

SUBJECT: APPROVAL OF CHANGE ORDER NO.2 FOR CONTRACT NO. 25-033C WITH FUGRO USA LAND, INC, FOR PAVEMENT ASSESSMENT AND ANALYSIS TO ADD AN ANNUAL COST OF \$150,000.00; AND REQUESTING AN EXTENSION TO THE COMPLETION DATE TO JUNE 30, 2027.

AGENDA OF: April 1, 2025

ASSEMBLY ACTION: Adopted without objection 04/01/25 - BJH

AGENDA ACTION REQUESTED: Present to the Assembly for consideration.

Route To:	Signature
Originator - Brad Sworts	<div>3 / 1 9 / 2 0 2 5</div> <div>X Brad Sworts, P D & E Division</div> <div>Signed by: Brad Sworts</div>
Department Director	<div>RECOVERABLE SIGNATURE</div> <div>X Tom Adams, P E</div> <div>Signed by: Tom Adams</div>
Purchasing Director	<div>3 / 1 9 / 2 0 2 5</div> <div>X Rustin Krafft</div> <div>Signed by: Rustin Krafft</div>
Finance Director	<div>RECOVERABLE SIGNATURE</div> <div>X Cheyenne Heindel</div> <div>Signed by: Cheyenne Heindel</div>
Borough Attorney	<div>3 / 2 0 / 2 0 2 5</div> <div>X Nicholas Spiropoulos</div> <div>Signed by: Nicholas Spiropoulos</div>
Borough Manager	<div>3 / 2 1 / 2 0 2 5</div> <div>X Michael Brown</div> <div>Signed by: Mike Brown</div>
Borough Clerk	<div>3 / 2 4 / 2 0 2 5</div> <div>X Lonnie McKechnie</div> <div>Signed by: Lonnie McKechnie</div>

ATTACHMENT (S): Contract 25-033C, Pavement Assessment and Analysis (37 pp)
Draft FUGRO proposal for Change Order 2 (17 pp)

SUMMARY STATEMENT: On August 23, 2024, the Matanuska-Susitna Borough (MSB) entered into agreement (25-033C) with FUGRO USA LAND, INC in the amount of \$175,400 for development of a new pavement preservation plan. This program involves pavement inventory, assessment and analysis with additional asset data collection for signage, lighting and guardrails. Services under the current term are scheduled to be complete by June 30, 2025. To date, FUGRO has assessed and analyzed 179 miles of MSB roads.

The data was presented in a report submitted by Fugro to the MSB in February 2025. The Pre-Design and Engineering Division (PD&E) in conjunction with FUGRO is in the process of processing the data and integrating it into CarteGraph, the Borough's asset management program.

During the initial term, Change Order No. 1, added \$14,250 to cover the cost to convert the data that the Alaska Department of Transportation & Public Facilities (DOT&PF) collected on MSB roads to a format that is compatible with the Borough's asset management program.

Change Order No. 2, proposes to add \$150,000.00 to continue with the current terms and conditions of Contract 25-033C with the exception of a reduced scope omitting the preparation of a five-year management report. This task will be completed by MSB staff. This change order also requests an extension to the completion date to June 30, 2027. All other terms and conditions of the contract remain unchanged. Funding for planned work in 2025 is included in the FY26 operating budget; funding for planned work in 2026 will be included in the FY27 operating budget. This additional work is subject to appropriation by the Assembly.

In accordance with MSB 3.08.170 (B), Administration requests authority to modify the resulting contract completion dates by 90 days for unforeseen circumstances.

PD&E would like to inform the Assembly of its intentions to continue to receive services from FUGRO through June 30, 2027 which will complete a three-year pavement assessment data collection program where one third of the borough paved roads are assessed each year. The anticipated annual cost is approximately \$150,000.

The Public Works Department, Pre-Design & Engineering will be administering the contract.


RECOMMENDATION OF ADMINISTRATION: Approval of change order no.2 for Contract No. 25-033C with Fugro USA Land, Inc., for pavement assessment and analysis to add an annual cost of \$150,000.00; and requesting an extension to the completion date to June 30, 2027.

MATANUSKA-SUSITNA BOROUGH

FISCAL NOTE

Agenda Date: April 1, 2025

SUBJECT: **APPROVAL OF CHANGE ORDER NO.2 FOR CONTRACT NO. 25-033C WITH FUGRO USA LAND, INC, FOR PAVEMENT ASSESSMENT AND ANALYSIS TO ADD AN ANNUAL COST OF \$150,000.00; AND REQUESTING AN EXTENSION TO THE COMPLETION DATE TO JUNE 30, 2027.**

FISCAL ACTION (TO BE COMPLETED BY FINANCE)	FISCAL IMPACT YES NO
AMOUNT REQUESTED \$150,000 *	FUNDING SOURCE RSA Admin Operating Budget
FROM ACCOUNT # 265.000.000 4xx.xxx	PROJECT
TO ACCOUNT:	PROJECT #
VERIFIED BY:  Recoverable Signature X Liesel Weiland Signed by: Liesel Weiland	

EXPENDITURES/REVENUES:

(Thousands of Dollars)

OPERATING	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Personnel Services						
Travel						
Contractual	150.0	150.0	150.0			
Supplies						
Equipment						
Land/Structures						
Grants, Claims						
Miscellaneous						
TOTAL OPERATING	150.0	150.0	150.0			

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
---------	--	--	--	--	--	--

FUNDING:


(Thousands of Dollars)

General Fund						
State/Federal Funds						
Other	150.0	150.0	150.0			
TOTAL	150.0	150.0	150.0			

POSITIONS:

Full-Time						
Part-Time						
Temporary						

ANALYSIS: (Attach a separate page if necessary) *Subject to annual appropriation and acceptance of fiscal year budget.

APPROVED BY:	 Recoverable Signature X Cheyenne Heindel Signed by: Cheyenne Heindel
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PROFESSIONAL SERVICES AGREEMENT

25-033C, PAVEMENT ASSESSMENT AND ANALYSIS

THIS AGREEMENT made and entered into this 23rd day of August 2024, by and between the **MATANUSKA-SUSITNA BOROUGH** and **FUGRO USA LAND, INC.**

Section 01 **Definitions**

In this Agreement:

- A. The term "Borough" means the Matanuska-Susitna Borough.
- B. The term "Consultant" means Fugro USA Land, Inc.
- C. The term "Manager" means the manager of the Matanuska-Susitna Borough or his authorized representative.

Section 02 **Employment of Consultant**

The Borough hereby agrees to engage the Consultant and the Consultant hereby agrees to perform the services hereafter set forth.

Section 03 **Scope of Services**

The Consultant shall perform all the services provided for by this Agreement which are described with particularity in Exhibit "A", entitled Scope of Services, attached hereto and incorporated by reference as if fully set forth herein.

Section 04 **Personnel**

Personnel shall be limited to employees of Fugro USA Land, Inc. and it's approved sub-consultants.

Section 05 **Time of Performance**

The services of the Consultant shall commence upon execution of this Agreement by both parties and shall be completed by June 30, 2025. The period of performance may be extended for additional periods only by the mutual written agreement of the parties.

Section 06 **Compensation**

- A. Subject to the provisions of this Agreement, the Borough shall pay the Consultant a total sum for all services and expenses for the term of this Agreement not exceeding the sum as set forth in Exhibit "A", attached hereto and incorporated herein by reference, for services required by this Agreement.
- B. Travel or per diem required for the performance of services pursuant to this Agreement shall be subject to Exhibit "A".
- C. Except as otherwise provided in this Agreement, the Borough shall not provide any additional compensation, payment, use of facilities, service or other thing of value to the Consultant in connection with performance of Agreement duties. The parties understand and agree that, except as otherwise provided in this section, administrative overhead and other indirect or direct costs the Consultant may incur in the performance of its obligations under this Agreement have already been included in computation of the Consultant's fee and may not be charged to the Borough.

Section 07 **Method and Time of Payment**

- A. The Borough will pay to the Consultant the amount set forth in Exhibit "A" which shall constitute the full and complete compensation for the Consultant's professional services. That sum will be paid on approval of billings submitted pursuant to a schedule set forth in Exhibit "A". If not identified within Exhibit "A", normal billing cycle is 30 calendar days from receipt of an approved invoice. A billing is a summary of expenditures to date by line item categories (e.g., Personal Services, Travel, Contractual, Commodities and Equipment). Documentation of expenditures need not be submitted with billings but must be retained by the Consultant in the event the Borough requests said documentation.
- B. No payment will be disbursed until the completed task and associated expenditures have been approved by the Borough.
- C. All invoices must be submitted in duplicate and addressed as follows:

Matanuska-Susitna Borough
Attention: Accounts Payable
350 East Dahlia Avenue
Palmer, Alaska 99645
- D. It is expressly understood and agreed that in no event shall the total compensation due the Consultant exceed **ONE HUNDRED SEVENTY-FIVE THOUSAND FOUR HUNDRED DOLLARS AND 00/100 CENTS (\$175,400.00)**. Premium Pricing for pavement data collection & two to five asset extraction through ROW images.

Section 08 Termination of Agreement for Cause

If, through any cause, the Consultant shall fail to fulfill in a timely and proper manner the obligations under this Agreement or if the Consultant shall violate any of the covenants, agreements, or stipulations of this Agreement, the Borough shall thereupon have the right to terminate this Agreement by giving written notice to the Consultant of such termination and specifying the effective date thereof, at least five (5) days before the effective date of such termination. All finished or unfinished documents, data, studies, surveys and reports or other material prepared by the Consultant under this Agreement are the property of the Borough and shall be delivered to the Borough by or upon the effective date of termination. The Consultant shall be entitled to receive compensation in accordance with the payment provisions of Exhibit "A" of this Agreement only for work completed to the Borough's satisfaction in accordance with Exhibit "A" of this Agreement and the other terms of this Agreement.

Section 09 Termination for Convenience of Borough

The Borough may terminate this contract at any time by giving written notice to the Consultant of such termination and specifying the effective date of such termination. All finished or unfinished documents and other materials as described in Section 8 above are the property of the Borough and shall be delivered to the Borough by or upon the effective date of execution of this section. The Consultant shall be entitled to receive compensation in accordance with the payment provisions of Exhibit "A" of this Agreement only for work completed to the Borough's satisfaction in accordance with Exhibit "A" of this Agreement and the other terms of this Agreement. If this Agreement is terminated due to the fault of the Consultant, Section 8 of this Agreement shall govern the rights and liabilities of the parties.

Section 10 Causes Beyond Control

In the event the Consultant is prevented by a cause or causes beyond control of the Consultant from performing any obligation of this Agreement, non-performance resulting from such cause or causes shall not be deemed to be a breach of this Agreement which will render the Consultant liable for damages or give rights to the cancellation of the Agreement for cause. However, if and when such cause or causes cease to prevent performance, the Consultant shall exercise all reasonable diligence to resume and complete performance of the obligation with the least possible delay. The phrase "cause or causes beyond control," as used in this section, means any one or more of the following causes which are not attributable to the fault or negligence of the Consultant and which prevent the performance of the Consultant: fire, explosions, acts of God, war, orders or law of duly constituted public authorities, and other major uncontrollable and unavoidable events, all of the foregoing which must actually prevent the Consultant from performing the terms of the Agreement as set forth

herein. Events which are peculiar to the Consultant and would not prevent another Consultant from performing, including, but not limited to financial difficulties, are not causes beyond the control of the Consultant. The Borough will determine whether the event preventing the Consultant from performing is a cause beyond the Consultant's control.

Section 11 Modifications

- A. The parties may mutually agree to modify the terms of the Agreement. Modifications to the Agreement shall be incorporated into the Agreement by written amendments.
- B. It is expressly understood that the Borough may require changes in the scope of services and an unreasonable refusal by the Consultant to agree to modification in the scope of services will be the basis for termination of the Agreement for cause. It is expressly understood that the total amount of compensation for successful performance of the Agreement will not be modified, under any circumstances, without prior written approval of the Borough.

Section 12 Equal Employment Opportunity

- A. The Consultant will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, physical handicap, age, status as a disabled veteran, or veteran of the Vietnam war era. The Consultant shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, national origin, physical handicap, age, status as a disabled veteran, or veteran of the Vietnam war era. Such actions shall include, but not be limited to the following: employment, upgrading, demotions, or transfers; recruitment or recruitment advertising; layoffs or terminations; rates of pay or other forms of compensation; selection for training, including apprenticeship; and participation in recreational and educational activities. The Consultant agrees to post in conspicuous places available for employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause. The Consultant will, in all solicitations or advertisements for employees placed by or on behalf of the Consultant, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, physical handicap, age, or status as a disabled veteran, or veteran of the Vietnam war era. The Consultant will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Agreement.
- B. The Consultant shall keep such records and submit such reports concerning the equal opportunity employment provisions set forth in subsection 12 (A) for applicants for employment and employees as the Borough may require.

