



# AGENDA

## Hardee County Economic Development Council Hardee County Industrial Development Authority

Regular Meeting, Hardee County Board of County Commissioners, 412 West Orange Street, Wauchula, Florida

3/12/2013 9:00 A.M

### Board members

Vanessa Hernandez, EDC Chairwoman/IDA Vice-Chairwoman | Jim See, IDA Chairman/EDC Vice Chairman | Mike Prescott | Paul Roberts | Diana Youmans | Donald Samuels | Rick Justice | John O'Neal | Russ Melendy | Dottie Conerly | Doug Jensen | Lory Durrance

Time	Item	Action	Presenter
9:00 am	Call to order and prayer		Vanessa Hernandez /Jim See
9:01 am	Approval of minutes (February 2013) and agenda	Approval	Vanessa Hernandez /Jim See
9:03 am	EZProducts	Update	Dave Brown
9:10 am	Economy Building Strategy-Phase 2	Discussion	Mary Jane Stanley/ Angela Crist
9:30 am	EDA Grant modification-Authorization for Chairman to sign	Approval	Bill Lambert
9:40 am	JDC Phosphate	Discussion	Tip Fowler/ Dr. Armaghani
9:55 am	Communications Policy	Discussion	Bill Lambert/ Vanessa Hernandez
10:05 am	Utilities Construction Services Update- Corridor Development ( RFP vs. Piggyback)	Discussion/ Approval	Ken Evers
10:30 am	Continuum Labs/TechRiver update	Discussion	Travis Bond

---

<b>Time</b>	<b>Item</b>	<b>Action</b>	<b>Presenter</b>
11:00 am	FRBA	Discussion	Bill Lambert
11:20 am	Bionitrogen Update	Discussion	Bill Lambert
11:30 am	Project Updates	Discussion/ Update	Bill Lambert
11:40 am	Financial Report- EDC & IDA Financials	Approval	Sarah Pelham
11:45 am	Attorney Comment/Other Business/Public Comment ( Henry Kuhlman pre-requested to speak)		
12:00 pm	Adjournment		Vanessa Hernandez /Jim See

---

**Hardee County Economic Development Council/Industrial Development Authority**  
**Regular Meeting Minutes**  
**February 12, 2013**  
**Hardee County BOCC**

<b>Jim See- IDA Chairman/EDC Vice Chairman-P</b>	Rick Justice-P	Donald Samuels-P
<b>Vanessa Hernandez- EDC Chairwoman/Vice Chairwoman-P</b>		John O'Neal-P
Dottie Conerly-A	Michael Prescott-P	Lory Durrance-P
Russell Melendy-P	Paul Roberts-P	Diana Youmans-P
Doug Jensen-P		

Chairman See called the meeting to order at 9am.

**Visiting:** Casey Dickson, Greg Witt, Frank Kirkland, Brian Pelham, Bo See, Kenny Lambert, Ernie Ziglar, Bryan Samuels, , Travis Bond, , Courtney Larned, , Robert Cole, Matthew Smith and Lenora White.

**County Attorney:** Ken Evers

**County Manager:** Lex Albritton

**County Commissioners:** Mike Thompson, Colon Lambert, Grady Johnson and Sue Birge

**Press:** Michael Kelly

**Staff:** Bill Lambert, Sarah Pelham, Kristi Schierling and Krystin Chapman.

**Minutes:** Rick Justice made a motion to accept the EDC minutes and seconded by Russ Melendy. Motion passed unanimously.

**Agenda:** The agenda was approved as printed.

***Item 1-City of Wauchula Annexation Agreement-Tech River building***

Russ Melendy made a motion to accept the agreement and was seconded by Vanessa Hernandez. Motion passed unanimously.

The City of Wauchula has asked the IDA to sign this agreement. We are outside the City's physical limits but in the event that we are annexed in, we will not oppose it.

***Item 2-IDA Bank Account***

Rick Justice made a motion and was seconded by Vanessa Hernandez to open a regular business checking account to be used for distributing Mosaic moneys and execute any and all documents related to such. Lory Durrance abstained. Motion passed.

Discussion was held regarding opening a new Mosaic account. Since our current account is federally regulated to 6 transactions per month it is limiting us in dispersing money. With opening a regular account we will be able to transfer a lump sum to disperse.

***Item3-Corridor Development***

Rick Justice made a motion and was seconded by Paul Roberts to table this decision until next month's meeting so everyone has a chance to review the contract. Motion passed unanimously.

