospitality Industry	620
Restaurants and Food Services, Part 1	3,220
Restaurants and Food Services, Part 2	3,428
Total georeferenced locations --->	12,813
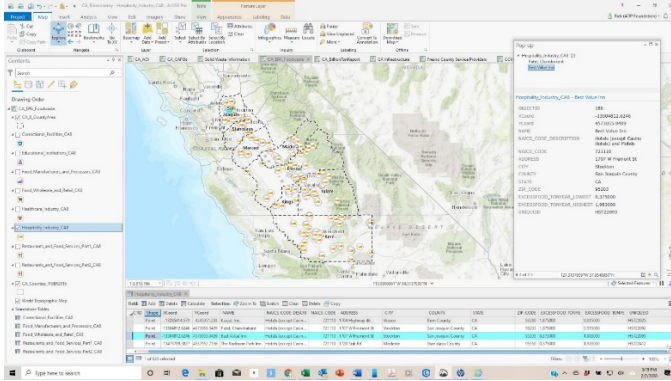
Screenshot illustrates specificity of data in EPA's Food Waste database, showing low (0.375 tons) and high (1.98 tons) estimated amounts for Best Value Inn in San Joaquin County. Map highlights location. Note that this map is only displaying hospitality industry locations in the 8 counties.
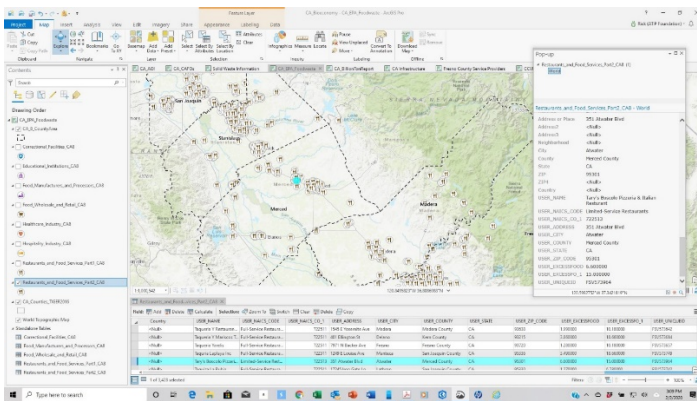
Screenshot illustrates specificity of data in EPA's Food Waste database, showing low (6.6 tons) and high (15.0 tons) estimated amounts for Tary's Boscolo Pizzeria and Italian Restaurant in Merced County. Map highlights location. This view only shows the 3,428 restaurants and food service locations in Part 2 of EPA's restaurant-specific database (about half).
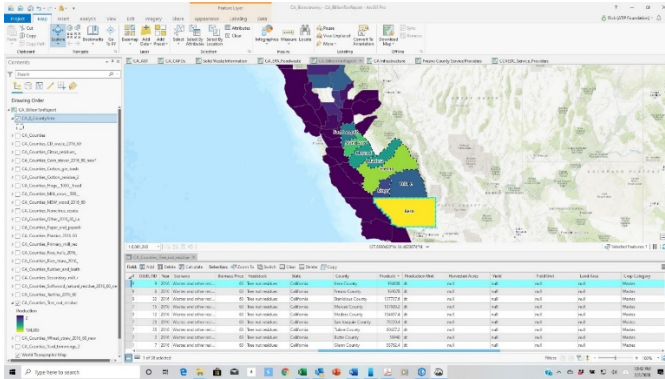
Example of coarse database of Department of Energy's Billion Ton Study. Data are not site-specific but are aggregated for entire county. Shown is tree-nut residues with an estimate of 194,808 dry tons for 2016 data; this amount is assumed by DOE to reflect 35% ("available") of total production.

January 1 – March 31, 2020: (100% complete) We have essentially completed Task 1 and have demonstrated this to stakeholders. However, we might get additional data submitted to us, and will of course include that in the next report.

In the last reporting period, we indicated that we had initiated conversations with commodity associations and the Agriculture Commissioners in each county to identify additional public data that would identify site-specific biomass sources (e.g., tree nut residues from shellers/hullers).

