

**MEMORANDUM OF UNDERSTANDING FOR BROADBAND SERVICE FOR
NORTHERN HARFORD COUNTY**

This Memorandum of Understanding (MOU) is entered into on this 13th day of January, 2021, between Harford County, Maryland, (“the County”), a body corporate and politic of the State of Maryland and ThinkBig Networks, L.L.C (“ThinkBig). The County and ThinkBig may be referred to herein individually as the “Party” or collectively as the “Parties” to this Agreement.

WHEREAS, The County is aware of the lack of broadband services available to the rural residents of Harford County; and

WHEREAS, The lack of broadband service to rural residents makes it difficult for these County residents to engage in distance learning, teleworking and telemedicine, all functions that have become critical during the ongoing COVID-19 State of Emergency; and

WHEREAS, The County has constructed a fiber optic communications backbone to provide a high speed communications network known as HMAN, which it intends to expand; and

WHEREAS, The County has additional dark fibers available on the IIMAN fiber optic backbone; and

WHEREAS, The additional dark fibers on the County’s fiber optic backbone can serve as a middle mile path for an internet service provider to connect to in order to branch off from there and construct the distribution and last mile fiber needed to extend broadband service to the rural residents of Harford County; and

WHEREAS, The County with the assistance of its consultant issued a request for interest from internet service providers as to how best to provide internet service to the rural residents of Harford County; and

WHEREAS, The County received several responses to the request, including ThinkBig Networks L.L.C.'s proposal to provide broadband service to the County's rural areas by using the County's HMAN backbone as the middle mile and constructing additional fiber as the distribution and last mile to reach Harford County's unserved or underserved citizens; and

WHEREAS, The County and ThinkBig believe that such a partnership will be beneficial to both Parties.

NOW, THEREFORE, in consideration of mutual promises set forth below and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Intent

The intent of this Agreement is for the County to provide ThinkBig access to dark fibers on the HMAN system and for ThinkBig to use those fibers and build out from the backbone to provide broadband service at reasonable rates, comparable to rates in other parts of the County, to the unserved or underserved citizens in the designated rural area of Harford County.

2. Definitions

As used in this MOU the following terms shall have the following meanings:

Dark Fiber – Fiber optic cable capable of transmitting data once electronics are added that send optical signals between end points.

Designated Rural Area – The geographical area in the North of the County designated by the Parties for deployment of broadband fiber to the premises. This area is illustrated in Exhibit A.

Backbone Fiber – The main fiber path extending from a Providers home network to a targeted network service area, from which fiber optic paths branch off into neighborhoods.

Distribution Fiber – The fiber paths from Backbone Fiber to neighborhoods in the Designated Rural Area.

Last Mile Fiber – The fiber paths that traverse the rights-of-way in the neighborhood and “pass” the homes and businesses of potential customers.

Service Drop – Fiber optic connection that connects the fiber from where it “passes” by a subscriber home or business to the home or business itself.

3. County’s Obligation

3.1 Extension of HMAN backbone

The County shall construct an extension of its current backbone fiber reaching into the Designated Rural Area as illustrated in Exhibit B.

3.2 Grant of License

The County agrees to grant ThinkBig a license for the term of this Agreement to use up to 48 strands of dark fiber on the County’s HMAN system as defined in the Dark Fiber Licensing Agreement, at no cost, for the purpose of constructing and interconnecting a fiber optic network and related necessary equipment to provide broadband to the residents and businesses in the Designated Rural Area. Should ThinkBig fail to meet the construction standards required under this MOU or Exhibit C, the County has the option to grant an additional license to another entity to extend broadband service to the Designated Rural Area unserved by ThinkBig.

3.3 Partnering on Funding Opportunities

The County will assist ThinkBig in the application and submittal of any documentation required to apply for grant funding. The County obligation and match contribution under any grant funding proposal will be the in-kind match represented by ThinkBig’s right to use the County’s asset of dark fiber that is part of the HMAN backbone.

3.4 Assisting in the Procuring of Easements

The County will assist ThinkBig in procuring easements necessary for locating equipment used to supply broadband to the Designated Rural Area.

3.5 Data Access

Subject to appropriate confidentiality and security protections, the County will provide access to data that identifies County infrastructure, including the location of traffic, water, sewer and storm drainage facilities.

3.6 Permitting Process

The County will assist in navigating necessary permitting to streamline the planning and construction process.