Section 13 Interest of Members of Borough and Others

No officer, member or employee of the Borough and no member of its governing body, and no other public official of the governing body shall participate in any decision relating to this Agreement which affects their personal interest or the interest of any corporation, partnership or association in which they are, directly or indirectly, interested or having any personal or pecuniary interest, direct or indirect, in this Agreement or the proceeds thereof.

Section 14 Assignability

Because of additional administrative and accounting time required of borough departments/divisions when third party financing agreement and/or assignments of payment are permitted, they will not be allowed under any agreement resulting from this Invitation to Bid.

Section 15 Interest of Consultant

The Consultant covenants, that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement. The Consultant further covenants that in the performance of this Agreement no person having any such interest shall be employed.

Section 16 Findings Confidential

To the extent permitted or required by law any reports, information, data, etc., given to or prepared or assembled by the Consultant under this Agreement which the Borough requests to be kept confidential shall not be made available to any individual or organization by the Consultant without the prior written approval of the Borough.

Section 17 Publication, Reproduction and Use of Materials

No material produced, in whole or in part, under this Agreement shall be subject to copyright in the United States or in any other country. The Borough shall have unrestricted authority to publish, disclose, distribute and otherwise use, in whole or in part, any reports, data or other materials prepared under this Agreement.

Section 18 Audits and Inspections

At any time during normal business hours and as often as the Borough or the Comptroller General of the United States may deem necessary, the consultant and any sub-consultants shall make available for examination all of its records with respect to all matters covered by this Agreement and will permit representatives of the Borough or the Comptroller General to audit, examine, and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment, and other data relating to all matters covered by this Agreement.

Section 19 Jurisdiction; Choice of Law

Any civil action arising from this Agreement shall be brought in the superior court for the third judicial district of the state of Alaska at Palmer. The law of the state of Alaska shall govern the rights and obligations of the parties.

Section 20 Non-Waiver

The failure of the Borough at any time to enforce a provision of this Agreement shall in no way constitute a waiver of the provisions, nor in any way affect the validity of this Agreement or any part thereof, or the right of the Borough thereafter to enforce each and every protection hereof.

Section 21 Permits, Laws and Taxes

The Consultant shall acquire and maintain in good standing all permits, licenses and other entitlements necessary to the performance under this Agreement. All actions taken by the Consultant under this Agreement shall comply with all applicable statutes, ordinances, rules and regulations. The Consultant shall pay all taxes pertaining to its performance under this Agreement.

Section 22 Relationship of the Parties

The Consultant shall perform its obligations hereunder as an independent Consultant of the Borough. The Borough may administer this Agreement and monitor the Consultant's compliance with this Agreement but shall

not supervise or otherwise direct the Consultant except to provide recommendations and to provide approvals pursuant to this Agreement.

Section 23 Agreement Administration

- A. The Borough Manager, or their designee, will be the representative of the Borough administering this Agreement.
- B. The services to be furnished by the Consultant shall be administered, supervised, and directed by:
- | | |
|-------------------------|-------------------------------|
| <u>Lutrell Gordon</u> | <u>Director of Operations</u> |
| Consultant printed name | Title |
- C. In the event that the individual named above or any of the individuals identified in the proposal to perform work under the Agreement is unable to serve for any reason, the Consultant shall appoint a successor in interest subject to a written approval of the Matanuska-Susitna Borough.

Section 24 Integration

- A. This instrument and all appendices and amendments hereto embody the entire agreement of the parties. There are no promises, terms, conditions or obligations other than those contained herein; and this Agreement shall supersede all previous communications, representations or agreements, either oral or written, between the parties. To the extent they are not inconsistent with the terms of this Agreement, the following documents are incorporated by reference into this Agreement as if fully set forth herein:
- B. The following documents are incorporated in full text or by reference into this Agreement:

FULL TEXT	REFERENCE
Exhibit "A" – Proposal, Scope, Fee	State of Alaska Business License
Exhibit "B" – Reserved	Professional License
Exhibit "C" – Reserved	25-033C Solicitation Documents
Exhibit "D" – Reserved	
Exhibit "E" – Certificate of Insurance	

Section 25 Defense and Indemnification

- A. The consultant shall indemnify, defend, and hold harmless the contracting agency from and against any claim of, or liability for, negligent acts, errors, and omissions of the consultant under this agreement. The consultant is not required to indemnify, defend, or hold harmless the contracting agency for a claim of, or liability for, the independent negligent acts, errors, and omissions of the contracting agency. If there is a claim of, or liability for, a joint negligent act, error, or omission of the consultant and the contracting agency, the indemnification, defense, and hold harmless "D"s obligation of this provision shall be apportioned on a comparative fault basis. In this provision, "consultant" and "contracting agency" include the employees, agents, and contractors who are directly responsible, respectively, to each. In this provision, "independent negligent acts, errors, and omissions" means negligence other than in the contracting agency's selection, administration, monitoring, or controlling of the consultant, or in approving or accepting the consultant's work.
- B. If any portion of this clause is voided by law or court of competent jurisdiction, the remainder of the clause shall remain enforceable.

Section 26 Interpretation and Enforcement

This Agreement is being executed by the parties following negotiations between them. It shall be construed according to the fair intent of the language as a whole, not for or against any party. The titles of sections in this Agreement are not to be construed as limitations or definitions but are for identification purposes only.

Section 27 Consultant Insurance

It is specifically agreed between the parties executing this Agreement that it is not intended by any of the provisions of the Agreement to create in the public or any member thereof a third party benefit hereunder, or to authorize anyone not a party to this Agreement to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Agreement.

It is highly recommended that the Contractor confer with their respective insurance companies or brokers to determine if their insurance program complies with the Borough's Insurance requirements.

The Contractor shall procure and maintain the following insurances:

A. Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. Insurance Services office form number CG 0001 (Edition 10/01) covering Commercial General Liability.
2. Insurance Services office form number CA 0001 (Edition 10/99) covering Automobile Liability, symbol 1 "any auto".
3. Worker's Compensation insurance as required by the State of Alaska and Employers Liability Insurance.
4. Professional Liability insurance against liability arising out of the rendering or failure to render professional services under this agreement on a form acceptable to the Borough.

B. Minimum Limits of Insurance

Contractor shall maintain limits no less than:

1. General Liability

\$500,000 combined single limit per occurrence for bodily injury, property damage, personal injury and advertising injury.

\$500,000 Products/Completed Operations

\$1,000,000 General Aggregate Limit. The general aggregate limits shall apply separately to each project.

If the general liability insurance is written on a claims made form, the Contractor shall provide insurance for a period of two years after final payment of this agreement. The policy(s) shall evidence a retroactive date, no later than the beginning of this Agreement.

2. Auto Liability:

\$250,000 Bodily Injury/Death per Person

\$500,000 Bodily Injury Total

\$100,000 Property Damage

3. Worker's Compensation and Employers Liability:

Worker's Compensation shall be statutory as required by the State of Alaska. Employers liability shall be endorsed to the following minimum limits:

Bodily Injury - \$100,000 Per Occurrence
Bodily Injury - \$100,000 Per Employee
Bodily Injury by Disease - \$500,000 Policy Limit

4. Excess Liability:

In order to meet the required minimum limits of insurance it is permissible for the Contractor to combine an excess liability or umbrella policy with the general liability, auto liability or employers liability. In the instance where the Contractor purchases an excess liability or umbrella policy the occurrence limit and the aggregate limit may be of the same amount.

5. Professional Liability:

\$1,000,000.00 combined single limit per occurrence. The professional liability insurance shall be maintained in effect until final acceptance by the Borough of the completed project.

If the professional liability insurance is written on a claims made form, the Consultant shall provide insurance for a period of two years after final repayment of this agreement. The policy(s) shall evidence a retroactive date, no later than the beginning of this agreement.

C. Deductibles and Self-Insured Retention

Prior to work commencing any deductible or self-insured retention must be declared and approved by the Borough. The Contractor may be requested to demonstrate how the deductible or self-insured retention will be funded in the event of a claim. At the option of the Borough, the Contractor shall reduce or eliminate such deductibles or self-insured retention as respects the Borough, its officers, officials, employees and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. Other Insurance Provisions

The policies are to contain, or be endorsed to contain, the following provisions:

1. General Liability, Automobile Liability

- a. The Borough, its Administrator, officers, officials, employees and volunteers are to be covered as additional insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor premises owned, occupied or used by the Contractor or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the Borough, its Administrator, officers, officials, employees and volunteers.
- b. The Contractor's insurance coverage shall be primary insurance as respects the Borough, its Administrator, officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the Borough, its Administrator, officers, officials, employees and volunteers shall be excess of the Contractor insurance and shall not contribute to it.
- c. The Contractor insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

2. Worker's Compensation and Employer's Liability

- A. Any consultant in arrears on a Borough obligation, including, but not limited to tax, assessment, lease, sale, or rental payments, whether as an individual, or as a representative of a business, organization, firm, corporation, or partnership, shall not be awarded the Agreement if the delinquency is not cured within ten calendar days of receipt of written notice sent by the Borough of the delinquency.
- B. This Agreement can be terminated for cause, pursuant to Section 8, if it is determined that a Consultant whether the amounts owed are in the name of the Consultant as an individual or as a representative of a firm, business, corporation, or partnership, is in arrears of any taxation, lease or rental agreement that is due to the Borough that is not remedied within 10 calendar days of notification by regular mail.
- C. The Borough reserves any right it may have to offset amounts owed by an individual, firm, corporation or business for delinquent Borough taxes, moneys owed on sales, assessments, leases and rental agreements, against any amount owing to the same under an Agreement between the Borough and the same.

Section 32 Flow Down Provisions

This Contract may include flow down provisions. This Contract may be issued in connection with another government agency and may include flow down or contract provisions required by that agency. In the event of a conflict between the terms and conditions of the general agreement and any flow down terms and conditions, the flow down terms and conditions shall govern. The Consultant and any sub-consultants agree to comply with any and all flow down or contract provisions required by the Borough or another government agency that are included in the Contract. In the event that flow down or contract provisions required by other agencies or by Law are inadvertently omitted from this Contract, both parties agree to negotiate in good faith for that provisions inclusion into the Contract.

Section 33 Contracts Enforceable Against the Borough (MSB Code 3.08.120)

A contract for supplies, services, professional services or construction, or any amendment to the contract, may not be enforced against the borough unless its terms have been approved in accordance with this chapter, and unless the contract or amendment to the contract has been set forth in writing, executed in accordance with this chapter.

Section 34 Authority of The Purchasing Officer (MSB Code 3.08.150)

All borough contracts for supplies, services, professional services and construction, and any amendments to the contracts shall be signed by the manager or the purchasing officer. MSB Code 3.08.170 CONTRACT AMENDMENTS; ASSEMBLY APPROVAL states

- A. Contract amendment shall not be used to avoid procurement by the competitive procedures establish under this title.
- B. Except for emergency procurement authorized under MSB 3.08.200, contracts for supplies, services, profession services and construction may be amended by the manager or the purchasing officer with the approval of the assembly, as set forth in MSB 3.08.161, only for the following reasons:
 - 1. to change the quantity order or date of delivery under contract for supplies, where necessary to meet unforeseen borough requirements;
 - 2. to change the quantity of services or professional services to be rendered, or to change the scope of a project under a contract for services or professional services where necessary to meet unforeseen changes in borough requirements;
 - 3. to change the scope of a project or the scope of services or professional services under a construction contract to meet unforeseen borough requirements, or to change the specification under a construction contract because unforeseen conditions render the original specification impracticable;

4. to change the time for completing a project under a contract for services, professional services or construction;
5. to correct an error in contract specifications made by the borough in good faith or to resolve a good faith dispute between the borough and a contractor as to a party's rights and obligations under the contract; and
6. to change administrative provisions of a contract without materially altering the contract terms governing the quantity or quality of supplies, services, professional services or construction furnished the borough.

For these purposes, the Purchasing Officer is defined as **Rustin Krafft** during absences of the purchasing officer, the Assistant Purchasing Officer has been delegated the authority to act as the Purchasing Officer.

AUTHORITY OF THE BOROUGH PROJECT MANAGER

The Borough Project Manager has the authority to monitor and administer the Agreement, but cannot make changes to the amount of the contract nor change the completion date of the contract

I hereby acknowledge that I have read and understand the authority granted to the parties by the Matanuska-Susitna Borough.

