



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Simpson, Brown, Helgeson, Manning and Mital  
FROM: Mel Damewood, Engineering Manager  
DATE: May 27, 2016  
SUBJECT: Downtown Fiber  
OBJECTIVE: Approval of Future Contracts & Modification to Dark Fiber Pricing Schedule via Resolution No. 1616; Direction on Renewal and Replacement Fund

---

## Issue

EWEB, the City of Eugene and Lane Council of Governments (LCOG) are seeking to formalize a partnership to advance a high speed fiber optic system in the downtown core of Eugene. Over the years, this partnership has progressed from concept, to pilot project testing and master planning, and now is the time to formalize the partnership through design and construction contracts. Management is requesting approval from the Board on two items: Since EWEB has authority, but no obligation to provide dark fiber services, Management is asking for approval to enter into future design and construction agreements for the downtown fiber network; and to approve modification to EWEB's dark fiber pricing schedule. Staff is also seeking direction to create a designated renewal and replacement fund for all fiber optic infrastructure that serve non-EWEB functions.

## Background

### *Downtown Eugene Broadband Initiative*

Over the past 2-1/2 years EWEB and LCOG have completed three demonstration projects to pilot an innovative high speed fiber optic network construction concept in the downtown Eugene Business District. The projects were funded by the City of Eugene's Telecommunications Fund, with some capital contributions from EWEB and LCOG. As a result, three multi-tenant buildings have been connected via fiber optic cable to 'Tier 2' (non-incumbent) Internet Service Providers with a point of presence in LCOG's Willamette Internet Exchange (WIX). A number of Internet Service Providers (ISP's) lease space in the WIX, giving them competitive access to the downtown market. An initial market price of \$99/month for 1Gbit internet service has been established and is under contract with approximately 20 tenants in those buildings. This rate compares favorably to the existing incumbent rate of \$250/month for 150Mbit service, i.e. it provides nearly seven times the bandwidth capacity at 40% of the cost.

In 2015, EWEB partnered with LCOG, the City of Eugene and the Technology Association of Oregon (TAO) to form a 'Fiber Implementation Team' (FIT) whose goal is to expand the footprint of these services by provisioning an open, low-cost, high-speed municipal broadband network throughout the business district. The effort is being driven by the City of Eugene's 2013 Broadband

Strategic Plan Goal 5 to “Acquire world class broadband network capabilities in Eugene’s downtown and along major corridors to accelerate high-tech business development”. In support of common goals and objectives shared by the partner agencies, Management is recommending a modification to EWEB’s billing methodology relative to ‘Recurring’ monthly charges.

EWEB’s Customer Services Policies and Procedures currently stipulate: a) one (1) mile minimum charge for Dark Fiber circuits; and b) one-half (1/2) mile billing increments for any circuit length in excess of one mile. Because of the unique design and topology of the proposed downtown fiber optic network, Management feels it is appropriate to adjust the billing determinants to accommodate very short distance / high density service areas such as the downtown business district.

The FIT anticipates interconnection of up to 120 multi-tenant commercial and residential buildings within roughly a ten block area. Circuit (fiber) lengths will vary between a few hundred feet up to two-thirds (2/3’s) of a mile maximum; on average considerably less than one mile. The network will consist of many small conduit pathways (one ‘microtube’ and fiber optic cable per building), placed inside of EWEB electric ducts, connecting end-use customers directly to the WIX. This point-to-point design will minimize infrastructure operating costs by enabling replacement/reconfiguration/rerouting of fiber without vault entry or splicing. This high density model will reduce EWEB’s ongoing operations and maintenance costs; therefore its cost recovery requirements are lower when compared with EWEB’s conventional dark fiber services.