With assistance resulting from phone conversations with Western Agricultural Processors Association (WAPA) we were able to acquire locations of almond processors, but only county-aggregated data on tonnage produced. We will continue efforts continue to get site-specific tonnage (rather than county-aggregated) but are unsure as to likelihood of success.
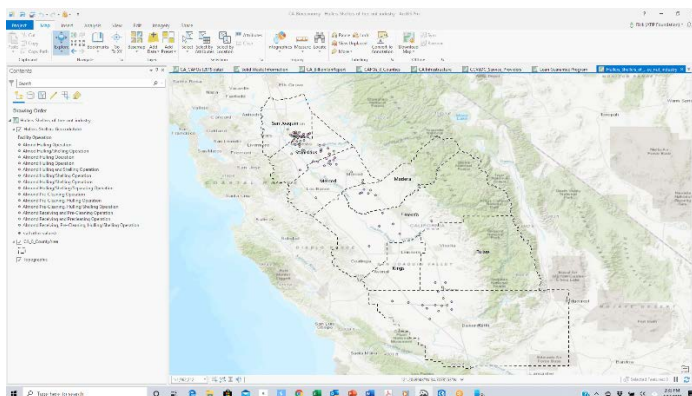
In the previous reporting period, Fresno County was the only county to provide their data on "service providers" for our inventory. Subsequently, in this reporting period, we have added data from 4 additional counties, and another has indicated they are preparing their set of data.
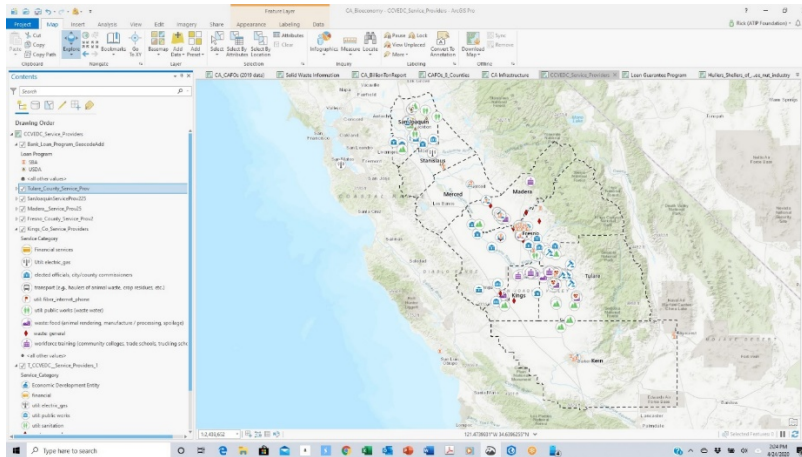
April 1 – June 30, 2020: **(100% complete; unchanged from previous Q report)**

We have essentially completed data collection Task 1 and are in the process of demonstrating all inventory database to businesses.

Since the last reporting period, we continued efforts to get from the Western Agricultural Processors Association (WAPA) site-specific tree nut residue tonnage on (rather than county-aggregated). Unfortunately, we are still without success on that issue; they have not responded to further requests.

Task 2: Document economic development organizations in the region and assess their programs and activities;

July-Sept. 2019: (25% complete) Time spent engaging 8 Economic Development Corporations in the San Joaquin Valley; (1) individual assessments of their capabilities and knowledge complete;(2) l identification of their School Districts, Community colleges, financial services institutions, and suppliers & services providers underway; state agencies that are supportive identified; (3)University of California at Merced committed to partnership.

