QSH Parent Holdco LLC (Quintillion)
Nome to Homer Express Route
NTIA Middle Mile Grant (MMG)
Budget Narrative (V3)

Project Summary:

Applicant Name: QSH Parent Holdco LLC (Quintillion)

Applicant Type: New

Proposed Period of Performance: 4/1/23-3/31/27

Total Project Costs: $150,799,819.89

Total Federal Grant Request: $88,896,493.83

Total Matching Funds (Cash): $36,942,076.06

Total Matching Funds (In-Kind): $24,961,250.00

Total Matching Funds (Cash + In-Kind): $61,903,326.06

Total Matching Funds (Cash + In-Kind) as Percentage of Total Project Costs: 41.05%

Budget Narrative Preface:

This revised and updated **Budget Narrative** document incorporates Quintillion's responses from Programmatic Revue Substantiation exchanges relative to the **Detailed Budget Justification** and **Pro Forma** spreadsheets as well as the reallocation of [redacted] in Quintillion's matching contribution from cash to in-kind for pre-award expenditures in support of project acceleration once funded. See following sections:

Detailed Budget Justification Support Narrative

Pro Forma Support Narrative

Company and Asset Ownership

Detailed Budget Justification Support Narrative:

1. Administrative and Legal Expenses - [redacted]

1.1 Project legal support; [redacted]

[redacted]

1.2 Project accounting support; [redacted]

[redacted]

1.3 Grant governance and compliance support; [redacted]

Grant compliance consulting is required to develop an internal grant compliance program, inform internal and subcontractor resources of grant requirements, track compliance activities, and prepare necessary reporting. Cost estimates for this resource were recommended by Quintillion grant consultants based on prior experience.

1.4 Owner Project Management & Engineering Support; [redacted]

Owner project management support is required to develop overall project plans using individual plans prepared by construction and equipment vendors, coordinate activities, resolve resource conflicts, manage critical path activities, and prepare project reporting. Engineering support is required to develop overall system design, project specifications and requirements, manage vendor technical acceptance activities, perform system testing and network integration activities, prepare network operations and maintenance plans and oversee implementation of these programs, and perform service design and provisioning standards and procedures. Cost estimates for these activities were estimated using Quintillion internal labor costs and prior subsea fiber project experience.

1.5 Insurance & Property Taxes; [redacted]

Owner construction related insurances will be required during the project implementation. Property taxes will be due for completed assets. These costs were estimated based on prior Alaskan subsea fiber cable project experience.

1.6 Owner Project Travel Costs; [redacted]

Owner employees and consultants will be required to travel to vendor meetings and project worksites. These costs were estimated based on previous Alaskan subsea fiber optic cable project experiences.

Quintillion's Additional Response:

Quintillion expects substantial travel will be required due to the length, varying terrain and planned construction methods, and the number of communities that will be connected. We estimated the travel required to support all phases of the project as five person-trips per month on average during the project duration, with each trip duration being four days average length with [redacted]/day expenses (hotel, meals, transportation, incidentals) plus [redacted] round trip airfare. Actual travel demand will vary depending on the season and intensity of work activities.

1.7 Reimbursable Pre-Grant Preparation Expense; Capped at [redacted]

The following table summarizes the hours spent by Quintillion staff in developing this grant proposal and collaborating with outside consultants in its development. Only internal staff time is listed and exceed the [redacted] expense category capped amount.

Title	Hours	Burdened Hourly Rate	Cost
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
		GRAND TOTAL	[redacted]

1.8 Workforce Planning Consultant; [redacted]

Estimated costs for a Workforce Planning Consultant to work with Quintillion to develop a federally compliant workforce development plan. Cost estimate based on conversations with credible regional vendor of such services, but contract will be competitively bid post award.

