Fairhaven Board of Selectmen
Meeting Minutes
September 21, 2020

Present: Chairman Daniel Freitas, Vice-Chairman Robert Espindola, Selectman Keith Silvia, Town Administrator Mark Rees, ZBA members Peter DeTerra, Ruy DaSilva, Joe Borelli, Fran Cox, Patrick Carr, Jerry Bettencourt, Attorney Greg Koldys and Cable Access Director Derek Frates

Present via Zoom: Town Counsel Tom Crotty, Finance Director Wendy Graves, ZBA members, Al Silva and Daryll Manchester, Administrative Assistant Vicki Oliveira, Cable Production Coordinator Eric Sa and members of the public.

The meeting was videotaped on Cable Access and Zoom meeting application.

Chairman Freitas opened the meeting at 6:30 pm in the Town Hall Banquet Room and read the following statement:

"This Open Meeting of the Fairhaven Board of Selectmen is being conducted remotely consistent with Governor Baker's Executive Order of March 12, 2020, due to the current State of Emergency in the Commonwealth due to the outbreak of the "COVID-19 Virus."

In order to mitigate the transmission of the COVID-19 Virus, we have been advised and directed by the Commonwealth to suspend public gatherings, and as such, the Governor's Order suspends the requirement of the Open Meeting Law to have all meetings in a publicly accessible physical location. Further, all members of public bodies are allowed and encouraged to participate remotely.

The Order, which you can find posted with agenda materials for this meeting allows public bodies to meet entirely remotely so long as reasonable public access is afforded so that the public can follow along with the deliberations of the meeting.

Ensuring public access does not ensure public participation unless such participation is required by law. This meeting will allow public comment related to the posted agenda items only. For this meeting, Fairhaven Board of Selectmen is convening by telephone conference/video conference via Zoom App as posted on the Town's Website identifying how the public may join.

Minutes

Mr. Espindola made a motion to approve the minutes of August 17, 2020 – Open Session (tabled from the meeting on September 8, 2020). Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to approve the minutes of August 17, 2020 – Executive Session. (tabled from the meeting on September 8, 2020). Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to approve the minutes of September 8, 2020 – Open Session. Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to approve the minutes of September 8, 2020 – Executive Session. Mr. Silvia seconded. Vote was unanimous. (3-0)

Town Administrator's Report

Mr. Rees said the Town has been given $2.1 Million in COVID grants with $1.7 going to the school for remote learning. The town is allocated to spend $456,000

The Town was awarded a $50,000 grant for union wharf feasibility study.

Committee liaisons

The Bikeway Committee held and event in town last Sunday.

Mr. Espindola said the Marine Resources Committee has been working on the Waterways Rules and Regulations and the Economic Development Committee would like to review this document before going to Town Meeting.

SRPEDD will be meeting to discuss solar developments with an expert in that field.

Mr. Silvia said the Millicent Library has been searching for a new library director to replace Carolyn Longworth and he thanked Anne O'Brien for all her hard work.

Fire Department Badge Pinning Ceremony

At 6:37 pm the Board of Selectmen joined the Fairhaven Fire Chief Tim Francis and the Deputy Fire Chief Todd Correia on the front lawn of Town Hall to swear in four new recruits. Chief Timothy Francis introduced Michael Farias, Jordan Cabral, Scott Rittenhouse and Shawn Oliveira to a small crowd of family and friends. The Chief explained because of the COVID -19 pandemic the traditional graduation at the Fire Academy was cancelled this year.

Chief Francis said all four (4) of these recruits handled the fire academy strict requirements and demands, and managed their personal lives with poise and dedication and we could not be more proud of each of them. Each of the four firefighters are Certified FF1/2 and is Hazmat Certified to the Operations level.

Town Clerk Carolyn Hurley swore each fire fighter into oath as they had their badge pinned by their loved ones.

The Deputy Chief told the group that each academy selects an individual that graduates that is the top recruit in their class, which earns them the Richard N. Bangs, Outstanding Student Award. Their name is placed on a plaque that is displayed at the fire academy. In the history of the Fairhaven Fire Department, the department has never had a recruit that was selected for this award until today. Michael Farias Jr. was presented the award for the Recruit Class 281.

At 6:54 the Board reentered the Banquet Room to resume the meeting.

Taylor Seafood License Renewal

Mr. Espindola made a motion to approve the Aquaculture license renewal for Taylor Seafood. Mr. Silvia seconded. Vote was unanimous. (3-0)

Larry Fowler- Aquaculture License

This item was tabled because the information was not available in time for the meeting.

CDBG: Discharge of Mortgage – Lois Grindrod

Mr. Rees explained this was part of the CDBG housing program where loans were offered to homeowners at a lower cost. Because this property has been sold, the mortgage needs to be discharged. Mr. Espindola made a motion to authorize the discharge of mortgage for Lois Grindrod. Mr. Silvia seconded. Vote was unanimous. (3-0)

Request for Executive Session minutes: June 30, 2020 & July 13, 2020

Town Counsel explained that the minutes of the Board are public record with the exception of the Executive Session. The law does not allow provide for the minutes to be asked to be released in an open session meeting.

Poll Workers: November 3, 2020 election

Mr. Espindola made a motion to approve the list of poll workers for the November 3, 2020 election as presented by the Town Clerk and to post the names on the town webpage. Mr. Silvia seconded. Vote was unanimous. (3-0) (Attachment A)

Request to join the Cultural Council: Sarah Buck

Mr. Freitas read a letter of interest from Sarah Buck for the Fairhaven Cultural Council. Mr. Espindola made a motion to approve the request to join the Cultural Council from Sarah Buck. Mr. Silvia seconded. Vote was unanimous. (3-0)

Community Nurses Contract for Public Health Nursing

Mr. Espindola made a motion to approve the Community Nurses contract. Mr. Silvia seconded. Vote was unanimous. (3-0)

Sidewalk Easement Acceptance: 79 Green Street

Mr. Rees explained the owner of 79 Green Street granted an easement to the town allowing the public sidewalk to encroach on his property in order to preserve an existing tree. Mr. Espindola made a motion to accept the easement as presented and approved by Town Counsel for 79 Green Street. Mr. Silvia seconded. Vote was unanimous. (3-0)

Stop sign: Glenhaven Avenue and Parker Street

Mr. Espindola made a motion to approve the stop sign on Glenhaven Avenue and Parker Street as recommended by the Fairhaven Police Department. Mr. Silvia seconded. Vote was unanimous. (3-0)

Consolidated I.T. Director

Mr. Rees explained that several years ago the Town entered into a consolidated IT department with the Fairhaven Public Schools. Nicole Potter has been holding the position of Finance Director and IT Director; Superintendent Dr. Baldwin would like to recommend Christopher Camara for the position of IT Director. Ms. Potter will now become the full time Finance Director. Mr. Espindola made a motion to approve the appointed Consolidated IT Director by Mr. Rees of Christopher Camara as recommended by Mr. Rees. Mr. Silvia seconded. Vote was unanimous. (3-0)

Appoint Board member to review Executive Session Minutes

Mr. Espindola made a motion to appoint Selectman Silvia to review the executive session minutes for the purpose of releasing them. Mr. Silvia seconded. Vote was unanimous. (3-0)

SRTA Advisory Board Representative

Mr. Espindola made a motion to appoint Planning Director Paul Foley to the SRTA Advisory Board as the representative. Mr. Silvia seconded. Vote was unanimous. (3-0)

People's Super Liquor Store, Inc d/b/a Douglas Wine and Spirits: Change of Manager

Mr. Espindola made a motion to approve the change of manager for People's Liquor Store d/b/a Douglas Wine and Spirits. Mr. Silvia seconded. Vote was unanimous. (3-0)

Joint Meeting with the Zoning Board of Appeals to discuss Educational Opportunity

At 7:05 pm the Board of Selectmen met with members of the Zoning Board of Appeals (ZBA) to discuss educational opportunities at the suggestion by Selectman Espindola. Mr. Espindola passed out a memo (Attachment B). Mr. Rees told the Board there are funds in the budget for training opportunities. ZBA Chairman Peter DeTerra said the ZBA has had some training in the past. The ZBA members feel that recently they have not all been getting their packets because of the turn around with the staff. They said because there is currently no building inspector and there is a different person taking the minutes each meeting there isn't the proper communication. The ZBA would like the support of a building commissioner at their meetings. Town Counsel offered some suggestions on how to make the process easier and Selectmen Espindola wants to help provide structure so the ZBA can do the best job they can.

Eloine Vieira, Sconticut Neck Road resident, stated that she would like to see the ZBA and the Conservation Commission follow the rules.

Mr. Espindola made a motion to authorize up to $400 in spending for training for Zoning Board of Appeals members and members of the Board of Selectmen, as the ZBA appointing authority, in accordance with the correspondence in our packet from Paul Foley and to ask Mr. Foley to coordinate that training on behalf of both boards and, further, if there is sufficient space in the training class and it is practical to do so, that we open up the training to neighboring

communities to split the cost of the training with those communities. Mr. Silvia seconded. Vote was unanimous. (3-0)

Meeting with A-1 Crane re: land use issues

Patrick Carr, owner of A-1 Crane, his attorney Greg Koldys, and the owner of the property that A-1 Crane resides, Jerry Bettencourt were present in the Banquet Room to discuss the land issues with the Board. Mr. Carr feels the town is not being fair to him and his business and Mr. Carr would like the recent cease and desist order by the Building Commissioner rescinded.

Town Counsel stated that it is illegal to the Board of Selectmen to dictate to the Building Commissioner when he gives a cease and desist.

Attorney Koldys stated the matter was decided in January 2013 when A-1 Crane went before the ZBA to keep his business as industrial. Town Counsel Tom Crotty reminded the Board that back in 1998 when Jerry Bettencourt had his repair business on the property he was grandfathered for that use only. The Grandfather does not apply to the land, only the business. Currently the land is zoned as mixed use. Attorney Crotty explained that the zoning board can't re-zone, only grandfather, under the law any grandfathered use a business cannot expand. Attorney Crotty stated that A-1 Crane's business is not the same as Jerry Bettencourt's business. A discussion was raised regarding the Master Plan and the notification that was sent out to the public. Selectmen Espindola reminded the group that the Master Plan was decided with the communities input.

At 8:41 pm there was a 6 minute recess.

Revised FY21 Budget

Town Administrator Rees reviewed the revised FY21 budget with the Board in preparation for the October 20, 2020 Special Town Meeting. Mr. Rees told the Board the Town has over 12 million dollars in reserves and the budget will reflect his payout (upon his retirement) and funds to hire a consultant to help in the search for a new town administrator. The Board will add $4000 to the Board of Appeals operating expenses over what has already been recommended for support.

Mr. Espindola made a motion to recommend the Town Administrator's recommended budget at town meeting with the provisor that $4000 be added to the Zoning Board of Appeals budget. Mr. Silvia seconded. Vote was unanimous. (3-0)

Preparation for October 20, 2020 Special Town Meeting- review of the warrant

The Board made the following votes on the warrant:

Mr. Espindola made a motion to place on the warrant: *Sewer Capital Fee*. Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *Bills of prior year*. Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *Setting Salaries of Town Officers- FY21*. Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *FY 21 General Fund Operating Budget.* . Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *FY21 Water Enterprise Fund Operating Budget.* Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *FY21 Sewer Enterprise Fund Operating Budget.* Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *FY21 Town of Fairhaven Cable Television Enterprise Fund Budget* Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *FY21 Fairhaven Public Schools Cable Television Enterprise Fund Budget.* Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *General Fund Capital Plan (FY21).* Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *West Island Dredging.* Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *Purchase of Property on Union Wharf.* Mr. Silvia seconded vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant: *Land Acquisition and Engineering Design Services for Public Safety Facility.* Mr. Silvia seconded vote was unanimous. (3-0)

Selectman Espindola recused himself for the vote on Robert Street because he owns property approximate to Robert Street.

Mr. Silvia made a motion to place on the warrant: *Road work: Robert Street.* Mr. Freitas seconded vote was carried. (2-0-1)

Mr. Espindola made a motion to place on the warrant *Road work: Cove Street.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Road work: Bonney Street.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Road work: Chase Road.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant*: Funding Capital Stabilization Fund-Transfer from Free Cash* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Ambulance Stabilization.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant*: Water Enterprise Capital Plan (FY21).* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant*: Sewer Enterprise Capital Plan (FY21).* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *FY21 Community Preservation Program Appropriations.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *New Revolver Fund-Mooring Fees.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Propagation of Shellfish.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Transfer from Surplus Revenue.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to not put on warrant: *Acceptance of Easements – Fort Phoenix.* Mr. Espindola seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to not put on warrant: *Amend Stormwater management*. Mr. Espindola seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to not put on warrant: *Amend Amendment to Solid Waste By-Law, Chapter 164.* Mr. Espindola seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to not put on warrant: *Amendment to Town By-Laws, Chapter 87, Animals.* Mr. Espindola seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to not put on warrant: *Amendment to Town By-Laws, Chapter 50.* Mr. Espindola seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Adoption of Water Ways Regulation Bylaw* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *By-law: Thin Film Plastic Bag Ban* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *By-law: Board of Health Standards.* Mr. Silvia seconded. Vote was unanimous. (2-1)

Mr. Espindola made a motion to place on the warrant *By-law: Gold Star Parents Tax Abatement.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Various Street Light Petition Articles.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Petition the General Court: Fire Lieutenant Examination.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to not put on warrant: *Change name of Board of Selectmen to Selectboard.* Mr. Espindola seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Matching Funds for Electric Vehicle Grant.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Matching Funds for Seaport Economic Development Grant* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Transfer of Funds to Union Wharf - Phase IV Project.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Pilot Agreement for Solar Array Project at 46 Charity Stevens Lane.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Petition the General Court: Restaurant/All Alcohol License for JEMJ Corp, d/b/a Traveler's Alehouse, 111 Huttleston Ave.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to place on the warrant *Granting Easement: Sewer Connection to Arsene Street.* Mr. Silvia seconded. Vote was unanimous. (3-0)

Travelers Ale House, 111 Huttleston Ave: request for Special Town Meeting Article, Special Legislation

Selectmen placed on warrant.

PILOT agreement: 46 Charity Stevens Lane: request for Special Town Meeting Article

Selectmen placed on warrant.

At 9:23 pm there was a 6 minute recess.

Consider Changes to the Wellness Committee mission, structure and membership

Mr. Espindola read a memo to the Board (Attachment C). The Board will table this item until a future meeting when they have more information.

Discuss policy for public participation during Open Public Meetings

Mr. Espindola read a memo to the Board (Attachment D). The Board will table this item until a future meeting when they have more information.

Discuss Communication with other Boards and Committees

Mr. Espindola read a memo to the Board (Attachment D). The Board will table this item until a future meeting when they have more information.

Municipal Electrical Aggregation

Selectman Freitas is concerned about who will be coordinating with the public outreach on this. Mr. Rees stated that he will coordinate this as the project moves forward.

Discuss the process for replacing retiring Town Administrator Mark Rees

The Board discussed the process they should follow to replace retiring Town Administrator, Mark Rees. Mr. Rees suggested hiring a consultant to help in the recruiting process. A screening committee will be needed.

Mr. Espindola made a motion to authorize Mr. Rees to issue a Request for Proposal (RFP) and the responses by October 5, 2020. Mr. Silvia seconded. Vote was unanimous. (3-0)

Accept draft report from Entry Point, Consultant to the Broadband Study Committee

Mr. Espindola made a motion for the Board of Selectmen to accept the draft report and place on file and to post to the Town website for public viewing. (Attachment E) Mr. Silvia seconded. Vote was unanimous. (3-0)

Discuss the Broadband Study Committee survey and flyer

Mr. Espindola said the Broadband Study Committee would like to place the survey and flyer in with the water bills to engage public interest. (Attachment E)

Audit of Building Fees

Mr. Rees said this issue is ongoing and he will have more information at the next meeting.

