REQUEST FOR PROPOSAL
CITY OF DULUTH, MN

RFP No. 11-33DS

2012

OXFORD-LIVINGSTON-GLENWOOD RECONSTRUCTION

Municipal State Aid Project

City Project No. 0439TR

Oxford Street, from Woodland Avenue to Livingston Avenue
S.P. 118-163-010
Livingston Avenue, from Oxford Street to Glenwood Street
S.P. 118-163-020
Glenwood Street, from Livingston Avenue to Snively Boulevard/Jean Duluth Road
S.P. 118-163-030

PROJECT OVERVIEW

The City of Duluth is interested in retaining an engineering consultant to provide engineering services to assist the City in providing for the successful completion of a phased Municipal State Aid project scheduled for construction in the years 2012 and 2013.

Design services are desired to review existing streets and infrastructure, gather preliminary design data, perform engineering surveys and preliminary engineering, hydraulics, complete final design including construction plans and specifications for roadway and utilities.

The Municipal State Aid project consists of the reconstruction of a municipal state aid street (Oxford Street, Livingston Avenue and Glenwood Street). The total mileage of the scheduled reconstruction is 0.98 miles. Work shall include, but is not limited to, complete base reconstruction, complete concrete curb and gutter construction, sidewalk replacement/construction, complete storm sewer construction, catch basin and catch basin lead construction, watermain replacement, sanitary sewer replacement, placement of bituminous pavement, and striping.

The project will have varying typical sections, as described in Resolution 0441R Amended, attached to this RFP. A map showing the scheduled project area is on the last page of the Resolution. Design shall be 10 ton. Detours and access will be necessary during construction.

Construction funding for the project is through the City of Duluth MSAS account, special assessments, and City of Duluth utility funds.

The City is committed to providing the following:

- Previous surveys, reports and studies, if available.
- Aerial photography (see SCOPE OF SERVICES section 2a)
- All available street and utility record drawings for the scheduled project.
- Assistance in obtaining other related information in City files pertaining to the project if needed.

GENERAL PROJECT SCOPE

Consulting Engineering Services are expected to include the following:

I. Project initiation and other meetings as necessary with City Engineering Staff.
II. Preliminary Surveys and Information Gathering.
III. Preliminary Engineering Design.
IV. Preliminary Design information meetings with neighborhood residents.
V. Production of construction plans and specifications.
VII. Assistance in bidding.
VIII. Survey to locate right-of-way and provide control points for alignment and elevations.

SCOPE OF SERVICES

1. Initial Site Visit and Consultations

a. The Consultant shall meet with City of Duluth representatives to review project scope and complexity, design criteria, related requirements, view existing conditions, and gather data from the City engineering files. Additional consultations shall, where necessary, clarify the technical requirements and objectives of the contract and may be in the form of letters and/or telephone conversations.

b. The Consultant shall provide documentation of meetings and data provided.

c. The Consultant shall ascertain the applicability of information provided, review data for completeness, and notify the City of any additional data required. It shall be the responsibility of the Consultant to determine, by site inspection procedures, the reliability of all the drawings and information which they choose as reference.

2. Reconnaissance, Field Surveys & Geotechnical Exploration

a. The City of Duluth has had the site flown and mapped and will provide to the Consultant with one copy of the DTM and contours in AutoCAD Civil 3D 2010 format, one copy of planimetric features in AutoCAD format. See details of the aerial mapping contractor's proposal, attached to this RFP. The Consultant shall perform supplemental field surveying and data collection as needed.

b. Consultation with regulatory agencies to determine required information for permit applications as it relates to the design and execution of the entire project will be required. The Consultant shall be responsible for permit applications that may be required of the City. The MPCA "What's In My Neighborhood" website does not list a site of record in the project limits.

c. The Consultant shall provide geotechnical report with sub-surface exploration, based on 24 borings (220' intervals +/-).

d. The consultant shall report on existing structure conditions of vaults and manholes. Describe or photograph structure interior, measure inverts, estimate pipe material and diameters and provide interior measurements of vaults.

e. Requirements for survey data will be based on section VIII, Survey Requirements, of the City of Duluth Engineering Guidelines. Construction plans will call out requirements for perpetuating existing city and section monuments. References to construction surveying will not apply to this RFP.

3. Recommendations and Costs

The Consultant shall analyze all available records, record drawings, inspection reports and all other appropriate data, and prepare recommendations and a cost estimate prior to preparing plans and specifications. The consultant shall work with City staff to provide design and cost alternatives to assist the City in meeting the City's desired objectives and budget constraints.

4. Preliminary Design

The consultant shall perform preliminary design and layouts based upon the data and information collected. Preliminary layouts shall be produced for Engineering staff review and for presentation at neighborhood information meetings.

5. Plans and Specifications

a. The consultant shall prepare construction drawings as necessary to provide for the complete reconstruction. These drawings shall include all details, plans and specifications necessary for all work as required by State Aid Standards, and all other appropriate approval agencies.

b. The specification preparation shall also include appropriate sections for bidding, bonding, agreements, general and special provisions, and other appropriate contract provisions as well. These sections shall be developed in accordance with the City's standards, which shall be made available to the consultant.

c. The drawings shall include all necessary site maps, plans, elevations, sections, details, and notes as needed or necessary to adequately show, explain or describe all features of the project. The contract drawing sequence shall follow the standard City of Duluth and State Aid format.

d. Plans shall be in accordance with the current version of the City of Duluth Guidelines for Engineering Requirements.

e. Plans and specifications shall address phasing of the project over years 2012 and 2013. The 2012 phase will be complete, so that no work on the 2012 phase area is required in year 2013. Phasing should be based on construction taking place from June 11, 2012 to November 9, 2012 and from May 13, 2013 to November 8, 2013.

6. Cost Estimate

Following the completion of the plans and specifications, a quantity takeoff and a detailed itemized construction cost estimate for the entire project shall be provided.

7. Bidding Assistance

Upon completion of plans and specifications, the consultant shall provide time for answering questions from the city and bidders.

PROPOSAL CONTENTS

The following will be considered minimal contents of the proposal:

1. A restatement of the goals and objectives and the project tasks to demonstrate the responder's view of the project.

2. An outline of the responder's background and experience with similar projects. Identify personnel to conduct the project and detail their training and work experience. No change in personnel assigned to the project will be permitted without approval of the City.

