

**Reading Municipal Light Department (RMLD) Board of Commissioners**

**Fiber Optic Committee Minutes**

**Thursday, February 11, 2016**

**General Manager's Conference Room**

**Start Time: 6:35 p.m.**

**End Time: 8:05 p.m.**

**Attendees:**

**Committee Members:** Messrs. Talbot and Pacino

**Board Members:** Messrs. O'Rourke, Stempeck and Hennessy

**RMLD Staff:** Mses. O'Brien and Foti, Mr. Jaffari

**Guest:** Raj Singh, Chief Executive Officer, NDDI Plan The Network

**Call Meeting to Order**

Mr. Talbot called the meeting to order at 6:35 pm. Mr. Talbot introduced Mr. Raj Singh.

**Presentation on Fiber Possibilities for RMLD**

Mr. Raj Singh explained that he runs a consulting company that provides network planning software. The concept is to take the idea of what your vision is for fiber, model this and come up with a cost to build out a fiber network using RMLD's current assets, figuring out what would be your additional incremental cost. This would allow the RMLD to better assess to target and define the customers that it would want to deliver fiber service to. This can be achieved by performing surveys what customers are currently paying for their bandwidth service. This information would provide numbers that would provide a basis for the numbers that are input to the software that will demonstrate what the capital investment is and the revenue that it will generate, it will however, not provide the minutia that you will have to hire additional staffing. It will however, provide the possible revenue that the fiber may generate. Fiber technology can be delivered from "point a to point b" with gigabyte service. The same fiber can be used and be split for thirty-two to sixty-four customers. You may have a limited amount of fiber in place that will serve five hundred customers for a few fiber drops. It also depends on how many service providers are in the town providing this service to businesses. The service providers know that there is not much competition and charge accordingly. Mr. Talbot said that businesses pay a large amount of money for fiber connectivity. Mr. Singh said that the whole community will benefit if they do not subscribe to RMLD's service. Knowing there is competition the other subscriber will lower their price over time. Mr. Talbot pointed out that this would give the town an economic development edge.

Mr. Stempeck questioned, you can build out, with costs associated with that, value added, the fiber has to be connected to a pop, if the pop is controlled by Comcast or Verizon providers within Reading, what is the benefit for them to lower their prices. Mr. Stempeck said that the RMLD would control the infrastructure in terms of the highway, but there is a toll. Mr. Singh replied that it is a one shot toll. Mr. Singh explained that you are buying wholesale one gig and distributing this to one hundred customers. Hypothetically, if you are buying it for \$5,000 monthly and are selling it for \$50,000 monthly then the revenue would be \$45,000 monthly. The providers pricing models at ten gig are different than for one hundred gig. Mr. Singh said that there is fiber near Lynnfield which has been done under the BTOP (stimulus grant) targeting rural areas for middle mile networks. The 186 BTOP grant comes close to Lynnfield. Mr. Talbot asked who handles that. Mr. Singh replied a company called 186. There is also another provider called Level 3. There may be wholesale providers that go through town. The RMLD could go out to bid with its bandwidth and ask them how much they want. Ms. O'Brien said that Mr. Singh's last comment speaks to Mr. Stempeck's question. Ms. O'Brien said that if Comcast loses its drops to the RMLD there would be no incentive to sell it wholesale at a great rate. Mr. Singh clarified it is not just Comcast there are wholesalers. Level 3 and QUEST have nationwide networks. If Comcast is the only provider in town they will not provide lower pricing. Mr. Talbot added that will not be the case. Mr. Singh explained that Boston is one of the big hubs for the internet. Mr. Singh said that a hub has to go to an interconnect house in Boston this is located at Summer Street.

Mr. Talbot asked Mr. Singh how many other municipals has he worked with in Massachusetts. Mr. Singh replied that he is working on the Cape with Open Cape. Mr. Talbot explained that when the same stimulus grant was made a middle mile network was installed on Cape Cod as well as southern Massachusetts.

