FY2010 National Map Proposal Information Summary

Panel Designation (Check one): Orthoimagery _____ Elevation (lidar) __**X**__

Name of the Cooperating Institution:

Project Title: **Brown/Oconto County LiDAR Elevation Mapping**

Principal Investigator(s):

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Areal extent of the collection: Wisconsin, Brown and Oconto Counties
535 mi^2 (all of Brown County) and 26 mi^2 of the US Hwy 41 corridor in Oconto County for a total of 561 mi^2
The counties are coastal Great Lakes Counties in WI.

Amount Requested: USGS Funds: $251,666
Non-Federal Matching funds: $25,000

Proposed Project Period **February 15, 2010** through **November 30, 2010**
(The project start date must no earlier than February 1, 2010, and end no later than September 15, 2011)

Number and types of jobs created or retained, labor hours and anticipated duration for each: The LiDAR project is anticipated to provide benefits for many upcoming infrastructure and environmental projects. These projects will last for many years into the future and will involve a great number of labor hours. Please see Project Narrative section starting on page 7 for details.

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Proposed Budget
Budget Summary

Project Title: Brown and Oconto County Wisconsin LIDAR elevation mapping.

Principal Investigator(s): Jeff DuMez, Brown County GIS Coordinator & Land Information Officer; Mark Teuteberg, Oconto County Surveyor & Land Information Officer.

Cost Category	Federal Funding Requested	Non-Federal/Matching Funds Identified	TOTAL
1. Salaries and Wages	$ 7,357	$	$ 7,357
2. Fringe Benefits/ Labor Overhead	$ 3,423	$	$3,423
3. Equipment	$	$	$
4. Supplies	$10,000	$	$10,000
5. Services or Consultants	$230,886	$25,000	$255,886
6. Travel	$	$	$
7. Other Direct Costs	$	$	$
8. Total Direct Costs (sum of 1-7)	$	$	$
9. Indirect cost/G&A	$	$	$
10. Amount Proposed (8 + 9)	$	$	$
11. Total Project Cost (Federal + non-Federal amounts)	$251,666	$25,000	$276,666

* In addition to the $25,000 in matching non-federal funds identified for LiDAR, the Counties are also spending over $150,000 combined to conduct a high-resolution orthophoto flyover in April, 2010 which, if LiDAR grant funding is approved, will closely coincide with the LiDAR data collection. The orthophotography data will be made available to USGS and the National Map as well.

Detailed Budget

Budget Narrative: Brown County WI and neighboring Oconto County are proposing to conduct $276,666 worth of LiDAR Mapping in 2010 of which $251,666 is requested through this USGS grant. The LiDAR pricing is based upon proposals from vendors this past summer as we had hoped to include LiDAR within the County budget as part of our scheduled aerial Orthophotography projects, however, due to tightening budgets the LiDAR option was not fully funded in the recently-adopted 2010 budgets. Both counties are proceeding with aerial orthophotography for 2010; Brown County has budgeted $80,000 to complete 6" resolution color orthophotography. The orthophotography is also being partially funded by the USGS and National Geospatial-Intelligence Agency (NGA) as Brown and Oconto counties are part of the 133 Cities Urban Area Program. It should be noted that none of the orthophoto funds are for LiDAR acquisition. Currently no other funding requests have been submitted for LiDAR. A breakdown of costs is provided:

1. **Salaries & Wages:** A total of $7,357 in salaries is requested for project management and to perform and independent quality control checks on the LiDAR data after delivery. The breakdown is as follows:
   - $3,450 will be applied towards the Brown County GIS/LIO Coordinator. He will spend 120 hours at a rate of $28.75 per hour to perform project management tasks and reporting specific to the LiDAR project.
   - $3,907 will be applied toward the Brown County Survey Coordinator who will spend 120 hours of time performing field surveys to assist with ground control as well as performing final analysis on the delivered data to assess vertical accuracy ($RMSE_z$) in accordance with the methods described by USGS and FEMA guidelines.

2. **Fringe Benefits/Labor Overhead**: The total Fringe costs for Brown County will be $3,423 based on the 2010 fringe rate of 46.53%. Fringe Benefits are calculated as direct costs in accordance with the adopted Brown County Budget (see memo from Finance Director in Section H, supporting documents).

3. **Equipment**: None requested.

4. **Supplies**: The counties are requesting computer supplies to help us effectively manage and utilize the large amounts of LiDAR data we hope to receive. The breakdown of this total cost is as follows:

   - Brown County will purchase 1 Terabyte RAID shelf of disk space for $4,000. This figure is computed based on an estimate received from the Brown County Information Services department.
   - Brown County will purchase the LP360 LiDAR extension for ArcGIS as well as the LP360 Classify module from Rockware, Inc for a cost of $4,000 (see pricing in Section H, supporting documents). Brown County has tested a demonstration version of this software and it was determined to work well within our existing GIS platform and was capable of consuming large amounts of LiDAR data to produce value-added products such as DTM TINs and contours. Based on the needs assessment conducted by the County, many of the users will rely on having 2' contours as an end product. We feel this software will enable the County to produce valuable end products like contours for site-specific areas on an as-needed basis.

- Oconto County will purchase a high performance disk drive space for $2,000
- The total cost for all supplies listed above will be $10,000

5. **Services or Consultants**: Combined, the Counties are requesting $230,886 in USGS grant funds for consultant services to acquire the LiDAR raw point cloud, classified point cloud, and hydro-flattening Breaklines to USGS and FEMA specifications. The breakdown is as follows:
    - $205,966 will be used to obtain the raw, classified, and processed LiDAR data for Brown County and
    - $24,920 will be used to acquire the same USGS Base LiDAR products for Oconto County.

    As mentioned in the budget narrative above, these prices are based on the selected LiDAR proposal. Based on cost and the specifications set forth in the RFP, the top-ranked proposal was submitted by two reputable, Wisconsin-based contractors who teamed up to submit a proposal. That team is Ayres Associates of Madison and Aero-Metric of Sheboygan, WI.
    - $25,000 of non-federal matching funds is available through the Counties and non-federal partners for this project.

6. **Travel:** None requested

7. **Other Direct Costs:** None requested.

8. **Total Direct Costs** (total of items 1 through 7): $251,666

9. **Indirect cost/general and administrative** (G&A) **cost:** None requested.

Executive Summary

Brown and Oconto Counties in Northeastern Wisconsin are applying for a $251,666 grant through USGS to obtain 561 mi^2 of LiDAR mapping in 2010. The proposed project will completely cover all 535 mi^2 in Brown County, most of which have never been mapped to any level of elevation detail beyond 10-foot contours. The proposed project also includes 26 mi^2 of LiDAR coverage in Oconto County near the west shore of the Bay of Green Bay along the US Highway 141 and 41 corridors.

This proposed project meets the objectives of USGS and ARRA in many ways including:

- The LiDAR project will be conducted by a team of reputable Wisconsin-based contractors who use American labor throughout the process.
- The geographic area to be covered includes the Green Bay Metropolitan area, one of the largest and fastest-growing population and job centers in the region.
- The LiDAR project will assist with the planning and design of several upcoming infrastructure projects, including a $380 million expansion of US Highway 41 in western Brown County and wind turbine developments in southeastern Brown County that are anticipated to bring more than 100 megawatts of clean energy to the area. Also, the County's Public Safety and Communications Department is looking to use the LiDAR data to help complete a radio interoperability study with a goal of upgrading the radio network shared among all local fire, police, and EMS departments throughout the County.
- The LiDAR project will help with the protection and restoration of the largest contiguous coastal wetlands on the Great Lakes known as the West Shore Wetlands. This extensive wetland complex is situated between the Bay of Green Bay and US Highway 41 in Brown and Oconto Counties, a corridor which has some of the most intense development pressure in the region. Although significantly impacted by development, it still contains 50% of all the remaining wetlands in the entire Lake Michigan watershed.
- The LiDAR data will assist in achieving many of the 120 recommended Remedial Action Plan recommendations in the Lower Fox River / Green Bay Area of Concern (AoC) as designated by the International Joint Commission. Many of the recommended RAPs such as nonpoint source pollution abatement programs require detailed topographic data to complete. Brown County and the local municipalities are heavily involved in regulating runoff in both urban and rural areas. Because LiDAR saves many hours of labor over traditional mapping and surveying methods, it will greatly help stabilize state and local government budgets to ultimately reduce the burden on the taxpayers.
- The community is anticipating many other benefits from LiDAR, as indicated in more detail within this application and in the attached letters of support from the community.

The project is "shovel ready" in that the Counties jointly completed the RFP process this past summer. While the recently-adopted County budgets include funding for aerial Orthophotography, the LiDAR option was not funded due to insufficient local funding. If the Counties are fortunate enough to receive grant funding, we will obtain LiDAR data to coincide with our scheduled April 2010 Orthophotography programs with delivery of all products by September 2010. Brown and Oconto Counties look forward to a cooperative, mutually beneficial relationship with the USGS and all of the other federal, state, and local agencies who will benefit from a LiDAR flight.