Director Lambert met with the 3 cities, Lex Albritton, Terry Atchley and Park Winter recently to discuss the corridor development. They all agreed that the fastest way to get this moving forward is to use Polk County's contract that they have with Killebrew. More discussion will be held at next month's meeting.

#### ***Item 4-Mosaic budget amendments***

Vanessa Hernandez made a motion and Diana Youmans seconded the motion to approve the amended budget. Motion passed unanimously.

Sarah Pelham addressed the Board about 2 amendments to the Mosaic budget. A column was added to show how much the BOCC has received. Director Lambert noticed an error and it will be corrected. A second column was also added to show the Communication Coordinator's position. This money was already paid out this fiscal year to the EDC for Krystin Chapman's salary.

#### ***Item 5-Continuum Labs/Tech River update***

Casey Dickson presented the draw request to the Board and answered any questions that they had. Matthew Smith gave a presentation to the Board showing what he has been working on since becoming a Continuum employee. Travis Bond then gave his monthly update. They have hired 2 new people and Caresync went live on last Friday in a new Beta version. They will be moving into their new building this week and have the grand opening next month. Caresync will also launch next month as a paid service. Hardee County residents can use Caresync for free.

#### ***Item 6- Tech River Technology Park leases***

-Doug Jensen made a motion and it was seconded by Mike Prescott to allow Attorney Evers make the changes discussed today and authorization for the Chairman sign the lease. Motion passed unanimously. A template for the lease for Rapid Systems was presented. They will be charged \$10 per square foot. It will be \$36,000/year. Rapid Systems will have all of the upstairs. One of the board members brought up some questions regarding the contract. They feel that the language regarding the credit for the employment of 10 people needs to be changed. We need to check with the Department of Revenue regarding taxes on the rent payment if we give them a credit for the 10 jobs.

Attorney Evers has come up with the following language for the contract:

*"The rent will be based on a gross rate of \$36000/year (\$3000/monthly), adjusted monthly by quarterly UTC 6 submittals (accompanied by company affidavits certifying the primary employment location of each employee for which rent reduction is applied) for up to 10 employees for an amount of \$150/month each. Upon receipt of proof of employment for the previous period rent will be adjusted accordingly for the ensuing period. The initial period rent computation will be based on employer affidavit and adjusted, if necessary, after the first reporting period. Sales taxes will be computed on the adjusted gross monthly rent."*

-Doug Jensen made a motion and was seconded by Mike Prescott to allow Rapid Tech free rent for the remainder of 2013 then be charged \$10 sq/ft the following years. Motion passed unanimously. The Board held discussion related to the lease for Rapid Tech. There was talk about giving them a discount on rent for their services to the building. They know how the building is wired and have great knowledge of the building. Another idea was to give free rent for the remainder of the year to see what the maintenance costs of the building are and then start charging the following year.

-Doug Jensen made a motion and was seconded by Paul Roberts to increase Continuum Labs funding and then charge \$10 per sq/ft.

***Item 7- Tech River furniture***

Doug Jensen made a motion and was seconded by John O'Neal to allow the director to pick the lowest and best bidder of the 3 quotes. Donald Samuels voted no. Motion passed.

Two quotes were presented for the furniture for the common areas of the building. Three were requested but we had not received the third by the time of the meeting. The furniture that is purchased will belong to the IDA.

***Item 8- Economic Development Performance Report***

Vanessa Hernandez made a motion and was seconded by Doug Jensen to approve the list with the addition of Rapid Systems and to come back before the Board as needed with any changes. Motion passed unanimously.

Casey Dickson reviewed with the Board the list of projects that we will be submitting to USF-FIOG for them to conduct the Economic Development Performance report. The board decided to go ahead and add Rapid Systems to that list.

***Item 9- Mosaic funding presentation***

This item was not discussed due to the lack of time. The presentation will be presented to the BOCC on February 21<sup>st</sup> and will be emailed out.

***Item 10- Project Updates***

Paul Roberts made a motion and was seconded by Doug Jensen authorizing the purchase of equipment to bring a signal into the Tech River building. Motion passed unanimously.

Paul Roberts made a motion and was seconded by Doug Jensen to accept Rapid Systems bid for initial bandwidth to the building with an obligated amount of monthly consumption to include up to 250 Megs. Motion passed unanimously.

Two quotes were received for broadband service for Tech River Park, Rapid Systems and Centurylink. The prices included the installation of 500 Mbps of broadband service to the building with the capability of expanding to 1 gig.

***Item 11- Financial Report***

Rick Justice made a motion and was seconded by Doug Jensen to accept the financials for the EDC. Motion passed unanimously.