Lutrell
Gordon

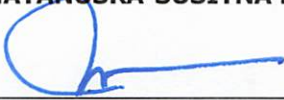
Digitally signed by Lutrell
Gordon
Date: 2024.08.23
16:26:41 -04'00'

CONSULTANT SIGN ACKNOWLEDGEMENT HERE: _____

Section 35 Fund Verification

Fund source and verification of funds for this project: Purchase Order _____

MATANUSKA-SUSITNA BOROUGH



RUSTIN M. KRAFFT

Purchasing Officer

FUGRO USA LAND, INC.

Lutrell
Gordon

Digitally signed by Lutrell
Gordon
Date: 2024.08.23
16:27:10 -04'00'

Sign Name: _____

Print Name: Lutrell Gordon

Title: Director of Operations

STATE OF ALASKA

Third Judicial District

On _____, 20____, _____ personally appeared before me,

1. ☐ who is personally known to me
2. ☐ whose identity I proved on the basis of _____
3. ☐ whose identity I proved on the oath/affirmation of _____, a credible witness

to be the signer of the **Agreement 25-033C, Pavement Assessment and Analysis**, and he/she acknowledged that he/she signed it.

Notary Public

My Commission expires: _____

STATE OF ALASKA

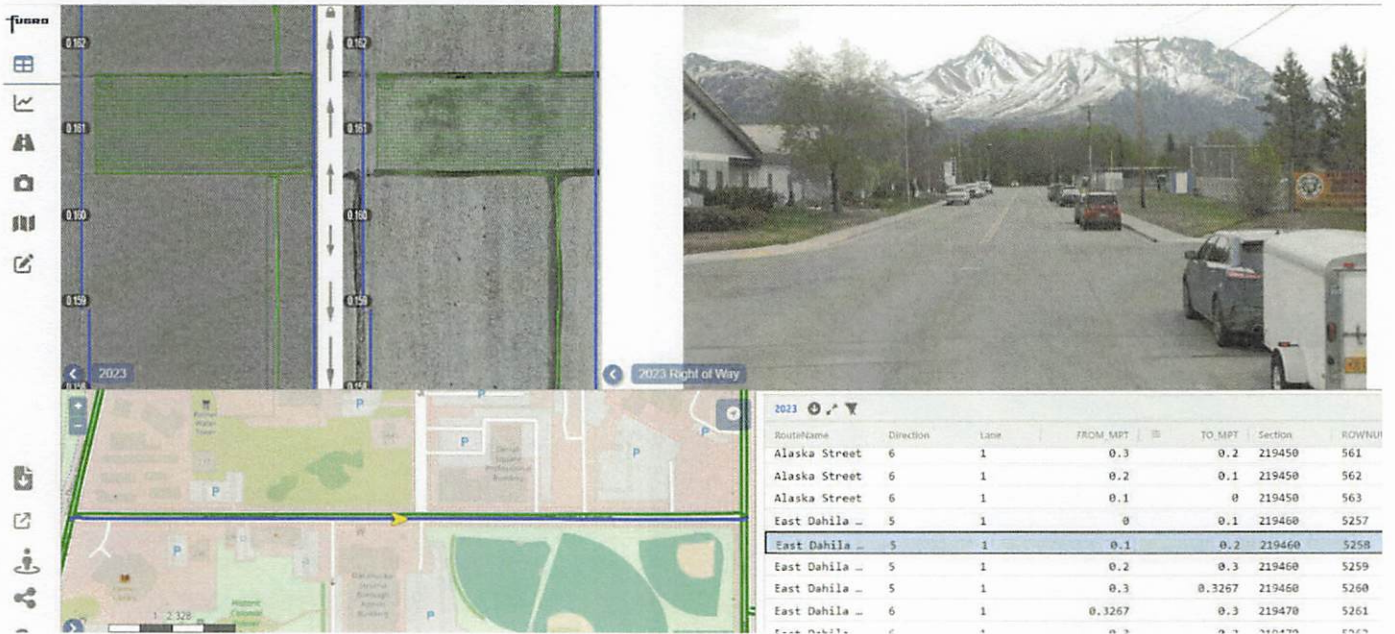
Third Judicial District

On August 23rd, 2024, RUSTIN M. KRAFFT, Purchasing Officer, personally appeared before me, who is personally known to me, to be the signer of the above document, and he acknowledged that he signed it on behalf of the Matanuska-Susitna Borough.



Notary Public

My Commission expires: 01/26/28



Pavement Condition and Assets Data Collection

Proposal

251565-Proposal 01 | 3 July 2024

Matanuska-Susitna Borough, AK



Document Control

Document Information

Project Title	Matanuska-Susitna Borough, AK
Document Title	Pavement Condition and Assets Data Collection
Fugro Project No.	251565
Fugro Document No.	251565-Proposal
Issue Number	01
Issue Status	Final
Fugro Legal Entity	Fugro USA Land, Inc.
Issuing Office Address	3104 Northside Avenue Richmond, VA 23228 USA

Client Information

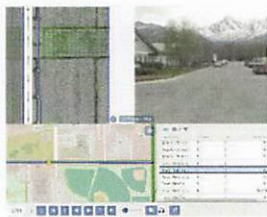
Client	Matanuska-Susitna Borough, AK
Client Address	1420 South Industrial Way, Palmer, AK
Client Contact	Daniel Dahms, PE
Client Document No.	-

Document History

Issue	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
01	26 Feb 2024	For Review	Awaiting client comments	BO	MC	LG
02	03 Jul 2024	Final	Added Cartegraph details	BO	MC	MR

Project Team

Initials	Name	Role
BO	Benjamin Ong	Transportation Asset Management Professional
MC	Monty Cliff	Project Manager
LG	Lutrell Gordon	Director of Operations
MR	Michael Robson	Business Development Manager Americas



Cover Image: Matanuska-Susitna Borough pavement condition data collected for Alaska DOT shown in iVision All pavement condition and roadside asset data streams are GPS connected and accessible to be viewed or “virtually driven” using all computing and mobile platforms

Executive Summary

Since 2018, Fugro has had the privilege of providing pavement data collection and condition assessment services to Alaska Department of Transportation (Alaska DOT) offering us a unique understanding of the requirements and expectations of the Matanuska-Susitna Borough.

Fugro USA Land, Inc. (FUSALI) is pleased to provide the enclosed Commercial Proposal for Matanuska-Susitna Borough's pavement data collection campaign. Fugro understands the importance of preserving the functionality of the Borough's roads and is committed to providing customized pavement data collection services and solutions tailored to meet these needs.

Fugro will use our Automatic Road Analyzer (ARAN) equipment for pavement distress and asset data collection at prevailing traffic speeds with no interruption to traffic flow. Fugro's ARAN is designed with high precision measurement systems and relevant safety systems to exceed the expectations of roadway condition data collection. In addition, Right-of-Way (ROW) digital images will be collected using high resolution cameras (Figure S.1). These images can be used to develop asset inventories such as signs, culverts, guardrails, pavement markings, and roadway lighting.

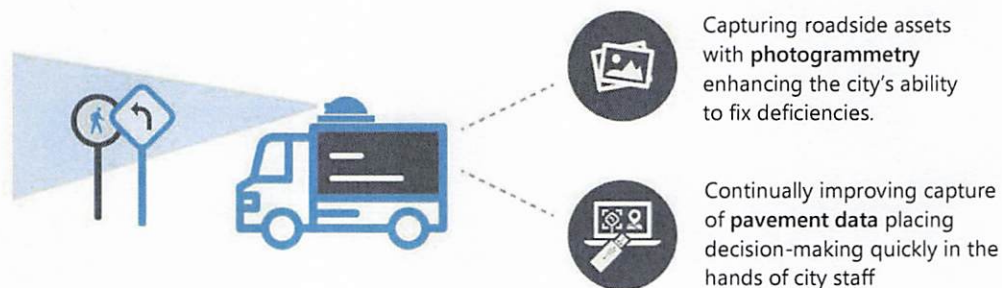


Figure S.1: Capturing roadside assets concurrently with pavement Using ROW images can be used to develop asset inventories such as signs, culverts, guardrails, pavement markings, and roadway lighting

We welcome the opportunity to apply our experience and knowledge to this important project for the Borough. Please do not hesitate to contact me at 602-300-5712 or by e-mail at mrobson@fugro.com if you have questions or need additional information. On behalf of Fugro, I thank you for the opportunity to submit our proposal.

Michael Robson

Business Development Manager Americas

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Abbreviations

DOT	Department of Transportation
ARAN	Automated Road Analyzer
M&R	Maintenance and Rehabilitation
MIRE	Model Inventory of Roadway Elements
FHWA	Federal Highway Administration
PMS	Pavement Management System
ROW	Right of Way
IRI	International Roughness Index

1. Understanding the Borough's Pavement and Asset Management Objectives

With over 1,000 miles of road serving over 110,000 residents, the Matanuska-Susitna Borough requires accurate and objective road condition insights to properly plan and monitor their transportation system. Our large fleet of 20 Automated Road Analysers (ARAN), Professional Engineers, dedicated project managers, and expert data analysts are trusted by the Alaska DOT and ready to provide the Borough with accurate and objective performance data for their pavement preservation program and Cartegraph Asset Management software

This proposal is structured to provide the technical approach and pricing of Fugro's recommended solution to objectives identified by the Borough which include:

- Pavement condition data collection and analysis of approximately 1,000 miles of test data over the duration of 3 years;
- Remote access to all data deliverables including images, GPS data, and summarized delivery in iVision. Access to any Alaska DOT owned data within the Borough's limits within the same iVision instance would also be beneficial; and
- Implementation of any applicable data streams within the Borough's Cartegraph (OpenGov) Asset Management software. This includes pavement condition data and any roadside asset information extracted from Right-of-Way images like sign, guardrails, pavement markings, and roadway lighting.

2. Collecting Detailed Data for Transportation Asset Management

Matanuska-Susitna Borough will be able to leverage Fugro's current partnership with the Alaska DOT by utilizing an already deployed ARAN equipment and minimizing mobilization fees

This section outlines the technical approach and equipment used we are proposing as a solution to meet the defined objections previously listed in Section 1. Drawing upon our decades of experience providing pavement condition data, including over 300,000 miles per year, we have developed a standard methodology (Figure 2.1) with quality checks to ensure accurate and on-time delivery.

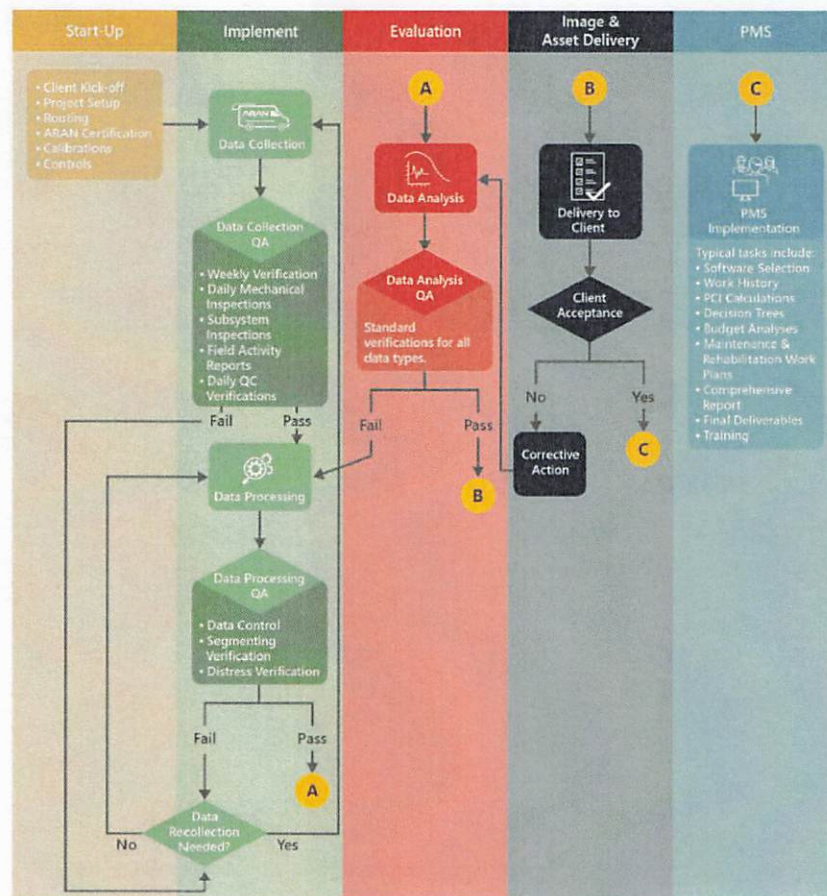


Figure 2.1: Pavement Condition Analysis High-Level Process Flow This process ensures that the collection and analysis of over 300,000 miles of automated pavement data per year, is accurate and delivered on-time.

