

**Saginaw & Midland Counties,
Michigan**

Digital Orthophotography

Request for Proposals

November 30th, 2009

Responses are Due: December 14th at 3:00p.m.

INTRODUCTION

Saginaw, and Midland Counties (SM) are distributing this Request for Proposal (RFP) for aerial photography and optional LiDAR acquisition, jointly in the interest of possible cost savings as well as other benefits of collaboration. The purpose of this document is to provide interested parties with enough information to enable them to prepare and submit a proposal for the below mentioned products. Saginaw, and Midland Counties will use the results of this process toward separate Professional Services Contracts for complete digital orthophotography and related products.

Saginaw, and Midland County are interested in acquiring orthophotography to replace the 2005 orthophotography they currently have. Midland County is interested in upgrading their existing “ortho-grade” LiDAR, and Saginaw County is interesting in acquiring LiDAR for the first time.

2.0 BACKGROUND INFORMATION

The following background information has been provided in support of the Saginaw/Midland County digital orthophotography project.

2.1 Saginaw County Project Site

Saginaw County, Michigan covers approximately 815 square miles and is generally located in Central Michigan. The County is geographically centered between the cities of Midland and Bay City to the north, Flint and Owosso to the south, Alma to the west, and Vassar to the east.

2.2 Midland County Project site

Midland County, Michigan covers approximately 521 square miles and is generally located in Central Michigan. The County is geographically centered between the cities of Bay City to the East Mt. Pleasant to the west, Gladwin County to the north, and Gratiot and Saginaw Counties to the south.

2.4 Saginaw County Current Relevant Data

Saginaw County currently has NMAS orthophotography at the scale of 1”= 200’ (1’ pixel) for the entire County and 1” = 100’ (6” pixel) for the urban areas (p. 25).

Our current DTM will support 1” = 100’ scale orthophotography as well as 5’ contour intervals at the ASPRS class II level.

We have a first order control network made up of primarily GPS points on every section corner (p. 27).

2.5 Midland County Current Relevant Data

Midland County currently has NMAS orthophotography at the scale of 1" = 100' (6" pixel) for the entire County (p. 26). Midland County also has an ortho-grade LiDAR DEM that will support 1"=100' scale orthophotography.

The existing DEM's for both Counties will be used to rectify the orthophotography for this project unless an optional LiDAR product is acquired.

3.0 PROJECT SPECIFICATIONS

Saginaw and Midland Counties primary objective is to update the 2005 digital orthophotography to continue to provide a consistent foundation for the maintenance of a Geographic Information System. The imagery will be used as a base for updating parcel mapping, and various Planimetric features. The horizontal accuracy must at a minimum meet the standard of the 2005 orthophotography project (p.) Accordingly, the visual quality of the images is paramount. The existing DEM's for both Counties will be used for this project. Saginaw County would also like estimates for an ortho-grade LiDAR DEM.

The projects primary components are:

- **Saginaw and Midland Counties** - Create color digital orthophotography for the entire two county area using a direct digital aerial mapping camera without the use of film.

The specifications that follow have been formulated to promote a high quality imagery product. Except where specifically noted, the respondent is expected to meet all project specifications. Any and all alternative processes that would promote a higher quality orthophotography product are encouraged, but any deviation from the stated specifications must be clearly noted, fully explained and justified by technical merit.

No substitutions of equipment, or changes to the project workflow will be accepted after award, except by written request, review and approval by the appropriate Counties.

3.1 Project Area, Digital Products & Standards

Orthophotography

The project for Saginaw and Midland County will consist of photography acquired to produce orthophotography at the map scale of 1"=200'(1:2400) map scale with a 1' pixel resolution. This mapping must meet National Map Accuracy Standards (NMAS) for 1"=200' scale orthophotography, which states that 90% of all well defined points should be within 1/30th or 6.7 feet of their actual surveyed ground positions and have a horizontal accuracy RMSE_{xy} of +/- 3.0 feet. This mapping will cover the rural areas of Saginaw County and all of Bay and Midland Counties.

Saginaw and Midland Counties will also like the option of acquiring photography acquired to produce orthophotography at the map scale of 1"=100'(1:1200) with a 6" pixel resolution as an option. This mapping must meet NMAS for 1"=100' scale orthophotography, which states that 90% of all well defined points should be within 1/30th or 3.3 feet of their actual surveyed ground positions and have a horizontal accuracy RMSExy of +/- 1.5 feet. This mapping will cover all of Midland County. Saginaw County's mapping will cover all urban areas at a minimum and possibly all of Saginaw County depending on which option the County selects.

Orthophotography Options and Specifications

Saginaw County	Option 1 Saginaw County	Option 2 Saginaw County
Imagery Type	4-Band Digital	4-Band Digital
Map Scale	1"=200' & 1"=100'	1"=100'
Pixel Resolution	1ft with 6 inch in flood zone & Urban Area	6 inch
Approximate Coverage Area	815 square miles: 554 sq. mi. @ 1"=200' 261 sq. mi. @ 1"=100'	815 square miles Entire County

Midland County	
Imagery Type	4-Band Digital
Map Scale	1"=100'
Pixel Resolution	6 inch
Approximate Coverage Area	521 square miles:
Coverage Area	Entire County

Flight

The consultant will design the flight lines for the imagery, and make a layout thereof on a suitable map or photo mosaic. Generally, the flight lines shall be parallel to each other and to the lengthwise boundary lines of the area to be photographed, and in a north/south direction.

Camera

Imagery shall be collected utilizing a direct digital aerial mapping camera without the use of film. The consultant will use a digital camera for all data collection that meets or exceeds the requirements set in this proposal. The contractor must use a camera that is certified by the USGS or prove the camera system has been calibrated, modeling all known errors, and exhibits a high degree of internal geometric accuracy and meets or exceeds USGS standards. Specifications of all proposed digital cameras must be submitted with the proposal. A current calibration report must also be submitted. Please specify in the response which camera will be used.