Oct. – December 31, 2019: (50% complete) We have a standing monthly conference call with the California Central Valley Economic Development Corporation, represented by the 8 county Economic Development Corporations in the San Joaquin Valley. In this reporting period, these were convened Oct. 21, Nov. 18, and Dec. 16. We are still in the process of obtaining individual assessments of their capabilities, but we have compiled biotechnology-related programs in the Central Valley, as well as biotechnology courses offered throughout the universities and community colleges.
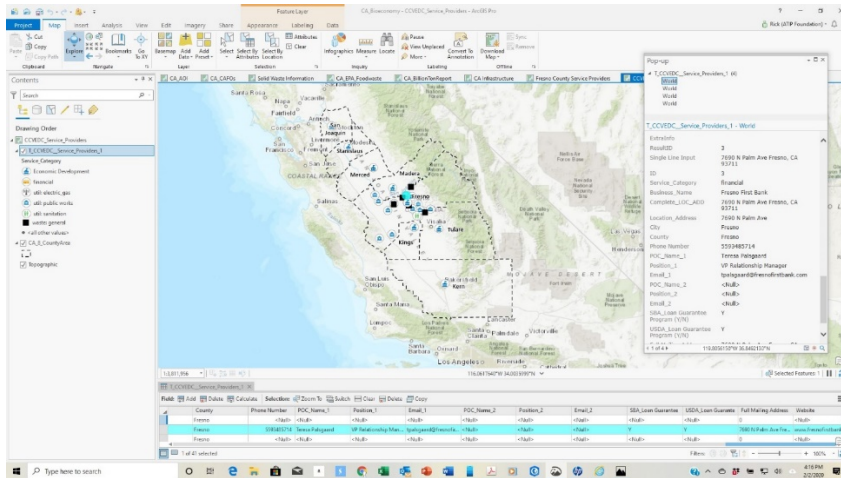
Shown are the 8 county offices of the California Central Valley Economic Development Corporation (CCVEDC). Through this reporting period, only Fresno County service providers, in the categories shown on the left, have been incorporated into the database. Highlighted on the map, and in the attribute table below it, is information on Fresno First Bank. Note data point box overlaying map showing address, POC name, position, and phone number for contacting this institution. Note also they are participants in both the SBA and USDA loan guarantee / revolving fund programs.

January 1 – March 31, 2020: (90% complete) We have nearly completed this Task, having documented all EDC in the region, and completed the initial assessment of their programs and activities.

We have a standing monthly conference call with the California Central Valley Economic Development Corporation, represented by the 8 county Economic Development Corporations in the San Joaquin Valley. In this reporting period, these were convened January 24, February 24, and March 16. we have compiled biotechnology-related programs in the Central Valley, as well as biotechnology courses offered throughout the universities and community colleges.

In addition, we conducted individual demonstrations and assessments and opportunities:
Kings Co, January 13
Land IQ (almonds), January 22
Almond Board, January 27
Stanislaus, February 4
San Joaquin, February 10
WAPA, February 28
We also now have added all financial institutions participating in USDA and SBA loan guarantee programs:
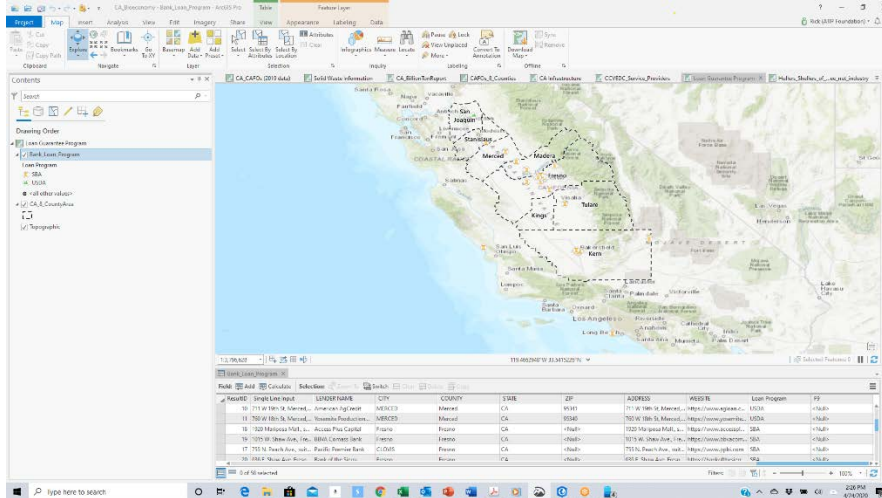
April 1 – June 30, 2020: (100% complete) We have completed this Task, having documented the work of all 8 Economic Development Corporations (EDCs) in the region, having completed the assessment of their programs and activities.

We continue with our standing monthly conference call with the California Central Valley Economic Development Corporation, represented by the 8 county Economic Development Corporations in the San Joaquin Valley. In this reporting period, these were convened 4/20, 5/18, 6/15.

To assist the EDCs, we have created a document titled "Advancing the Bioeconomy in California_A Strategic Approach for Rural Economic Development v4.17.2020.pdf" and after a couple of editing sessions, it is now ready for broad distribution. See Task 4 below.