2.1 Task 1: ARAN Roadway Data Collection and Pavement Evaluation

2.1.1 Equipment

Fugro manufactures the ARAN. We design and manufacture our equipment and software allowing customized distress collection and analysis. Frequently we encounter unique distress rating protocols which we can accommodate within our processing software. The ARAN includes gyroscopes, sensors, cameras, computers, software, and related equipment; all designed to withstand the rigors of collecting, twelve months per year in all landscapes and climates. The ARAN collects data and imagery in a single pass at posted speed limits and stores all data types in real-time.

The ARANs modular design enables quick configuration of any vehicle in our fleet to meet each client's specific data needs and schedule. Operators are trained in the use of the ARAN's on-board quality assurance systems to quickly identify errors that may impact the integrity of collected data. In addition to the in-field operations checks, data subsets are uploaded daily and examined by data analysis for errors and omissions.

The following subsystems are available on the ARAN (Figure 2.2):

- Linear and georeferenced data, Global Position System (GPS) coordinates
- Longitudinal profile and International Roughness Index (IRI)
- Transverse profile and Rutting
- Pavement images and Surface distress
- Right of Way (ROW) digital images
- Curve and geometric data
- Texture data, mean profile depth
- Lidar data collection and analysis (not included in Alaska DOT project)
- Subsurface analysis using GPR (not included in Alaska DOT project)



Figure 2.2: ARAN and its subsystems Set-up and field testing will utilize the exact same settings as the Alaska DOT project occurring at the same time. Weekly equipment controls will also occur under the jurisdiction of the State-level project

2.1.2 Vision Automated Pavement Analysis and Reporting Software

Fugro's engineers have developed sophisticated and proven algorithms to greatly improve the detection, classification, rating, and reporting of data. Vision is considered an integral part of data processing and quality control (QC) methodology in Fugro's pavement condition assessment approach. Vision was developed by Fugro to ensure a simple and accurate process for analyzing ARAN data. The software facilitates the entire data processing workflow including key modules for data upload, georeferencing and segmentation, video and sensor data quality analysis, and pavement distress analysis. It synchronizes all the data (imagery along with sensor and map data) allowing the analyst a virtual drive on the road to assess quality, investigate anomalies, and confirm locations and conditions.

Automated & semi-automated algorithms are incorporated in Vision for pavement distress detection, classification, and rating. Digital pavement images collected by the ARAN serve as input to the distress rating process. ROW images are also used to enhance distress-rating accuracy. Each distress can be identified in terms of location, severity, exact dimensions, and other characteristics. The software also allows for customized distress rating protocol. Moreover, Vision's Report Generator module facilitates the creation of custom reports and data deliveries. This module allows Fugro staff to modify and apply reporting templates to ensure that data conforms to client requirements. Figure 2.3 provides a screenshot of Fugro's Vision software and Figure 2.4 shows how 3D cracking data is used in the pavement distress rating process.

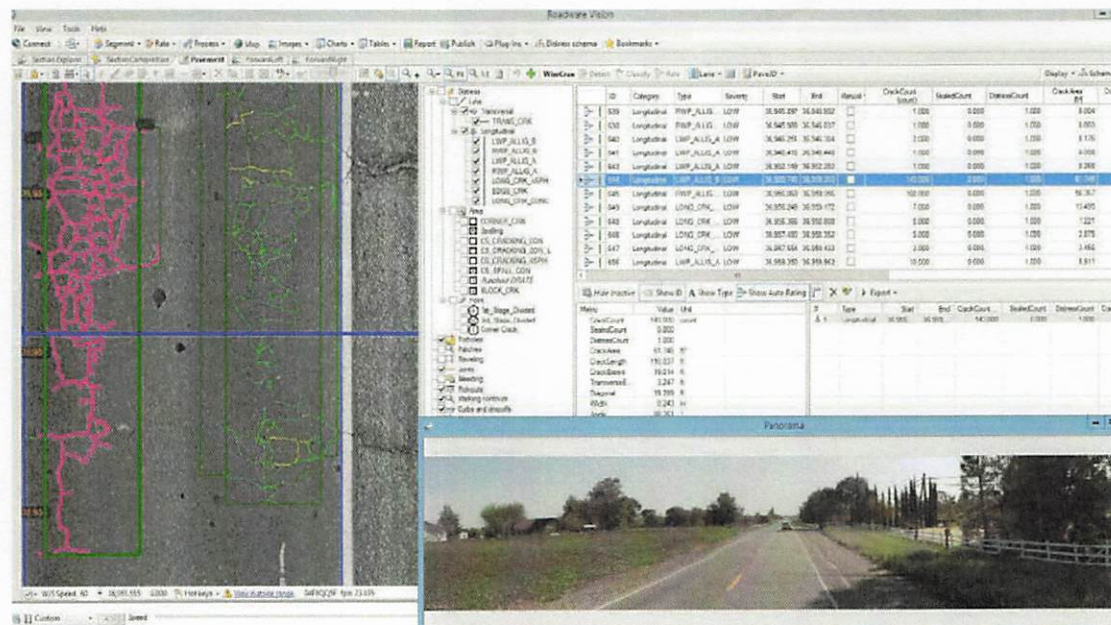


Figure 2.3: Crack detection and pavement distress rating in Vision Set-up and field testing will utilize the exact same settings as the Alaska DOT project occurring at the same time. Weekly equipment controls will also occur under the jurisdiction of the State-level project

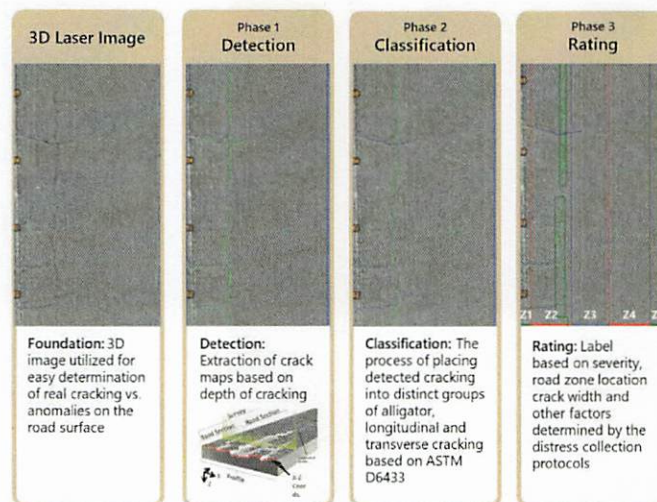


Figure 2.4: Three phase approach for measuring cracks & reporting By using 3D data, pavement distress rating is determined by actual crack width, length, shape, density, and location information

2.1.3 Configuration and reporting for Matanuska-Susitna Borough Project

All ARANs in this project will be set up with the exact same system configuration, available sub-systems, and collection methodology as the Alaska DOT project. This will ensure that all equipment meets any ASTM and AASTHO standards required to produce accurate and repeatable pavement performance data to meet the highest standards such as the Federal Highway Administration (FHWA).

For pavement distress rating and reporting, Fugro has recommended that the American Society for Testing and Materials (ASTM) D6433, Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys, method. The ASTM standard is compatible with the Borough's Cartegraph Asset Management software is used to calculate PCI for their roadway networks.

PCI uses a scale from 0 to 100, where 0 represents a completely failed pavement and 100 represents a pavement in perfect condition. PCI is calculated based on the type, severity, and extent of surface distresses. Each distress type includes a severity level (i.e., low, medium, and high) and has a different impact or "deduct" value for pavement condition depending on its quantity (i.e., extent). Since each distress type has a different impact on pavement performance, deduct values are specific to individual distresses in accordance with the ASTM D6433 standard. High severity distresses and/or high distress quantities result in more reductions in PCI scores. In general, deduct values for fatigue cracking are higher than deduct values of other types of cracking. Presence of load related fatigue cracking results in lower PCI scores, when compared with similar severities and extents for cracking associated

with environmental conditions such as transverse cracking. Table 2.1 and Table 2.2 present the concrete and asphalt concrete pavement distresses and their classifications.

Table 2.1: Concrete Pavement Distresses and Classifications

ID #	Load Related	ID#	Climate/Durability Related	ID#	Other Related
22	Corner Break	21	Blow Up	25	Faulting
23	Divided Slab	24	Durability Cracking	27	Lane/Shoulder Drop Off
28	Linear Cracking	26	Joint Seal Damage	29	Large Patch/Utility Cut
34	Punchout	37	Shrinkage Cracking	30	Small Patch
		38	Corner Spalling	31	Polished Aggregate
		39	Joint Spalling	32	Popouts
				33	Pumping
				35	Railroad Crossing
				36	Scaling

Table 2.2: Asphalt Concrete Pavement Distresses and Classification

ID #	Load Related	ID#	Climate/Durability Related	ID#	Other Related
1	Alligator Cracking	3	Block Cracking	2	Bleeding
7	Edge Cracking	8	Joint Reflection Cracking	4	Bumps & Sags
13	Pothole	10	Longitudinal/Transverse Cracking	5	Corrugation
15	Rutting	19	Raveling	6	Depression
		20	Weathering	9	Lane/Shoulder Drop Off
				11	Patch/Utility Cut
				12	Polished Aggregate
				14	Railroad Crossing
				16	Shoving
				17	Slippage Cracking
				18	Swell

We are also able to perform pavement distress rating and reporting using the Alaska DOT method; however, the data will not be able to be used to calculate an ASTM PCI score or be imported into Cartegraph (OpenGov) Asset Management software. The decision on which pavement distress method to use must be made prior to the start of the project.

2.2 Task 2: iVision Access for All Connected Data Streams

Fugro's iVision5 viewing software provides the Borough with a powerful tool to review collected images and asset data in a synchronized, GIS-based environment. iVision5 is hosted by Fugro and available on any device with access to the internet, this meets a remotely positioned workforce's needs. The user-friendly interface seamlessly integrates the collected data and imagery, GPS, distress and asset calculation tools, and mapping layers. iVision5 offers open data schemas that enable customized data querying, extraction, and linking with other systems to provide maximum flexibility and data-synchronization capabilities. These advanced data sharing and integration mechanisms allow the application to be launched and linked to multiple different asset management applications.

Figure 2.5 provides an example of one display option for iVision5's rich dashboard layout. This dashboard is customizable to the user's preferences and needs. All displayed data is playing in a synchronized view as the user navigates along the roadway on the GIS-based map. The Borough will be then provided with 5 licenses to use the software for one year at no additional cost. After one year, licenses can be renewed annually for an additional cost.



Figure 2.5: iVision5 navigation and inspection from a desktop or mobile device The web-app provides immediate access to all data streams places quality control (QC) ability right in the hands of Borough staff without the need of any additional IT resources

2.1 Task 3 (Optional): Creation of Cartegraph Import Files

Fugro will transform our distress delivery file (created in Task 1) into import files for the Cartegraph (OpenGov) Asset Management software upload. The import files include an inventory file (including section ID, sample ID, and other relevant attribute data) and inspection files for asphalt distresses and concrete distresses. The inventory file will need to have task and inspection levels.

2.1.1 Cartegraph Import of Inspection Files

Fugro will Import of all previously described inspection files into Cartegraph. This sub-task has a flat fee of \$3,000 collection cycle.

2.2 Task 4 (Optional): Full Cartegraph Pavement Module Setup, and Configuration

The ability to systematically collect, process, and analyze different types of pavement data for use in making data driven decisions, is the basis of pavement management. In addition, we offer both network and project level structural and functional pavement evaluations in support of a pavement management plan (PMP) development.

Structural

- Distress surveys

Functional

- Surface friction assessment

- Deflection testing
- GPR testing
- Materials sampling & testing
- Ride quality evaluation
- Asset inventory and mapping

Our knowledge and experience go beyond familiarization with Cartegraph (OpenGov) Asset Management software as we can gain an in-depth understanding of the materials used to construct and maintain roadways. We have experience in dealing with gaps in construction and maintenance histories and we are the leaders in network pavement management data collection. We have experts in GIS and geodatabase management that are essential in GIS system reviews, compiling, and sectioning field data for use in a PMS. We develop data quality management plans tailored to the specific needs of each project, which assures that decisions made in the management of a pavement program are derived from excellent quality data. Fugro is currently providing similar PMS implementation and configuration services to the Alaska DOT for their Trimble Agile Assets Pavement Analyst system.