3.7 Dedicated Contact

The County will assign a point of contact who will be the liaison to the company and its contractors.

4. ThinkBig's Obligations

4.1 Construction of Distribution Fiber and Last Mile Fiber

ThinkBig will engineer and construct a fiber optic system capable of providing broadband fiber-to-the-premises (FTTP) to the Designated Rural Area from the County's HMAN backbone. ThinkBig shall meet the performance metrics/standards as set forth in Exhibit C. Changes to the performance metrics/standards may be made upon mutual agreement of the parties.

4.2 ThinkBig will apply for all available state or federal funding to assist in financing the construction of a fiber optic system to the Designated Rural Area and will provide any required funding match.

4.3 ThinkBig will charge reasonable market rates, comparable to the rates available to consumers in more densely populated areas of Harford County, for both the service provided and construction of the lateral Service Drop to the customer.

4.4 ThinkBig will provide the County rights to use fiber optic strands constructed by ThinkBig in the Designated Rural Area for non-commercial, County purposes.

- 4.5 ThinkBig will – upon County request – construct additional fiber optic cable to any current or future County government facilities in the Designated Rural Areas and will charge the County based on ThinkBig’s actual cost.
- 4.6 During the Construction Period, ThinkBig will provide timely, accurate progress reports to the County quarterly to enable the County to understand the status of deployment.
- 4.7 For five years following the Construction Period, ThinkBig will provide quarterly reports to the County indicating the number of connected subscribers and the service backlog of subscribers scheduled to be connected.

5. Network Technical Requirements

- 5.1 ThinkBig agrees to provide a network that is capable of delivering the following technical performance requirements:
- 5.1.1 Passive Optical Network (“PON”) or active Ethernet technology to provide 1 Gbps downstream to all subscribers and 1 Gbps symmetric service to 10 percent of subscribers;
 - 5.1.2 A technology roadmap to increase speed to 10 Gbps downstream to all users and 10 Gbps symmetrical service to 10 percent of subscribers without replacement or upgrade of outside plant;
 - 5.1.3 Network will be able to manage Quality of Service to individual users, either by use of network routers or through the wireless network management system;
 - 5.1.4 Network management should include the capability to split users into multiple tiers of service, each with different maximum speeds;
 - 5.1.5 Latency <10 milliseconds to its primary internet exchange point; and
 - 5.1.6 Backup power of at least 72 hours in case of electric outage for all electronics except at the customer premises.
- 5.2 ThinkBig may determine the optimal network design and configuration to achieve the standards required in Section 5.1.
- 5.3 During the term of the MOU, ThinkBig will make financial investments in the deployed network to maintain a state-of-the-art distribution network carrying products and services, and with service quality standards equal to or better than the products and services offered by the leading ISPs in the densely-populated areas of the County.

6. Line Extensions and Service Drop Installation

ThinkBig will not charge any installation or construction fee for the first 300 feet of a Service Drop Installation or line extension to Unserved Pockets, other than where directional boring is unavoidable, in which case ThinkBig will charge no more than \$12 per foot for directional boring construction. For installation or construction in excess of 300 feet, ThinkBig will charge customers at or below the cost of \$1 per foot, adjusted annually on the anniversary date of this agreement by the annual Producer Price Index, for aerial construction or direct bury construction and no more than \$12 for directional boring. ThinkBig will make every effort to reduce these installation costs as much as possible. ThinkBig will notify the County of all quotes of this kind that it gives to potential customers.

7. Reporting and Testing

7.1 ThinkBig shall provide a project plan with milestones at the start of the project for build-out.

7.2 ThinkBig shall provide quarterly reports on progress towards milestones.

7.3 ThinkBig shall provide end-to-end attenuation, end-to-end signature and splice testing for the milestones outside completed plant fiber. The metrics for these dark fiber acceptance standards are outlined in Exhibit C. These should also apply to the dark fiber strands ThinkBig will provide to the County.

7.4 The County or the County's contractor may conduct field inspections of ThinkBig's construction at any time during the buildout of the project

7.5 Network performance tests will be conducted to a customer premise at subscriber activation and such tests shall be provided to the County. The metrics for such testing are outlined in Exhibit C.

7.6 ThinkBig shall provide to the County a copy of any reporting provided to the State or Federal agencies on its network in the County.

8. Licensing Agreement

The County and ThinkBig shall enter a licensing agreement detailing the number of strands and use of the County's dark fibers.