2. Land, Structures, Rights-of-Way, Appraisals, etc. - [redacted]

2.1 Expansion of Nome BMH Pad, Per sq ft (SNC); [redacted]

[redacted]

2.2 SOA Offshore Public Utility Easement Fee (Nome, Emmonak, Naknek, Iliamna Lake, Williamsport, Homer); [redacted]

[redacted]

2.3 Emmonak BMH and Fronthaul Easement (Emmonak Corporation); [redacted]

[redacted]

[redacted]

2.4 Naknek BMH and Fronthaul Easement (Paug-Vik Corporation and private landowners); [redacted]

[redacted]

2.5 Naknek CLS (Paug-Vik Corporation); [redacted]

[redacted]

2.6 Igiugig BMH and Fronthaul Easement (Igiugig Native Corp); [redacted]

[redacted]

2.7 Pile Bay BMH and Fronthaul Easement (Pedro Bay Corp); [redacted]

[redacted]

[redacted]

2.8 Pile Bay CLS Land Acquisition (Pedro Bay Corp); [redacted]

[redacted]

2.9 Williamsport BMH and Fronthaul Easement Acquisition; [redacted]

[redacted]

2.10 Homer BMH and Fronthaul Easement (Private Landowners); [redacted]

[redacted]

2.11 Prefab Cable Landing Station (Nome PFE Hut), Including Freight, Pad Foundation, etc.; [redacted] **(See Note Below)**

[redacted]

2.12 Prefab Cable Landing Station (Unrepeatered Emmonak, Naknek), Including Freight, Pad Foundation, etc.; [redacted] **(See Note Below)**

[redacted]

[redacted]

2.13 Prefab Cable Landing Station (repeatered Naknek), Including Freight, Pad Foundation, etc.; [redacted] (See Note Below)

[redacted]

Items 2.11, 2.12, and 2.13 CLS Cost Differential Supplemental Response

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2.14 SOA Public Utility Easement Fee (Naknek to Igiugig); [redacted]

[redacted]

2.15 Naknek Easement (Paug-Vik Corporation and Private Landowners); [redacted]

[redacted]

2.16 Igiugig Easement (Igiugig Native Corp); [redacted]

[redacted]

2.17 Pile Bay Easement (Pedro Bay Corp); [redacted]

[redacted]

2.18 [redacted]

[redacted]

2.19 DOT Major Utility Permit Fee Williamsport Road; [redacted]

[redacted]

2.20 DOT Major Utility Permit Fee Naknek; [redacted]

[redacted]

3. Relocation Expenses and Payments - [redacted]

N/A

4. Architectural and Engineering Fees - [redacted]

4.1 Subsea Supplier Engineering & Project Management; [redacted]

The subsea cable supply agreement will be executed on a turnkey basis including engineering and project management tasks for all contracted equipment and services. The cost was estimated by Quintillion consultants as part of a desktop feasibility study.

4.2 Project Documentation; [redacted]

The subsea cable supply agreement will be executed on a turnkey basis including complete as-built documentation of all contracted equipment and services. The cost was estimated by Quintillion consultants as part of a desktop feasibility study.

4.3 Subsea Supplier Operational Permits; [redacted]

The subsea cable supply agreement will be executed on a turnkey basis including permitting of installation and survey activities. The cost was estimated by Quintillion consultants as part of a desktop feasibility study.

4.4 Owner Acquired Permit Consulting Support; [redacted]

Many permits and authorizations will be required from federal and state of Alaska agencies prior to beginning construction of the subsea network. Consultants specializing in this area will be required to develop permit applications, coordinate with agencies and stakeholders, and manage compliance programs during the project. The cost was estimated by Quintillion consultants as part of a desktop feasibility study.