**Presentation on Fiber Possibilities for RMLD**

Mr. Singh said that with the Open Cape program dark fiber has been installed with the grant. The thought process is that with the middle mile networks towns would utilize it. Mr. Talbot asked if the fiber was underground or overhead. Mr. Singh replied that it is overhead aerial fiber. Mr. Singh said that the towns are not taking the initiative to become the local internet service provider. He is working with them to come up with another business model.

Mr. Hennessy entered the meeting at this point.

Mr. Talbot asked if Mr. Singh was working for other Massachusetts municipals. Mr. Singh replied that he is working with Princeton. They are in the process of a community based network. He is assisting in the redesign. The software he uses will optimize the design which enables for a three to five percent efficiency. It translates into a few million dollars. Mr. Singh noted if they were doing Reading it would be \$10 to \$20 million.

Mr. Talbot pointed out that the RMLD is only targeting businesses.

Mr. O'Rourke clarified that does the RMLD need to provide him with what the potential opportunities are and then he uses his software to provide information or does he also identify opportunities. Mr. Singh replied that he can do both or either.

Mr. Stempeck said that he does not envision the RMLD providing channels. Mr. Singh said that it is his understanding that the RMLD wants to evaluate broadband for businesses. Mr. Singh explained that if you are a pure internet provider to a business they can buy everything else, such as PBX which is in the Cloud. There are companies that will sell PBX in the Cloud which can be used for phone services. If you have good internet connectivity it does not matter, there is data storage. What a business needs are to back up large amounts of data such as a terabyte of data, you want large bandwidth. If you can provide someone a gig connection it enables a business to become more cost efficient

Mr. Singh explained that what his product does will provide the basis for the service they provide and based on the input, RMLD wants to serve businesses. Mr. Singh said that they obtain marketing and financial implications. They will come in and assess whether the RMLD has to lay more fiber and define who owns the poles. If there is dark fiber on a street and there are ten poles, are they ready. Marketing information can focus on businesses with fifty or more employees and will only take one gig of service. If RMLD provides one hundred meg service what will they charge and what type of businesses will fulfill the RMLD's revenue requirement. Also a consideration is regulatory requirements. Mr. Talbot added that it is his understanding that there are no regulatory issues. Mr. Singh commented that from a delivery of services perspective, who is the customer, it will be businesses and anchored institutions. Another consideration is the current cell towers served by fiber. Mr. Hennessy commented that he was under the assumption that all the cell towers were on fiber.

Mr. Raj stated that a connection to a cell phone tower could be \$2,000 monthly income for the RMLD. Mr. Talbot clarified \$2,000 monthly.

Mr. Stempeck asked if Mr. Singh has worked with towns that have driven services over the fiber to the residential as well as business. Mr. Talbot said that in Massachusetts there are virtually no municipalities providing fiber to the home. The western Massachusetts municipalities that have received the subsidy will be doing this. Mr. Talbot pointed out that Concord is doing fiber to the home and Taunton has fiber on one street to residences. Mr. Singh asked what the normal interconnection cost in this area is. Mr. Stempeck responded it tends to be bundled at \$1,650 monthly. Mr. Singh added that the RMLD can be in the internet business. Mr. Singh said that the business model he is proposing is that the electric utility company provides the fiber and RMLD receives a rental fee. Ms. O'Brien stated that the RMLD does this already.

Mr. Singh pointed out that the cost of the internet on the wholesale side is going down exponentially. A one gig price is now a ten gig price. The retail price does not change due to the lack of competition.

### **Presentation on Fiber Possibilities for RMLD**

Mr. Singh commented that if RMLD provides internet only, you may have thirty to forty of the town sign up. This product will produce comparative analysis for net present value, for what if scenarios as well as an analysis tool.

Mr. Stempeck pointed out that the RMLD is generating revenue with another company, can he let us know if that is a good number. Mr. Singh said that he could provide that. Mr. Talbot said that my modeling businesses in a certain area that does not preclude RMLD to continue to keep RMLD's current leasing of its fiber, it adds another dimension. Mr. Singh said that the RMLD has available fiber.

