

REQUEST FOR BOARD ACTION

HENDERSON COUNTY BOARD OF COMMISSIONERS

MEETING DATE: August 7, 2017

SUBJECT: Sewer Options for Edneyville Elementary

PRESENTER: Marcus Jones, PE

ATTACHMENTS: Yes

1. Option Analysis from WGLA Engineering
2. Presentation

SUMMARY OF REQUEST:

During the Board's April 3, 2017 meeting, staff was directed to study the on-site sewer option for the proposed Edneyville Elementary. The study has been completed by Clark Nexsen and confirms that an on-site system is possible. This on-site option would be a drip irrigation system. This option and the three other options with associated costs are detailed in the attached letter from WGLA Engineering. The attached presentation highlights these options and also lists some funding opportunities.

Staff is requesting direction from the Board regarding which sewer option to serve the new Edneyville Elementary school.

BOARD ACTION REQUESTED:

Approve [*insert option*] to provide sewer service to the new Edneyville Elementary school and allocation the necessary additional funds to the project.

Suggested Motion:

*I move that the Board approve [*insert option*] to provide sewer service to the new Edneyville Elementary school and allocation the necessary additional funds to the project.*

July 21, 2017

Mr. Marcus Jones, P.E.
Henderson County
1 Historic Courthouse Square, Suite 6
Hendersonville, NC 28792

RE: Edneyville Elementary – Options for Sewer Service
WGLA# 17124

Dear Mr. Jones:

As requested, WGLA Engineering has been exploring options for providing sewer service for the new Edneyville Elementary School. As currently planned, the school would be served by an on-site wastewater treatment and disposal system that utilizes a drip irrigation system. Brooks Engineering through the County's architect, Clark Nexsen, has completed a preliminary analysis for the site and soils at Edneyville. Based on the preliminary study, they believe the development of an on-site system is feasible. The estimated cost of this system is \$705,000.00.

WGLA, with County staff, have also discussed the option of extending the City of Hendersonville's sewer system to the Edneyville site. This could be accomplished by installing a pump station at the school site and a force main that would pump wastewater back to the City's sewer system near North Henderson High School. The force main route is approximately 3.5 miles. The estimated cost of this system is \$1,500,000.00.

WGLA was also asked to explore the option of extending gravity sewer to the school site. It appears this would be feasible based on available topographic information. The gravity sewer line would generally follow Clear Creek and a tributary to the school site for a route of almost 5 miles. Easements for the construction and installation of the sewer line would be required from dozens of property owners. The estimated cost for this option would be approximately \$4,500,000 inclusive of design, permitting, construction and contingencies. The cost could be higher if a large diameter line is extended.

Finally, WGLA was asked to explore the possibility a discharging system for wastewater treatment and disposal. This type of system would involve the design, permitting and construction of a treatment facility along with a discharge of the treated effluent into a receiving stream. The closest likely receiving stream would be Clear Creek, so the system would also involve a pump station and force main to transport the treated effluent to the creek. This would be similar to the system currently used for wastewater treatment and disposal at the Justice Academy. The estimated cost for this type of a system would be \$950,000.00.

This type of system will take a significant amount of time to permit, and it is likely the NC Department of Environmental Quality will not look favorably on an application for a discharging system. They are already encouraging Henderson County to consider other options for wastewater treatment and disposal at the Justice Academy. Also, the French Broad Basinwide Management Plan indicates that both Clear Creek and Mud Creek are impaired water bodies specifically related to biological integrity.

Below is a summary of the four options for sewer service along with the estimated capital costs and an estimate for the operation and maintenance costs:

System	Estimated Capital Cost	Estimated O&M Cost
-On-site system	\$705,000.00	\$35,000.00
-Pump Station to Hendersonville	\$1,500,000.00	\$19,000.00 (user fees)
-Gravity Sewer to Hendersonville	\$4,500,000.00	\$19,000.00 (user fees)
-Discharge system	\$950,000.00	\$35,000.00

In conclusion, the on-site and discharging systems are less costly during the initial construction, but the systems require long term maintenance and monitoring which result in higher operation and maintenance costs. The discharging system and the gravity sewer option will also take longer to put into service than the other two options considered.