End Lap / Side Lap

At a minimum, the end lap will be 60 percent and the side lap will be 30 percent.

3.2 Photographic specifications for High Resolution Color Aerial Photography

New, color aerial photography must be obtained by the vendor in the spring of 2010.

The aerial photography must be taken when the sky is clear; the ground and water bodies are in non-flooding conditions and are free of snow, ice, haze, smoke, dust and cloud shadows; and deciduous trees are essentially barren. At no time can the angle of the sun be less than 30 degrees above the horizon.

The photography should be taken on a single calendar day. If this is not possible, all photography must be flown within a single 14-day calendar period.

The flight plan must cover all of the two County area and a 500' buffer outside of the two County boundary.

Any aerial photography that does not meet the defined specifications must be corrected at no cost to the County. All re-flights must coincide with the accepted specifications and flight plans.

To ensure quality of the aerial photography remains high, responses to the RFP must include a description of the photography production process and the quality control measures taken by the vendor.

The respondent must adhere to the American Society of Photogrammetry and Remote Sensing Standards for Aerial Photography.

The camera used for the photography must have forward-motion-compensation (FMC), must be fitted with suitable anti-vignetting filters and must have suitable vibration damping mounting.

A digital shapefile using the NAD83 Michigan State Plane South Zone projection in International Feet showing the photo spot index and the actual flight lines shall be created as per the graphic standards of American Society of Photogrammetry and Remote Sensing standards for Aerial Photography. This shapefile must also show the geographic location of the County boundary, township boundaries, and other municipal boundaries, which will be furnished by SM.

3.3 Ground Control and Airborne Navigation

The selected consultant will be provided with a copy of the horizontal and vertical control layout

to support orthophotography production, along with the existing Digital Elevation Model (DEM) from all Counties. Saginaw County's DEM is suitable for contour mapping at 5-foot intervals at ASPRS Class II accuracy. Saginaw County also has four newly erected COORS base stations that can be linked with an airborne GPS unit.

Additional vertical control necessary to meet the specified accuracy requirements must be second order or better and gathered by the respondent. The cost to collect additional control must be noted in the cost breakdown sheet.

SM will provide the respondent with available information on existing survey control monumentation. All additional control values must be gathered in the Michigan State Plane South Zone Coordinate System, referenced to NAD83 and NAVD88. The unit of measure must be International Feet. All control must be gathered using survey grade differential GPS.

Page 34 contains Saginaw County's current control network.

The respondent must specify if they will be using on-board airborne Global Positioning System (GPS) for orientation and navigation control. SM will accept airborne GPS to compliment existing ground control. The Respondent must provide details on the make, model and specifications of the GPS navigation system and the Respondent must demonstrate competency using this technology and provide an example of at least three projects.

Respondents must submit a proposed list of control points to be used for the project to each County for approval prior to the aerial photography. All control points must be paneled, painted or be sharply defined photo identifiable objects.

SM requests that remonumented sections corners and the Primary GPS Control Network Points for the Remonumentation Program to be used for control points whenever possible. SM will provide a map and list of existing remonumented corners and Primary GPS Control points in a shapefile.

If the Respondents deem any new control points necessary, the Respondent must provide a Ground Control Report. The report must contain a description and location of all ground control to be used in the orthophotography project, their coordinate values (x, y, z) and date paneled, painted, or otherwise marked.

A shapefile will be supplied by the consultant using the NAD83 Michigan State Plane South Zone Projection in International Feet showing the exact location of all control used for the project. If additional control points are used, the selected vendor will also update the control data files.

3.4 Analytical Aerial Triangulation

Fully Analytical Aerial Triangulation (FAAT) must be used to densify ground control in support of 1"=200' and 1"=100' orthophotography where applicable. Industry standard methods, procedures and software must be used to ensure the positional accuracy of the derived points. Derived control points must be adequate to meet National Map Accuracy Standards for 1" - 200' and 1"=100' orthophotography where applicable.

To ensure that the quality of the FAAT remains high, responses to the RFP must include

a description of the triangulation software production process and the quality control measures taken by the vendor. Upon completion of the FAAT, the Respondent must provide a report that includes: (x, y, z), (x', y', z'), residuals of computed coordinates in the ground control points and check points, and the software used. The final results will also include the adjusted exterior orientation parameters for each exposure used in Aerial Triangulation, which includes coordinate position and elevation of each photo as well as the notation values (omega, phi, kappa) for each photo.

The existing FAAT report for Saginaw County will be provided to the selected vendor.

3.7 Digital Orthophotography Production

Tone Balancing

The Respondent will be responsible for tone matching, enhancing, or stretching the images. For each County the selected vendor will provide four photo blocks, comprised of two images each from two adjacent flights as a pilot sample for review. SM will have three business days to review for color balance and image match.

Final Image Quality Check

Each image will be checked on the screen at the appropriate output scale of 1"=100' or 1"=200' for image defects. Images shall have their contrast and brightness values adjusted to meet the desired acceptance criteria based on the results of the pilot areas. The goal is to produce digital imagery of consistent tone and contrast across the entire project, as well as within single images.

The contractor will be responsible for enhancing the image quality of areas of high distortion. Careful photo selection and advanced image processing tools shall be used to correct excessive distortions resulting from elevated surfaces. This will include all bridges and overpasses.

Visual verification shall be performed by the contractor before submittal to insure image completeness and to ensure that no gaps occur in the image area or over edge coverage.

Final Output Format

The orthophotos must be "edge matched" and "mosaiced" to support a consistent and seamless project area image. Visible seams within a map sheet or between map sheets will not be accepted. Each data set must be delivered in Michigan State Plane South, Zone Coordinate System, FIPS 2113, using the North American Datum (NAD 83). The grid unit of measure must be International Feet.

Each orthophoto should be delivered in 24-bit (color) uncompressed TIFF file format with appropriate information for geo-referencing.