3. A detailed work plan identifying the work tasks to be accomplished and the budget hours to be expended on each task and subtask for both roadway and utility design. An anticipated work schedule shall also be provided. The work plan shall also identify the deliverables at key milestones in the project as well as any other services to be provided by the City. The City staff intends to be actively involved with the project, and a maximum of three (3) status meetings are to be contained in the work plan in addition to any data collection or input/review meetings.

4. A listing of names, addresses and telephone numbers of at least three (3) references for whom the respondent has performed similar street and utility construction services

5. Provide, in separate envelope, one copy of the cost proposal, clearly marked on the outside "Cost Proposal", along with the responder's official business name and address. Terms of the proposal as stated must be based on the hourly billing rate for each individual employee who will be involved in the design (actual billing rate, not rate for employee classification). With the hourly rate, include a breakdown (labor, overhead, profit and expenses) showing how the rate was derived.

   The responder must include a "not to exceed" total project cost, as well as subtotals for design services through bidding and any sub-consultant fees, along with the following information:

   - A breakdown of the hours by task for each employee.
   - Identification of anticipated direct expenses.
   - Identification of any assumption made while developing this cost proposal.
   - Identification of any cost information related to additional services or tasks. Include this in the cost proposal, but identify it as additional costs and do not make it part of the total project cost.
   - Responder must have the cost proposal signed in ink by an authorized member of the firm. The responder must not include any cost information within the body of the RFP technical proposal response.

6. Prior to entering into an agreement with the city, the consultant shall furnish proof that it has met all legal requirements for transacting business in the State of Minnesota.

7. The proposal shall be limited to 20 pages, plus a cover letter.

DESIGN FAMILIARITY

The Consultant selected will be required to demonstrate and provide proof of competency in the following areas:

- State Aid Street Design
- Planning for effective Public Participation
- Cost estimating and cost control
- Project management experience and dealing effectively with residents

Consultant will be required to provide references of state aid street improvement projects similar in size that have successfully been completed within the past 3 years. Also provide references of design experience for HDPE water main, minimum of 10,000 lineal feet of 8-inch or larger water main or force main within the past 5 years, by staff proposed for this project.

The following additional qualifications and provisions of the consultant are also required:

A Professional Engineer (registered in the State of Minnesota with experience in engineering, preparation of state aid plans and specifications, and inspection services) must supervise all work.

FEES AND EXPENSES REIMBURSEMENT

The proposal shall state, not to exceed, the fee based on the total estimated hourly rates included in the proposal. Include any subconsultant costs. The proposal should also include a schedule of hourly billing rates for each employee who may be involved in design engineering services. Include rates of miscellaneous charges, such as copies and mileage.

The proposal shall be for design services through bidding, for complete restoration of streets and utilities. Proposal shall be organized as thus:

- Street Reconstruction. The project length is approximately 5,800 lineal feet. Street reconstruction will include, but is not limited to, common excavation, perforated pipe, geotextile, select granular, curb and gutter, sidewalk, bituminous, turf establishment and striping. Street widths and sidewalks locations are noted in Resolution 0441R Amended. The cost shall be stated as the cost per lineal foot of street reconstruction for each of the three segments
- Sanitary sewer replacement. The anticipated replacement length is approximately 3,500 lineal feet. Sanitary sewer replacement will include, but not limited to, sanitary sewer main, sanitary manholes and sanitary sewer services (wyes and service pipe). The cost shall be stated as a cost per lineal foot of sanitary main replacement.

- Watermain replacement. The anticipated replacement length is approximately 4,100 lineal feet of 8" and 10" mains. Water main replacement shall include, but not limited to, watermain, lead water service replacements, hydrant replacements, and new hydrants. The cost shall be stated as cost per lineal foot of watermain replacement.
- Storm sewer construction. The existing storm sewer system is assumed to require replacement. The new storm sewer system will include new main piping, manholes, catch basins, catch basin leads, and I&I collection systems. Assume a new storm water treatment structure (Stormceptor, etc.) to be placed in a strategic location. Analyze storm water overflow at the Glenwood Avenue sag, east of Leicester Avenue, and its impact to the properties between Leicester and Morningside Avenues.

SELECTION

The proposals will be reviewed by the City Engineering Staff. The intent of the selection process is to review proposals submitted by at least three qualified consultants, and make an award based upon qualifications as described herein. A 100-point scale will be used to create the final evaluation recommendations. The factors and weighting on which proposals will be judge are:

• Work Plan	25%
• Qualifications/experience of the personnel and company working on the project	25%
• Understanding of the project scope	20%
• Completeness of the proposal.	10%
• Project costs/fees	20%

Proposals will be evaluated on "best value" basis with 80% qualifications and 20% cost consideration. The review committee will not open the cost proposal until after the qualification points have been awarded. The City of Duluth anticipates that the evaluation and selection will be completed by September 30, 2011.

The selected consultant must sign the City of Duluth standard Professional Engineering Services Agreement. Any questions concerning this agreement should be asked prior to proposal submittal. These questions should be directed to Eric Shaffer in the City Engineering Office.

PROJECT COMPLETION DATES

• September 23, 2011	Proposals Due (2:00 PM local time)
• September 30, 2011	Selection Complete
• October 10, 2011	Council awards consultant contracts
• October 11, 2011	Notice to Proceed
• December 6, 2011	Plan submitted for Initial Review
• March 08, 2011	Plan, Specifications and SWPPP completed for submittal to State Aid

SUBMITTAL DATE

Submit original and three (3) copies in an envelope marked "**RFP 11-33DS – Oxford Livingston Glenwood Engineering Services**" by September 23, 2011, 2:00 p.m. local time to:

Dennis Sears
City Purchasing Agent
Room 100 City Hall
Duluth, MN 55802

CONTACT: Greg Stoewer, Project Engineer
City of Duluth - Engineering Division
411 W. 1st Street
Room 211 City Hall
Duluth, Minnesota 55802-1191
(218) 730-5109, FAX (218) 730-5907

LIMITATIONS

This Request for Proposal does not commit the City of Duluth to award a contract or pay costs incurred in the preparation of the proposal, or to procure a contract for services or supplies.