Asset management software capabilities include:

- Data migration from legacy systems
- Pavement Management Training
- Performance Modeling
- GIS integration
- Implementation support

Data from the pavement evaluations are imported into the PMS during routine network-level condition assessment updates. The distress type, quantity, and severity of each distress are used in calculating the PCI for each section of roadway. An overall condition index (OCI) and Structural Condition Index (SCI) can also be calculated by incorporating structural (e.g., FWD data) and functional (e.g., IRI data) into the analysis.

The following sub-sections provide details and pricing for Full Cartegraph Asset Management software pavement module setup based on our discussions:

2.2.1 M&R Strategies

(Price: \$40,000) – Fugro would work with the Borough to develop or update their M&R decision strategies for different functional classes, different surface types (e.g., AC, AC/AC, PCC, etc.), and condition categories. Fugro would be interested in what strategies have been used in the past and what has worked for the Borough. With help from the Borough, Fugro could assign or update treatment unit costs of the various M&R treatments and develop appropriate decision trees in the PMS/AMS environment.

2.2.2 Budget Analyses

(Price: \$30,000) – Budget analyses would be performed to develop a comprehensive plan (e.g., 5 or 10-year work plan) for M&R. Fugro would first compute the "Budget Needs" analysis for the Borough. The budget needs analysis represents the "ideal world" or

unconstrained funding levels. Based on the Borough's M&R strategies and the condition indices of the sections, the PMS/AMS program would select an M&R action and compute the total costs over a period (e.g., five or ten years). Based on discussions with the Borough, Fugro would then prepare several budget scenarios that are either "budget" driven or "target" driven. Typical scenarios that could be evaluated are: Existing Budget, Maintain Current PCI, Improve Network PCI (by 5 pts), and Improve Network to Regional Target PCI.

2.2.3 Final M&R Work Plan

(Price: \$10,000) – Based on the budgetary analyses and in consultation with the Borough, a scenario would be selected that best fits the Borough's current and upcoming funds. The work plan (e.g., 5 or 10 years) would indicate which treatments would be applied to each pavement section based on the M&R decision tree and the associated costs.

2.3 Task 5 (Optional): Extraction of roadside asset data through photogrammetry

The Borough has indicated their interest in digitizing their large database of roadside assets. Having accurate asset inventory in a management database would allow the city to target maintenance and rehabilitation (M&R) works in a manner that provides the best return on investment (ROI). Furthermore, Model Inventory of Roadway Elements (MIRE) requirements from the Federal Highway Administration (FHWA) increasingly mandate that this data be collected and reported on by 2027.

Our solution to this very essential concern is the Surveyor program has undergone continual improvement since going live in 1994. It has provided asset inventory data to almost a dozen state agencies and multiple municipalities. Since 2008, Fugro has extracted and delivered greater than 70 different asset types totaling 5.1 million unique assets on over 216,000 miles of road.

We emphasize usability of roadside asset data in actions that go beyond GIS visualization. Our method involves resolving assets into point and line features and capturing necessary attribute data for comprehensive inventory creation. We harness ROW images captured through calibrated cameras for accurate positional and dimensional measurements. If a roadside asset can be seen by a car user, we will be able to capture it. This data is processed through our extraction tool (Figure 2.6) and integrates seamlessly into a relational database, allowing user input for comments and ratings.



Figure 2.6: High quality imagery enables detailed asset extraction The photo demonstrates the quality of our ROW images, specifically in regard to asset extraction. The quality of the image allows the city staff ability to zoom into assets like road signs and review their condition from the safety of their desk.

To ensure consistency, we provide a comprehensive asset marking guide and demonstrate accuracy through pilot data deliveries, offering flexibility to meet evolving client needs.

Our rigorous data collection process ensures accuracy, covering various assets such as signs, culverts, guardrails, pavement markings, roadway lighting. This data is typically delivered as geodatabase and able to be uploaded into Cartegraph Asset Management software.

3. Pricing Options

The Matanuska-Susitna Borough deserves a high return on investment. Fugro's proposal of a concurrent photogrammetry and pavement data collection campaign presents a turnkey solution.

This section presents a tiered pricing approach that we took to best address the scope of work for the upcoming project for the Borough.

3.1 Key Assumptions

Pricing is subject to the following assumptions:

- a. Data collection occurs in the same year as Alaska DOT's pavement evaluation project, after Fugro has mobilized ARAN equipment into the State and before they have left. Fugro is under contract to with Alaska DOT until 2029 but requires a notice to proceed from the State every year.
- b. Scope of work includes 360 test miles per year. The Borough has expressed intent to perform this work once per year for 3 years to test approximately 1,000 test miles of road.

3.2 Pricing for Pavement Data Collection Services

Table 3.1 presents a summary of base, recommended, and premium pricing scenarios.

Table 3.1: Pricing for Pavement Data Collection Services

	Requested	Recommended	Premium
Pavement Data Collection, Processing, and iVision Publishing ■ Described in Tasks 1 & 2	\$82,800 (\$230/mile)	\$79,200 (\$220/mile)	\$75,600.00 (\$210/mile)
Cartegraph (OpenGOV) Asset Management software pavement upload file creation and import ■ Described in Task 3	x	\$8,000	\$4,000
Full Cartegraph (OpenGOV) Asset Management software pavement module setup ■ Described in Task 4	x	x	\$80,000
TOTAL for 360 miles	\$82,800	\$87,200	\$159,600

3.3 Pricing for Asset Extraction from ROW Images

Table 3.2 provides pricing for asset extraction thru ROW images (1-5 Asset Types)

Table 3.2: Pricing for Asset Extraction Thru ROW images

	One Asset Type	Two to Five Asset Types
Asset data extraction from ROW images. Types include: ■ Signs ■ Culverts ■ Guardrails ■ Pavement Markings ■ Roadway Lighting	\$10,400	\$15,800
TOTAL for 360 miles	\$10,400	\$15,800

4. Fugro Schedule 40.01

1. Parties to This Agreement
CLIENT as used herein is the entity who authorizes performance of services by Fugro USA Land, Inc. (FUGRO) under the conditions stated herein. FUGRO as used herein includes, Fugro USA Land, Inc., its employees and officers, and its subcontractors and sub-consultants (including affiliated corporations).
2. On-site Responsibilities and Risks
 - 2.1 Right-of-Entry. Unless otherwise agreed, CLIENT will furnish unfettered rights-of-entry and obtain permits as required for FUGRO to perform the fieldwork.
 - 2.2 Damage to Property. FUGRO will take reasonable precautions to reduce damage to land and other property caused by FUGRO's operations. However, CLIENT understands that damage may occur and FUGRO's fee does not include the cost of repairing such damage. If CLIENT desires FUGRO to repair and/or pay for damages, FUGRO will undertake the repairs and add the pre-agreed cost to FUGRO's fee.
 - 2.3 Toxic and Hazardous Materials. CLIENT will provide FUGRO with all information within CLIENT's possession or knowledge as to the potential occurrence of toxic or hazardous materials, or Biological Pollutants (as defined in 9. below) at the site being investigated. If unanticipated toxic or hazardous materials, or biological pollutants are encountered, FUGRO reserves the right to demobilize FUGRO's field operations at CLIENT's expense. Remobilization will proceed following consultation with FUGRO's safety coordinator and CLIENT's acceptance of proposed safety measures and fee adjustments.
 - 2.4 Utilities and Pipelines. While performing FUGRO's fieldwork, FUGRO will take reasonable precautions to avoid damage to subterranean and subaqueous structures, pipelines, and utilities. CLIENT agrees to defend, indemnify, and hold FUGRO harmless for any damages to such structures, pipelines, and utilities that are not called to FUGRO's attention and/or correctly shown on plans furnished to FUGRO.
 - 2.5 Site Safety. FUGRO is not responsible for the job site safety of others, nor does FUGRO have stop-work authority over work by others. However, FUGRO will conduct its work in a safe, workman-like manner, and will observe the work-site safety requirements of CLIENT that have been communicated to FUGRO in writing.
3. Standard of Care
 - 3.1 FUGRO will perform its services consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same location.
 - 3.2 CLIENT acknowledges that conditions may vary from those encountered at the location where borings, surveys, or explorations are made and that FUGRO's data, interpretations, and recommendations are based solely on the information available to FUGRO, and FUGRO is not responsible for the interpretation by others of the information developed.
4. Limitation of Remedies
To the greatest extent permitted by law, CLIENT's sole remedy against FUGRO for claims and liabilities (including attorney's fees, litigation expenses and costs of court) in any way arising out of or directly or indirectly related to FUGRO's work for CLIENT will not exceed an aggregate limit of \$50,000 or the amount of FUGRO's fee, whichever is greater, regardless of the legal theory under which remedy is sought, whether based on negligence [whether sole or concurrent, active or passive], breach of warranty, breach of contract, strict liability or otherwise. In the event CLIENT does not wish to limit FUGRO's remedy to this sum, and if CLIENT requests in writing prior to acceptance of this Agreement, FUGRO agrees to negotiate a greater remedy amount in exchange for an increase in scope and fee appropriate to the project and remedy risks involved.
5. Invoices and Payment
At FUGRO's discretion, invoices will be submitted at the completion of task elements, or monthly for services rendered. Payment is due upon presentation of FUGRO's invoice and is past due thirty (30) days from invoice date. CLIENT agrees to pay a financing charge of one percent (1%) per month (or the maximum rate allowable by law, whichever is less), on past due accounts, and agrees to pay attorney's fees or other costs incurred in collecting any delinquent amount.
6. Data, Records, Work Product and Report(s), and Samples
Data, Records, Work Product and Report(s) are FUGRO's property. All pertinent records relating to FUGRO's services shall be retained for a minimum of two (2) years after completion of the work. CLIENT shall have access to the records at all reasonable times during said period. FUGRO will retain samples of soil and rock for a minimum of 30 days after submission of FUGRO's report unless CLIENT advises FUGRO otherwise. Upon CLIENT's written request, for an agreed charge FUGRO will store or deliver the samples in accordance with CLIENT's instructions.
7. Indemnification
Each party (Indemnitor) shall protect, defend, indemnify and hold harmless the other party (Indemnitee) from and against any claims, damages, losses, and costs arising from this Agreement or the project, including, but not limited to, reasonable attorney's fees and litigation costs, to the extent such claims, damages, losses or costs are caused by the sole negligence of the Indemnitor.
8. Consequential Damages
Notwithstanding any other provision of this Agreement, CLIENT and FUGRO waive and release any claim against the other for loss of revenue, profit or use of capital, loss of services, business interruption and/or delay, loss of product, production delays, losses resulting from failure to meet other contractual commitments or deadlines, downtime of facilities, or for any special, indirect, delay or consequential damages resulting from or arising out of this Agreement, or as a result of or in connection with the work, and whether based on negligence (whether sole or concurrent, active or passive), breach of warranty, breach of contract, strict liability or otherwise.
9. Biological Pollutants
FUGRO's scope of work does not include the investigation, detection, or design related to the presence of any Biological Pollutants. The term "Biological Pollutants" includes, but is not limited to, mold, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms. CLIENT agrees that FUGRO will have no liability for any claim regarding bodily injury or property damage alleged, arising from, or caused directly or indirectly by the presence of or exposure to any Biological Pollutants. In addition, CLIENT will defend, indemnify, and hold harmless FUGRO from any third party claim for damages alleged to arise from or be caused by the presence of or exposure to any Biological Pollutants. If CLIENT requests in writing prior to acceptance of this Agreement, FUGRO will negotiate a greater limitation amount, and remove CLIENT's responsibilities, in exchange for an increase in fee to develop an expanded scope of work to provide biological pollutant protection.
10. Acceptance of Agreement
These GENERAL CONDITIONS have been established in large measure to allocate certain risks between CLIENT and FUGRO. FUGRO will not initiate service without formal agreement on the terms and conditions set forth in these GENERAL CONDITIONS. Acceptance or authorization to initiate services shall be considered by both parties to constitute formal acceptance of all terms and conditions of these GENERAL CONDITIONS.

Furthermore, all preprinted terms and conditions on CLIENT's purchase order or purchase order acknowledgment forms are inapplicable to these GENERAL CONDITIONS and FUGRO's involvement in CLIENT's project.

11. Termination of Contract

CLIENT and FUGRO may terminate services at any time upon ten (10) days written notice. In the event of termination, CLIENT agrees to fully compensate FUGRO for services performed including reimbursable expenses to the termination date, as well as demobilization expenses. FUGRO will terminate services without waiving any claims or incurring any liability.