The tiling scheme will include imagery cut by square mile (section) for 1"=200' scale orthophotography with a 200' overlap. The 1"=100' scale orthophotography will be cut

by square quarter mile (quarter section) with a 100' overlap.

The naming convention will include the geographic township name, and the section number. Example: geographic township = Albee, and the section number = 12-----Tile name would be Albee-12. This applies to both .tif and .tfw files. For the 6" resolution quarter sections use a NW, NE, SW or SE for the different quarter sections. So Albee-12-NW would be the northwest quarter of section 12.

Delivery of the orthophotos will be done via external hard drive download. The hard drive will be provided by the contractor.

In addition to the file formats outlined above, the respondent must provide an Image Catalog in ESRI shapefile format. This will include a polygon shapefile of sections and quarter sections (where needed) with the image file name in the associated dbf file. A flight line layer should also be provided with photo center points.

Summary Report/Metadata

The vendor must include a summary report detailing the collection of the data, its basic parameters, and its collection and processing accuracy. This report need only be a brief statement on the type of photography, area of coverage, basic workflow, and delivered data. Any problems encountered in the processing, or collection of the data should be included. Included images showing a map of the coverage area, and samples of data should also be included. This report will be used to document the data and will be distributed to both internal and external consumers of the data. The selected vendor may also include two pages of corporate information and marketing information. A point of contact for the company with a phone, fax, and email address should also be included. These pages will be distributed with the document to provide a professional point of contact for any questions that may arise in the use of the data.

The report including the vendor's corporate information should be delivered as a digital file in a reproducible Microsoft Word format with embedded images.

5.0 ORTHOPHOTO DELIVERABLE PRODUCTS

The selected vendor must provide all deliverable products in a format usable by Saginaw, Bay and Midland Counties. They will include, at a minimum, the following items:

- a. One copy of the flight log indicating date and time of day to produce orthoimagery for the areas of Saginaw and Midland Counties.
- b. Tiling index maps by County in geo-registered shapefile format showing county and community boundaries, sections, flight lines, flight plan and tiling names in associated .dbf file.

- c. One copy of the fully analytical aerial triangulation report for each orthophoto flight (hard copy and digital) including ground control residual and exterior orientation parameters.
- d. One copy of DEM used in the creation of the orthophotography in personal geodatabase format.
- f. One copy of all identified digital Orthophotography.
- g. One copy of the vendor's final project report in Microsoft Word format

4.0 Optional LiDAR Acquisition and Processing

Saginaw and Midland Counties desire acquisition of LiDAR data and processing. Both Counties would like accurate DEM's and contour lines to be used for flood modeling. To achieve this we ask firms to submit quotes to perform the following tasks:

1. Capture a dense LiDAR cloud.
2. Develop a bare-earth digital elevation model (DEM) to rectify 6-inch pixel aerial Photography.
3. Develop a bare-earth digital elevation model (DEM) to support a 2ft contours or 1ft. Contours (depending on option chosen).
4. A digital surface model (DSM) representing the elevations of structures and vegetation.
5. Develop Breaklines.
6. Develop 2-ft or 1ft contour lines derived from LiDAR data (depending on option chosen).

The LiDAR data shall be collected so that with additional work it will support the creation of 1ft or 2ft contours, Federal emergency Management Agency Flood Insurance Rate Maps (FEMA FIRM) and associated modeling.

The LiDAR surface will be acquired in Winter/Spring 2010.

LIDAR Mission

The vendor shall collect a LiDAR cloud for all of Saginaw and Midland County, including a half mile buffer.

The LiDAR receiver shall capture at a minimum first and last returns.

The LiDAR receiver shall capture an intensity value for each return with at least 256 value levels.

The LIDAR mission shall be planned and flown so that there will be 1 return per sq. meter (for 1ft contour option), and 1 return per 2 sq. meters (for 2ft contour option). Additional point density is acceptable, lesser point density is unacceptable.

Ground Control

The Vendor shall be responsible for establishing ground control of sufficient density and accuracy to meet the accuracy requirements of the deliverables.

LiDAR Data Quality

Acceptable LiDAR, DEM and contour data quality must meet or exceed the horizontal accuracy of the orthophotogrphy in this RFP. It also must meet the requirements of the Federal Emergency Management Agency (FEMA) and the National Standard for Spatial Data Accuracy (NSSDA) (1988). The limiting RMSE established by this standard are the maximum permissible RMSE for 95% of check points for well-defined points.

Bald Earth DEM

The vendor shall remove non-terrain points such as buildings, trees, and other points reflected from ground objects. The vendor shall include points reflected from the surface of bridges, overpasses, and other structures. The DEM should be ESRI Grid raster format

Contours

Respondents must describe the data processing methods used to create contours. Contours must be hydro-enforced, using existing hydrography for Saginaw and Midland County.

Respondent must discuss the photogrammetric, lidargrammetric, automated and manual methods used to produce contours. The respondent must describe the process of breakline addition at ridges, valleys, and other places where the terrain must be defined in order for contours to accurately reflect the ground elevation and slope.

Attribution of the contours must at a minimum consist of (1) an elevation attribute, (2) an index/intermediate contour attribute, and (3) a depression attribute. The respondent may recommend additional information.

5.0 QUALITY CONTROL STANDARDS

The successful Respondent will be responsible for ensuring that all deliverables are in compliance with the above-mentioned requirements. Specific quality control procedures that will be used by the Respondent should be described in the RFP response.

SM will perform in-house quality assurance procedures to verify the accuracy of all data delivered. At a minimum, positional accuracy, orthophoto quality and data accuracy will be verified. SM Quality Assurance procedures will randomly sample selected products and ensure that the deliverables are in compliance with any and all specifications. Any products not meeting the specifications will be returned to the vendor for correction(s) at no cost to the appropriate County.

6.0 PROJECT TIMING

The following is a high-level project timeline. The Respondent should provide more specific delivery dates.