Task 3: Identify prospective bioeconomy-related businesses and assess interest in evaluating opportunities in the San Joaquin Valley region of California

July-Sept. 2019: **(30% complete)** Nine (9) new business prospects cultivated; of those three (3) committed to locate to California and participate to advance the bioeconomy; Simeken, Inc, , a company that utilizes almond shells; Corigon, a Biorefinery; and BargerTech, a company that converts manure to biogas and chemical solids.

Oct. – December 31, 2019: **(50% complete)** We now have identified 31 companies with various interests in participating in "advancing the bioeconomy." Our biomass inventory and service providers database will be used to inform each on potential opportunities in the study area. We also are working to identify the Incentives available from the cities, counties, and state agencies.

We have developed and implemented a strategy for business development. It includes (1) national outreach through regional and national events; and (2) cultivation of companies with operations and/or interests across several states in the U.S.

• BargerTech is our first significant new business to indicate a strong interest to establish an operation in California (meeting with them weekly). We have worked with BargerTech to secure a USDA Loan Guarantee, and they received their invitation to Phase 2.
• National Outreach Prospect Development; we have attended numerous agricultural meetings, forums and seminars, and have to date cultivated a total of 31 "prospects"; companies that have expressed genuine interest in considering establishing business operations in California.
• We have continued to brief Simeken, Inc, a company that utilizes almond shells, Corigon, a proposed biorefinery operation in the CCVEDC region, and BargerTech on the advances we have made in the inventories. Simeken is now in the pilot testing phase with their new facility in Shafter under permits granted by the California Air Resources Board (CARB).

We continue cultivating companies through briefings in an effort to assess their interest in locating operations in various states, including CA. In this reporting period, we have met with the following:

• Cumulus on 10/7
• FedEx on 11/12
• Your Aerial View on 11/19
• Jamak Fabrication on 12/4

Task 3 remaining / continuing deliverables include; (1) continue to expand our list of prospects; (2) continue to develop database of all City, County, State, and Federal incentives available; (3) introduce prospects to Economic Development entities.

January 1 – March 31, 2020: (90% complete)

We have completed our initial identification of prospective bioeconomy-related businesses that have expressed interest in evaluating the business opportunities in the San Joaquin Valley region of California. As a result, we are currently engaging 55 companies.

We have also established a "Business Opportunities Management System" to support our work with these companies, in partnership with the 8 EDCs.

1. We identify companies as a "Suspect", based on the following definition:

A company that has been briefed by ATIP, on the Bioeconomy in general, and the work we are doing in the San Joaquin Valley to support business opportunities, that has then indicated they plan to establish operations or expand current operations in the next three years, and they will consider the San Joaquin Valley.

2. We identify companies as a "Prospect", based on the following definition:

A company that has worked with us, utilizing our GIS data base, to thoroughly assess the opportunities, and has then said they will consider the San Joaquin Valley as a prospective location, and will sign an MOU and/or Non-Disclosure Agreement (NDA) to work with us.

3. We identify companies as a "Client", based on the following definition:

A company that has provided us with all of their site selection criteria; we have distributed the criteria to the 8 EDCs, who have provided ATIP with applicable sites; we have shared those dates with our he Prospect, who then selects one or more sites and engages with the relevant EDCs.

4. We identify companies as a "Project", based on the following definition:

 A Company that has identified a site; and is engaged with the EDC in conducting due diligence on the site, and all other relevant issues (I.e. workforce, incentives, policy, etc).

5. We identify companies as a "Finalist", based on the following definition:

A company that has told the EDC their site is one of the final 2-3 locations they are looking at in the US.

Based on that Criteria, we currently have:

Finalists -1
Projects - 1
Clients - 8
Prospects - 4
Suspects - 41

Given the competitive nature of the businesses, they have requested they not be identified in public documents that are subject to FOIA; while most have or will request Non-Disclosure Agreements, prior to providing any specific information, relative to their technologies, as well as not wanting their competitors to be aware of their plans.

We are systemically working with all 55 businesses to work toward moving them "up the ladder" in our process. Our biomass inventory and service providers database is used to inform each on potential opportunities in the study area. We are also working with the EDCs to identify the Incentives available from the cities, counties, and state agencies.