Project Narrative

Evaluation Criteria

1) Importance and Applicability (32 points)

Location and areal extent: Brown and Oconto Counties are coastal Great Lakes counties located in Northeastern Wisconsin. The total project area is 561 mi^2. Brown County is applying for funds to acquire LiDAR for the entire county (535 mi^2) and Oconto County is partnering with Brown County on this application to map an additional 26 mi^2 along the recently-upgraded US Highway 41 and 141 corridors to supplement a 2006 LiDAR flight.

Regional population center: The area includes the Green Bay Metropolitan area, one of the oldest centers of population in the region. In recent decades, the population has been growing rapidly. According to Census figures, the population grew almost 17% between 1990 and 2000 and recent estimates indicate that Brown County continues to rank in the top three in the state for adding new residents.

Regional job and transportation center: Lured by raw lumber, water transportation and water power, the area began to industrialize as early as 1800. One major industry was paper production. The highest concentration of paper mills in the world was developed along the Fox River where many continue yet today. Along with the mills, many other heavy industries including machining, trucking, tool and die manufacturing, and paper converting businesses were established throughout the area to support the paper industry and create value-added products. Today, the area's economy has greatly diversified. The transportation system has been keeping pace with the area's growing economy. The Port of Green Bay has been in operation since the earliest settlement and continues to be used by large freighters today. As the railroads grew up, Green Bay became a regional rail hub as well.

LiDAR will support upcoming transportation infrastructure upgrades: Today, the road and highway system is struggling to keep pace with increasing demand. As a result, the Wisconsin Department of Transportation (WiDOT) is in the early stages of planning for an upgrade to US Highway 41, the vital transportation corridor running through Green Bay and the Fox Cities. The proposed upgrade will be one of the largest projects in WiDOT history, costing nearly a billion dollars including $350 million in western Brown County. As indicated by the attached letter of support from the WiDOT Regional Director Mike Berg, the LiDAR project will support the planning and preliminary design of this project. LiDAR will also be useful for "as built" studies along the recently completed Highway 41 expansions in Oconto County. LiDAR will assist in planning many other road projects as well, including a proposed "southern bypass" highway around the south end of the Green Bay metro area which includes a large bridge over the Fox River. Local municipalities are looking to use LiDAR data to help reduce costs associated with local road projects; many are excited to realize the cost-savings that LiDAR will provide in doing excavation cut and fill estimates, culvert sizing, and many other tasks related to roadway planning and design.

Development pressure in flood-prone areas: The population and development over the past several decades has largely sprawled outward. Most of the homes and businesses have moved out of the city center to locate near the highways, especially near the Highway 41 corridor and along waterfront properties. Recognizing the area's growth into flood-prone areas, FEMA has recently updated the Flood Insurance Rate maps in Brown County. However, much of the floodplain mapping was done using topographic mapping that lacked

detail and was outdated. Please see the attached letter from Meg Galloway, Chief of Dams and Floodplain Section and Miles Winkler, PE, the Water Management Engineer at the Wisconsin Department of Natural Resources. Ms. Galloway and Mr Winkler clearly describe the need for enhanced topographic data to support not only floodplain zoning but also hazard mitigation and flood response. The Green Bay area is a very flood prone area, with several major floods having occurred in its history. With the new developments occupying the many of the lowlands near these flood prone areas, the area is more susceptible to flooding damage than ever before.

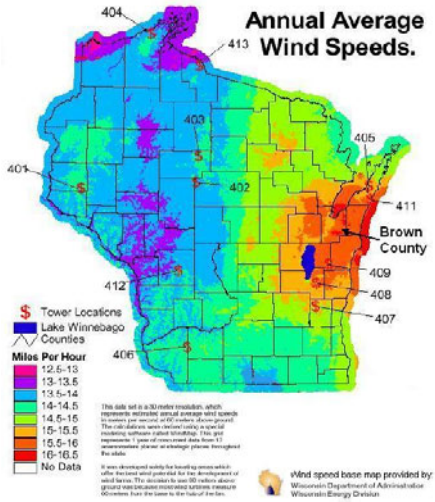
IJC "Area of Concern" designation The heavy industrialization of the area brought with it serious contamination due to polluted water runoff and outright dumping of toxic chemicals directly into the water. The Fox River and Lower Green Bay area has an extraordinarily long list of environmental impairments such as restrictions on fish and wildlife consumption, degradation of fish and wildlife populations, animal deformities, eutrophication, drinking water contamination, beach closings, degradation of aesthetics, and presence of high levels of polychorinated biphenyls (PCBs) historically used in the production of carbon paper. As a result of these severe impairments, the U.S. Environmental Protection Agency (EPA) in conjunction with the International Joint Commission (IJC) has identified Lower Green Bay and the Fox River as one of 26 "Areas of Concern" (AoCs) in the U.S.

LiDAR's potential in remedial action: Since 1988, the U.S. EPA has recommended that 120 Remedial Action Plan (RAP) be implemented on the Lower Fox / Green Bay Area of Concern. While several have been implemented, more than half of the recommendations have had little or no progress due largely to a lack of resources. Many of the recommendations such as the nonpoint source pollution abatement programs require detailed topographic data as a foundational element. LiDAR would address this critical data gap. Staff from the Wisconsin Department of Natural Resources, Brown County, and the local municipalities is heavily involved at the local level in implementing the RAP. For example, the Priority Watershed projects address nutrient, soil, and pesticide runoff from rural as well as urban areas. As noted by many of the letters of support from local municipalities and the Brown County Land & Water Conservation Department, LiDAR is critical to complete storm water management efforts in an efficient, cost effective manner. LiDAR will be utilized to ensure that negative human and environmental health effects from contaminated storm water runoff are mitigated by modeling the runoff to determine the appropriate treatment methods. Additionally, LiDAR can provide a critical dataset needed to assist the public and private sectors in cleaning up many of our old industrial waterfront properties to take advantage of a renewed Fox River and Bay of Green Bay.

Unique coastal wetlands: The shoreline along Brown and Oconto Counties is unique in many ways. For example, the area includes the largest remaining contiguous coastal wetlands on the Great Lakes known as the West Shore Wetlands. Much has already been lost to development and agricultural drainage, so protecting what is left is critical because the West Shore still comprises 50% of all the remaining wetlands in the entire Lake Michigan drainage basin. US Highway 41 skirts these wetlands along the coastline through both Brown and Oconto Counties. With the major Highway 41 expansion that recently took place in Oconto County and with the billion-dollar expansion set to begin on the Brown County portion south through the Fox Cities, it will be critical to

protect the delicate nature of these unique coastal wetlands and shore lands from the urban development pressure that will inevitably follow the highway expansion.

<u>LiDAR will support the future development of clean energy</u>.



Brown County has some of the best wind energy potential in Wisconsin, particularly on the Niagara Escarpment in the southern and eastern parts of the County. Several commercial wind developers have been prospecting in the area, and it is anticipated that the wind potential is great enough to make it economically feasible to erect, within the next few years, enough wind turbines to bring more than 100 megawatts of clean energy to the area. Over the last several years, Brown County Planning and Land Services Department has been taking an active role in helping to site wind turbines by writing local ordinances and by conducting GIS analyses to help determine optimal wind turbine placements using a variety of parameters. One critical parameter that remains missing in our analysis is detailed elevation data, as the 2/3rds of the County with the best wind potential has never been mapped to any level of detail beyond the USGS 10' contours. Both the local governments and wind developers alike would greatly benefit from LiDAR data because wind turbine placement is optimized not only with detailed topography but also by identifying "above-surface" features such as buildings and tree canopy heights. One of several commercial wind developers that the County has been sharing GIS datasets with is Uriel Wind, Inc. Please see the attached letter of support from Kenneth Dantoin, P.E. of Uriel Wind on how LiDAR will be of immense value to his company and others as they further evaluate the wind resource of Brown County.

<u>LiDAR can help maximize clean energy goals by helping produce better 3D visualizations:</u> The Brown County Planning and Land Services department fully understands the power of 3D modeling and 'what-if' visualizations. We routinely use SketchUp models and ArcGIS 3D Analyst renderings in our projects. Currently, our 3D renderings cannot be placed into an accurate site context because we do not have reliable elevation data, nor do we have heights on existing buildings, utilities, etc. The lack of accurate data can be extremely problematic. Our aforementioned experience in the wind turbine "best site" analysis provides a good example: As mentioned earlier, Brown County has a growing population that has extended into the countryside. Many residents have taken a "not-in-my-backyard" stance against wind turbines, largely because they fear a loss of scenic country views. To help answer these questions about how wind turbines might appear when placed, we would like to employ our 3D visualization skills and GIS tools to create realistic renderings and accurate "view sheds" of the turbines. If we are fortunate enough to receive the LiDAR grant, we can greatly maximize our chances to develop more "green" energy sources in the area. LiDAR may very well be the linchpin to help the area proceed with wind power generation, because the 3D models we will be able to produce will be the most powerful means to help people visualize what they will look like and perhaps ease the primary concern which is loss of aesthetics. We believe this has far-reaching implications, as wind turbines not only represent "green" energy but they also have a minimal footprint on the land so that farmland can stay in agricultural production. Many farmers see turbines as a revenue-generator that is an alternative to selling off land for development.

