THE CITY COUNCIL OF WATERLOO, IOWA
WORK SESSION TO BE HELD AT
Harold E. Getty Council Chambers
Tuesday, September 3, 2024
4:10 PM

RULES FOR WORK SESSION PUBLIC COMMENT

Iowa Code Chapter 21 gives the public the right to attend council meetings, but it does not require cities to allow public participation except during public hearings.The city council shall not receive any public comment during a work session.

Roll Call.

Agenda, as proposed or amended.

Approval of Minutes of the August 19, 2024, Council Work Session, as proposed or amended.

4:10 p.m. **Discussion of as-built documentation for Waterloo Fiber and the City of Waterloo.**

Submitted by: Randy Bennett, Public Works Division Manager

ADJOURNMENT

Kelley Felchle
City Clerk

August 19, 2024

COUNCIL WORK SESSION
Harold E. Getty Council Chambers

Roll Call.

Members present: Mayor Pro Tem Ray Feuss in the Chair. Mr. Boesen, Mr. Nichols, Ms. Creighton-Smith, Mr. Simon, and Mr. Feuss. Mr. Chiles entered the meeting at 4:50 and Ms. Wilder entered the meeting at 4:55.

Agenda, as proposed or amended.

Nichols/Chiles
that the agenda as proposed, be approved. Voice vote-Ayes: Five. Motion carried.

Approval of Minutes of August 5, 2024, Council Work Session as proposed or amended.

Nichols/Chiles
that the minutes of the August 5, 2024, Council Work Session as proposed, be approved. Voice vote-Ayes: Five. Motion carried.

Discussion of station-specific paging.

Bill Beck, Fire Chief, addressed the council regarding plans for a station-specific paging system.

Lt. John Keeler presented information regarding the current alerting system which alerts everything, all the time at all six stations. Lt. Keeler presented medical information regarding health issues associated with sleep deprivation and the health risks for emergency services employees if the current system is left in place. Lt. Keeler explained that the stand-alone systems are standard in the industry and the City of Waterloo is the only city with one or more fire houses that does not utilize the stand-alone alerting system that is station specific.

John Eastman, Firefighter Engineer, explained that currently the six firehouses receive an average of 37 calls a day or 1.5 calls per hour, 24-hours a day, increasing at 5% per year. Eastman explained the adverse effects to shift/healthcare workers with delayed and disrupted sleep and that station specific alerting would protect the health of the fire service members by limiting sleep disruption. Eastman further explained the new system would filter the calls and alert to only the firehouse specific to the call therefore limiting the sleep disruption of the entire force. Eastman explained the financial benefits in the ability to recruit and retain the best applicants, reduce healthcare costs, and reduce exposure to other financial responsibilities from fewer accidents, injuries and disabilities due to sleep deprivation.

Chief Beck reviewed financing options for the new system, $545,000.00 plus a yearly subscription fee of 11%, approximately, $60,000.00.

Mr. Boesen, questioned what installation costs would be for the city, where this would come from in the budget and if it was budgeted for this year.

Chief beck explained installation costs would be more effective if city employees provided

installation and that he felt this could be paid through the GMT service fees as those revenues surpass annual expenses.

Chief Beck responded they do not have the funds this year.

Mr. Boesen suggests spreading it out over the years and a better outline of funding costs before it comes back to the council. The timeline is 180 days once the contract is signed.

Steve Simon questioned when the current system was installed, how it is interfaced, and if it is expandable if they combine with Black Hawk County.

Jason Morris, Service Manager Raacom, responded the current system was installed in 2017.

Chief Beck explained the installment would be seamless with the new fiber and could be expanded in the future.

John Chiles questioned why this wasn't done earlier.

Nia Wilder thanked the crew for serving under these conditions and hopes to be able to help to solve the problem.

Ray Feuss asked the chief to organize numbers to be provided to council to move forward towards council approval.

ADJOURNMENT

Wilder/Nichols
that the council adjourn at 5:09 p.m. Voice vote-Ayes: Seven. Motion carried.