Request for Proposal Released	November 30th, 2009
Responses Due	December 14th, 2009 at 3:00 p.m.
Selection of Vendor	December 29th, 2009 (Approx)
Aerial Photographic/LiDAR Mission	March – April, 2010 (Approx.)
Digital Orthophotography/LiDAR Project Completed	December 31, 2010 (Approx.)

Time extensions will only be considered in circumstances beyond the Contractor or SM

control. If for any reason, the proposed delivery schedule cannot be met, the Contractor must notify SM immediately and demonstrate cause and the extent of delay.

SM would like to receive the deliverable items under this contract as rapidly as possible. SM stands ready to be flexible on all delivery items and will exercise its discretion to allow modifications to planned delivery schedules, in favor of obtaining critical areas of the County or specific deliverable items as rapidly as possible.

7.0 CONTACT PERSONNEL

SM strongly encourages the Respondents to ask questions and request clarifications on any point of this RFP. Questions may be by phone, mail, or email. All questions by any Respondent and the County's response to the questions will be transcribed, and sent by email to all of the Respondents within one business day of the receipt of the question. The vendor asking the question will not be identified. For written questions please reference the specific section(s) of the RFP that is in question.

Reasonable suggestions which improve the project, or which offer a cost savings are also encouraged. If significant, the terms of this RFP may be modified, and a revised deadline may be established to allow all Respondents a fair opportunity to bid against the new criteria.

All requests for clarifications must be made by e-mail prior to the Responses Due Date of December 14th 2004 at 3:00 p.m.

Any requests for clarification shall be directed to the appropriate County's Project Manager at the following address:

Daniel Hoffman
GIS Coordinator
Saginaw Area GIS Authority
1435 S. Washington Ave.
Saginaw, MI 48601
Phone: 989-759-2180
Fax: 989-759-1563
E-mail address: danhoffman@saginaw-mi.com

Chris Cantrell
GIS Coordinator
Midland County
220 W. Ellsworth St.
Midland MI 48640-5194
Phone: (989) 832-6844
E-mail address: ccantrell@co.midland.mi.us

8.0 OTHER RELATED MATTERS

All data, physical or digital derived from the aerial photography flown for this contract, including but not limited to, shapefiles, and digital orthophotos will be the property of Saginaw and Midland Counties. Commercial use of this data without the express, written consent of Saginaw or Midland Counties is strictly prohibited.

Use of selected images from the project for company marketing or educational purposes will be allowed without prior permission.

9.0 BID RESPONSE SUBMISSION REQUIREMENTS

The following administrative requirements shall govern the preparation and submission of every proposal response.

9.1 Response Submission Deadline

Two (2) copies of your response must be received by both Saginaw and Midland Counties. Responses should be clearly marked "Saginaw & Midland Counties, Michigan Digital Orthophotography Request for Proposals". The proposals must be received and stamped by the respective Counties no later than **December 14th, 2009 at 3:00 p.m.** All Responses should be addressed to.

Daniel Hoffman
GIS Coordinator
Saginaw Area GIS Authority
1435 S. Washington Ave.
Saginaw, MI 48601

AND

Denise Mason
Procurement Administrator
Midland County
220 W. Ellsworth St.
Midland, MI 48640-5194

Responses may be mailed or hand-delivered. Technical and price responses must be shipped in one box or package. The Respondent shall be responsible for the timely delivery of any response sent by mail or commercial express service. All responses become the property of SM. The content of all responses will be held confidential and sealed until after the submission deadline.

9.2 Late Responses, Modification, or Withdrawal

Responses received after the date and time indicated will not be considered and will be returned unopened if the Respondent is identified on the response envelope.

Responses may be withdrawn or modified in writing prior to the response submission deadline. Responses that are resubmitted or modified shall be sealed and submitted to Saginaw and Midland Counties before the response submission deadline.

9.3 Packaging and Format

Each response must be sealed to provide confidentiality of the information prior to the submission date and time. SM will not be responsible for premature opening of responses not properly labeled. Clearly mark one response copy as the “Master Proposal”, and enclose originals of the required forms. Each response set shall be accompanied by a transmittal letter signed in ink by an authorized company representative, empowered with the right to bind the Respondent.

Each response must contain the following information:

Cover Letter: Include the original signed cover letter with the original proposal and a copy of the cover letter with each copy of the proposal. The cover letter should provide the following: 1) brief statement of the respondent’s understanding of the project, 2) name, title, phone number, fax number, e-mail address, and street address of the company representative, and 3) highlights of the respondent’s qualifications and ability to perform the project services.

Company Overview: Include the following information about the Respondents firm: 1) company name, business address, phone number, fax number and internet address; 2) year the firm was established and any former names of the firm if applicable; 3) type of ownership and parent company if applicable; 4) location of the office or offices that will provide the project services; and 5) brief statement of the firm’s background demonstrating longevity and financial stability.

Project Services: In this section, describe the Respondent’s expertise with, and understanding of, the methods necessary to produce the project deliverables and meet the identified specifications. Provide a clear indication that the specifications in Section 3 can be met.

Project Team: Include a project team organizational chart and clearly identify the project manager and project team. A resume for the project manager should be included for reference and a brief description of the project team’s related experience should also be noted.

Project Workflow: Include a detailed description of the workflow that will be used for the project. Include a detailed step-by-step description of each project task including equipment, software, hardware, and techniques to be used. The project workflow must be sufficiently detailed to accurately define the work and the quality of the work that would be conducted. This specification will be reviewed by experienced photogrammetrists and must contain sufficient technical detail to allow SM to evaluate the technical merit of the proposed workflow.

Equipment List: Include a detailed list of all equipment and/or software to be used in this project. When possible provide detailed manufacturers specifications and calibrations for each piece of equipment. Relate the equipment and/or software to the project workflow. Specify if the equipment and/or software is owned, leased, or sub-

contracted. If a project task will be subcontracted, specify the firm and its relationship to the Respondents firm. Provide a brief summary of the qualifications of the subcontractor to perform the project task.