Mr. Singh said that the project would contain a small area such as Reading. They would then obtain residential and business data for the streets. All the information is then assembled and loaded to the towns. The question is RMLD owns the utility poles, fiber is running through the four towns and how does that enable the community for services not provided by current providers at the price point. Where are the commercial opportunities?

Mr. Stempeck asked does Mr. Singh have the data on the value of a pole, whether you own the pole or not. Is there a number if you ever generated that this pole received "x" amount of dollars during its from these services provided? Mr. Singh replied, no. Mr. Stempeck said that information would be helpful.

Mr. Singh said that another item to consider is community WI-FI and is not sure if RMLD is thinking about this. He is not sure how schools are connected. Mr. Stempeck stated that Brookline has public WI-FI and in New York City it is being put in through the civic project with towers.

Mr. Singh said that hospitals are key businesses they need good bandwidth as well as a good back up connection.

Mr. Jaffari asked if they assist with applying for grants. Mr. Singh said that he would provide assistance.

Mr. Singh added some issues that the RMLD needs to be address: does RMLD want to be only a dark fiber provider, do you want someone else to do the interconnect from a high speed internet to bill and serve the customers. For example, you can have a business model that fiber will be run to hundreds of businesses. Then find an internet service provider to do the marketing end of this. You are taking advantage of your asset with minimal investment as well as minimal operating costs. The RMLD could become an internet service provider offering multiple service providers which will increase competition in town as well as reducing the price of the bandwidth. RMLD would maintain the fiber. Mr. Singh said that multiple analysis can be performed.

Mr. Singh said the some of the municipalities have data on the businesses and locations of them in GIS format. He can take this information which would be included as part of the findings in his report.

Mr. Singh said that what he is promoting is that the municipality should be the provider, using the analogy of a water pipe explaining that the municipality provides the water pipe and the person can buy the water from whoever they want. It provides the ability to buy water from multiple people. Mr. Talbot agreed that the RMLD would not be the independent service provider.

Mr. Talbot said that even within RMLD's pipe there could be competition. Mr. Singh agreed. Mr. Jaffari said that RMLD's operational costs would be at the minimum. Mr. Singh pointed out that with services they evolve, Amazon has evolved to providing computing power in the Cloud. Today when servers are needed they are rented not purchased. As a municipality, you cannot evolve to that level of sophistication due to the lack of resources, nor will it have return on investment. Mr. Talbot clarified Mr. Singh's advocacy of an open access network is that it removes all of the evolution as well as the products and services available in the Cloud. The RMLD does not have to worry about that. Mr. Singh said that if you have open network it is easier for other service providers to connect.

### **Presentation on Fiber Possibilities for RMLD**

Mr. Jaffari asked how this works in the municipal sector in terms of resources. Mr. Singh explained they would have a separate department.

Mr. Stempeck asked if Mr. Singh knows of other companies that will co-invest in those type of opportunities. The RMLD would be setting up a different business opportunity, not just providing electricity, but providing the independent service provider, to set up a separate unit, but there is a cost to doing that. Mr. Singh said that there are few companies that would step up to the plate and invest. The party investing will only receive a thirty percent payback if they install the fiber and as soon as the municipality decides to do it, the other providers will lower their prices.

Mr. Talbot clarified that by law the RMLD can only make eight percent of the value of the plant. Ms. O'Brien said that it depends on the model and how you are splitting it. Currently, RMLD's fiber is associated as an asset in which RMLD can make eight percent of net plant. Mr. Talbot said that he thinks it holds true if you have a telecom division the rates are set based on eight percent of net plant. Mr. Talbot asked would Verizon or Comcast only make eight percent margins when they are a lot higher. Ms. O'Brien said that until the eight percent for telecom has had legal review she cannot speak to that. Mr. Stempeck said that Mr. Talbot's point is well taken because the profits are incremental.