### **Discussion & TBL Assessment**

To date, EWEB has not committed any funding to the overall Downtown Fiber Network. EWEB has contributed about \$20,000 to the pilot projects in labor and materials, in essence, to gain experience of how to build the fiber network in our existing duct and vault system, as well as to help develop our standards for the fiber system. Staff also is committed to communicating to requestors of such services to pay 100% of all costs associated with the extension of service, which is consistent with EWEB policies. Although EWEB has not formally received any requests for wholesale construction of the Downtown Fiber Network, the City of Eugene is seeking funding via various mechanisms. Once funding is obtained, Staff anticipates that design and construction services of the Fiber Network will be requested. Given the scale and scope of the request and the fact that EWEB has no obligation to provide fiber services, Staff believes it is prudent to get authorization now from the Board to enter into future design and construction agreements to extend fiber services for the downtown area.

Upon commitment to construct the Downtown Fiber Network, EWEB is taking on the responsibility of renewal and replacement of the fiber optic cables at the end of their useful life. EWEB would also be responsible for fiber optic cable and microduct repairs caused by electrical faults in the downtown Secondary Network system.

## *Economic Analysis*

Staff has conducted an economic analysis on the renewal and replacement of the fiber optic system.

### Assumptions

- 1) A 25-year useful life of the fiber optic cable.
- 2) Greater than 50-year useful life of microtubes, replacement of tubes not included.
- 3) Inflation set at last 25-year average of ENR construction cost index (2% per year)
- 4) Cost for repairs due to damage not included in analysis

EWEB staff looked at 3 pricing options for downtown fiber in order to cover the renewal and replacement costs of the fiber cabling. To reach the breakeven point for the future replacement costs, EWEB would need to an average of 61.5 billable strand miles for the 25 year period. The economic analysis was based on today's EWEB's Commercial Dark Fiber price of \$45.93/strand mile per month, and building out to 120 buildings in the downtown core. It was also estimated that the 2040 replacement cost of the fiber was approximately \$1.1 million.

- 1) With 1 mile minimum charge: Resulted in needing approximately 0.5 customers per downtown building served.
- 2) Charging ½ mile minimum, with ½ mile increments above the first ½ mile: 1.0 customers per downtown building served.
- 3) Charging ¼ mile minimum, with ¼ mile increments above the first ¼ mile: 1.2 customers per downtown building served.

As it is more than likely that EWEB will have more than one customer per downtown building, staying with the 1 mile minimum charge appears to be conservative. Staff recommends having a charge of ¼ mile minimum, with ¼ mile increments up to a mile, and then by the ½ mile above 1 strand mile. This will provide the price to meet the goal of low cost/high speed internet and also provide the Board with enough economic recovery to maintain and replace the downtown network when needed.

### *Social Benefits*

The primary social benefit to participating in the FIT is the potential for creating job growth in the downtown area with high paying positions. Recently, EWEB has received information regarding estimates of jobs added existing downtown businesses if broadband is widely available and at a reasonable cost. These conservative estimates forecast the creation of 215 new jobs over the next five years, with an average annual salary of \$57,600, totaling in excess of \$12 million per year in salaries. These estimates were given by 18 businesses who utilize fiber services in the downtown area.

While it is possible that the existence of high speed fiber would attract building uses with a higher commercial load than is typical for downtown commercial space, that outcome is speculative. However, EWEB would also recognize some small growth and stabilization of water & electric sales through the creation of new jobs in the downtown area, and by virtue of the projected employment growth within our service area. This is consistent with the Board's business growth and retention strategy.

### *Environmental Impacts*

Utilizing existing spare ducts and secondary service laterals within EWEB's downtown electric secondary network minimizes disruptive construction activities in the congested downtown area. EWEB anticipates only minimal underground construction activities to build out the fiber network. Also, utilization of electric ducts in lieu of the abandoned steam system minimizes the impacts of asbestos exposure and other construction activities associated with the complexities of the steam piping system.

### *Regulatory and Legislative Issues*

There are no anticipated concerns with regulatory or legislative issues, and the project has widespread support from our local delegation. Given the public/private partnership that the FIT is proposing for low cost lit fiber services, we are allowing competitive pricing from the private sector to help drive the over-all pricing of service. There is some potential for resistance from incumbent service providers regarding the use of public funds to compete with private enterprise, however they have yet to comment publically on this project.