LiDAR will help with the County's upcoming Radio Interoperability Study. The Brown County Public Safety & Communications Department is responsible for the radio communications towers used by all police, fire and EMS departments within the County. Because the current system is outdated and contains a lot of "dead zones" where radio communications are lost, the County has secured funds for a $20 million upgrade which will begin with an interoperability study in 2011. Part of this radio interoperability study will be identifying low points in the terrain where radio communications may be difficult, and then mapping out the best placement of radio towers to achieve the greatest coverage area. Because radio communications can be affected by above ground structures such as buildings and dense vegetation, the LiDAR data provides additional much-needed shape and height detail on these features as well.

Many other day-to-day operations: As noted in the attached letters of support, LiDAR will be used in many other day-to-day operations to help answer questions and create value-added products.

2) Technical Merit (28 points)

In the above section, we've outlined many of the project goals which involve some very significant and innovative uses of LiDAR. If we are awarded the grant funds, we and the selected LiDAR contractor are set to begin data collection in April 2010 with delivery of final product by November 2010. This timeline is necessary to have the LiDAR done in time to support many of the projects listed in the above section. As indicated by the attached letters of support, the stakeholders and end users are very eager to realize the benefits of this project.

Project Management approach: To meet these expectations and as a standard protocol for any project, the counties will employ project management techniques to ensure the successful completion of the specific project goals and objectives.

Outlined below is the 5-stage approach we will take along with a control system to ensure the project is delivered on track, on time, within budget, and in accordance with USGS Base LiDAR specifications:

1. ***Project initiation.*** The counties are already well underway in the project initiation phase. The following objectives have already been met:

   ☑ The needs and requirements of the overall project are well established, including those of the USGS and the National Map.

   ☑ The conceptual design of the final product is well-defined

   ☑ The users of the product have already been engaged

   ☑ Proposals for contracted services have already been received.

   - As mentioned earlier, the Counties had sent out Requests for Proposals earlier in the summer for LiDAR to ascertain vendor capabilities and pricing with the hope that the LiDAR acquisition could

be funded as part of Brown County's local budget along with the scheduled Aerial Orthophotography project. Although the recently-adopted Brown County budget includes funds for aerial Orthophoto, the LiDAR option was left unfunded due to tight local budgets.

- Upon receiving notification of this grant opportunity, we confirmed the proposals are still valid and that the top-ranked LiDAR contractor (Ayres-AeroMetric) is familiar with and can meet or exceed the USGS Base LiDAR specifications for inclusion into the National Map.

The largest remaining objective in the project initiation phase is securing the funding necessary for LiDAR. We are hopeful USGS will award grant funds to allow us to follow through with our plans with a contract with the selected LiDAR vendor.

If notified that we are the recipient of this grant, the County will immediately begin the next steps required for initiation of the project. These next actions will include:

□ Grant Agreement signatures

□ Ensuring that all funding and reporting mechanisms between the County and the Federal government are ready to go. Brown County has administered numerous other grant programs with the Federal government including FHWA, EPA, and DOE. Brown County is already registered with the Department of Treasury ASAP program and familiar with federal ARRA reporting requirements.

2. ***Planning and Design:*** Because the above initiation phase is already generally completed, we are also well underway with the planning & design phase. For example, we have already defined the project scope, determined the appropriate methods, and scheduled durations for each task necessary to complete the project.

   The following activities related to this phase have already been completed:

   ☑ Sample LiDAR datasets have already been received and evaluated from vendors as part of the RFP and proposal evaluation conducted this past summer. This process involved many of the local stakeholders from the municipalities as well as local utilities.

   ☑ Also this past summer, we obtained an evaluation license of Rockware's LP360 LiDAR software. Using the sample LiDAR data provided by the vendors with their proposals, we tested this as well as other software products that are designed to work with LiDAR datasets. Through this testing, we determined that the LP360 software is best suited to effectively manage and use the LiDAR data within our existing GIS, and it provides tools to enable us to create value-added products such as TINs and contours.

   - As noted in the proposed budget, we are proposing to purchase a full copy of the LP360 software as part of this grant.

- Through various phone calls and conversations, we have learned that most of the end users identified as benefiting from the LiDAR have experience with LiDAR data; most have their own software and equipment to ensure full utilization of the dataset.

The LiDAR proposal we have identified as best suiting the needs of the local stakeholders as well as the USGS Base LiDAR specifications included a project timeline. On Page 4 of the Ayres-AeroMetric proposal, it states, *"We can ensure a delivery of geospatial data to Brown and Oconto Counties within 90 days of the final acquisition".*

The proposed schedule is as follows: *[language from the Ayres-AeroMetric proposal]*

February 2010: Preliminary project area evaluation: "We will perform preliminary project evaluation, performing a thorough analysis of the environmental conditions (e.g. topography and hydrography). We will combine analysis results with our familiarity with the region to determine final flight specifications such as airspeed, flight height, scan width, and pulse rate. In particular, the team will also consider ground cover (natural and cultural features) within the project area to identify density and type of vegetation and buildings. This analysis will not only help to determine a number of acquisition parameters but will also later assist Ayres Associates in determining the optimal algorithms to be used during the automated processing stage." *[from page 21 of the proposal]*

March 2010: LiDAR mission planning and Acquisition: Proper planning of flight lines ensures the success of this project with minimal rework and optimizes LiDAR performance versus cost. This is accomplished using Optech mission-planning software. Mission planning consists of several steps that ensure proper flight preparation. First and foremost, the project boundaries are imported into the flight planning software. Following this, available information such as elevation data, vegetation coverage data, and cultural feature extents of the area are reviewed. General assessments remade by certified photogrammetrists to determine the proper LiDAR system settings. *[from page 22 of the proposal]*

3. **Project Execution:** Immediately following the planning and design phase, the County and the Vendor will begin execution of the project. On the County's side, the Principal Investigator will be monitoring and controlling the execution of the project throughout all phases of execution. Problems will be identified and corrective action can be taken when necessary. Project performance will be measured regularly to identify variances from the project management plan. The Principal Investigator will provide quarterly reports as necessary to communicate with the partnering County, the Grants Program Manager, the USGS Geospatial Liaison, the County's oversight Land Information Office Committee, and others as needed. The Principal Investigator will work with the vendor to identify corrective actions to properly address any issues and risks to ensure we stay on schedule.

The vendor's data acquisition and processing schedule is as follows: *[from pages 22-25 of the proposal]*

April 2010: Aerial acquisition:

- Nominal pulse spacing will be at least 1.8 meters (exceeds Base LiDAR Specifications).
- Flight Management System Project aircraft will be guided by a GPS-controlled flight management system. During the mission, the crew will monitor all functions involving the operations and guidance systems, allowing for continuous on-board quality assurance.
- Weather: LiDAR collection will take place during the window between spring now-melt and emergent-leaf conditions. LiDAR collection will be suspended during rain, snow, strong winds, or low clouds.
- Overlap: The position of the aircraft is monitored at all times using the flight management system to maintain 30% side-lap to within +/- 5% *[exceeds the USGS Base LiDAR specifications]*
- Tilt and Crab: Tilt and crab will be monitored during flight operations and during post-processing to ensure compliance with standards..
- In-Field Data coverage Verification: Coverage verification is achieved using the post-flight processed GPS solution. Both horizontal and vertical aircraft position and orientation will be verified and plotted against the 3-D flight plan to ensure proper coverage of the topographic area.
- Immediate Post-Flight verification: Data is field-checked for coverage and quality before shipping the data for processing. The LiDAR data is pre-processed in the field for quick projection of data acquisition swath coverage. Any seams, holes, or other unwanted artifacts can be quickly identified at this stage to assess the need for any data acquisition reflights. The flight operations team will remain on site during this phase until all required project data is acquired.
- On-Site System Calibration Flight: A site is selected at the nearest airport to the project area to validate the system calibration. The calibration site is flown before each data acquisition flight mission. Two opposing flight lines, as well as a cross-flight, will be flown to identify any potential issues in the system calibration.

May 2010: LiDAR Data Processing:

- Technicians will use several software packages specifically designed for LiDAR processing. These software packages include GeoCue and the TerraSolid suite of processing components. The GeoCue software is a database management system for housing the LiDAR dataset (usually multiple gigabytes in size). Additionally, the GeoCue program incorporates a thorough checklist of the processing steps and QA/QC procedures that assist the technicians in the data workflow.
- The Smoothed Best Estimate of Trajectory (SBET) will be generated to describe the precise position and attitude of the plane at each moment for the full duration of the mission
- After SBET is established, the proper solution is applied to the dataset in order to adjust each point based on aircraft position and orientation during LiDAR acquisition. Angular misalignments are corrected and further QA/QC is performed.

- The TerraSolid suite of software is used to automate the initial classification of the LiDAR point cloud based on the USGS Base LiDAR Specification and County parameters. At this point, the ground cover research will be used to determine the algorithms most appropriate for the initial automated LiDAR classification (some algorithms/filters recognize the ground in forests well, while others have greater capacity in urban areas).
- During this process, each point is given an initial classification (e.g. as ground, water, vegetation, or building) based on the points coordinates and its relation to its neighbors. Classifications to be assigned including all those outlined by ASPRS standards. It is at this time that the "Overlap" points are automatically classified (those originating from neighboring flight lines).