All Respondents must provide at minimum details on the following equipment that will be used for this project:

- Type of Survey Equipment used to establish Ground Control
- Type of Camera
- Type of Plane
- Airborne Navigation System
- AT software
- Digital Orthophotogrammetric Software Production System
- LiDAR System

Flight Plan and Survey Control: Include a map or a shapefile drawing showing the proposed flight plan (photo centers), with planned survey control monumentation. Indicate points to be established prior to flight and any helping points (photo-identifiable points) that are planned to be measured after the flight.

Project References: For up to 5 relevant projects, include a one or two paragraph project description that demonstrates capabilities in the project services, experience with similar clients, and/or local project experience. Include the name of the client organization and the name of the person there to contact for a reference.

Proposed Fee: Complete the Price Sheets for each County, on pages 27-29 of the RFP, and include it in this section.

Delivery Schedule: Include a detailed schedule for the completion of the project deliverables identified in the proposal. Include the proposed start and end dates and intermediate delivery dates. Describe your resource availability for the anticipated duration of the project.

Insurance: Include your company's certificate of liability insurance.

Additional Information: Include any appropriate additional information that supports the qualifications of the firm.

9.4 Price Quotations

All prices shall be quoted in U.S. dollars. Where uncertainty exists, quote estimated costs or a range of costs. Unless Respondents specifically note otherwise, any and all quoted prices quoted will be firm. Additional purchases of all material may be required through one year from award date of this contract and shall be at the contract unit price. In case of error in the extension of prices in the response, the unit prices shall govern.

SM will retain 10% of the total project costs throughout the scope of the project. This amount will be held until final completion and acceptance of the project.

9.5 Acceptance of Response Content

Provisions of this RFP and the contents of the successful response will be used for establishment of final contractual obligations. SM retains the option of retracting the award and/or negotiating a contract with the next most qualified bidder if the successful Respondent fails to accept such obligations. SM will each have a separate contract with the successful Respondent. It is expressly understood that this RFP and the Respondent's proposal may be attached and referenced in an Agreement signed by Saginaw and Midland Counties.

9.6 Duly Authorized Signature

The response must contain the signature of a duly authorized officer of the Respondent empowered with the right to bind the Respondent.

9.7 Bid Response Costs

The Respondent shall be responsible for all costs incurred in the development and submission of this response. SM assumes no contractual obligation as a result of the issuance of this RFP, the preparation or submission of a response by a Respondent, the evaluation of an accepted response, or the selection of finalists. SM shall not be contractually bound until each County and the successful Respondent have executed a written contract for performance of the work.

Pages 27-29 contain a cost summary response form for each County. This form must be used to document the cost for services in the Respondent's proposal.

9.8 Complete Services/Products

The successful Respondent shall be required to: (a) furnish all tools, equipment, supplies, supervision, transportation and other accessories, services, and facilities necessary to complete the work; (b) furnish all materials, supplies, and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) perform and complete the work in accordance with good technical practice, with due diligence, and in accordance with the requirements, stipulations, provisions, and conditions of this RFP and the resultant agreement.

9.9 Selection Criteria

SM will use the follow criteria to evaluate the RFP proposals. This does not serve as a comprehensive list, nor does the arrangement imply order of importance.

Compliance with RFP Instructions: The proposal will be evaluated for compliance with the instructions set forth in the RFP. Significant non-compliance may be grounds for disqualification.

Technical Expertise: The proposal will be evaluated on the Respondent's demonstrated ability to comply with the technical specifications.

Quality of Equipment: The proposal will be evaluated on the type and capability of the equipment to be used for the contract.

Proposed Workflow: The proposal will be evaluated on the suitability of the Respondent's stated production workflow.

Quality Control: The proposal will be evaluated on the basis of the apparent effectiveness of the Respondent's quality control procedures.

Similar Project Experience: The proposal will be evaluated on the basis of similar project experience. Technical nature, complexity, and geographic size will be considered.

Delivery Schedule: The proposal will be evaluated to ensure project deliverables can be provided to SM in a timely manner.

Total Project Cost: After technical evaluation, the proposal will be evaluated to determine the best-qualified bidder on both technical terms and relative to the available budget of each County. This final evaluation will rank the bidders and will be used to select the respondent for contract award.

10.0 INDEMNIFICATION AGREEMENT

The Contractor shall, at its own expense, protect, defend, indemnify and hold harmless SM and its elected and appointed officers, employees, and agents from all claims, damages, costs, lawsuits and expenses including, but not limited to, all costs from administrative proceedings, court costs and attorney fees that SM, and their elected and appointed officers, employees and agents may incur as a result of any criminal acts, intentional torts, acts or omissions which by statute give rise to strict liability, negligent acts or omissions of the Contractor, its officers, employees, or agents which may arise out of the Contract.

The Contractor's indemnification responsibilities shall include the sum of damages, costs and expenses which are in excess of the sum paid out on behalf of or reimbursed to SM, or its elected and appointed officers, employees or agents by the insurance coverage obtained and/or maintained by the Contractor pursuant to the requirements of the Contract.

11.0 EQUAL EMPLOYMENT OPPORTUNITY

The contractor and its subcontractors, as required by law, shall not discriminate against the employee or applicant for employment with respect to hire, tenure, terms, conditions or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, disability that is unrelated to the individual's ability to perform the duties of a particular job or position, height, weight, or marital status. Breach of this covenant may be regarded as a material breach of Contract.

The Contractor will take affirmative action to eliminate discrimination based on sex, race, or a

disability in the hiring of applicant and the treatment of employees. Affirmative action will include, but not be limited to: employment; upgrading, demotion or transfer, recruitment advertisement; layoff or termination; rates of pay or other forms of compensation; selection for training, including apprenticeship.

The Contractor agrees to post notices containing this policy against discrimination in conspicuous places available to applicants for employment and employees. All solicitations or advertisements for employees, placed by or on the behalf of the Contract, will state that all qualified applicants will receive consideration for employment without regard to race, color, sex, national origin, disability, age, height, weight, marital status and religion.

