City of Gahanna

Holistic Fiber Integrity Analysis

The following report provides (4) suggestions of ways in which the City of Gahanna can strengthen their fiber optic network, while also expanding its reach to better serve the community and its businesses.

The approach taken was to analyze the current network and determine which builds can be performed to best accomplish the following (3) principal goals.
- Network integrity and redundancy
- Network expansion for additional economic development opportunities
- Additional connectivity for City Services

Based on this approach, the first and most critical recommendation is to reconfigure and expand the fiber routing in and out of City Hall. Given that City Hall is the main network head-end, it is important to create better diversity, and allow for future expansion to be more easily accomplished.

The 2nd suggestion hits on all (3) goals. This suggestion focuses on adding redundancy to the golf course and the nearby township buildings; however, given the difficulty of obtaining redundancy, the path suggested is designed to also address connecting additional traffic signals along Johnstown Rd., and to provide additional connectivity and redundancy on the north side of town. This suggestion has been broken into (2) phases for budgeting and prioritization purposes.
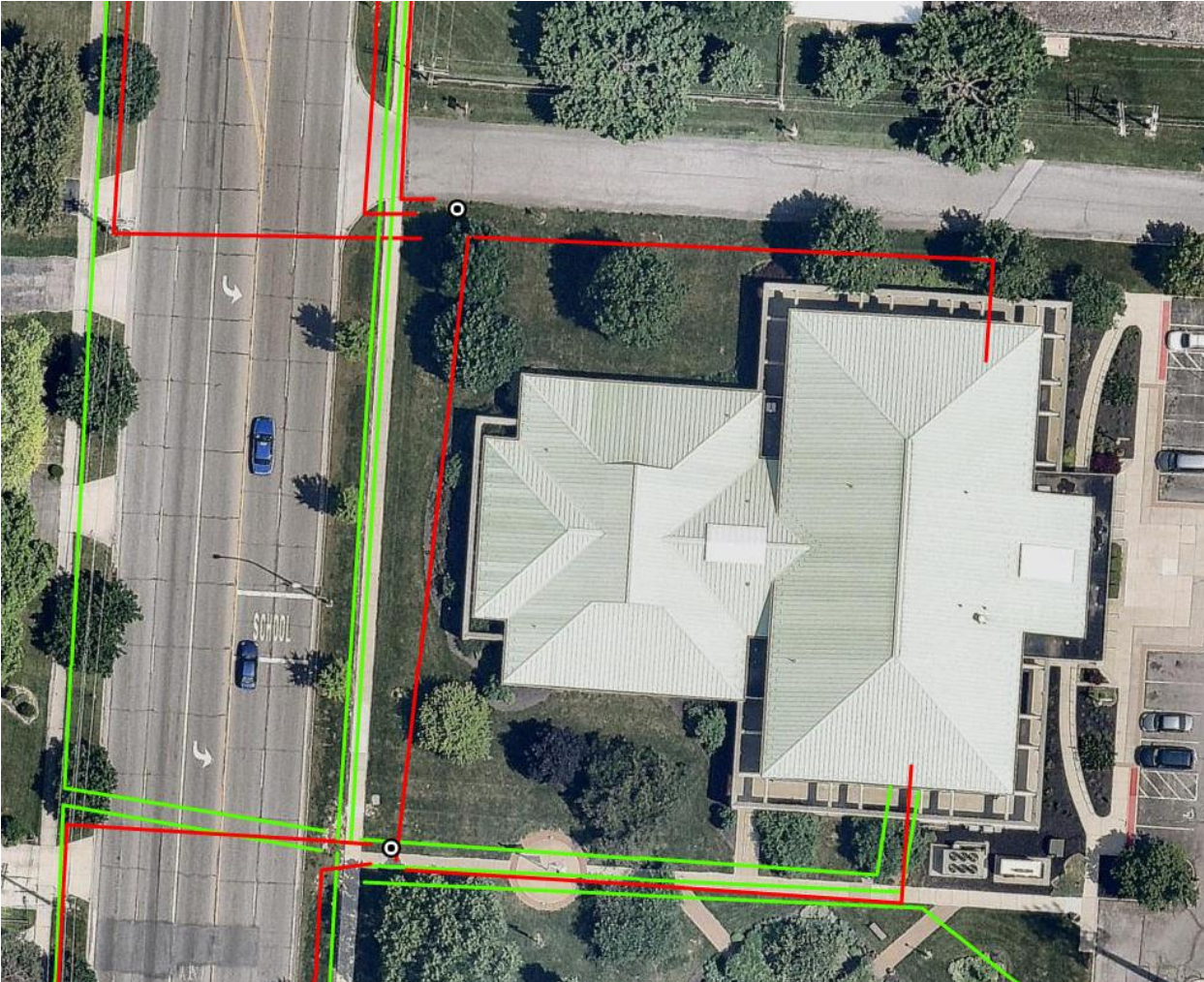
The 3rd idea would harden the network by creating a secondary, diverse, connection to the Columbus Fibernet (CFN) network. The benefits to this are many; however achieving this is fairly costly, due to the distance of the build along Morse Rd. Additional provider diversity/access to GahannaNet, additional network diversity via splice routing, added connectivity options are just a few of these benefits.