The City of Duluth specifically reserves the right to accept or reject any or all proposals, to negotiate with any qualified source, to cancel in part or in its entirety the Request for Proposal, to waive any requirements, to investigate the qualifications of any proposal, to obtain new proposals, or proceed to have the service provided in any way as necessary to serve the best interests of the City of Duluth.

PUBLIC WORKS AND UTILITIES COMMITTEE

11-0441R AS AMENDED

RESOLUTION OF INTENT TO IMPROVE A PORTION OF OXFORD STREET, LIVINGSTON AVENUE AND GLENWOOD STREET, AND TO ASSESS A PORTION OF THE COSTS THEREOF.

CITY PROPOSAL:

RESOLVED, that pursuant to Section 61 of the City Charter, the council hereby expresses its intent to cause the following portion of the streets named below to be improved as part of the city's 2012 municipal state aid project and hereby requests that the mayor prepare or cause to have prepared plans, specifications and estimates therefor, subject to the following design limitations, and file such plans and estimates with the special assessment board, together with a recommendation as to what portion of the cost shall be paid by special assessment and what part, if any, should be a general obligation of the city, the number of installments in which assessments may be paid, and the lands which should include the special assessments:

Oxford Street from Woodland Avenue to Livingston Avenue;

Livingston Avenue from Oxford Street to Glenwood Street;

Glenwood Street from Livingston Avenue to Jean Duluth Road.

RESOLVED FURTHER, that the plans, specifications and estimates referred to above shall not include a boulevard along the described portion of Glenwood Street and any sidewalk to be constructed adjacent to Glenwood Street shall be located immediately adjacent to the curb of said street.

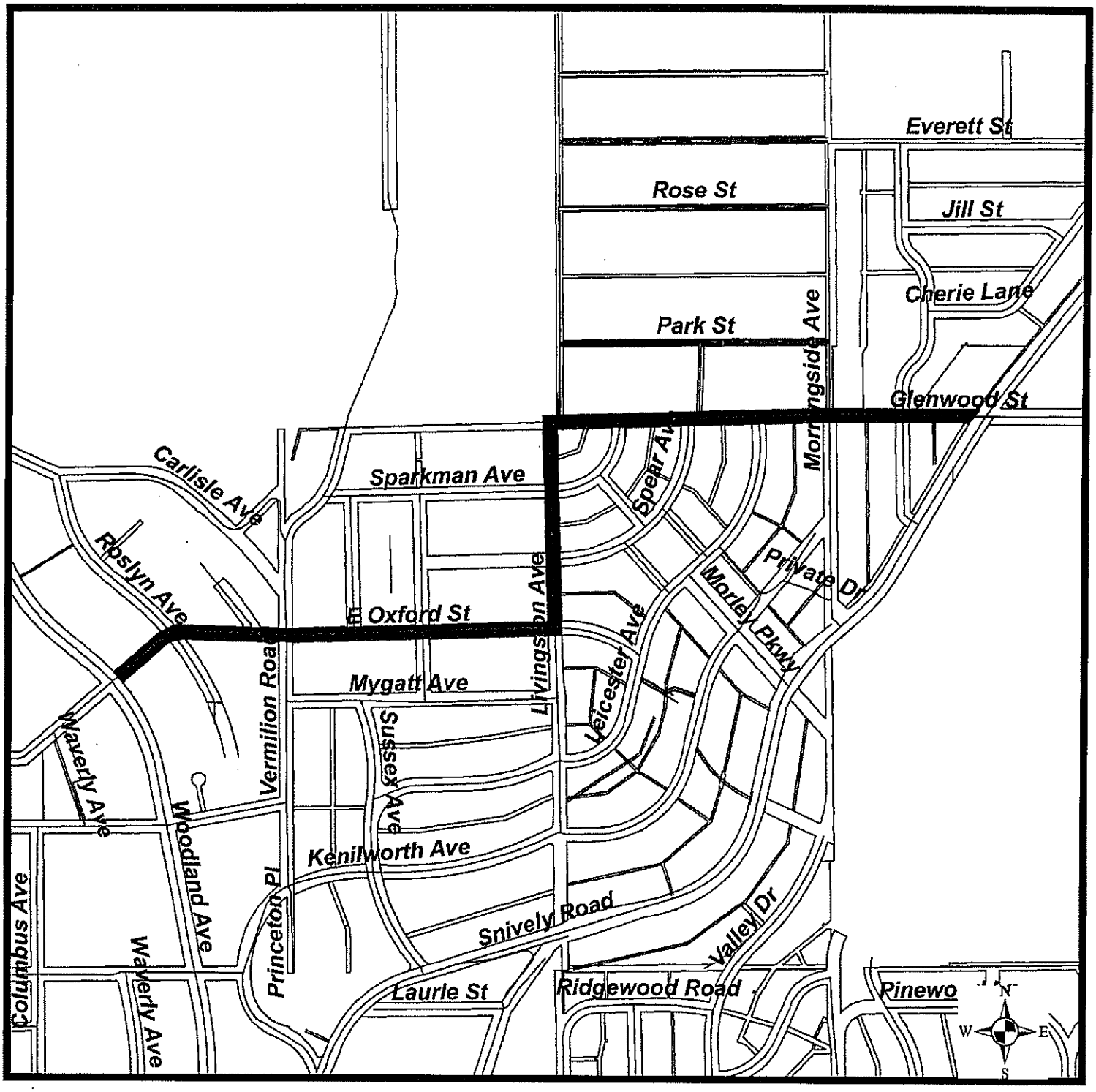
ENG GS:jh 8/17/2011

STATEMENT OF PURPOSE: This resolution begins the formal process of making assessable improvements to Oxford Street from Woodland Avenue to Livingston Avenue, Livingston Avenue from Oxford Street to Glenwood Street, and Glenwood Street from Livingston Avenue to Jean Duluth Road.

As provided for in Section 61 of the City Charter, the process can be commenced either by petition or by action of the city council itself. The latter route is being used in this case as the streets in question are local streets that are of critical function to the neighborhoods they serve.

As is normal, this resolution of intent is the first step in the process. Once approved it will trigger preparation of plans and specifications for the work and estimates of the costs and assessments involved. Notices will then be sent to the affected property owners, and they will be given the opportunity to be heard before the special assessment board. After the board makes its recommendations, the matter will return to the city council for consideration of an ordering-in resolution.

