4 Utility Infrastructure

INFRASTRUCTURE INTEGRAL TO IMPROVING YORK VILLAGE

Utility infrastructure is an important part of the Master Plan for York Village. The goal of improving and beautifying the Village can affect utilities directly, such as the desire to remove unsightly overhead power lines, or indirectly, such as a new sidewalk causing relocation of a stormwater catch basin. Physical upgrades to the York Village area may affect all utility infrastructures within the Village, although different utilities may impact and be impacted by the surface improvements in different ways depending on their depth below ground and other factors.

The Downtown Revitalization Collaborative contacted the various utility companies and departments that maintain infrastructure in York Village. These entities include Central Maine Power, Time Warner Cable, FairPoint Communications, the York Water District, the York Sewer District, and the York Public Works Department. We have summarized the information collected and potential impacts for each in the following paragraphs. *(For backup and detailed Information, see Appendix A4.)*

The following infrastructure topics are addressed in this chapter:

4.1 WATER SYSTEM (York Water District)

Background & Existing Conditions We met with Todd Hill at the York Water District on November 20, 2014 and discussed future improvement projects for the water system and potential impacts of implementing the Master Plan for the Village. We also conducted phone and email correspondence with Don Neumann, Superintendent of the Water District. From our meeting and additional correspondence, we learned that the existing water mains running through the Village are of a relatively new vintage with nothing older than 2001 installation, and that the District has no immediate plans for replacement or overhaul. In summary, unless a request is receive for a new domestic or fire service, YWD has no additional plans for improvements in the Village area.

Major Changes Not Anticipated Changes to roadway or intersection alignment and addition of sidewalks or green space should have little impact to the water system, with the exception of minor adjustments to the elevation or location of valve stems or curb boxes. However, relocation of aerial utilities to underground could impact the water system although water mains are typically located lower than underground power or communication lines. Ledge proximity to the ground surface in the Village area could cause added difficulty if water lines were to be relocated. In summary, major changes to the water system are not included in the Master Plan, although careful coordination with the YWD will be vital during design and construction of Master Plan improvements.

4.2 **SEWER SYSTEM** (York Sewer District)

Background & Existing Conditions - We met with Tim Haskell, Superintendent at the York Sewer District on November 20, 2014 and discussed future improvement projects for the wastewater collection system and potential impacts of implementing the Master Plan for the Village. From our meeting and additional correspondence, we learned that existing sewer lines running through York Street and Long Sands Road in the Village are of a relatively new vintage and that the District has no immediate plans for replacement or overhaul. Some individual services might need to be replaced by business owners in the near future. The main collector line for the Village runs behind businesses and along the drainage area between the Library and businesses along York Street. Portions of this main sewer line are relatively new, but some manholes and pipe farther down the run are older. There are no current plans for any replacement in this area and more than likely any repairs would use trenchless technology.

Major Changes Not Anticipated - Changes to roadway or intersection alignment and addition of sidewalks or green space should have little impact to the sewer system, with the exception of minor adjustments to the elevation or location of manhole covers. However, relocation of aerial utilities to underground could impact the sewer system, although the sewer lines are typically located lower than underground power or communication lines. Ledge proximity to the ground surface in the Village area could cause added difficulty if sewer lines were to be relocated. In summary, major changes to the sewer system are not included in the Master Plan, although careful coordination with the York Sewer District will be vital during design and construction of Master Plan improvements.

4.3 **STORMWATER SYSTEM** (York Public Works Department)

Background & Existing Conditions - We met with Dean Lessard, Director of the York Public Works Department on November 20, 2014 and discussed the Village stormwater collection system and potential impacts of implementing the Master Plan for the Village. From our meeting and additional correspondence, we learned that the existing storm drainage system, which is operated and maintained by the Public Works Department is functioning, but relatively old. According to the Public Works Director, there is no combined sewer and wastewater in York Village. The existing infrastructure of the aged stormwater system consists mostly of handmade or Type F (small) catch basins with a mix of clay, corrugated metal, concrete and PVC drainpipe. Specific maintenance issues with the current drainage system include a stormwater pump station located on the Hodgin lot which does not operate when power is out and a catch basin in front of the bank at the intersection which clogs annually. These two issues currently cause occasional flooding in the Village during storms. In summary, due to system age and existing problems, plans for improvements to York Village should include plans for replacement and upgrade of the existing storm drainage system.

