Request for Proposals
for Aerial Mapping Services

for a Multi-Jurisdictional Consortium
Bi-State Region – Illinois/Iowa

November 23, 2004

Request for Proposals
For Aerial Mapping Services

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Section 1: Introduction and Overview

1.1 Introduction

The Bi-State Regional Commission (a regional Council of Governments) on behalf of a multi-jurisdictional, multi-agency consortium is coordinating a joint purchase of aerial photography and aerial mapping services. The agencies (local governments and public and private utility companies) involved are located within a probable area which includes four (4) counties in Illinois and Iowa (approximately 2,450 square miles). (See Attachments 8.2 and 8.3. The aerial mapping products will be used by the agencies in their Geographic Information Systems (GIS).

A group of firms* deemed to be qualified by the consortium through a Statement of Qualifications process has been selected. These firms will be invited to submit a Proposal for Services for this project which are due no later than **December 22, 2004**. The consortium members will review these and select three firms based on each firm's approach to the project and cost. These firms will then be invited to present their Proposal for Services and will also participate in an interview session with members of the consortium. Final selection of a firm will follow and contracts for services between each participating entity and the selected firm will be developed.

In this Request for Proposals the consortium will provide as much information as possible pertaining to the scope, specifications and deliverables needed for the project. The successful firm will provide the best solution for the consortium's needs, at a reasonable cost.

** The term "firm" may also mean a team of firms who have submitted a Statement of Qualifications for this project.*

1.2 Overview of Geographic Information System(s) in the Region

Each agency participating in the project has developed (or is developing) its own Geographic Information System and each has its own need for geographic data. In addition, there is a need for common base aerial photography that is seamless between counties that will facilitate planning efforts across the region. In the past, aerial mapping projects have been contracted, individually, by the agencies. Horizontal and vertical control and elevation data from earlier aerial mapping projects may exist and will be provided to the selected firm. Existing ground control points will be provided to the selected firm if needed.

1.3 Location of Work Performed

Respondents are required to include, in their proposal, a statement pertaining to where work will be performed, including any products associated with the proposed contract, or the scope of work defined in the final agreements.

Section 2: Project Scope

2.1 Project Area

The area to be mapped potentially includes the following counties in Illinois: Henry and Rock Island; and the following counties in Iowa: Muscatine and Scott. In addition, three municipalities within these counties request individual delivery of orthophoto products, and three municipalities (plus one of the counties) request delivery Digital Terrain Models (DTM) and contour data. Maps showing coverage areas, existing ground control and tiling schema are provided in Attachments 8.4 through 8.10, along with digital information in ESRI shapefile format, available by request.

2.1.1 Scope of Work/Technical Specifications

The proposed project involves six separate, but related components as follows: Ground Control, Aerial Photography Acquisition, Analytical Triangulation, Digital Terrain Model and Contour Generation, Digital Orthophoto Mapping and Metadata Creation. The technical specifications for each component area as follows:

2.2 Ground Control and Accuracy Specifications

It is the vendor's responsibility to furnish, where necessary, basic ground control, pre-marking, and airborne Global Positioning System (GPS) services, sufficient to control the digital terrain modeling, digital orthophoto creation and contour generation. Location of the existing control points are provided in Attachment 8.10 and are available in digital format (ESRI shape files) upon request. Respondents shall identify in their proposal the number of monuments they expect to recover and target prior to the acquisition of aerial photography. It is the vendor's responsibility to remove all of the targeting materials after the flights. The vendor is encouraged to utilize all or any portion of the existing control information from previous ground control surveys to meet the accuracy standards.

2.2.1 Coordinate Datums

1. The horizontal coordinate datum for the jurisdictions in Iowa shall be the Iowa State Plane South Zone, NAD83(1996 HARN Adjustment).

2. The horizontal coordinate datum for the jurisdictions in Illinois shall be the Illinois State Plane West Zone, NAD83(1997HARN Adjustment).

3. The vertical control for both Iowa and Illinois shall be based on NAVD88.

4. All units of measure shall be based on U.S. Survey Feet.

2.2.2 Accuracy Specifications for the Orthophotography, DTM and Contour Mapping

1. 400' scale orthophotography will be compiled to meet 12.0' horizontal accuracy at 95% confidence level. The digital orthophotos may be tested using NSSDA standards.

2. 100' scale orthophotography will be compiled to meet 3.0' horizontal accuracy at 95% confidence level. The digital orthophotos may be tested using NSSDA standards.

3. 2’ digital terrain model data and 2’ contours will be compiled to meet 1.0’ vertical accuracy at 95% confidence level. The digital terrain model data (elevation points) may be tested using NSSDA standards.

4. With the exception of MAGIC, digital terrain model data for rectification of the 100’ scale orthophotography will be compiled to meet 2.0’ vertical accuracy at 95% confidence level. The digital terrain model data (elevation points) may be tested using NSSDA standards.

5. For MAGIC, digital terrain model data for rectification of the 1" = 100' scale orthophotography will be compiled to meet 5.0-foot vertical accuracy at the 95% confidence level. The digital terrain model data (elevation points) may be tested using NSSDA standards.

6. Digital terrain model data for rectification of the 400’ scale orthophotography will be compiled to meet 8.0’ vertical accuracy at 95% confidence level. The digital terrain model data (elevation points) may be tested using NSSDA standards.

2.2.3 Aerial Photography Flight Heights for Specific Products

1. Aerial photography will be flown at 12,000’ above mean terrain (1:24000 negative scale) for all 400’ scale digital orthophotography coverage areas and products.

2. Aerial photography will be flown at 4,200’ above mean terrain (1:8400 negative scale) for all 100’ scale digital orthophotography and for all 2’ DTM and contour coverage areas and products.

2.3 Aerial Photography Acquisition

2.3.1 Aircraft and Crew

The vendor shall be responsible for operating and maintaining all aircraft used in conformance with all governing Federal Aviation Administration and Civil Aeronautics Board regulations over such aircraft. Any inspection or maintenance of the aircraft resulting in missing favorable weather will not be considered as an excusable cause for delay.

Preference will be given to vendors who own the aircraft and aerial camera system(s) used on this project. All respondents must identify the firm that will actually be acquiring the aerial photography, the relationship that firm has with the respondent and the ownership of the aircraft and camera equipment to be used.

The flight crew and camera operator shall have had a minimum of 400 hours of experience in flying precise photogrammetric mapping missions.

The aircraft furnished shall be capable of stable performance and shall be equipped with essential navigation and photographic instruments and accessories, all of which shall be maintained in operational condition during the period of the contract. No windows or glass shall be interposed between the camera lens system and the terrain, unless high-altitude photography is involved. The

camera lens system shall not be in the direct path of any exhaust gasses, effluence or oil from aircraft engines.

2.3.2 Environmental Conditions during Photography

The following weather conditions are a minimum, which shall be met or exceeded during the photo missions:

1. *Sun angle.* Photography shall be taken when the sun angle is 30 degrees or greater above the horizon. There shall be no objectionable shadows created by relief or low solar altitude.
2. *Cloud cover*. Images shall be free of clouds and cloud shadows. No photography will be accepted with clouds or cloud shadows appearing on more than 5 percent of the area in any one photograph.
3. *Season*. Photography shall be acquired during the leaf-free season in the spring of the year. Deciduous trees must be barren.
4. *Turbulence*. Photography will not be taken during adverse conditions when wind and thermal currents are causing excess tilt, crab or drift in the photography.
5. *Haze*. Photography will not be taken when the ground is obscured by haze, fog, or dust.
6. *Snow cover*. Photography will not be taken when snow is present on the ground.
7. *High water*. Photography will not be taken when the ground is obscured by flood water. Streams must be in their normal banks.
8. *Ground conditions*. Conditions that might obscure ground detail shall be the responsibility of the vendor.

2.3.3 Acquisition delays

The vendor shall inspect and constantly monitor the photographic coverage and film quality and shall undertake immediate reflights of areas wherein coverage does not meet specifications. Rejection of photography by the vendor or a member of the consortium shall not in itself be a reason for granting a delay to another photo season.

2.3.4 Aerial Camera

The aerial camera used for this project shall be a fully calibrated precision analog mapping camera equipped with a single low distortion, high resolution lens, forward motion compensation (FMC), and a gyro-stabilized mount designed for vertical aerial photography with a 9" x 9" format. Any use of digital cameras must be clearly defined in the proposal including the proposed process, equipment, and specifications. A USGS camera calibration report, no more than two years old shall be submitted with the response to these technical specifications for each camera system to be used on this project. The absence of a calibration report verifying that the camera meets the specified requirements may be cause for disqualification of the vendor.