4.5 Subsea Supplier Testing & Commissioning; [redacted]

[redacted]

4.6 Terrestrial Fiber Engineering & Project Management; [redacted]

[redacted]

4.7 Terrestrial Fiber Permits; [redacted]

[redacted]

[redacted]

4.8 Terrestrial Fiber Testing & Commissioning; [redacted]

[redacted]

5. Other Architectural and Engineering Fees - [redacted]

5.1 Marine Route Survey (Nome to Hooper Bay); [redacted]

[redacted]

[redacted]

[redacted]

5.2 Marine Route Survey (Hooper Bay to Naknek); [redacted]

[redacted]

5.1 & 5.2 Marine Route Survey Supplementary Response

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

SURVEY PHASE	SURVEY SENSOR	DESCRIPTION	SURVEY CORRIDOR
Geophysical Survey	[redacted]	[redacted]	[redacted]
Geotechnical Survey	[redacted]	[redacted]	[redacted]

5.3 Owner Technical Consultants (Annual); [redacted]

[redacted]

6. Project Inspection fees - [redacted]

6.1 Owner Shipboard Representatives (24x7 coverage, per day); [redacted]

[redacted]

6.2 Owner Land Cable & CLS Inspectors (Day-Rate, Including Travel, Lodging, Vehicle, Incidentals); [redacted]

[redacted]

6.3 Owner Protected Species Observers (24x7 Coverage, Per Day); [redacted]

[redacted]

7. Site Work - [redacted]

7.1 Cable Landing Station (Nome PFE Hut) Site Preparation and Electric Utility Extension; [redacted] **(See Note Below)**

[redacted]

7.2 Cable Landing Station (Unrepeatered Emmonak, Pile Bay) Site Preparation and Electric Utility Extension; [redacted] **(See Note Below)**

[redacted]

[redacted]

7.3 Cable Landing Station (Repeatered Naknek) Site Preparation and Electric Utility Extension; [redacted] (See Note Below)

[redacted]

Items 7.1, 7.2, and 7.3 Site Preparation Supplemental Response

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

8. Demolition and removal - [redacted]

N/A

9. Construction - [redacted]

9.1 Freighting of Submersible Cable; [redacted]

[redacted]

9.2 Marine Installation Vessel Transit & Mobilization/Demobilization; [redacted] (See Note Below)

[redacted]

9.3 Pre-lay Grapnel Run / Route Clearance for Burial; [redacted] (See Note Below)

[redacted]

9.4 Main Lay w/Burial; [redacted] (See Note Below)

[redacted]

9.5 Post-Lay Inspection and Burial (PLIB) - Project Allowance; [redacted] (See Note Below)

[redacted]

9.6 Shore-end Operations Including Cable Pull to BMH and Submersible Cable Splice to Land Cable; [redacted] (See Note Below)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

9.7 Articulated Pipe (Unit Price Per m); [redacted]

[redacted]

9.8 PLSE Barge & Lake Iliamna Installation; [redacted] **(See Note Below)**

[redacted]

[redacted]

9.9 Landing Site Construction Including Beach Vault; [redacted]

[redacted]

9.10 Land Cable Installation (Does Not Include Conduit Install); [redacted]

[redacted]

9.11 Land Cable Conduit Installation, Remote Mobilization & Construction; [redacted]

[redacted]

9.12 Naknek to Igiugig Winter Trenching, Remote Mobilization & Construction; [redacted]

[redacted]

Naknek to Igiugig winter trenching, remote mobilization & construction	per- mile breakdown of rate
[redacted]	[redacted]
	[redacted]
	[redacted]
	[redacted]
	[redacted]
	[redacted]
	[redacted]
	[redacted]
	[redacted]
	[redacted]

9.13 Pile Bay to Williamsport Conduit & Fiber Trenching, Remote Mobilization; [redacted]

[redacted]

Pile Bay to Williamsport Conduit & Fiber trenching, remote mobilization	Per-mile breakdown
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

9.14 HDD Construction at Nome; [redacted]

[redacted]

10. Equipment - [redacted]

10. Equipment Category Necessity of Spares Commentary

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

10.1 Submersible Cable (12 Strands, G.654C, EX-2000 Equivalent Fiber Type) Double Armor; [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

10.2 Submersible Cable (12 Strands, G.654C, EX-2000 Equivalent Fiber Type) Single Armor; [redacted]

[redacted]

10.3 Repeaters, Cable Bodies (Repeaters Spaced [redacted] **km);** [redacted]

[redacted]

10.4 Accessories (BMH Joints Closure, Anchoring Device, Pull-In Device); [redacted]

[redacted]

10.5 Passive Full Fiber Drop Branching Unit; [redacted]

[redacted]

[redacted].