Changes Anticipated - In general, storm drainage infrastructure is closer to the surface than Water and Sewer, and consequently will most likely be impacted by design changes to the surface. Changes to roadway or intersection alignment and addition of sidewalks or green space could have significant impact to the stormwater drainage system. This could include relocation of catch basins, resizing of drain pipe and surface considerations to direct stormwater to the collection system. Relocation of aerial utilities to underground would also likely impact the stormwater system. However, to our knowledge, nothing about the storm drainage system should preclude the Master Plan concept, and conversely the concept is not dependent on the storm drainage system.

Design of the storm drainage system replacement and upgrade is part of implementing the Master Plan. York Public Works department requests and recommends the design include the following:

- System infrastructure should be sized to handle a 100 year storm event
- Stormwater treatment such as filter systems and vegetative filters should be included with the collection and conveyance system design
- Stormwater treatment overflows should not be directed back to the street.

Ledge proximity to the ground surface in the Village area will also need to be taken into consideration during design of the replacement and upgrade of the stormwater system. In summary, replacement and upgrade of the stormwater system is recommended as part of the Master Plan, and coordination with the York Public Works Department will be vital during design and construction of Master Plan improvements.

4.4 ELECTRICAL UTILITY RELOCATION (Central Maine Power)

Background & Existing Conditions - One goal of the Master Plan was to evaluate the option or need to relocate aerial utility lines underground. Removing the unsightly overhead lines from the streets and the center of the Village – which has been an interest since at least the 1964-67 Village Square Project - would help to beautify the area and present a more welcoming entrance to the Village. In order to implement Master Plan concepts such as changes to roadway or intersection alignment and addition of sidewalks and green space, several utility poles and overhead lines would need to be relocated.

Village arrival view from York Street showing existing aerial wires (above) and wires relocated underground (below) - illustrating the significant visual benefit of underground relocation. (image provided by Lew Stowe)

Village arrival view from Long Sands Road showing existing aerial wires (above) and wires relocated underground (below) - illustrating the significant visual benefit of underground relocation. (image provided by Lew

Central Maine Power (CMP) personnel were contacted, including Elaine Titherington, CMP Field Planner for the York area and Tom Atwood, CMP Engineer, to discuss the electrical supply system and potential impacts of implementing the Master Plan for the Village. From our phone and email correspondence, we learned that removing the overhead lines from along York Street and Long Sands Road in the Village area is possible and realistic, but the burden of cost is on the Town. One option would be to relocate aerial lines behind buildings along the main streets to hide them from prominent view. This option would be extremely difficult and likely unfeasible due to the lack of parallel streets or alleyways behind the buildings. A new right-of-way would likely need to be created across all of the properties that line the main streets. The other option is to relocate the aerial utilities underground.

The following is a summary of information provided by CMP regarding relocating electrical utility service underground.