Once approved, plans will be designed as discussed at the August 9, 2011 public meeting. Oxford Street is proposed as a 32-foot wide street with parking on the north side and sidewalks on both sides. Livingston Avenue is proposed as a 34-foot wide street with parking on the west side and a sidewalk on the east side. Glenwood Street is proposed as a 28-foot wide street with no parking on either side and a sidewalk on the south side.



Oxford St, Livingston Ave, and Glenwood St
from Woodland Ave to Jean Duluth Rd
0439TR

May 18, 2011

1 inch = 654 feet

FUGRO HORIZONS, INC.

3600 Jet Drive
Rapid City, SD 57703-4730
+1 605-343-0280
+1 605-343-0305-fax

September 20, 2010

Mr. Nathan LaVine
Sr. Engineering Technician – Transportation Schedule
Department of Public Works
City of Duluth
211 City Hall
Duluth, MN 55802-1191

Fugro Horizons Project Number: H10-0384

RE: City of Duluth Street Projects 2010

Dear Mr. LaVine:

Fugro Horizons, Inc. is pleased to provide our proposal for aerial photography (film imagery) acquisition, photogrammetric softcopy map compilation, and digital photograph production services of three city street projects for 2010 in the City of Duluth.

Project Description

It is our understanding that this 1-ft contour mapping at 1" = 50' scale will be used as a base map for street and Public Works improvement projects in and around the City of Duluth in 2011. Each street project area: # 0439TR and # 0355TR and #0753TR will have a 400' corridor width extending 200' either side of the centerline, for the length of the project, and at either end.

Project # 0439TR will have a 200 -ft corridor width over its 5,238-ft length, covering 25.87 acres.
Project # 0355TR will have a 200-ft corridor width over its 1,400-ft length, covering 7.35 acres.
Project # 0753TR will have a 200-ft corridor width over its 2,516-ft length, covering 13.39 acres.
The 3 areas covered by this proposal total approximately 46.61 acres and 1.733 miles in length (including the 200-ft additional length on either end of each project).

As in our previous year's proposal we will combine the flight costs, with the understanding that these three projects will be flown together to achieve cost savings, but can be broken out per project for city costing purposes with that understanding.

It is important that this mapping boundary be as accurate as possible to ensure correct data acquisition and adherence to the proposed delivery schedule. Therefore, we request your verification of the enclosed diagram as the final project boundary. This will be the boundary used for mapping operations unless a revised digital boundary is provided before mapping commences. In the event that the project boundary does change, Fugro Horizons reserves the right to modify the price and/or schedule accordingly.

Project Management / Quality Assurance / Quality Control

Fugro Horizons maintains a staff of qualified management, supervisory and project engineers in our project planning, project task execution, and workflow control. Our experienced project management team will include professional engineers, certified photogrammetrists and certified photogrammetric technicians. Each of our project managers have proven proficiency in technical planning to outline the necessary tasks involved to insure the completion of each specific work order in an accurate and timely manner.

We welcome the opportunity to develop an ongoing working relationship with your firm. The Fugro Horizons project manager will provide timely communication with your appointed contact person via telephone and e-mail to convey project status, production milestones, and percentage of completion and problem resolution.

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Fugro Horizons has developed a coordinated approach to project management with emphasis on project status reports for our clients. Our focus has always been on customer satisfaction; now we have combined this company mission into an organized set of procedures as a part of our quality management system.

Fugro Horizons is proud to be ISO 9001:2000 and OHSAS 18001:2007 certified, and has implemented a **Business Management System (BMS)** that encompasses, enhances, controls, and standardizes production processes and QC activities to ensure that products and services meet or exceed the client's requirements and expectations. Factors such as documented procedures and checklists, adherence to work flow diagrams and QC checkpoints, supervision and reviews are strictly followed. Redundant checks are made as a project flows from one department to the next. If any problems are noted, the project is returned to the previous department for corrections. Each project is tracked through the office via a project database, which is updated daily. Project managers ensure that the contract details are communicated to all staff by way of written documents for each department detailing the specific requirements of each job. Project managers follow through on each of their projects with daily communication with the different departments involved with the project. Timely correspondence with the client via e-mail or telephone keeps the client abreast of their projects' progress.

All departments within Fugro Horizons' organization are involved in quality control. Department and division supervisors ensure that all quality control documentation and procedures are followed in compliance with ISO 9001:2000 standards. Within each department, and in conjunction with client personnel, specific quality control checks are built into all production processes. Further, to promote continuous improvement, management encourages technical and administrative change with regard to quality procedures and incorporates such process changes into the standard operating procedures of the corporation.

This approach means that Fugro Horizons, rather than our clients, assumes the cost of quality control (in terms of time and human resources). Clients are required, however, to participate in the development of project specifications and are encouraged to be a partner in project development and execution. Fugro Horizons also matches our in-house processes to those used by our clients, further customizing and incorporating quality control into all procedures and processes to ensure quality is integrated throughout each project. Quality control, as a result, occurs redundantly throughout the life of a project and not simply as a final review.

Ground Control Survey

We understand that The City of Duluth will furnish all targeted ground control necessary for controlling the topographic mapping.

Enclosed is a diagram showing the location of the ground control points required for each site of this project. Each point will require a panel each of four legs in a cross (+) formation as per the measurements stated below. Rebar or some other recoverable monument shall be placed so that the point can be recovered if necessary.

Each of the survey points requires 2 cm horizontal accuracy and 2 cm vertical accuracy at 2 sigma to support (1"=50' map accuracy and 1' contours) with a four legged target measuring1' x 4' @ 9' in length, tip to tip.

NOTE: The surveyor responsible for the ground control survey shall verify which horizontal coordinate system and vertical datum will be required by the client for any control survey work performed in conjunction with this project. When using control information provided by our clients, an additional charge of $100.00 per hour will be made for excess office time, if any, to resolve problems created by the receipt of erroneous control.

Project Coordinate Specifications	
Horizontal Datum	Local Coordinate System, TBA
Vertical Datum	Local Coordinate System, TBA
Coordinate System	Local Coordinate System, TBA
Mapping Units	US Survey feet
Geoid Model	Geoid 03

Survey Report

We require ground control survey data with projection information including our basestation (for ABGPS projects). In addition, Airborne GPS projects require latitude, longitude and ellipsoid values for each control location. Survey data

for all points is to be provided in a final survey report **signed by a registered land surveyor** and also as a digital file in standard ASCII X, Y, Z format with header description.