12.0 CONTRACT AWARD AND INFORMATION

SM will award the contract to the most responsive, responsible bidder deemed most advantageous to SM meeting all specifications, mandatory requirements, miscellaneous instructions, and conditions as outlined in this document. The price proposed shall be considered firm and cannot be altered after receipt per the terms of this bid.

SM, may at its discretion reject any and all proposals, to award the agreement to other than the low proposal, to negotiate the terms and conditions of all and/or any part of the proposal, to waive irregularities and/or formalities and, in general, to make award in the manner as determined to be in SM's best interest and its sole discretion.

SM will not pay for any information herein requested, nor is it liable for any costs incurred by the bidder. If two (2) or more bidders submit bids that are identical as to price, preference will be given to the bidder whose firm has its principal place of business within the SM area.

13.0 INSURANCE REQUIREMENTS

The Contractor, whose bid is accepted, must meet and agree to maintain during the term of the Contractor, the following insurance coverages. No work shall commence by the awarded Contractor until proof of insurance has been submitted to SM and approved. All coverages shall be with insurance companies licensed and admitted to do business in the State of Michigan. All coverages shall be with insurance carriers acceptable to SM and have an A.M. Best Company's Insurance Reports Rating of A or A- (Excellent).

- A. The contractor shall carry Worker's Compensation and Employer's Liability Insurance Coverage, as required by law. In the event that the Contractor uses sub-contractors and sub-subcontractors for the performance of services requires under this proposal, the Contractor shall ensure that said subcontractors and sub-subcontractors carry Worker's Compensation and Employer's Liability Insurance.
- B. The Contractor shall procure and maintain during the term of the contract

Commercial General Liability Insurance on an “occurrence basis” with limits of liability of not less than \$1,000,000 per occurrence combined single limit, for Personal Injury, Bodily Injury and Property Damage. Coverage shall include the following extensions: Contractual Liability; Products and Completed Operations Coverage; Independent Contractors Coverage; and, Broad Form General Liability Extensions or equivalent.

- C. The Contractor shall procure and maintain during the term of the contract Aircraft Liability Insurance on an “occurrence basis” with limits of liability of not less than \$1,000,000 per occurrence combined single limit, for Personal Injury, Bodily Injury and Property Damage.
- D. The Contractor shall maintain Vehicle Liability Coverage, and Michigan No-Fault coverages including all owned, non-owned, and hired vehicles, of not less than \$ 1,000,000 per occurrence combined single limit.
- E. Commercial General Liability Insurance and Vehicle Insurance as described above shall include Saginaw, Bay and Midland Counties as “Additional Insured”.
- F. Worker’s Compensation Insurance, Commercial General Liability Insurance, and Vehicle Liability Insurance as described above shall include an endorsement stating the following:

It is understood and agreed that thirty (30) days advance written Notice of Cancellation, Non-Renewal, Reduction and/or material change shall be sent to:

Saginaw Area GIS Authority, 1435 S. Washington Av. Saginaw, Michigan 48601

Midland County Procurement Administrator, 220 W. Ellsworth St. Midland, MI 48640-5194

- G. If any of the above coverages expire during the term of the contract, the Contractor’s insurer shall deliver renewal certification and/or policies to:

SaginawArea GIS Authority, 1435 S. Washington Av. Saginaw, Michigan 48601

Midland County Procurement Administrator, 220 W. Ellsworth St. Midland, MI 48640-5194

14.0 PROJECT COST BREAKDOWN

All vendors must complete the following price breakdown sheets for each County using the listed cost items. If the respondent cannot itemize as per the table below, the respondent may group cost items, but please explain the grouping clearly. Items labeled as optional must be itemized separately. Any items may be included or excluded from the final contract as required by the budget limitations of each County.

Saginaw County Orthophotos Price Sheet

Project Cost Item	Orthophoto Project Cost	
	Option 1	Option 2
1-Flight planning, Ground Control and delivery of flight and ground control data		
2-Cost of Photographic Mission		
3-Cost of Aerial photographic photo processing		
4-Mensuration and Analytical Aerial Triangulation		
5-Delivery of AT report and absolute orientation parameters		
6-Orthorectification and generation of final digital images and delivery of ortho images un-compressed TIFF's		
7-Misc costs (please specify)		
Total Project Cost		

Midland County Orthophoto Price Sheet

Project Cost Item	Orthophoto Project Cost
1-Flight planning, Ground Control and delivery of flight and ground control data	
2-Cost of Photographic Mission	
3-Cost of Aerial photographic photo processing	
4-Mensuration and Analytical Aerial Triangulation	
5-Delivery of AT report and absolute orientation parameters	
6-Orthorectification and generation of final digital images and delivery of ortho images un-compressed TIFF's	
7- Creation of Mr. SID mosaics by Political Township/City	
8-Misc costs (please specify)	
Total Project Cost	