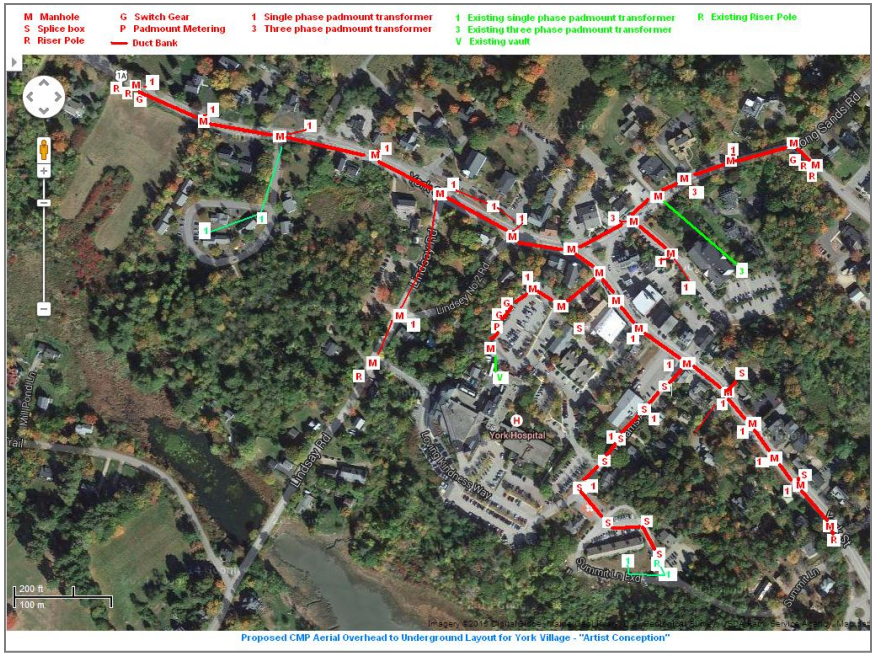
Preferred Scope Option *(For further information see Appendix A4)*
The exhibit below shows the *preferred scope option* for CMP aerial infrastructure to go underground.

There are two distinct electrical portions in the Village. One portion is three phase power and extends from the Long Sands Road and Woodbridge Road intersection, continuing by the monument (including service to York Hospital), heading northwest on York Street and stopping prior to the elementary school. The second portion is single phase and extends along York Street from Doctor's Lane southeast to Summit Lane. The total estimated cost includes both portions, but can be constructed separately.

An order of magnitude estimate to relocate electrical utility service underground for the *preferred scope option* described above is **$3,900,000.00**. This estimate includes material and installation costs for the manholes, splice boxes, switchgear, duct banks, riser

poles, hospital metering, transformers, and interconnecting cable. Also included is an allowance for converting approximately 63 services from overhead to underground. The entity requesting to do this project is responsible for all costs. The estimate does not include any Federal, State, or local permit costs, easement costs, landscape repair, or road pavement replacement.

Easements will be required and will add cost. Property owners will have to give up property for transformers, splice boxes, switch gear, and metering (other utilities may be included on the easement) and grant easements for equipment. This is an order of magnitude estimate with the assumption that the project is feasible. Factors that can prohibit the project or increase costs are property owner's refusing to participate and unknown subsurface conditions.

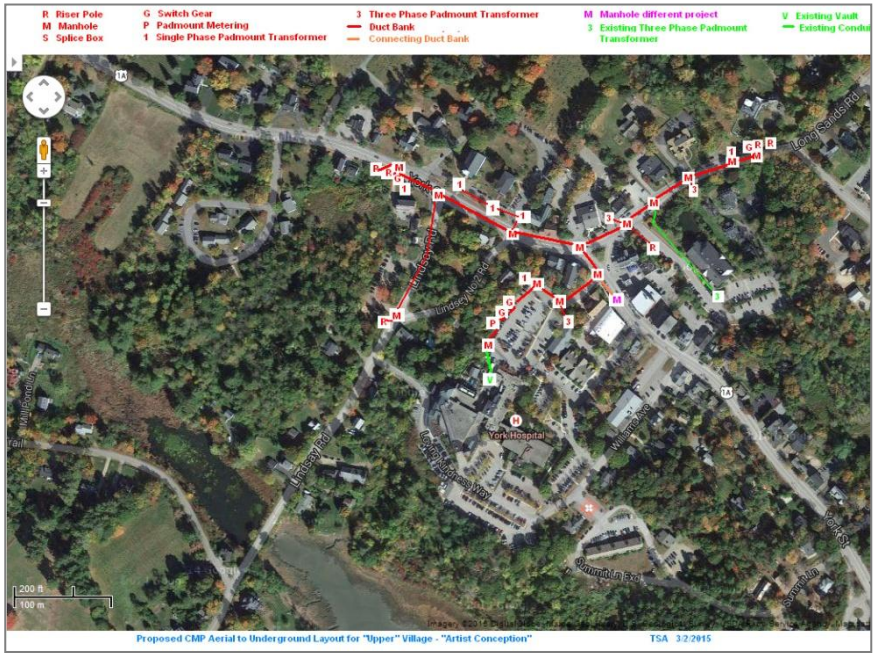


Preferred Scope Option - Conceptual CMP Layout for aerial to underground relocation.