The calibration report must document the camera system meets or exceeds the following requirements:

1. A calibrated focal length of 153 mm $\pm$ 3.0 mm
2. A minimum aperture of *f*4.5
3. Radial distortion in the usable angular field does not exceed 10 micrometers for any tested point. In addition, at least 15 of the tested points shall have radial distortion values of 5 micrometers or less.
4. A usable angular field of view of at least 90 degrees

5. A minimum area weighted average resolution (AWAR) of the camera lens of 85.0 line pairs per millimeter
6. Eight fiducial marks recorded on each negative
7. A between-the-lens variable speed shutter with a minimum efficiency rating of 70 percent at a speed of 1/200 or 1/250 of a second
8. An appropriate glass filter with a metallic anti-vignetting coating and with surfaces parallel within 10 seconds of arc
9. Film magazine platen upon which the film is flattened at instant of exposure shall not depart from a true plane by more than 13 micrometers when the camera/magazine vacuum is applied
10. Stereo model flatness:
    a. Average departure from flatness not to exceed 13 micrometers
    b. Difference between highest and lowest value not to exceed 25 micrometers
    c. Average values for tested points not to exceed 6 micrometers

2.3.5 Photographic Coverage

1. The vendor shall prepare flight plans for each scale of photography. All flight lines must extend at least two exposures beyond the required coverage boundary. Flight line side coverage must extend 1 mile beyond the required coverage boundary for the 12,000ft AMT flights, ½ mile beyond the required coverage boundary for the 4,200ft AMT.
2. The photographic survey areas of the project shall be stereoscopically covered by successive and adjacent overlaps of photographs within the usable portion of the field of the lens.
3. Lack of acceptable stereoscopic coverage shall be corrected by reflights at the Vendor's own expense.
4. Except on short flight lines, a minimum of two runoff or blank exposures is required between usable frames immediately prior to the start of the photography for each flight line or part of a flight line.
5. Any exposures within the project area with a color balance shift compared to the remainder of the roll will result in unacceptable exposures.
6. Forward overlap in the line of flight shall average not less than 57% or more than 62% at mean elevation of the terrain, unless otherwise specified. Individual overlaps shall not be less than 55% or more than 68%, excepting the situation where in a forward overlap in areas of low elevation must exceed 68% to attain the minimum 55% forward overlap in adjacent areas of higher elevation.
7. Junction areas between adjoining flight lines shall be covered stereoscopically by both lines (wherever there is a change in direction between two flight lines).
8. Side overlap between adjacent parallel flight lines shall be 30% +/- 10% at the mean elevation of the terrain.
9. Flight line deviation shall not exceed a distance greater than 10% of the width of the coverage of the photograph.
10. Departures from flight height required shall not exceed –2% or +5% unless changed by Air Traffic Control Centers.
11. Changes in the course of the aircraft between successive overlapping photographs within a flight line shall not exceed 3 degrees.
12. While exposing aerial photography, the camera shall be compensated for crab of the aircraft, with a resultant error not exceeding 3 degrees.

13. The tilt within a single frame shall not exceed 4 degrees nor shall the difference in tilt between two consecutive overlapping frames within a flight line exceed 4 degrees. The average tilt for all negatives of the same nominal scale shall not exceed 1 degree.
14. The combined effect of aircraft course corrections, crab and tilt shall result in an apparent crab not greater than 5 degrees on successive photographs. Apparent crab is defined as the angle between the indicated principal point and the conjugate image of the indicated principal point of the adjacent photograph within the same flight line.
15. Exposure of the film shall be in accordance with the manufacturer's recommendations. The negatives shall be clear and sharp in detail, free from light streaks and static marks, and of uniform tone and degree of contrast to permit ground details to show clearly in all scene reflectance, with particular emphasis on pattern recognition in the shadow areas.

2.3.6 Re-flights

Unacceptable aerial photography shall be re-flown by the vendor at no additional cost to the consortium or any individual jurisdiction, with the re-flight coverage overlapping the accepted photography by at least two stereo models.

2.3.7 Aerial Film

The type of film to be used shall be unexpired and have a dimensional stable polyester base. Color and panchromatic emulsions shall be sensitive to the entire visible spectrum with an extended red sensitivity. Color infrared and black and white infrared emulsions shall be sensitive to the visible and near infrared spectrum from 400 to 900 nanometers. The film must be stored and handled in accordance with the manufacturer's recommendations.

2.3.8 Film Processing

Film processing, including developing, fixing, washing and drying of all exposed film, must be performed in modern automatic aerial film processor. The resultant processed original aerial film negatives shall be clear and sharp in detail and uniform in density. The negatives must be free of static marks, tears, scratches, or other blemishes.

2.3.9 Film Labeling

All processed aerial negatives will be clearly labeled with the following annotation, which shall also appear on the contact prints. Negatives will be labeled with the flight line and exposure numbers, date of photography and county or city name. The first and last frame of each flight line shall also be labeled with the time of exposure, focal length of the camera and flight height.

2.3.10 Flight Index

Flight indexes shall be delivered to the individual jurisdictions in geo-referenced AutoCAD (.dwg) files and ESRI shapefile format. Flight lines, centers of images and index ID Numbers shall be included.

2.3.11 Film Ownership and Storage

All aerial film acquired as part of this project is the explicit property of the individual contracting jurisdictions. The individual jurisdictions will require that the successful vendor store the aerial film

at the vendor's facility. The vendor will store the film in environmentally safe, humidity controlled conditions for a period up to ten years at no additional cost to the jurisdictions.

2.3.12 Airborne GPS

Airborne GPS technology may be used to capture the photography and reduce the amount of ground control necessary to perform the project. In such instance, the vendor shall describe the onboard equipment which it owns and is installed in the aircraft. The type of receivers and number of base stations and locations to be used shall be described. The vendor shall also list the AGPS data processing software and procedures.

2.3.13 Flight Planning

The proposed approach to the aerial photo acquisition should outline the respondents intended flight plan including proposed dates of photography, flight height, negative scale, flight lines, endlap and sidelap, planned aerial equipment, materials and relevant quality control procedures. In addition, respondents are expected to identify all products to be delivered to each jurisdiction from this work component.

2.4 Analytical Triangulation

2.4.1 General

The selected vendor may use either fully analytical aerial triangulation (FAAT) techniques or softcopy (DAAT) to extend and densify ground control for the aerial photography. The use of airborne GPS/IMU technology is permitted in lieu of conventional aerial triangulation as long as project accuracy standards are maintained. The vendor shall provide a complete description of their methodology for performing the aerial triangulation adjustment including the equipment and software used.

2.4.2 Horizontal and Vertical Control

The 9" x 9" contact prints of the photography must be used for selecting points and locating the paneled control. All photo-identifiable control points for the FAAT must be located and symbolized on the image side of the photographs and labeled with coordinate values on the reverse side. All horizontal ground control positions computed by the analytic triangulation must be in the appropriate state plane coordinate system and referenced to NAD83(1996). Vertical control must be referenced to NAVD1988. Distance units shall be U.S. Survey Feet.

2.4.3 Pass Points and Tie Points

Individual frames must carry a minimum of fifteen pass points, with the exception of end frames, which must carry a minimum of ten pass points. One tie point must lie near the corner of each neat model, another point must lie near the nadir position of each neat model and another point between the two previously mentioned positions. Tie points between strips must occur with a frequency of at least one per frame. As a general rule, wing pass points within lines of flight must also serve as tie points between strips. Although these classical tie point configurations form the minimum acceptable, it is expected and preferable that the fully digital process produces hundreds of correlated tie points per stereo model. In your proposal, detail the process and number of tie points to be used for this project.

The positional accuracy of the pass points established by the analytical aerial triangulation shall be adequate to provide the horizontal accuracies specified for the different scales of mapping.

2.4.4 Mensuration

Point mensuration must be accomplished using digital or analytical photogrammetric instrumentation. No analog instruments shall be used to record image coordinates. The respondent must detail equipment and software to be used for this process.

2.4.5 Software

An industry-standard software program must be used for analytic aerial triangulation computations. The package used must be capable of strip adjustments, as well as large bundle (blocks of photos and strips) adjustments and should also have gross error detection facilities. The software must be capable of processing the thousands of points generated in the softcopy process and be able to adjust large blocks of photos. The proposal should describe the package used for adjustment computations on this project.

2.4.6 Aerial Triangulation Reports

Upon completion of all aerial triangulation work, the contractor will prepare a formal aerial triangulation report for delivery to the Jurisdiction. The deliverables and report will include, but not necessarily be limited to, the following:

1. All misclosures at ground control points with and without use of checkpoints.
2. Final adjusted aerial triangulation solution to horizontal and vertical ground control.
3. Control point residuals and average residuals for each adjustment.
4. An ASCII file containing all points and their corresponding final adjusted State Plane Coordinate values.
5. A flight line and ground control diagram, geo-referenced, in an AutoCAD (.dwg) file format and ESRI shapefile format, showing flight lines, frame centers, frame outlines, ground control and passpoints.
6. A narrative of any problems that arose during the aerial triangulation and how they were resolved.