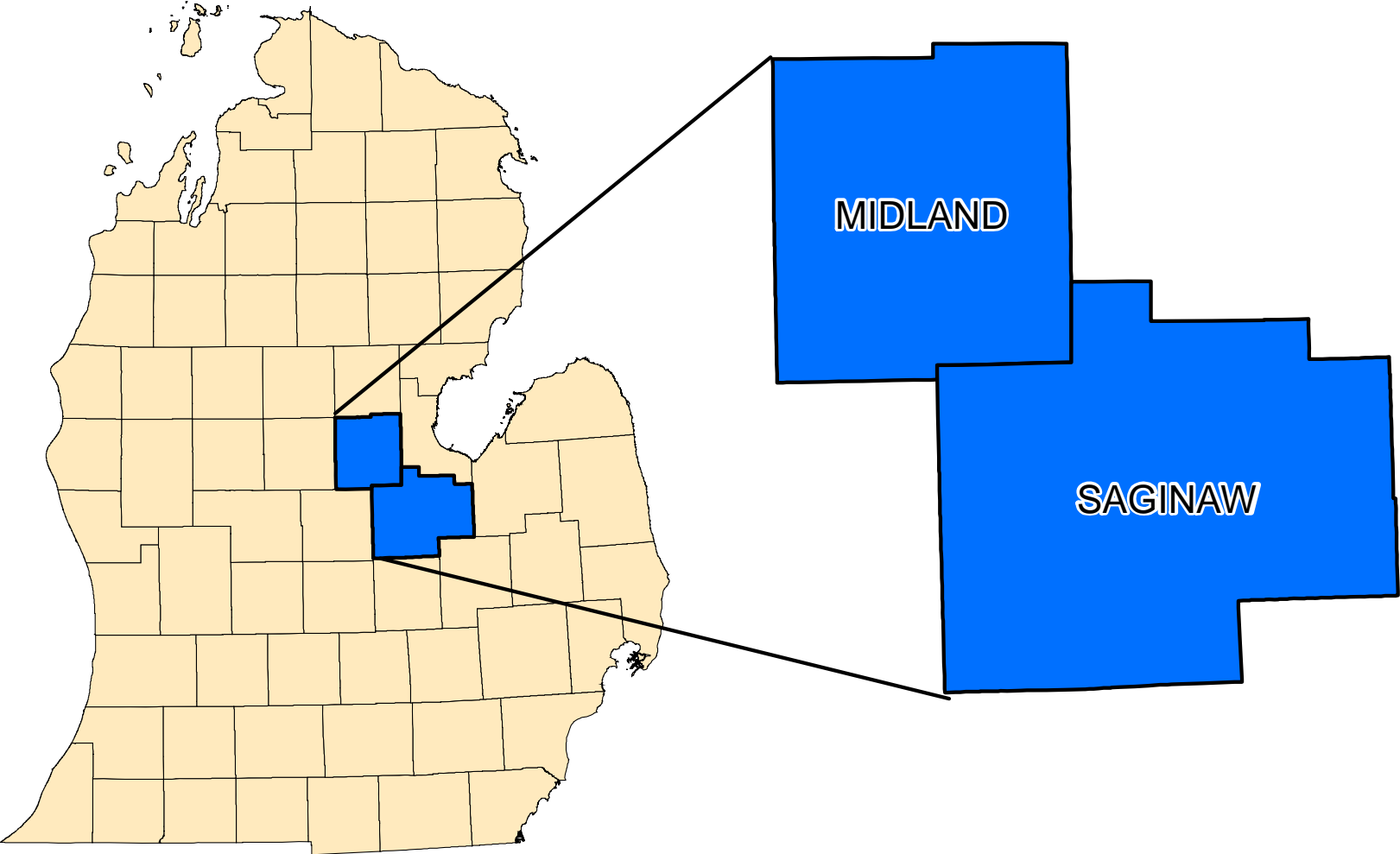
Saginaw County LiDAR Price Sheet

Project Cost Item	LiDAR Orthophoto Project Cost Options		
	supports 1"=100' orthos	supports 2ft contour interval	supports 1ft contour interval
1-Capture Dense LiDAR Cloud			
2-Develop Bare-Earth Digital Elevation Model (DEM)			
3-Develop Digital Surface Model (DSM)			
4-Develop Breaklines			
5-Develop Contour Lines			
6-Misc costs (please specify)			
Total Project Cost			