Doug Jensen made a motion and was seconded by John O'Neal to accept the financials for the IDA. Motion passed unanimously.

Attorney Evers made an announcement to the Board. He and Director Lambert had a telephone conference with Marilyn Rosetti from the Auditor General's office. In their discussion it was determined that the IDA should seek an Attorney General's opinion regarding finding #1 in the operation audit findings which reference Florida State Statute 159. Attorney Evers wanted to seek advice from the Board if this was something that they wanted to pursue. He did advise them that it could be weeks before they get an opinion from the Attorney General.

-Rick Justice made a motion and was seconded by Doug Jensen to authorize Attorney Evers to seek an Attorney General opinion regarding finding number 1. Motion passed unanimously.

Attorney Evers said he would draft a letter and bring it back before the Board before it is sent to the Attorney General.

# Hardee County Chamber of Commerce Economy-Building Strategy Phase 2 Economic Situational Assessment

February 21, 2013

**Prepared for:**

Hardee County Chamber of Commerce  
Casey Dickson,  
Executive Director

**Prepared on behalf of:**

Angela Crist, Director  
University of South Florida  
Florida Institute of Government  
4202 E Fowler Avenue, CHE 205  
Tampa, FL 33620  
813.974.2346  
[acrist@usf.edu](mailto:acrist@usf.edu)



## **Contents**

Experience and Capacity .....	3
Current Understanding of Need .....	3
Recommended Approach.....	4
Project Schedule.....	8
Investment .....	8

## Hardee County Chamber of Commerce

### Phase 2

## Economic Situational Assessment

The Florida Institute of Government (FIOG) is excited about the opportunity to continue working with Bill Lambert, Director, Hardee County Industrial Development Authority and Casey Dickson, Executive Director, Hardee County Chamber of Commerce in further developing an Economy-Building Strategy for Hardee County.

In 2012 the FIOG began working with the above mentioned partners to conduct a Community Assessment and Inventory Analysis. The project was conducted using a phased approach which allowed for evaluation after the completion of each deliverable to determine whether adequate information and support was available to proceed with the next phase of the project. This recommended approach provided an opportunity for the IDA, Chamber and the FIOG Team to work collaboratively with key stakeholders in making important decisions that affect the economy and quality of life for Hardee County residents.

This Phase 2 proposal is based on the findings of the Economy-Building Strategy-Phase 1 dated November 14, 2012.

## Experience and Capacity

---

The **John Scott Dailey Florida Institute of Government** was created by the Florida Legislature in 1980 and subsequently designated as a Type I Institute by the Florida Board of Regents. The institute fulfills its statewide mission through a consortium of six (6) affiliate program offices located at the Florida State University, the University of Florida, the University of South Florida, the University of Central Florida, Florida Atlantic University, and Florida Gulf Coast University. Each affiliate program office serves a corresponding regional geographic service area within the state. The mission of the John Scott Dailey Florida Institute of Government is: *“to increase the effectiveness and quality of government in Florida through applied research, training, technical assistance programs and public service.”*

With over 20 years of experience in the local community, the Florida Institute of Government at the University of South Florida has a vast history of helping government and non-profit entities through visioning and strategic planning processes, offering and coordinating trainings, technical assistance, and applied research projects for the community.

## Current Understanding of Need

---

The FIOG understands that the Hardee County Industrial Development Authority (IDA), a public organization, and the Hardee County Chamber of Commerce, a private organization, together are seeking assistance with the further development of an economy-building strategy while also looking at broader economic development opportunities for Hardee County as it relates to housing, technology, targeted focus areas, education, public relations, and overall economic development. The Chamber is requesting these services from an outside organization that has broad based community planning and analytical research experience as well as access to university faculty, staff and consultants specializing in anthropology, urban planning and design, housing, as well as expertise in economic development.



Our understanding is that the IDA, Chamber and key stakeholders desire a credible implementation matrix to diversify the county's economic base by identifying immediate strategies and projects to meet this objective.

## **Recommended Approach**

---

During Phase 1, the FIOG conducted a community assessment, inventory and analysis to assist the Hardee Chamber with developing economy building strategies for the future. Phase 1 commenced on March 22, 2012, and the final Economy –Building Strategy-Phase 1 Report was completed November 14, 2012.