10.6 Power Switched Full Fiber Drop Branching Unit; [redacted]

[redacted]

10.7 Land Cable Including Power and Ground as Required; [redacted]

[redacted]

10.8 Land Cable Lightweight Armored Subsea (Includes Joints); [redacted]

[redacted]

10.9 Land Cable, 2x 1.25" HDPE Conduits, Vaults Every 5000'; [redacted]

[redacted]

10.10 Power Feed Equipment; [redacted]

[redacted]

10.11 Submarine Line Terminal Equipment; [redacted]

[redacted]

10.12 Return Earth; [redacted]

[redacted]

10.13 Subsea Management Nodes (LME, EMS, etc.); [redacted]

[redacted]

10.14 Spare Submersible Cable [redacted]

[redacted]

10.15 Spare Power Switched Full Fiber Drop Branching Unit; [redacted]

[redacted]

10.16 Spare Passive Full Fiber Drop Branching Unit; [redacted]

[redacted]

10.17 Spare Submersible Repeaters; [redacted]

[redacted]

10.18 Network Packet Switches; [redacted]

[redacted]

10.19 Spare Submarine Line Terminal Equipment; [redacted]

[redacted]

10.20 Spare Network Packet Switch Modules; [redacted]

[redacted]

10.21 Spare Land Cable Equipment; [redacted]

[redacted]

10.22 Station Test Equipment; [redacted]

[redacted]

11. Miscellaneous - [redacted]

11.1 Vendor Training (Type A/B, Powered System); [redacted]

[redacted]

11.2 Nome to Fairbanks 100G Capacity Commitment (In-Kind); [redacted]

[redacted]

[redacted]

[redacted]

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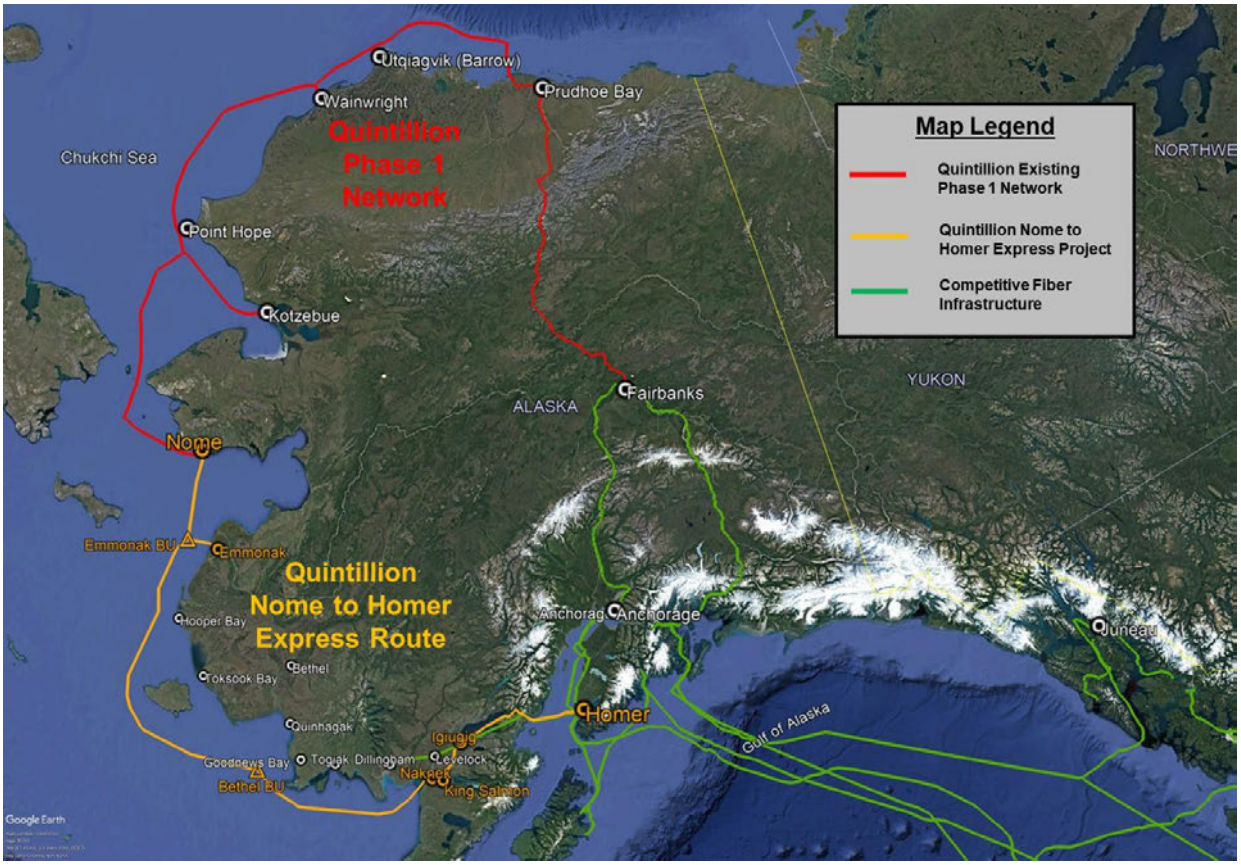
Quintillion Nome to Homer Express Route Project Map