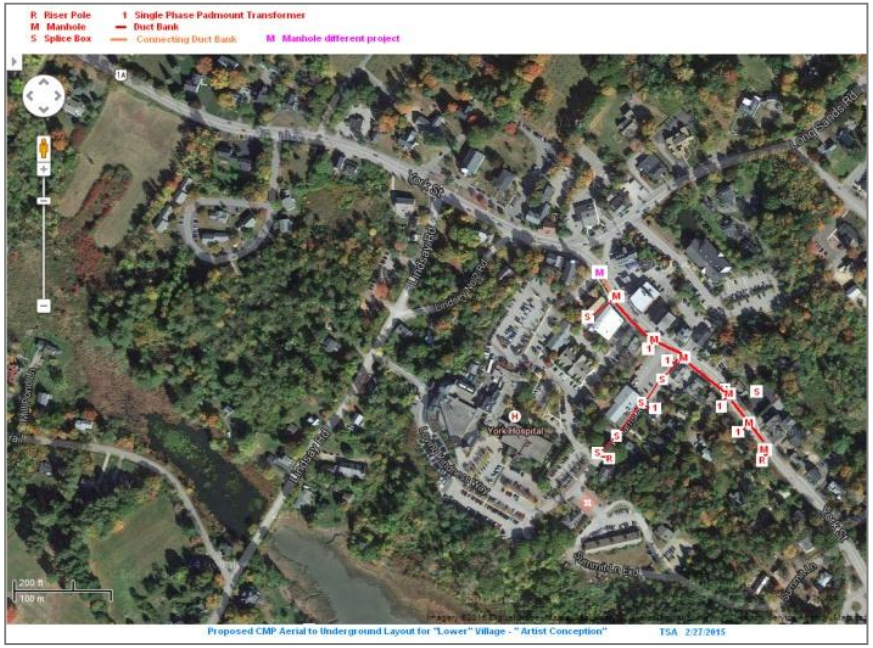
Reduced Scope Option *(For further information see Appendix A4)*
The exhibit below shows the *reduced scope option* for CMP aerial infrastructure to go underground. The *reduced scope option* for the project can be done in two independent sections. One section is labeled "Upper Village." The second section is labeled "Lower Village."

These two sections are two distinct electrical portions within the Village. The "Upper Village" portion is three phase power and extends along Long Sands Road, just west of Woodbridge Road, continuing by the monument (including service to York Hospital), and heading northwest on York Street stopping just past Jefferds Tavern. The "Lower Village" portion is single phase and extends along York Street from Doctor's Lane southeast to just south of Williams Avenue.

The *reduced scope option* reduces the extents of the project and evaluates removing portions of the *preferred* overhead to underground conversion for Lindsay Road, York Hospital, Williams Avenue, and the "Library driveway". This is possible for the "Library driveway" and only partially for the other three. The first available location for a riser pole on Lindsay Road is just after the cemetery and Jefferds Tavern. There is physically no room along the cemetery and trees in front of Jefferds Tavern would have to be removed for the aerial reconnect. The only place left is the intersection of Lindsay Road and Lindsay No. 2 Road.



Reduced Scope in "Upper Village" - Conceptual CMP Layout for aerial to underground relocation.



Reduced Scope in "Lower Village" Conceptual CMP Layout for aerial to underground relocation.

The primary electrical feed for York Hospital is through a right of way beside the York Historical Society. There would be two riser poles there, plus switch gear in the adjoining grassy area next to the Historical Society building. In addition there is an electrical feed along Hospital Drive to serve several buildings. The only place to install two riser poles is along York Street. The installation of the hospital feeds defeats the purpose of the aerial to underground project along York Street; therefore the York Hospital must be underground as well. Williams Avenue is similar to Lindsay Road and York Hospital in that the first available location for a riser pole is just behind the fire station.