_____
Kelley Felchle
City Clerk

Key Benefits of Having Detailed As-Built Documentation for 3-GIS in a City-Wide Fiber-to-the-Home(FTTH) Network

Waterloo Fiber & The City of Waterloo

For the City of Waterloo’s Fiber-to-the-Home (FTTH) and City’s Backbone network covering the entire City of Waterloo, having as-built documentation from our consultants is critical when using the 3-GIS platform. As-builts provide a detailed, accurate record of the fiber network as it was constructed, and they play a crucial role in the effective management and ongoing operation of the network.

Comprehensive Network Visualization

- 3-GIS, along with detailed accurate as-built information provides a detailed, interactive map of the fiber optic infrastructure down to the individual fiber strand level, helping you understand network topology, identify potential issues, capacity challenges or opportunities, and plan future expansions.
    - As-built documentation ensures that the 3-GIS platform accurately represents the network as it exists in the field, including the precise locations of fiber cables, splice points, and other infrastructure.
    - Minimizing Errors: By providing exact details of the constructed network, as-builts help to prevent errors that can arise from discrepancies between the planned design and the actual installation.

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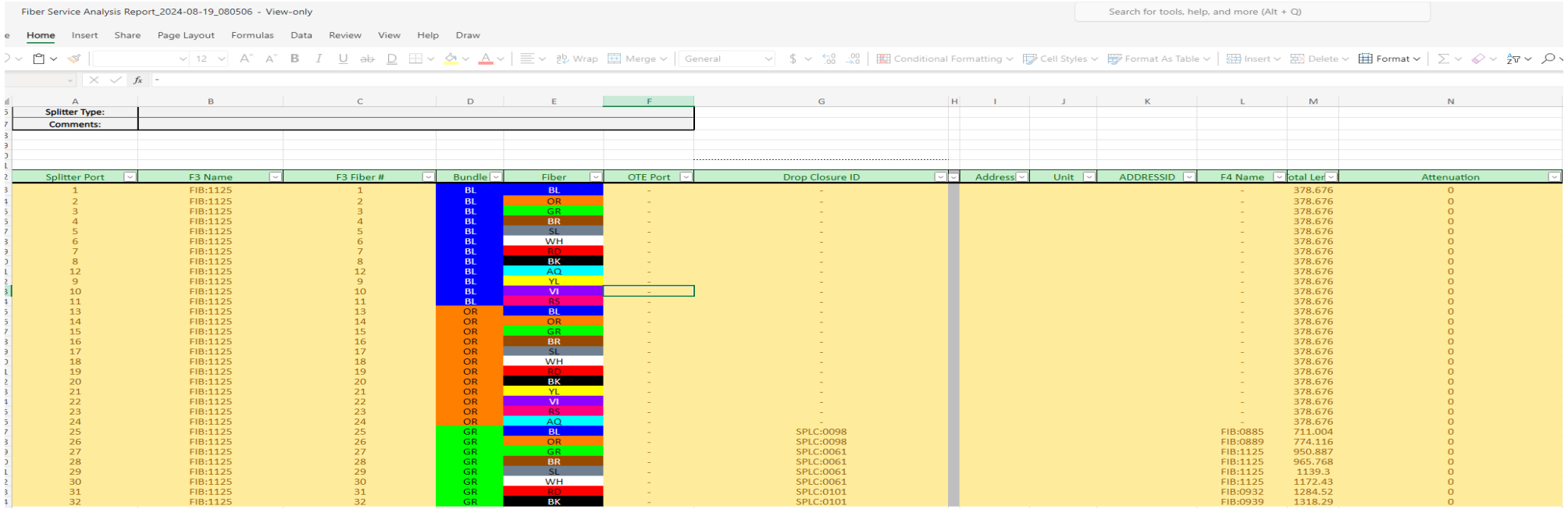
Efficient Network Planning & Management

- Use 3-GIS in conjunction with design as-builts to design new routes, optimize existing networks, and allocate resources effectively, minimizing costs and maximizing network performance.
  - Quickly print reports of splicing matrices.