2.5 Digital Terrain Model (DTM) and Contour Generation

2.5.1 Scale and Accuracy

See section 2.2.2 for the DTM and contour accuracy specifications.

2.5.2 Source and Capture

The generation of new DTMs shall be of sufficient density and accuracy to meet horizontal and vertical accuracy standards for the scale(s) specified for this project and be sufficient to generate contours and shall include mass points and break lines.

2.5.3 LiDAR

LiDAR may be used for the DTM capture if the resulting product is supplemented by the necessary breaklines (including road edges, stream banks, and impervious surface edges) and mass points to meet the accuracy standards for the project and is edited so that the resulting contours meet the

horizontal and vertical accuracy as well as cartographic standards pertaining to jaggedness and islands. Checkpoints must be obtained and used throughout the project area and the process for LiDAR capture, enhancement, editing, checkpoints, and equipment shall be clearly defined in the proposal.

2.5.4 Delivery of DTMs and Contours

Delivery of the DTMs and contours will consist of digital map files in AutoCAD (.dwg), ASCII, ArcInfo, and 3D ESRI shapefile formats. The final deliverables shall consist of complete coverages of the defined areas by jurisdiction (See Attachments 8.7 and 8.8.). The coverages should contain contour and spot elevation values coded as feature attributes and label text at every fifth contour and select spot points. Contour lines will be continuous and not broken by text, vegetation, buildings or other landscape features. Lines will be topologically clean with the minimum necessary number of pseudo and dangle nodes.

2.6 Digital Orthophoto Mapping

2.6.1 General

Digital Orthophotos shall be produced for the tiles specified by each jurisdiction (See Attachments 8.4 through 8.6.) The ground control, Digital Terrain Model (DTM), aerotriangulation results, the camera data, and the scanned imagery should be processed on an orthophoto workstation to produce geographically correct ortho images. Respondents should present a strategy for creating and delivering grayscale, color OR color-infrared digital orthophoto images processed to a final ground scale as specified by each jurisdiction in Attachment 8.4 and 8.5. Scanned conventional hardcopy orthophotos will not be acceptable.

2.6.2 Film Scanning

1. The scanning device used shall be a precision photogrammetric scanner capable of capturing 256 levels of gray and capable of scanning at resolutions finer than needed to obtain the output resolution requirements listed below. Interpolation from a finer input resolution to a coarser output resolution is allowable, but interpolation from a coarser input resolution to a finer output resolution is specifically prohibited. <u>The proposal shall state the scanning resolutions planned for this project.</u>

2. Film negatives from each flight line shall be pre-scanned to determine the optimum scan parameters for contrast and brightness. The optimum scan parameters shall produce full depth image histograms with emphasis on feature recognition in the shadows and the light areas of the image. During the scanning process, the contrast and brightness of the images shall be closely monitored. Each flight line shall be compared to the adjacent flight lines to ensure a uniform consistency throughout the entire project. The respondents shall discuss the particular scanner to be used as well as its geometric accuracy.

2.6.3 Orthorectification

1. Vendors shall describe in detail the technical procedures, equipment and software to be used for the production of digital orthophotos. A complete description of the digital orthophoto technical methodology will include, but not be limited to, compilation of the terrain model, ortho rectification process, image mosaicking, radiometric accuracy, estimated file size and all quality control procedures. Vendors should provide any relevant detail about image processing techniques which they propose to use to enhance the usefulness of the digital image.

2. The orthophotography produced must be mosaicked with consistent tonal and gray scale ranges within and between images. Details in dark toned and highlighted areas should be preserved. The ortho files must tile together seamlessly. Mosaicking must be performed in a manner which eliminates image distortions caused by above ground features mosaicked from adjacent photographs. There shall be no "ghosting" or distortion of buildings, bridges, overpasses, etc. Bridges and overpasses must be spatially correct and shall not contain bends, breaks, or discontinuities.

3. The images shall be edge-matched so that tonal values are consistent across the edges and there is minimal evidence of the join. Radiometry must be balanced between neighboring tiles. There shall be no radiometric seams within or between flight lines.

4. In addition to any of the above listed of image defects, visible seams between orthophoto images that evidence a noticeable edge or a "feathering effect" will be grounds for rejection.

2.6.4 Grid-Based Image Tiles

1. The delivery of the orthophotography shall be tiled and provide seamless coverage for each jurisdiction's specified coverage area (See Attachments 8.4 and 8.5). The digital images are to be edge-matched with no pixel gaps between geographic partitions. Density matching of digital ortho images is required to create the appearance of a seamless mosaic. Respondents are expected to identify the quality assurance and checking procedures that will be employed to guarantee proper tone balancing and overall image quality. Images shall be delivered to each jurisdiction on the media specified in Attachment 8.1.

2. The tiling scheme for all of the Illinois and Iowa Jurisdictions except the City of Davenport shall be based on an extended grid currently in use by MAGIC. The MAGIC tiling scheme is based on an even coordinate, area wide grid of 6,000ft x 6,000ft tiles for the 2.0ft GSD pixels. The 6,000ft tiles are further subdivided into even coordinate 1,500ft x 1,500ft tiles for the 0.5ft GSD pixels. This grid can be supplied in digital format (ESRI shape files) upon request.

3. The City of Davenport image tiles will be based on their existing ¼ section coverage including a 200ft buffer on all sides. This same coverage area will be provided to Scott County in the grid based image tiles as specified in 2.6.4.2 above. (See Attachment 8.6.)

4. Image tiles which include coverage of two or more jurisdictions shall be provided to each of the included jurisdictions.

5. Jurisdictions along the Mississippi River shall have full image tile coverage extending to at least the center of the river (Iowa/Illinois State Line).

2.6.5 Full Image Tiles

1. Full image tiles are tiles in which the entire range of the tile is completely filled with ortho-rectified imagery.

2. The 6,000ft x 6,000ft, 1" = 400' scale image tiles at the outer extent of the overall coverage area must provide the minimum specified jurisdictional coverage area but may not be full image tiles. There may be instances at the outer extents where the ortho-rectified imagery covers the specified coverage area but does not fill the entire range of the tile.

3. The 1,500ft x 1,500ft, 1" = 100' scale image tiles must always be full image tiles. In all cases the entire range of a 1" = 100' scale tile will be filled with 1" = 100' scale ortho-rectified imagery.

2.6.6 Mosaicked Images

A digital mosaic is requested for several of the jurisdictions (See Attachment 8.1, 8.4, 8.5 and 8.9). The digital photo mosaics will be delivered in compressed image file(s), e.g., MrSID or .ECW files for ERMapper. Exact compression specifications will be specified upon initiation of a contract with the selected vendor. In addition, one or more jurisdictions request photo mosaics in hard copy format upon initiation of individual contracts.

2.6.7 Pilot Project

Prior to beginning full production of the digital orthophotography, the successful vendor will be required to provide a pilot project data set developed from the newly acquired photography for review and approval by the consortium. Two areas of coverage will be required for the data set; a four square mile area produced from the 400scale imagery and a two square mile area produced from the 100scale imagery. The 400scale, four square mile data set shall contain a mix of rural and urban areas. The 100scale two square mile data set shall cover a primarily urban area. Both of the data sets shall include the associated digital orthos, digital terrain models, contours and metadata reports. The approved pilot project data sets will become the standard for the remainder of the project deliverables.

2.7 Metadata

The vendor may be responsible for producing FGDC-compliant metadata for any or all products. The final format of the Metadata shall be reviewed and approved by the individual jurisdictions upon initiation of contracts.

2.8 Alternates

Vendors are encouraged to recommend alternate methods and/or procedures that will improve the project quality and/or reduce project costs. Suggested alternates should be listed separately from the base proposal and described in detail.

2.9 Project Schedule

The project area will be flown in the spring of 2005. Each jurisdiction in the consortium shall begin to take delivery of contracted products on or before August 31, 2005. All contracted data products shall be received by a date mutually agreed upon between each jurisdiction and the vendor upon initiation of contracts.