Next steps were identified at the end of Phase 1, and the following were considered to be the focus for the scope of work to be developed for Phase 2:

- Examine what other rural communities have done to capitalize on information technology such as broadband
- Facilitate the creation of a Technology Park/District based on broadband in place
- Collect additional information on physical conditions, natural features, and/soil characteristics and land usage to identify potential sites for a technology park
- Explore opportunities for innovation with broadband in place
- Examine what other communities have done to recognize major ethnic shifts in population as it relates to economic development
- Develop an Implementation Matrix based on information and data from recently completed plans and studies to guide the integration of the major elements of the Plan which could include:
  - non-agriculture industries, housing, community infrastructure, education/workforce training, branding/marketing
- Identify corridor nodes where economic development efforts can be focused
- Conduct additional interviews related to understanding the specific needs/gaps in housing needs, educational delivery
- Develop housing strategies that address current and future housing needs in Hardee County

The FIOG has been requested to proceed with developing the scope for Phase 2 based on the information gathered and the results of the findings of Phase 1.

Our approach remains to assist the Hardee County IDA, Chamber and key stakeholders to determine:

- Hardee's current economic base, to include assets and challenges
- Opportunities for economic growth both immediately and over the next 5-10 years
- Necessary steps for economic prosperity
- Assistance with qualitative and quantitative alternatives

## PHASE 2: Implementation Program

**Activity 1. Clarification of Project Goals and Objectives:** This activity will include clarifying all objectives associated with the IDA and Chamber's desire to further explore the development of an economic development niche for Hardee County centered on revenue generation, capital investment and job creation that will diversify the local economy. This task will involve review of pertinent sections of the comprehensive plan elements for Hardee County and the cities of Wauchula, Zolfo Springs, and Bowling Green; SRI-Cluster Industry Reports, Sustainable Hardee Visioning for the Future, and any other pertinent documents related to tasks associated with Phase 2. The FIOG Team will continue to work with the IDA and Chamber to identify key stakeholders and organizations that will assist in participating during the implementation process. This input in the process will be critical in defining the most appropriate goals, strategies, and objectives needed to establish an economy building strategy model for Hardee County.

**Deliverables:** This activity will culminate in a project notebook overview report that outlines the expectations and perceptions that will affect the economy building strategy for economic diversification.

**Activity 2 Develop a Public Relations Effort:** This activity will assist the entities to develop an effective public relations campaign to increase awareness and enhance the reputation of the IDA and the Chamber. The FIOG Team will conduct a communications audit to review all current communication vehicles, such as website, brochures, media releases, newsletters, etc. to ensure consistency and make recommendations regarding publications and messaging; interview identified key contacts to better understand the key messages required to reach the general public and elected officials; and develop key messaging points to be used in all communications initiatives to ensure a consistent and concise message.

**Deliverables:** This activity will provide key messages, parameters and templates for an effective public relations campaign.

**Activity 3 Conduct a Review of Technology Infrastructure used in other Rural Counties:** This activity will look at 3-5 rural areas that have developed technology infrastructure and obtain information on the types of technology in place and its impact on economic development. This activity will include identifying technology parks that have been successfully established in rural counties. Criteria will be established for developing a technology park in Hardee (i.e. purpose, location, size, anticipated uses). Develop site selection criteria; identify alternative locations, site selection and analysis. Identify parcels for needed assemblage; identify land use, zoning, comprehensive plan and other regulatory and environmental issues related to technology park development.

This effort will explore the area around the Tech River building and the potential for collateral development. Conduct adjacent land/building use analysis; analyze development patterns, zoning and regulatory influences; identify infrastructure deficiencies and needed upgrades to support additional development.

**Deliverables:** This activity will include a report of the findings for developing a technology park in rural areas, the challenges and opportunities.

**Activity 4** **Develop Countywide Comprehensive Housing Strategies:** This activity will examine what the county and the three municipalities have documented in their housing elements. It will include a review of existing housing supply and demand; document the current need for adequate and affordable housing including development of an Affordability Model for future use by the County to measure the gap between housing costs and household income; determine the need for future housing by tenure: owner occupied and rental; and, document the need for special need housing including elderly and labor demand/supply.

**Deliverables:** This activity will result in the development of implementation strategies for providing adequate, affordable housing for all residents including elderly and laborers. This will include a report of what other rural, ethnically diverse communities have successfully implemented.

**Activity 5** **Identify Other Rural Communities that have successfully transitioned to a diversified economic base:** This activity will identify other rural communities that have undergone significant ethnic/demographic changes and have successful economic diversification programs including: analyze communities and benchmark successful strategies for use in Hardee County; conduct literature review to focus on population shifts, housing mix demands, and education and training needs; conduct interviews and surveys with school administrators/teachers to understand specific needs/gaps in educational delivery related to language and technology; and determine implementation strategies.