RFP for Workplace Climate Assessment

Mr. Rees told the Board he sent the Request for Proposal (RFP) to five people who are knowledgeable with this type of work and one out of the five has reached out with an interest in assisting the town.

Policy on Display of Flags

Mr. Espindola made a motion to approve the Flag/Banner policy as presented. Mr. Silvia seconded. Vote was unanimous. (3-0) (Attachment F)

Social Media policy

Mr. Espindola made a motion to approve the Social Media policy as presented. Mr. Silvia seconded. Vote was unanimous. (3-0) (Attachment G)

Dog Park Update

This item was tabled.

Report from Town Planner re: Metro Harvest's application for Marijuana retailer license

Mr. Rees said this is a letter that is required by the State.

Planning Director Paul Foley told the Board that Metro Harvest still needs to issue a special permit from the Planning Board.

Mr. Espindola made a motion to authorize Mr. Rees to sign on behalf of the Board and indicate there are no concerns with the Metro Harvest application for a Marijuana retailer license. Mr. Silvia seconded. Vote was unanimous. (3-0)

Resignation on Planning Board: Jay Simmons

Mr. Espindola made a motion to accept the resignation of Jay Simmons on the Planning Board and thank him for his time. Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to advertise for the vacant seat on the Planning Board. Mr. Silvia seconded. Vote was unanimous. (3-0)

Resignation on Conservation Commission: Jay Simmons

Mr. Espindola made a motion to accept the resignation of Jay Simmons on the Conservation Commission and thank him for his time. Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to advertise for the vacant seat on the Conservation Commission. Mr. Silvia seconded. Vote was unanimous. (3-0)

Resignation on Fairhaven Housing Authority: Jay Simmons

Mr. Espindola made a motion to accept the resignation of Jay Simmons on the Fairhaven Housing Authority and thank him for his time. Mr. Silvia seconded. Vote was unanimous. (3-0)

Mr. Espindola made a motion to advertise for the vacant seat on the Fairhaven Housing Authority. Mr. Silvia seconded. Vote was unanimous. (3-0)

Resignation on Wellness Committee: Patricia Pacella

Mr. Espindola made a motion to accept the resignation of Patricia Pacella on the Wellness Committee and thank her for her time. Mr. Silvia seconded. Vote was unanimous. (3-0)

Commander's Award Toys for Tots: Fairhaven Town Hall

Mr. Freitas showed the Commander's Award given to the Town Hall for the Toys for Tots program.

ABCC Advisory: Extension of Allowance of Outdoor Table Service

Mr. Rees said Governor Baker recently extended the outdoor dining restrictions and suggested that any restaurant using tents that wish to have outdoor heaters should consult the Fire Department for the necessary permits. (Attachment)

Letter from Mary Lorenzo: Zoning Board of Appeals

Mr. Freitas read an email from resident Mary Lorenzo regarding the joint meeting with the ZBA.

At 10:26 pm Mr. Espindola made a motion to go into Executive session not to reconvene to open session to discuss:

1. Discuss strategy with respect to litigation – Dan Shea: pursuant to M.G.L. Ch. 30A Section 21(a) (3)
2. Real Estate Matters: MGL Chapter 30A, Section 21(a) 6: Union Wharf

Mr. Silvia seconded. Vote was unanimous. (3-0)

Roll Call vote: Mr. Espindola in favor, Mr. Silvia in favor, Mr. Freitas in favor.

Respectfully submitted,

Vicki L. Oliveira

Vicki L. Oliveira
Administrative Assistant
(Approved 10/05/2020)

Attachments:
A. Poll Workers
B. Zoning memo from Selectmen Espindola
C. Wellness memo from Selectmen Espindola
D. Open Meeting and Communication memo from Selectmen Espindola
E. Broadband next steps, survey, entry Point master plan, attorney letter
F. Draft Flag banner policy and general release and indemnity
G. Draft Social media policy

Attachment A

POLL WORKERS

NAME	TOWN
Alfonse, Christine	Fairhaven, MA 02719
Amaral, Maria O.	New Bedford, MA, 02746
Bachand, Lee	Mattapoisett, MA 02739
Barr, Denise	Fairhaven, MA 02719
Belliveau, Sandra	Fairhaven, MA 02719
Bisson, Michele	Fairhaven, MA 02719
Botelho, Diane	Fairhaven, MA 02719
Branco, Maria I	Fairhaven, MA 02719
Burgo, Elaine	New Bedford, MA 02740
Cabral Kathleen P.	Fairhaven, MA 02719
Chevalier, David	Fairhaven, MA 02719
Chevalier, Linda	Fairhaven, MA 02719
Costa, Bernadette	Fairhaven, MA 02719
Crawford, Anna	Fairhaven, MA 02719
Cunha, Mary	Fairhaven, MA 02719
Curci, Lucas	Fairhaven, MA 02719
Currin, Jeanne	Fairhaven, MA 02719
Dean, Janice	Fairhaven, MA 02719
Delano-Calamari, Catherine	Fairhaven, MA 02719
Devlin-Riley, Emily	Mattapoisett, MA 02739
Diggle, George	Fairhaven, MA 02719
Dulin, Jacqueline	Fairhaven, MA 02719
Duval, Jodi	Fairhaven, MA 02719
Ellis, Anne	Fairhaven, MA 02719
English, Erin	Fairhaven, MA 02719
Fauteux, Carole	Fairhaven, MA 02719
Gluesing, Karen	Fairhaven, MA 02719
Gomes, Brenda	Fairhaven, MA 02719
Grace, Mary	Fairhaven, MA 02719
Greene, Pamela	Fairhaven, MA 02719
Gwozdz, Grace M.	Fairhaven, MA 02719
Hesketh, Joanne	Fairhaven, MA 02719
Jennings, Frances	Fairhaven, MA 02719
Kyle, Adam	Fairhaven, MA 02719
Lavallee, Madeleine	Fairhaven, MA 02719
LeBlanc, Sandra	Fairhaven, MA 02719
Letts, Michelle	Fairhaven, MA 02719
McCaul, Sarah	Fairhaven, MA 02719
Melanson, Cathy	Fairhaven, MA 02719
Mello, Joan	Fairhaven, MA 02719
Meredith, Terrence	Fairhaven, MA 02719
Millette, Claire	Fairhaven, MA 02719
Mimoso, Kim	Fairhaven, MA 02719
Miranda, Janet	Fairhaven, MA 02719
Miranda, David	Fairhaven, MA 02719
Mitchell, Barbara	Fairhaven, MA 02719
Moniz, Lisa	Fairhaven, MA 02719
Nichols, Linda	Fairhaven, MA 02719
Palmer, Cydney	Fairhaven, MA 02719
Parker, Pauline	Fairhaven, MA 02719
Pasquill, Elaine	Fairhaven, MA 02719
Perry, Nancy	Fairhaven, MA 02719

POLL WORKERS

NAME	TOWN
Perry, Nona	New Bedford, MA 02744
Richard, Deborah	Fairhaven, MA 02719
Rocha, Diane	Fairhaven, MA 02719
Rocha, Elaine	Fairhaven, MA 02719
Rose, Brian	Fairhaven, MA 02719
Rose, Janice	Fairhaven, MA 02719
Russell, Molly	Fairhaven, MA 02719
Santos, Paul	Fairhaven, MA 02719
Shifman, Diane S.	Fairhaven, MA 02719
Silvia, Kathryn	Fairhaven, MA 02719
Smith, Brendalee	Fairhaven, MA 02719
Spooner, Susan	Fairhaven, MA 02719
StMarie-Johnson, Freda	Fairhaven, MA 02719
Surprenant, Rebecca	Fairhaven, MA 02719
Sylvia, Elizabeth	Fairhaven, MA 02719
Tetreai;t. Davod	Fairhaven, MA 02719
Therrien, Linda	Fairhaven, MA 02719
Thomas, Michael W.	Fairhaven, MA 02719
Thomas, Rachel	Fairhaven, MA 02719
Tomascik, Debbie	Fairhaven, MA 02719
Varley, Sarah	New Bedford, MA 02740
Veitas-Limantas, Reda	Fairhaven, MA 02719
Vieira, Carl	Fairhaven, MA 02719
Vieira, Tammy	Fairhaven, MA 02719
Wilson, Clint	Fairhaven, MA 02719
Winnett, Heidi	Fairhaven, MA 02719
Yarmac, Mary	Fairhaven, MA 02719
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Attachment B

Memorandum

9-21-2020

To: Selectman Freitas, Selectman Sylvia, Mark Rees

From: Selectman Espindola

CC: Mark Rees, Vicki Oliveira (record)

Subject: Agenda item D.2 – Zoning Board of Appeals / Selectmen Training Opportunity.

Selectman Freitas, Selectman Silvia and ZBA Members,

In the Board of Selectmen FY21 Goals and Objectives, as shown in the excerpt below, we said we would "provide educational resources to ensure compliance with applicable federal, state and local laws and regulations"

I make a motion to authorize up to $400 in spending for training for Zoning Board of Appeals members and members of the Board of Selectmen, as the ZBA appointing authority, in accordance with the correspondence in our packet from Paul Foley and to ask Mr. Foley to coordinate that training on behalf of both boards and, further, if there is sufficient space in the training class and it is practical to do so, that we open up the training to neighboring communities to split the cost of the training with those communities.

Goal 2: Town Committees Collaboration

Recognizing that volunteers, both elected and appointed, play an integral part in improving Town government and enhancing civic engagement establish methods and practices that will enhance collaboration and coordination between various boards, improve interaction with the public, and provide educational resources to ensure compliance with applicable federal, state and local laws and regulations.

FY21 Objectives:

A) Update Committee Handbook to reflect the most current information and put in place a system to ensure distribution and acknowledgement to all current and new members of town committees/boards/commissions.

B) As part of the annual committee report submission process include a questionnaire requesting information as to adequacy of resources, opportunities for collaboration and future projects/work plans

C) Continue to improve that effectiveness of Board of Selectmen committees by ensuring that they have written direction as to their purpose, membership and term.

https://www.fairhaven-ma.gov/sites/g/files/vyhlif3131/f/pages/fy21_selectmen_goals_with_objectives-bos_approved_11-4-19.pdf

Attachment C

Memorandum

9-21-2020

To: Selectman Freitas, Selectman Sylvia, Mark Rees

From: Selectman Espindola

CC: Mark Rees, Vicki Oliveira (record)

Subject: Agenda item F5 – Consider changes to the Wellness Committee Mission, Structure and Membership.

Selectman Freitas and Selectman Silvia,

For Context I remind you that the following people have recently resigned from the Wellness Committee;

a. Mary Kellog-Freire
b. Amanda Blaise
c. Paula Medeiros
d. Pattie Pacella

The only remaining members are department heads.

I think this is an opportunity to step back and examine the accomplishments of the committee and determine what the Selectmen see as the future of the Committee before any future appointments are made.

Attached in your packets you have record of the many accomplishments of the committee on behalf of their co-workers. I believe this is a very extensive and impressive list.

If you do not agree and feel that the committee does not serve a function worth providing to the Towns employees then, I would say this is the time to disband.

If, however, you feel as I do, that this committee does serve a worthwhile purpose, I would ask for you to confirm you are in agreement with the stated mission on the Towns web site (in your packet) and, most importantly, I would ask for your help in recruiting people to serve on the committee that will represent the large segments of the employee base that are underrepresented.

The Massachusetts Working on Wellness program that was used to help the Town initially establish the Wellness Committee suggested that the Town "Identify Stakeholder groups in the organization that should be considered for representation and that they committee members represent significant portions of the employee population".

Current committee membership represents the Town Hall, the Rec Department and the School Department. If you believe in the Wellness program I would ask at this time for your assistance in recruiting members from underrepresented employee groups. For example, there should be representatives from management and non-management positions, union and non-union, etc.

I make a motion that we hold off on appointing any new members to the Wellness Committee until November and that we use the month of October to attempt to recruit new members from the following major employee groups prior to appointing any new members;

1) **The Fairhaven School Department.** Although there is already one member from the School Department, that department represents over 50% of the Town employee populations so I would recommend adding an additional representative
2) **The Department of Public Works**
3) **The Fairhaven Fire Department**
4) **The Fairhaven Police Department.**

MASSACHUSETTS WORKING on WELLNESS
Partnering for a healthy workforce

Development Cycle Step: Introduction Overview
Wellness Committee Composition

Introduction

The purpose of this action step is to identify each of the stakeholder groups in the organization that should be considered for representation on the Wellness Committee. Identify groups that represent significant portions of the employee population and various demographic/diversity, as well as work groups.

Examples of groups are:

- Individual departments
- Salaried/Hourly
- Office workers/remote staff
- Union/Non-Union
- Females/Males
- Professional/Administrative

Attachment D

Memorandum

9-21-2020

To: Selectman Freitas, Selectman Sylvia, Mark Rees

From: Selectman Espindola

CC: Mark Rees, Vicki Oliveira (record)

Subject: Agenda item F.6 & F.7 Communication – Boards and Committees

Selectman Freitas and Selectman Silvia,

I make a motion that we send the attached DRAFT memo, on Town Letterhead, to the Chairperson of all appointed Boards and Committees, along with the attached log sheet and to ask each Chairperson to do the following;

1) Reach out to and coordinate getting responses from each committee member, regarding establishing an email for them, logging that response from each committee member and then sending a summary of responses back to the Selectmen's office.

2) Sign to acknowledge the Attorney Generals' guidance on allowing Public Participation during all Public Meetings, whenever time permits.

3) Acknowledge Selectmen's request to verify an anticipated quorum of the committee prior to posting the meeting notice.

Memorandum

9-21-2020

To: Town Appointed Boards and Committees

From: The Board of Selectmen

Subject: Public Access and Public Participation

Greetings,

You are receiving this email because you are volunteer on a Board or Committee appointed by the Board of Selectmen.

The Selectmen wish to thank you for your willingness to serve the Town in your capacity. Volunteers are a huge part of what makes the Town operate as efficiently as it does and we certainly recognize that.

We also wanted to ask for your assistance in carrying out a measure in support of our FY21 Goals and Objectives (attached link).

Goal #2 of that document, "Town Committees Collaboration", reads;

> "Recognizing that volunteers, both elected and appointed, play an integral part in improving Town government and enhancing civic engagement establish methods and practices that will enhance collaboration and coordination between various boards, improve interaction with the public, and provide educational resources to ensure compliance with applicable federal, state and local laws and regulations"

https://www.fairhaven-ma.gov/sites/g/files/vyhlif3131/f/pages/fy21_selectmen_goals_with_objectives-bos_approved_11-4-19.pdf

With that goal and objective in mind, we would like to ask for your support with the following;

Committee Name :				
		I request that town link emails to my person email listed below	I prefer the Town set up a Town email address for me	No Response
1	Committee Chair			
2	Committee Member Name			
3	Committee Member Name			
4	Committee Member Name			
5	Committee Member Name			
6	Committee Member Name			
7	Committee Member Name			
8	Committee Member Name			
9	Committee Member Name			
10	Committee Member Name			

Committee Chair Signature Date

I understand that the Attorney General encourages public participation whenever time permits and will do my best to comply with that guideline.
https://www.mass.gov/files/documents/2017/09/25/2017%20Guide%20only.pdf

Public Participation Excerpt from Massachusetts Attorney General Open Meeting Law Guide

What public participation in meetings must be allowed?