Lastly, in effort to continue The Industrial Zone (TIZ) efforts of the past, our suggestion would be to finalize the engineered TIZ Phase 3 pathway, and begin to expand the TIZ fiber pathways into a 4th phase. This effort would provide redundancy to the southeast side of the City and will continue to grow the economic development opportunities that are fostered by Gahanna's fiber.

All pricing provided is budgetary and all routing preliminary. All routing assumes pathways will be entirely underground conduit builds. Should Gahanna decide to explore further any of our recommendations, it would be beneficial to have a brainstorming session with all relevant parties, and then complete a full engineers design in order to provide firm costs.

Columbus Fibernet looks forward to continuing this discussion.

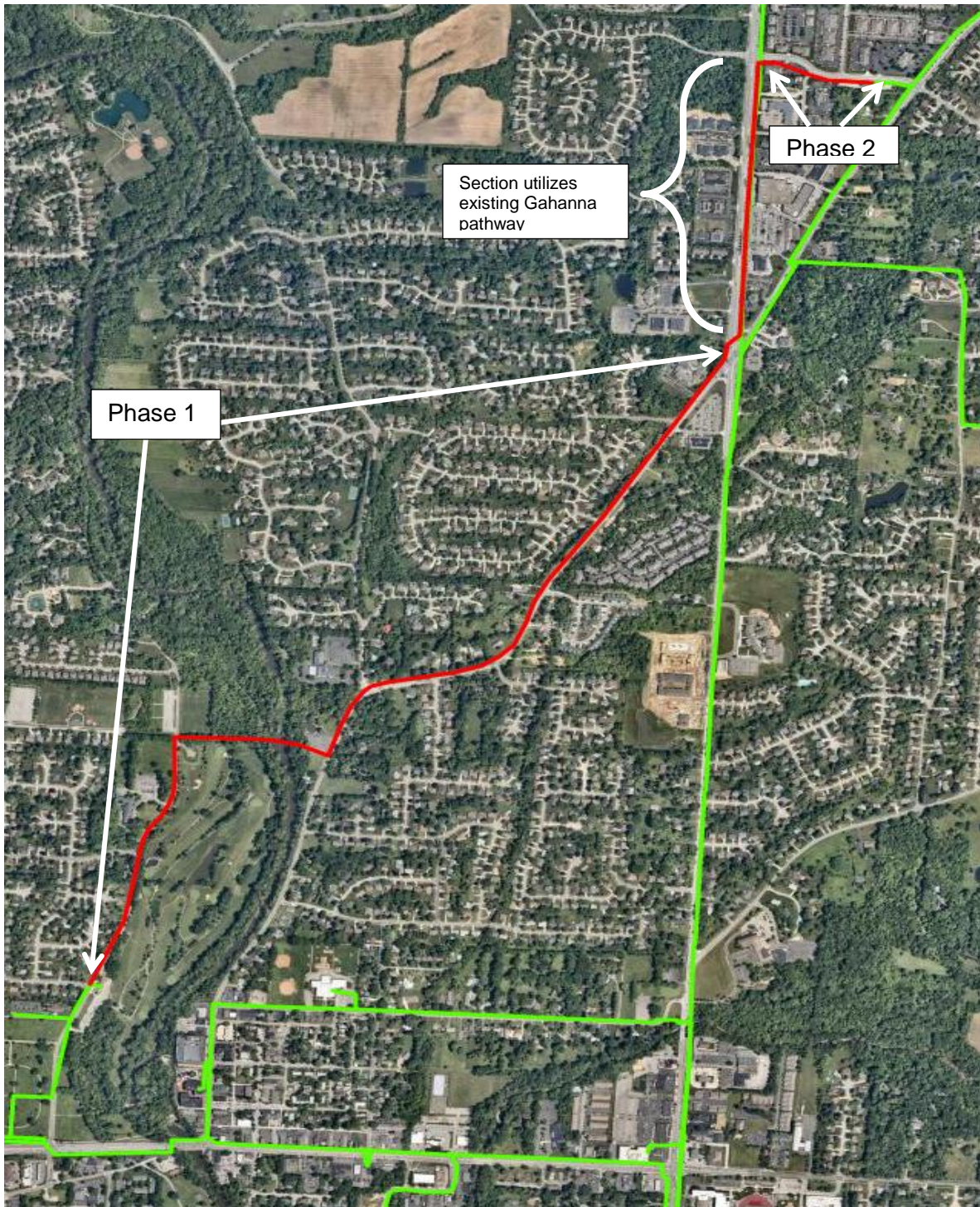## Recommendation #1 – City Hall Reconfiguration