***June 2010**:* Hydrographic Breakline generation:

- "LiDARgrammetry" will be used to generate hydrographic breaklines to the new specifications requested by USGS and FEMA. The "hydro-flattening" breaklines will be formed on all open water bodies including lakes, streams, and ponds.

July 2010: Additional LiDAR point classification

- TerraSolid will be used for the subsequent manual classification of the LiDAR points. This software permits technicians to view the point cloud in a number of ways including as a TIN, shaded relief map and also within a number of contexts provided by other available datasets such as orthophotos, road centerline files.
- Using this information and technical experience, the technicians will detect and investigate any areas that display anomalies. Any problems will be systematically weeded out.

August-September 2010: Quality Control/Quality Assurance

- The selected contractor team has a number of internal QA procedures in place. Most are centered on adherence to standard procedures and USGS Base LiDAR specifications. The procedures have been developed through the personal experience of our personnel and the standards that the industry has set forth. The Ayres-AeroMetric proposal offers to deliver an initial dataset to the Principal Investigator to review and provide input.
- The Counties also have a number of QA/QC procedures in place. Upon initial delivery of the dataset, the Brown County Survey Coordinator and Oconto County Surveyor will begin field verification to determine Vertical Accuracy ($RMSE_Z$) in accordance with the Accuracy Determination methods described the FEMA "Guidelines and Specifications for Flood Hazard Mapping Partners Appendix A"
- The Principal Investigator will work with USGS to analyze the initial delivery to check for adherence with USGS Base LiDAR Specifications.

- All QA/QC findings from both the vendor and the Counties will be properly included in the Quarterly and Final Reports as appropriate.

4. **Monitoring, controlling and reporting**: Through the many years of experience managing large projects and administering of grant programs, the Counties understand the importance of constant project monitoring and reporting. The Quarterly Reports submitted to USGS will contain a brief narrative of accomplishment, percentage of data collection complete, percentage of data processing complete, and other issues such as difficulties encountered.

October-November 2010

5. **Project Closure**: It is anticipated that the project will conclude by November 2010. At this final stage in the project, the following activities will take place:

- A final analysis of QC/QA results will be reported
- Final delivery of the finished product will take place
- Data will be disseminated into the national, state, and local databases
- A Final Technical Report will be submitted to the Grants Program Manager to summarize the results of the work, comparing the actual accomplishments with the goals stated in the project initiation phase.
- A final ARRA report will be submitted as needed.
- A final SF 425 Final Financial Status Report will be submitted.
- Any other activities or reports will be completed and submitted as required.
- All grant and cooperative agreements will be closed out after all requirements have been complied with and agreed upon.
- Any unexpended federal cash advances will be returned.

3) Overall Qualification of Applicants (12 points)

The project leaders at both Brown and Oconto Counties have a combined 40 years of experience successfully managing large-scale GIS and mapping projects including several aerial photography contracts as well as other topographic mapping projects. Our combined skills and experience in land surveying as well as GIS and data management will enable us to effectively manage the project and fully utilize the data long after delivery.

Examples of specific projects similar in scope and nature that have been successfully completed by the Counties include:

- In 2000, Brown County successfully coordinated a $450,000 aerial flyover project. This project included $200,000 in high-resolution Orthophotography. County also organized a fund drive to secure an additional $250,000 to complete 2' contour mapping in about 40% of the County (mostly the urban areas). The contractor for this project was Aero-Metric, Inc.
- In 2005, both Brown and Oconto Counties successfully managed another aerial Orthophotography project which, between the two counties, mapped over 1500 square miles with high resolution aerial orthophotos. The contractor for this project was Ayres Associates.

- In 2006, Oconto County successfully managed a LiDAR project to cover the full 1000 square miles with high-resolution topographic data. The project vendor was Ayres Associates.
- The Principal Investigators have coordinated local surveying and GIS projects that involved millions of dollars in investments related to survey monumentation, detailed parcel mapping, GIS database development, and GIS applications to support many critical needs of the county such as emergency response.

Both Brown and Oconto Counties have well-established surveying and GIS programs. In the early 1990s, each county set up a Land Information Office under the Wisconsin Land Information Program. Over the past 10+ years, the project managers in each county has been routinely collecting, managing, and disseminating large datasets and have been keeping up with the latest in technology to enable us to effectively do so. Both counties are recognized within the local community as having top-notch surveying and GIS programs. The Counties have received numerous "Distinguished Service Awards" through peer voting within the Wisconsin Land Information Association and the Wisconsin Society of Land Surveyors.

The contractor chosen to conduct the LiDAR flight in Brown and Oconto Counties is a team of well-established and reputable firms. This team, Ayres Associates out of Madison and Aero-Metric out of Sheboygan WI, recognize the progress toward regionalism in geospatial data and thus have joined forces to carry out this important program and ensure that the massive amount of work can be done within the tight time frames required.

4) Project Costs (28 points)

The proposed project is a result of many months the Counties spent together comparing and evaluating proposals leading up to this 2010 flyover project. The selected vendor provided the best and most complete product at the lowest cost compared to all other proposals received. Through our due diligence, we strongly believe our proposed project is the cost-effective, technically sound, and realistic within the proposed budget outlined in the detailed budget section.

If we are selected to receive USGS grant funds, the counties, partners and other stakeholders will fully leverage the federal investment. As the above project narrative and attached letters specify, the LiDAR dataset will be will be used in many important projects not only to save costs but also to provide better information which ultimately results in better decision-making.

We have already secured $25,000 in non-federal matching funds and will continue to seek funds from other sources to supplement and/or enhance the LiDAR project. In addition, the proposed LiDAR project will coincide with an aerial orthophotos flight for which combined, the Counties have an approved budget of over $150,000 to complete. If done together the LiDAR and orthophotos projects will greatly complement one another as the resulting data can be used in unison within GIS projects and within the National Map. The counties will use the LiDAR data in conjunction with the aerial orthophotos to create many new datasets. For example, if awarded this grant we will utilize the LiDAR data and proposed LP360 software purchase to generate contours, produce 3D visualizations, and more.

Site Location Map

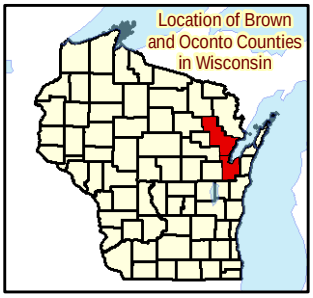
Proposed LIDAR coverage area

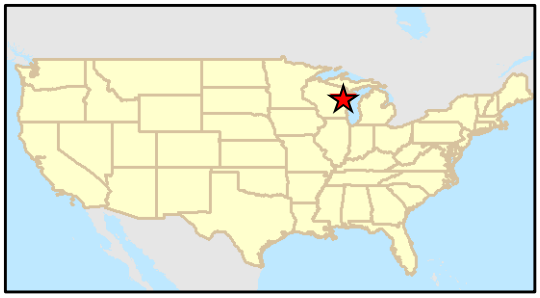
561 square miles

Lidar avg point spacing to be 1.8 meters

Flying height will be 6000' AMT

Data deliverable to include raw point cloud, bare earth DEM, breaklines and other features to meet or exceed USGS Base Lidar Specifications for use in The National Map as well as many other local and state purposes.





Brown County: 535 square miles (most of which has never been mapped to any level of elevation detail beyond 10-foot contours)

Oconto County: 26 square miles will supplement a 2006 LiDAR flight to reflect major highway construction along 41 & 141

Oconto

Oconto County

Brown County

Bay of Green Bay

West Shore Wetlands complex

Green Bay Metropolitan Area

Fox River

Area with best wind potential

Appleton / Fox Cities

Lake Michigan

Brief curriculum vitae

Jeff DuMez, Brown County GIS Coordinator / Land Information Officer

Education:

- University of Wisconsin-Stevens Point, B.S. 1995
- Continued education courses in database management, SQL Server, ArcGIS, project management

Experience:

- GIS Coordinator and Land Information Officer at Brown County, WI 2001-present
- GIS Analyst for Robert E. Lee & Associates, 2000-2001
- GIS Coordinator for Clark County, WI 1997-2000
- GIS Analyst for Wisconsin Department of Agriculture, Trade and Consumer Protection 1996-1997

Skills

- Administering the Brown County Land Information Office and GIS
- Microsoft SQL Server data management
- ESRI ArcSDE GeoDatabase data management
- ArcGIS Server application development
- ArcGIS Desktop including 3D Analyst, Spatial Analyst, and other extension

Awards & Honors

- 2006 Distinguished Service Award, Wisconsin Land Information Association
- 2008 Distinguished Service Award, Wisconsin Land Information Association

Mark Teuteberg, Land Information System (LIS) Administrator / Oconto County Surveyor / Land Information Officer.