Under the Open Meeting Law, the public is permitted to attend meetings of public bodies but is excluded from an executive session that is called for a valid purpose listed in the law. While the public is permitted to attend an open meeting, an individual may not address the public body without permission of the chair. An individual may not disrupt a meeting of a public body, and at the request of the chair, all members of the public shall be silent. If, after clear warning, a person continues to be disruptive, the chair may order the person to leave the meeting. If the person does not leave, the chair may authorize a constable or other officer to remove the person. Although public participation is entirely within the chair's discretion, the

Attorney General encourages public bodies to allow as much public participation as time permits.

Attachment E

Fairhaven Broadband Study Committee – Next Steps

Issue	BSC Recommendation	Rationale
The report identifies the strategic priorities for a potential Town sponsored network. These priorities are based on feedback from committee members. Is there any change to these priorities prior to advancing them to the Board of Selectmen?	Priorities are listed in the report but may be adjusted based on feedback from stakeholders.	
Recommend the infrastructure media type (Fiber, Wireless, Cable, DSL, other) to be used in the network.	The committee is recommending fiber-optics as the media for the network	
If recommending fiber optics, recommend either a Symmetrical or Asymmetrical architecture.	The committee is recommending a symmetrical network (Same upload and download speeds)	
Make a recommendation on whether to use a Switched Ethernet vs Passive Optical Network PON architecture.	This decision will follow an RFP for the Open Access partner	
Recommend a model which is the best fit for the Town of Fairhaven to achieve its objectives: > Town Owned – Single ISP > Town Owned – Dark Fiber Open Access > Town Owned – Manual Open Access > Town Owned – Automated Open Access > Town Supported – Single ISP (PPP) > Town Supported – Open Access (PPP) > Infrastructure Cooperative > Privately Owned & Operated (Comcast)	The committee recommendation is to pursue an Open Access model rather than a single ISP model.	
Considerations for deciding which model to follow: 1) Does the Town own its own electrical utility (No in the case of Fairhaven) 2) Does the Town want to become an ISP? 3) On a scale of 1 – 10, how important is it to have more than one additional ISP? 4) Is the Town open to becoming the owner of the infrastructure if risk level is acceptable?	The committee recommendation is to pursue an Open Access model rather than a single ISP model. The decision on whether the Town will own the infrastructure will come later and will depend on the level of Town support.	
Make a recommendation on whether to follow an Opt-in model vs. a Universal build (Voluntary participation vs everyone gets connected).	The committee recommendation is for an Opt-In Model (Voluntary participation).	

Fairhaven Broadband Study Committee – Next Steps

Does Fairhaven have the Authority to own and operate broadband infrastructure?	See attached memo from Attorney William Solomon	
Work with Bond Counsel familiar with Massachusetts Law to advise the Town on options for financing a potential Town-wide project. The key objective is to get a clear understanding of the options that are available. Some states allow for network financing to be sponsored by municipalities but not require a debt guarantee or backstop. The key considerations include the following: > Will the infrastructure go to every premise? > Will the model be opt-in? > Will the Town be required to backstop the debt? [If not required, will the Town choose to backstop the debt to get a lower interest rate?] > What structural elements will allow for the lowest possible interest rate?	This is in process – waiting on legal opinion from Bond Counsel – Richard Manley, with the firm Locke Lord.	
Make a recommendation on which legal structure to use given the options that are available under state law.	This is in process – waiting on legal opinion from Bond Counsel – Richard Manley, with the firm Locke Lord.	
Under Massachusetts Law, would the Town need to backstop the debt?	This is in process – waiting on legal opinion from Bond Counsel – Richard Manley, with the firm Locke Lord.	
Can the Town's current network be leveraged as a backbone for a potential fiber to the premise network?	The initial indication is that the current network can be leveraged. More research is needed to confirm.	
Make a recommendation to build a 100% buried network, 100% aerial network, or a hybrid buried & aerial.	More research is needed to confirm.	
Recommend whether the Town should do the construction in-house or outsource network construction.	A decision is not needed on this at this time. The Town would likely outsource both Engineering and Construction.	
Recommend whether the Town should follow a Design/Build process or separate the Engineering and Construction functions,	A decision is not needed on this at this time.	

doing separate RFPs.		
Make a recommendation on whether the Town should operate the network or outsource Network Operations.	A decision is not needed on this at this time. See section of the Preliminary Report for cash flow analysis on Network Operations.	
Does survey data indicate support for a Town Sponsored Fiber Network?	Yes	
Is Survey data statistically valid – i.e., representative of the Town as a whole?	Sample Size is too small currently. The committee is organizing an effort to collect a statistically valid survey sample.	
There are two Middle Mile carrier proposals on the table. Determine whether more information is needed or if the BSC is ready to make a recommendation to the Board of Selectmen on these two options.	A decision is not needed on this at this time.	

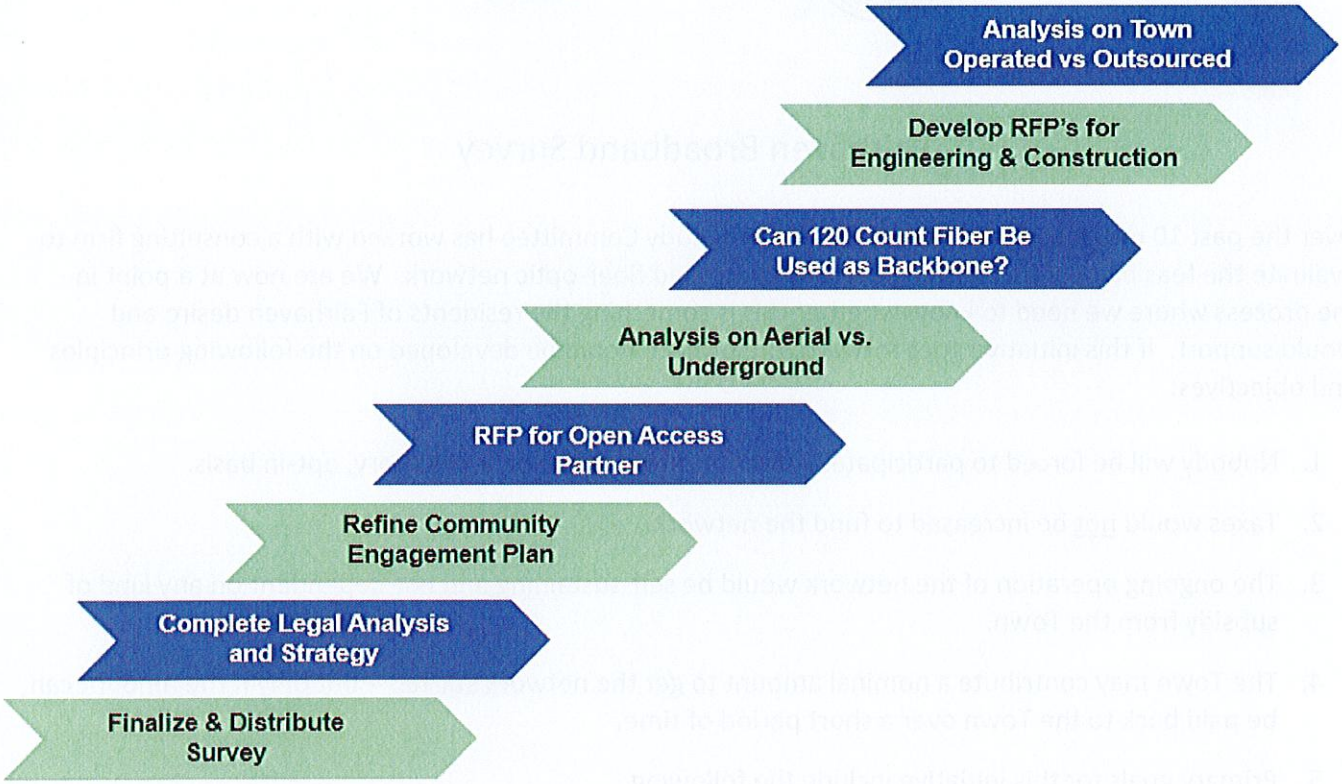
Additional Downstream Projects

Issue	Considerations
Prepare RFP for Network Management System – based upon the model the Town chooses to pursue.	
Prepare RFP for Engineering	
Prepare RFP for Construction	
Take the current Community Engagement Recommendations and refine into a proposed plan including an authorized budget, timeline, and assigned roles to acquire customers.	

Fairhaven Broadband Study Committee – Next Steps

Fairhaven
Massachusetts

Project Timeline



Fairhaven Broadband Survey

Over the past 10 months, the Fairhaven Broadband Study Committee has worked with a consulting firm to evaluate the feasibility of establishing a locally controlled fiber-optic network. We are now at a point in the process where we need to know whether this is something the residents of Fairhaven desire and would support. If this initiative goes forward, the project would be developed on the following principles and objectives:

1. Nobody will be forced to participate. Subscription would be on a voluntary, opt-in basis.
2. Taxes would not be increased to fund the network.
3. The ongoing operation of the network would be self-sustaining and not dependent on any kind of subsidy from the Town.
4. The Town may contribute a nominal amount to get the network started – but only if the amount can be paid back to the Town over a short period of time.
5. Primary goals for this initiative include the following:
    - Lower the cost of internet access by 25% - 35% for residents and businesses.
    - Significantly increase the speed and reliability of internet access.
    - Increase competition giving residents and businesses multiple options for Internet Service Providers (4 – 5 new options).
    - Build a state-of-the-art network that will improve economic development and foster innovation.
    - Leverage the network to improve the services provided in the town including public safety, transportation, healthcare, education, emergency communications, and new services that will become possible with advanced network infrastructure.

The Broadband Study Committee and Board of Selectmen want your feedback. If you haven't already taken the Fairhaven Broadband Survey please fill out the attached survey form and mail it back to us *(return envelope included),* or access and complete the survey on-line at www.connectfairhaven.com.

Fairhaven Broadband Survey
8 simple questions, takes less than 3 minutes

Fairhaven
Massachusetts

Fairhaven Broadband Survey

1. Are you answering this survey as a residential property owner or a commercial property owner?

- ◯ Residential
- ◯ Commercial

2. On a scale of 1-5, how would you rate your current internet service provider for overall reliability, bandwidth speed, customer service, and cost.

- ◯ 1 - Poor
- ◯ 2 - Fair
- ◯ 3 - Good
- ◯ 4 - Very Good
- ◯ 5 - Excellent

3. What is your average internet connection speed?

[I don't know. To test your speed: www.speedtest.net – Click on "GO"]

Download (Mbps)

Upload (Mbps)

4. How much do you pay monthly for your **internet service?** *(including modem rental, taxes, and fees)*

$ - Dollars

5. At what monthly cost would you be motivated to switch to another internet service provider for a 1 Gig service? (1000/1000 Mbps)

- [ ] $50 - $59
- [ ] $60 - $69
- [ ] $70 - $79
- [ ] $80 - $89
- [ ] $90 - $99
- [ ] Not Sure

6. How important is Internet Speed and Bandwidth to you?

- ◯ Not Important
- ◯ Somewhat Important
- ◯ Very Important

7. How important is choice in Internet Providers and Internet Plans?

- ◯ Not Important
- ◯ Somewhat Important
- ◯ Very Important

8. The Town of Fairhaven is considering building a Fiber Optic broadband network throughout the town that would be open to private sector service providers for internet access, voice, television, smart home, and other services.

Would you support town or community owned Fiber Network Infrastructure if it facilitated more internet choice in a competitive environment, faster internet speeds, and lower prices?

- ◯ No
- ◯ Possibly *(I need more information)*
- ◯ Yes

Please enter your physical street address in Fairhaven.

[The reason we are asking for your address is to make sure the results are not manipulated by outside parties.]

Please enter your email address.

[Will only be used to provide additional information about the network.]

Fairhaven
Massachusetts

Interim Broadband Master Plan

Prepared for the Fairhaven Board of Selectmen

September 2020

– Prepared By –

ENTRY POINT NETWORKS

www.entpnt.com

Fairhaven
Massachusetts

Broadband Master Plan

September 2020

Contents

Executive Summary

In addition to lowering costs and delivering significant improvements in network speeds, additional objectives for the network include positively impacting economic development, livability, public safety, education, healthcare, emergency communications, smart grid, efficient government services, universal access, environmental stewardship and smart Town initiatives.

The Fairhaven Broadband Study Committee (BSC) has worked with EntryPoint Networks to develop this Broadband Master Plan to assist with a planning and decision-making process to assist the Fairhaven Select Board in determining whether it is feasible to deploy and operate broadband infrastructure for the residents, businesses and anchor institutions in the Town of Fairhaven. The information in this report will be used to assist in the planning and evaluation of feasibility for implementation of a network that can lower broadband costs and increase network value for all stakeholders in Fairhaven. Additionally, this report is designed to assist Town leaders in understanding the operational implications, important risk factors, and a realistic cost framework for developing and operating Town owned fiber optic infrastructure.

The Broadband Master Plan is a living document that will first be used to analyze feasibility. If the Select Board determines that the project has sufficient merit, the planning process will continue toward a formal RFP process for Engineering, Construction, and Network Management Tools. The specific steps to this process are covered at the end of this document in the Next Steps section.

The primary drivers for this analysis include an interest by the Board of Selectmen in lowering costs and improving network speed and reliability. This project also seeks to understand the potential for a high capacity broadband network to positively impact economic development, livability, public safety, education, healthcare, emergency communications, smart grid capabilities, efficient government services, universal access, environmental stewardship and smart city applications.

This report seeks to provide the data needed for Town leaders to thoughtfully plan and implement a communications infrastructure strategy that will benefit residents, businesses, and anchor institutions for years to come. Town leaders will be able to use this document to lay the groundwork to address the challenges of a project of this size and scope. The key focus of the report is on the following primary activities:

1) Network Design & Architecture
2) Cost Analysis for Construction
3) Cost Analysis Network Operations
4) Customer Acquisition
5) Risk Management

Strategy

Deploying a large-scale fiber optic network is a significant public works and information technology project.

Key Strategic Ideas guiding this Plan were established by the Broadband Study Committee and include the following:

1. **Improve Affordability** – The Town of Fairhaven seeks to promote policies and initiatives that will make internet access universally available and affordable throughout Town limits.

2. **Foster Competition & Choice** – The Town seeks to promote initiatives that will increase the number of service providers and types of services that are available to Fairhaven residents.

3. **Promote Abundant Bandwidth** – Town leaders seek for solutions that move from the current practice of treating bandwidth as a scarce commodity toward policies and programs which treat bandwidth as an abundant resource.