An order of magnitude estimate to do the two projects described in the *reduced scope option* is:

Upper Village	$2,450,000.00
Lower Village	$ 635,000.00
Total	**$3,085,000.00**

This estimate includes material and installation costs for the manholes, splice boxes, switchgear, duct banks, riser poles, hospital metering, transformers, and interconnecting cable. Also included is an allowance for converting approximately 36 services from overhead to underground. The entity requesting to do this project is responsible for all costs. The estimate does not include any Federal, State, or local permit costs, easement costs, landscape repair, or road pavement replacement. Easements will be required and will add cost. Property owners will have to give up property for transformers, splice boxes, switch gear, and metering (other utilities may be included on the easement) and grant easements for the equipment. This is an order of magnitude estimate with the assumption that the project is feasible. Factors that can prohibit the project or increase costs are property owner's refusing to participate and unknown subsurface structures.

In summary, implementing Master Plan concepts such as changes to roadway or intersection alignment and addition of sidewalks and green spaces requires that several utility poles and overhead lines need to be relocated. Relocating aerial electrical utility lines underground is a recommended optional part of the Master Plan to improve the visual appeal of the Village and to remove restrictions to implement Master Plan concepts. Relocating overhead lines to underground along York Street and Long Sands Road in the Village area is possible and realistic, but the burden of cost to the Town is significant. The Town must decide if the benefits are worth the price. Coordination with all of the utilities will be vital during design and construction of Master Plan improvements, and design and coordination for relocating electrical service underground may take the most effort.

4.5 CABLE UTILITY RELOCATION (Time Warner Cable)

Background & Existing Conditions – As discussed with respect to electrical utilities, one goal of the Master Plan was to evaluate the option or need to relocate aerial utility lines underground. Removing the unsightly overhead lines from the streets and the center of the Village would help to beautify the area and present a more welcoming entrance to the Village. In order to implement Master Plan concepts such as changes to roadway or intersection alignment and addition of sidewalks and green space, several utility poles and overhead lines would need to be relocated.

The Collaborative contacted Andrew Trottier, Construction Coordinator for Time Warner Cable (TWC) and discussed the cable supply system and potential impacts of implementing the Master Plan for the Village. From our phone and email correspondence, we learned that relocating the overhead lines from York Street and Long Sands Road in the Village area underground is feasible, but the burden of cost would be on the Town. In the Village area, TWC provides services via fiber optic and coaxial cable.

Changes Anticipated - Time Warner Cable typically follows CMP's lead for design and location to relocate utility service underground. Conduit runs would typically follow the same trench lines and manholes and surface mounting pads would be in similar locations. In some instances, additional manholes or pad mounts would be required. Extensive coordination would be required to minimize outages and provide long lead times to high usage customers such as the hospital.

TWC provided estimates for the relocation of Time Warner Cable equipment on York St. and Long Sands Rd.. The estimates are based on the *preferred scope option* described above for electrical service.

The construction cost to relocate equipment from aerial to underground with conduits and manholes installed separately to TWC specification is $236,000. The construction cost to relocate equipment from aerial to underground to include excavation, manhole and conduit placement is $ 1,180,000. However, some of this work is duplicated in the CMP estimates. Time Warner Cable would typically fall within the same utility easements as CMP. The estimates provided do not include any easement or permit costs.

As described above for the electrical utility, relocating aerial cable utility lines underground is an optional part of the Master Plan that would create visual improvement and ease of implementing other aspects. Relocating the overhead lines to underground in the Village area is possible and realistic, but the burden of cost to the Town is significant and must be evaluated. Coordination with the cable utility will be vital during design and construction of Master Plan improvements, regardless if underground relocation is pursued.

4.6 TELECOMMUNICATIONS RELOCATION (FairPoint Communications)

Background & Existing Conditions – As with all aerial utilities, the Master Plan evaluates the option or need to relocate telecommunication lines underground. Removing the unsightly overhead lines from the streets and the center of the Village would help to beautify the area and present a more welcoming entrance to the Village. In order to implement Master Plan concepts such as changes to roadway or intersection alignment and addition of sidewalks and green space, several utility poles and overhead lines would need to be relocated.