Section 3: Proposal For Services Format

3.1 General Instructions for the Format of the Proposals for Services

In order to facilitate a timely and fair evaluation of Proposals, a standard format has been developed and is outlined below. All respondents are required to format their Proposal in a manner consistent with the following format:

Section	Subject
1	Transmittal Letter
2	Scope of Services/Approach to the Project
3	Schedule for Completion of Services
4	Obligations
5	Cost Proposal

3.2 Transmittal Letter

A brief transmittal letter should accompany each respondent's Proposal. It should precede the Scope of Services/Approach to the Project, Schedule, Obligations and the Cost Proposal. The transmittal letter should contain the following information:

- A brief statement of the respondent's understanding of the project;
- A brief overview of the respondent's approach to the project;
- Highlights of the respondent's qualifications and ability to perform the project services;
- If any subcontractors are proposed, a brief description of the roles of the respondent and the subcontractors;
- The name, title, phone, fax, street and email address of the primary contact in the respondent's organization, who will respond to questions about the Proposal;
- Signature of an authorized representative of the respondent's company.

3.3 Scope of Services/Approach to the Project

Respondents should provide a complete description of the scope of services to be provided, with details pertaining to the methods to be used and services to be performed. Respondents should address each of the eight components outlined in Section 2, Project Scope. Respondents shall also describe how they will produce each of the deliverables outlined in Section 2 and Attachments 8.4 and 8.5 and Attachments 8.7 through 8.9. Responses on deliverables must include the methods used and quality control/quality assurance procedures that will be utilized. Minimum specifications under each Scope of Work component must be met.

3.4 Schedule for Completion of Services

Respondents should provide a schedule for completing the work requested in this Request for Proposals as specified in Section 2.9, including a progress reporting strategy.

3.5 Obligations of the Consortium

Respondents should provide a list of all items that the jurisdictions in the consortium should provide to assist the selected vendor in completing the work requested. This should include any data, proposed use of staff or office space and any equipment or materials/supplies that will be expected. Respondents should also describe a strategy for project management indicating the mechanisms intended to be used to coordinate the proposed work.

3.6 Cost Proposal

The Cost Proposal shall be outlined according to cost for services and deliverables as described in Attachment 8.1, Statement of Estimated Cost for Services Worksheet. All respondents are required to use this Worksheet to outline costs for this project. It is suggested that respondents utilize the Cost for Services Worksheet in electronic format to facilitate providing the information. The form will be made available in Microsoft Word format on the Bi-State Regional Commission website at http://www.bistateonline.org. (Look under "Features" on the right side of the home page). Please retain the exact order of items.

Section 4: Instructions for Submittal of Proposals for Services

4.1 Proposal for Services Deadline

Interested firms are asked to submit their Proposal for Services no later than 4:00 p.m. C.S.T. **December 22, 2004**. Proposals should be delivered to:

Attn.: Lisa J. Miller, GIS Director
Bi-State Regional Commission
1504 Third Avenue, P.O. Box 3368
Rock Island, IL 61204-3368

Submissions of Proposals should be made by mail or commercial express delivery service only. Faxed or emailed Proposals will not be considered. All firms shall be responsible for the timely delivery of their firm's Proposal, which is sent by mail or commercial express delivery service. Any Proposal received after the deadline will not be accepted and will be returned unopened and marked "Past Deadline". Proposals should be organized in the format specified in this RFP. All Proposals become the property of the Bi-State Regional Commission, on behalf of the multi-jurisdictional consortium. The content of all Proposals will be held confidential and sealed until after the submission deadline. The Proposals will be opened and reviewed by Lisa Miller, GIS Director at Bi-State Regional Commission for adherence to RFP specifications. The multi-jurisdictional consortium will then review the contents of the Proposals and select a "short list" of three proposals based on the selection process outlined in Section 5.

4.2 Proposal for Services Submission Medium

Each interested firm shall submit twelve (12) original hard copies (See Section 3, Proposal for Services Format). Submissions of Proposals should be made by mail or commercial express delivery service only.

4.3 RFP Inquiries

Respondents are expected to raise any questions, exceptions or additions they have concerning the RFP document. If a respondent discovers any significant ambiguity, error, conflict, discrepancy, omission or other deficiency in this RFP they should contact the below named individual. All inquiries and requests for information pertaining to this RFP must be submitted in writing, by fax, or email to:

Attn.: Lisa J. Miller, GIS Director
Bi-State Regional Commission
1504 Third Avenue, P.O. Box 3368
Rock Island, IL 61204-3368
Email: lmiller@bistateonline.org
Fax: (309) 793-6305

The Bi-State Regional Commission reserves the right to judge whether any questions should be answered in writing, and/or copies distributed to all prospects who were invited to submit a Proposal for Services. Inquiries made after **December 8, 2004** cannot be answered in order to leave ample time for all respondents for the preparation of their proposals.

Please do not attempt to contact the staff of any of the agencies participating in this consortium; all inquiries should be submitted through Ms. Miller as stated above.

4.4 Prerequisite Statement of Qualifications

Respondents to this RFP who wish to submit a Proposal for Services must have submitted a Statement of Qualifications pertaining to this project between August 11, 2004 and August 31, 2004. Proposals for Services submitted by firms who have not submitted a Statement of Qualifications will not be accepted and will be returned, marked "No SOQ".

4.5 Prime Contractor

A single firm may submit in response to the RFP, or a team of vendors in order to provide all deliverables specified. However, the final contracts will be negotiated with only one prime contractor and the prime contractor will be responsible for all the actions of the sub-contractor(s).

Section 5: Evaluation and Selection Process

All submitted Proposals will be held confidential and sealed until after the submission deadline. The Proposals for Services will be opened and reviewed by Lisa Miller, GIS Director at Bi-State Regional Commission for adherence to RFP specifications. The multi-jurisdictional consortium will review and evaluate the contents of the Proposals for Services.

The information submitted in the Proposals for Services will be evaluated based on the following types of criteria:

- Vendor's experience with similar multi-jurisdictional projects;
- Vendor's (or sub-contractor's) past performance with any of the members of the consortium;
- Firm's history and stability, experience in aerial photography and GIS, adequacy of production facilities and equipment;
- Firm's stated approach to the project;
- Geographic location of firm to the project;
- Staff resources, qualifications and experience;
- References;
- Compliance with the RFP instructions and Proposal format;
- Ability to meet project schedule;
- Quality Control/Quality Assurance Measures;
- Guarantee of Work and Timeliness of Delivery, if provided;
- Cost for Services

The above criteria is not intended to be a comprehensive list, nor is the arrangement of the criteria meant to imply order of importance in the selection process.

It is the intent of the consortium to evaluate the Proposals, primarily based on the qualifications of the firm and the firm's ability to complete the project within specifications and schedule; and secondly, the proposed cost for services. Those firms whose Proposals are determined by the consortium to best meet the needs of the consortium will have the opportunity to present these proposals along with an interview session with the consortium. The consortium will select a qualified firm believed to be capable of completing the project in a manner that is in the best interest of all consortium members. Final selection will be based on the consensus of all consortium members. The consortium will choose one firm to negotiate contracts for services with each participating entity in the consortium.

The consortium reserves the right to reject any or all Proposals and to negotiate the terms of the contract(s), including the award amount, with the selected firm prior to entering into a contract. If contract negotiations cannot be concluded successfully with the first chosen vendor, the consortium may negotiate a contract with the next choice of vendors.

Section 6: Payment

Payment to the extent of the value of work done and materials furnished will be made upon completion of the sections of the project and submission of an invoice from the vendor. Ten percent (10%) will be retained from each invoice until the whole project is finished to the satisfaction of the individual jurisdictions. The retainage will be paid in full upon the acceptance of the individual jurisdictions of the final product as described in this RFP.

Section 7: General Terms and Conditions

7.1 Ownership of Completed Products

All maps, photographs, documents, diagrams, reports, custom software or digital data used, prepared or completed during the performance of services specified in this RFP shall become the property of the consortium members, and shall not be copyrighted by the selected vendor. Also, the same materials shall not be released or made available to any third party or used for other purposes at any time without written approval of the consortium member(s). Digital files provided to the vendor remain the property of the consortium member(s) and may not be used for any project except that contracted for under this proposal.

7.2 Warranties and Guarantees

7.2.1 Vendor shall guarantee against any defects for one year from date of Contract Completion.

7.2.2 Vendor shall correct any such defects in a manner acceptable to the member(s) of the consortium, and without expense to the consortium member(s), within ten days after notification of such defect, in writing, by any consortium member. If the vendor has not made the correction thereof within the period specified above, the consortium member(s) may do so, and charge the cost of same to the vendor.