9. Term of MOU

This MOU is effective as of the date first written above and, unless otherwise agreed by the parties, shall run for a term of thirty years.

10. Termination for Default

If either party does not fulfill its obligations under this MOU or violates any material provision of this MOU, the non-defaulting party may terminate the MOU by giving the defaulting party written notice of termination; provided that, a party shall not be in default under this MOU unless and until the non-breaching party provides it with notice of such default and the defaulting party shall have failed to cure the same within thirty (30) days after receipt of notice. Termination under this paragraph does not relieve the defaulting party of liability for any damages caused to the other Party. .

11. Termination for Non-appropriation.

If funds are not appropriated or otherwise made available to support continuation of the HMAN system in any fiscal year succeeding the first fiscal year, this MOU shall be terminated automatically as of the beginning of the fiscal year for which funds are not available.

12. Maryland Law Prevails.

The law of Maryland shall govern the interpretation and enforcement of this MOU.

13. Insurance.

Neither party assumes liability for the acts or omissions of the other party or its agents.

Nothing in this MOU shall be construed to extend the immunities of one party and its agents to the other party or its agents. Each party or its agents shall insure the equipment that it owns and/or operates.

14. Changes.

This MOU may not be amended or modified in any manner other than by an agreement in writing approved by the parties and duly signed by authorized persons on behalf of the parties. Amendments may not change significantly the scope of the MOU.

15. No Waiver of Sovereign Immunity.

Nothing in this MOU, nor any action taken by the County hereto, nor any document arising out of this MOU shall constitute or be construed as a waiver of either the sovereign immunity or governmental immunity of the County.

16. Successors and Assigns.

This Agreement, and the terms, covenants, warranties and conditions hereof, shall be binding upon and inure to the benefit of the parties hereto and their respective authorized

heirs, beneficiaries, administrators, executors, receivers, trustees, successors and permitted assigns. Unless otherwise expressly stated herein, nothing in this Agreement shall be construed as an authorization or right of any party to transfer or assign its rights in or delegate its duties under this Agreement without the prior written consent of the other party.

17. Notices

All notices, demands and requests required or permitted to be given under this MOU shall be (a) in writing, (b) delivered by electronic email with confirmation of delivery receipt, or sent by commercial delivery service or certified mail, return receipt requested. Notice shall be deemed to have been given on the date of electronic transmission or on the date set forth in the records of the commercial delivery service or on the return receipt when addressed as follows:

If to the County:

Benjamin Lloyd
Director of Administration
220 South Main Street
Bel Air, MD 21014
balloyd@harfordcountymd.gov

If to ThinkBig:

Mark Wagner
CEO, ThinkBig Networks, LLC
519 Morgnec Road
Chestertown, MD 21620
mwagner@thinkbignets.com

18. Captions.

All headings contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation of the Agreement.

19. Entire Agreement.

This MOU contains the entire agreement between the parties with respect to the matters set forth herein. No representations, inducements or agreements, oral or otherwise, between the parties not contained herein shall be of any force or effect.

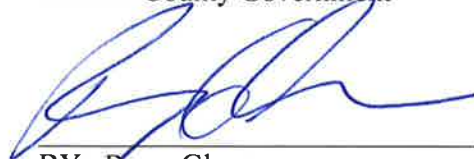
20. Counterparts.

This MOU may be signed in multiple counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument; and in pleading or proving any provision of this Agreement, it shall not be necessary to produce more than one complete set of such counterparts.

IN WITNESS WHEREOF the Parties hereto have caused this Agreement to be executed by their proper and duly authorized officers, on the dates identified below.