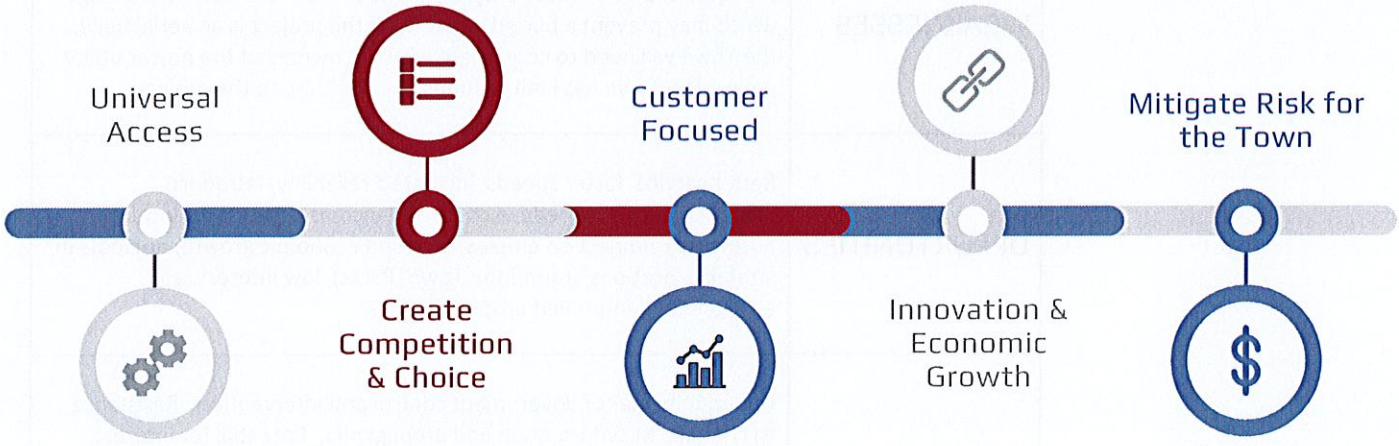
4. **Solve the Digital Divide** – Town leaders are interested in promoting access for all residents by making access affordable and by promoting ubiquitous infrastructure.

5. **Mitigate Risk for the Town, Constituents, and Partners** –Town leaders are particularly interested in implementing a business model which mitigates financial and operational risks to the Town and its partners while at the same time helping the Town achieve its other objectives.

6. **Improve Network Reliability** - Town leaders seek to promote network attributes that will increase reliability for residents, businesses, and anchor institutions within Town limits.

7. **Make Participation Voluntary** – A core component of the strategy the Town is advancing is to increase connectivity options for Fairhaven stakeholders but not compel residents or local businesses to subscribe to a particular program or initiative.

8. **Establish Local Control over Essential Infrastructure** - The economy is now an information economy and the importance of digital infrastructure continues to grow in significance. The Town of Fairhaven has an interest in ensuring that the Town has robust digital infrastructure and it is interested in promoting initiatives which will give the town greater influence over this important infrastructure.



SWOT Analysis

The SWOT Analysis included here is not an analysis of current offerings within Fairhaven. Rather, the analysis considers the Strengths, Weaknesses, Opportunities and Threats related to advancing the projects under consideration in this report.

STRENGTHS	Support from frustrated subscribers. Operational experience with fiber optics (existing backbone). Community interest in increasing the number of choices. Potential regional interest. Consumer demand, timing following the pandemic and awareness of the importance of broadband has increased. Frustration with current systems has increased. Potential for access to stimulus spending focused on broadband.
WEAKNESSES	The Town is managing its own fiber network but has not done this at the scale of a Town-wide project. Some areas in the Town have ledge which may prevent a buried network. If the project is an aerial build, the Town will need to coordinate with the owners of the power utility poles. The Town has limited funds to contribute to the project.
OPPORTUNITIES	Better service, faster speeds, increased reliability, introduce competitive pricing, reduce costs, and increase speeds for local businesses. Impact on employment and economic growth, hotspots in strategic locations around the Town (Parks), low interest rate environment, improved property values.
THREATS	Community fear of government control and intervention. Resistance to change. Misinformation and propaganda. Potential for interest rates to increase. People will hear about failed projects. Undermine existing incumbents, fear of the unknown, fear of increased taxes, concern that new technologies will cause obsolescence of these technologies (5G). Project execution risk.

Infrastructure

Comparison of Available Media

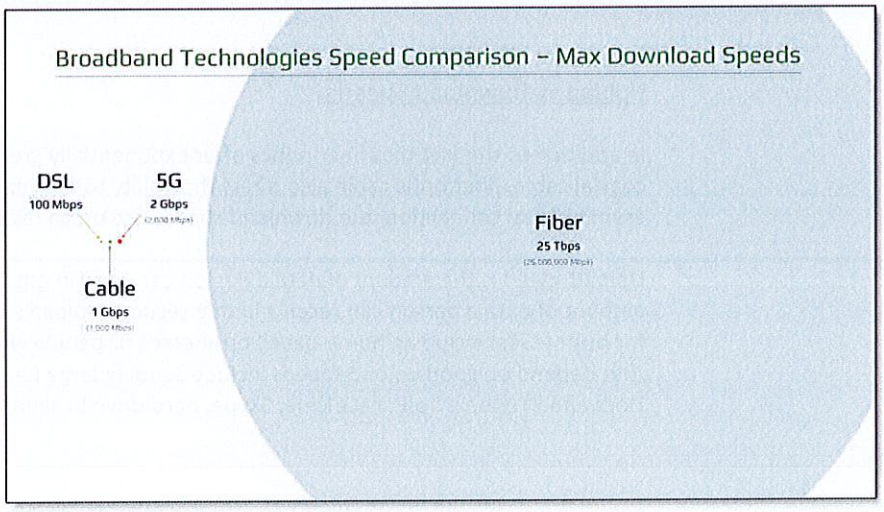
The primary media used for internet access today in the United States includes DSL, Coaxial Cable, Wireless and Fiber Optic cable.

DSL stands for Digital Subscriber Line and it is one of the technologies used to provide Internet connectivity to homes and businesses. DSL uses existing telephone lines and a transceiver to bring a connection into a home or business and allows the household to use the Internet and make telephone calls at the same time. Verizon is the incumbent telephone company in Fairhaven and uses DSL technology. DSL is asymmetrical (the download speed is much faster than the upload speed), is typically shared between 32 or 64 homes, and is capable of download speeds up to 100 Mbps. However, most consumers accessing the internet via DSL experience speeds between 5 – 25 Mbps.

Coaxial Cable uses copper cable designed with one physical channel that carries the signal surrounded by a layer of insulation and then another physical channel, both running along the same axis – hence the coaxial name. Coaxial cable is primarily used by cable TV companies to connect transmission facilities to customer homes and businesses to deliver cable T.V. and internet access. Comcast is the incumbent cable company in the Fairhaven area. Coaxial Cable is asymmetrical, is typically shared between 32 or 64 homes, and is capable of download speeds up to 940 Mbps. A limitation of coaxial cable is that the signal begins to degrade after 360 feet.

Fiber Optic Cable sends information down strands of glass known as optical fibers which are about the size of a human hair. These fiber optic strands are capable of transmitting 25 Tbps today and researchers have successfully demonstrated a transmission experiment over 1045 km with a data-rate of 159 Tbps *(https://phys.org/news/2018-04-fiber transmission.html)*. Fiber-optic cables carry information between two places using optical (light-based) technologies which convert electrical information from the computer into a series of light pulses. Fiber Optic Cable is capable of symmetrical speeds up to 25 Tbps and the signal can travel as far as 60 kilometers without degrading.

Because the difference in capacity between fiber optics and alternative media is so significant, fiber optics should be the foundational media for any new broadband infrastructure project when financially feasible.



Wireless Internet access is made possible via radio waves communicated to a person's home computer, laptop, smartphone, or similar mobile device. Wireless Internet can be accessed directly through providers like AT&T Wireless, Verizon Wireless, T-Mobile or by a wireless Internet Service provider (WISP).

5G is the 5th generation of technology used in cellular networks and refers to a standard for speed and connection. Because of the extensive marketing around the emergence of 5G, many people wonder whether 5G will replace fiber optic cables. In fact, 5G depends on fiber optic infrastructure. All wireless technologies work better the faster they get back to fiber optics. The graphic above is not to scale (fiber has much greater capacity than the illustration represents) but this illustrates the magnitude of the difference between the different media types. The emergence of 5G is very early but there is a potential revenue opportunity for 5G carriers to operate on Town infrastructure and contribute to the ongoing cost of network operations. Cellular networks can be symmetrical or asymmetrical and are sometimes capable of download speeds up to 2,000 Mbps

Wi-Fi is common in homes and commercial buildings and is a way to deliver a network connection from a network hub over a wired connection to wireless devices via a wireless access point. Most people access the internet over a wireless connection, but it is important to remember that wireless connectivity ultimately depends on a wired connection and wireless access works best the faster it gets back to a wire.

Impact of Bandwidth on Applications

Length & Type of Media	Approx Size	10 Mbps	20 Mbps	100 Mbps	1,000 Mbps
4-Minute Song	4 MB	3 sec	1.5 sec	0.3 sec	0.03 sec
5-Minute Song	30 MB	26 sec	13 sec	2.5 sec	0.2 sec
9-Hour Audio Book	110 MB	1.5 min	46 sec	9.2 sec	0.9 sec
45-Minute TV Show	200 MB	3 min	1.5 min	16 sec	1.7 sec
45-Minute HDTV Show	600 MB	8.5 min	4 min	50 sec	5 sec
2-Hour Movie	1.0-1.5 GB	21.5 min	10.5 min	1.5 min	8 sec
2-Hour HD Movie	3.0-4.5 GB	60 min	32 min	4.5 min	25 sec
Large Archive File	10 GB	Too Long	Slow	Better	80 sec

Upload vs Download Speeds

In addition to the fact that fiber optics offer exponentially greater bandwidth than DSL and coaxial cable, fiber optic cable also offers the ability to deliver symmetrical speeds. In an asymmetrical connection, the download speeds are much faster than upload speeds.

Upload speed is the amount of data a person can ***send*** in one second and download speed is the amount of data a person can ***receive*** in one second. Upload speeds can be especially important for businesses, including home-based businesses or people who work from home. Applications that depend on good upload speeds include sending large files, cloud applications like Google Docs and Dropbox, VoIP, FaceTime, Skype, hard drive backups and In-house web hosting.

Transmission Distance

As described above, an additional benefit of fiber optic infrastructure is that a communication signal sent over fiber does not start to degrade for 45 miles while a signal sent over coaxial cable starts to degrade after 340 feet.

Assessment of Existing Broadband Infrastructure

Deloitte.

"The United States requires between $130 and $150 billion over the next 5–7 years to adequately support broadband competition, rural coverage and wireless densification."

A 2017 Deloitte Consulting analysis summarizes the current needs and realities for legacy broadband infrastructure in the United States this way:

"**The United States requires between $130 and $150** billion over the next 5–7 years to adequately support broadband competition, rural coverage and wireless densification.

Despite the demand and potential economic benefits of fiber deployment, the United States lacks the fiber density in access networks to make the bandwidth advancements necessary to improve the pace of innovation and economic growth.

Some wireline carriers are reluctant or unable to invest in fiber for the consumer segment despite the potential benefits. Expected wireline capital expenditures range between 14–18 percent of revenue. Wireline operating expenditures can be 80 percent of revenue. Fiber deployment in access networks is only justified today if a short payback period can be guaranteed, a new footprint is being built, repairs from rebuilding after a storm or other event justifies replacement, or in subsidized geographies where Universal Service funds can be used. The largest US wireline carriers spend, on average, five to six times more on operating expenses than capital expenditures. Excessive operating expenditures caused, in part, by legacy network **technology restrict carriers' ability to leverage digital technology advancements**. Worse, as legacy networks continue to descale, the percentage of fixed costs overwhelms the cost structure **leading to even greater margin pressure."**

Citation: https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5GReady-the-need-for-deep-fiber-pov.pdf

"The primary finding of the Deloitte report is that legacy infrastructure needs to be replaced with Fiber Optic cable in the near-term to meet bandwidth demands."

The Deloitte report is not specific to infrastructure in Fairhaven, Massachusetts, but the conclusions from the Deloitte report are generally applicable. Telco and Cable operators in U.S. cities often have fiber to an aggregation point and then legacy infrastructure from the aggregation point to the premise.

The primary finding of the Deloitte report is that legacy infrastructure needs to be replaced with Fiber Optic cable in the near-term to meet bandwidth demands. There is no indication that incumbents intend to replace legacy infrastructure with Fiber Optic infrastructure in the near term and even if they did, this upgrade would solve the base infrastructure problem but it would not solve for the lack of competition or premium pricing for Gig speeds.

Legacy copper and coaxial infrastructure will need to be replaced with state-of-the-art infrastructure to meet the ever-growing demands for greater bandwidth and faster speeds. An important question is whether unique value can be derived by having the Town and its residents own and control this infrastructure or whether private companies should continue to own and operate all communications infrastructure.

Ideal infrastructure includes more than just the fiber optic cables running throughout the Town. Important infrastructure considerations include the electronics at both ends of the fiber as well

as systems that manage and control the network. As the Town deploys its infrastructure, the following are important considerations guiding its decision-making framework:

- **Capacity & Speed:** The demand for bandwidth and speed will continue to grow.
- **Emerging Services and Applications:** 5G, connected vehicles, edge computing, and virtual reality are all examples of emerging applications that have infrastructure dependencies. An important consideration is how flexible the business model and technology systems are to enable whatever may come.
- **Local Control:** An advantage of a network that is locally controlled is that the network can be much more responsive to local needs and may enable innovation and adaptation for emerging opportunities.
- **Local Resilience:** Many communities are not locally resilient against attacks on internet infrastructure. It is possible to design networks in a way that provides residents and businesses with a network that is locally resilient if, for some reason, middle mile connections are severed.
- **Privacy & Security**: Subscribers are becoming increasingly sensitive to security, privacy, and confidentiality controls.
- **Risk Analysis**: Consideration of the risks for all potential network stakeholders is an essential part of the planning process.

Market Analysis

In Fairhaven, most residents and businesses subscribe to wireline internet services from the cable operator (Xfinity Comcast) and telephone incumbent (Verizon).

Xfinity Comcast

Xfinity advertises the following residential ISP services in Fairhaven:

Speed (Mbps) [Down / Up]	Introductory Pricing [contract required]	Standard Pricing [not including taxes & fees]	Data Caps
25 / 3	$50.00	$55.00	300 GB
100 / 10	---	$78.00	500 GB
200 / 10	$40.00	$93.00	600 GB
600 / 12	$90.00	$103.00	1,000 GB
940 / 50	$90.00	$108.00	1,200 GB
2,000 / 50	$300.00	$300.00	1,200 GB

Shared Network – Speeds are "Up To" not guaranteed.
Speeds are not Symmetrical
Taxes and Fees additional (20%-30%) of Standard Pricing
Additional Data - $10.00 per 100 GB used
xFi Gateway Modem - $14.00 per month
Availability depends upon location – not available in all areas.

Comcast Business

Comcast advertises the following business ISP services in Fairhaven:

Speed (Mbps) [Down / Up]	Business Pricing [not including taxes & fees]	Contract Term Required	Install Fees and Data Caps
35 / 5	$70.00	2 Years	Not Disclosed
200 / 20	$100.00	2 Years	Not Disclosed
300 / 30	$150.00	2 Years	Not Disclosed
600 / 35	$220.00	2 Years	Not Disclosed

Shared Network – **Speeds are "Up To" not guaranteed.**
Speeds are not Symmetrical
Taxes and Fees additional (20%-30%) of Standard Pricing
Availability depends upon location – not available in all areas.

Verizon

Verizon advertises the following residential services in Fairhaven:

Speed (Mbps) [Down / Up]	Standard Pricing [not including taxes & fees]	Install Fee [not including taxes & fees]
1.1 / .3	$40.00	Not Disclosed
3.1 / .7	$40.00	Not Disclosed

Shared Network – **Speeds are "Up To" not guaranteed.**
Speeds are not Symmetrical
Taxes and Fees additional (20%-30%) of Standard Pricing
Soft Data Caps apply to all service plans
Availability depends upon location – not available in all areas.