7.2.3 All warranties shall begin on the date of Contract Completion and run for one year thereafter.

7.3 Hold Harmless and Indemnify

The vendor shall indemnify and hold harmless any of the consortium members, employees thereof, Bi-State Regional Commission or any of its employees from any and all liability, costs, damage, damages and expenses (including reasonable attorney's fees and court costs) resulting from, arising out of, or incurred by reason of any claims, actions or suits base upon or alleging bodily injury, including death, or property damage arising out of or resulting from the vendor's negligent acts under this project, whether such negligence be by himself or by the Vendor's subcontractors or anyone directly or indirectly employed by either of them. Vendor shall obtain insurance for this purpose, and shall file certificates of such insurance with the Bi-State Regional Commission, on behalf of the consortium member(s) and/or each of the contracting members of the consortium.

7.4 Compliance with Laws

Contracts arising from this Request for Proposals shall be construed and enforced in accordance with the laws of the States of Illinois and Iowa and all parties shall comply with all applicable laws, regulations, ordinances and other rules of all governments and governmental agencies that exist in the project area.

7.5 Conflict of Interest

The Bi-State Regional Commission or any of the consortium members reserve the right to request that the vendor should provide a statement that the vendor has no conflict of interest with past, present, or known future policies, plans or programs of the members of the consortium.

7.6 Non-Discrimination

The vendor will not discriminate against any employee or applicant for employment because of race, color, national origin, sex or religion. The vendor will take Affirmative Action to insure that the applicants are employed and that the employees are treated during employment without regard to their race, color, national origin, sex or religion. Such action shall include, but not be limited to, the following: employment, referral for employment, upgrading, promotion, demotion or transfer, recruitment or recruitment advertising, layoffs or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

The vendor further acknowledges that it recognizes and will comply with Executive Order 11246, and with the Civil Rights Act of 1964.

The awarded vendor may be required to sign an Equal Employment Opportunity Policy Statement.

Section 8: Attachments

Attachment 8.1
Statement of Estimated Cost for Services Worksheet

	Unit Cost*	Total Cost

8.1.1 Digital Orthophoto Files
(See Section 2.6.4, Grid-Based Image Tiles and Attachments 8.4 and 8.5)

1" = 400' (2,330 sq. mi.) – Henry, Rock Island and Scott Counties; MAGIC

Grayscale .....$_____ $_____

Color .....$_____ $_____

ColorInfrared .....$_____ $_____

1" = 100' (612 sq. mi.) – Cities of Bettendorf, Davenport, LeClaire, Rock Island; Henry, Rock Island and Scott Counties; MAGIC

Grayscale .....$_____ $_____

Color .....$_____ $_____

8.1.2 Digital Terrain Model (DTM) (317 square miles)
(See Section 2.5, Delivery of the DTMs, contours, and Attachment 8.7) – Cities of Bettendorf, Davenport, Moline and Rock Island; MAGIC; and Scott County

Digital Terrain Model (as deliverable) .....$_____ $_____

8.1.3 Contour Products (238 square miles)
(See Section 2.5, Delivery of the DTMs, contours, and Attachment 8.8) – Cities of Bettendorf, Moline and Rock Island; and Scott County

2' Contours .....$_____ $_____

* Unit Cost is Cost per Square Mile

Attachment 8.1, continued
Statement of Estimated Cost for Services Worksheet

8.1.4 Digital Orthophoto Mosaic Products

(See Section 2.6.6, Mosaicked Images for specifications and refer to Attachments 8.4, 8.5 and 8.9 for coverage areas.)

City of Bettendorf (Entire 1"=100' coverage).....$_____

City of Davenport (Entire 1"=100' coverage).....$_____

City of LeClaire (Entire 1"=100' coverage).....$_____

City of Rock Island (Entire 1"=100' coverage).....$_____

Henry County (Entire 1"=400' coverage overlaid with 1"=100' coverage)
.....$_____

MAGIC (Entire 1"=400' coverage overlaid with 1"=100' coverage)
.....$_____

Rock Island County (Entire 1"=400' coverage overlaid with 1"=100' coverage)
.....$_____

Scott County (Entire 1"=400' coverage overlaid with 1"=100' coverage)
.....$_____

Bi-State Regional Commission (1"=400' coverage overlaid with 1"=100' coverage within Quad Cities MPO Urban Area – See Attachment 8.7)
.....$_____

Please note: All products shall be delivered on DVD format.

Attachment 8.2
General Project Area Map

Attachment 8.3
Potential Participants

Counties potentially participating:
Henry County, Illinois
Muscatine County, Iowa*
Rock Island County, Illinois
Scott County, Iowa

Municipalities potentially participating:
City of Bettendorf, Iowa
City of Davenport, Iowa
City of LeClaire, Iowa**
City of Moline, Illinois
City of Muscatine, Iowa*
City of Rock Island, Illinois

Utilities potentially participating:
Iowa American Water Co.
Muscatine Power & Water Co.*

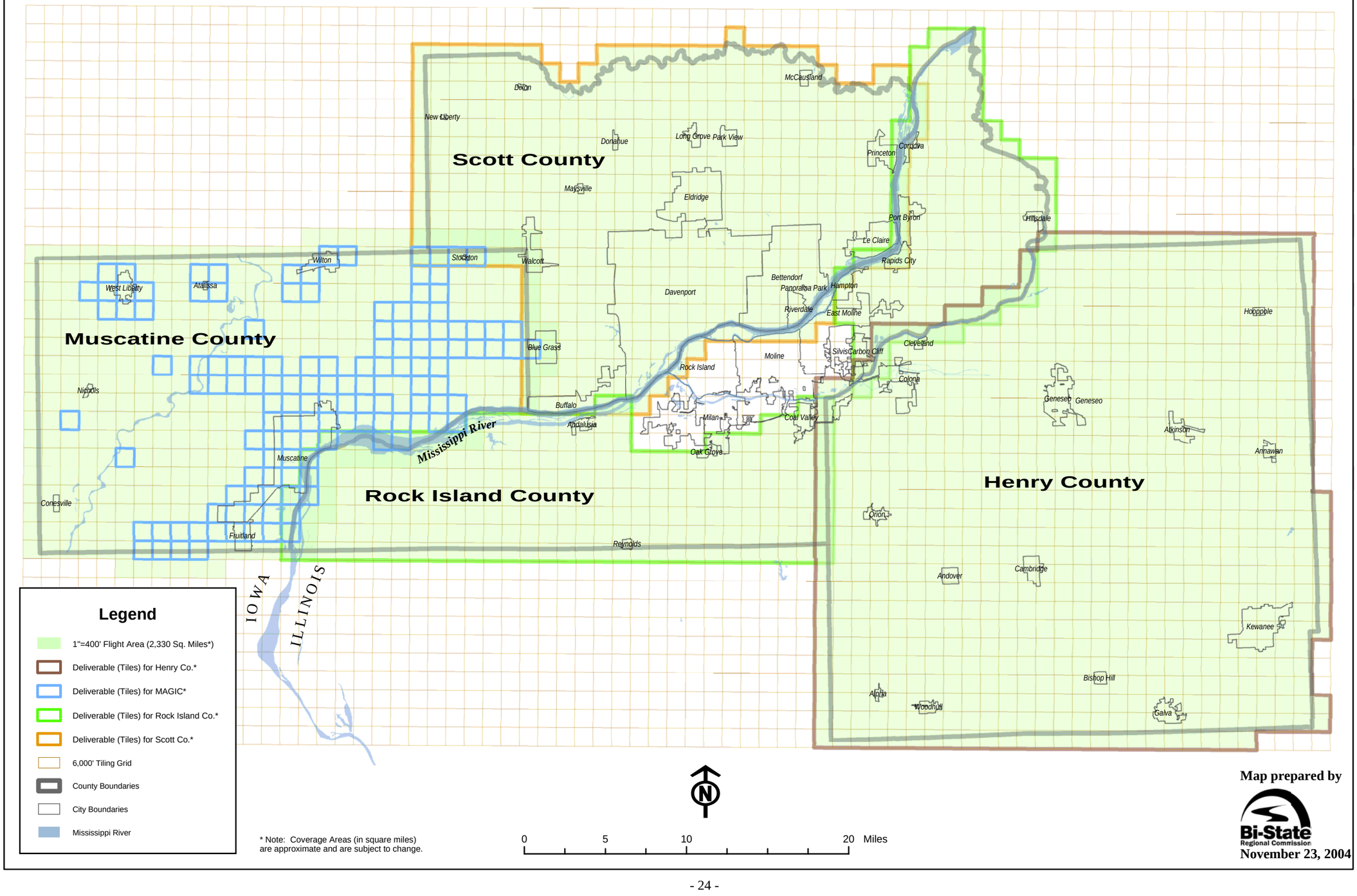
* These three entities are part of an existing consortium, the Muscatine Area Geographic Information Consortium (MAGIC).