EXHIBIT "B" –

EXHIBIT "C" –

EXHIBIT "D" –

EXHIBIT "E" – CERTIFICATE OF INSURANCE



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
08/09/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER MARSH USA LLC. 500 Dallas St., Suite 1500 Houston, TX 77002 Attn: Houston.certs@marsh.com	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL: ADDRESS:
CN102231194-GAWXP-24-25	INSURER(S) AFFORDING COVERAGE INSURER A: Liberty Mutual Fire Insurance Company INSURER B: Liberty Insurance Corporation INSURER C: HDI Global Insurance Co. INSURER D: Allied World Surplus Lines Insurance Co. INSURER E: Axis Surplus Insurance Company INSURER F: United Specialty Insurance Company
INSURED Fugro USA Land, Inc 13501 Katy Fwy Suite 1050 Houston, TX 77079	NAIC # 23035 42404 41343 24319 26620 12537

COVERAGES	CERTIFICATE NUMBER: HOU-004132542-03	REVISION NUMBER: 17
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.		

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			TB2-641-005066-034	01/01/2024	01/01/2025	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			AS2-641-005066-024 P-001-000786142-03 (4x1) BTM2411561 (4x1)	01/01/2024 01/01/2024 01/01/2024	01/01/2025 01/01/2025 01/01/2025	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ Buffer per occur/agg \$ 4,000,000
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			XLD1498706	01/01/2024	01/01/2025	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input checked="" type="checkbox"/> N	N/A	WA7-64D-005066-134	01/01/2024	01/01/2025	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
D	Professional Liability Contractor's Pollution			0310-2109 Claims Made	01/01/2024	01/01/2025	Each Claim Limit/Aggregate \$ 1,000,000 SIR per Claim \$ 2,500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: 25-033C Pavement Assessment and Analysis

The Borough, its Administrator, officers, officials, employees and volunteers is/are included as Additional Insured on all above policies (except as respects all coverage afforded by the Workers Compensation and Professional Liability) but not for broader coverage or greater limits of liability than is required by said contract or agreement and in no event, for broader cover age or greater limits of liability than is otherwise provided by the policy. The Certificate Holder is granted a Waiver of Subrogation as required by written contract.

CERTIFICATE HOLDER

Malanuska-Susitna Borough
350 East Dahlia Avenue
Palmer, AK 99645

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Marsh USA LLC

AGENCY CUSTOMER ID: CN102231194

LOC #: Houston



ADDITIONAL REMARKS SCHEDULE

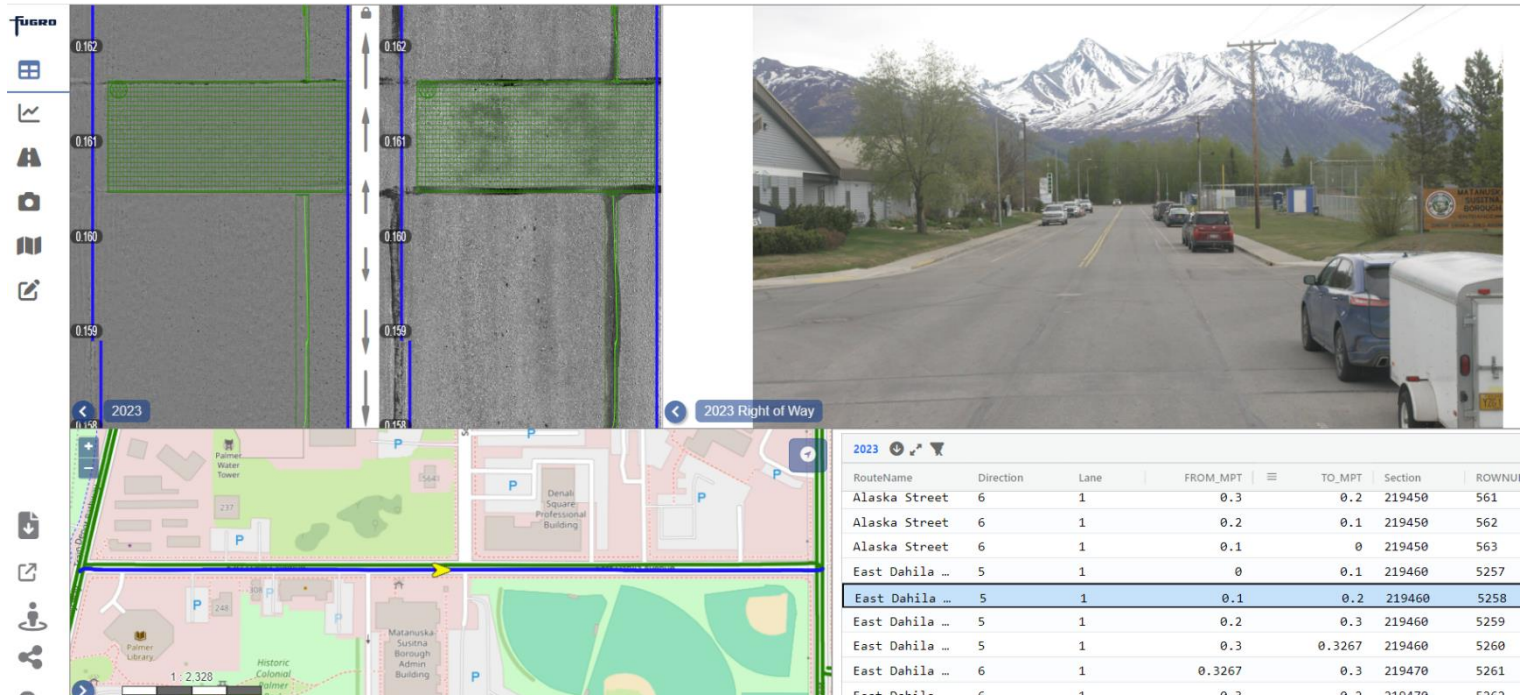
Page 2 of 2

AGENCY MARSH USA LLC.		NAMED INSURED Fugro USA Land, Inc 13501 Katy Fwy Suite 1050 Houston, TX 77079
POLICY NUMBER		
CARRIER	NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
 FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

This insurance is primary and non-contributory over any existing insurance and limited to liability arising out of the operations of the named insured and where required by written contract. When required by written contract, the insurer will provide 30 days' notice of cancellation to the certificate holder as respects General Liability, Auto Liability and Worker's Compensation policy(ies) for any reason other than non-payment of premium, subject to policy terms and conditions.



Pavement Condition and Assets Data Collection

Proposal

OP130520 -Proposal 01 | 4 February 2025

Matanuska-Susitna Borough, AK



Document Control

Document Information

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Fugro Document No.	OP130520 -Proposal
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Fugro Legal Entity	Fugro USA Land, Inc.
Issuing Office Address	3104 Northside Avenue Richmond, VA 23228 USA

Client Information

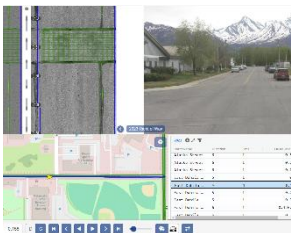
Client	Matanuska-Susitna Borough, AK
Client Address	1420 South Industrial Way, Palmer, AK
Client Contact	Daniel Dahms, PE
Client Document No.	-

Document History

Issue	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
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Project Team

Initials	Name	Role
AK	Andrew Kennedy	Project Delivery Manager
MP	Meghana Potin	Project Manager



Cover Image: Matanuska-Susitna Borough pavement condition data collected for Alaska DOT shown in iVision All pavement condition and roadside asset data streams are GPS connected and accessible to be viewed or “virtually driven” using all computing and mobile platforms

Executive Summary

Fugro USA Land, Inc. (FUSALI) is pleased to provide the enclosed Commercial Proposal for Matanuska-Susitna Borough's pavement data collection campaign. Fugro understands the importance of preserving the functionality of the Borough's roads and is committed to providing customized pavement data collection services and solutions tailored to meet these needs.

Fugro will use our Automatic Road Analyzer (ARAN) equipment for pavement distress and asset data collection at prevailing traffic speeds with no interruption to traffic flow. Fugro's ARAN is designed with high precision measurement systems and relevant safety systems to exceed the expectations of roadway condition data collection. In addition, Right-of-Way (ROW) digital images will be collected using high resolution cameras (Figure S.1). These images can be used to develop asset inventories such as signs, culverts, guardrails, pavement markings, and roadway lighting.



Figure S.1: Capturing roadside assets concurrently with pavement Using ROW images can be used to develop asset inventories such as signs, culverts, guardrails, pavement markings, and roadway lighting

We welcome the opportunity to apply our experience and knowledge to this important project for the Borough. Please do not hesitate to contact me at 602-300-5712 or by e-mail at mrobson@fugro.com if you have questions or need additional information. On behalf of Fugro, I thank you for the opportunity to submit our proposal.

Michael Robson

Business Development Manager Americas

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Abbreviations

DOT	Department of Transportation
ARAN	Automated Road Analyzer
M&R	Maintenance and Rehabilitation
MIRE	Model Inventory of Roadway Elements
FHWA	Federal Highway Administration
PMS	Pavement Management System
ROW	Right of Way
IRI	International Roughness Index

1. Understanding the Borough's Pavement and Asset Management Objectives

With over 1,000 miles of road serving over 110,000 residents, the Matanuska-Susitna Borough requires accurate and objective road condition insights to properly plan and monitor their transportation system. Our large fleet of 20 Automated Road Analysers (ARAN), Professional Engineers, dedicated project managers, and expert data analysts are trusted by the Alaska DOT and ready to provide the Borough with accurate and objective performance data for their pavement preservation program and Cartegraph Asset Management software

This proposal is structured to provide the technical approach and pricing of Fugro's recommended solution to objectives identified by the Borough which include:

- Pavement condition data collection and analysis of approximately 1,000 miles of test data over the duration of 3 years;
- Remote access to all data deliverables including images, GPS data, and summarized delivery in iVision.
- Upload of Cartegraph files and PCI calculation
- Pavement condition data analysis and asset extraction on any Alaska DOT owned data within the Borough's limits

2. Collecting Detailed Data for Transportation Asset Management

Matanuska-Susitna Borough will be able to leverage Fugro's current partnership with the Alaska DOT by utilizing an already deployed ARAN equipment and minimizing mobilization fees

This section outlines the technical approach and equipment used we are proposing as a solution to meet the defined objections previously listed in Section 1. Drawing upon our decades of experience providing pavement condition data, including over 300,000 miles per year, we have developed a standard methodology (Figure 2.1) with quality checks to ensure accurate and on-time delivery.

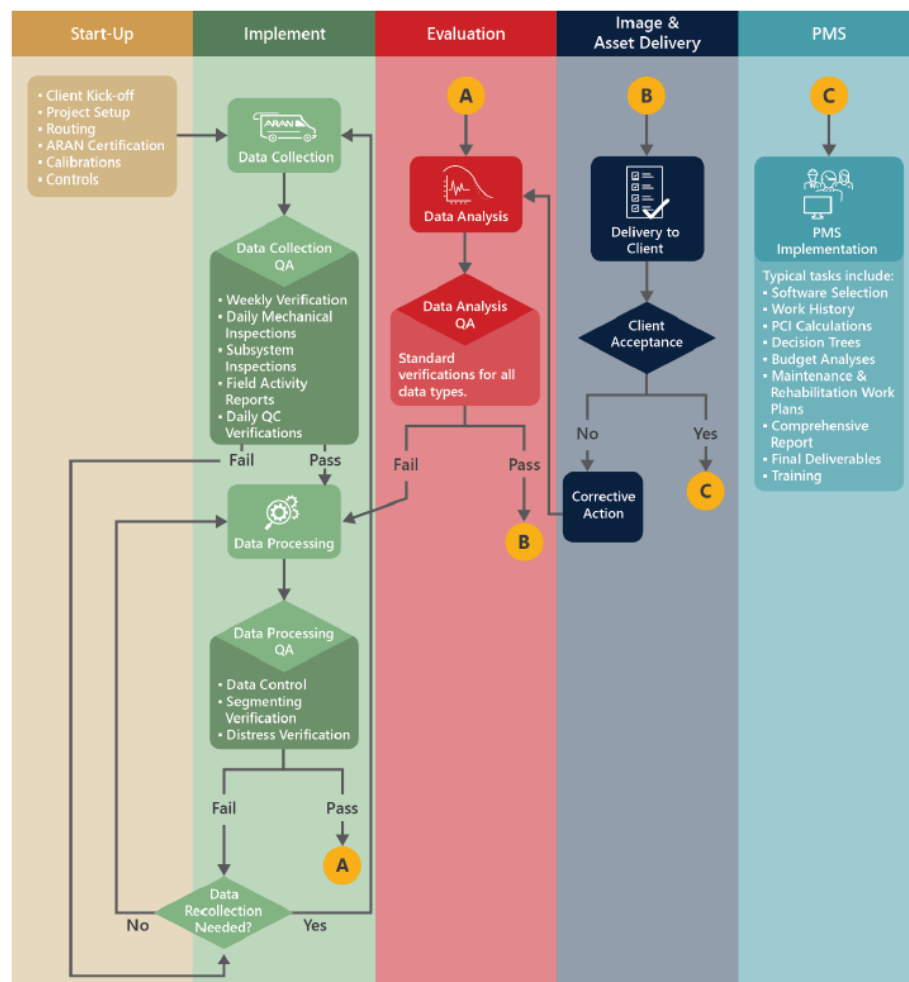


Figure 2.1: Pavement Condition Analysis High-Level Process Flow This process ensures that the collection and analysis of over 300,000 miles of automated pavement data per year, is accurate and delivered on-time.