Verizon Business

Verizon advertises the following business services in Fairhaven:

Speed (Mbps) [Down / Up]	Standard Pricing [not including taxes & fees]	Install Fee [not including taxes & fees]
1 / .3	$50.00	Not Disclosed
1.5 / .3	$63.00	Not Disclosed

Shared Network – **Speeds are "Up To" not guaranteed.**
Speeds are not Symmetrical
Taxes and Fees additional (20%-30%) of Standard Pricing
Availability depends upon location – not available in all areas.

Community Engagement Plan

The sample Community Engagement Plan that follows is built on an assumption that Fairhaven will go forward with a Town sponsored project. If the Town elects to support an alternative approach (Cooperative or public private partnership) the Community Engagement approach will change.

Goals & Objectives

The objective of a *Fairhaven Community Engagement Plan* is to achieve a minimum 40% take-rate for homes and businesses within Fairhaven Town limits. Additionally, a scale of 2,500 subscribers is an important target for the project to be operationally sustainable. In the financial section later in this report, the financial models are built to a target of a 60% take-rate. The modeling can easily be adjusted to match actual take-rates.

Evaluation & Education

Document the current state of broadband and determine the level of interest among residential users and business owners.

Community Survey

A survey for residents and business owners is in place to determine the level of interest in a municipal fiber network. It is important to drive response to the survey. Education and promotion programs should be influenced by survey engagement and response.

Publish Educational Information

Create a website specific to the municipal fiber program. Outline the core message of broadband as a utility that will support an environment of choice and subscriber control. Use customized videos to educate online visitors on the following:

a. Functionality of the community fiber network
b. Options for services
c. Frequently Asked Questions (FAQ's)
d. Inquiry Form where community members can submit questions to the municipality

Mapping Community Interest

Distribute an "I am interested" sign-up form with associated heat map where residential and business property owners can register as someone interested in municipal fiber.

Evaluation & Education Budget = $3,000 - $10,000

Marketing & Promotion

Fairhaven issues a series of Press Releases and sends out inserts in monthly utility bills promoting the municipal fiber program, driving traffic to fiber website with the goal of educating community members and generating interest and encouraging community participation in the survey.

Use all available social media platforms (Facebook, Twitter, etc.) to promote the fiber network.

Neighborhood Entrance and Yard Signs

As construction (fiber build) begins in a neighborhood, Fairhaven will post signs at neighborhood entrances announcing the construction and letting residents know they can still sign-up to get connected while crews are in the neighborhood.

As homes are connected in the neighborhood, yard signs are placed in the yards of subscribers indicating that the home now enjoys a fiber broadband connection.

Marketing & Promotion Budget = $10,000 - $15,000

Grassroots Engagement

Open House Events

Fairhaven holds a series of Open Houses where residents and business owners can hear an educational presentation about the fiber project, ask questions about the fiber project, become educated about the Fairhaven fiber plan, business model, etc.

Open Houses are promoted using utility bill inserts, press releases, public service announcements, local news reports, town websites, social media platforms, etc.

Open House events are intended to educate residents, promote the network, and identify Fiber Champions in the various neighborhoods (fiber zones). Fiber Champions are individuals that are committed to promoting the network within their neighborhood. Fiber Champions are also incentivized to be the first neighborhood to get connected (initial fiber zones are connected in order of take-rates – highest to lowest).

Fiber Champions

Fiber Champions assist sales efforts within their designated neighborhood (fiber zone). They organize and lead Cottage Meetings where neighbors come together to discuss the Fairhaven fiber program. Fairhaven leaders and employees provide support to the Fiber Champions in their efforts. Fiber Champions drive conversations and contractual commitments of neighbors via the Door-to-Door Sales and Education campaign.

Grassroots Engagement Budget = $2,000 - $5,000

Door-to-Door Campaign

Network sales agents (typically an independent group representing the network) contact residents and business operators within the planned network footprint to answer questions about the network and ascertain the potential subscribers' intentions regarding their participation in the network. [Yes (Opt-in) or No (Opt-out)].

This direct person-to-person contact gives everyone in the community an opportunity to ask questions, clarify their understanding and express their level of interest in participating.

To maximize the effectiveness of this process, prior to canvassing a neighborhood, door hangers are distributed to every home and business informing property owners that a representative will be stopping by to explain the value proposition, answer questions and get their Opt-in / Opt-out decision.

It is important that Fairhaven support this effort through public notifications, press releases, mass emails, websites, social media sites, mobile applications, and other community outreach venues available to Fairhaven. This may include outside professional marketing and/or PR firms.

Door-to-Door Sales Effort Budget = $100 per Premise that Subscribes
[Sign-up Fee or Wrapped into the Infrastructure Installation Costs]

Total Fairhaven Community Engagement Plan Budget = $15,000 to $30,000 + Door to Door Sales Commissions.

Please Note – The work outlined in the various Steps of this Community Engagement Plan, in whole or part, can be managed by internal Fairhaven personnel or can be outsourced to a professional marketing and promotions organization.

Fairhaven Broadband Survey Results

And the Survey Says...

In May 2020, the Town deployed a website to begin the process of educating the public regarding its evaluation of the feasibility of a Town sponsored fiber optic network. The Town distributed an initial survey to Fairhaven residents assessing current sentiment regarding existing services and the level of interest in a municipal network. The survey was not developed by professional survey administrators. To date key findings from the survey, include the following:

Total Responses	90		
Support Network			
	0	No	0.00%
	20	Possibly	22.22%
	70	Yes	77.78%
Internet Speed Importance			
	1	Not Important	1.11%
	20	Somewhat Important	22.22%
	69	Very Important	76.67%
	89	Important/Very Important	98.89%
Average Connection Speeds			
	90	Download	165 Mbps
	90	Upload	43 Mbps
Choice in ISP and Plans - Importance			
	4	Not Important	4.44%
	14	Somewhat Important	15.56%
	72	Very Important	80.00%
	86	Important/Very Important	95.56%
Rate Current ISP			
	32	Poor	35.56%
	35	Fair	38.89%
	14	Good	15.56%
	6	Very Good	6.67%
	3	Excellent	3.33%
	67	Poor/Fair	74.45%

Municipal Broadband Models Comparison

The Institute for Local Self Reliance has mapped municipal networks throughout the United States using an interactive map that can be found at the following link:

https://muninetworks.org/communitymap

To compare the various models that exist in the United States today, a mix of prominent municipal fiber optic projects were selected to illustrate the types of models that have been deployed. The following comparison summarizes different approaches to funding and operating

municipal broadband infrastructure and services followed by a description of the advantages and disadvantages of each:

Municipality	Population	Model Type	Electric Utility	Take-Rate	Cost of 1 Gig
Chattanooga, TN	179,139	Electrical Utility ISP	Yes	60%	$68.00
Lafayette, LA	126,000	Electrical Utility ISP	Yes	40%	$99.95
Westminster, MD	19,000	City Fiber, Private ISP	No	20%	$89.99
Huntsville, AL	194,585	Dark Fiber Open Access	Yes	Not Published	$70.00
Sandy, OR	10,000	Municipal ISP	No	60%	$59.95
Longmont, CO	86,000	Electrical Utility ISP	Yes	55%	$69.95
Ammon, ID	17,000	Automated Open Access	No	65%	$47.50
Monmouth, OR	15,083	Municipal ISP	No	80%	$129.65
Lexington, KY	321,959	Private Partner Owned	No	Not Published	$59.95
Santa Monica, CA	110,000	Dark Fiber Business Only	No	N/A	N/A
Fort Collins, CO	165,000	Electrical Utility ISP	Yes	Early Stage	$59.95
UTOPIA	150,000+	Manual Open Access	No	15%	$70.00

Municipal Broadband Models Defined – Summary | Pros | Cons

Town Owned & Operated, Single ISP

Summary: The Town owns and operates the network and is also the sole service provider on the network.

Pros: This model can be successful when incumbent operators have some combination of the following: monopoly or near monopoly status, high prices, poor infrastructure, slow speeds, a poor reputation, and widespread customer resentment.

Cons: A single ISP does not significantly expand choice or competition. There have been very few *Town Owned & Operated, Single ISP* deployments that have been successful. The Town is essentially replicating the incumbent model and competing against the incumbent head-to-head. This model leaves the Town vulnerable to the incumbent dropping their price to influence the municipal take-rate and destabilize the municipal network.

Examples of this model include Sandy, OR and Monmouth, OR.

Municipal Electrical Utility Owned & Operated, Single ISP

Summary: The Municipal Electrical Utility owns and operates the network and is also the sole service provider on the network.

Pros: The most common municipal model that has been successful using a Single ISP approach has been the Electrical Utility model. A measure of this success can be attributed to the fact that the Electrical Utility has the advantage of having an established reputation in the community.

Also, electrical Utilities often have financial, customer service, and engineering expertise that may be beneficial to the network and the skill set for Outside Plant personnel for a municipal network is similar in kind to the existing range of skills in an Electrical Utility. The likelihood of success increases in instances where the incumbent operator has monopoly or near monopoly status, higher than average prices, poor infrastructure, slow speeds, a poor reputation and/or widespread customer resentment.

Cons: A single ISP does not significantly expand choice. Expertise in network operations will need to be enhanced or developed. This model is essentially replicating the incumbent model and involves competing against the incumbent head-to-head. This model leaves the City / Electrical Utility vulnerable to the incumbent dropping their price to impact the take-rate and destabilize the network.

Examples of this model include Chattanooga, TN and Longmont, CO. Fort Collins, CO. is in the early stages of deployment and is replicating this model.

Dark Fiber, Open Access

Summary: Dark Fiber Open Access is a model where the town builds infrastructure to the curb and the subscriber then selects an ISP as its provider and the ISP finishes the connection to the home with its own infrastructure and electronics.

Pros: Open Access increases choice for consumers. Operating a dark fiber network is less complicated than operating a lit network. The Dark Fiber model enables Public ownership of infrastructure.

Cons: The Dark Fiber model gives up control over last mile infrastructure, i.e., the drop from the curb to the premise. The Dark Fiber model therefore limits the usability of each strand of fiber. With an isolated dark fiber connection, it is impossible to connect to other services that may not be available through the ISP that controls the drop to the customer premise. The Dark Fiber Model may not scale easily due to difficulty in anticipating the required fiber count to meet the demand. This can create significant complications for the network operator.

An example of this model is Huntsville, AL.

Manual Open Access

Summary: Manual Open Access is a model where the network is lit end to end. This means that the network operator places and controls the electronics at both ends of the network. In this model, switching service providers can be requested from a web portal and may appear to be automated but the network provisioning is not automated.

Pros: A manual Open Access network increases choice for consumers.

Cons: Operating a Manual Open Access network is more complex than operating a Single ISP network because of the requirement for human management of network tasks. Any increase in the number of service providers operating on the network adds to network complexity.

An example of this model is the UTOPIA Network. UTOPIA is the largest manual open access network in the United States with just over 20,000 premises connected. UTOPIA struggled under heavy debt obligations for 15 years but is now operating on a sustainable trajectory. In addition to UTOPIA, there are several Manual Open Access networks throughout Europe.

Automated Open Access

Summary: Automated Open Access is a model where the network operator places electronics at both ends of the network and subscribers can dynamically select service providers in real-time. Software Defined Networking is used to automate various network management tasks.

Pros: Multiple service providers can deliver services simultaneously and independently across a single wire. When a subscriber selects a new service provider, the provisioning is done using automation and therefore happens on-demand. The automated provisioning creates a marketplace for services which includes ISP's and private networks for other services. The ability to switch service providers on demand increases choice and competition. This network model also includes the ability to provide local network resilience via local communications if connections over the middle mile are down.

Cons: The model was first implemented in late 2016. Ammon, ID is the only city that has a full implementation operating today.

Examples of this model include Ammon, Idaho and early stage deployments in McCall, Idaho, Mountain Home, Idaho, and Elkhart County in Indiana.

Disclosure: EntryPoint Networks owns and operates a SaaS model Automated Open Access solution and is the technology solution provider in these networks.

Private Sector Owner & Operator, Single ISP

Summary: A private builder designs, builds and operates a network. The private entity is also the sole ISP on the network – replicating the incumbent model.

Pros: A private builder and operator assumes all the risk and does the work of overseeing design, project management, construction, customer acquisition and operations. This model increases the choices available to consumers with minimal obligation or burden for the town.

Cons: The new operator is replicating the incumbent model. There is no local control over infrastructure and ISP choices increase by just one new provider. There is no guarantee that the operator will address the digital divide. The network can be sold to another operator.

There are many examples of over-builders but Lexington, Kentucky is a recent example.

Private Sector Owner & Operator, Open Access

Summary: A private builder designs, builds and operates a network. The private entity uses an Open Access model rather than the incumbent model for service delivery.

Pros: A private builder and operator assumes all the risk and does the work of overseeing design, project management, construction, customer acquisition and operations. This model provides an increase in the choices available to consumers at almost no cost to the town. Risk exposure to the town is very low. The private builder/operator builds and stabilizes the network and may give the town the option to acquire the network after an agreed upon number of years for a premium price above the actual cost to develop.

Cons: There is no local control over infrastructure. There is no guarantee that the operator will address digital divide issues. A private owner will be free to sell the network to a new operator that may or may not be aligned with community objectives for the network.

An example of this model is Fullerton, CA (SiFi).

Cooperative Owned & Operated, Open Access ISP

Summary: A fiber-optic infrastructure cooperative owns and operates the network using an Open Access model.

Pros: The subscribers to the network are the owners of the infrastructure. This creates local control over infrastructure. The speed to market can be much faster than municipal ownership because the model is established up front. The model gives subscribers choice and competition among service providers which will likely lead to lower pricing in comparison to incumbent operators. Probability of success increases when incumbent operators have some combination of the following: monopoly or near monopoly status, high prices, poor infrastructure, slow speeds, a poor reputation, and widespread customer resentment.

Cons: It is more difficult to obtain financing because the cooperative has no assets at the beginning of the project. If financing can be obtained, the cost of money will be more expensive than a town sponsored project.

Funding Considerations

As the Town evaluates which model is optimal for Fairhaven, the following funding issues should also be considered:

Tax Non-Participants – If Fairhaven decides to pursue a municipally controlled network, an important funding question is whether the Town should pursue a General Obligation Bond to deploy broadband infrastructure ubiquitously to every premise in the Town? Today, most Cities/Towns do not have the political will or inclination to build broadband infrastructure through a funding mechanism that taxes all residents, essentially mandating participation, regardless of whether the resident chooses to participate as a consumer of network services.

Voluntary Participation – The alternative to taxing all residents is to deploy a business model that allocates network costs to voluntary participants. Allowing subscribers to voluntarily opt-in to network participation honors individual preferences for residents and businesses, eliminates Political Risk and can increase public support for the network. Allowing subscribers to voluntarily opt-in or opt-out of network participation is less efficient and more expensive than a model that mandates universal participation. Further, voluntary participation may exacerbate the digital divide. If the Board of Selectmen and other Town leaders agree with the strategic priority for **Fairhaven's Broadband Study Committee to not compel participation**, the Town should pursue a model that allows for voluntary participation.