**Deliverables:** This activity will result in a draft report that lists/details implementation strategies/options for addressing population shifts, housing demands, education and training needs in Hardee County.

**Activity 6** **Identify potential economic development nodes for future development:** This activity will identify 3 potential economic development “nodes” (excluding Tech River) for further analysis; clarify objectives for each of the identified economic development nodes; generate development programs for each of the targeted nodes that identifies potential uses, site and infrastructure requirements.

**Deliverable:** This activity will result in the development of conceptual strategies for the creation of new scattered-site economic development nodes throughout the county.

**Activity 7** **Coordination with Multi-County Economic Development Initiative:** This activity will examine and establish Hardee County’s role and opportunities within the Central Florida Regional Planning Council (CFRPC) economic development initiative (*Heartland 2060 Consortium Regional Plan for Sustainable Development*). Tasks will include working with County Planning staff to identify their understanding of the CFRPC economic development initiatives; evaluate all existing background materials for the CFRPC economic development initiatives; and meet and consult with CFRPC staff to clarify opportunities available to the County.

**Deliverable:** Develop a strategic report summarizing findings and providing recommendations for how the County should proceed to optimize its opportunities.

**Activity 8**     **Develop an Economic Development Implementation Matrix.** Upon completion of all the aforementioned activities under Phase 2, FIOG will develop an Economic Development Implementation Matrix based on the information and data from recently completed plans and studies as well as all the findings from Phase 2. All the recommendations will be incorporated into an economic development implementation matrix. Major elements of the implementation matrix will include housing, education, workforce, community infrastructure, technology, and branding/marketing.

**Deliverables:** This activity will conclude with an implementation matrix that identifies goals, objectives and strategies along with the responsible parties, timeframe and funding sources.

The FIOG will be responsible for project management of the various USF departments and FIOG consultants. The FIOG will facilitate meetings to ensure the FIOG Team is moving in the right direction as well as to provide coordination for the action steps; interdepartmental coordination of FIOG Team to avoid duplication of work; monitor project schedule and deadlines; provide regular reports or conference calls with the IDA and Chamber to monitor progress; conduct community workshops if needed by the IDA and Chamber; gather all information from the FIOG Team and construct the final report.

This approach allows for an interactive opportunity but will also provide the structure necessary to address any challenges that arise. The FIOG believes this method will provide the most cost effective and efficient process to complete all necessary activities.

### **Potential Next Steps—PHASE 3**

In looking to the future and in being mindful of the IDA and Chamber's desire for creation of a sustainable economic niche, future work could include, but not be limited to the following work products:

- Conceptual experience, visioning and scenario modeling as it relates to development of a Technology Park
- Public/community engagement
- Prioritization of implementation strategies such as regulatory revisions regarding housing and code enforcement
- Adoption of the implementation matrix and work plan by the IDA, chamber, County and other key stakeholders
- Development of a comprehensive branding and marketing program

## **Project Schedule**

---

The total Phase 2 project duration would be 10-12 weeks to compile the information and 6-8 weeks to complete the report, for a total of 20 weeks from execution of a contract with the Hardee County Chamber.

Many of the activities will be conducted simultaneously. However, some activities will be a shorter duration and those activities will be brought to the Chamber and IDA for discussion as they are completed.

Upon contract execution with the Florida Institute of Government (FIOG), the FIOG will further develop a project plan outlining timeframes, activities and deliverables.

## **Investment - Project Management**

---

Based on the agreement of outcomes and expected deliverables, the investment to complete Phase 2 will be \$XXXXXXX.

The FIOG is excited about the opportunity to work with the Hardee County IDA and to contract with the Hardee County Chamber of Commerce. We believe the service provided will be a significant benefit to your organization and community. We look forward to working with you.

**MODIFICATION NUMBER 1 TO GRANT AGREEMENT BETWEEN  
THE HARDEE COUNTY ECONOMIC DEVELOPMENT AUTHORITY  
AND THE HARDEE COUNTY INDUSTRIAL DEVELOPMENT  
AUTHORITY**

This Modification is made and entered into by the **HARDEE COUNTY ECONOMIC DEVELOPMENT AUTHORITY** (hereinafter referred to as "AUTHORITY") and the **HARDEE COUNTY INDUSTRIAL DEVELOPMENT AUTHORITY** (hereinafter referred to as "IDA"), to modify the Grant Award Agreement , dated February 02, 2010.