2.1 Task 1: ARAN Roadway Data Collection

2.1.1 Equipment

Fugro manufactures the ARAN. We design and manufacture our equipment and software allowing customized distress collection and analysis. Frequently we encounter unique distress rating protocols which we can accommodate within our processing software. The ARAN includes gyroscopes, sensors, cameras, computers, software, and related equipment; all designed to withstand the rigors of collecting, twelve months per year in all landscapes and climates. The ARAN collects data and imagery in a single pass at posted speed limits and stores all data types in real-time.

The ARANs modular design enables quick configuration of any vehicle in our fleet to meet each client's specific data needs and schedule. Operators are trained in the use of the ARAN's on-board quality assurance systems to quickly identify errors that may impact the integrity of collected data. In addition to the in-field operations checks, data subsets are uploaded daily and examined by data analysis for errors and omissions.

The following subsystems are available on the ARAN (Figure 2.2):

- Linear and georeferenced data, Global Position System (GPS) coordinates
- Longitudinal profile and International Roughness Index (IRI)
- Transverse profile and Rutting
- Pavement images and Surface distress
- Right of Way (ROW) digital images
- Curve and geometric data
- Texture data, mean profile depth
- Lidar data collection and analysis (not included in Alaska DOT project)
- Subsurface analysis using GPR (not included in Alaska DOT project)



Figure 2.2: ARAN and its subsystems Set-up and field testing will utilize the exact same settings as the Alaska DOT project occurring at the same time. Weekly equipment controls will also occur under the jurisdiction of the State-level project

2.2 Task 2: Pavement Evaluation

2.2.1 Vision Automated Pavement Analysis and Reporting Software

Fugro's engineers have developed sophisticated and proven algorithms to greatly improve the detection, classification, rating, and reporting of data. Vision is considered an integral part of data processing and quality control (QC) methodology in Fugro's pavement condition assessment approach. Vision was developed by Fugro to ensure a simple and accurate process for analyzing ARAN data. The software facilitates the entire data processing workflow including key modules for data upload, georeferencing and segmentation, video and sensor data quality analysis, and pavement distress analysis. It synchronizes all the data (imagery along with sensor and map data) allowing the analyst a virtual drive on the road to assess quality, investigate anomalies, and confirm locations and conditions.

Automated & semi-automated algorithms are incorporated in Vision for pavement distress detection, classification, and rating. Digital pavement images collected by the ARAN serve as input to the distress rating process. ROW images are also used to enhance distress-rating accuracy. Each distress can be identified in terms of location, severity, exact dimensions, and other characteristics. The software also allows for customized distress rating protocol. Moreover, Vision's Report Generator module facilitates the creation of custom reports and data deliveries. This module allows Fugro staff to modify and apply reporting templates to ensure that data conforms to client requirements. Figure 2.3 provides a screenshot of Fugro's Vision software and Figure 2.4 shows how 3D cracking data is used in the pavement distress rating process.

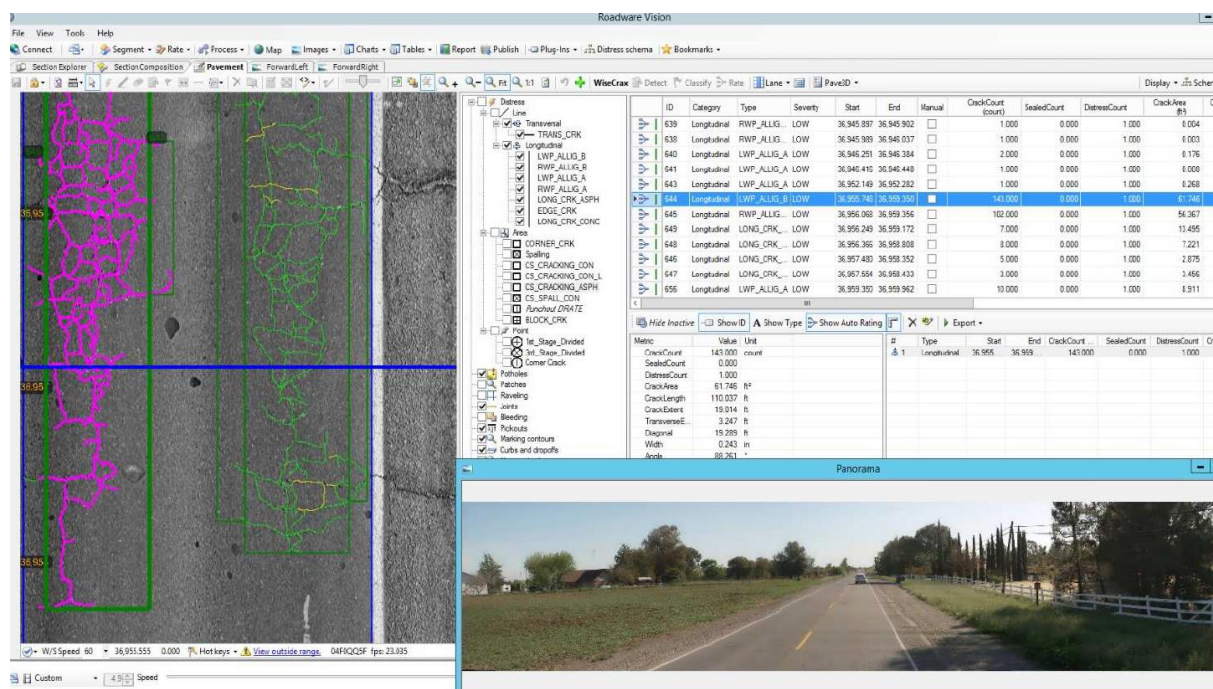


Figure 2.3: Crack detection and pavement distress rating in Vision Set-up and field testing will utilize the exact same settings as the Alaska DOT project occurring at the same time. Weekly equipment controls will also occur under the jurisdiction of the State-level project

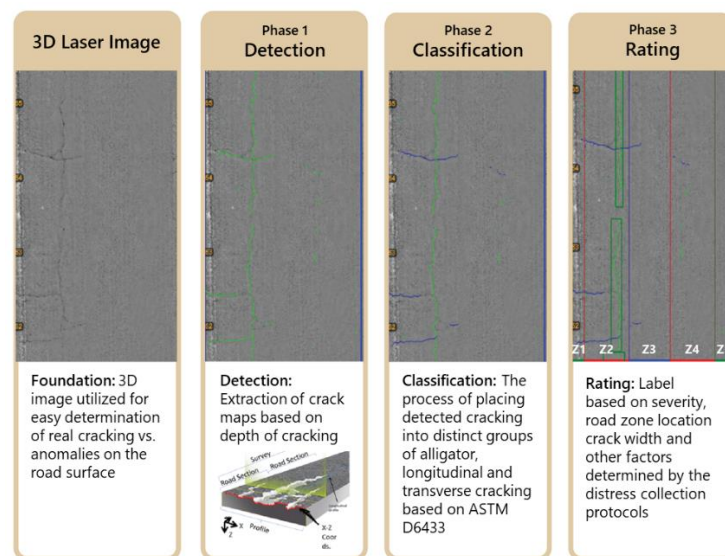


Figure 2.4: Three phase approach for measuring cracks & reporting By using 3D data, pavement distress rating is determined by actual crack width, length, shape, density, and location information

2.2.2 Configuration and reporting for Matanuska-Susitna Borough Project

All ARANs in this project will be set up with the exact same system configuration, available sub-systems, and collection methodology as the Alaska DOT project. This will ensure that all equipment meets any ASTM and AASTHO standards required to produce accurate and repeatable pavement performance data to meet the highest standards such as the Federal Highway Administration (FHWA).

For pavement distress rating and reporting, Fugro has recommended that the American Society for Testing and Materials (ASTM) D6433, Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys, method. The ASTM standard is compatible with the Borough's Cartegraph Asset Management software is used to calculate PCI for their roadway networks.

PCI uses a scale from 0 to 100, where 0 represents a completely failed pavement and 100 represents a pavement in perfect condition. PCI is calculated based on the type, severity, and extent of surface distresses. Each distress type includes a severity level (i.e., low, medium, and high) and has a different impact or "deduct" value for pavement condition depending on its quantity (i.e., extent). Since each distress type has a different impact on pavement performance, deduct values are specific to individual distresses in accordance with the ASTM D6433 standard. High severity distresses and/or high distress quantities result in more reductions in PCI scores. In general, deduct values for fatigue cracking are higher than deduct values of other types of cracking. Presence of load related fatigue cracking results in lower PCI scores, when compared with similar severities and extents for cracking associated with environmental conditions such as transverse cracking. Table 2.1 and

Table 2.2 present the concrete and asphalt concrete pavement distresses and their classifications.

Table 2.1: Concrete Pavement Distresses and Classifications

ID #	Load Related	ID#	Climate/Durability Related	ID#	Other Related
22	Corner Break	21	Blow Up	25	Faulting
23	Divided Slab	24	Durability Cracking	27	Lane/Shoulder Drop Off
28	Linear Cracking	26	Joint Seal Damage	29	Large Patch/Utility Cut
34	Punchout	37	Shrinkage Cracking	30	Small Patch
		38	Corner Spalling	31	Polished Aggregate
		39	Joint Spalling	32	Popouts
				33	Pumping
				35	Railroad Crossing
				36	Scaling

Table 2.2: Asphalt Concrete Pavement Distresses and Classification

ID #	Load Related	ID#	Climate/Durability Related	ID#	Other Related
1	Alligator Cracking	3	Block Cracking	2	Bleeding
7	Edge Cracking	8	Joint Reflection Cracking	4	Bumps & Sags
13	Pothole	10	Longitudinal/Transverse Cracking	5	Corrugation
15	Rutting	19	Raveling	6	Depression
		20	Weathering	9	Lane/Shoulder Drop Off
				11	Patch/Utility Cut
				12	Polished Aggregate
				14	Railroad Crossing
				16	Shoving
				17	Slippage Cracking
				18	Swell

We are also able to perform pavement distress rating and reporting using the Alaska DOT method; however, the data will not be able to be used to calculate an ASTM PCI score or be imported into Cartegraph (OpenGov) Asset Management software. The decision on which pavement distress method to use must be made prior to the start of the project.

2.3 Task 3: iVision Access for All Connected Data Streams

Fugro's iVision5 viewing software provides the Borough with a powerful tool to review collected images and asset data in a synchronized, GIS-based environment. iVision5 is hosted by Fugro and available on any device with access to the internet, this meets a remotely positioned workforce's needs. The user-friendly interface seamlessly integrates the collected data and imagery, GPS, distress and asset calculation tools, and mapping layers. iVision5 offers open data schemas that enable customized data querying, extraction, and linking with other systems to provide maximum flexibility and data-synchronization capabilities. These advanced data sharing and integration mechanisms allow the application to be launched and linked to multiple different asset management applications.

Figure 2.5 provides an example of one display option for iVision5's rich dashboard layout. This dashboard is customizable to the user's preferences and needs. All displayed data is playing in a synchronized view as the user navigates along the roadway on the GIS-based map. The Borough will be then provided with access to use the software for one year at no additional cost. After one year, licenses can be renewed annually for an additional cost.