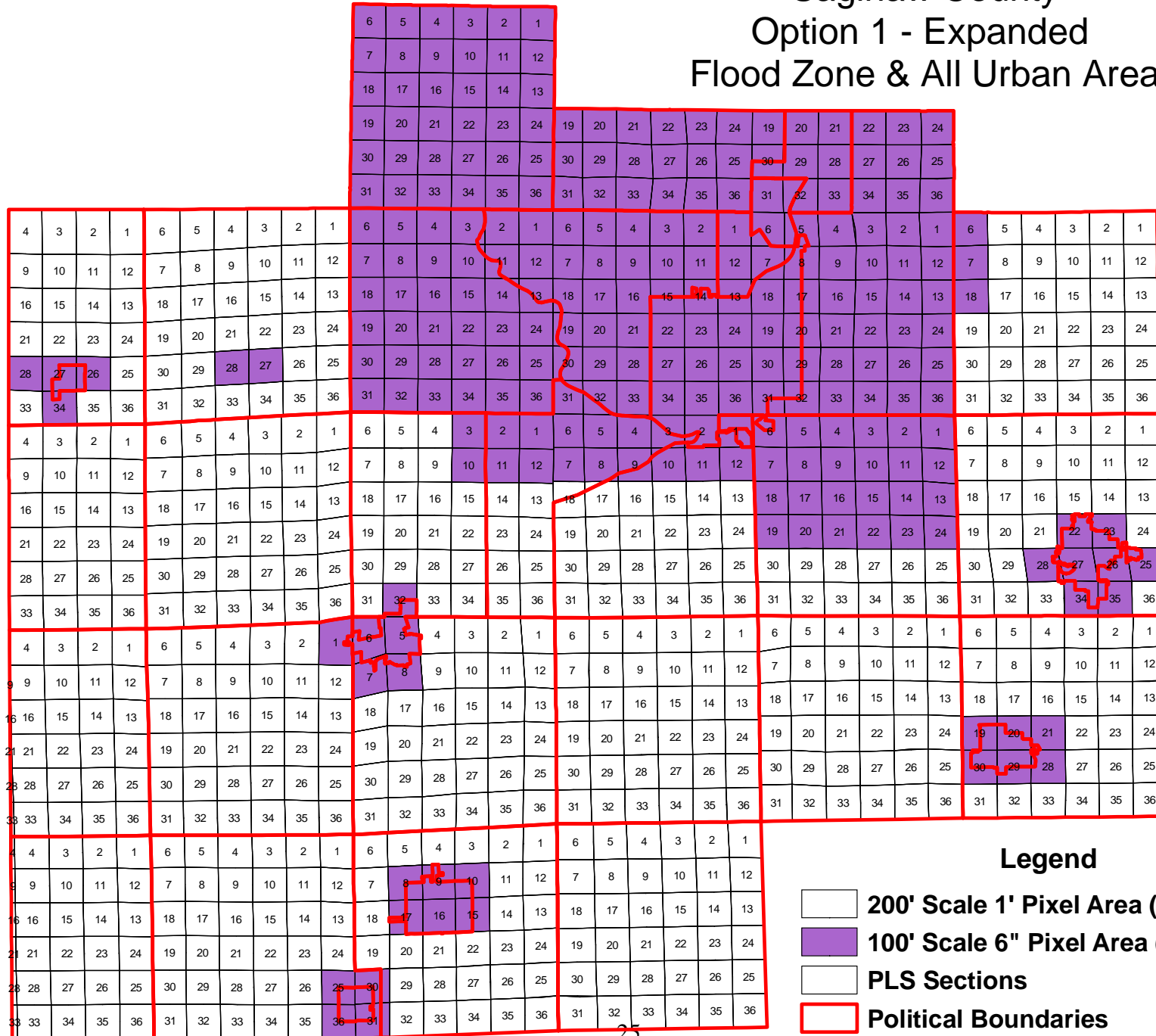
Midland County LiDAR Price Sheet

Project Cost Item	LiDAR Orthophoto Project Cost Options		
	supports 1"=100' orthos	supports 2ft contour interval	supports 1ft contour interval
1-Capture Dense LiDAR Cloud			
2-Develop Bare-Earth Digital Elevation Model (DEM)			
3-Develop Digital Surface Model (DSM)			
4-Develop Breaklines			
5-Develop Contour Lines			
6-Misc costs (please specify)			
Total Project Cost			

**Project Area:
Saginaw and Midland Counties**



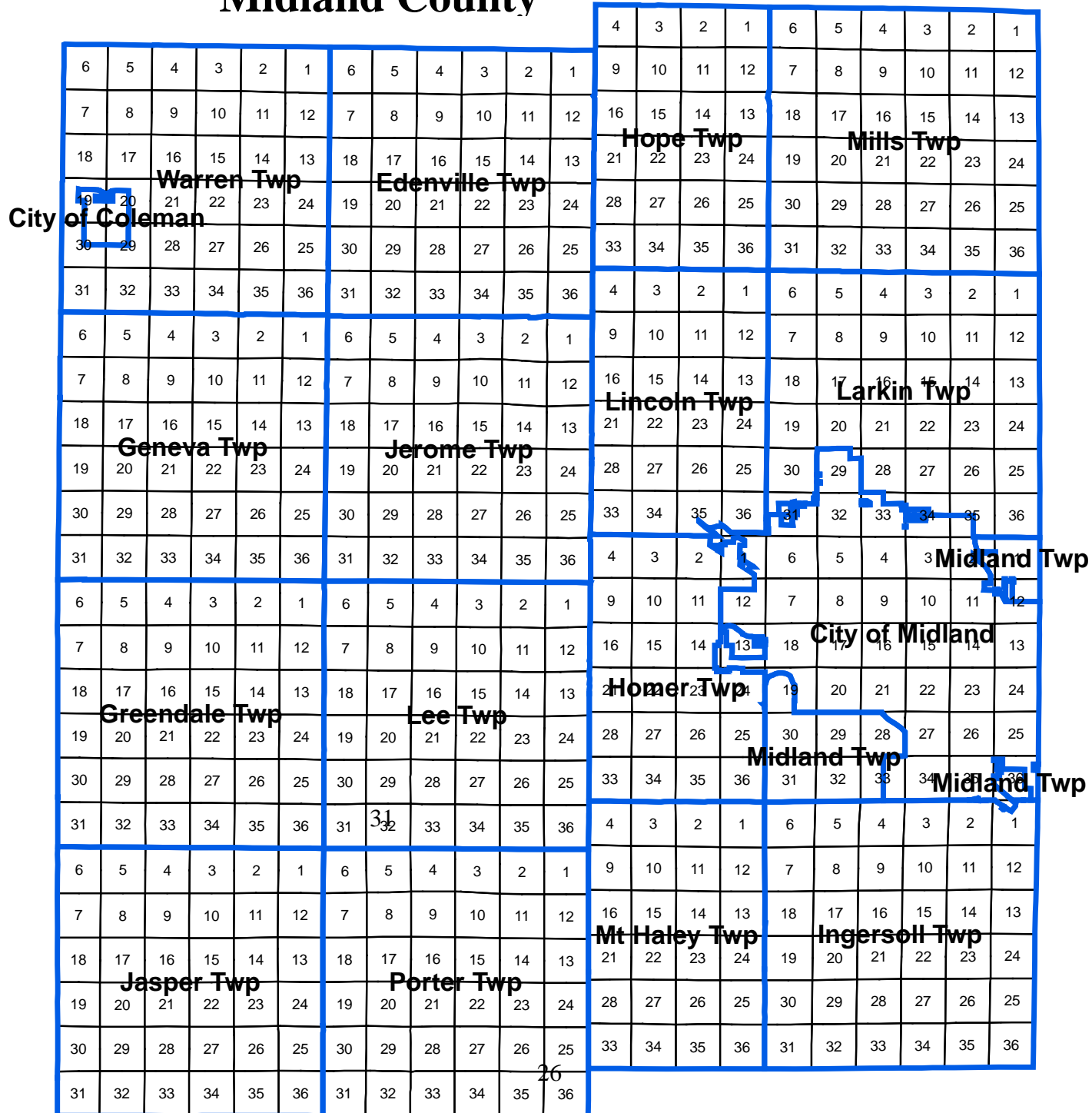
Saginaw County Option 1 - Expanded Flood Zone & All Urban Area



Legend

- 200' Scale 1' Pixel Area (554sq.mi.)
- 100' Scale 6\"/>

Midland County



Saginaw County Control Grid