1/13/2021
Date

Harford County Government



BY: Barry Glassman
ITS: Harford County Executive

ThinkBig Networks, LLC

1/13/21
Date

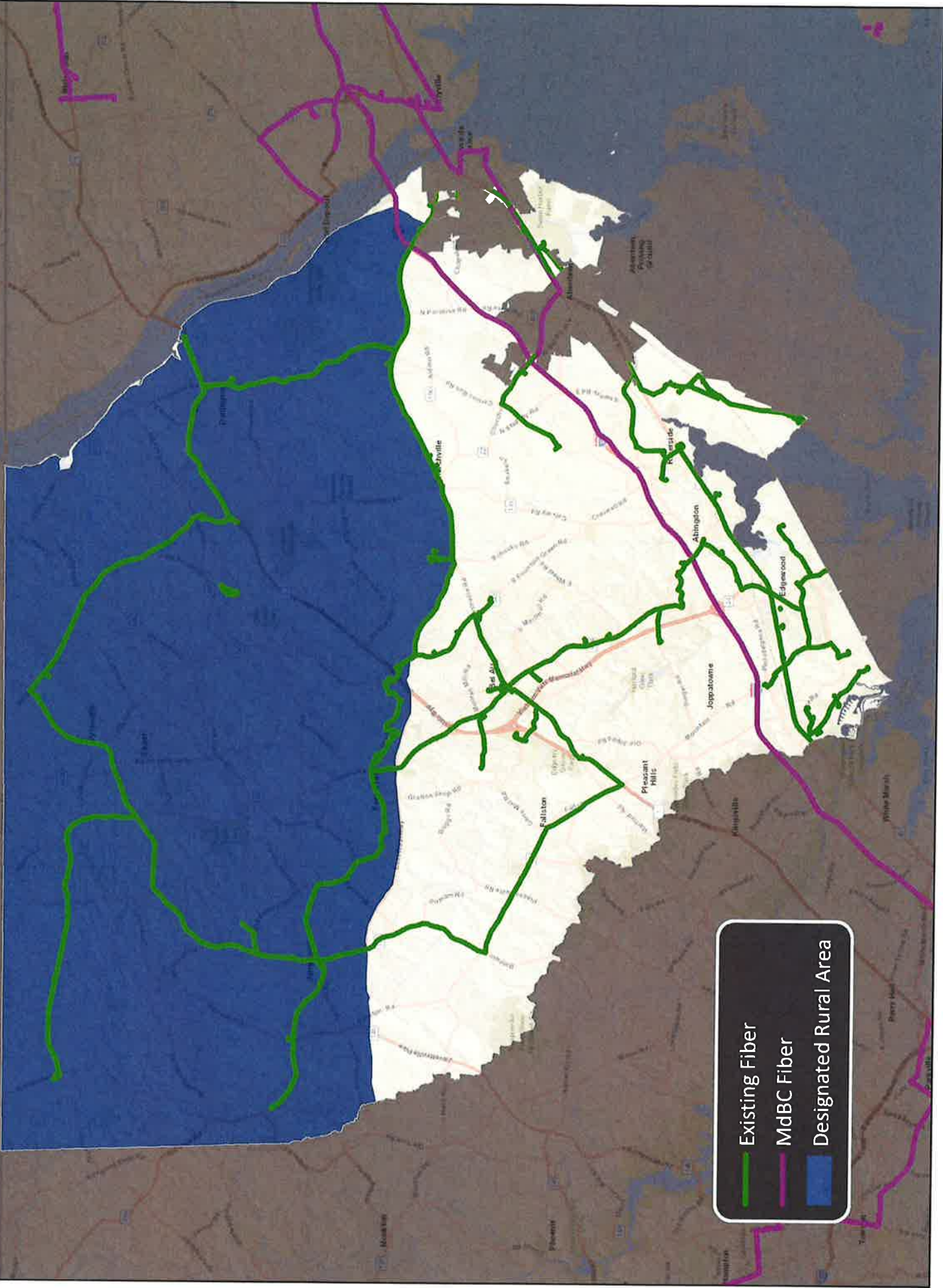
Mark R. Wagner
BY: Mark Wagner
ITS: Chief Executive Officer

Approved as to form and legal sufficiency this 13 day of January, 2021.