Film Imagery Acquisition

Fugro Horizons owns and operates six (6) Cessna flight platforms, capable of conventional film based photography or digital aerial image acquisition and LiDAR data acquisition, operating in the range of 1,000-ft. to 20,000-ft. above ground level. Our Cessna 310 aircraft and Cessna 441 Conquest aircraft are configured for IMU and airborne GPS control surveys. Fugro Horizons' flight operations staff has over 200 years and over 72,000 flight hours of combined experience planning and managing the successful completion of thousands of photo acquisition missions throughout North America.

Fugro Horizons will acquire aerial imagery for this project as soon as possible, after targets are in place (airspace restrictions, ground, leaf and weather conditions permitting).

Film Imagery Specifications	
Camera / Sensor	6" Film Camera
Flight Height (Above Mean Terrain)	1,500-ft
Photo Scale	1"=250'
Film Type	B&W
Number of Flight Lines	4
Number of Exposures	15
Number of Stereo Models	11
Forward Overlap Percent	60%
ABGPS/IMU	None
Contact Prints	No, but Digital Scans will be provided on disc
Minimum Sun Angle	30°

Map Compilation and Graphics Edit

Aerotriangulation: Horizons is experienced in semi-automatic aerotriangulation utilizing softcopy digital workstations. During AT, the aerial photo centers and ground control are processed through aerotriangulation measurements to derive the final model coordinates, which precisely orients aerial imagery to the mapping control required for map data compilation. We use a variety of control methods including conventional ground control and airborne global positioning system (ABGPS) control. A combination of industry and special LH Systems ORIMA software is used for calculating the best fully analytical aerotriangulation (FAAT) bundle adjustment solution for a wide variety of mapping projects.

The aerial photography and ground control will be used in conjunction with aerotriangulation (AT) techniques to establish a consistent horizontal and vertical datum for the area being mapped. Aerotriangulation will be used to supplement the targeted control to produce fully controlled stereomodels.

Map Compilation & Graphics Edit: Photogrammetric mapping services will be provided in the production of digital map information. Stereomodels of aerial imagery will be viewed in 3-D for the compilation of map features. Graphics edit and GIS technicians will prepare final map files and plots according to the specifications listed below.

Please refer to the enclosed "Map Features & Content" section for a complete list of map features to be collected.

Mapping Specifications	
Map Scale	1"= 50'
Digital Terrain Model	stereo compilation
Contours	1-ft
Spot Elevations	Yes
Planimetric Features	Yes, see Map Features & Content table
Continuous Contours	Yes
Contour Elevation Annotation	Yes, automated

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Digital Map Sheet Dimensions	To be determined
Digital Map Format and Version	AutoCAD 2007
Hardcopy Specification	None

NMAS Accuracy

The services rendered will be performed in a manner consistent with the level of care and skill ordinarily exercised by similar members of the photogrammetric profession of good standing. Sound and fully tested photogrammetric principals will be adhered to with regard to photo scale, equipment calibration and operator experience to achieve the accuracy required by the scope of work.

The accuracy of this data presumes that there is no discernible error in the ground control survey.

The **NMAS Standard Mapping** data collection procedure is designed to meet the requirements of National Map Accuracy Standards:

- 90% of all contours will be within 1/2 contour interval except where obscured, and the remaining 10% of such elevations will be within one contour interval except where obscured.
- 90% of all planimetric features, which are well defined on the photographs, will be plotted so that their position on the finished maps will be accurate to within 1/30th of 1" from their true coordinate position.
- Mapping areas obscured by, but not limited to, vegetation and shadow may not meet accuracy standards. The contours in obscured areas will be drawn as dashed lines. If spot elevations have been requested in obscured areas, they will be approximate.

If the resulting map plots and/or data files are altered from the specified scale and contour interval - either by digital or photomechanical means - there is no assurance of the map accuracy.

Client Responsibility

It is the responsibility of the client to field-verify the accuracy of the data. It is also the responsibility of the client to confirm that the scale and accuracy fulfills the purpose for which it is intended.

The client further agrees to the fullest extent permitted by law, to defend, indemnify and hold Fugro Horizons harmless from any damage, liability or cost, including reasonable attorney fees and costs of defense arising from any misuse or modification of the data. Nothing under the agreement shall be construed to constitute an expressed or implied warranty.

The client's acceptance period of all data shall be 30 days from date of transmission, after which time the client shall assume full responsibility and sole risk for its use. Fugro Horizons' liability for any inaccuracies or omitted data resulting from work that Fugro Horizons, Inc. has performed, and brought to our attention during the 30-day acceptance period, shall be limited to the correction of any such inaccuracies and shall not exceed the contract value.

Project Schedule

Acquisition will begin as soon as possible after notice to proceed and ground control targets are in place (airspace restrictions, ground, leaf and weather conditions permitting). We anticipate early November 2010.

We estimate the final map data can be delivered for any of the three projects within **45 days <u>after</u> completion of acquisition and receipt of ground control that meets mapping requirements.** This schedule is based upon our current projection of workload. Therefore, this schedule is valid for 60 days from the date of this proposal. If contracting occurs after that period, the schedule will be renegotiated.

Fugro Horizons reserves the right to subcontract work for this contract on an as needed basis to meet delivery requirements.

FUGRO HORIZONS, INC.

Deliverables

Qty.	Description
1 set	Digital Contour and Planimetric Map Data in AutoCAD file format.
1 set	Digital Terrain Model Data - DTM data used for the generation of contours. DTM data will include 3-D breaklines and elevation points in AutoCAD Civil 3D 2010.
1 set	Unrectified Digital Scans of the Imagery
	NOTE: Media for deliverables has been specified as USB 2 External Hard Drive

Cost For Services

Horizons' charge for the services described above is as follows:

Item	Description	Price	√
1	**Aerial Photography, Photolab and scans for all 3 sites flown together** (Breakdown for city costing purposes) #0439TR-$ 2,875.00; #0355TR-$ 820.00 ; #0753TR - $ 1,480.00	**$ 5,175.00**	
2	0439TR Oxford/Livinston,etc. – 1' Contour mapping at 1" = 50' scale	$ 3,222.42	
3	0355TR 43rd Ave East – 1' Contour mapping at 1" = 50' scale	$ 943.94	
4	0753TR 10th Ave East – 1' Contour mapping at 1" = 50' scale	$ 1,719.64	
	TOTAL:	**$ 11,161.00**	
	Sales tax will be added if applicable.		