Education:

- 1977 Graduate of Gateway Technical College Land Surveying
- 1986 received Professional Land Surveying Certification

Experience:

- County Surveyor and Land Information Officer at Oconto County, WI 1994-present
- Aaron Associates, Oconto Falls, WI 1981-1994
- Robert E. Lee & Associates, Green Bay WI 1979-1981
- Phillip Epping & Associates, Oconto WI 1977-1979

Skills

As LIO Administrator, directly supervises employees in the Survey-Property Listing-Tax Deed-Land Records-GIS-Physical Address sections. Carries out supervisory responsibilities in accordance with the organization's policies and applicable laws. Responsibilities include interviewing, hiring recommendations, and training employees; planning, assigning, and directing work; apprasing performance; rewarding and disciplining employees; addressing complains and resolving problems. Review Certified Survey maps, County Plats, State Plats, condominiums, etc for compliance with State Statutes and County Ordinances prior to recording. Establish, plan and manage as per County Ordinance #287-1996 "Public Land Survey System (PLSS) Remonumentation for the restoration of original monumentation. Assumes legal responsibility for work and is able to defend same in a court of law. Provide assistance to other departments pertaining to surveying and mapping to include Highway, Forestry, Sheriff, Register of Deeds and other municipalities.

Awards & Honors

- 2005 Local Government Achievement Award, Wisconsin Land Information Association
- 2002 Distinguished Service Award, Wisconsin Land Information Association

Pat Ford, Brown County Survey Coordinator / Brown County Surveyor

Education:

- University of Wisconsin-Green Bay. B.S. 1986
- Northeast Wisconsin Technical College. Surveying 1989

Experience:

- Brown County Survey Coordinator 2003-present
- Brown County Survey Manager 1996-2003
- Brown County Survey Tech 1990-1996
- Mau & Associates 1986-1990

Skills

- Global Positioning Systems
- ArcMap / ArcInfo / GeoDatabase editing & management
- Surveying
- QA/QC procedures
- Project Management

Relevant Supporting Documents

The following pages include:

Budget Support Documents

- A memo from Brown County Department of Administration regarding Fringe Benefit rates
- LP360 software pricing from Rockware

Letters of Support for this project

- U.S. Senator Herb Kohl
- Congressman Steve Kagen
- Wisconsin Department of Transportation (WiDOT)
- Wisconsin Department of Natural Resources (WiDNR)
- Wisconsin Department of Administration
- Brown County Land and Water Conservation Department
- Brown County Homebuilders Association
- Uriel Wind, Inc
- Green Bay Metropolitan Sewerage District
- City of Green Bay
- Village of Ashwaubenon
- Village of Howard
- Village of Hobart
- Village of Allouez
- City of DePere
- Town of Lawrence
- Village of Suamico
- Town of Ledgeview
- Village of Wrightstown
- Village of Pulaski
- Village of Bellevue
- Town of Green Bay
- Oconto County
- City of Oconto

DEPARTMENT OF ADMINISTRATION

Brown County

305 E. WALNUT STREET
P.O. BOX 23600
GREEN BAY, WI 54305-3600

LYNN A. VANDEN LANGENBERG

PHONE (920) 448-4037 FAX (920) 448-4036 WEB: www.co.brown.wi.us

DIRECTOR

November 25, 2009

To Whom It May Concern:

Brown County does not have a negotiated fringe benefit rate agreement with the federal government at this time.

In the County's 2010 budget, the fringe benefit rate for the LIO division of the Planning and Land Services department is 46.53% which includes FICA, health and dental, life insurance, disability insurance, WRS retirement, workers compensation insurance and unemployment insurance.

If you have any questions regarding this information, I can be contacted at (920) 448-4046. Thank you.

Sincerely,

Carolyn Maricque

Carolyn Maricque
Finance Director

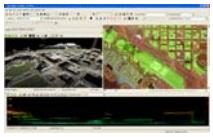
Turning Brown County Green

LP360 - LIDAR extension for ArcGIS

Lots of LIDAR? Does your team have (or is it planning to receive) large LIDAR data sets that can't be seamlessly integrated in ArcGIS™? Endlessly managing LIDAR ASCII and grid files? Should your enterprise solution be leveraging LIDAR data with LAS, 3D viewing, and cross section tools? Would advanced LAS export functionality improve your team's performance? **LP360** is a fast, reliable, and easy to use ArcGIS™ extension that solves these problems and more. **LP360** will provide Limitless LIDAR™ potential.

LP360 is a first-of-its-kind LIDAR extension for the ESRI™ environment. The **LP360** LIDAR extension uses a specially-designed ArcMap™ data layer to draw points directly from LAS files thereby integrating LIDAR data with the rest of your GIS. LIDAR data can be viewed together with data in any format supported by ArcGIS™, including vector data, rasters, and imagery.

LP360 is tightly integrated into the ArcGIS™ environment, and yet provides superior performance when run against even the largest LIDAR data sets. Since the **LP360** can handle your entire LIDAR project, it is truly Limitless LIDAR™!



Click on image to enlarge

LP360
Single User Commercial License: **$2,995.00**

New LP360 module

Classify and edit your LIDAR points with **LP360 Classify** (only $995)! Learn more...

HERB KOHL
WISCONSIN

WASHINGTON OFFICE:
330 HART SENATE OFFICE BUILDING
WASHINGTON, DC 20510
(202) 224-5653
http://kohl.senate.gov/

COMMITTEES:
APPROPRIATIONS
JUDICIARY
SPECIAL COMMITTEE
ON AGING

United States Senate

WASHINGTON, DC 20510-4903

November 25, 2009

Ms. Marcia McNutt
Director
U.S. Geological Survey
12201 Sunrise Valley Drive
Reston, Virginia 20192

Dear Ms. McNutt:

I am pleased to lend strong support to the Brown County application to receive funding from the U.S. Geological Survey to support Lidar mapping efforts with neighboring Oconto County.

As Brown and Oconto Counties move forward with several key development projects, there remains a need to more accurately map areas slated for these projects, as well as hundreds of square miles that have not been mapped with detailed elevation. Grant assistance from your agency will facilitate the survey of the targeted region by a Wisconsin-based contractor. These efforts will reduce local government costs associated with planning and designing these projects including major transportation infrastructure, law enforcement and first responder communication upgrades, wetland restoration, and the implementation of 120 U.S. Environmental Protection Agency recommendations for waterways in the region.

Therefore, I urge the full consideration of the Brown County proposal and the benefit grant funding will have on the success of these developments. If I may be of further assistance or provide additional information, please do not hesitate to contact me.

Thank you in advance for your time and attention to this matter.

Sincerely,

Herb Kohl

Herb Kohl
United States Senator

HK:ry

MILWAUKEE OFFICE:
310 WEST WISCONSIN AVENUE
SUITE 950
MILWAUKEE, WI 53203
(414) 297-4451
T.T.Y. (414) 297-4485

MADISON OFFICE:
14 WEST MIFFLIN STREET
SUITE 207
MADISON, WI 53703
(608) 264-5338

EAU CLAIRE OFFICE:
402 GRAHAM AVENUE
SUITE 206
EAU CLAIRE, WI 54701
(715) 832-8424

APPLETON OFFICE:
4321 WEST COLLEGE AVENUE
SUITE 370
APPLETON, WI 54914
(920) 738-1640

LA CROSSE OFFICE:
205 5TH AVENUE SOUTH
SUITE 216
LA CROSSE, WI 54601
(608) 796-0045

STEVE KAGEN, M.D.
WISCONSIN
8TH DISTRICT

AGRICULTURE COMMITTEE
SUBCOMMITTEES:
LIVESTOCK, DAIRY & POULTRY
DEPARTMENT OPERATIONS, OVERSIGHT, NUTRITION & FORESTRY

TRANSPORTATION & INFRASTRUCTURE COMMITTEE
SUBCOMMITTEES:
COAST GUARD AND MARITIME TRANSPORTATION
HIGHWAYS AND TRANSIT
WATER RESOURCES & ENVIRONMENT

Congress of the United States
U.S. House of Representatives
Washington, DC 20515

www.kagen.house.gov

1232 LONGWORTH
WASHINGTON, D.C. 20515
TELE: (202) 225-5665
FAX: (202) 225-5729

WISCONSIN OFFICES:

700 E. WALNUT STREET
GREEN BAY, WI 54301
TELE: (920) 437-1954
FAX: (920) 437-1978

PAPER VALLEY RADISSON
333 W. COLLEGE AVENUE
APPLETON, WI 54911
TELE: (920) 380-0061
FAX: (920) 380-0051

TOLL FREE IN WISCONSIN
800-773-8579

November 23, 2009

Secretary Ken Salazar
12201 Sunrise Valley Dr.
Reston, VA 20192

Dear Secretary Salazar,

I am writing in support of the grant application submitted by Brown and Oconto Counties in Wisconsin. Funding from the grant would be used to complete elevation (LiDAR) mapping for all of Brown County. The proposed project will map in great detail all 535 square miles in Brown County, most of which have never been mapped to any level of elevation detail beyond 10-foot contours.