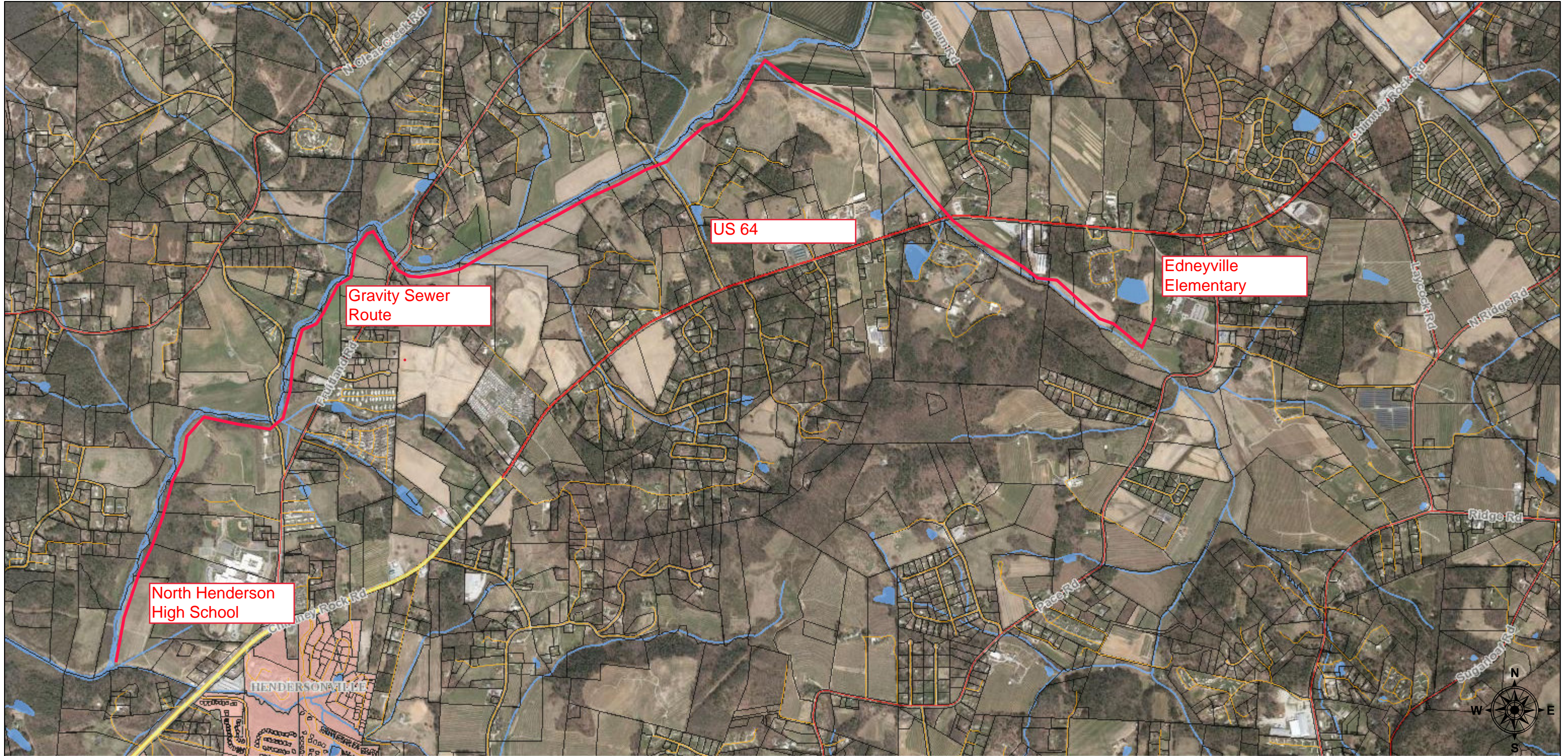
If you have any questions or need more information, don't hesitate to contact our office.

Sincerely,
WGJA Engineering, PLLC



William R. Buie, P.E.

CC: Chad Roberson, Clark Nexsen

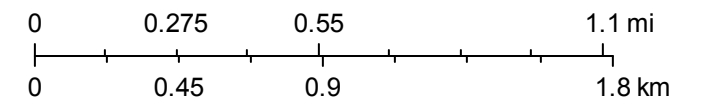


July 21, 2017

WGLA Engineering, PLLC
214 N. King Street
Hendersonville, NC 28792

Edneyville Elementary Preliminary Gravity Sewer Route

1:23,533



DRAFT

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Sewer Service Options for the Proposed Edneyville Elementary School

Board of Commissioner's Meeting
August 7 , 2017

Henderson County Engineering



Sewer Options for Edneyville Elementary

Presentation Outline:

1. On-Site Sewer Option
2. Public Sewer Option, Pump Station
3. Public Sewer Option, Gravity
4. "Package Plant" Option
5. Cost Summary
6. WGLA Engineering Summary
7. Funding

Sewer Options for Edneyville Elementary

On-Site Sewer Option:

- Brooks Engineering, Clark Nexsen subconsultant, determined that the school can be served by an on-site wastewater and disposal system utilizing a drip irrigation process.
- The estimated cost for the system is \$705,000.

Sewer Options for Edneyville Elementary

Public Sewer Option, Pump Station:

- Locate a pump station at the school site and a force main that would pump wastewater back to the City's sewer system near North Henderson High School.
- The force main route is along US64 and approximately 3.5 miles.
- The system could be maintained by the County or turned over to the City utility system.
- The estimated cost for the system is \$1,500,000

Sewer Options for Edneyville Elementary

Public Sewer Option, Gravity:

- Gravity sewer is possible with the topography between the school site and the City sewer system near NHS.
- The line would generally run adjacent to Clear Creek and a tributary to the school site at a length of almost 5 miles, see next slide for tentative location.
- The estimated cost for the system is \$4,500,000

Sewer Options for Edneyville Elementary



Henderson County Engineering



Sewer Options for Edneyville Elementary

“Package Plant” Option:

- Separate treatment facility on-site with an off-site discharge into a receiving stream (likely Clear Creek).
- Requires treatment plant, pump station and force main to the discharge location
- Significant amount of time to permit, and it is likely DEQ will not look favorably on an application for a discharging system.
- The estimated cost for the system is \$950,000

Sewer Options for Edneyville Elementary

Below is a summary of the four options for sewer service along with the estimated capital costs and an estimate for the operation and maintenance costs:

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-Discharge system	\$950,000.00	\$35,000.00

Sewer Options for Edneyville Elementary

WGLA Engineering Summary of Options:

In conclusion, the on-site and discharging systems are less costly during the initial construction, but the systems require long term maintenance and monitoring which result in higher operation and maintenance costs. The discharging system and the gravity sewer option will also take longer to put into service than the other two options considered.

Sewer Options for Edneyville Elementary

Funding:

- Project currently has \$500,000 allocated for sewer.
- NC Commerce grant for up to \$1,000,000 is available for public sewer options. Staff has started application process.
- Possible contribution from Hendersonville Utilities for a public sewer option.
- Possible contribution from the Justice Academy sewer fund to share in cost of a public sewer option.

Sewer Options for Edneyville Elementary

Thank you....Questions?

Henderson County Engineering