### *Political Issues*

The political environment is positive about this project. The City of Eugene understands EWEB's cost-recovery needs and is working hard to find funding mechanisms to capitalize this project. Two grant applications are underway to help leverage the City's local investment and on June 13, the City Council will vote on whether to extend \$3M in tax increment financing to this project. LCOG has also been a willing partner to open up the WIX to private lit service providers. LCOG recovers its operating and administrative costs through lease revenues from service providers who are collocated in the WIX.

### *Other issues*

EWEB will conduct a full cost of service study to ensure our charges cover renewal and replacement costs as well as administrative and overheads. EWEB had initiated this study in early 2016 but due to labor constraints, had to delay the study until later in 2016. Currently, commercial rates are set approximately double the public entity rate for Dark Fiber, (\$45.93/strand mile vs. \$22.46/strand mile) and offers a safe margin of cost recovery for our customers. The Public entity rate was set to recover the renewal and replacement, O&M and capitalization of the fiber optic cabling currently installed.

Successful expansion of the downtown fiber project will also pave the way for future installation of high speed fiber as part of the riverfront redevelopment with the aim to increase the value proposition to private development.

## **Recommendation**

Management recommends that EWEB continues to provide 'last mile' dark fiber service for the proposed municipal fiber optic network and enter into design and construction agreements to complete the construction of the downtown fiber network.

Accordingly, Management recommends revision of the incremental billing lengths under Section E-V. Paragraph R. Subparagraph 7. – 'Recurring Charges' to change the current one-mile minimum to one-quarter mile minimum, and in increments of ¼ mile up to a mile, and then ½ mile increments above one-mile. This change will not affect other Dark Fiber Service Agreements currently in effect as they exceed one-mile in length.

Management also recommends the creation of a designated fund for Fiber Renewal and Replacement to be listed on EWEB's Schedule of Cash reserves, to be developed and reported out in early 2017.

## **Requested Board Action**

Approval of continued partnership of the downtown fiber optic system and approve management to enter into design and construction agreements to execute the creation of the system.

Approval of revision of the incremental billing lengths under Section E-V. Paragraph R. Subparagraph 7. – 'Recurring Charges' to change the current one-mile minimum to one-quarter mile minimum, and in increments of ¼ mile up to a mile, and then ½ mile increments above one-mile. This change will not affect other Dark Fiber Service Agreements currently in effect as they exceed one-mile in length.

Affirm direction to create a designated fund (starting in 2017) for Fiber System Renewal and Replacement.

If you have any questions please contact Mel Damewood at [mel.damewood@eweb.org](mailto:mel.damewood@eweb.org) or 541-685-7145.

Attachments:

- 1) Revised Electric Customer Service Policies and Procedures, E-V, Subsection R; Dark Fiber Lease
- 2) Resolution No. 1616, June 2016



**Eugene Water & Electric Board**

Customer Services Policies and Procedures  
Electric Utility

---

**R. Dark Fiber Lease**

1. Availability

EWEB’s fiber optic cables run through public right-of-way and are owned and maintained by EWEB. This Price Schedule applies to public agencies and higher level educational institutions as well as existing leases for medical service providers within EWEB’s service territory, with the exception of any other price that may apply under a separate agreement or Price Schedule.

2. Character of Service

EWEB’s Dark Fiber Lease Price Schedule (DFL-1) pertains to the available surplus fiber strands contained within EWEB’s existing fiber-optic system, covering the Eugene metropolitan area and other areas within EWEB’s service territory. Subscribing to EWEB’s Dark Fiber Lease allows the interconnecting entity to obtain an indefeasible right of use of allocated EWEB-owned fiber strands for the purpose of transmitting voice, data and/or video signals between locations.