Mary Kate Herbig
Senior Assistant County Attorney

EXHIBIT A



- Existing Fiber
- MdBC Fiber
- Designated Rural Area

EXHIBIT B

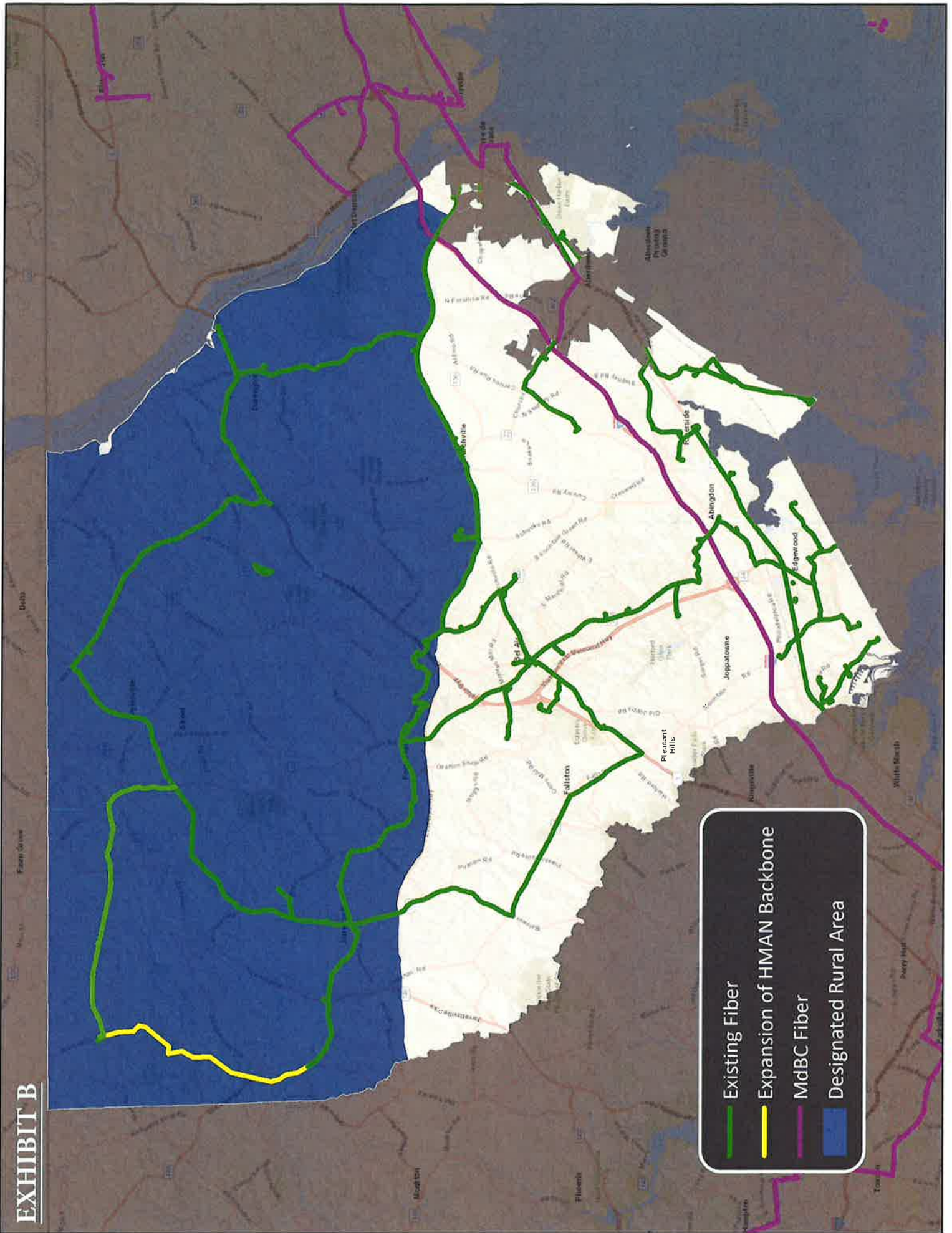


Exhibit C

1. Engineering

ThinkBig (TBN) will within 4 months of the later date of the execution of either the MOU for Broadband Service for Northern Harford County or the Dark Fiber Licensing Agreement, ThinkBig shall have completed the engineering design for the construction of the Distribution Fiber and Last Mile Fiber to the Designated Rural Area.

2. Construction and Deployment Priority Area

After completing the engineering design of the broadband for the Designated Rural Area, the first construction and deployment of fiber shall be to the North-West priority area within the Designated Rural Area as delineated on the engineering plans. The construction and deployment to the North-West priority area shall begin within 6 months of the completion of the engineering plans.

3. Deployment and Construction Remaining Designated Rural Area.

- A. Within 4 months of deployment of broadband to the North-West area ThinkBig shall begin construction and deployment of fiber to the remaining portions of the Designated Rural Area.
- B. ThinkBig shall have passed at least 80% of the addresses within the North-West priority area within 2 years of the beginning of construction and deployment to that priority area.
- C. Within 3 years of beginning construction and deployment to the North-West priority area, ThinkBig shall have passed 100% of the addresses in the priority area.