Several attempts to communicate with appropriate Fairpoint representatives were unsuccessful during the Master Plan information collection process. We can assume that, as with the other aerial utilities, relocating the overhead lines from along York Street and Long Sands Road in the Village area underground is feasible, but the burden of cost would be on the Town. We did learn that Fairpoint does have some existing underground infrastructure in the village that will have to be taken into consideration during design of Master Plan concepts.

Changes Anticipated - Similar to the cable utility, telecommunications infrastructure relocation to underground would likely follow the CMP infrastructure for pedestals and access points. For the Master Plan effort, an allowance for telecommunications is included in the opinion of cost for utility relocation underground. Fairpoint's existing underground infrastructure in the village will have to be taken into consideration during subsequent design efforts.

As for all aerial utilities, relocating aerial telecommunication lines underground is an optional part of the Master Plan that would create visual improvement and ease of implementing other aspects. Relocating the overhead lines to underground in the Village area is beneficial, but the burden of cost to the Town is significant and must be evaluated. Coordination with the telecommunications utility will be vital during design and construction of Master Plan improvements, regardless if underground relocation is pursued. .

4.7 MUNICIPAL WIRELESS WIFI NETWORK

Background – Municipal wireless network (Municipal Wi-Fi, Muni Wi-Fi or Muni-Fi) **is the concept of turning an entire downtown or village into a** Wireless Access Zone, with the ultimate goal of making wireless access to the Internet a universal service. This is usually done by providing municipal broadband via Wi-Fi to large parts or all of a municipal area by deploying a wireless mesh network. Municipal broadband deployments are broadband Internet access services provided either fully or partially by local governments.

Such networks go far beyond existing piggybacking opportunities available near public libraries and some coffee shops. The basic premise of carpeting an area with wireless service in built-up centers is that it is more economical to the community to provide the service as an essential utility rather than to have individual households and businesses pay private firms for such a service.

The typical deployment design uses multiple routers deployed outdoors, often on telephones poles as shown below. The operator of the network acts as a wireless internet service provider. In the build-out of such networks, radio communication is used both for the Wi-Fi service and for the "backhaul" or pathway to the Internet. This means that the nodes only need a wire for power (hence the habit of installing them on power and light utility poles). This "all radio" approach means that nodes must be within range of each other and form a contiguous pathway back to special aggregation nodes that have more traditional access to the Internet. Nodes then relay traffic, somewhat like a fire-bucket brigade. *(See Economic Development, Chapter 7, for further information about Financing, Examples, and Advantages.)*

4.8 RECOMMENDATIONS

- Major changes to the water and sewer systems are not included in the Master Plan, although careful coordination with the Water District and Sewer District will be vital during design and construction of Master Plan improvements.
- Replacement and upgrade of the stormwater system, including treatment options, is recommended as part of the Master Plan, and coordination with the York Public Works Department will be vital during design and construction of Master Plan improvements.
- In order to implement Master Plan concepts such as changes to roadway or intersection alignment and addition of sidewalks and green space, several utility poles and overhead lines will need to be removed and/or relocated.
- Relocating aerial utility lines underground is an optional part of the Master Plan to improve the visual appeal of the Village and to remove restrictions to implement Master Plan concepts.
- Relocating the overhead lines to underground along York Street and Long Sands Road in the Village area is possible and realistic, but the burden of cost to the Town is significant. The Town must decide if the benefits are worth the price.
- Coordination with all of the utilities will be vital during design and construction of Master Plan improvements, and design and coordination for relocating aerial services underground may take the most effort.
- It would be prudent, even if funding of aerial utility relocation underground does not seem viable initially, to account for underground utility infrastructure during schematic design. Since the water and sewer infrastructure is established, the stormwater and utility infrastructure will be vying for the remaining underground space. During schematic design, the constraints become evident and solutions are determined. Understanding the solutions for underground utilities is a great first step in coordinating with roadway, sidewalk, and landscape elements.