**WHEREAS, AUTHORITY and IDA** desire to modify the agreement;  
and

**NOW, THEREFORE,** in consideration of the mutual promises of the parties contained herein, the parties agree as follows:

1. The parties agree to extend the Grant Award Agreement project description to include the payment for filing a Distance Learning and Telemedicine Grant Application. The payment was \$7,880.00 and included the completion and filing of a grant application to the USDA Rural Development-Rural Business Opportunity Grant (RBOG).

All provisions of the Agreement and any attachments thereto in conflict with this Modification shall be and are hereby changed to conform to this Modification, effective as of the date of the execution of this Modification by both parties.

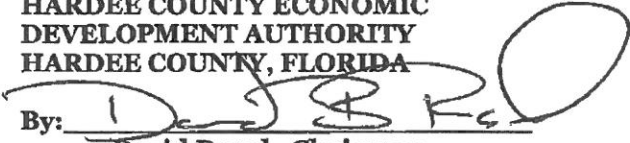
All provisions not in conflict with this Modification remain in full force and effect, and are to be performed at the level specified in the Agreement.

**IN WITNESS WHEREOF,** the parties hereto have executed this document as of the dates set herein.

**HARDEE COUNTY  
INDUSTRIAL DEVELOPMENT  
AUTHORITY**

By: \_\_\_\_\_  
**James See, CHAIRMAN**  
Date: \_\_\_\_\_

**HARDEE COUNTY ECONOMIC  
DEVELOPMENT AUTHORITY  
HARDEE COUNTY, FLORIDA**

By:   
**David Royal, Chairman**  
Date: \_\_\_\_\_



## Global Sustainable Solutions, LLC

---

### Proposal

### Testing and Evaluation of J-Rox Aggregate

Jamshid Armaghani, Ph.D., P.E.  
JDCPhosphate, Inc. and Global Sustainable Solutions, LLC

#### Purpose

This proposal is to solicit funding to perform laboratory tests on J-Rox aggregate to determine its basic physical, chemical and mechanical properties, and conduct field demonstrations in Hardee County to evaluate its engineering applications. The ultimate goals will be to develop markets for J-Rox as viable and sustainable source of construction aggregate in the area, state, and region, and to promote local businesses utilizing J-Rox aggregate in new construction products.

#### Introduction

J-Rox lightweight aggregate is a companion product to the phosphoric acid which is produced through the Improved Hard Process (IHP) of the JDCPhosphate, Inc. Preliminary tests of the aggregates showed substantial benefits, including:

- lighter weight compared to conventional aggregate, which reduces overall weight of concrete products for easier handling and reduction in transportation costs,
- high moisture absorption capacity, which can be a source of internal curing for concrete, thus contributing to better quality and enhanced durability,
- Possible pozzolanic characteristics which enhances the cement hydration in concrete to yield higher strength and durability.

For every ton of phosphoric acid, six tons of J-Rox is produced. In 2013 it is estimated that 75,000 tons of J-Rox will be produced annually in the JDC demonstration plant. The production is expected to reach 18-20 million tons per year in the next 12 years with addition of 15 commercial size plants.

With limited and dwindling sources of aggregates in the area and statewide, the availability and abundance of J-Rox can meet the construction market needs of the area, state and region. The aggregate can be used in concrete construction, lightweight masonry blocks, precast products, and as a stabilization material for road bases. Also, it is anticipated that local businesses will be created to utilize J-Rox to manufacture lightweight precast concrete products for home and commercial applications. The marketing and business creation will contribute to the economic development and creation of local jobs in Hardee County.

It is anticipated that J-Rox will be a sustainable source of construction aggregate for the area, State and region. It will supplement the limited aggregate resources in the State; reduce the need

for imported foreign aggregates; and contribute to the creation of local jobs and overall economic development.

### **Scope of Work**

The proposed work will be accomplished in two phases:

- Phase 1 - Laboratory testing to establish basic properties and benefits of J-Rox.
- Phase 2 - Field demonstration to evaluate J-Rox performance in engineering applications.

### **Phase 1 – Laboratory Testing**

Part 1 -The following chemical and physical laboratory tests will be performed on the J-Rox aggregates:

1. Radon emanation, Leachate, Aquatic toxicity and other tests to ensure safety of the product.
2. Analysis of chemical composition.
3. Gradation, Specific Gravity, absorption and L.A. Abrasion,
4. Alkali silica reactivity, chloride content, and soundness.
5. Internal curing - ASTM C1761.