** LeClaire's participation independently depends on Scott County's participation.

Attachment 8.4

1" = 400' Photography Requested

with 6,000' Tiling Grid



Legend

- 1"=400' Flight Area (2,330 Sq. Miles*)
- Deliverable (Tiles) for Henry Co.*
- Deliverable (Tiles) for MAGIC*
- Deliverable (Tiles) for Rock Island Co.*
- Deliverable (Tiles) for Scott Co.*
- 6,000' Tiling Grid
- County Boundaries
- City Boundaries
- Mississippi River

* Note: Coverage Areas (in square miles) are approximate and are subject to change.

0 5 10 20 Miles

Map prepared by

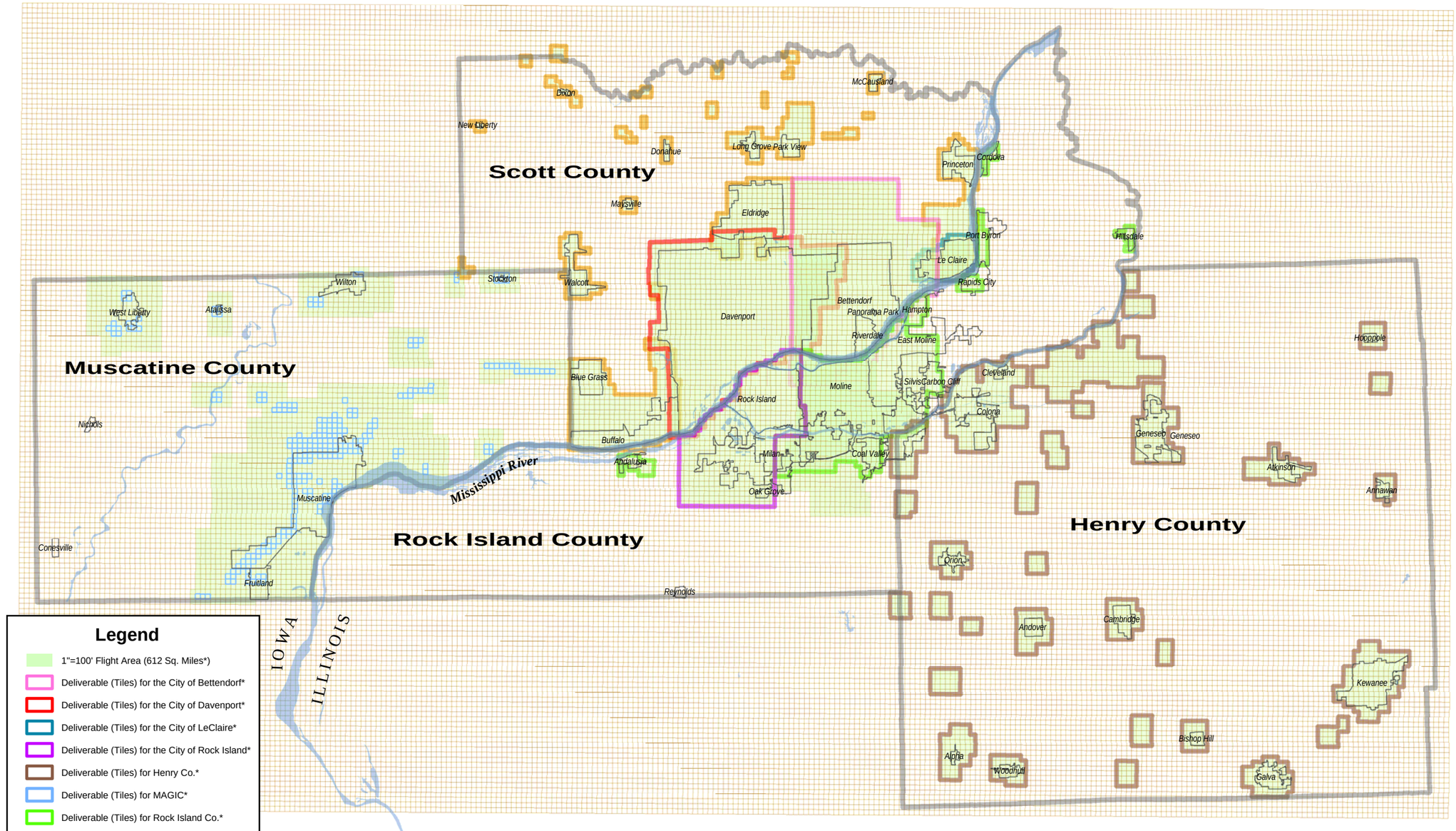
Bi-State Regional Commission

November 23, 2004

Attachment 8.5

1" = 100' Photography Requested

with 1,500' Tiling Grid



Legend

- 1"=100' Flight Area (612 Sq. Miles*)
- Deliverable (Tiles) for the City of Bettendorf*
- Deliverable (Tiles) for the City of Davenport*
- Deliverable (Tiles) for the City of LeClaire*
- Deliverable (Tiles) for the City of Rock Island*
- Deliverable (Tiles) for Henry Co.*
- Deliverable (Tiles) for MAGIC*
- Deliverable (Tiles) for Rock Island Co.*
- Deliverable (Tiles) for Scott Co.*
- 1,500' Tiling Grid
- County Boundaries
- City Boundaries
- Mississippi River

*Note: Coverage Areas (in square miles) are approximate and are subject to change.