Fiber Service Analysis Report_2024-08-19_080506 - View-only

Search for tools, help, and more (Alt + Q)

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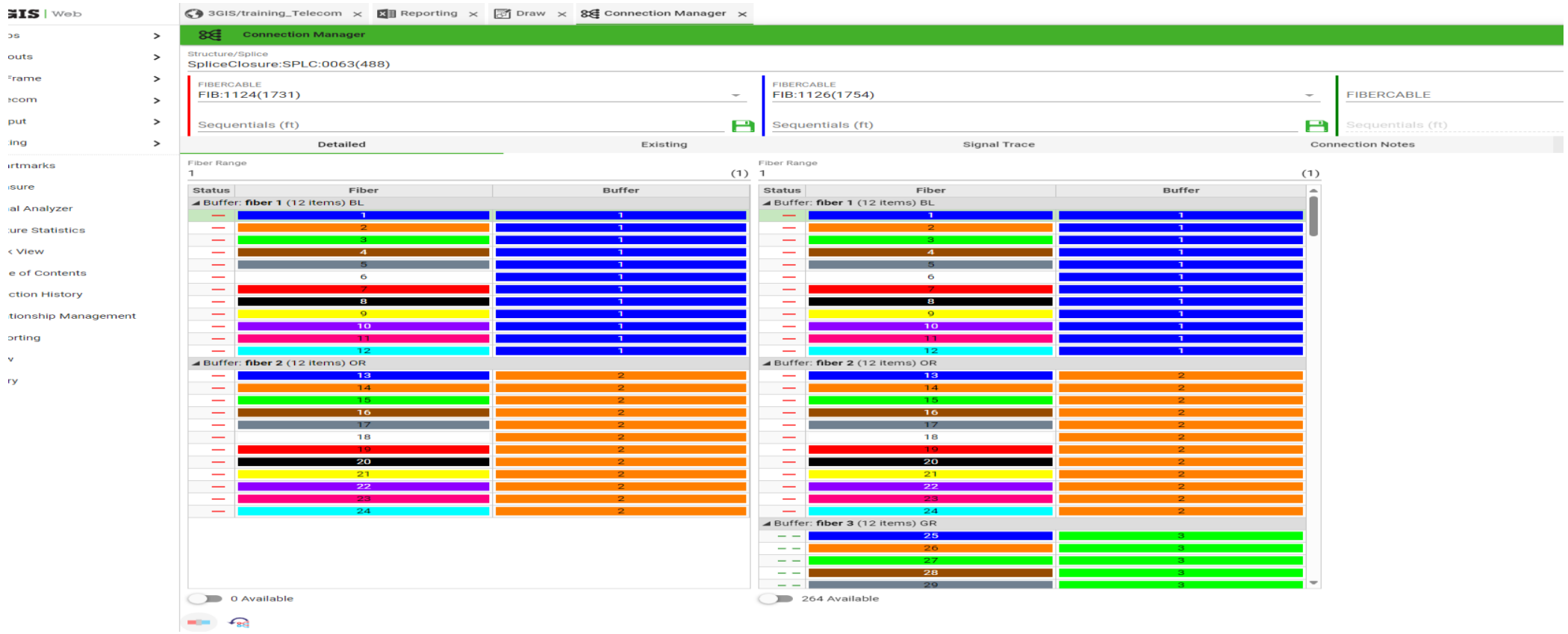
Splitter Type:

Comments:

Splitter Port	F3 Name	F3 Fiber #	Bundle	Fiber	OTE Port	Drop Closure ID	Address	Unit	ADDRESSID	F4 Name	Total Len	Attenuation
1	FIB:1125	1	BL	BL	-	-				-	378.676	0
2	FIB:1125	2	BL	OR	-	-				-	378.676	0
3	FIB:1125	3	BL	GR	-	-				-	378.676	0
4	FIB:1125	4	BL	BR	-	-				-	378.676	0
5	FIB:1125	5	BL	SL	-	-				-	378.676	0
6	FIB:1125	6	BL	WH	-	-				-	378.676	0
7	FIB:1125	7	BL	RD	-	-				-	378.676	0
8	FIB:1125	8	BL	BK	-	-				-	378.676	0
12	FIB:1125	12	BL	AQ	-	-				-	378.676	0
9	FIB:1125	9	BL	YL	-	-				-	378.676	0
10	FIB:1125	10	BL	VI	-	-				-	378.676	0
11	FIB:1125	11	BL	RS	-	-				-	378.676	0
13	FIB:1125	13	OR	BL	-	-				-	378.676	0
14	FIB:1125	14	OR	OR	-	-				-	378.676	0
15	FIB:1125	15	OR	GR	-	-				-	378.676	0
16	FIB:1125	16	OR	BR	-	-				-	378.676	0
17	FIB:1125	17	OR	SL	-	-				-	378.676	0
18	FIB:1125	18	OR	WH	-	-				-	378.676	0
19	FIB:1125	19	OR	RD	-	-				-	378.676	0
20	FIB:1125	20	OR	BK	-	-				-	378.676	0
21	FIB:1125	21	OR	YL	-	-				-	378.676	0
22	FIB:1125	22	OR	VI	-	-				-	378.676	0
23	FIB:1125	23	OR	RS	-	-				-	378.676	0
24	FIB:1125	24	OR	AQ	-	-				-	378.676	0
25	FIB:1125	25	GR	BL	-	SPLC:0098				FIB:0885	711.004	0
26	FIB:1125	26	GR	OR	-	SPLC:0098				FIB:0889	774.116	0
27	FIB:1125	27	GR	GR	-	SPLC:0061				FIB:1125	950.887	0
28	FIB:1125	28	GR	BR	-	SPLC:0061				FIB:1125	965.768	0
29	FIB:1125	29	GR	SL	-	SPLC:0061				FIB:1125	1139.3	0
30	FIB:1125	30	GR	WH	-	SPLC:0061				FIB:1125	1172.43	0
31	FIB:1125	31	GR	RD	-	SPLC:0101				FIB:0932	1284.52	0
32	FIB:1125	32	GR	BK	-	SPLC:0101				FIB:0939	1318.29	0