April 1 – June 30, 2020: (90% complete)

We have completed our initial identification of prospective bioeconomy-related businesses that have expressed interest in evaluating the business opportunities in the San Joaquin Valley region of California. As a result, we are currently engaging 62 companies/entities across the U.S.

As stated in our previous quarterly report, we have established a "Business Opportunities Management System" to support our work with these companies, in partnership with the 8 EDCs.

1. We identify companies as a "Suspect", based on the following definition:

A company that has been briefed by ATIP, on the Bioeconomy in general, and the work we are doing in the San Joaquin Valley to support business opportunities, that has then indicated they plan to establish operations or expand current operations in the next three years, and they will consider the San Joaquin Valley.

2. We identify companies as a "Prospect", based on the following definition:

A company that has worked with us, utilizing our GIS data base, to thoroughly assess the opportunities, and has then said they will consider the San Joaquin Valley as a prospective location, and will sign an MOU and/or Non-Disclosure Agreement (NDA) to work with us.

3. We identify companies as a "Client", based on the following definition:

A company that has provided us with all of their site selection criteria; we have distributed the criteria to the 8 EDCs, who have provided ATIP with applicable sites; we have shared those dates with our he Prospect, who then selects one or more sites and engages with the relevant EDCs.

4. We identify companies as a "Project", based on the following definition:

 A Company that has identified a site; and is engaged with the EDC in conducting due diligence on the site, and all other relevant issues (I.e. workforce, incentives, policy, etc).

5. We identify companies as a "Finalist", based on the following definition:

A company that has told the EDC their site is one of the final 2-3 locations they are looking at in the US.

Although these numbers may change abruptly, based on that Criteria, we currently have:
Finalists -3
Projects - 4
Clients - 10
Prospects - 4
Suspects - 41
Given the competitive nature of the businesses, they have requested they not be identified in public documents that are subject to FOIA; while most have or will request Non-Disclosure Agreements,

prior to providing any specific information, relative to their technologies, as well as not wanting their competitors to be aware of their plans. During this reporting period we have revised our NDA to be flexible to the needs of potential clients.

We continue to work systematically with all 62 businesses/entities to work toward moving them "up the ladder" in our process. Our biomass inventory and service providers database is used to inform each on potential opportunities in the study area. We are also working with the EDCs to identify the Incentives available from the cities, counties, and state agencies.

Task 4: Assist Economic Development Corporations and county and/or regional Community Economic Development Planning

July-Sept. 2019: (25% complete) Community planning underway, with the leadership of the 8 Economic Development Corporations (EDC). Work includes support from the Central Valley Economic Development Corporation, which serves as a Regional coordinating organization for the 8 EDCs. California State University is coordinating our outreach to School Districts and Community Colleges, while the 8 EDCs are engaging their City & County elected officials.

Oct. – December 31, 2019: (50% complete) Community planning is underway, with the leadership of the 8 Economic Development Corporations (EDC), starting with Fresno County. The process includes one-on-one briefings to show the inventory databases with each of the California Central Valley Economic Development Corporation members, which serve as the regional coordinating organizations. During this period, we briefed Tulare and Fresno counties. We are also reaching out to educational institutions in the region while the 8 EDCs are engaging their city and county elected officials.

Finalizing our service providers and biomass inventories will allow the Foundation and each of the CCVEDC members to brief community leaders, and regional planners to better capitalize on advancing the bioeconomy opportunities. *Also as mentioned above, we needed an inventory of incentives from the various communities, and discussions with elected officials on expectations from adopting various incentives.*

 We also are in the initial stages to orchestrate commodity association briefings to conduct technical education and outreach as well as to gauge interest in formalizing partnerships directed toward educating members on learning about new technologies. The overarching goal is engagement with feedstock providers to connect them with a potential technology provider, and in turn, connect technology providers to the appropriate EDCs.

January 1 – March 31, 2020: (75% complete)

Community incentives are not specifically included, as these tend to be negotiated, based on the following criteria: proposed annual property tax investment; annual sales tax revenue projected; total jobs to be created; total annual payroll; and prevailing wage rate.