Mr. Singh said that putting in the fiber is eighty percent of the cost. The drops and equipment account for the other twenty percent. There are the additional operational costs of buying and selling the bandwidth. Ms. O'Brien clarified that eighty percent is the loop installation. Ms. O'Brien said that the individual drops accounted for the highest percentage. Mr. Singh explained that eighty percent of the costs of the network, it is the cost of fiber up to the person's home after the drop. Mr. Talbot added speaking to Ms. O'Brien's question how much is already having it up on the poles, the loop. Mr. Talbot commented that RMLD is already twenty or forty percent there. Mr. Singh added the percentage is forty to sixty percent. Mr. Singh said that the drop box comes out to twenty percent of the total fiber network. From a fiber perspective, eighty percent is the loop, twenty percent is the drop box. Then the one hundred percent becomes ninety percent then there is equipment as well as incidentals.

Mr. O'Rourke added that there is fiber out there, but not in all cases is the fiber RMLD's, there are breaks. Ms. O'Brien explained that the RMLD has a loop and it rents dark fiber out. Mr. Jaffari stated that RMLD has six tubes, each tube has twelve strands and two are dedicated for RMLD.

Mr. Talbot said that where the fiber is running down the street, if you want to hit people on that street, such as downtown Reading, the industrial zones in Reading and Wilmington that would be the twenty percent. Mr. Talbot added that any businesses near those lines can get the drops, which represent the twenty percent. Mr. Talbot said that where RMLD already has a loop, let's see what would be the pricing to provide service to all buildings that are on the loop already. Mr. O'Rourke asked what services the loop is already providing. Mr. Talbot responded that it is providing grid services and is renting out dark fiber, but there is still capacity. Mr. O'Rourke asked if this applies to all four towns. Mr. Talbot responded that this involves all four towns. What Mr. Talbot has been interested in is knowing what it would cost to offer business only services where the loop goes near them, what would be the cost to hit the businesses near the loop with RMLD's spare capacity. Mr. O'Rourke said that leasing out the dark fiber has been a positive revenue stream.

Mr. Talbot asked Mr. Singh to explain the difference between an open access network versus leasing the dark fiber. Mr. Singh said that open access could get more than one company to go over the same fiber. Mr. O'Rourke asked how that translates for the RMLD, currently the RMLD just leases and collects revenue from its fiber. Mr. Singh suggested that perhaps the RMLD should start as a municipal owned independent service provider. Mr. O'Rourke asked who brokers this.

Mr. Singh replied that they will come up with a charge and RMLD will be the wholesaler with the retail side. Mr. O'Rourke commented that this would require additional staffing to secure the interested customers.

### **Presentation on Fiber Possibilities for RMLD**

Mr. Singh said that from a business perspective his company defines what different services you want to provide. They take all the customers and create customer classes such as companies with "x" amount of employees. You can define the businesses and their classes. You can define the vendor equipment down to the lowest common denominator. Define how you connect, delivering one gig of service versus a fifty meg service. Define how vendors support those services. The software produces a bill of material.

Mr. Stempeck asked what the obsolescence on those pieces of equipment is. Mr. Singh replied that there is a capital budget for that. Mr. Singh said that the capital budget amount for the network is ten percent of the overall cost of the network. The fiber will be safe for the next thirty or forty years.

Mr. Singh explained that they will define a boundary for the towns, put streets and existing fiber as well as existing businesses RMLD wants to service. These businesses may or not be on the current fiber. It will tell you where you can place new fiber and use the older fiber. Based on all the information there will be reports provided.

Ms. O'Brien clarified with Mr. Singh that he is feeding customers off the fiber, how you decided to branch out and build more fiber. Mr. Talbot said that the plan said that you want to serve these businesses. Mr. Singh explained that it is the fiber loop. Mr. Talbot added there is no law to add fiber. Mr. Hennessy said that the RMLD can stay on the loop. Mr. Talbot said that is correct. Mr. Singh said that if the cost to add fiber is \$25,000 and there are thirty businesses that want the fiber, it would be a business decision. Mr. Hennessy said that business option could be performed after the fact by utilizing the existing fiber.