Plan:
- Place a new City owned manhole on the north side of City Hall.
- Build new City Hall building entrance from new north manhole
- Build pathway and reroute northern trunks (1,2,3) into new north manhole
- Build pathway and reroute southern trunks (4,5) as needed into existing City Hall manhole
- Build tie between existing and new manhole to provide "pass-thru" pathway for connections not needing to route through City Hall.
- Consolidate cables entering city all, and reroute splices as needed.

Budgetary Cost Estimate: $60k

Recommendation #2 – Diversity to Golf Course/Township and Johnstown Extension

Plan Phase (1):
- Extend Golf Course lateral across Big Walnut Creek, and up Route 62 (Johnstown Rd.) to a connection with Trunk 1 on Hamilton Rd. north of the Hamilton & 62 intersection.
- Connect any/all new traffic signals along new pathway with fiber.
    - Budgetary Cost Estimate: $500k
Plan Phase (2)
- Build connection between Johnstown Rd. and Hamilton Rd. along Beecher Rd.
- Reroute and/or re-patch any requested connections to create redundancy.
    - Bugetary Cost Estimate: $37k

Recommendation #3 – Morse Rd. Extension for Secondary CFN Connection

Plan:
- Build new underground pathway from the current northern terminus of trunk 1 on N Hamilton Rd., north to Morse Rd., then west on Morse Rd. to CFN.
- Build connection to CFN at intersection of Morse and Stelzer Rd.
- Place fiber when needed

Budgetary Cost Estimate: $610k

Recommendation #4 – TIZ Phase #3 and Beyond

Plan:
- Complete TIZ Phase #3 by building an underground pathway along Claycraft connecting Trunk #5 on Morrison to the extension of Trunk #4 near Science Blvd and Gahanna Pkwy.
- Create another loop by finalizing another part of TIZ Phase 3. To complete, build an underground path from the fiber that currently ends just south of Taylor Rd. on Taylor Station Rd. continuing south, then heading east to connect back to the current backbone just northwest of the bus garage.
- Build a 4th phase of the TIZ fiber network. This network will continue to extend the network pathway east and will create another loop on the TIZ network paths.

Budgetary Cost Estimate: $702k

Note: Pricing is based on a conservative per foot estimate of $42/ft. This pricing includes engineering design, permitting, multi-duct underground conduit build, vault placement, cable installation, and splicing. This per foot price will allow the city to budget pieces of this suggestion separately.