The existing topographic mapping lacks detail and is outdated; it is not adequate to support many of the upcoming infrastructure projects planned by the counties, including a $380 million expansion of US Highway 41 in western Brown County and wind turbine developments in southeastern Brown County that are anticipated to bring more than 100 megawatts of clean energy to the area. The Lidar project will also help with the protection and restoration of the largest contiguous coastal wetlands on the Great Lakes known as the West Shore Wetlands. Lidar is a cost-effective means of obtaining elevation mapping with enough accuracy and detail to reduce costs associated with planning and designing these projects.

I ask that you give this grant application the most serious and thoughtful consideration. If my office may be of any assistance as you make your final determinations please contact Amanda in my Appleton district office at 920-380-0061. Thank you for your time and attention to this matter.

Sincerely,

Steve Kagen, MD

Steve Kagen, M.D.
Member of Congress

Division of Transportation
System Development
Northeast Regional Office
944 Vanderperren Way
PO Box 28080
Green Bay, WI 54324-0080

CONNECTING WISCONSIN

Jim Doyle, Governor
Frank J. Busalacchi, Secretary
Internet web site: www.dot.wisconsin.gov

Telephone: (920)492-5643
Facsimile (FAX): (920)492-5640
E-mail: greenbay.dtd@dot.state.wi.us

November 23, 2009

Brown County Planning and Land Services Department
Attn: Mr. Jeff DuMez, GIS Coordinator / Land Information Officer
305 East Walnut Street, 3rd floor
Green Bay, WI 54301

Dear Jeff,

I am writing in support of the USGS ARRA-funded grant application submitted by Brown and Oconto Counties in Wisconsin. Funding from the grant would be used to complete elevation (LiDAR) mapping for all of Brown County. The proposed project will map in great detail all 535 square miles in Brown County, most of which has never been mapped to any level of detail beyond 10-foot contours.

The existing topographic mapping lacks detail and is outdated; it is not adequate to support the planning and preliminary design associated with upcoming transportation infrastructure projects in the County. Examples of future projects include the $380 million expansion of U.S. Highway 41 in western Brown County and also a new bypass being planned around the southern end of the Green Bay Metro area.

The proposed project is a cost-effective means of obtaining elevation mapping with enough accuracy and detail for planning and environmental impact statement (EIS) work. It is critical for helping with storm water runoff issues. The proposed project also includes 26 square miles of Lidar coverage in Oconto County near the west shore of the Bay of Green Bay along the US Highway 141 and 41 corridors, which will be useful for "as built" studies.

I ask that you give this grant application serious consideration. Thank you for your attention to this matter.

Sincerely,

Mike Berg, Regional Director NE
Wisconsin Dept of Transportation

cc: Document Control

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

November 24, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut, 3rd Floor
Green Bay, WI 54301

Subject: 2010 LiDAR Elevation Mapping Project

Dear Jeff,

The Department of Natural Resources Floodplain Program is supportive of the application of Brown and Oconto Counties for the USGS 2010 LiDAR elevation mapping grant.

Our agency has been working with many counties throughout the state for the past five years to revise outdated federal floodplain maps. While these maps are widely used for administering a community's floodplain zoning ordinance, they are also well adapted for hazard mitigation planning and flood response. The floods of 2007 and 2008 have demonstrated that accurate maps which are part of a countywide GIS platform are of great benefit to emergency services providers, planning and zoning staff and other community officials.

These are some of the functions which can be enhanced by the use of accurate topographic data:

- More efficient and consistent administration of community ordinances and building codes
- Enhanced mitigation planning and disaster response procedures
- More accurate and detailed floodplain maps
- More accurate flood insurance determinations and fewer complaints from property owners
- More tools for land use planning
- Numerous benefits for emergency services providers

We believe that the new topographic data will be critical to future Department efforts to leverage potential FEMA funding for improved floodplain mapping in these communities. Most importantly, this data will provide the basis for improved wave run-up modeling along the coast of Green Bay in the two counties. Accurate mapping will help keep the citizens of these communities safe from flood hazards.

Sincerely,

Meg M. Galloway
Chief of Dams and Floodplain Section
Department of Natural Resources
(608)255-7014

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Ronald W. Kazmierczak, Regional Director

Northeast Region Headquarters
2984 Shawano Ave.
Green Bay, Wisconsin 54313-6727
Telephone 920-662-5100
FAX 920-662-5413
TTY Access via relay - 711

November 24, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Jeff,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS. The LiDAR elevation mapping would greatly assist the Brown County community in many ways. Two prime examples are in answering questions surrounding floodplain issues and storm water management.

In regards to floodplain, FEMA's flood mapping was done using elevation data that was 10 years old and did not incorporate the entire County. These issues, along with increased development in the last decade, have brought up a variety of issues surrounding the accuracy of the flood mapping.

As for storm water management, the community is also trying to work out cost-effective ways to deal with new regulations pertaining to storm water runoff. These new regulations attempt to address decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have good elevation mapping.

Brown County utilizes elevation mapping on nearly a daily basis in many facets of local government. It serves as a backdrop for GIS and helps develop other GIS data layers. If you have any questions, please feel free to contact me at (920) 662-5195.

Sincerely,

Miles A. Winkler, PE
Water Management Engineer
Northeast Region

Cc. Matthew R. Heyroth, Brown County Assistant Zoning Administrator

WISCONSIN DEPARTMENT OF
ADMINISTRATION

JIM DOYLE
GOVERNOR
MICHAEL L. MORGAN
SECRETARY
Division of Intergovernmental Relations
Post Office Box 8944
Madison, WI 53708-8944
Voice (608) 266-0288
Fax (608) 267-6917

November 30, 2009

Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut, 3rd Floor
Green Bay, WI 54301

Mr. DuMez,

I am writing to express my support of Brown and Oconto Counties application for the USGS 2010 LiDAR elevation mapping grant.

The three programs I manage, Wisconsin Coastal Management, Comprehensive Planning and Land Information Programs recognizes that there is a pressing need to collect and manage information generally about Wisconsin's landscape and especially our coastal areas. This project would provide coastal communities, planners, researchers, developers, and the public with an additional resource to make sound land use decision.

The more accurate topographic data resulting from this project will provide for:

- More efficient and consistent administration of community ordinances and building codes.
- Enhanced all hazard mitigation planning and disaster response procedures.
- More accurate and detailed floodplain maps.
- More accurate flood insurance determinations and fewer complaints from property owners.
- An enhanced tool for land use planning as part of the state's Comprehensive Planning Law, the counties Land and Water Resource Planning or Outdoor Recreational Planning.
- An additional resource for restoration planning.

The project will provide valuable resources to governmental agencies and programs, including those part of the Team I manage. Should you have any questions or require more information, please contact me at (608)267-7982 or michael.friis@Wisocnsin.gov.

Sincerely,

Mike Friis, Leader
Resource Policy Team
Wisconsin Department of administration

Land and Water Conservation Department

Brown County

1150 Bellevue Street
GREEN BAY, WI 54302

BILL HAFS

PHONE (920) 391-4620 FAX (920) 391-4617 WEB: www.co.brown.wi.us

COUNTY CONSERVATIONIST

November 20, 2009

Jeff DuMez, GIS/LIO Coordinator
Brown County Planning & Land Services Department / Land Information Office
305 E. Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project support

Dear Jeff,

I am writing to support of the USGS grant application submitted by Brown County to complete LiDAR elevation mapping of the County.

Updated and more detailed elevation information is a much needed resource to enable us to complete many of our land and water conservation activities. Specifically, the LiDAR maps would greatly assist us with:

- West Shore Wetland projects, including wetland connectivity determinations in the West Shore Pike Habitat Restoration Project.
- Nutrient Management compliance related to complaints of runoff of animal waste to enable our agronomists to determine field elevations of the complaint areas.
- Preliminary engineering for cut and fill estimates for construction of animal waste storage facilities, feedlots and water and sediment control basins.

We have been in need of more detailed elevation mapping for some time now, particularly in the rural areas where we do much of our work. We are hopeful that this grant application provides the funding needed to get this important project finished.

Sincerely,

Bill Hafs

Bill Hafs
County Conservationist
Brown County Land & Water Conservation Department

Turning Brown County Green

BROWN COUNTY HOME BUILDERS ASSOCIATION
GREEN BAY • WISCONSIN

811 Packerland Drive ● P.O. Box 13194, Green Bay, WI 54307-3194 ● Phone: (920) 494-9020 ● Fax: (920) 494-5965 ● www.bchba.org

November 19, 2009

Jeff Du Mez, GIS/LIO Coordinator
Brown County Planning & Land Services Department
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR Elevation Mapping Project

Dear Mr. Du Mez,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS. The Brown County Home Builders Association supports this effort and believes it will have a very positive effect on our local economy and environment, as LiDAR elevation mapping would greatly assist our community and members in many ways.

LiDAR will be a tremendous planning tool of great benefit since the information gathered would allow for the planning and development of areas of the county that currently do not have any detailed elevation mapping. LiDAR mapping will save our builders and developers time and money at the onset of their projects when they are selecting potential sites or dealing with environmental issues. These savings will assist builders and developers in providing economical housing to our community which, in turn, will ultimately help stimulate our economy and provide jobs.