Part 2 - The following physical and mechanical tests will be performed on concrete, mortar or paste mixes with J-Rox in coarse or fine aggregate form or in ground powder material

1. Unit weight
2. Compressive strength of mortar and concrete
3. Elastic properties
4. Internal curing
5. Pozzolanic activity
6. Permeability
7. Corrosion
8. Shrinkage
9. Thermal properties
10. Alkali silica reaction

Part 3 - The following soil tests will be performed using J-Rox in powder form to establish its cementitious or pozzolanic properties suitable for soil stabilization:

1. Florida Lime Bearing Ratio (LBR)
2. California Bearing Ratio (CBR)
3. Leachate content

Most of the physical testing will be conducted at laboratories of the Florida State University using available, acquired or purchased test equipment tools and mixers. Some of the listed aggregate and concrete tests will be performed by private laboratories or by other universities with specialized equipment. Chemical tests to determine aquatic toxicity and radon emanation will be performed by well recognized national laboratories including the Florida Industrial and Phosphate Research Institute. It should also be mentioned that contacts have been made with the Florida DOT, State Materials Office and District One Materials office, to perform pilot tests on J-Rox. It is



anticipated that material specification and technical brochures will be developed for J-Rox based on the laboratory test results to assist in the promotion and marketing of the aggregate. The test results and specifications will also be shared with the Florida DOT to facilitate inclusion of J-Rox in the Florida DOT aggregate specification.

### **Phase 2 – Field Demonstrations**

Four field demonstrations will be designed, constructed and evaluated. The exact concrete mix composition or material blend, as well as the design details will be based on the laboratory results. The demonstrations will include:

- Two test pavements in Hardee County to demonstrate the engineering applications of J-Rox.
- The third demonstration will be planned in a concrete precast plant to evaluate the performance of precast members using J-Rox in the concrete mix. Coordination will be established with the management of the precast plant in the in mix selection and production of the
- The fourth demonstration will be planned in a masonry block facility to produce lightweight masonry blocks and evaluate their engineering properties. The masonry plant will be selected in or close to Hardee County.

### ***Hardee County Test Pavements***

***The First Demonstration*** will be a test pavement constructed on an unpaved site or a paved parking area in the County. Site location will be selected by the County Division of Publics Works. The design and construction of the pavements will be planned and executed with input and support from the County Division of Publics Works.

The proposed pavement dimensions will be 100 ft x 100 ft. The pavement will divided into four sections to include concrete mixes with 20%, 40% 60% and 100% J-Rox aggregate. The pavement thickness and slab dimensions will be designed to match the traffic in the parking. During construction, the concrete mixes will be sampled for laboratory tests. The pavement sections will tested for structural capacity, and evaluated for condition and performance over a one year period. Based on the test results and performance evaluations, recommendations and construction specifications will be prepared on concrete with J-Rox for parking pavements. It is estimated than 150 tons of J-Rox will be required for this pavement

***The Second Demonstration*** will be a test section on an unpaved road in Hardee County. The test section will include stabilization of the road surface with variable amounts of J-Rox fines. Site location will be selected by the Hardee County Division of Publics Works. The design and construction of the pavements will be planned and executed with input and support from the County Division of Publics Works.

The stabilization blend will be determined based on laboratory test results of soil samples with different proportions of J-Rox. It should be noted that planning of the test pavement will be contingent upon laboratory determination of adequate cementitious or pozzolanic properties of the J-Rox. Florida State University will participate in laboratory tests and provide input on construction.

The proposed pavement section will be 500 ft long and will be monitored for a period of one year to determine its performance under local traffic and variable weather conditions. The evaluation will include structural capacity and performance with respect to dust emission and durability compared to other road materials. Based on the test results and performance evaluations, recommendations and construction specifications will be prepared on J-Rox for soil stabilization of unpaved county roads. It is estimated that 25 tons of J-Rox will be required for this test.

Results of the two demonstrations and specifications will also be shared with the Florida DOT.

### ***Concrete Precast Demonstration***

In collaboration with a local precast company, precast products will be manufactured with variable J-Rox content in the concrete mix, including 100% lightweight precast members. Coordination will be established with the management of the precast plant in terms of mix selection and production of the precast members.

The precast members will be evaluated for ease of production, quality, robustness, weight advantages and cost compared to conventional precast products. They will also be tested based on FDOT and industry specifications and compared to conventional precast products to determine effect of J-Rox on the strength and structural performance of the members. It is estimated that 50 tons of J-Rox will be required for this test.