12. Subtotal (Sum of Lines 1-11) - [redacted]

13. Contingencies - [redacted]

N/A

14. Subtotal (Sum of Lines 12-13) - [redacted]

15. Project (Program) Income - [redacted]

N/A

16. Total Project Costs - [redacted]

Pro Forma Support Narrative:

NTIA Pro Form Review Notes:

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Depreciation:

[redacted]

Interest expense:

[redacted]

Income tax:

[redacted]

Revenue:

[redacted]

Fiscally Sustainable Middle-Mile Strategies:

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Pro Forma Revenue Assumptions

[redacted]

[redacted]

[redacted]

[redacted]

Pro Forma Revenues Section

Income Statement

[redacted]

[redacted]

[redacted]

Year 5 Revenue Projections Summary

Location	Category	Revenue Type	Annual Amount
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
		[redacted]	[redacted]

Company and Asset Ownership:

QSH Parent Holdco, LLC (Quintillion), the leading provider of fiber-based connectivity in the American Arctic, has been owned [redacted] by Cooper Investment Fund, LLC, a Delaware limited liability company based in Fairfield, CT. On March 28, 2023, Quintillion's executive team signed a merger agreement that, upon regulatory approval, will give Grain Management, LLC (Grain), a Washington, D.C.-based private investment firm, control with approximately [redacted] ownership of Quintillion. Key members of the management team will own the remaining portion of Quintillion and all the management and current employees will be retained. There will be no other changes in the ownership or structure of Quintillion or its operating subsidiaries. Grain is partnering with the existing management team to accelerate Quintillion's growth plans in the State of Alaska to further close the digital divide in the state. All Nome to Homer Express Project assets as proposed in this NTIA Middle Mile Grant application will be owned and operated at the end of the award period by Quintillion Subsea Operations, LLC, a wholly owned subsidiary of QSH Parent Holdco, LLC.

Grain Management, LLC is a leading private investment firm that focuses on communications infrastructure and technology companies that connect the world to the information economy. Founded in 2007, Grain invests exclusively in the global broadband industry, employing a rigorous, data-based process buoyed by deep sector expertise to identify investment opportunities in key areas of communications, including fiber networks, wireless spectrum, cell towers, infrastructure services, and managed services. For more information visit http://www.graingp.com/ and the merger's press release at https://graingp.com/news/grain-management-acquires-quintillion-to-accelerate-broadband-expansion-in-alaska/.