- D. ThinkBig shall pass at least 70% of the addresses within the remaining Designated Rural Area within 3 years of beginning construction and deployment to the North-West priority area.
- E. ThinkBig shall pass at least 90% of the addresses within the remaining Designated Rural Area within 4 years of beginning construction and deployment to the North-West priority area.
- F. ThinkBig shall pass at least 100% of the addresses within the remaining Designated Rural Area within 5 years of beginning construction and deployment to the North-West priority area.
- G. Beginning at the end of the first year of the execution of the MOU and from then on quarterly, as required under the MOU, ThinkBig shall provide the County a progress report detailing by location the number of addresses passed as well as the number of addresses activated.

4. Testing and Standards

Testing Standards and Process

Fiber shall be ITU-T G.652D compliant or better.

All splices shall be of the fusion type.

Splices shall have an optical attenuation of no more than 0.1 dB at both 1550 nm and 1310 nm.

At the time of construction, TBN shall provide bidirectional OTDR test results end-to-end of each fiber strand dedicated to the County at 1310 and 1550 nm. If a result is not in compliance, TBN shall remediate the fault within one week or on a mutually agreeable schedule. If necessary, TBN shall provide replacement strands from its own portion of

the cable to replace faulty strands. The Company shall notify the County when tests will take place, and the County may at its discretion observe the tests.

A fiber strand shall be deemed compliant if total end-to-end link attenuation does not exceed manufacturer specifications at 1310 nm and 1550 nm with allowances for splices (0.1 dB per splice) and connectors (0.5 dB per mated connector pair).

Maintenance Requirements and Procedures

Maintenance

Scheduled Maintenance. Routine maintenance and repair of the Customer Fibers (“Scheduled Maintenance”) shall be performed by or under the direction of TBN, at TBN’s reasonable discretion. Scheduled Maintenance shall commence with respect to each Segment upon the IRU Effective Date.

Unscheduled Maintenance. Non-routine maintenance and repair of the Customer Fibers that is not included as Scheduled Maintenance (“Unscheduled Maintenance”) shall be performed by or under the direction of TBN. Unscheduled Maintenance shall commence with respect to each Segment upon the Effective Date. Unscheduled Maintenance shall consist of:

- **“Emergency Unscheduled Maintenance”** in response to an alarm identification by TBN’s Operations Center, notification by Customer or notification by any third party of any failure, interruption or impairment in the operation of fibers within the TBN Network, or any event imminently likely to cause the failure, interruption or impairment in the operation of fibers within the TBN Network.
- **“Non-Emergency Unscheduled Maintenance”** in response to any potential service-affecting situation to prevent any failure, interruption or impairment in the operation of

fibers within the TBN Network not covered by Scheduled Maintenance. Customer shall immediately report the need for Unscheduled Maintenance to TBN in accordance with reasonable procedures promulgated by TBN from time to time. TBN will log the time of Customer report, verify the problem and dispatch personnel immediately to take corrective action.

Operations, Maintenance, and Repair

TBN shall have on call (24) hours a day, seven (7) days a week trained and qualified personnel. TBN's maintenance personnel shall be available for dispatch twenty-four (24) hours a day, seven (7) days a week. TBN will not be responsible for monitoring the performance or operation of the Customer Fibers; in the event that Customer detects a failure in the operation of the Customer Fibers which may indicate the need for Unscheduled Maintenance, Customer shall report same to TBN's OC. TBN's current NOC Escalation List is attached hereto as Exhibit C.

Planned Service Work Period

Scheduled Maintenance that is reasonably expected to produce any signal discontinuity must be coordinated between the parties. Generally, this work should be scheduled after 12:01 and before 4:59 a.m. Monday through Friday, local time, with exceptions made only as needed for emergencies. The intent is to avoid jeopardy work during high-traffic periods.

Cooperation and Coordination

- In performing its services hereunder, TBN shall take workmanlike care to prevent impairment to the signal continuity and performance of the Customer Fibers. The precautions to be taken by TBN shall include notifications to Customer. In addition, TBN shall reasonably cooperate with Customer in sharing information and analyzing the disturbances regarding the cable and/or fibers. In the event that any Scheduled or Unscheduled Maintenance hereunder requires a traffic roll or reconfiguration involving cable, fiber, electronic equipment, or regeneration or other facilities of the Customer, then Customer shall, at TBN's reasonable request, make such personnel of Customer available as may be necessary in order to accomplish such maintenance, which personnel shall coordinate and cooperate with TBN in performing such maintenance as required of TBN hereunder.
- TBN shall notify Customer at least (5) calendar days prior to the date in connection with any Planned Service Work Period ("PSWP") of any Scheduled Maintenance and as soon as possible after becoming aware of the need for Unscheduled Maintenance. Customer shall have the right to be present during the performance of any Scheduled Maintenance or Unscheduled Maintenance so long as this requirement does not interfere with TBN's ability to perform its obligations under the Agreement. In the event that Scheduled Maintenance is canceled or delayed for whatever reason as previously notified, TBN shall notify Customer at TBN's earliest opportunity, and will comply with the provisions of the previous sentence to reschedule any delayed activity.