Network Design

Switched Ethernet Network

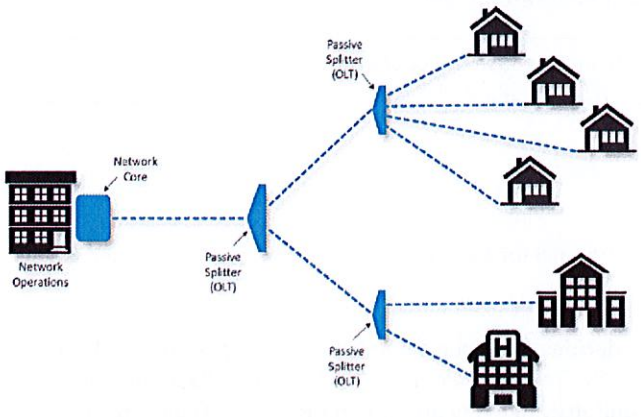
The Switched Ethernet architecture provides a dedicated connection for each customer rather than a shared connection and the customer experience is significantly better than in a shared architecture during periods of network congestion. This is due to the fact that the throughput of switch-based architecture is superior to a bus-based architecture during times of network congestion.

Passive Optical Network (PON)

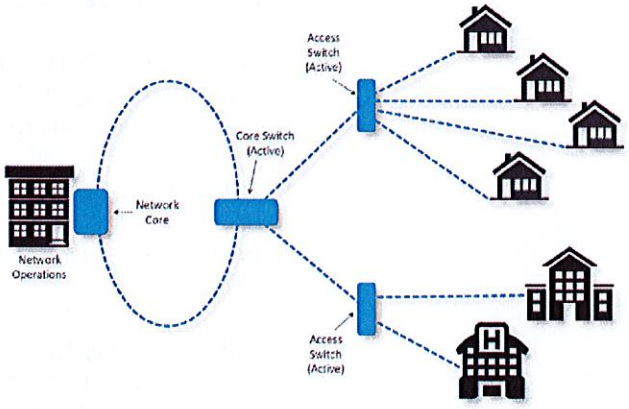
Passive Optical Networks (PON) and Coaxial (Cable) networks follow a Bus architecture.

A Bus architecture is a shared architecture. A splitter is placed in the field and a connection is often shared between 32 or 64 premises. The Bus Architecture leads to more packet collisions on the network which can result in high amounts of packet loss during congestion. Additionally, it is more difficult to isolate and troubleshoot faults in the network with a bus topology.

Passive Optical Network (PON) Design



Switched Ethernet Network Design



Proponents of PON Architecture will argue that PON is less expensive than an ethernet design. That was true historically. The illustration below shows that the variable costs of a switched ethernet deployment is now equal to PON. This change in pricing differences was driven by the fact that all Data Center deployments use Switched Ethernet architectures and the enormous growth of Data Centers over the past 20 years has driven down the cost of Ethernet electronics.

PON - Network Access Equipment

Description	Unit Cost	Qty	Extended Cost
Install Package	$696.50	1	$696.50
OLT	$4,196.50	2	$8,393.00
10GE SFP+	$837.90	2	$1,675.80
2x 1GE BIDI CSFP	$157.50	24	$3,780.00
Access Line-up			$14,545.30
Number of Subscribers Served			96
Average Cost per subscriber			$151.51

Ethernet - Network Access Equipment

Description	Unit Cost	Qty	Extended Cost
Switch	$1,700.00	2	$3,400.00
SFP	$12.00	96	$1,152.00
Access Line-up			$4,552.00
Number of Subscribers Served			96
Average Cost per subscriber			$47.42

PON - Premise Equipment

Description	Unit Cost	Qty	Extended Cost
Indoor ONT	$225.15	1	$225.15
Power supply for 700GE ONT	$12.00	1	$12.00
Premise Line-up			$237.15
Number of Subscribers Served			1
Average Cost per subscriber			$237.15

Ethernet - Premise Equipment

Description	Unit Cost	Qty	Extended Cost
White Box VBG	$330.00	1	$330.00
1000Base 1310nm-Tx/1550nm RX 10km	$9.00	1	$9.00
Premise Line-up			$339.00
Number of Subscribers Served			1
Average Cost per subscriber			$339.00

Per Premise PON Equipment Costs

Total cost per Subscriber	**$388.66**

Per Premise Ethernet Equipment Costs

Total cost per Subscriber	**$386.42**

Project Partners

Middle Mile

"Middle-mile" is an industry term that describes the network infrastructure that connects local networks to service providers at an Internet Exchange Point. The "last mile" is the local part of a communication network which connects a service provider to a customer. Current Middle Mile options include Comcast (Current provider), Open Cape (10 Gig) and IDS (10 Gig).

Approximately 2,500 customers can be served by a 10 Gbps circuit. If the Town pursues a Town owned network, it will need to adjust Middle Mile capacity according to take rate and utilization. Peak usage is an important data point for monitoring and is used to inform capacity planning. The cost of the middle mile connection should be allocated on a per subscriber basis.

Internet Service Providers (ISP) Partners

An Internet Service Provider gives subscribers access to the internet. The Town will need to determine what model it will follow or support before it engages one or more Internet Service providers. If the Town selects and Open Access Model, there are a number of ISP's that have expressed a verbal interest in being service providers to Fairhaven subscribers. The participation of these ISP's could be formalized through an MOU process.

Cost Analysis & Phasing

High Level Network Design

A high-level network design was done for a residential pilot neighborhood to build a cost model for that project. The Biarri Networks Fiber Optic Network Design Tool was used to create the design and calculate materials costs for these designs. The main cost categories for deploying and operating broadband networks are separated to optimize the costs in each of the following categories:

- Infrastructure Capital Costs *(Financed over 20 years)*
- Network Maintenance & Operations
- Services

Infrastructure Capital Costs

The cost modeling that follows assumes that the infrastructure that was deployed to connect Town Assets in 2018 has sufficient fiber count so that it can be leveraged as a Fiber to the Premise backbone.

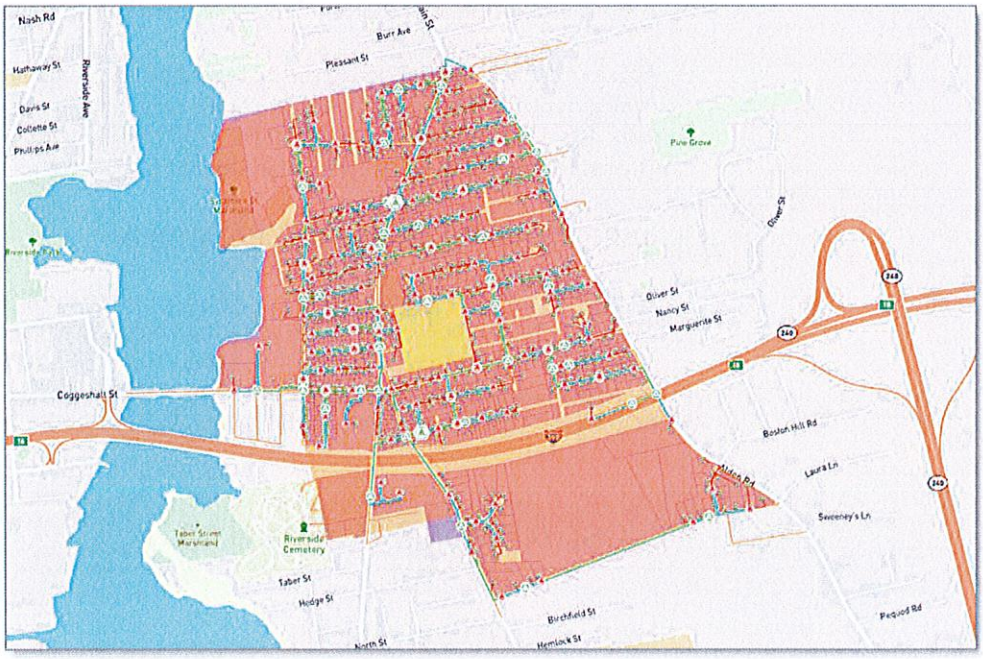
Monthly Infrastructure Cost

The first illustration of Infrastructure Capital Costs per premise assumes a 60% take-rate and a project that is 100% underground. The data in the line items in this model come from a combination of the Biarri Network Design tool, actual bids for materials, and network buildout experience.

Take-rate is a variable that is critical to project success because the operational sustainability of a project depends on crossing a certain take-rate threshold and take-rate has a meaningful impact on the cost per premise.

Monthly Infrastructure Cost Modeled From 855 Premises

The second illustration of Infrastructure Capital Costs per premise assumes a 60% take-rate and a project that is 100% underground. We can adjust these variables on a neighborhood by neighborhood basis as needed.



Costs at 60% Take Rate			
100% Arial			
Description	Common	Drop	Total
Labor - Hours	10.42	2.50	12.92
Labor - Dollars	$625.00	$150.00	$775.00
Equipment	$185.36	$28.63	$213.98
Materials	$241.81	$79.36	$321.16
Supplies	$93.27	$5.63	$98.90
Restoration	$48.10	$1.76	$49.86
Hut/Cabinet	$108.07	$5.90	$113.97
Feeder Fiber	$36.02	$0.99	$37.01
Engineering	$37.10	$1.03	$38.13
Professional Services	$148.42	$15.16	$163.58
Electronics	$166.67	$350.00	$516.67
Subscriber Acquisition	$0.00	$0.00	$0.00
Total	**$1,689.80**	**$638.45**	**$2,328.25**
Backbone Cost Per Premise			$266.67
Total with Backbone			**$2,594.92**
Short Term Interest			$93.13
Total to be Capitalized			**$2,688.05**

Monthly Infrastructure Per Premise Cost	$15.06

Costs at 60% Take Rate			
80 % Buried I 20% Arial			
Description	Common	Drop	Total
Labor - Hours	18.75	4.50	23.25
Labor - Dollars	$1,125.00	$270.00	$1,395.00
Equipment	$333.65	$51.53	$385.17
Materials	$435.26	$142.84	$578.09
Supplies	$93.27	$5.63	$98.90
Restoration	$48.10	$1.76	$49.86
Hut/Cabinet	$108.07	$5.90	$113.97
Feeder Fiber	$36.02	$0.99	$37.01
Engineering	$37.10	$1.03	$38.13
Professional Services	$148.42	$15.16	$163.58
Electronics	$166.67	$350.00	$516.67
Subscriber Acquisition	$0.00	$0.00	$0.00
Total	**$2,531.53**	**$844.83**	**$3,376.37**
Backbone Cost Per Premise			$266.67
Total with Backbone			**$3,643.03**
Short Term Interest			$145.54
Total to be Capitalized			**$3,788.76**

Monthly Infrastructure Per Premise Cost	$21.22

Costs at 60% Take Rate			
100% Buried			
Description	Common	Drop	Total
Labor - Hours	20.83	5.00	25.83
Labor - Dollars	$1,250.00	$300.00	$1,550.00
Equipment	$370.72	$57.25	$427.97
Materials	$483.62	$158.71	$642.33
Supplies	$93.27	$5.63	$98.90
Restoration	$48.10	$1.76	$49.86
Hut/Cabinet	$108.07	$5.90	$113.97
Feeder Fiber	$36.02	$0.99	$37.01
Engineering	$37.10	$1.03	$38.13
Professional Services	$148.42	$15.16	$163.58
Electronics	$166.67	$350.00	$516.67
Subscriber Acquisition	$0.00	$0.00	$0.00
Total	**$2,741.97**	**$896.43**	**$3,638.40**
Backbone Cost Per Premise			$266.67
Total with Backbone			**$3,905.06**
Short Term Interest			$145.54
Total to be Capitalized			**$4,050.60**

Monthly Infrastructure Per Premise Cost	$22.69

Why Take-Rate is Important

The following table illustrates the impact of take-rate on total cost per premise with a rate of 60% as neutral on impact.

Take-Rate	Cost/Sub	Subscribers	Difference	vs. 60% Take-Rate
5.00%	$33,800.03	202	-	($30,161.63)
10.00%	$17,348.23	403	$16,451.80	($13,709.83)
15.00%	$11,864.30	605	$5,483.93	($8,225.90)
20.00%	$9,122.33	807	$2,741.97	($5,483.93)
25.00%	$7,477.15	1,009	$1,645.18	($3,838.75)
30.00%	$6,380.36	1,210	$1,096.79	($2,741.97)
35.00%	$5,596.94	1,412	$783.42	($1,958.55)
40.00%	$5,009.38	1,614	$587.56	($1,370.98)
45.00%	$4,552.39	1,815	$456.99	($913.99)
50.00%	$4,186.79	2,017	$365.60	($548.39)
55.00%	$3,887.67	2,219	$299.12	($249.27)
60.00%	$3,638.40	2,420	$249.27	$0.00
65.00%	$3,427.48	2,622	$210.92	$210.92
70.00%	$3,246.69	2,824	$180.79	$391.71
75.00%	$3,090.00	3,026	$156.68	$548.39
80.00%	$2,952.91	3,227	$137.10	$685.49
85.00%	$2,831.94	3,429	$120.97	$806.46
90.00%	$2,724.41	3,631	$107.53	$913.99
95.00%	$2,628.20	3,832	$96.21	$1,010.20
100.00%	$2,541.61	4,034	$86.59	$1,096.79

Full Town-Wide Deployment Infrastructure Network Operations

The following Table summarizes the anticipated cost structure for Network Maintenance & Operations. This schedule produces a monthly M&O fee for the Broadband Utility at $24.66 per month. The Town would need to subsidize network operations until enough scale is established to achieve sustainability.

Residential M&O	Subscriber	Monthly	Annual	Percentage
Costs/Accruals/Reserves	**$24.66**	**$110,964**	**$1,321,564**	**100.00%**
Power	$1.41	$6,329	$75,951	5.70%
Co-Lo Fees	$0.35	$1,582	$18,988	1.43%
Labor	$8.00	$36,000	$432,000	32.44%
Office	$0.58	$2,619	$31,428	2.36%
Vehicles	$0.73	$3,274	$39,285	2.95%
Tools	$0.21	$949	$11,393	.86%
Equipment	$1.18	$5,293	$63,511	4.77%
Supplies	$0.12	$546	$6,548	0.49%
Dig-line	$0.19	$873	$10,476	0.79%
Maintenance	$1.18	$5,293	$63,511	4.77%
Call Center	$0.36	$1,637	$19,643	1.48%
Network Operations Monitoring	$0.36	$1,637	$19,643	1.48%
Equipment Refresh costs (Reserves)	$4.00	$18,000	$216,000	16.22%
Licenses Fees (SaaS, Etc.)	$2.00	$9,000	$108,000	8.11%
Rentals	$0.50	$2,250	$27,000	2.03%
Bad Debt	$0.46	$2,073	$24,881	1.87%
Equipment Replacement	$0.02	$109	$1,310	.10%
Taxes and Fees (Property)	$0.00	$0	$0	0.00%
Middle Mile	$2.00	$9,000	$108,000	8.11%
Reserves	$1.00	$4,500	$54,000	4.06%
Total	**$24.66**	**$110,964**	**$1,331,564**	**100.00%**

Network Management & Operations Cost Structure

The numbers and categories in this model are derived from many years of experience with actual costs for Broadband projects. Labor costs are modeled to reflect Massachusetts wages.

Staffing Modeling for Internal Network Operations

The following Table models the cost structure for the positions needed for the Town of Fairhaven to operate the network as a Department within the Town structure. The model is conservative in the staffing estimates needed to operate the network in a sustainable manner. The model does not include resources for construction. Assuming the Town builds the entire network over a 12-month period, the Town will need to subsidize this department for less than 6 months. After that, the investment will be paid back by operational surpluses as subscribers grow beyond the target of 3,500 subscribers. The work that will be done by a Fiber Network Department includes network monitoring, network management, outside plant repairs, & new customer installations.