3. Interconnection

The Customer is responsible for providing a complete Conduit path from the termination point inside their facility to EWEB Facilities near the Customer premise, in accordance with EWEB’s Fiber Optic Customer Standards. All Customer provided Conduit pathway facilities and patch panels shall be inspected and approved by EWEB prior to connection of the lateral extension. After connectivity, EWEB will own and maintain all Facilities up to and including the patch panel.

4. Advance Engineering Fee

All prospective EWEB Dark Fiber Lease subscribers must work with EWEB to complete an Advance Engineering Estimate of the cost and schedule for EWEB to provide dark fiber connectivity. A non-refundable \$500.00 fee is required prior to completing the Advance Engineering Estimate.

Advance Engineering Fee ..... \$500.00  
(Resolution No. 1304)

5. Construction Agreement

A signed “Dark Fiber Optic Circuit Construction Agreement” is required by EWEB before commencement of the detail Engineering design and construction of the lateral extension.



**Eugene Water & Electric Board**

Customer Services Policies and Procedures  
Electric Utility

---

6. Non-Recurring Charges

The Customer shall pay an amount equal to 100 percent of the actual design and construction costs, payable upon completion of Dark Fiber connectivity.

7. Recurring Charges

The monthly charge for Dark Fiber Lease is determined by multiplying the length of the subscribed fiber strand(s) times the current monthly price. The length of each fiber strand is determined from EWEB’s Geographic Information System (GIS) Fiber Manager Application. ~~rounded up to the nearest one-half mile length.~~ For circuits less than one (1) mile in length, the Dark Fiber Customer shall be billed a minimum of one-quarter (1/4) mile increments of length for each such fiber strand. For circuits exceeding one-mile in length, Dark Fiber Customers shall be billed in one-half mile increments. This information will be recorded in the Lease Agreement.

Dark Fiber Lease bills shall be rendered quarterly.

**2016 Monthly Price per Strand Mile\*** ..... \$22.46

Note: \*The Dark Fiber Lease Price Schedule will be adjusted annually based on the City of Portland Consumer Price Index. (Resolution No. 1304)

8. General Terms and Conditions

Service under this schedule is subject to the policies and procedures of EWEB.

**RESOLUTION NO. 1616  
JUNE 2016**

**EUGENE WATER & ELECTRIC BOARD  
DARK FIBER LEASE RATE REVISION**

**WHEREAS**, the Eugene Water & Electric Board (EWEB) offers surplus Dark Fiber optic strands for lease by public agencies, higher and K-12 educational institutions, medical service providers, and telecommunications service providers;

**WHEREAS**, Dark Fiber Leases are not considered by the Federal Communications Council or the Oregon Public Utilities Commission to be a regulated Telecommunications Service;

**WHEREAS**, EWEB has developed plans for a municipal high density, compact Dark Fiber network in downtown Eugene in partnership with the City of Eugene, Lane Council of Governments, and Technology Association of Oregon;

**WHEREAS**, EWEB's current Dark Fiber Lease Schedule (DFL-1) contains mileage-based billing determinants;

**WHEREAS**, EWEB desires to treat 'short distance' Dark Fiber service customers equitably;

**NOW, THEREFORE, BE IT RESOLVED** that the Eugene Water & Electric Board hereby authorizes the Interim General Manager to adjust the Dark Fiber Lease Rate to revise billing length increments under Section E-V 'Dark Fiber Recurring Charges' to allow one-quarter mile incremental billing lengths for Dark Fiber services that are under one-mile in total length.

Dated this 7<sup>th</sup> day of June 2016.

THE CITY OF EUGENE, OREGON  
Acting by and through the  
Eugene Water & Electric Board

\_\_\_\_\_  
President

I, ANNE M. KAH, the duly appointed, qualified, and acting Assistant Secretary of the Eugene Water & Electric Board, do hereby certify that the above is a true and exact copy of the Resolution adopted by the Board at its June 7, 2016 Regular Board Meeting.

\_\_\_\_\_  
Assistant Secretary