A second major benefit of LiDAR mapping is the benefit to our environment. The mapping will allow members to properly protect and preserve environmentally sensitive areas, address floodplain issues and effectively manage stormwater runoff. In addition, it will provide information that would typically involve much more effort and expense using traditional survey methods and will help us identify environmental issues and provide effective solutions for our projects. We will utilize the information to accurately and economically map floodplains to protect lives and property. LiDAR mapping will also be a tremendous asset in planning and locating future stormwater management facilities, having the greatest positive effect on our water quality. We believe that preserving our environment and improving our community's water quality is vital to our standard of living. The proposed mapping will help us to improve the quality of life for our community.

Our members utilize the existing contour maps on a daily basis; however, the existing maps are outdated and do not cover significant areas of Brown County. The accurate elevation mapping of the entire county provided by this project will benefit our members, our environment and our community. We look forward with anticipation to the county obtaining the new LiDAR mapping in 2010.

Sincerely,

Ronald L. Thiesfeldt, President
BROWN COUNTY HOME BUILDERS ASSN.

Mari McAllister-Charles, Executive Officer

Cc: State Representatives Garey Bies, Jim Soletski, Phil Montgomery, Tom Nelson, John Nygren, Alvin Ott, Karl Van Roy, Ted Zigmunt, State Senators Rob Cowles, Dave Hansen, Alan Lasee, Congressman Steve Kagen, U. S. Senators Russ Feingold and Herb Kohl

From: Kenneth Dantoin [kdantoin@urielwind.com]
To: Jeff DuMez [DuMez_JD@co.brown.wi.us]
Subject: Grant opportunity - letter of support
Sent: Nov 24, 2009 6:39 AM

Hi Jeff,

Obtaining detailed LIDAR data would certainly be of immense value to Uriel Wind and any other Wind Developer evaluating the Wind Resource of Brown County. Brown County does indeed have a good wind resource relative to Wisconsin.

Best Regards,

Kenneth R. Dantoin, Jr., P.E.

URIEL WIND Inc.

11518 N. Port Washington Road, Suite 203

Mequon, WI 53092. USA

Tel:+1.262.240.2270 Fax:+1.262.240.2276

Green Bay
Metropolitan
Sewerage District

P.O. Box 19015
2231 North Quincy St.
Green Bay, WI 54307-9015
920/432-4893
Fax: 920/432-4302
Email: gbmsd@gbmsd.org

November 24, 2009

Brown County Planning and Land Services Department
Attn: Mr. Jeff Dumez – GIS/LIS Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Jeff,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would be of great assistance to the Green Bay Metropolitan Sewerage District (GBMSD). When it comes to planning and evaluating future interceptor sewer routes throughout Brown County, LiDAR has potential for saving time and money by giving sewer planners a complete virtual 3D representation of the entire county to layout sewers prior to field work.

Recently, we utilized the work of FEMA's flood mapping for Brown County to set an elevation of one of our service buildings at the Green Bay Wastewater Treatment Facility. With better accuracy of elevations using LiDAR, it would give GBMSD more confidence in future flood elevation mapping.

The Green Bay Metropolitan Sewerage District utilizes elevation mapping on a regular basis. We would utilize the LiDAR for GIS and CADD layers which would also enhance our viewer's perspective of the region.

GBMSD looks forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact me.

Sincerely,

GREEN BAY METROPOLITAN
SEWERAGE DISTRICT

Mike Wells

Mike Wells
Engineering Technician/GIS

CITY OF GREEN BAY 1854
Titletown, USA
"BETTER BY THE BAY"

Office of the City Finance Director

Douglas R. Daul
Finance Director

Dawn M. Foeller, CPA
Comptroller/Treasurer

November 18, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Mr DuMez,

Please consider this letter as City of Green Bay support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist our community in many ways. Two prime examples are in answering citizen questions surrounding floodplain issues and stormwater management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade has brought up a variety of issues surrounding the accuracy of the flood mapping.

As for stormwater management, the community is also trying to work out the cost-effective ways to deal with new regulations pertaining to stormwater runoff. These regulations are a result of decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Our municipality utilizes elevation maps on nearly a daily basis in many facets of our local government. It serves as a backdrop for our GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office. You can reach me at 920-448-3427 or email me at mikehr@ci.green-bay.wi.us.

Sincerely,

Michael R. Hronek
City of Green Bay
IT Administrator/GIS Coordinator

Village of
Ashwaubenon
ENGINEERING DEPARTMENT

2155 Holmgren Way
Ashwaubenon, Wisconsin 54304-4605

Phone (920) 492-2308 Fax (920) 492-2326
www.ashwaubenon.com

November 20, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR Elevation Mapping Project

Mr. DuMez,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the United States Geological Survey (USGS.)

The Village of Ashwaubenon utilizes elevation maps on almost a daily basis. It is a commonly used layer in our municipal GIS and assists in developing other GIS layers. The elevation mapping that we are using is nearing 10 years old. This is causing some problems, as the Village of Ashwaubenon has experienced substantial development in the last decade.

The new LiDAR elevation mapping will significantly aid the Village of Ashwaubenon in numerous ways. Some key examples as to our use are in stormwater management and creation of our Stormwater Management Utility, floodplain issues/enforcement, and planning and pre-design of roadway and utility projects.

We look forward to obtaining new LiDAR elevation mapping in 2010 in conjunction with the new 2010 orthophotography. If you have any questions, please do not hesitate to contact me.

Sincerely,

Francine Roberg
GIS Coordinator

VILLAGE OF
HOWARD
2456 Glendale Avenue • P.O. Box 12207 • Green Bay, WI 54307-2207

Brown County Planning & Land Services Department
ATTN: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Jeff,

Please consider this letter as the Village of Howard's support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The Village of Howard is excited at the prospect of obtaining data that is captured using the latest digital technology. This data would be the most accurate and timely data that we have ever utilized.

The areas that we will really use the LiDAR data will be in the areas of utility/roadway design and storm water management.

The Village of Howard has room for residential and commercial development. The LiDAR data would help our engineers design new subdivisions and assist with the requirements for commercial design.

Since the creation of the Village of Howard storm water utility in 2005, there has been a need for accurate data to determine rates for our storm water billing. With LiDAR data, we can get an updated and accurate representation of our impervious surfaces.

We look forward to obtaining new LiDAR elevation mapping for the Village of Howard and the remainder of Brown County. Please feel free to contact me if there are any questions relating to our support of the LiDAR project.

Sincerely,

Timothy J. Niemi
GIS Coordinator
Village of Howard, Wisconsin

Village of
HOBART

November 19, 2009

Jeff DuMez,
GIS/LIO Coordinator
Brown County Land Information Office
Post Office Box 23600
Green Bay, WI 54305-3600

RE: LIDAR Elevation Mapping Grant Application

Dear Jeff,

The Village of Hobart has benefitted substantially from aerial mapping provided through the Brown County Land Information Office. We are most pleased to hear that you are pursuing a funding opportunity to continue contour topographical aerial mapping services in the near future.

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the U.S.G.S.

Our municipality makes continuous use of aerial maps throughout our Village; however, Hobart is also currently in progress with a major commercial development project encompassing 603 acres along State Highway 29. Aerial maps will be essential assistance to our utility and roadway designs as well as our stormwater management system needs.

The benefits of such mapping resources cannot be understated. We wish you well in the pursuit of grant funding from the U.S.G.S.

Sincerely,

Andrew Vickers,
Village Administrator
2990 South Pine Tree Road
Hobart, WI 54155
920-869-3804

November 18, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Dear Jeff:

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist our community in many ways. Two prime examples are in answering questions surrounding floodplain issues and stormwater management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade have brought up a variety of issues surrounding the accuracy of the flood mapping.

As for stormwater management, our community is also trying to work out cost-effective ways to deal with new regulations pertaining to stormwater runoff. These regulations are a result of decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Our municipality utilizes elevation maps frequently in many facets of our local government. It serves as a backdrop for our GIS and helps develop other GIS layers.

We look forward to obtaining new LiDAR mapping in 2010. If you have any questions, please feel free to contact me.

Very truly,

Susan L. Foxworthy
Village of Allouez Administrator

CITY OF DE PERE

335 South Broadway
De Pere, WI 54115
Fax No.: 920/339-4049
Web: http://www.de-pere.org

November 20, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Mr DuMez,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist our community in many ways. Two prime examples are in answering questions surrounding floodplain issues and stormwater management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade has brought up a variety of issues surrounding the accuracy of the flood mapping.

As for stormwater management, the community is also trying to work out cost-effective ways to deal with new regulations pertaining to stormwater runoff. These regulations are a result of decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Our municipality utilizes elevation maps on nearly a daily basis in many facets of our local government. It serves as a backdrop for our GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office

Sincerely,

Ken Pabich
Director of Planning and Economic Development

TOWN OF LAWRENCE
est. 1847

1st Town in Brown County

2595 French Road • DePere, WI 54115 • Phone: (920) 336-9131 • Fax: (920) 336-9193

November 18, 2009

Mr. Jeff DuMez
Brown County Planning
305 E. Walnut
PO Box 23600
Green Bay, WI 54301

RE: 2010 LiDAR Elevation Mapping Project

Dear Mr. DuMez:

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist our community in several ways. Two prime examples are in answering questions surrounding floodplain issues and stormwater management.