Cable/Fibers

- TBN shall have its first maintenance personnel at the site requiring Emergency Unscheduled Maintenance activity within four hours after the time TBN becomes aware of an event requiring Emergency Unscheduled Maintenance, unless delayed by Force Majeure Events. TBN shall maintain a 24-hour toll-free telephone number to contact repair personnel. TBN's personnel shall dispatch maintenance and repair personnel along the system to handle and repair problems detected in the TBN Network: (i) upon notification by one of TBN's personnel or agents, (ii) upon notification through the TBN's and/or the Customer's remote surveillance equipment, (iii) upon notification by Customer to TBN, or (iv) upon notification by a third party.
- TBN shall maintain sufficient capability to teleconference with Customer during Emergency Unscheduled Maintenance in order to provide regular communications during the repair process. When correcting or repairing cable discontinuity or damage, including but not limited to an Emergency Unscheduled Maintenance event, TBN shall repair traffic-affecting discontinuity within twenty-four (24) hours after TBN's representatives arrival at the problem site. In order to accomplish such objective, it is acknowledged that the repairs so affected may be temporary in nature. In such event, within fifty-five (55) hours after completion of any such Emergency Unscheduled Maintenance, TBN shall commence its planning for permanent repair, and thereafter promptly shall notify Customer of such plans, and shall implement such permanent repair within an appropriate time thereafter. In repairing any fiber outages, all open fibers on fiber strands that are immediately required for service will be restored by TBN first as set forth herein. Restoration of open fibers on fiber strands not immediately required for service shall be

completed on a mutually agreed-upon schedule. If the fiber is required for immediate service, the repair shall be scheduled for the next available PSWP.

- TBN's representatives that are responsible for initial restoration of a cut cable shall carry on their vehicles the typically appropriate equipment that would enable a temporary splice, with the objective of restoring operating capability in as little time as possible. TBN shall maintain and supply an inventory of spare cable in storage facilities supplied and maintained by TBN at strategic locations to facilitate timely restoration.

Restoration

- TBN shall respond to any event giving rise to the need for Unscheduled Maintenance as quickly as possible (allowing for delays caused by Force Majeure Events) in accordance with the procedures set forth herein.
- When restoring a cut cable in the TBN Network, the parties agree to work together to restore all traffic as quickly as possible. TBN, promptly upon arriving on the site of the cut, shall determine the course of action to be taken to restore the cable and shall begin restoration efforts. TBN shall splice fibers tube by tube or ribbon by ribbon or fiber buffer by fiber buffer, rotating between tubes, ribbons or buffers operated by the parties having an interest in the cable, including Customer and all future fiber users of the system; provided that, operating fibers (i.e., fibers which have been jumpered to Customer's or another party's space or equipment) in all buffer tubes or ribbons or fiber bundles shall have priority over any non-operating fibers in order to allow transmission systems to come back on line; and provided further that, TBN will continue such restoration efforts until all lit fibers in all buffer tubes or ribbons are spliced and all traffic restored. Notwithstanding the foregoing,

TBN does not guarantee any specific rotational prioritization for Customer in light of the overriding requirement for expediency in restoration of services to all parties.

Facilities

Customer will be solely responsible for providing and paying for any and all maintenance of all electronic, optical, and other equipment, materials and facilities used by Customer in connection with the operation of the Customer Fibers, none of which is included in the maintenance services to be provided hereunder.

Subcontracting

TBN may subcontract any of the maintenance services hereunder; provided that TBN shall require the subcontractor(s) to perform in accordance with the requirements and procedures set forth herein. The use of any such subcontractor shall not relieve TBN of any of its obligations hereunder.

ThinkBig's NOC Escalation List

1. David Insley, Director of Operations, dinsley@thinkbignets.com, 443-962-0378
2. David Barr, Director of Technology, dbarr@thinkbignets.com, 410-699-0133
3. David Hartman, Head Engineer, dhartman@thinkbignets.com, 443-850-0764