We have been engaged with various EDCs on using the database to assist their efforts with specific (and confidential) companies they are recruiting to the area. For example, below is an analysis on available animal waste products within Fresno County. Attribute table below map indicates there are 132 operations in Fresno County producing 28,942 tons of manure per day.
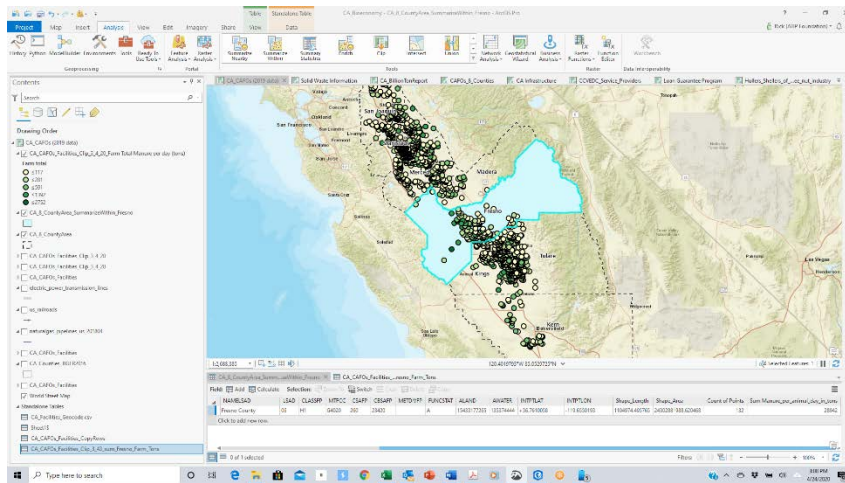
We have, in partnership with our 8 Economic Development Corporation Partners, completed the processes required to develop a regional economic development approach, in the San Joaquin Valley. The process has resulted in the completion of a document, entitled "Advancing the Bioeconomy in California: A Strategic Approach for Rural Economic Development".

Our final step is to circulate the draft with all 8 economic development corporations to review and receive their final input before formal adoption.

The draft document is included with our report as an attachment. It is out for review among EDCs now; the final Strategic Approach document will be formally presented to USDA with the next quarterly / final report.

April 1 – June 30, 2020: (90% complete)

We continue to stress that community incentives are not specifically included, as these tend to be negotiated, based on the following criteria: proposed annual property tax investment; annual sales tax revenue projected; total jobs to be created; total annual payroll; and prevailing wage rate.

As previously reported, we have been engaged with all 8 EDCs on using the database to assist their efforts with specific (and confidential) companies they are recruiting to the area. For example, below is an analysis on available animal waste products within Fresno County. Attribute table below map indicates there are 132 operations in Fresno County producing 28,942 tons of manure per day.
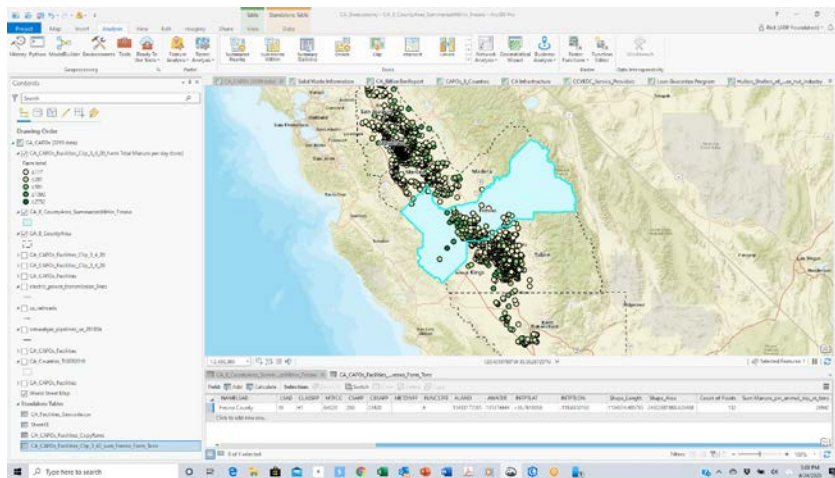
In this reporting period, we have, in partnership with our 8 Economic Development Corporation Partners, completed the processes required to develop a regional economic development approach, in the San Joaquin Valley. The process resulted in the completion of a document, entitled "California_A Strategic Approach for Rural Economic Development v6.9.2020", and It has been adopted now by all 8 economic development corporations. The final document is included with this report as an attachment.