Payment Terms

Aerial acquisition in the amount of **$ 5,175.00** invoiced upon its completion. All other Map and Image Processing services will be invoiced monthly, based upon percent of completion.

Payment of invoice(s) will be due within **30 days of invoice date**. Pricing is valid for 180 days from the date of this proposal.

Fugro Horizons accepts cash, check, MasterCard or Visa. Extension of credit is contingent upon approval of a Business Credit Application. Past due amounts will be charged interest at the rate of 1-1/2% per month. If collection action becomes necessary, buyer agrees to pay reasonable costs of collection.

We appreciate the opportunity to present this proposal. If this proposal meets with your approval, **please return a signed copy of this proposal that will serve as a final contract and notice to proceed**.

We can begin work with an e-mail notification stating agreement to the terms and prices stated within, or a fax copy of the signature page. We do, however, respectfully request you return a signed, complete copy of the proposal for our records.

If you have any questions or comments, I can be reached at the office at (605) 343-0280 ext 117 or by e-mail, les.biven@fugrohorizons.com. Thank you and we look forward to working with you on this project.

Sincerely,

FUGRO HORIZONS, INC.
Les Biven
Regional Sales Manager

By signing below, the client indicates that he/she has read Fugro Horizons Technical Proposal in its entirety, has viewed the enclosed attachments, and is in agreement with the terms and conditions outlined herein.

Accepted for The City of Duluth by:

FUGRO HORIZONS, INC.

Client Signature: _____
Name: _____
Title: _____
Date: _____
Purchase Order or Client Job Number: _____
Total Contract Amount: $ 11,161.00

Fugro Horizons, Inc. Project No.
H10-0384

Enclosures: Project Boundary, Flight Plan and Control Layout Map, Map Features and Content List

TITLE: Map Features and Content (1"=50' or 1:500 Scale)

Map Features					AutoCAD			
Feature	Yes	No	Comments	2D-3D	LAYER	BLOCK	LINESTYLE	COLOR
Transportation								
Alleys – Paved	X			3D	RD_ALY_C		CONTINUOUS	9
Alleys – Unpaved	X			3D	RD_ALY_G		HIDDEN	11
Curb	X		Top back of Curb, breakline at flow line	3D	RD_CRB		EXPAND	11
Driveway – Gravel	X			3D	RD_DRV_G		HIDDEN	2
Driveway – Paved	X			3D	RD_DRVWY		CONTINUOUS	9
Guardrail	X			2D	RD_GUARD		EXPAND	14
Parking - Gravel (Unimproved)	X			3D	RD_PK_G		HIDDEN	7
Parking – Paved	X			3D	RD_PK_A		CONTINUOUS	7
Pavement Markings – Stripes		X		3D	RD_PNT_S		CONTINUOUS	9
Railroads	X		Double line railroad	2D	RD_RAILR		EXPAND	3
Recreational Paths	X			3D	RD_REC		CONTINUOUS	1
Road – Centerline	X			3D	RD_CENTLN		DASHED2	1
Road - Gravel (Unimproved)	X			3D	RD_GRVL		HIDDEN	10
Road – Paved	X		Collected at stripe or pavement if no stripe	3D	RD_UNID		CONTINUOUS	12
Road - Shoulder Gravel	X			3D	RD_SH_GR		CONTINUOUS	10
Road - Shoulder Paved	X			3D	RD_SH_AS		CONTINUOUS	14
Road – Trail	X		Single line down center of two track paths	2D	RD_TRAIL		HIDDEN2	2
Runway	X			3D	AIR_RNWY		CONTINUOUS	7
Sidewalk	X			2D	RD_WLK		CONTINUOUS	7
Taxiway	X			3D	AIR_TXWY		CONTINUOUS	1
Structures								
Berm/Dike	X			3D	W_DIKE		EXPAND	9
Bridge	X		Includes pedestrian bridges	2D	W_BRIDGE		CONTINUOUS	4
Building - Foundation/Ruin	X			2D	BLD_FND		HIDDEN2	2
Building - Roof Line	X			2D	BLD_ROOF		CONTINUOUS	14
Building - Under Construction	X			2D	BLD_CONS		HIDDEN2	9
Cattle Guard	X		Collect outline of cattle guard	2D	G_CTL_GD		EXPAND	4
Culvert - (Line)	X			2D	W_CLVT_L		HIDDEN2	3
Culvert - Inlet/Outlet (Symbol)	X			2D	W_CLVT_I	CULVEND		11
Dam	X			2D	W_DAM_UN		CONTINUOUS	13
Deck / Patio	X			2D	BLD_DECK		CONTINUOUS	6

TITLE: Map Features and Content (1"=50' or 1:500 Scale)