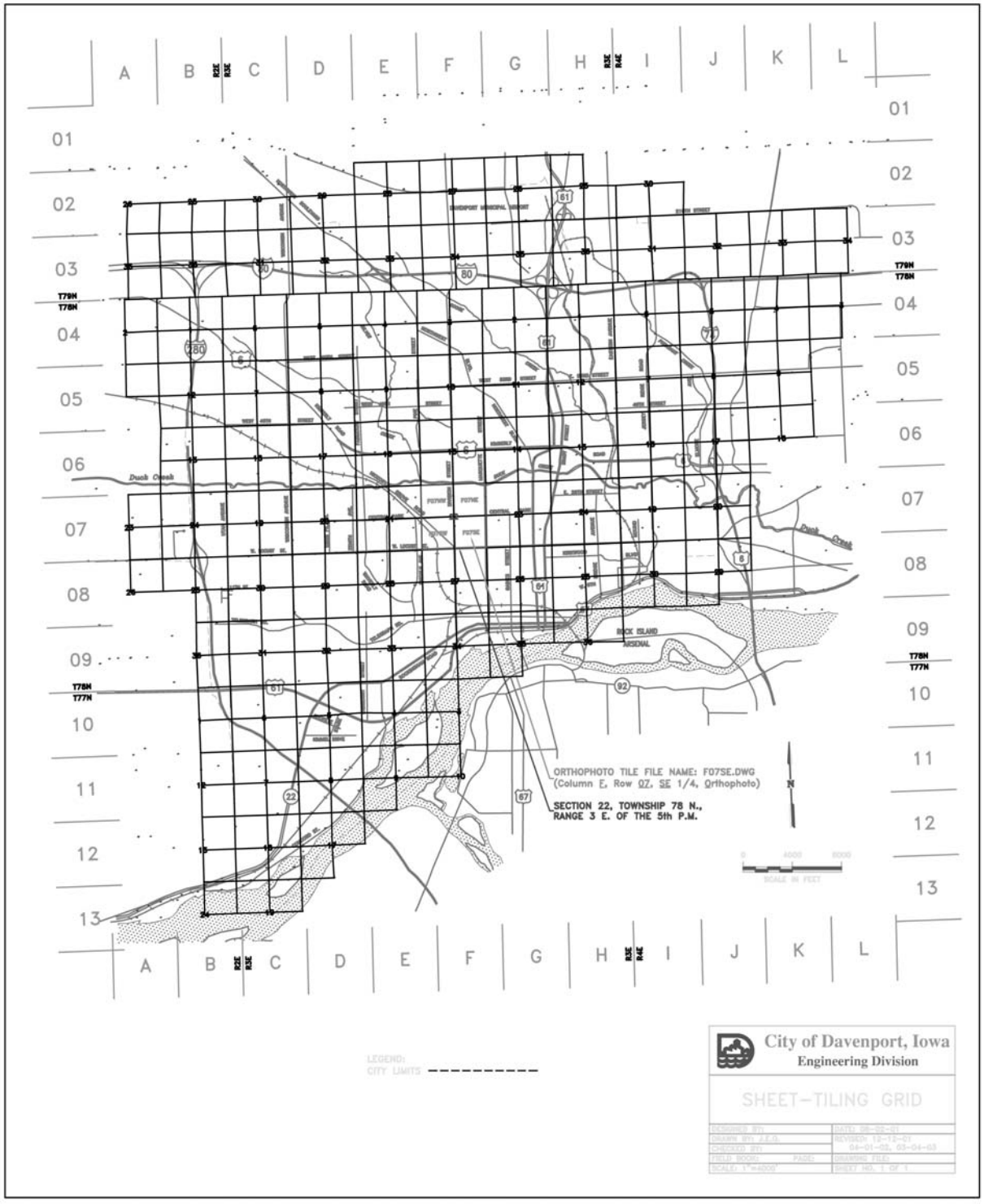
0 5 10 20 Miles

Map prepared by

Bi-State Regional Commission

November 23, 2004

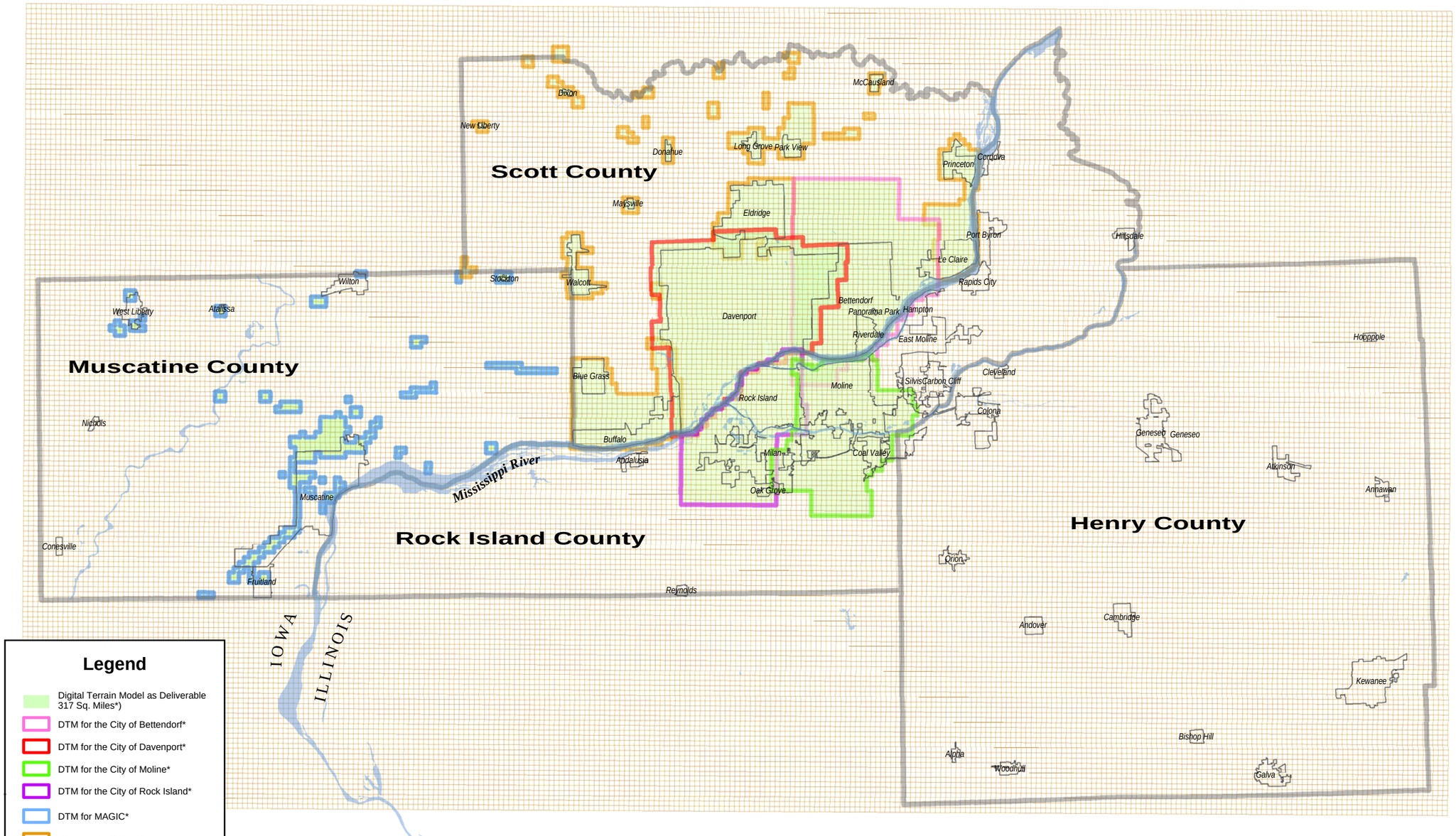
Attachment 8.6
Tiling Grid for the City of Davenport



Attachment 8.7

Digital Terrain Model

(As Deliverable) with 1,500' Tiling Grid



*Note: Coverage Areas (in square miles) are approximate and are subject to change.

Map prepared by

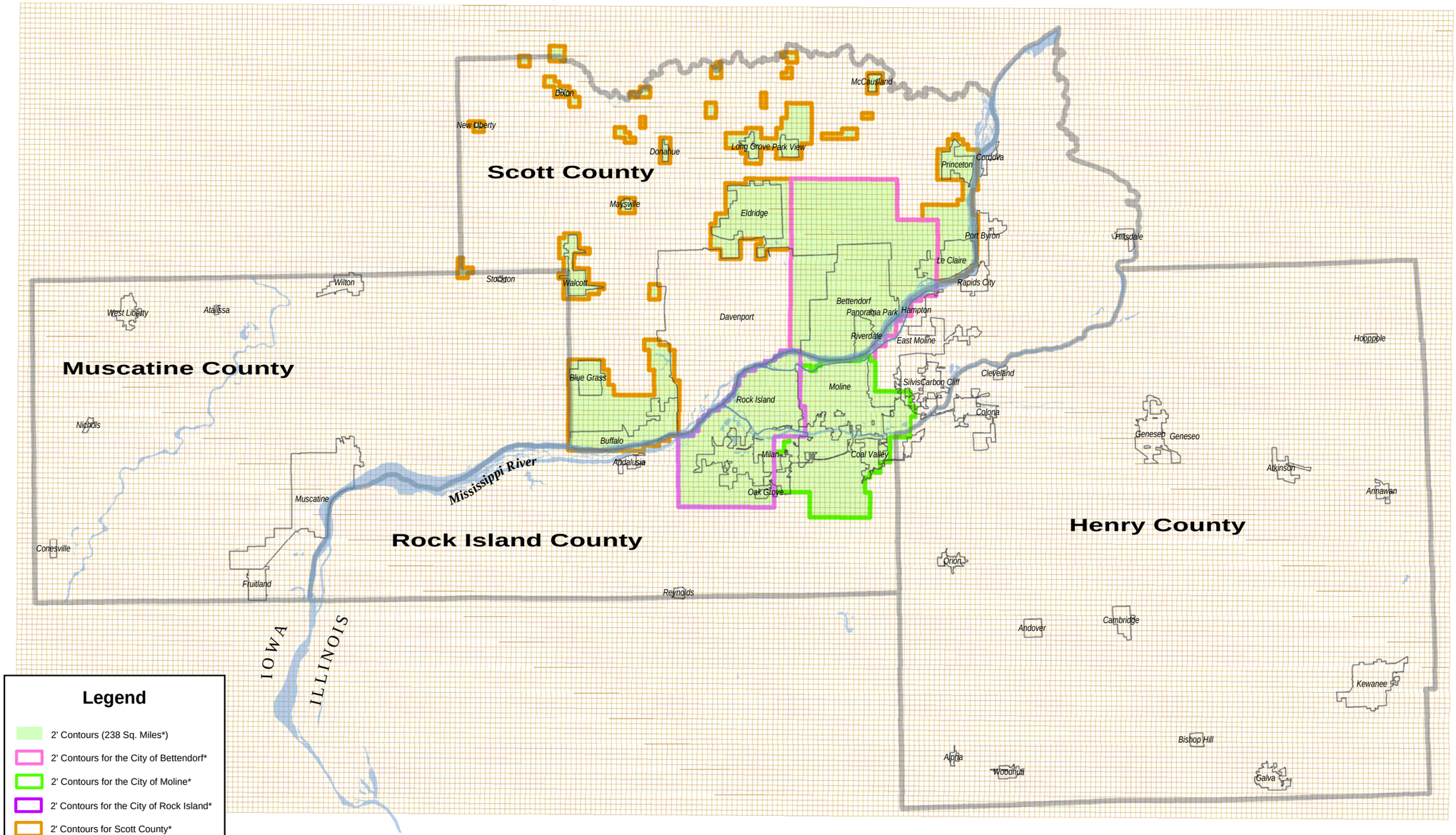
Bi-State Regional Commission

November 23, 2004

Attachment 8.8

2' Contours

with 1,500' Tiling Grid



Legend

- 2' Contours (238 Sq. Miles*)
- 2' Contours for the City of Bettendorf*
- 2' Contours for the City of Moline*
- 2' Contours for the City of Rock Island*
- 2' Contours for Scott County*
- 1,500' Tiling Grid
- County Boundaries
- City Boundaries
- Mississippi River

*Note: Coverage Areas (in square miles) are approximate and are subject to change.