Position	Fully Compensated Hourly Rate	Fully Compensated Monthly Cost	Fully Compensated Annual Cost
Manager	$48	$8,251	$99,008
Network Admin	$38	$6,607	$79,290
I.T. Technician	$30	$5,266	$63,190
Outside Manager	$28	$4,767	$57,200
Outside Plant Tech	$22	$3,779	$45,344

Subscriptions & Staffing Projections

Subscribers	Year 1	Year 2	Year 3	Year 4
New Subscribers	4,500	---	---	----
# of Subscriber at year end	4,500	4,500	4,500	4,500
Labor Allocation	$8.00	$8.00	$8.00	$8.00
Cash Flow from Labor	$216,000	$432,000	$432,000	$432,000

Staffing Projections	Year 1	Year 2	Year 3	Year 4
Manager	.25	.5	.5	.5
Network Admin	.5	1	1	0.5
IT Technician	1	1	1	1
Outside Plant Manager	.5	1	1	1

Position	Year 1	Year 2	Year 3	Year 4
Manager	$24,752	$49,504	$49,504	$49,504
Network Admin	$39,645	$79,290	$79,290	$79,290
IT Technician	$63,190	$63,190	$63,190	$63,190
Outside Plant Manager	$28,600	$57,200	$57,200	$57,200
Outside Plant Laborer	$56,680	$181,376	$181,376	$181,376
Total	**$212,867**	**$430,560**	**$430,560**	**$430,560**
Net	**$3,133**	**$1,440**	**$1,440**	**$1,440**

Project Pro-Forma

Financial Pro-Forma of Full Project Costs – 1 Year Build – Ethernet Architecture

Projected Backbone	$1,200,000.00
Projected Cost Per Premise (Common and Drop)*	$3,376.37
Estimated Subscribers	4,500
Total Cost (Common & Drop) (Includes	$15,193,653.00
Professional Services	Included
Total Projected Project Costs	$16,393,653.00

** Assumes 80% Buried / 20% Arial, 60% take rate & short-term interest rate of 8% and long-term bond rate of 3% for 20 years.*

Projected Subscription Costs

Projected Residential Services Monthly Costs	80% Buried / 20% Arial
Infrastructure	$21.22
Maintenance and Operations	$24.66
ISP Service *(Dedicated 1 GB Symmetrical)*	$9.99
Monthly Total	$55.87

The Residential $9.99 monthly ISP fee listed above is based upon current pricing from the list of ISPs interested in providing services in Fairhaven.

Projected Capital Expenditures & Funding

Timeline	Year 1	Year 2	Year 3	Year 4 +	Total
Capital Costs					
Backbone	$1,200,000.00	$0.00	$0.00	$0.00	**$1,200,000.00**
Subscriber Drops	$3,801,753.00	$0.00	$0.00	$0.00	**$3,801,753.00**
Subscriber Common	$11,391,900.00	$0.00	$0.00	$0.00	**$11,391,900.00**
Interest Reserve (Drops)	$607,746.12	$0.00	$0.00	$0.00	**$607,746.12**
Interest Reserve (Backbone)	$48,000.00	$0.00	$0.00	$0.00	**$48,000.00**
Total	$17,049,399.12	$0.00	$0.00	$0.00	**$17,049,399.12**
Short Term Financing (Build Out)					
New Backbone	$1,200,000.00	$0.00	$0.00	$0.00	**$1,200,000.00**
Retired		-$1,200,000.00	$0.00	$0.00	**-$1,200,000.00**
Total	$1,200,000.00	-$1,200,000.00	$0.00	$0.00	**$0.00**
New Build	$15,193,653.00	$0.00			**$15,193,653.00**
Retired	$0.00	-$15,193,653.00	$0.00	$0.00	**-$15,193,653.00**
Total	$15,193,653.00	-$15,193,653.00	$0.00	$0.00	**$0.00**
Long Term Funding					
New Backbone		$1,248,000.00	$0.00	$0.00	**$1,248,000.00**
New Build		$15,801,399.12	$0.00	$0.00	**$15,801,399.12**

Projected Income & Cash Flow

Timeline	Year 1	Year 2	Year 3	Year 4 +
Subscribers				
New Subscribers	4,500	---	---	---
# of Subscriber at year end	4,500	4,500	4,500	4,500
Income Statement (Revenue)				
Infrastructure Fees	$572,993.71	$1,145,987.43	$1,145,987.43	$1,145,987.43
Maintenance and Operations	$665,782.20	$1,331,564.40	$1,331,564.40	$1,331,564.40
Total Revenue	$1,238,775.91	$2,477,551.83	$2,477,551.83	$2,477,551.83
Operating Costs (Expenses)				
Maintenance and Operations	-$530,782.20	-$1,061,564.40	-$1,061,564.40	-$1,061,564.40
M&O Labor Difference	$3,132.80	$1,440.00	$1,440.00	$1,440.00
Equipment Refresh/Replacement	$0.00	-$13,500.00	-$25,650.00	-$48,870.00
Interest Reserve	-$655,746.12	$0.00	$0.00	$0.00
Debt Service Reserve	-$572,993.71	$0.00	$0.00	$0.00
M&O Reserve	-$135,000.00	-$256,500.00	-$244,350.00	-$221,130.00
Total Expenses	-$1,891,389.23	-$1,330,124.40	-$1,330,124.40	-$1,330,124.40
Net (Revenue vs Expenses)	-$652,613.32	$1,147,427.43	$1,147,427.43	$1,147,427.43
Loan Payment				
Backbone	$0.00	$83,885.20	$83,885.20	$83,885.20
Build Out	$0.00	$1,062,102.22	$1,062,102.22	$1,062,102.22
Total Loan Payments	$0.00	$1,145,987.43	$1,145,987.43	$1,145,987.43
Net	-$652,613.32	$1,440.00	$1,440.00	$1,440.00
Cash Flow				
Capital Expenditures	-$16,393,653.00	$0.00	$0.00	$0.00
Money Borrowed	$16,393,653.00	$655,746.12	$0.00	$0.00
Net	$0.00	$655,746.12	$0.00	$0.00
Revenue	$1,238,775.91	$2,477,551.83	$2,477,551.83	$2,477,551.83
Cash Expenses	-$527,649.40	-$1,060,124.40	-$1,060,124.40	-$1,060,124.40
Loan Payments	$0.00	-$1,145,987.43	-$1,145,987.43	-$1,145,987.43
Net Cash	$711,126.51	$271,440.00	$271,440.00	$271,440.00
Accrued Interest	-$655,746.12	$0.00	$0.00	$0.00

Financing Considerations

Because project feasibility is ultimately a function of getting people to sign up and remain loyal to the network, there needs to be a value proposition that mobilizes customers to subscribe. For that to happen, subscribers need a compelling solution and the network needs to create cash flow predictability and bankable contracts to attract financing for the project. NetEquity in San Francisco visualizes these dependencies in this way:

NetEquity

NetEquity Stack

People	are hungry for	Services
Services	are hungry for	Infrastructure
Infrastructure	is hungry for	Capital
Capital	is hungry for	Cash Flow Predictability
Cash Flow Predictability	is hungry for	Bankable Contracts
Bankable Contacts	result from	Aligned Incentives
Aligned Incentives	requires	Trust
Trust	comes from	Having the Same Vision

*Isfandiyar (Asfi) Shaheen developed the **NetEquity Stack** above. Mr. Shaheen is a Global Broadband Infrastructure Thought Leader based in San Francisco. He is working to provide fiber optic connectivity to unconnected countries around the world.*

9

Risk Factors >
Likelihood
Impact
Mitigation

Risk Analysis

The following is an analysis of the main risk factors facing the Town of Fairhaven as it pursues its fiber-to-the-premise deployment. Nine Risk Factors are analyzed:

1. Subscriber Churn Risk
2. Take-Rate Risk
3. Project Execution Risk
4. Equipment and Technology Risk
5. Community Engagement Risk
6. Cost Modeling Risk
7. Timeline Risk
8. Regulatory Risk
9. Middle Mile Risk

Subscriber Churn

Subscriber Churn is the risk that customers sign up and then do not remain subscribers to the network.

Likelihood: Today customers are primarily driven by cost, speed, and customer service. Churn is possible and is a consequence of the customers pursuing an option to get better value from an alternative solution. The likelihood of churn is high if a new market solution simply replicates the incumbent model. The likelihood of churn goes down under a Business Model where 1) the customer is financially responsible for the drop to their property and 2) where the value proposition is strong enough to make the customer voluntarily committed to the network.

Impact: The impact of churn on the network is potentially catastrophic if it reaches a level where the capital and operational cost of the abandoned infrastructure cannot reasonably be shared by remaining subscribers.

Mitigation: Churn can be mitigated by implementing a business model that makes customers voluntarily committed to the network and by assigning financial responsibility to customers for their lateral connection.

Take-Rate Risk

Take-rate risk is the risk that the Town builds out the network and ends up with a take-rate that is lower than expected.

Likelihood: Take-rate risk is possible and is a function of the value proposition of the network and how well that value proposition gets communicated and managed before construction starts. High take-rates lead to lower network costs for subscribers. This creates a virtuous cycle where lower costs lead to higher take rates. The reverse is also true.

Impact: The worst-case scenario is one where lower take rates lead to higher costs and churn which create a death spiral that negatively compounds until the network is not sustainable.

Mitigation: Manage demand aggregation before construction begins and give consumers a value proposition that makes them voluntarily committed to the network infrastructure.

Project Execution Risk

Project Execution includes strategy, planning, project management and fulfillment of the project plan and operational execution.

Likelihood: Project execution failure is possible and is a function of the effectiveness of project planning, management, controls, and execution.

Impact: The severity of impact is in proportion to the effectiveness of project management and execution. A worst-case scenario is one where project execution affects the value proposition, which in turn affects take-rate and churn.

Mitigation: Hire or partner with skilled project managers and key strategic partners. Create alignment among key team members on the project plan and operational plan. Develop project controls that are monitored and reported to senior leadership monthly.

Equipment & Technology Risk

Equipment & Technology Risk includes both software and hardware solutions and is the risk that equipment failure rates are higher than expected, major software bugs are unresolved, operational reliability is lower than expected, and/or that the technology lifecycle leads to faster obsolescence than is expected.

Likelihood: Solutions with short deployment histories, unreliable references, unclear quality control and test procedures, weak professional teams, and poorly architected scalability abstractions present increased equipment and technology risk.

Impact: The impact of this risk category is moderate because it is possible to vet both software and hardware systems to assess this risk. The base technology of the network will be fiber optic cable and that has sufficient history to present a minor risk to the project. Remaining risks include electronics and software systems.

Mitigation: Implement thorough due diligence processes with trained professionals to scrutinize references, architecture, software abstractions, quality control systems and the professional histories of vendors being considered.

Community Engagement

Community Engagement is the marketing, education and communication processes and strategies used to inform residents and businesses about the value proposition offered by the network.

Likelihood: Community Engagement risk is possible but nonetheless a risk that can be managed and monitored. Poor planning, management and execution increases the level of risk. Community engagement can be handled by internal Town staff, but risk increases if staff member resources are inadequate for a project of this size. There is an abundant supply of marketing professionals available to assist with community engagement processes.

Impact: Community engagement is a key driver of project success due to the relationship between community engagement and take-rate.

Mitigation: Leverage the skills of competent marketing professionals and provide sufficient resources to make it easy for every resident to learn the basic value proposition for the network

in comparison to alternatives through a variety of marketing, education and communication strategies.

Cost Modeling Risk

Cost Modeling Risk is the risk that cost modeling significantly underestimates actual design, construction, and/or operational costs.

Likelihood: There is enough industry data to reasonably validate cost estimates.

Impact: Cost overruns can have a moderate to disastrous impact on network sustainability.

Mitigation: Validate financial assumptions against industry assumptions, market conditions, and account for local economic variables. The clearest way to mitigate this risk is to conduct an RFP process for network engineering and construction.

Timeline Risk

EntryPoint consulted with Comm-Tract, the construction firm that built the fiber network connecting Town assets. They indicated that they believe a Town-wide network can be constructed in less than 10 months. The benefits of building the network in an accelerated pace (less than 1 year) include the following:

1) Each phase requires legal, financing and accounting transaction costs. Building the network with fewer phases will lower the overall transaction costs for the project.
2) Building at a faster pace will result in an accelerated period to breakeven.
3) Interest Rates are at an unprecedented low currently and building over an extended period may expose later project years to some interest rate risk.

Likelihood: Costs are certain to be higher for an extended buildout period. However, there may be execution risks for accelerating the buildout, depending on the experience and capacity of the construction partner, and these trade-offs need to be weighed by Town leaders.

Impact: Costs will be incrementally higher for an extended build-out schedule and M&O will have a longer ramp to sustainability.

Mitigation: The Town can control the buildout schedule following a cost / benefit analysis of the options. An important consideration is alignment with construction partners. If the Town is going to outsource construction, it should consult with potential construction partners about the alternative construction schedules to make sure that the Town's strategy is amenable to key construction partners.

Regulatory Risk

Regulatory Risk is the risk that State or Federal regulations become an impediment or barrier to the Town successfully building or operating a municipal network. Legal counsel has provided a memo to the Town addressing legal authority under Massachusetts State Law.

Likelihood: Historically, incumbent operators have taken legal action to stop a municipality from building a competing network.

Impact: If a claim were to be brought against Fairhaven, the likely process is that it could take an extensive amount of time and some cost to contest the claim.

Mitigation: According to outside counsel Massachusetts State Law provides explicit authority for the Town to own and operate a fiber network under multiple legal avenues.

Middle Mile Risks

Middle Mile risks include the following:

1) Lack of redundant options on divergent paths,
2) Pricing risk, and
3) The risk of being stranded or isolated without a viable path to an internet exchange point.

Likelihood: The closest internet exchange points are in Boston and Providence. Fairhaven does have divergent middle mile path options to Boston via middle-mile providers already identified.

The risk of getting isolated or cut off from internet access is possible but has a low likelihood of occurring.

Impact: The most likely risk is pricing risk due to the fact that Middle Mile costs in Massachusetts are incrementally higher than other markets in the Country. But this is not a significant barrier to moving forward. The impact of this risk might represent a monthly cost increase to subscribers of $1.00 - $2.00.

Mitigation: The way the Town can mitigate and possibly eliminate Middle Mile Risk is by working with multiple Middle Mile carriers establishing connections into Boston and Providence.

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New Salem, MA 01355
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To: Bob Espindola, Chair
Broadband Study Committee
Town of Fairhaven

From: Attorney William H. Solomon

Date: September 16, 2020

Subject: Legal Authority For Municipal Broadband

Introduction

This memorandum addressed the issue of the legal authority for a Massachusetts municipality (the Town of Fairhaven) to provide broadband (Internet) (hereinafter "broadband") service to Town residents (dwelling units). In preparing this memorandum, I was able to call on my earlier familiarity with municipal broadband projects, particularly in the Town of Leverett, Massachusetts and I have done further inquiry regarding the creation of municipal light plants in the Towns of New Salem, Wendell and Shutesbury, as well as the Town of Concord and City of Westfield (Westfield Gas+Electric). I was provided as part of the request for this legal opinion with a copy of a legal memorandum, with attached "legal findings" written by the Office of City Solicitor in the City of Quincy for the Mayor's in the City Office of Quincy, dated January 15, 2020. That memorandum is accurate and well written, and as such I have referenced it in this memorandum.