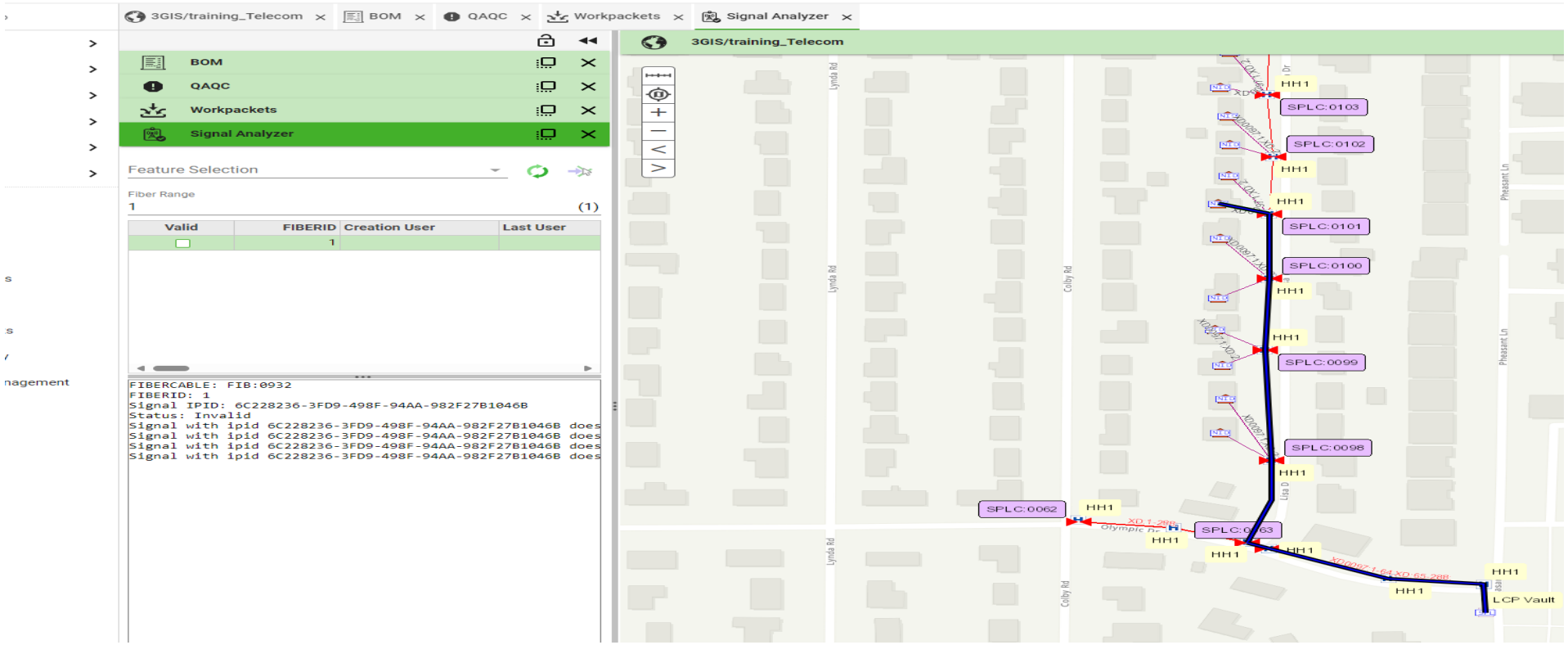
Efficient Network Management

- Quickly print a report of a splice map.



Efficient Network Management

- Quickly identify light signal feeds to an individual property or device using the signal analyzer.



Enhanced Asset Management

- Track and manage all fiber optic assets, including cables, splices, and equipment, ensuring accurate inventory and reducing the risk of equipment failures.
    - As-builts offer a comprehensive inventory of all network components, which is essential for effective asset management, budgeting, and maintenance planning.
        - If an area is damaged (due to construction). Quickly access an inventory of damages and create a bill of material for repayment.
        - New design areas can be easily estimated for construction instantly after a design is made.

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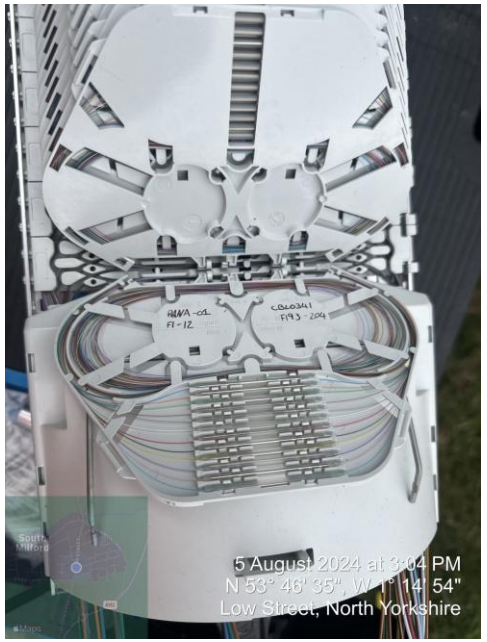
Improved Asset Management

- Lifecycle Management: Accurate documentation supports the entire lifecycle of the network assets, from initial deployment to eventual upgrades or decommissioning.
- More accurate data for depreciating various components of a highly complex network.

Enhanced Troubleshooting

Documented Fiber Enclosure



Document each Fiber in a splice tray, the direction, the use, the customer and if in use or not or even if spliced.

STOCK PHOTOS

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Improved Outage Management

- Quickly pinpoint the root cause of network outages, isolate affected areas, and expedite restoration efforts, minimizing downtime and customer disruption.
  - Identify a common point of failure during an outage by highlighting effected service locations. (including ports on switches or OLT's in the POP)
  - Improved Service Restoration, With accurate records, technicians can quickly pinpoint problem areas and restore service more efficiently, reducing downtime for customers. Increasing customer service and retention.
  - Documentation of Construction test results so any deterioration in service over time can be identified.

Streamlined Work Order Management

- Create, assign, and track work orders efficiently, improving communication between field technicians and office staff.
  - Detailed as-builts improve collaboration between teams by providing a single source of truth for all network-related information, ensuring everyone has access to the most accurate and up-to-date data.
  - For the EDA, Fiber-to-the-home, and Backbone it will keep downtime to minimum. City buildings, cameras, fire stations, police station, Water Works infrastructure, sewer infrastructure, and tornado sirens. The time to repair will be greatly decreased without significant impact to City employees, infrastructure or critical monitoring and notification systems.
  - Troubleshooting an issue is a costly process, time is money.
    - Improve customer service.
    - Better reliability.
    - Ability to locate infrastructure in the ground.

Data-Driven Decision Making

- Leverage 3-GIS's analytics capabilities to make informed decisions based on real-time data, optimizing network operations and resource allocation.

    - Advanced Analytics and Visualization: With accurate as-built data, 3-GIS can provide more accurate analytics, reporting, and visualization, enhancing decision-making and operational efficiency.