Mr. Singh said that there could be projections based on the fact if the RMLD secured one hundred customers. Mr. Talbot said that the incumbents will apply a lot of pressure on a new entry into this market, how can this be mitigated. Mr. Singh said that could be averted by market intelligence. The product provides optimization tools based on cost of placing the fiber, where there is overhead and underground buried. Mr. Stempeck asked does the software show the breakeven point. Ms. O'Brien stated that Mr. Singh's projections are based on what they are going to do. Mr. Singh explained that the RMLD's current pricing model will be fifty percent of what theirs is. Mr. Talbot clarified that through whatever surveys or market intelligence you will find out what they are charging now. The RMLD would start out at fifty percent less. Mr. Singh said that would be modeled in. Mr. Talbot said that Mr. Singh would set the prices in at fifty percent of the competitors. Mr. Singh said that they would approach the businesses near the fiber. The RMLD in turn would have the businesses sign three or five year contracts before with a memorandum of understanding, presubscription. Ms. O'Brien asked what the businesses are signing up for. Mr. Singh said that they would be signing up for service, bandwidth. Mr. Hennessy stated that is why you have to start as an independent service provider. Ms. O'Brien clarified that it is not the open pipe. Mr. Singh explained that it is not the open pipe. Ms. O'Brien asked where the internet is coming from. Mr. Singh said Level 3 or one of the wholesalers. Mr. Talbot added there are many in this area. Mr. Singh stated that Summer Street, Boston is where the connections terminate. Ms. O'Brien asked if there is a toll booth from Summer Street to here. Mr. Singh said that there will be a onetime connection fee. There is a buy price then a retail price then calculations are performed how long it takes to recover this. The premarketing has been done with the customer with surveillance of what you are paying.

Mr. Talbot said that the key to this is the surveillance. Mr. Stempeck stated that first the economic viability is assessed. Ms. O'Brien commented that the presentation with the broadband out in Holyoke said that it is viable because there was no competition to keep the schools' systems up due to the lack of internet. Ms. O'Brien commented that it was built in Holyoke because people wanted it. Ms. O'Brien questioned is RMLD building it because people want it. Mr. Singh responded that the RMLD wants to increase economic opportunities with businesses with lowering the cost of infrastructure. Ms. O'Brien added that it does necessarily mean that they will come.

### **Presentation on Fiber Possibilities for RMLD**

Mr. Singh stated that if every business is paying \$100 monthly, you may not have an opportunity. If you know businesses are paying \$1,000 to \$2,000 monthly for internet services, then there is opportunity.

Mr. Stempeck said that Mr. Singh is an expert at this. All the different times he has performed modeling for other communities there must be a number, if you can reach this point then you can provide this service at a cost per gigabyte, etcetera it will become economically viable for you. If you work backwards. Mr. Singh said that the he is familiar with his home service if it under \$1,500 or \$2,000 to get the connectivity done it is a viable business piece. Mr. Stempeck said that is with three year contracts. Mr. Singh commented that with rural America the cost is double. The problem becomes who is going to do that whereas RMLD is urban. Mr. Stempeck clarified is there a range of values that we can provide businesses at a certain cost today, when the businesses are surveyed in terms of what they are paying, if there is a big gap there is opportunity. If there is not a big gap, we do not have opportunity. Mr. Singh said that this can modeled by the businesses which businesses will be most viable. Mr. Singh added additionally that the cost of the bandwidth.

Mr. Talbot added that if RMLD puts a stake in the ground from an economic development point of view, we are here for high tech businesses which would be powerful for the community.

Mr. Talbot said that if the RMLD fiber passes a fifty-unit condo development it would be crazy not to throw a spur in that building. Mr. Stempeck said that the point is well taken because if the fiber is in at least it will be competitive to site businesses.

Mr. Pacino pointed out if the RMLD is to put money up front that is the ratepayers' money. Are the ratepayers going to go along with making this type of gamble? Mr. Stempeck replied maybe. Mr. Pacino said that he cannot see the RMLD going to the town to borrow money. Mr. Stempeck did point out that the trend for people twenty-five years and younger is they do not care about the services provided by Comcast. They want Netflix and internet service that is it. The trend for many residential customers is for internet service only.