### ***Lightweight Masonry Blocks***

In partnership with a local masonry block plant, lightweight blocks will be produced using different proportions of J-Rox in the block mix. Coordination will be established with the management of the block plant in terms of mix selection and production of the blocks.

The lightweight blocks will be evaluated for ease of production, shape stability, robustness, weight advantage, and cost compared to conventional blocks. Tests will be performed based on industry specifications and compared with conventional blocks to determine the effect of J-Rox on strength and shrinkage of the blocks. It is estimated that 25 tons of J-Rox will be required for this test.

Specifications and construction practices will be developed for the precast members and lightweight Blocks.

### ***Project Management and Collaborations***

This project will be managed by Global Sustainable Solutions (GSS) with full coordination with JDCPhospahte, and Hardee County Division of Public Works. Dr. Jamshid Armaghani, P.E. of GSS will act as the project coordinator and principle investigator. He will coordinate project activities and testing, and will prepare the final report for the project. Dr. Kamal Tawfiq, P.E., Chairman of Civil and Environmental Engineering at FSU/FAMU will be the co-investigator and will coordinate the testing at FSU.

Dr. Armaghani has more than 27 years of experience in concrete materials and pavements, and has been involved in major research projects involving concrete materials and pavement. He has 15 years of service with the FDOT and 12 years with the concrete industry and as a private consultant. Dr. Tawfiq has extensive experience in materials, soils and geotechnical engineering.

He has been involved in many FDOT sponsored research in concrete materials and geotechnical issues.

Contacts have been made for possible collaboration and exchange of information with the following agencies and Universities:

1. Florida DOT – State Materials Office and District 1&7 materials office.
2. Virginia DOT – Office of Research.
3. New York DOT – State Materials Engineer
4. Purdue University
5. University of Utah

### **Deliverables and Coordination**

Quarterly progress reports and a final report will be prepared that will include description of the work, test results and analysis, progress, conclusions and recommendations. In addition, construction guidance and specifications will be developed based on laboratory tests and filed demonstrations. Semi-annual meetings will be held to discuss progress of the project. Frequent meetings and communications will be maintained with the Hardee County engineers during the planning of the demonstration pavements.

### **Project Duration**

The anticipated completion of the project will be **24 months** following startup of the IHP facility which is tentatively planned for this spring. This will include 12 months each for laboratory test (parts 1, 2 & 3) and the four field demonstrations. It should be noted that early laboratory test results will be utilized to fast track planning of the field demonstrations. A proposed schedule for conducting the three part laboratory tests and the four field demonstrations described above is contained in Attachment 1.

### **Budget**

The total funding request for the project is **\$200,000**. The funds will be used for construction of demonstration pavements, labor and overhead, purchase of materials, basic tools, mixers and test equipment at FSU, testing by private laboratories and special testing at other universities, and travel. A breakdown of the budget costs for each of the laboratory tests (Parts 1, 2 & 3) and each of the four field demonstrations is provided in Attachment 2.

Respectfully submitted by,



Jamshid Armaghani  
Vice President  
Global Sustainable Solutions, LLC  
February 14, 2013



## Attachment 2

### Budget

<b>Phase I - Laboratory Tests</b>	<b>Unit Cost</b>	<b>Total Cost</b>
<b>FSU</b>		
Tests - J-Rox & Concrete		\$ 45,000
Equipment/tools and material		\$ 5,000
<b>Private Labs</b>		
Tests - J-Rox & Concrete		\$ 5,000
Aquatic toxicity and Radon emanation		\$ 7,000
<b>Phase II - Field Demonstration</b>	<b>Unit Cost</b>	<b>Total Cost</b>
<b>Test Pavement 1 (Parking area)</b>		
Construction		\$ 53,000
Field testing and sampling		\$ 5,000
<b>Test Pavement 2 (Unpaved road)</b>		
Construction		\$ 7,000
Testing and sampling		\$ 2,000
<b>Precast Lightweight Products</b>		
Materials (Excluding J-Rox)		\$ 3,000
Fabrication (Shared cost)		\$ 0
<b>Masonry Lightweight Blocks</b>		
Materials (Excluding J-Rox)		\$ 3,000
Production (Shared cost)		\$ 0
<b>Project Management</b>		
<b>Global Sustainable Solutions -</b>		
Labor	300 Hours	\$ 200/hr (Loaded)
Travel		\$ 5,000
<hr/>		
<b>Grand Total</b>		<b>\$ 200,000</b>

\* **Loaded** hour includes labor, overhead, fringe benefits and margin)