Task 5: Provide technical assistance to support centers for training, technology and trade

July-Sept. 2019: (25% complete) We are working with both California State University in Fresno, and the University of California at Merced to expand their facilities to focus on the training support needed to train the workforce for the Bioeconomy.

Oct. – December 31, 2019: (40% complete) We are working with both California State University in Fresno, and the University of California at Merced to expand their capabilities on the support needed to train the workforce for the Bioeconomy. Additionally, as mentioned above, we have compiled biotechnology-related programs in the Central Valley, as well as biotechnology courses offered throughout the universities and community colleges systems in the region of study.

January 1 – March 31, 2020: (75% complete)

We have built the foundation to provide technical assistance to support centers for training, technology and trade. Specifically, with the Independent School Districts, Community Colleges, Universities, and local Workforce Boards in the region.

January7-8 I attended the National Career Development Summit, in Washington, D.C.; an annual event well attended by federal and state officials, academicians, workforce officials, career and technical educators, and business and industry.

My purposes were to (1) inform attendees about the Bioeconomy in general and more specifically about our "Advancing the Bioeconomy" Initiatives; and (2) engage State and Federal officials in support.

As a result, Scott Stump, Assistant Secretary for Career, Technical & Adult Education, US Department of Education, agreed to work with ATIP relative to the role public education can play in developing the workforce needed to support the growth of the Bioeconomy as an industry cluster.

February 27 I presented at the "Educating for Careers: Changing the Narrative: CTE for All" Conference, put on by the California Career Pathways Consortium and California Partnership Academies. The attendees were primarily Career and Technical Education (CTE) Directors from Independent School Districts throughout California.

My primary purpose was to (1) brief educators on the need to utilize nationally recognized industry certifications; (2) provide an informative briefing on the Bioeconomy in general and more specifically our "Advancing the Bioeconomy Initiative" in the San Joaquin Valley; and (3) recruit educators from the San Joaquin Valley.

Following my presentation, Christine Nieto, who represents ACT in California, committed to partner with ATIP to engage all Community Colleges, Independent School Districts, and local workforce boards in the San Joaquin Valley. (Note: ACT is the nation's leader in providing testing and assessment tools. ACT WorkKeys are the cornerstone of ACT Workforce Solutions).

In addition, a number of CTE Directors requested additional information, and several educators from the San Joaquin Valley expressed interest in engaging in our Initiative.

Klein Educational Systems has also committed to partner with ATIP in supporting the educational workforce board partners we will be engaging. in California, Klein represents a significant number of the major certifying entities that provide nationally recognized industry certifications. They also represent a significant number of the companies that manufacture training equipment for Career & Technical (CT&E) Programs.

They will provide technical assistance and training in support of all participating school districts, colleges and local workforce boards.
We expect to have all outreach completed prior to our final report.

April 1 – June 30, 2020: (85% complete)

Re-emphasizing previous reporting, we have built the foundation to provide technical assistance to support centers for training, technology and trade. Specifically, with the Independent School Districts, Community Colleges, Universities, and local Workforce Boards in the region.

January 7-8 I attended the National Career Development Summit, in Washington, D.C.; an annual event well attended by federal and state officials, academicians, workforce officials, career and technical educators, and business and industry. My purposes were to (1) inform attendees about the Bioeconomy in general and more specifically about our "Advancing the Bioeconomy" Initiatives; and (2) engage State and Federal officials in support. As a result, Scott Stump, Assistant Secretary for Career, Technical & Adult Education, US Department of Education, agreed to work with ATIP relative to the role public education can play in developing the workforce needed to support the growth of the Bioeconomy as an industry cluster.

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In addition to Christine Nieto and Chris Klein, in this reporting period we have engaged Kris Costa, Dean, Career & Technical Education at West Hills College; Joy Soares, Director, College & Career Education at the Tulare County Office of Education; and Rebecca Bettencourt, Senior Program Manager, Corporate at E&J Gallo Wine. All 3 have agreed to work with us in support of our outreach to school districts, colleges and local workforce boards within the 8 County region. In addition, Kris Costa has committed the West Hills College to partner with us to develop a plan to provide specific training and technical assistance within the region, supported by a USDA Grant from the National Institute of Food & Agriculture (NIFA).