Mr. Talbot thanked Mr. Singh for his presentation. Mr. Talbot said that Mr. O'Rourke had stated that when this was discussed previously to at least have a rough idea of what it would cost in terms of doing something here. That was the spirit of trying to get someone in here to answer that question. It is clear to Mr. Talbot that market research needs to be performed to see what people are paying now in order to know if RMLD can be competitive, antidotal evidence elsewhere people pay more when there are no competitors. Mr. Talbot said that half the money has been spent because RMLD has a fiber network, we are halfway there. Mr. Talbot commented that he would like to target a zone of five people or more within a reasonable distance with the loop.

Ms. O'Brien asked Mr. Singh he stated that it is \$300 for a drop, how far away is that from the main loop. Mr. Singh responded three hundred feet. Mr. O'Rourke said that this has been very helpful, but has the following questions: given the size of the town, what kind of income opportunity would this provide for Reading.

Mr. Singh said that once this is operational it will cost \$600,000 to \$700,000 to run this. Mr. Stempeck clarified that the initial investment is \$10 million. Mr. Stempeck said that RMLD already has the fiber that would not be the case. Mr. Stempeck said that we can set up a separate company.

Mr. O'Rourke asked what the right sizing is. Mr. Singh said that he can run a model on how much it will cost to do this to work with. Ms. O'Brien said that the businesses that are three hundred feet off the main line. Mr. Singh said that the RMLD can set the parameters they want. Mr. Jaffari asked if he can perform the cost benefit analysis for both models for open access. Mr. Singh said that he cannot. Mr. Talbot added that straight internet business gig for gig. Mr. Stempeck asked Mr. Singh if he will write a proposal.

Mr. O'Rourke said that we need to agree on what the parameters are. If it is all businesses or some businesses. Mr. Singh said that he gets the software for all the businesses.

#### **Presentation on Fiber Possibilities for RMLD**

Mr. Talbot asked what businesses would potentially be interested. Mr. Stempeck suggested the Wilmington commercial customers, doctors and dentists' offices. Mr. Talbot suggested that each commission member ask three or four people they know what they are paying for internet service. Mr. O'Rourke said that Wilmington would be more of an enticing model. Mr. Hennessy pointed out that if it does not work in Wilmington it will not work here.

Mr. O'Rourke's concern is to get the information on all businesses in Wilmington he does not want to burden the Department. Ms. O'Brien said that a database can be purchased for the Wilmington businesses. The consensus was to start with Wilmington.

Mr. Talbot said that this endeavor is for load growth and economic development. Mr. Pacino added economic development. Ms. O'Brien added increased sales to offset solar. Mr. Stempeck pointed out RMLD has some of the best electric rates in Massachusetts. Mr. O'Rourke said that it is worth pursuing if the eight percent return applies to fiber. Ms. O'Brien said that the RMLD needs to provide an answer for that.

Mr. Stempeck stated that the next step will be to solicit a proposal for one town.

Mr. Singh said that it is a software they are developing and it is time. The phone companies will want control with the customer, there is a piece of equipment, the connectors will have each phone company will want access to the customer. You are multiplexing the same equipment over multiple circuits. If you go to the airport, you get WI-FI and is referenced by five companies at the home level this is not done.

Mr. Hennessy asked what the Summer Street connection for the fiber is. Ms. O'Brien replied that it is a hub.

Mr. O'Rourke said that the qualifications are: RMLD has easy access to the fiber, looking at municipalities, anchors and towers. Mr. Hennessy said that the RMLD may want to go in the area where RMLD has its largest customers.

Mr. Stempeck left the meeting at this point.

Ms. O'Brien thanked Mr. Singh for his presentation.

#### **Schedule Next Meeting**

None scheduled.

Although, Executive Session was posted, it was not required.

#### **Motion to Adjourn**

At 8:05 p.m. Mr. Pacino made a motion seconded by Mr. Talbot to adjourn the meeting.

**Motion carried 2:0:0.**