Enhanced Collaboration

- 3-GIS, along with the detailed as-built information facilitates collaboration among different departments and teams involved in network management, ensuring everyone has access to the latest information and updates.
    - Not only can this be used for outside plant, but network engineers would also be able to document every port on every patch panel, switch, router, and OLT in our POP sites.

Scalability

- 3-GIS is designed to grow with the network, accommodating future expansions and changes in network topology.
  - As-builts provide detailed information that allows for efficient operation of the network, including monitoring performance, managing capacity, and planning upgrades.
  - The City of Waterloo currently is seeing the most growth, with the introduction of a FTTP network, it will only continue to grow.
    - No need to hire a consulting firm to complete a lengthy design of a new development, this can be done in-house.
    - Speeds up design process without the need of a full-time planner.
    - Better future planning and pre-planning.

Scalability

- Accurate records help ensure that any new fiber deployments are consistent with the existing network, supporting long-term scalability and reliability.
  - Ability to see fiber availability in new development areas.
  - Ability to add new locations or redundant fibers using alternate paths to network by selecting buildings and path and it working out the scope of work to be completed (either adding fiber or just splicing additional fibers) and 3-GIS creating splice documentation for work to be completed.
  - Future upgrade and expansion to alternative technologies, having documented fiber attenuation levels could provide better insight.

Integration with Existing Systems

- 3-GIS can be integrated with other municipal systems, such as GIS platforms, billing systems, and customer relationship management (CRM) tools, streamlining operations and reducing data silos.
    - Possible Open API integrations with our OSS/BSS system to better trouble shoot large scale outages in the future, by detecting an outage and being able to plot and find common points of failure to have caused the outage.

Reduced Costs

- By improving efficiency, reducing downtime, and optimizing resource allocation, 3-GIS can help achieve significant cost savings over time.
  - Time to Repair – Reduced
  - No need for specialized staff to plan projects.
  - No need to hire external consultants for small redesigns – costly.

Resiliency

- Service Continuity, FTTH networks are expected to provide uninterrupted service, especially for critical applications like emergency services, remote work, and online education. Resiliency ensures that even in the face of failures—such as a fiber cut, power outage, or equipment malfunction—service can continue with minimal disruption.
- Recovery. Resilient networks are designed to recover quickly from faults, reducing the Mean Time to Repair (MTTR) and restoring services swiftly.

Importance of Documentation

- Efficient Troubleshooting: Thorough documentation of the network, including fiber routes, splice points, equipment locations, and redundancy paths, is vital for quick identification and resolution of issues. Accurate records allow technicians to pinpoint problem areas and implement fixes without unnecessary delays.
- Network Upgrades and Maintenance: As networks evolve, documentation ensures that any upgrades or maintenance activities are performed with a clear understanding of the current setup. This reduces the risk of inadvertently disrupting service or creating new points of failure.
- Disaster Recovery: In the event of a significant network failure or disaster, documentation is critical for executing disaster recovery plans. Knowing the precise configuration and connections within the network allows for faster restoration of services.

Importance of Documentation

- Regulatory Compliance and Reporting: Many regions have regulatory requirements for maintaining documentation of network infrastructure. Proper records ensure compliance and can be crucial during audits or when reporting to regulatory bodies.

- Knowledge Transfer: Documentation serves as a repository of knowledge that can be passed on to new team members, ensuring continuity and consistency in network management practices.

- Ability to have information available for fast and efficient locate information.

Cost Estimate

As-builts billed as each Task Order is completed. Below are estimated costs.

- Phase 1 – 2024
  - City Backbone $23,598
  - Utility $180,092
- Phase 2 – 2025
  - City Backbone $19,960
  - Utility $110,618
- Phase 3 – 2026
  - City Backbone $25,240
  - Utility $104,777

- EDA Project
  - City Backbone $10,687
  - Utility $1,531
- LaPorte Rd Project
  - City Backbone $796
  - Utility $1,968
- Project Total
  - City Backbone $80,284
  - Utility $398,989

Conclusion

Having as-built documentation for a large FTTH and Backbone network is indispensable when using the 3-GIS platform and to facilitate enhanced operations in a fiber network. It will be all encompassing documenting the entire network. It ensures accurate network representation, supports efficient management and troubleshooting, facilitates future expansions, and enhances compliance and asset management.