On the first point, FEMA's flood mapping was recently completed using elevation data that was in excess of 10 years old and incomplete. Various developments in our community over the past decade have brought up a variety of issues surrounding the accuracy of our flood mapping.

As for stormwater management, our community is also trying to work out cost-effective ways to deal with the new regulations pertaining to stormwater runoff. These regulations are a result of many years of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in handling runoff issues effectively is to have a good and reliable elevation map.

The Town of Lawrence utilizes elevation maps on a regular basis. It serves as a resource for our GIS system and helps develop other GIS data layers.

As the Town Chairman and on behalf of the Town Board of Supervisors, we look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please do not hesitate to contact me.

Sincerely,

John Klasen

John Klasen, Town Chairman
Town of Lawrence

Village of Suamico

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez-GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Jeff,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist our community in many ways. Two prime examples are in answering questions surrounding floodplain issues and stormwater management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade has brought up a variety of issues surrounding the accuracy of the flood mapping.

As for stormwater management, the community is also trying to work out cost-effective ways to deal with new regulations pertaining to stormwater runoff. These regulations are a result of decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Our municipality utilizes elevation maps on nearly a daily basis in many facets of our local government. It serves as a backdrop for our GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office. The phone number I may be reached at is 920-434-2212, or if you prefer to contact me via e-mail you can do so via karen@suamico.org.

Sincerely,

Karen Matze
Administrator

2999 Lakeview Drive • Suamico, WI 54173
920-434-2212 • Fax 920-434-6522

TOWN OF LEDGEVIEW

November 18, 2009

Brown County Planning & Land Services Department
ATTN: Mr. Jeff DuMez – GIS/LIO Coordinator
305 E. Walnut Street, 3rd Floor
Green Bay, WI 54301

RE: 2010 LiDAR Elevation Mapping Project

Dear Mr. DuMez,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist the Town of Ledgeview in many ways. Two prime examples are in answering questions surrounding floodplain issues and stormwater management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade brought up a variety of concerns regarding the accuracy of the flood plain mapping.

As for the stormwater management item, the Town of Ledgeview is also trying to work out cost-effective ways to deal with new regulations pertaining to stormwater runoff. These regulations are a result of declining water quality in the Fox River and the Bay of Green Bay, which are near to Ledgeview. One of the major elements in effectively handling runoff issues is to have good, reliable elevation mapping and related data.

Our municipality utilizes elevation maps on nearly a daily basis and in many facets of our local government. It serves as a backdrop for our GIS and helps to develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. I am available for questions or comments via email at sburdette@ledgeviewwisconsin.com or via telephone at 920-336-3360, ext. 108. Thank you for your consideration of this matter.

Sincerely,

Sarah K. Burdette, Administrator
Town of Ledgeview

3700 DICKINSON ROAD ★ DE PERE, WISCONSIN 54115
PHONE: (920) 336-3360 ★ FAX: (920) 336-8517

Wrightstown
Village on the Fox

529 Main Street
P.O. Box 227
Wrightstown, WI 54180

November 23, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Mr. DuMez:

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping could greatly assist our community in many ways. Two prime examples are in answering questions surrounding floodplain issues and storm water management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade has brought up a variety of issues surrounding the accuracy of the flood mapping.

As for storm water management, our community is also trying to work out cost-effective ways to deal with new regulations pertaining to storm water runoff. These regulations are a result of decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Our municipality utilizes elevation maps frequently in many facets of our local government. It serves as a backdrop for our GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office at (920) 532-6006.

Sincerely,

Steve Johnson
Village Administrator

Village Hall
920-532-5567

Administrator
920-532-6006

Clerk/Treasurer
920-532-6005

Public Works
920-532-0434

Police Dept.
Non-emergency
920-532-6007

Fire Dept.
Non-emergency
920-532-4556

Municipal Court
920-532-5547

Village of Pulaski

421 S. St. Augustine St. • P.O. Box 320 • Pulaski, Wisconsin 54172-0320
Telephone (920) 822-5182 • Fax (920) 822-3209

GENERAL
CASIMIR PULASKI

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

RE: 2010 LiDAR elevation mapping project

Dear Jeff,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist the Village of Pulaski community in many ways. Two prime examples are in answering questions surrounding floodplain issues and storm water management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade has brought up a variety of questions surrounding the accuracy of the flood mapping.

As for storm water management, the Village of Pulaski is also trying to work out cost-effective ways to deal with new regulations pertaining to storm water runoff. These regulations are a result of decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

The Village of Pulaski utilizes elevation maps on nearly a daily basis in many facets of our local government. It serves as a backdrop for our GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office at (920) 822-5182.

Sincerely,

Keith Chambers
President, Village of Pulaski

VILLAGE OF BELLEVUE
A GREAT PLACE TO GROW

Office of the Village Administrator

2828 Allouez Avenue, Green Bay, WI 54311
Phone: (920) 468-5225
Fax: (920) 468-4196
www.VillageofBellevue.org

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez, GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Mr. DuMez:

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist the Village of Bellevue in many ways. Two prime examples are in answering questions surrounding floodplain issues and stormwater management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade has brought up a variety of issues surrounding the accuracy of the flood mapping.

As for stormwater management, the community is also trying to work out cost-effective ways to deal with new regulations pertaining to stormwater runoff. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Village staff utilizes elevation maps on nearly a daily basis within our organization. It serves as a backdrop for our GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office

Sincerely,

Aaron Oppenheimer

Aaron Oppenheimer
Village Administrator

November 18, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

RE: 2010 LiDAR elevation mapping project

Dear Jeff,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist our community in many ways. Two prime examples are in answering questions surrounding floodplain issues and storm water management.

On the first point, FEMA's flood mapping was done using elevation data that was 10 years old and incomplete; these issues along with much development in the last decade has brought up a variety of issues surrounding the accuracy of the flood mapping.

As for storm water management, the community is also trying to work out cost-effective ways to deal with new regulations pertaining to storm water runoff. These regulations are a result of decades of declining water quality in the Fox River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Our municipality utilizes elevation maps on nearly a daily basis in many facets of our local government. It serves as a backdrop for our GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office.

Sincerely,

Debbie Mercier, Clerk
Town of Green Bay

OCONTO COUNTY
a place for you

OFFICE OF
LAND INFORMATION SYSTEMS
A Division of
Land & Water Resources Department
Survey -GIS -Property Listing -Land Records - Physical Address

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR Elevation Mapping Project

Dear Mr. DuMez,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

In 2005, Oconto County acquired LiDAR; this technology has proven to be of great benefit for applications such as flood mapping, land use permitting, and storm water management.

The LiDAR elevation mapping being considered would assist our community by establishing a consistent data set for the west side of Green Bay and the Hwy 41 corridor. This data set would provide a needed tool for planning and design for both the present and future sites.

Our municipality utilizes elevation maps on a daily basis in many facets of our local government. This data has proven to be very beneficial when utilized in conjunction with our GIS systems and other data sets.

Oconto County is also looking to obtaining some updates to our current LiDAR data in 2010. If you have any questions, please feel free to contact my office at 920.834.6827.

Sincerely,

Mark E Teuteberg, RLS
LIS Admin/ County Surveyor

Mayor 834-7717
Admin./Clerk/Treasurer 834-7711
Engineer.....834-7725
Parks & Recreation Director..834-7706
Assessor/Building Inspector...834-7716
Fax: 834-7713
www.cityofoconto.com

Oconto
History on the Bay

Street and Utility Dept. 834-7779
Laboratory..... 834-7721
Water Dept.....834-7719
Fax: 834-7451
ocontolab@hioconto.com

CITY OF OCONTO
1210 Main Street, Oconto, WI 54153

November 19, 2009

Brown County Planning & Land Services Department
Attn: Mr. Jeff DuMez – GIS/LIO Coordinator
305 East Walnut Street, 3rd Floor
Green Bay, WI 54301

Re: 2010 LiDAR elevation mapping project

Dear Jeff,

Please consider this letter as support for the 2010 LiDAR elevation mapping flight as proposed through grant funding from the USGS.

The LiDAR elevation mapping would greatly assist our community in many ways, such as flood mapping, land use permitting, and storm water management

FEMA's flood mapping along with much development in the last decade has brought up a variety of issues. This LiDAR mapping can provide a valuable tool in decision making.

As for storm water management, the community is also trying to work out cost-effective ways to deal with new regulations pertaining to storm water runoff. These regulations are a result of decades of declining water quality in the Oconto River and Bay of Green Bay. One of the major elements in effectively handling runoff issues is to have a good elevation map.

Our municipality utilizes elevation maps in many facets of our local government. It serves as a backdrop for GIS and helps develop other GIS data layers.

We look forward to obtaining new LiDAR elevation mapping in 2010. If you have any questions, please feel free to contact my office

Sincerely,

Donald H. Nerenhausen,
Mayor – City of Oconto