Map Features					AutoCAD			
Feature	Yes	No	Comments	2D-3D	LAYER	BLOCK	LINESTYLE	COLOR
Dock	X			2D	W_DOCK		CONTINUOUS	8
Down Guy Anchor		X		2D	E_GUY	GUYANCEL		11
Electrical Transmission Tower	X			2D	E_TTOWR		CONTINUOUS	2
Fence – Chainlink		X		2D	G_FNC_CH		EXPAND	13
Fence – Unidentified	X		Do not differentiate type of Fence	2D	G_FENCE		EXPAND	14
Fire Hydrant	X			2D	WAT_HYD	FIREHYD		4
Gas Pump		X		2D	G_PUMP_G	GAS_PUMP		8
Gate	X			2D	G_GATE		EXPAND	5
Located Object (Line)	X			2D	BLD_OBJL		CONTINUOUS	10
Located Object (Symbol)	X			2D	BLD_OBJS	LOCOBJ	CONTINUOUS	12
Mailbox		X		2D	G_MAILBX	MAILBOX		7
Manhole	X		Do not differentiate type of manhole	2D	G_MNHOLE	MANHOLE		15
Mobile Home	X		Individual mobile homes	2D	BLD_MOBL		CONTINUOUS	2
Parking Meter		X		2D	G_PRKMTR	PARKMETER	CONTINUOUS	8
Pile Outline	X			3D	M_PIL_OL		CONTINUOUS	3
Pipeline	X			2D	G_PIPELN		BORDER2	1
Pole - Electrical Distribution	X			2D	E_POLE_D	ELECPOLE		6
Pole - Street Light	X			2D	E_POLE_L	STRLIGHT		14
Post	X			2D	G_POST	POST		10
Railroad Control Box	X			2D	E_RRCTLB	RRCONTBX	CONTINUOUS	7
Railroad Signal	X			2D	E_SGNLRR	RRSIGNAL		12
Railroad Switch	X			2D	E_RRSWCH	RRSWITCH	CONTINUOUS	7
Receiver Dish		X		2D	TEL_DISH	RECDISH	CONTINUOUS	3
Runway Light	X			2D	AIR_RWLT	RUNLIGHT	CONTINUOUS	3
Sign - (Line)	X		Signs with more than single post	2D	G_SIGN_UL		CONTINUOUS	12
Sign - (Symbol)	X			2D	G_SIGN_US	SIGN		2
Sign - Railroad Crossing	X			2D	G_SIGN_RR	SIGNRR	CONTINUOUS	7
Skywalk	X			2D	BLD_SKWK		CONTINUOUS	4
Slab/Pad – Concrete	X			2D	BLD_PADC		CONTINUOUS	13
Storm Drain Drop Inlet	X			2D	W_STRMDR	DROPIN	CONTINUOUS	7
Swimming Pool	X			2D	REC_POOL		CONTINUOUS	4
Tank	X		All tanks collected with outline	2D	BLD_TANK		CONTINUOUS	11
Tank (Symbol)		X		2D	BLD_TNKS	TANK		5

TITLE: Map Features and Content (1"=50' or 1:500 Scale)

Map Features					AutoCAD			
Feature	Yes	No	Comments	2D-3D	LAYER	BLOCK	LINESTYLE	COLOR
Taxiway Light	X			2D	AIR_TWLT	TAXILIGHT		5
Telephone Pedestal	X			2D	TEL_PED	TELPED	CONTINUOUS	9
Tower - Communication/Radio/Tv	X			2D	TEL_TOWRS	TOWERCOM		7
Traffic Signal	X			2D	E_SGNL	TRSGNLCTLBX		10
Utility Box	X			2D	G_UTILBX	UTILBOX		3
Wall - Free Standing	X			2D	G_WALL		EXPAND	7
Wall – Retaining	X			2D	G_WALL_R		EXPAND	7
Well	X			2D	WAT_WELL	WELL	CONTINUOUS	6
Windmill	X			2D	G_WINDMIL	WINDMILL	CONTINUOUS	13
Land Use Features								
Athletic Field	X			3D	REC_UNID		CONTINUOUS	13
Cemetery	X			2D	G_CEMETR		HIDDEN2	7
Court – Recreation	X			3D	REC_CRT		CONTINUOUS	1
Greens/Fairways/Tees/Bunkers	X			3D	REC_GOLF		CONTINUOUS	15
Pit Boundary	X			2D	M_PITBND		EXPAND	1
Playground – Boundary	X			3D	REC_PLAY		CONTINUOUS	7
Recreation Area – Boundary	X			2D	REC_BND		CONTINUOUS	1
Natural Features								
Boulder (Symbol)		X		2D	HYP_BLDR	BOULDER		14
Brush		X		2D	VEG_BRSH	BRUSH	CONTINUOUS	13
Bush	X		5' Diameter or Larger	2D	VEG_BUSH	MARSH	CONTINUOUS	11
Cliff Line	X			3D	HYP_CLIF		EXPAND	13
Drainage Line	X			3D	W_DRNG		PHANTON2	4
Edge Of Cultivated Field		X		3D	VEG_CULFL		CONTINUOUS	3
Hedge	X		Single line down center of hedge	2D	VEG_HEDGC		EXPAND	1
Pond/Lake/Waterline	X			3D	W_LAKE		PHANTON2	5
Rock Outcrop Boundary	X			2D	HYP_ROCK		EXPAND	14
Stream	X			3D	W_STRM		PHANTON2	4
Swamp - (Line)	X			3D	VEG_SWMPL		DASHED	3
Swamp - (Symbol)	X			2D	VEG_SWMPS	SWAMP	CONTINUOUS	3
Tree – Evergreen		X		2D	VEG_EVR	EVTREE	EXPAND	14
Tree - Unidentified (Line)	X		Do not differentiate type of tree	2D	VEG_TREEL		EXPAND	10
Tree - Unidentified (Symbol)	X			2D	VEG_TREES	TREE		11

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Map Features					AutoCAD			
Feature	Yes	No	Comments	2D-3D	LAYER	BLOCK	LINESTYLE	COLOR
Tree Line – Coniferous		X		2D	VEG_CONL		EXPAND	1
Wash	X			3D	W_WASH		DOT	11
Topographic Features								
Contour – Index	X			2D	HYP_X		CONTINUOUS	7
Contour - Index – Depression	X			2D	HYP_XDP		EXPAND	9
Contour - Index – Obscured	X			2D	HYP_XOB		HIDDEN	6
Contour - Index - Obscured, Depression	X			2D	HYP_XOBD		EXPAND	9
Contour – Intermediate	X			2D	HYP_INT		CONTINUOUS	1
Contour - Intermediate – Depression	X			2D	HYP_ITDP		EXPAND	3
Contour - Intermediate – Obscured	X			2D	HYP_ITOB		HIDDEN	2
Contour - Intermediate - Obscured, Dep.	X			2D	HYP_IOBD		EXPAND	10
Contour – Supplemental		X		2D	HYP_SUP		HIDDEN	5
Contour - Supplemental – Depression		X		2D	HYP_SUPD		EXPAND	4
General Annotation	X			2D	G_ANNO		CONTINUOUS	8
Grid Lines		X		2D	BND_GRD	GRID	CONTINUOUS	7
Grid Tics	X			2D	BND_GRD	GRID	CONTINUOUS	7
Ground Control – Horizontal	X			3D	CTL_H	CTLHOR		7
Ground Control - Horizontal/Vertical	X			3D	CTL_HV	CTLHORVER		7
Ground Control – Vertical	X			3D	CTL_V	CTLVER		7
Obscured Area - Boundary Line	X			2D	HZN_OBS		HIDDEN2	12
Spot Elevation	X			3D	HYP_SPOT	SPOTELEV		11
DTM Features								
Tin Breakline	X			3D	TIN_BRK		CONTINUOUS	9
Tin Random Points	X			3D	TIN_RANP	TINRANP		2
Mining Features								
Blasted Area Outline		X		3D	M_BST_OL		CONTINUOUS	5
Bore Hole		X		2D	M_BOREH	MINEBORE	CONTINUOUS	12
Crest - Coal Bench		X		3D	M_CRE_CO		CONTINUOUS	14
Crest Line		X		3D	M_CREST		CONTINUOUS	11
Spot Elevation - Coal Bench		X		2D	M_SPT_CO	CBELEV		12
Toe - Coal Bench		X		3D	M_TOE_CO		HIDDEN	13
Toe Line		X		3D	M_TOE		HIDDEN	10
Topsoil Stripping Area Outline		X		3D	M_TOPSOI		CONTINUOUS	4