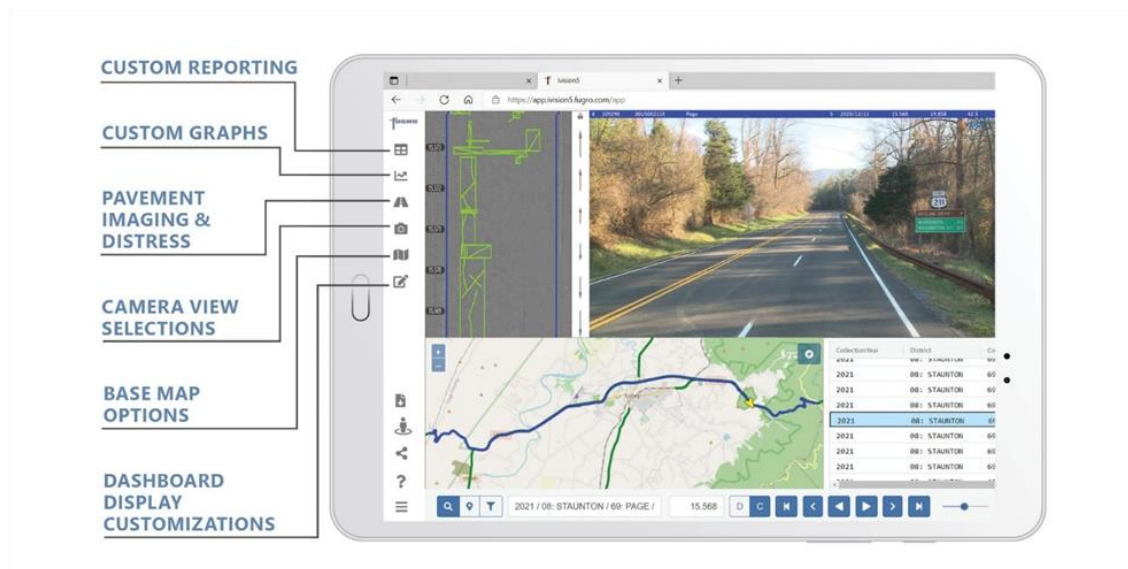


Figure 2.5: iVision5 navigation and inspection from a desktop or mobile device The web-app provides immediate access to all data streams places quality control (QC) ability right in the hands of Borough staff without the need of any additional IT resources

2.1 Task 4: Cartegraph Import of Inspection Files

Fugro will import of all previously described inspection files into Cartegraph and create a PCI report.

2.2 Task 5: Extraction of roadside asset data through photogrammetry

The Borough has indicated their interest in digitizing their large database of roadside assets. Having accurate asset inventory in a management database would allow the city to target maintenance and rehabilitation (M&R) works in a manner that provides the best return on investment (ROI). Furthermore, Model Inventory of Roadway Elements (MIRE) requirements from the Federal Highway Administration (FHWA) increasingly mandate that this data be collected and reported on by 2027.

Our solution to this very essential concern is the Surveyor program has undergone continual improvement since going live in 1994. It has provided asset inventory data to almost a dozen state agencies and multiple municipalities. Since 2008, Fugro has extracted and delivered greater than 70 different asset types totaling 5.1 million unique assets on over 216,000 miles of road.

We emphasize usability of roadside asset data in actions that go beyond GIS visualization. Our method involves resolving assets into point and line features and capturing necessary attribute data for comprehensive inventory creation. We harness ROW images captured

through calibrated cameras for accurate positional and dimensional measurements. If a roadside asset can be seen by a car user, we will be able to capture it. This data is processed through our extraction tool (Figure 2.6) and integrates seamlessly into a relational database, allowing user input for comments and ratings.



Figure 2.6: High quality imagery enables detailed asset extraction The photo demonstrates the quality of our ROW images, specifically in regard to asset extraction. The quality of the image allows the city staff ability to zoom into assets like road signs and review their condition from the safety of their desk.

To ensure consistency, we provide a comprehensive asset marking guide and demonstrate accuracy through pilot data deliveries, offering flexibility to meet evolving client needs.

Our rigorous data collection process ensures accuracy, covering various assets such as signs, culverts, guardrails, pavement markings, roadway lighting. This data is typically delivered as geodatabase and able to be uploaded into Cartegraph Asset Management software.

2.3 Optional Task: Analysis on Alaska DOT owned data within the Borough's limits

Fugro will import any Alaska DOT owned data that has been previously collected within the Borough's limits and run the pavement analysis, asset extraction and Cartegraph import as described in Tasks 2 to 5.

3. Pricing Options

The Matanuska-Susitna Borough deserves a high return on investment. Fugro's proposal of a concurrent photogrammetry and pavement data collection campaign presents a turnkey solution.

3.1 Key Assumptions

Pricing is subject to the following assumptions:

- a. Data collection occurs in the same year as Alaska DOT's pavement evaluation project, after Fugro has mobilized ARAN equipment into the State and before they have left. Fugro is under contract to with Alaska DOT until 2029 but requires a notice to proceed from the State every year.
- b. Scope of work includes 300 test miles per year. The Borough has expressed intent to perform this work once per year for 3 years to test approximately 1,000 test miles of road.

3.2 Pricing for Pavement Data Collection Services

Table 3.1 presents a summary of base, recommended, and premium pricing scenarios.

Table 3.1: Pricing for Pavement Data Collection Services

Item	Price
Pavement Data Collection, Processing, and iVision Publishing ■ Described in Tasks 1, 2 & 3	\$72,450.00 (\$241.50/mile)
Asset data extraction from ROW images (2 to 5 Asset Types). Described in Task 5 Types include: ■ Signs ■ Culverts ■ Guardrails ■ Pavement Markings ■ Roadway Lighting	\$13,828.50 (\$46.10/mile)
Cartegraph upload & PCI calculation. Described in Task 4	\$12,240.00
TOTAL for 300 miles	\$98,518.50

Table 3.2: Pricing for analysis of Alaska DOT owned data within the Borough's limits

Item	Price
Pavement Data Processing, iVision Publishing, Asset Extraction ■ Option 1: 0 to 50 miles ■ Option 2: 50 to 100 miles ■ Option 3: 100 to 150 miles	\$9,500.00 \$14,250.00 \$19,000.00
Cartegraph upload & PCI calculation. Described in Task 4 ■ Option 1: 0 to 50 miles ■ Option 2: 50 to 100 miles ■ Option 3: 100 to 150 miles	\$1,040 \$2,080 \$3,120

4. Fugro Schedule 40.01

1. Parties to This Agreement

CLIENT as used herein is the entity who authorizes performance of services by Fugro USA Land, Inc. (FUGRO) under the conditions stated herein. FUGRO as used herein includes, Fugro USA Land, Inc., its employees and officers, and its subcontractors and sub-consultants (including affiliated corporations).

2. On-site Responsibilities and Risks

- 2.1 Right-of-Entry. Unless otherwise agreed, CLIENT will furnish unfettered rights-of-entry and obtain permits as required for FUGRO to perform the fieldwork.
- 2.2 Damage to Property. FUGRO will take reasonable precautions to reduce damage to land and other property caused by FUGRO's operations. However, CLIENT understands that damage may occur and FUGRO's fee does not include the cost of repairing such damage. If CLIENT desires FUGRO to repair and/or pay for damages, FUGRO will undertake the repairs and add the pre-agreed cost to FUGRO's fee.
- 2.3 Toxic and Hazardous Materials. CLIENT will provide FUGRO with all information within CLIENT's possession or knowledge as to the potential occurrence of toxic or hazardous materials, or Biological Pollutants (as defined in 9. below) at the site being investigated. If unanticipated toxic or hazardous materials, or biological pollutants are encountered, FUGRO reserves the right to demobilize FUGRO's field operations at CLIENT's expense. Remobilization will proceed following consultation with FUGRO's safety coordinator and CLIENT's acceptance of proposed safety measures and fee adjustments.
- 2.4 Utilities and Pipelines. While performing FUGRO's fieldwork, FUGRO will take reasonable precautions to avoid damage to subterranean and subaqueous structures, pipelines, and utilities. CLIENT agrees to defend, indemnify, and hold FUGRO harmless for any damages to such structures, pipelines, and utilities that are not called to FUGRO's attention and/or correctly shown on plans furnished to FUGRO.
- 2.5 Site Safety. FUGRO is not responsible for the job site safety of others, nor does FUGRO have stop-work authority over work by others. However, FUGRO will conduct its work in a safe, workman-like manner, and will observe the work-site safety requirements of CLIENT that have been communicated to FUGRO in writing.

3. Standard of Care

- 3.1 FUGRO will perform its services consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same location.
- 3.2 CLIENT acknowledges that conditions may vary from those encountered at the location where borings, surveys, or explorations are made and that FUGRO's data, interpretations, and recommendations are based solely on the information available to FUGRO, and FUGRO is not responsible for the interpretation by others of the information developed.

4. Limitation of Remedies

To the greatest extent permitted by law, CLIENT's sole remedy against FUGRO for claims and liabilities (including attorney's fees, litigation expenses and costs of court) in any way arising out of or directly or indirectly related to FUGRO's work for CLIENT will not exceed an aggregate limit of \$50,000 or the amount of FUGRO's fee, whichever is greater, regardless of the legal theory under which remedy is sought, whether based on negligence [whether sole or concurrent, active or passive], breach of warranty, breach of contract, strict liability or otherwise. In the event CLIENT does not wish to limit FUGRO's remedy to this sum, and if CLIENT requests in writing prior to acceptance of this Agreement, FUGRO agrees to negotiate a greater remedy amount in exchange for an increase in scope and fee appropriate to the project and remedy risks involved.

5. Invoices and Payment

At FUGRO's discretion, invoices will be submitted at the completion of task elements, or monthly for services rendered. Payment is due upon presentation of FUGRO's invoice and is past due thirty (30) days from invoice date. CLIENT agrees to pay a financing charge of one percent (1%) per month (or the maximum rate allowable by law, whichever is less), on past due accounts, and agrees to pay attorney's fees or other costs incurred in collecting any delinquent amount.

6. Data, Records, Work Product and Report(s), and Samples

Data, Records, Work Product and Report(s) are FUGRO's property. All pertinent records relating to FUGRO's services shall be retained for a minimum of two (2) years after completion of the work. CLIENT shall have access to the records at all reasonable times during said period. FUGRO will retain samples of soil and rock for a minimum of 30 days after submission of FUGRO's report unless CLIENT advises FUGRO otherwise. Upon CLIENT's written request, for an agreed charge FUGRO will store or deliver the samples in accordance with CLIENT's instructions.

7. Indemnification

Each party (Indemnitor) shall protect, defend, indemnify and hold harmless the other party (Indemnitee) from and against any claims, damages, losses, and costs arising from this Agreement or the project, including, but not limited to, reasonable attorney's fees and litigation costs, to the extent such claims, damages, losses or costs are caused by the sole negligence of the Indemnitor.

8. Consequential Damages

Notwithstanding any other provision of this Agreement, CLIENT and FUGRO waive and release any claim against the other for loss of revenue, profit or use of capital, loss of services, business interruption and/or delay, loss of product, production delays, losses resulting from failure to meet other contractual commitments or deadlines, downtime of facilities, or for any special, indirect, delay or consequential damages resulting from or arising out of this Agreement, or as a result of or in connection with the work, and whether based on negligence (whether sole or concurrent, active or passive), breach of warranty, breach of contract, strict liability or otherwise.

9. Biological Pollutants

FUGRO's scope of work does not include the investigation, detection, or design related to the presence of any Biological Pollutants. The term "Biological Pollutants" includes, but is not limited to, mold, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms. CLIENT agrees that FUGRO will have no liability for any claim regarding bodily injury or property damage alleged, arising from, or caused directly or indirectly by the presence of or exposure to any Biological Pollutants. In addition, CLIENT will defend, indemnify, and hold harmless FUGRO from any third party claim for damages alleged to arise from or be caused by the presence of or exposure to any Biological Pollutants. If CLIENT requests in writing prior to acceptance of this Agreement, FUGRO will negotiate a greater limitation amount, and remove CLIENT's responsibilities, in exchange for an increase in fee to develop an expanded scope of work to provide biological pollutant protection.

10. Acceptance of Agreement

These GENERAL CONDITIONS have been established in large measure to allocate certain risks between CLIENT and FUGRO. FUGRO will not initiate service without formal agreement on the terms and conditions set forth in these GENERAL CONDITIONS. Acceptance or authorization to initiate services shall be considered by both parties to constitute formal acceptance of all terms and conditions of these GENERAL CONDITIONS.

Furthermore, all preprinted terms and conditions on CLIENT's purchase order or purchase order acknowledgment forms are inapplicable to these GENERAL CONDITIONS and FUGRO's involvement in CLIENT's project.

11. Termination of Contract

CLIENT and FUGRO may terminate services at any time upon ten (10) days written notice. In the event of termination, CLIENT agrees to fully compensate FUGRO for services performed including reimbursable expenses to the termination date, as well as demobilization expenses. FUGRO will terminate services without waiving any claims or incurring any liability.