0 5 10 20 Miles

Map prepared by

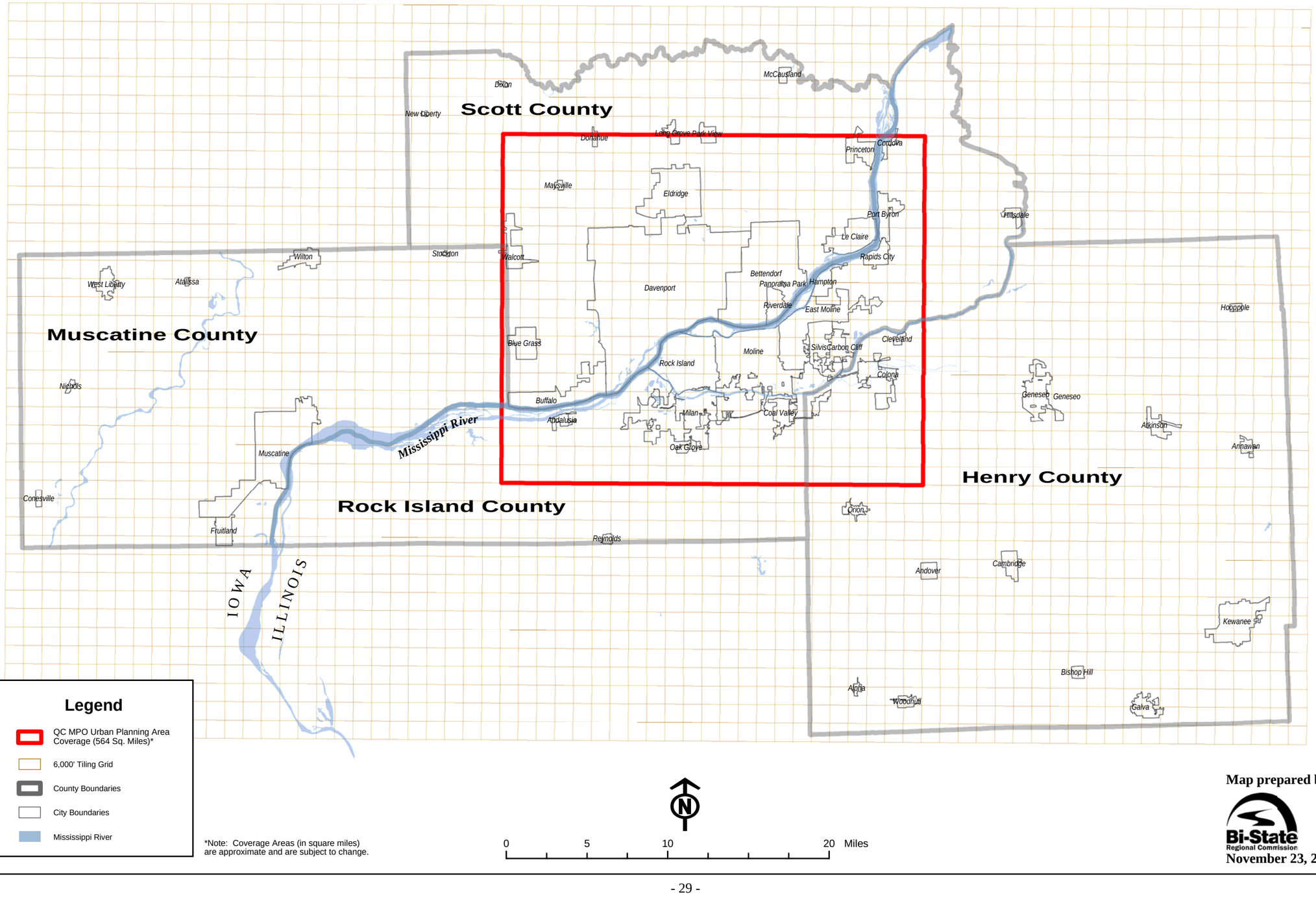
Bi-State Regional Commission

November 23, 2004

Attachment 8.9

QC MPO Urban Planning Area Coverage

with 6,000' Tiling Grid



Legend

- QC MPO Urban Planning Area Coverage (564 Sq. Miles)*
- 6,000' Tiling Grid
- County Boundaries
- City Boundaries
- Mississippi River

*Note: Coverage Areas (in square miles) are approximate and are subject to change.

0 5 10 20 Miles

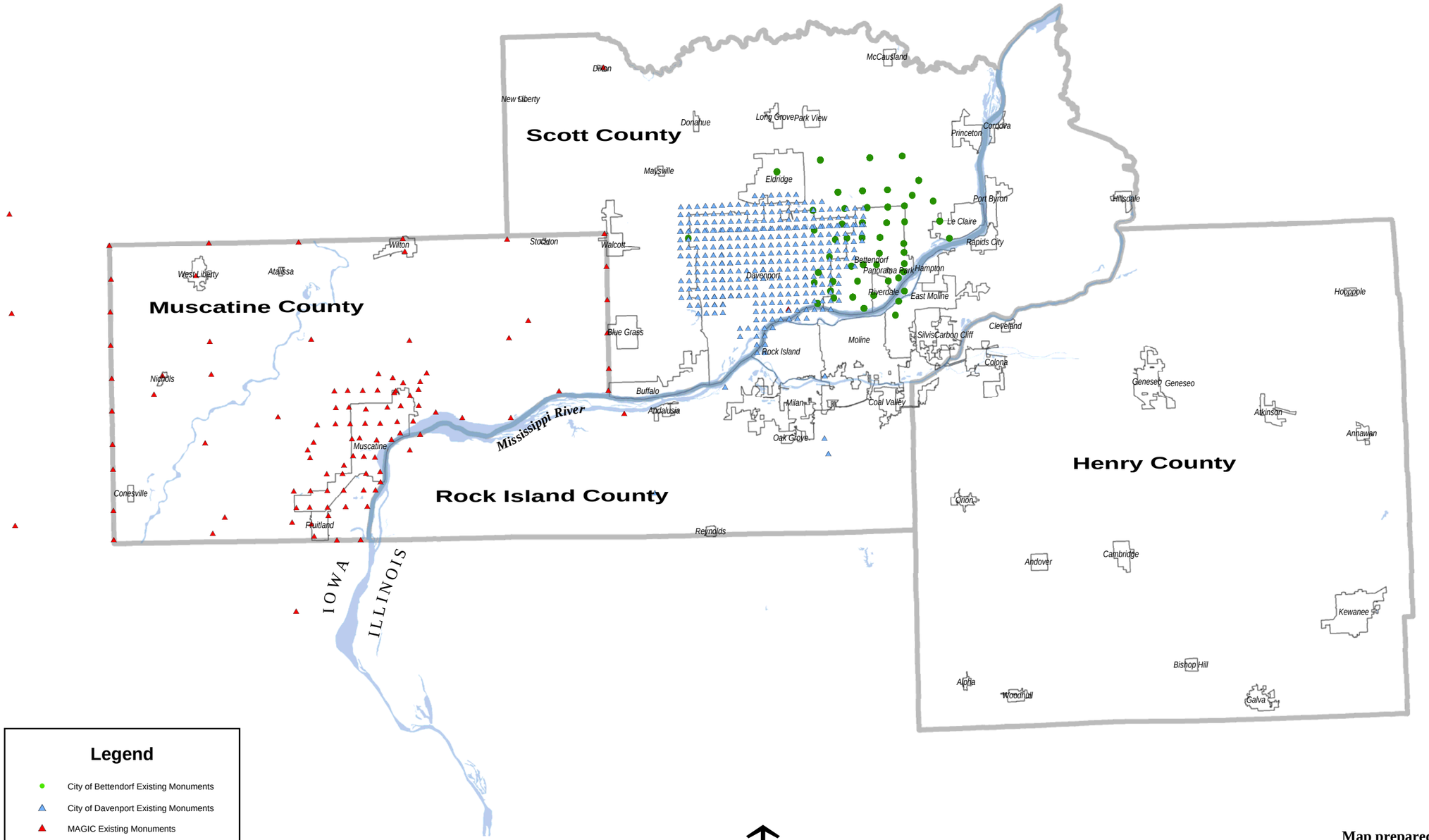
Map prepared by

Bi-State Regional Commission

November 23, 2004

Attachment 8.10

Location of Existing Ground Control



Map prepared by

Bi-State Regional Commission

November 23, 2004