While this memorandum references broadband service to residents, please note that municipal broadband service may be, and generally is, also provided to businesses. For instance, in the Town of Concord, current service plans and rates, are as follows:

Residential & Small Office/Home Office Plans & Pricing

Service Level	Download / Upload Speed	Prices
Entry	**35 Mbps**	$49.95
Basic	**70 Mbps**	$64.95
Hi-Speed	**150 Mbps**	$74.95
Ultra	**300 Mbps**	$89.95

Business Service Plans & Pricing

Service Level	Download / Upload Speed	Prices	Hardware Replacement
Entry	**70 Mbps**	$74.95	4 hours
Basic	**150 Mbps**	$89.95	4 hours
Hi-Speed	**275 Mbps**	$149.95	4 hours
Ultra	**400 Mbps**	$199.95	2 hours
Business Enterprise	Designed for your specific needs; up to 1 Gbps	Call for quote	As low as 1 hour

In the City of Westfield (Westfield Gas+Electric/Whip City Fiber), broadband service and rates are as follows:

Residential Internet (Up to 1,000 Mbps) - $69.95 per month (Telephone - $12.95 per month)
Small Business, Up to 5 Users - $84.95 per month. (Static IP Address – $12.95 per month.)
Medium Business, Up to 25 Users - $149.95 per month. (Static IP Address - $12.95 per month.)
Large Business, Up to 50 Users - $399.95 per month. (Static IP Address - $12.95 per month.)
High Bandwidth Users - $799.95 per month. (Static IP Address - $12.95 per month.)

By contrast, in a number of Western Massachusetts towns which have limited or no larger businesses, the service offered to small and home-based businesses is the same as offered to residential homes.

Legal Authority for Municipal Broadband

1. No Federal Restriction On The Provision of Municipal Broadband

There is no restriction in federal law (statutes) or regulations (FCC) on the provision of broadband service by a municipality to residents. (By contrast a few states (mostly in the southern portion of the country) have prohibited municipalities and counties from providing broadband services. Massachusetts is not one of those states.)

2. Massachusetts Authority For The Provision of Municipal Broadband

A municipality may establish a municipal light plant and may do so for the purpose (including the sole purpose) of establishing a telecommunications system to provide telecommunications services, more specifically broadband and related telephone services. M.G.L. c. 164, § 47E. (A copy of which is attached hereto.)

As accurately set out in the Quincy memorandum:

> Massachusetts has not expressly authorized the operation of municipal broadband outside the statutory authority granted to municipalities under the Massachusetts Municipal Light Plant Law (the "MLP Law") set forth in M.G.L c. 164 §§ 1, et. seq. M.G.L c. 164, § 35 authorizes a municipality to create a "Municipal Light Plant" (an "MLP"), M.G.L c. 164, § 47E, passed into law in 2000, authorizes a [municipal light plant] (once created) to operate a telecommunication system, providing in pertinent part, that:

> "[a] municipal lighting plant or a cooperative public corporation and any municipal lighting plant member thereof, established pursuant to this chapter or any general or special law may construct, purchase or lease, and maintain such facilities as may be necessary for the distribution or the operation of a telecommunications system for municipal use or for the use of its customers.... Wherever apt, the provisions of this chapter and chapter 44, which apply to the operation and maintenance of a municipal lighting plant, shall apply also to the operation and maintenance of such telecommunications system."

It is clear from M.G.L. c. 164, § 47E that any MLP established under M.G.L. c. 164 may construct, purchase or lease and maintain facilities for a telecommunications system, and "wherever apt," the provisions of Chapter 164 and Chapter 44 that "apply to the operation and maintenance" of MLPs, will "apply also to the operation and maintenance of such telecommunications system.". M.G.L. c. 164, § 47E. Thus, the Legislature appears to have contemplated that an MLP might operate a MLP solely for the purposes of providing a telecommunications system and service, including municipal broadband service. Several towns in Western Massachusetts have built their own telecommunications systems by taking the necessary town meeting votes under. M.G.L. c. 164, § 36 to form MLPs. It is pursuant to the provisions of M.G.L. c. 164 then, that such MLPs must operate, regardless of the purpose behind their formation. The Supreme Judicial Court (the "SJC") has recognized M.G.L. c. 164 as the primary and, in most instances, exclusive statutory authority governing MLP operations. See, Municipal Light Commission of Taunton v. City of Taunton, 323 Mass. 79, 84 (1948); MacRae v. Concord, 296 Mass. 394, 397 (1934). It is well-settled that MLPs are "quasi-commercial" entities created by special act; municipalities themselves have no inherent rights to own and operate a business in the absence of special legislation and the enabling statutes, found at M.G.L. c. 164, §§ 34 et. seq. See, MacRae at 396; Spaulding v. Peabody, 153 Mass. 129, 137 (1891).

Municipal Light Plant Board of Directors – Appointed or Elected

Massachusetts General Law, Chapter 164, sec. 55 provides for the election of a municipal light plant board. Section 55E of Chapter 164, however, references removal of light board members appointed "pursuant to the provisions of any general or special law. Most municipal light boards are elected, but some are appointed (see below). If the Town of Fairhaven is considering the appointment of a light board, I would be happy to address this specific issue in a separate memorandum as a courtesy to the Town.

- Town of Concord – Appointed by the Town Manager.
- Town of Leverett - Appointed by the Select Board.
- Town of New Salem – Elected.
- Town of Shutesbury – Elected.
- Town of Wendell – Currently the Select Board, voting in October on elected or appointed.
- City of Peabody (Does not provide Broadband) – elected.
- City of Westfield – both appointed and elected.

There are, of course, many aspects of this matter that have been and are being addressed by and for the Committee and Town. Please feel free to let me know if there are any aspects of this memorandum or the overall matter that I can provide assistance with, if only as a second opinion. That would include, the issue of pole attachment rights of the municipal light plant to utility poles (also referenced in the Quincy memorandum), which I also understand are the same as that of a private utility.

General Law - Part I, Title XXII, Chapter 164, Section 47E

Section 47E. A municipal lighting plant or a cooperative public corporation and any municipal lighting plant member thereof, established pursuant to this chapter or any general or special law may construct, purchase or lease, and maintain such facilities as may be necessary for the distribution or the operation of a telecommunications system for municipal use or for the use of its customers. Such municipal lighting plant may incur debt for such facilities by a vote taken in the manner prescribed pursuant to section 8 of chapter 44. Such cooperative may incur debt for such facilities pursuant to the provisions of section 47C. Such facilities may include suitable land, structure, machinery, other apparatus and appliances for operating a telecommunications system. Such cooperative or municipal lighting plant, which is engaged in the business of operating a telecommunications system, may, as a part of such business, if an appropriation is made therefor, rent, lease, or sell for cash or credit at prevailing retail prices, install and service, within the territory served by such business, merchandise, equipment, utensils and chattels of any description which are incidental or auxiliary to the operation of said telecommunications system or the use of its customers or are necessary or expedient in the protection or management of its property used in such business. Wherever apt, the provisions of this chapter and chapter 44, which apply to the operation and maintenance of a municipal lighting plant, shall apply also to the operation and maintenance of such telecommunications system.

Attachment F

Flag/Banner Policy – DRAFT – For review during 9-8--2020 Board of Selectmen Meeting.

Rev. 3

As of this date, no request for Flag / Banner display on Public Facilities will be granted prior to an official Flag / Banner Policy has been signed off by the Board of Selectmen.

1) Any request to fly a flag / banner on Town Property must be made through the Selectmen's office at least 60 days in advance of the requested flying period.

2) The Board will only ~~may~~ permit flags acknowledging ~~declarations from~~ proclamations made by the federal government and/or the Commonwealth of Massachusetts, as well as flags/banners announcing local upcoming events that are open to the public, provided they are not in support of a candidate or political party, and are not primarily commercial in nature,

3) The Board of Selectmen will have final say, at their own discretion, on whether any flag / banner is appropriate to be displayed on any Town Facility.

4) Requests will not be granted for flags/banners to be displayed for longer than 30 days.

5) The Board of Selectmen shall have the right, at their own discretion, and upon a vote of the Board, to remove any flag / banner prior to the end of the approved time period. The Selectmen may choose, at the time of approval, to pass this authority to remove any flag / banner on to the Town Administrator.

6) For any time period where multiple requests are made, the time will be shared equally by all approved requests with not more than one flag or banner flown at any time.

7) The Town will not be responsible for hanging or taking down the banner but will provide direction on where it may be hung.

8) The flag, as displayed, must not interfere with any aspect of the operation of any Town Facility.

9) The requestor must present a signed, dated copy of the attached waiver along with their request to fly a flag/banner.~~will sign a waiver that holds the Town harmless with respect to anything that may happen to the flag / banner (Town Counsel Comment?).~~

General Release and Indemnity

I/we, _____, in consideration of the approval of my/our request to the Town of Fairhaven to be allowed to display a flag or banner on public property, do hereby agree to release the Town, and its officers, agents, and employees, from any and all liability for damage or injury suffered by me/us including but not limited to personal injury or property damage resulting from, or related to, the placement, display or removal by me/us or by any other person, of the flag or banner: and further I/we agree to indemnify, defend and hold harmless the Town, and its officers, agents, and employees, from any and all claims for damage or injury, including but not limited to personal injury or property damage resulting from, or related to, the placement, display or removal by me/us or by any other person, of the flag or banner.

Date: _____ Signed:

_____

Name (print) _____

Title (if signed on behalf of an organization):

_____

Attachment G

43.0 Acceptable Use Policy – Computer, Technology, Email, Cell Phone, Internet, Social Media.

43-1. *Policy.* The Town of Fairhaven may provide email and/or Internet access to employees who are connected to the municipal network server at the Town Offices and, additionally, to various employees in other town buildings. The purpose of providing these services to employees is to improve communication between departments and to provide the means to communicate and obtain information via the Internet. These services shall be used to improve the efficiency and effectiveness of municipal operations. Access and Control of the Town's technology resources, equipment and information shall be as follows:

The Town has ~~these~~ established these policies to set the standards for the proper and allowed uses of the Town's telecommunications systems including telephones, email, facsimile machines (faxes), cell phones, and the Internet, including social media, and to set the standards expected of town personnel in the use of private equipment and media. The use of these capabilities and equipment is subject to the same management oversight as any other employee activity. The Town reserves the right to review and monitor employees' use of Town systems and communication devices. Employees are advised that they have no legitimate expectation of privacy in regard to their use of the Town's system and communications devices.

Violation(s) of this policy may result in disciplinary action being taken against the employee, up to and including termination from employment.

Email: Electronic data in the form of ~~E~~email is considered a public record and as such is subject to the requirements of the Public Records Law (M.G.L. c 66) including the requirement to maintain that data, and as applicable to make that data available to the public upon request. Federal courts have also held that electronic mail is considered a record for purposes of the Federal Freedom of Information Act. Electronic data that is generated or communicated by a town employee in the course of his employment, will be considered a public record regardless of whether the equipment used is town owned or personally owned.

Appropriate Use: E-mail and related online services are the property of the Town and are to be used for business matters directly related to the operational activities of the Town and as a means to further the Town's objective to provide efficient, complete, accurate, and timely services.

Users shall act professionally, properly identifying themselves, and shall ensure that they do not misrepresent themselves or the Town.

The telecommunications systems (including Town office Wi-Fi access) shall not be used for:

• personal gain or to conduct personal business, political activity, non-Town-related fundraising activity, or charitable activity;
• the transmission of materials used for commercial promotion, product endorsement or political lobbying;
• to ~~promote discrimination~~ discriminate, or promote discrimination, on the basis of ~~based on~~ race, color, national origin, age, marital status, sex, political affiliation, religion, disability or sexual preference; to promote, ~~resulting in~~cause, or contribute to sexual harassment; or to promote personal, political or religious business or beliefs;
• to violate any of the Town's personnel policies;
• for any illegal activity, including but not limited to, the transmission of copyrighted or trade secret material, the transmission of obscene, defamatory, or threatening material, or the propagation of any criminal activity.

No user shall violate the computer security systems or procedures implemented by the Town, the IT Director or his/her designee, including proper use of passwords, security systems and virus detection programs. For security purposes, employees should either log off or revert to a password screen saver when leaving their computer for an extended period. When leaving for the day, employees should log off and power down all electronic equipment.

Employees are expected to use careful consideration before opening emails or files from unknown senders. Employees are prohibited from downloading or transferring unauthorized software or files. No user shall pirate, download or transfer software for which the user does not have the proper licensing. Additional restrictions or regulations on the importing of remote files may from time to time be imposed, and such restrictions or regulations shall be considered part of this policy.

Internet browsing should be limited to Internet sites directly related to the user's job function. Internet browsing for personal use is prohibited. The use of town equipment and access for the purpose of private social networking is prohibited. Users shall not engage in activities that could cause congestion and disruption of networks and systems, including but not limited to consuming excessive system resources._

Open Meeting Law Compliance: All provisions of the Massachusetts Open Meeting Law apply to email communication.

41-2. *Social Networking*. ~~Employees~~ Whether acting within the scope of employment for the Town, or not, employees are encouraged to use professional judgment at all times concerning personal and professional use of social networking sites. In using social networking sites, employees should at all times be respectful to co-workers, residents, or persons seeking assistance from the Town. Employees should not disclose confidential information, engage in any unlawful activity, or convey information that is disparaging or defamatory while using social networking sites, and must refrain from making comments or statements based upon race, color, gender, national origin, religion, ancestry, age, sexual orientation, disability, maternity leave, genetics, active military status, or another basis prohibited under state or federal anti-discrimination statutes, or which may otherwise

interfere with the ability of the Town government to function properly. Such statements or comments occurring online and/or through the use of social networking sites will not be tolerated and may be subject to disciplinary action~~, if severe enough to cause disruption in the workplace.~~.

Subject to applicable law, online activity outside of work that violates the Town's Personnel Policies may subject an employee to disciplinary action, up to and including termination.

Use of social media during work hours, except as related to town business or postings, is prohibited and subject to disciplinary action.

43-3. *Mobile Devices Provided by the Town.* Employees whose work requires the issuance of a mobile device will be provided such device at the recommendation of the Department Head and the approval of the Town Administrator. Employees who do not accept a Town mobile device, and instead opt to use their own device, shall be eligible to receive a ~~$300 annual~~ stipend, ~~paid monthly in $25 increments~~ upon furnished proof of cell phone invoice paid. Such proof shall be provided to the Town Accountant's office, along with any reimbursement/payable cover sheets, and shall be signed by the Town Administrator for reimbursement. Employees who opt to use their own mobile devices for Town business must seek approval from their Department Head and should be advised that their device may be subject to records access laws. ~~Cell~~ The rate of payment for cell phone stipends will be periodically reviewed. Proposed cell phone stipends must be included in the annual departmental budget and are subject to Town Meeting appropriation. Users are responsible for the physical safety of their Town provided devices and must report lost/stolen/damaged equipment immediately to the technology staff (IT Department).

43-*4 Usage Guidelines*

• Detailed records of the use of Town mobile devices are public records and may be requested at any time.

• Mobile devices provided by the Town ~~ate~~ are to be used predominately for work-related purposes. Personal use that incurs charges must be paid for by the employee.

• In addition to this policy, the use of mobile devices is governed by personnel policies which relate to the use of all Town computing equipment

• ~~It is expected that~~ Town employees and elected officials ~~will~~ may use social media and social networking services and tools for personal use outside of the workplace. However, ~~the Town recognizes that~~ these types of tools can sometimes blur the line between professional and personal interactions. Therefore, employees and elected officials are reminded that as representatives of the Town of Fairhaven; the above policies should be

taken into consideration when participating in these services at any time, particularly when identifying themselves as employees of the Town or when context might lead to that conclusion, Employees and volunteers should use discretion and common sense when employing social media, to help prevent inadvertently compromising professional, legal, or ethical standards, or otherwise violating this policy.