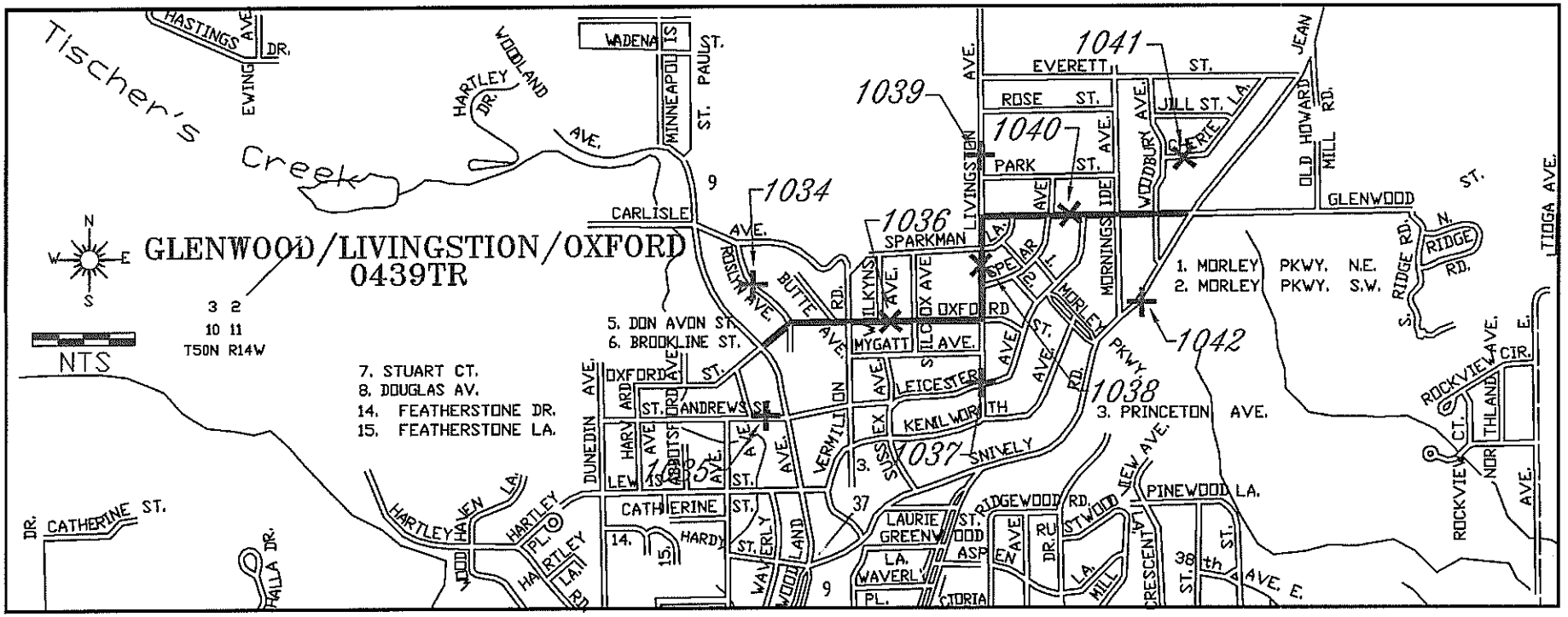
Standard AutoCAD delivery consists of two files, a planimetric/contour file and a DTM file. The planimetric/contour file contains the

TITLE: Map Features and Content (1"=50' or 1:500 Scale)

planimetric mapping as 2D polylines and the contours and spot elevations retain their proper elevation. Contours a re not clipped for index contour annotation or other annotations which fall on top of them, index annotation is on the same layer as the index contour, and curve smoothing is not be applied to the contours. Titleblock are not translated, line features are patterned, including depression ticks (noted in table as "EXPAND") and point features are blocks. The DTM file contains only the 3-D data that was used to generate the contours. All line data are 3D polylines and spot elevations are points.

Carefully review the attached pages and verify the features we plan to collect meet your specifications and needs. Unless directed otherwise, we will only collect the specific features indicated on the preceding four pages.

CITY OF DULUTH
2010 AERIAL TARGETING



Pnt#	Northing	Easting	Elev	Desc	Location
1034	3360609.246	4851676.704	1175.855	CP 1034	Magnail - South of CL Across from Drive 2328 on Roslyn Ave.
1035	3359362.557	4851748.905	1116.056	CP 1035	Magnail - North of CL on St. Andrews St in front of House 9 St. Andrews St.
1036	3360296.179	4852976.926	1204.912	CP 1036	Magnail - North of CL on E Oxford St in front of house 303 E Oxford St.
1037	3359679.016	4853896.821	1172.906	CP 1037	Magnail - NW Cor of Livingston Ave & Leicester Ave
1038	3360787.82	4853861.279	1227.224	CP 1038	Magnail - West side of Livingston Ave across from Sparkman Ave Alley
1039	3361746.007	4853904.233	1287.231	CP 1039	Magnail - 66' North of Int of Livingston Ave & Park St
1040	3361333.035	4854691.953	1172.078	CP 1040	Magnail - Northside of Glenwood between Leicester Ave & Spear Ave
1041	3361820.62	4855882.879	1121.604	CP 1041	Magnail - South side of Cherie Ln across from 651 Cherie Ln
1042	3360327.505	4855307.423	1103.692	CP 1042	Magnail - South side of Snively Rd just East of Int of Morningside Ave & Snively Ave